ETSI TS 132 442 V18.0.0 (2024-05)

Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Trace Management Integration Reference Point (IRP);
Information Service (IS)
(3GPP TS 32.442 version 18.0.0 Release 18)

Reference
RTS/TSGS-0532442vi00

Keywords
GSM,LTE,UMTS

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Contents

Foreword

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

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y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

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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:

32.441 "Trace Management Integration Reference Point (IRP): Requirements".

32.442 "Trace Management Integration Reference Point (IRP): Information Service (IS)".

32.443 "Trace Management Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)".

32.445 "Trace Management Integration Reference Point (IRP): eXtensible Markup Language (XML) file format definition".

The present document is part of a TS-family which describes the information service necessary for the Telecommunication Management (TM) of 3G systems. The TM principles and TM architecture are specified in 3GPP TS 32.101 [1] and 3GPP TS 32.102 [2].

Trace provides very detailed information on call level for a specific subscriber or MS. This data is an additional information source to Performance Measurements and allows deeper investigations in problems solving or in case of optimization.

1 Scope

The present document describes the mechanism used for control and configuration of the Trace, Minimization of Drive Test (MDT) and Radio Link Failure (RLF) reporting functionality through Itf-N. This specification is applicable to UMTS networks and EPS networks. GSM Trace is outside of the scope of this specification.

The conditions for supporting Network Sharing are stated in 3GPP TS 32.441 [13].

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: "Telecommunication management; Principles and high level requirements".

[2] 3GPP TS 32.102: "Telecommunication management; Architecture".

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

[4] Void.

[5] 3GPP TS 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP); Network Resource Model (NRM)".

[6] 3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

[7] 3GPP TS 32.342: " Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Information Service (IS)".

[8] 3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management: Information Service (IS)".

[9] 3GPP TS 32.422: "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management".

[10] 3GPP TS 32.602: "Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP): Information Service (IS)".

[11] 3GPP TS 25.331: "Radio Resource Control (RRC); Protocol specification"

[12] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".

[13] 3GPP TS 32.441: "Trace Management Integration Reference Point (IRP): Requirements".

[14**]** 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.150 [3] and the following apply:

IRPAgent: See 3GPP TS 32.102 [2].

IRPManager: See 3GPP TS 32.102 [2].

MBSFN Area: See 3GPP TS 36.300 [14]

MBSFN Area Reserved Cell: See 3GPP TS 36.300 [14]

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.150 [3] and the following apply:

IOC	Information Object Class
IRP	Integration Reference Point
IS	Information Service
MBMS	Multimedia Broadcast Multicast Services
MBSFN	MBMS over a Single Frequency Network
MDT	Minimization of Drive Tests
OMG	Object Management Group
RCEF	RRC Connection Establisment Failure
RLF	Radio Link Failure
UML	Unified Modelling Language (OMG)

4 System Overview

4.1 System context

The general definition of the System Context for the present IRP is found in 3GPP TS 32.150 [3] subclause 4.7.

In addition, the set of related IRP(s) relevant to the present IRP is shown in the two diagrams below.

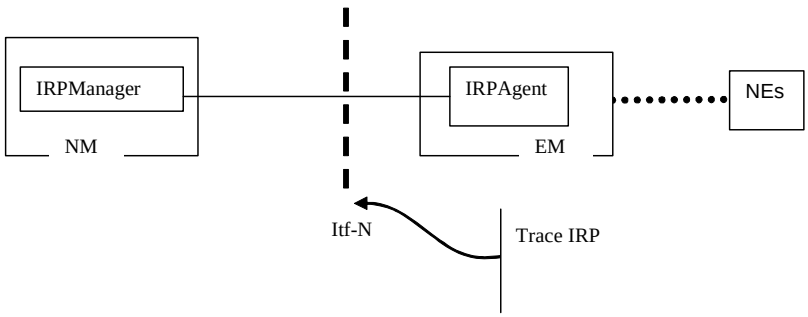

Figure 4.1.1: System Context A

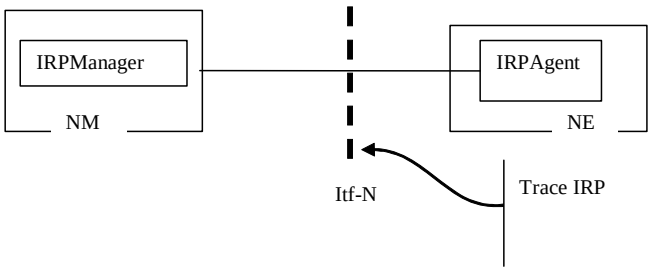

Figure 4.1.2: System Context B

4.2 Compliance rules

For general definitions of compliance rules related to qualifiers (Mandatory/Optional/Conditional) for *operations*, *notifications and parameters* (of operations and notifications) please refer to 3GPP TS 32.150 [3].

