# ETSI TS 128 735 V12.0.0 (2014-10)



Universal Mobile Telecommunications System (UMTS); LTE;

Telecommunication management;
Signalling Transport Network (STN)
interface Network Resource Model (NRM)
Integration Reference Point (IRP);
Information Service (IS)
(3GPP TS 28.735 version 12.0.0 Release 12)



Reference
RTS/TSGS-0528735vc00

Keywords
LTE,UMTS

#### **ETSI**

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 Sous-Préfecture de Grasse (06) N° 7803/88

#### Important notice

The present document can be downloaded from: <u>http://www.etsi.org</u>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<a href="http://portal.etsi.org/tb/status/status.asp">http://portal.etsi.org/tb/status/status.asp</a></a>

If you find errors in the present document, please send your comment to one of the following services: <u>http://portal.etsi.org/chaircor/ETSI\_support.asp</u>

#### **Copyright Notification**

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2014.
All rights reserved.

**DECT**<sup>TM</sup>, **PLUGTESTS**<sup>TM</sup>, **UMTS**<sup>TM</sup> and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members. **3GPP**<sup>TM</sup> and **LTE**<sup>TM</sup> are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

## Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://ipr.etsi.org).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

#### **Foreword**

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

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

## Modal verbs terminology

In the present document "shall", "shall not", "should", "should not", "may", "may not", "need", "need not", "will", "will not", "can" and "cannot" are to be interpreted as described in clause 3.2 of the <a href="ETSI Drafting Rules">ETSI Drafting Rules</a> (Verbal forms for the expression of provisions).

"must" and "must not" are NOT allowed in ETSI deliverables except when used in direct citation.

## Contents

Intelle	lectual Property Rights	3
Forev	word	3
Moda	al verbs terminology	3
Forev	word	<i>.</i>
Introd	duction	<i>.</i>
1	Scope	
2	References	
3	Definitions and abbreviations	
3.1	Definitions	
3.2	Abbreviations	
4	Model	10
4.1	Imported information entities and local labels	
4.2	Class diagram	
4.2.1	Relationships	
4.2.2	Inheritance	
4.3	Class definitions	
4.3.1	MtpSignPoint	
4.3.1.1	ė · ·	
4.3.1.2	2 Attributes	13
4.3.1.3	3 Attribute constraints	13
4.3.1.4	4 Notifications	13
4.3.2	SignLinkSetTp	13
4.3.2.1	1 Definition	13
4.3.2.2		14
4.3.2.3		
4.3.2.4		
4.3.3	SignLinkTp	
4.3.3.1		
4.3.3.2		
4.3.3.3		
4.3.3.4		
4.3.4	SignRouteSetNePart	
4.3.4.1		
4.3.4.2		
4.3.4.3		
4.3.4.4		
4.3.5	SignRouteNePart	
4.3.5.1		
4.3.5.2		
4.3.5.3 4.3.5.4		
4.3.5. <sup>2</sup> 4.3.6	M3UAEntity	
4.3.6.1	•	
4.3.6.2		
4.3.6.2 4.3.6.3		
4.3.6.4 4.3.6.4		
4.3.0 4.3.7	M3UALinkSetTp	
4.3.7.1		
4.3.7.2		
4.3.7.3		
4.3.7.4		
4.3.8	M3UALinkTn	4 .

History .		
Annex A	A (informative): Change history	21
Configur	ration notifications	20
4.5.1	Alarm notifications	
4.5	Common notifications	
4.4.2	Constraints	
4.4.1	Attribute properties	
4.4	Attribute definitions	
4.3.10.4	Notifications	
4.3.10.3		
4.3.10.2	Attributes	
4.3.10.1	Definition	
4.3.10	M3UARouteNePart	
4.3.9.4	Notifications	
4.3.9.3	Attribute constraints	
4.3.9.1	Attributes	
4.3.9 4.3.9.1	M3UARouteSetNePart  Definition	
4.3.8.4 4.3.9	Notifications	
4.3.8.3	Attribute constraints	
4.3.8.2	Attributes	
4.3.8.1	Definition	

## **Foreword**

This Technical Specification has been produced by the 3<sup>rd</sup> 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.

