3GPP TS 25.442 V16.0.0 (2020-07)

Technical Specification

3rd Generation Partnership Project;

Technical Specification Group Radio Access Network;

UTRAN implementation-specific O&M transport

(Release 16)

 

The present document has been developed within the 3rd Generation Partnership Project (3GPP TM) and may be further elaborated for the purposes of 3GPP.  
The present document has not been subject to any approval process by the 3GPPOrganizational Partners and shall not be implemented.  
This Specification is provided for future development work within 3GPPonly. The Organizational Partners accept no liability for any use of this Specification.  
Specifications and Reports for implementation of the 3GPP TM system should be obtained via the 3GPP Organizational Partners' Publications Offices.

Keywords

UMTS, radio, management

***3GPP***

Postal address

3GPP support office address

650 Route des Lucioles - Sophia Antipolis

Valbonne - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet

http://www.3gpp.org

***Copyright Notification***

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

© 2020, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

All rights reserved.

UMTS™ is a Trade Mark of ETSI registered for the benefit of its members

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners  
LTE™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners

GSM® and the GSM logo are registered and owned by the GSM Association

Contents

Foreword [4](#__RefHeading___Toc518309585)

1 Scope [5](#__RefHeading___Toc518309586)

2 References [5](#__RefHeading___Toc518309587)

3 Definitions and abbreviations [5](#__RefHeading___Toc518309588)

3.1 Definitions [5](#__RefHeading___Toc518309589)

3.2 Abbreviations [5](#__RefHeading___Toc518309590)

4 Implementation Specific O&M Transport [6](#__RefHeading___Toc518309591)

4.1 Requirements [6](#__RefHeading___Toc518309592)

4.2 Routing [6](#__RefHeading___Toc518309593)

4.3 Transport Bearer [7](#__RefHeading___Toc518309594)

4.3.1 ATM Transport Option [7](#__RefHeading___Toc518309595)

4.3.2 IP Transport Option [7](#__RefHeading___Toc518309596)

Annex A (informative): Change history [9](#__RefHeading___Toc518309597)

# 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.

# 1 Scope

The present document specifies the transport of implementation specific O&M signalling between Node B and the Management Platform in case that the transport is routed via the RNC.

# 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] Void

[2] Void

[3] ITU-T Recommendation I.363.5 (1996-08): "B-ISDN ATM Adaptation Layer Type 5 Specification".

[4] IETF RFC 2225 (1998-04): "Classical IP and ARP over ATM".

[5] IETF RFC 2684 (1999-09): "Multiprotocol Encapsulation over ATM Adaptation Layer 5".

[6] IETF RFC 791 (1981-09): "Internet Protocol".

[7] Void

[8] 3GPP TS 25.426: "UTRAN Iur and Iub Interface Data Transport&Transport Signalling for DCH".

# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**Logical O&M**: Logical O&M is the signalling associated with the control of logical resources owned by the RNC but physically implemented in Node B.

**Implementation Specific O&M**: Implementation Specific O&M functions depend on the implementation of the Node B, both for it’s hardware and software components.

## 3.2 Abbreviations

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

AAL5 ATM Adaptation Layer type 5

ATM Asynchronous Transfer Mode

ARP Address Resolution Protocol

RFC Request For Comment

IP Internet Protocol

O&M Operation and Maintenance

RNC Radio Network Controller

TNL Transport Network Layer

# 4 Implementation Specific O&M Transport

## 4.1 Requirements

While this specification only addresses the transport of Node B Implementation Specific O&M signalling, many of the following requirements are derived from generic requirements for O&M of UMTS network elements:

● Common O&M infrastructure for all network elements.

● Independence from various data link protocols.

* Support of various higher layer protocols and applications.
* Secure transmission.
* No Impact of O&M transport on traffic transport and signalling.
* Re-use of existing transport facilities, i.e. co-existence of Iub and Implementation Specific O&M on the same bearer.

### 4.2 Routing

It is the responsibility of the RNC to route Implementation Specific O&M signalling traffic. The traffic exchanged over this signalling link is completely transparent to the RNC. Both RNC and Node B have to support the routing of Implementation specific O&M via the RNC.



Figure 1: Implementation Specific O&M Transport via RNC

## 4.3 Transport Bearer

An appropriate transport bearer for Implementation Specific O&M should consider the requirements listed in subclause 4.1. IP (IETF RFC 791 [6]) should be the transport mechanism in order to allow a data link independent support of a variety of O&M applications and protocols for the Implementation Specific O&M of the Node B.

IP datagrams containing O&M signalling have to be carried over the same bearer as Iub. There are two options for the implementation specific O&M signalling bearer in Iub.

1) ATM Transport option

2) IP Transport option

### 4.3.1 ATM Transport Option

The following figure shows the protocol stack for Implementation Specific O&M transport between Node B and RNC in case of ATM transport option in Iub:



Figure 2: Protocol Stack for Implementation Specific O&M Transport (ATM transport option)

AAL5 shall be used according to ITU-T Recommendation I.363.5 [3].

AAL5 virtual circuits are used to transport the IP packets containing Implementation Specific O&M signalling data between Node B and RNC. Multiple VCs can be used over the interface. An association shall be made between a VC and the IP addresses that are related to this VC in the peer node side. This association can be made using O&M or using ATM Inverse ARP according to Classical IP over ATM.

Classical IP over ATM protocols are used to carry the IP packets over the ATM transport network. Classical IP over ATM is specified in IETF RFC 2225 [4]. Multiprotocol Encapsulation over AAL5 is specified in IETF RFC 2684 [5].

### 4.3.2 IP Transport Option

The following figure shows the protocol stack for Implementation Specific O&M transport between Node B and RNC in case of IP transport option in Iub:

PHY

Implementation

Specific O&M

Node B

Datalink

layer

IP

IP

PHY

PHY

Datalink

layer

Datalink

layer

IP

IP

RNC

(if tunnelled)

PHY

Implementation

Specific O&M

Node B

Datalink

layer

IP

IP

PHY

PHY

Datalink

layer

Datalink

layer

IP

IP

RNC

(if tunnelled)

Figure 3: Protocol Stack for Implementation Specific O&M Transport (IP TNL)

Implementation specific O&M signalling is conveyed by IP between the Node B and the RNC. IP-in-IP tunneling may be applied when the Iub Transport Network Layer is used.

IP based Transport Network Layer of Iub is further defined in TS 25.426 [8].

Annex A (informative):  
Change history

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Date / TSG** | **TSG Doc.** | **CR** | **Rev** | **Subject/Comment** | **New** |
| 12/2008 | - | - | - | Creation of Rel-8 version based on v7.0.0 | 8.0.0 |
| 12/2009 | - | - | - | Creation of Rel-9 version based on v8.0.0 | 9.0.0 |
| SP-49 | SP-100629 |  |  | Clarification on the use of References (TS 21.801 CR#0030) | 9.0.1 |
| 03/2011 |  |  |  | Creation of Rel-10 version based on v9.0.1 | 10.0.0 |
| 52 | RP-110685 | 0005 |  | Removal of unused references | 10.1.0 |
| 09/2012 |  |  |  | Update to Rel-11 version (MCC) | 11.0.0 |
| 09/2014 |  |  |  | Update to Rel-12 version (MCC) | 12.0.0 |
| 12/2015 |  |  |  | Update to Rel-13 version (MCC) | 13.0.0 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **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 |
| 2018-07 | SA#80 | - | - | - | - | Promotion to Release 15 without technical change | 15.0.0 |
| 2020-07 | SA#88-e | - | - | - | - | Update to Rel-16 version (MCC) | 16.0.0 |