Reference Point (IRP); Solution Set (SS) definitions

- 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 3<sup>rd</sup> Generation Partnership Project: Technical Specification Group Services and System Aspects; Telecommunication management; as identified below:

28.734:	Signalling Transport Network (STN) interface Network Resource Model (NRM) Integration Reference Point (IRP); Requirements
28.735:	Signalling Transport Network (STN) interface Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)
28.736:	Signalling Transport Network (STN) interface Network Resource Model (NRM) Integration

## 1 Scope

The present document is part of an Integration Reference Point (IRP) named "Signalling Transport Network (STN) interface NRM IRP", through which an "IRPAgent" (typically an Element Manager or Network Element) can communicate Configuration Management information to one or several "IRPManagers" (typically Network Managers) concerning Signalling Transport resources. This IRP comprises a set of specifications defining Requirements, a protocol neutral Network Resource Model (NRM) and corresponding Solution Set(s).

The present document specifies the protocol neutral STN interface NRM IRP. It reuses relevant parts of the generic NRM in TS 28.622 [6], either by direct reuse or sub-classing, and in addition to that defines Signalling Transport specific Managed Object Classes.

In order to access the information defined by this NRM, an IRP IS is needed, such as the Basic CM IRP: IS (TS 32.602 [7]) or the Bulk CM IRP: IS (TS 32.612 [8]). However, which IS is applicable is outside the scope of this document.

Finally, regarding the support of the State Management IRP: IS (TS 28.625 [3]), all NRMs of one release shall support the same State Management IRP version.

## 2 References

[9]

[10]

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". 3GPP TS 28.625: "Telecommunication management; State Management Integration Reference [3] Point (IRP); Information Service (IS)". [4] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects". [5] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements". 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) [6] Integration Reference Point (IRP); Information Service (IS)". 3GPP TS 32.602: "Telecommunication management; Configuration Management (CM); Basic CM [7] Integration Reference Point (IRP); Information Service (IS)". 3GPP TS 32.612: "Telecommunication management; Configuration Management (CM); Bulk CM [8] Integration Reference Point (IRP); Information Service (IS)".

The Message Transfer Part (MTP)".

ITU-T Recommendation Q.700 (03/93): "Introduction to CCITT Signalling System No.7".

ITU-T Recommendation Q.751.1 (10/95): "Network Element Management Information Model for

[12]	3GPP TS 32.111-2: "Telecommunication management; Fault Management (FM); Part 2: Alarm Integration Reference Point (IRP); Information Service (IS)".
[13]	ITU-T Recommendation Q.702 (11/88): "Signalling Data Link".
[14]	3GPP TS 29.202: "Signalling System No. 7 (SS7) signalling transport in core network; Stage 3".
[15]	3GPP TS 25.410: "UTRAN Iu Interface: General Aspects and Principles".
[16]	3GPP TS 25.420: "UTRAN $I_{\rm ur}$ interface general aspects and principles".
[17]	3GPP TS 25.430: "UTRAN lub interface: general aspects and principles".
[18]	3GPP TS 48.018: "Base Station System (BSS)-Serving GPRS Support Node (SGSN);BSS GPRS Protocol (BSSGP)".
[19]	3GPP TS 48.008: "Mobile Switching Centre-Base Station System (MSC-BSS) interface; Layer 3 specification".
[20]	3GPP TS 28.702: "Telecommunication management; Core Network Resources Integration Reference Point (IRP); Information Service (IS)".
[21]	3GPP TS 28.652: "Telecommunication management; UTRAN Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".
[22]	3GPP TS 29.060: "GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface".
[23]	3GPP TS 29.002: "Mobile Application Part (MAP) specification".
[24]	3GPP TS 29.018: "Serving GPRS Support Node (SGSN)-Visitors Location Register (VLR) Gs interface layer 3 specification".
[25]	3GPP TS 28.734: "Telecommunication management; Signalling Transport Network (STN) interface Network Resource Model (NRM) Integration Reference Point (IRP); Requirements".
[26]	3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions".
[27]	ITU-T Recommendation E.600 (03/93): "Terms and Definitions of traffic engineering".
[28]	IETF RFC 3332: "Signaling System 7 (SS7) Message Transfer Part 3 (MTP3) - User Adaptation Layer (M3UA)".
[29]	IETF RFC 2960: "Stream Control Transmission Protocol (SCTP)".
[30]	IETF RFC 3873: "Stream Control Transmission Protocol (SCTP); Management Information Base (MIB)".
[31]	3GPP TS 28.620: "Fixed Mobile Convergence (FMC) Federated Network Information Model (FNIM) Umbrella Information Model (UIM)".

## 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions in 3GPP TS 32.101 [1], 32.102 [2], 32.600 [5], 28.734 [25] and the following apply:

Association: See definition in TS 28.622 [6].

Managed Element (ME): See definition in TS 28.622 [6].

Managed Object (MO): See definition in TS 28.622 [6].

Management Information Model (MIM): See definition in TS 28.622 [6].

Network Resource Model (NRM): See definition in TS 28.622 [6].

## 3.2 Abbreviations

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

CM Configuration Management
DN Distinguished Name
IOC Information Object Class
IRP Integration Reference Point

ITU-T International Telecommunication Union, Telecommunication Standardisation Sector

ME Managed Element

MIM Management Information Model

MO Managed Object
MTP Message Transfer Part
NE Network Element
NRM Network Resource Model
RDN Relative Distinguished Name

SLC Signalling Link Code SLS Signalling Link Selection

SP Signalling Point

STN Signalling Transport Network STP Signalling Transfer Point TP Termination Point

UML Unified Modelling Language

## 4 Model

## 4.1 Imported information entities and local labels

Label reference	Local label
TS 28.620 [31], information object class, Top_	Top_
TS 28.622 [6], information object class, ManagedElement	ManagedElement
TS 28.622 [6], information object class, ManagedFunction	ManagedFunction
TS 28.622 [6], information object class, VsDataContainer	VsDataContainer

## 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 the overview of the relationships of relevant classes in UML. Subsequent clauses provide more detailed specification of various aspects of these classes.

The figure below shows the name-containment relation and other types of relations of the STN NRM.

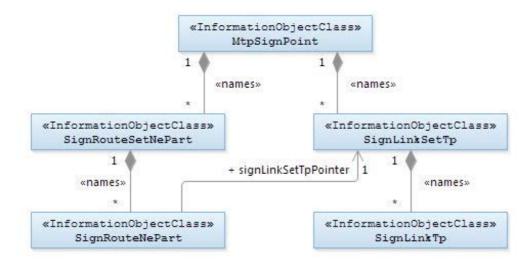


Figure 4.2.1-1: Signalling Transport Network NRM Containment/Naming and Association diagram 1



Figure 4.2.1-2: Signalling Transport Network NRM Containment/Naming and Association diagram 2

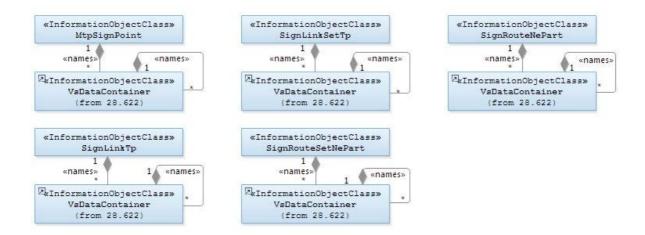


Figure 4.2.1-3: VsDataContainer Containment/Naming and Association in STN NRM diagram

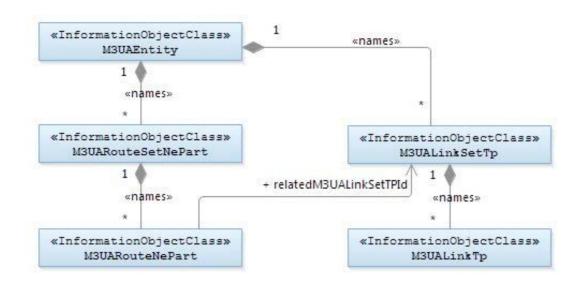


Figure 4.2.1-4: M3UA view of STN NRM Containment/Naming and Association diagram 1



Figure 4.2.1-5: M3UA view of STN NRM Containment/Naming and Association diagram 2

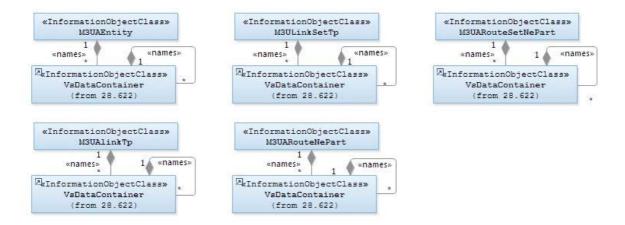


Figure 4.2.1-6: VsDataContainer Containment/Naming and Association in M3UA STN NRM diagram

#### 4.2.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

The following figure shows the inheritance hierarchy for the STN NRM.

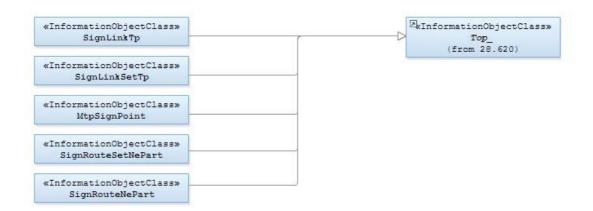


Figure 4.2.2-1: Signalling Transport Network NRM Inheritance Hierarchy

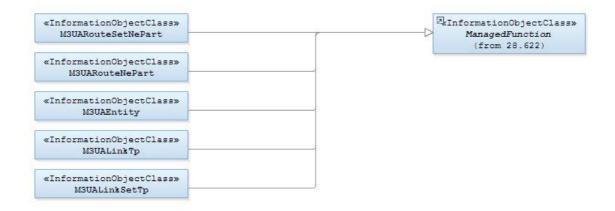


Figure 4.2.2-2: M3UA view of Signalling Transport Network Resource Model Inheritance Hierarchy

## 4.3 Class definitions

## 4.3.1 MtpSignPoint

#### 4.3.1.1 Definition

This IOC represents the Signalling Point functionality. For more information about the Signalling Point, see ITU-T Q.700 [9] and ITU-T Q.751.1 [10].

#### 4.3.1.2 Attributes

Attribute Name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
pointCode	M	M	-	-	M
networkIndicator	M	M	-	-	M
pointCodeLength	M	M	-	-	M
spType	M	M	-	-	M
userLabel	М	М	М	-	М

#### 4.3.1.3 Attribute constraints

None.

#### 4.3.1.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

## 4.3.2 SignLinkSetTp

#### 4.3.2.1 Definition

This IOC represents a bi-directional Signalling Link Set Termination Point functionality. For more information about the Signalling Link Set Termination Point, see ITU-T Q.700 [9] and ITU-T Q.751.1 [10].

#### 4.3.2.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
adjPc	M	M	-	-	M
userLabel	M	M	M	-	M
maxCapacityLS	М	М	-	-	М

#### 4.3.2.3 Attribute constraints

None.

#### 4.3.2.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

## 4.3.3 SignLinkTp

#### 4.3.3.1 Definition

This IOC represents a bi-directional Signalling Link Termination Point functionality. For more information about the Signalling Link Termination Point, see ITU-T Q.700 [9] and ITU-T Q.751.1 [10].

#### 4.3.3.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
slCode	M	M	-	-	M
slsCodeNormalList	0	M	-	-	M
slsCodeCurrentList	M	M	-	-	M
linkTpStatus	M	M	-	-	M
maxCapacitySL	M	M	-	-	M
userLabel	M	M	M	-	M
signLinkType	M	M	-	-	M

#### 4.3.3.3 Attribute constraints

None.

#### 4.3.3.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

## 4.3.4 SignRouteSetNePart

#### 4.3.4.1 Definition

This IOC represents a Signalling Route Set functionality. For more information about the Signalling Route Set Network Element Part, see ITU-T Q.700 [9] and ITU-T Q.751.1 [10].

#### 4.3.4.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
destinationPc	M	M	-	-	M
userLabel	M	M	M	-	M
loadsharingInformationRouteSetNePart	M	М	-	-	М

#### 4.3.4.3 Attribute constraints

None.

#### 4.3.4.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

#### 4.3.5 SignRouteNePart

#### 4.3.5.1 Definition

This IOC represents a Signalling Route functionality. For more information about the Signalling Route Network Element Part, see ITU-T Q.700 [9] and ITU-T Q.751.1 [10].

#### 4.3.5.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
fixedPriority	M	M	-	-	M
userLabel	M	M	M	-	M
Attribute related to role					
signLinkSetTpPointe	M	М	-	-	M
r					

#### 4.3.5.3 Attribute constraints

None.

#### 4.3.5.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

## 4.3.6 M3UAEntity

#### 4.3.6.1 Definition

This IOC represents a functionality entity which processes M3UA signalling. For more information about M3UA, see [14] and [28].

#### 4.3.6.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
m3UAEntityPointCod	M	M	-	-	M
е					
m3UAEntityType	M	M	-	-	M
networkIndicator	M	M	-	-	M
pointCodeLength	M	M	-	-	M

#### 4.3.6.3 Attribute constraints

None.

#### 4.3.6.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

#### 4.3.7 M3UALinkSetTp

#### 4.3.7.1 Definition

This IOC represents a bi-directional termination point functionality of M3UA signalling link set which is the set of M3UA signalling links between M3UA\_AS and SG or between M3UA\_AS and M3UA\_AS. For more information about M3UA\_AS and SG, see [14] and [28].

#### 4.3.7.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
adjPc	M	М	-	•	М
trafficMode	M	М	-	-	М

#### 4.3.7.3 Attribute constraints

None.

#### 4.3.7.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

#### 4.3.8 M3UALinkTp

#### 4.3.8.1 Definition

This IOC represents a termination point functionality of M3UA signalling link which is a bi-directional M3UA logical communication channel between the particular SCTP termination points of signalling gateway process (SGP) and application server process (ASP) or the logical communication channel between the particular SCTP termination points of two IP server processes (IPSPs).

For more information about M3UA and SCTP signalling information, see [14] and [28].

#### 4.3.8.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
m3UALinkTPState	M	M	-	ı	М
sCTPAssocLocalAddr	M	M	-	-	М
sCTPAssocRemoteAdd	0	M	-	-	М
r					

#### 4.3.8.3 Attribute constraints

None.

#### 4.3.8.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

#### 4.3.9 M3UARouteSetNePart

#### 4.3.9.1 Definition

This IOC represents a set of the M3UA signalling route between M3UA local entity and M3UA destination entity. For M3UA signalling information, see [14] and [28].

#### 4.3.9.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
destinationPc	M	М	-	-	M

#### 4.3.9.3 Attribute constraints

None.

#### 4.3.9.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

#### 4.3.10 M3UARouteNePart

#### 4.3.10.1 Definition

This IOC represents a path between local M3UA entity and destination M3UA entity. For more information about M3UA signalling, see [14] and [28].

#### 4.3.10.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
fixedPriority	M	M	-	-	M
Attribute related to role					
relatedM3UALinkSetTPId	M	M	-	•	M

#### 4.3.10.3 Attribute constraints

None.

#### 4.3.10.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

## 4.4 Attribute definitions

## 4.4.1 Attribute properties

Attribute Name	Documentation and Allowed Values	Properties
adjPc	The signalling point code information of the signalling point adjacent to the signalling link set. (Ref ITU-T Q.704 [11], Ref ITU-T Q.751.1 [10]) allowedValues: N/A	type: Integer multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False
destinationPc	The signalling point code information of the destination signalling point of the signalling route set. (Ref ITU-T Q.704 [11], Ref ITU-T Q.751.1 [10]) allowedValues: N/A	type: Integer multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False
fixedPriority	This attribute determines, if the signallingRoute is used as current route. The signallingRoute instances contained in the same signallingRouteSet are chosen in ascending order as current routes (The lower the value, the higher the priority).  The priority is defined by means of assigning priorities to all involved route segments. If from a particular SP two or more route segments are used with the same priority, loadsharing between Signalling Routes may occur (Ref ITU-T Q.751.1 [10]).  allowedValues: 0255, maximum value is implementation dependent	type: Integer multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False
linkTpStatus	This is a set-valued attribute. It contains the functional statuses as described in ITU-T Q.704 [11]. (Ref ITU-T Q.704 [11], Ref ITU-T Q.751.1 [10])  allowedValues:  • localBlocked, remoteBlocked, localInhibited, remoteInhibited, failed, deactivated  • The absence of any value (i.e. Null) indicates a status of available.	type: < <enumeration>&gt; multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: True</enumeration>
loadsharingInformation RouteSetNePart	This attribute contains specific information for target specific loadsharing via the current routes working on a routeset basis via the current routes. (Ref ITU-T Q.751.1 [10]) allowedValues: N/A	type: String multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False
maxCapacityLS	The maximum capacity of a signalling linkset is the maximum load that should be placed on the linkset, when all links that could be active in the linkset are, and are working in service. Unit: Erlang (Ref ITU-T E.600 [27]) allowedValues: N/A	type: Real
maxCapacitySL	This attribute describes the maximum capacity for the signLinkTp. The maximum capacity of a signalling link is the maximum load that should be placed on the signalling link.  Unit: Erlang (Ref ITU-T E.600 [27])  allowedValues: N/A	type: Real multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False
m3UAEntityPointCode	The M3UA signalling point code information of the signalling point. (Ref ITU-T Q.704[11],Ref ITU-T Q.751.1[10]) allowedValues: N/A	type: Integer multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False
m3UAEntityType	It identifies the M3UA entity Type.  allowedValues:  • M3UA Application Server (M3UA_AS), Signalling Gateway (SG)  • Note: M3UA_AS is defined as AS in Ref.[28]	type: < <enumeration>&gt; multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False</enumeration>
m3UALinkTPState	This attribute represents the state of M3UA signalling link.  allowedValues: Ref. [28], Ref. [29]  • UNESTABLISH (0): SCTP association of the m3ua link is not established.  • ESTABLISHED (1): SCTP association of the M3UA link is established, but the ASP state is down.  • INACTIVE (2): ASP state is up.  • ACTIVE (3): ASP state is active.	type: < <enumeration>&gt; multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False</enumeration>

Attribute Name	Documentation and Allowed Values	Properties
networkIndicator	The network indicator information of the signalling point, (Ref ITU-T Q.704 [11], Ref ITU-T Q.751.1 [10])	type: < <enumeration>&gt; multiplicity: 1</enumeration>
	allowedValues: International, Spare, National, NationalSpare	isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False
pointCode	The signalling point code information of the signalling point. (Ref ITU-T Q.704 [11], Ref ITU-T Q.751.1 [10])	type: Integer multiplicity: 1 isOrdered: N/A
	allowedValues: N/A	isUnique: N/A defaultValue: None isNullable: False
pointCodeLength	The signalling point code length information of the signalling point. (Ref ITU-T Q.704 [11])	type: < <enumeration>&gt; multiplicity: 1 isOrdered: N/A</enumeration>
	allowedValues: 14, 24	isUnique: N/A defaultValue: None isNullable: False
sCTPAssocLocalAddr	This attribute represents the SCTP association local port and IP address (Ref.[30]).	type: < <datatype>&gt; multiplicity: 1 isOrdered: N/A</datatype>
	portId:Unique identification of port (port number, integer); List of { AddrType(IPv4, IPv6), IPaddr (string)}.	isUnique: N/A defaultValue: None isNullable: False
	allowedValues: N/A	
sCTPAssocRemoteAddr	This attribute represents the corresponding SCTP association port and IP address (Ref.[30]).  portId:Unique identification of port (port number, integer):	type: < <datatype>&gt; multiplicity: 1 isOrdered: N/A</datatype>
	List of { AddrType(IPv4, IPv6), IPaddr (string)}.	isUnique: N/A defaultValue: None isNullable: False
signLinkType	allowedValues: N/A This attribute represents the type of signalling link.	type: < <enumeration>&gt;</enumeration>
Бідішініурс	allowedValues: 64K, 2M	multiplication in its ordered: N/A is Unique: N/A default Value: None is Nullable: False
slCode	The Signalling Link Code (SLC) is used to distinguish signalling link in the signalling link set. It is the same value (between 0 and 15) at each end of the link, and is different from that of any other link between the same two adjacent signalling points. (Ref ITU-T Q.704 [11]), Ref ITU-T Q.751.1 [10])	type: Integer multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None
	allowedValues: 015	isNullable: False
slsCodeCurrentList	This attribute represents the SLS-Code which is currently used on the signallingLinkTp. It may be different from the slsNormalList, in case some fault has occurred. (Ref ITU-T Q.751.1 [10])	type: Integer multiplicity: 016 isOrdered: False isUnique: True
	SET SIZE (016) OF SIs Each SIs value can occur at most once in a given SET	defaultValue: None isNullable: False
	allowedValues: 015	
slsCodeNormalList	This attribute indicates which SLS-Codes are initially administratively assigned to this signallingLinkTp for the normal operation. (Ref ITU-T Q.751.1 [10])	type: Integer multiplicity: 016 isOrdered: False
	SET SIZE (016) OF SIs Each SIs value can occur at most once in a given SET	isUnique: True defaultValue: None isNullable: False
	allowedValues: 015	
spType	The type of the signalling point. (Ref ITU-T Q.700[9], Ref ITU-T Q.751.1 [10]) allowedValues: SEP, STP, STEP	type: < <enumeration>&gt; multiplicity: 1 isOrdered: N/A isUnique: N/A</enumeration>
trafficMode	It identifies the selected mode of M3UA signalling link (Ref. [28]).	defaultValue: None isNullable: False type: < <enumeration>&gt;</enumeration>
CLAILICMORE	allowedValues: Override mode, Load share mode, Broadcast mode	multiplicity: 1 isOrdered: N/A
		isUnique: N/A defaultValue: None isNullable: False

Attribute Name	Documentation and Allowed Values	Properties
userLabel	A user-friendly name of this object.	type: String multiplicity: 1
	allowedValues: N/A	isOrdered: N/A
		isUnique: N/A
		defaultValue: None
		isNullable: True
Attribute related to role		
relatedM3UALinkSetTPId	This role attribute represents a uni-directional relation between the	type: DN
	M3UARouteNePart and M3UALinkSetTP. This role (when present) represents	multiplicity: 1
	M3UARouteNePart capability to identify the connected M3UALinkSetTP.	isOrdered: N/A
	When the role is present, the attribute shall carry the M3UALinkSetTP DN.	isUnique: N/A
		defaultValue: None
	allowedValues: N/A	isNullable: False
		passedById: True
signLinkSetTpPointer	It references the signallingLinkSetTp which is intended to be used as first	type: DN
	segment of the succession of linksets, which form the signalling route on the	multiplicity: 1
	network level.	isOrdered: N/A
		isUnique: N/A
	allowedValues: N/A	defaultValue: None
		isNullable: False
		passedByld: True

#### 4.4.2 Constraints

None.

#### 4.5 Common notifications

#### 4.5.1 Alarm notifications

This clause presents a list of notifications, defined in [5], that IRPManager can receive. The notification header attribute objectClass/objectInstance, defined in [14], would capture the DN of an instance of an IOC defined in this IRP specification.

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [12])	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [12])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [12])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [12])	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [12])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [12])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [12])	

## Configuration notifications

This clause presents a list of notifications, defined in [3], that IRPManager can receive. The notification header attribute objectClass/objectInstance, defined in [14], would capture the DN of an instance of an IOC defined in this IRP specification.

Name	Qualifier	Notes
notifyAttributeValueChange	0	
notifyObjectCreation	0	
notifyObjectDeletion	0	

# Annex A (informative): Change history

Change history							
Date	TSG#	TSG	CR	Rev	Subject/Comment	Old	New
		Doc.					
2014-06	SA#64	SP-	001	-	remove the feature support statements	11.0.0	11.1.0
		140358					
2014-10	-	-	-	-	Update to Rel-12 version (MCC)	11.1.0	12.0.0

# History

	Document history					
V12.0.0	October 2014	Publication				