5 Information Object Classes

5.1 Imported information entities and local labels

Label reference	Local label
3GPP TS 32.622 [5], information object class, `Top`	`Top`
3GPP TS 32.622 [5], information object class, `IRPAgent`	`IRPAgent`
3GPP TS 32.622 [5], information object class, `GenericIRP`	`GenericIRP`
3GPP TS 32.302 [6], information object class, `NotificationIRP`	`NotificationIRP`
3GPP TS 32.342 [7], information object class, `FileTransferIRP`	`FileTransferIRP`
3GPP TS 32.602 [10], information object class, `ManagedEntity`	`ManagedEntity`

5.2 Class diagram

5.2.1 Attributes and relationships

This clause introduces the set of Information Object Classes (IOCs) that encapsulate information within the `IRPAgent`. The intent is to identify the information required for the TraceIRP implementation of its operations and notification emission. This clause provides the overview of all support object classes in UML. Subsequent clauses provide more detailed specification of various aspects of these support object classes.

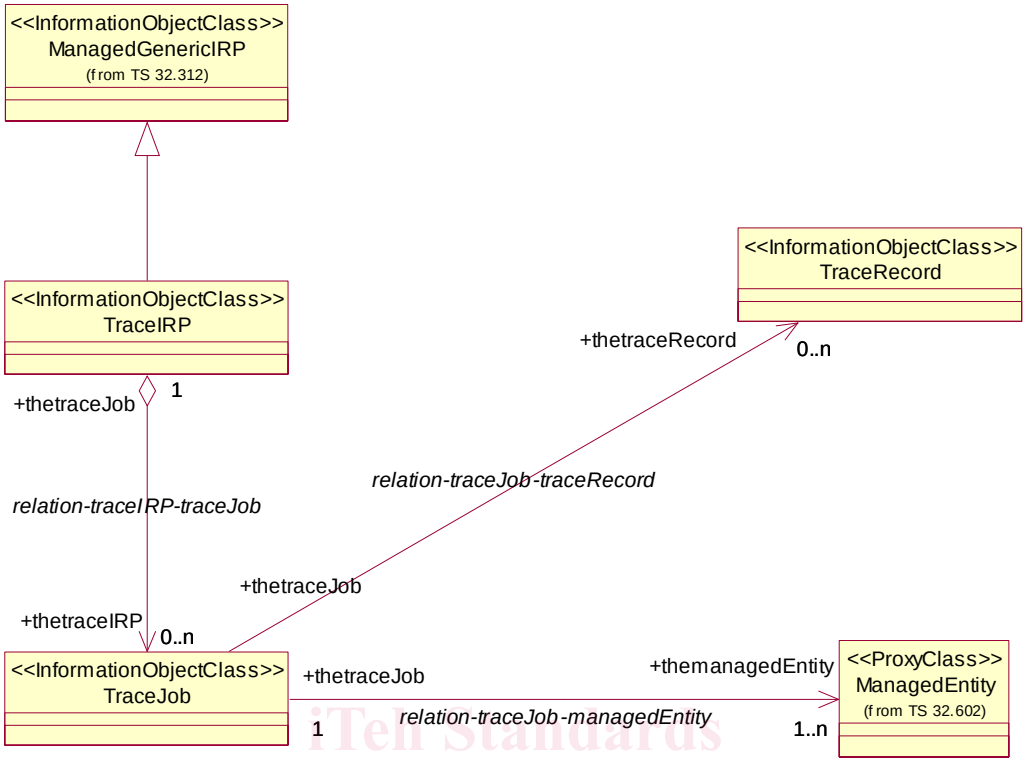

Figure 5.2.1: Information Object Class (IOC) UML diagram

5.2.2 Inheritance

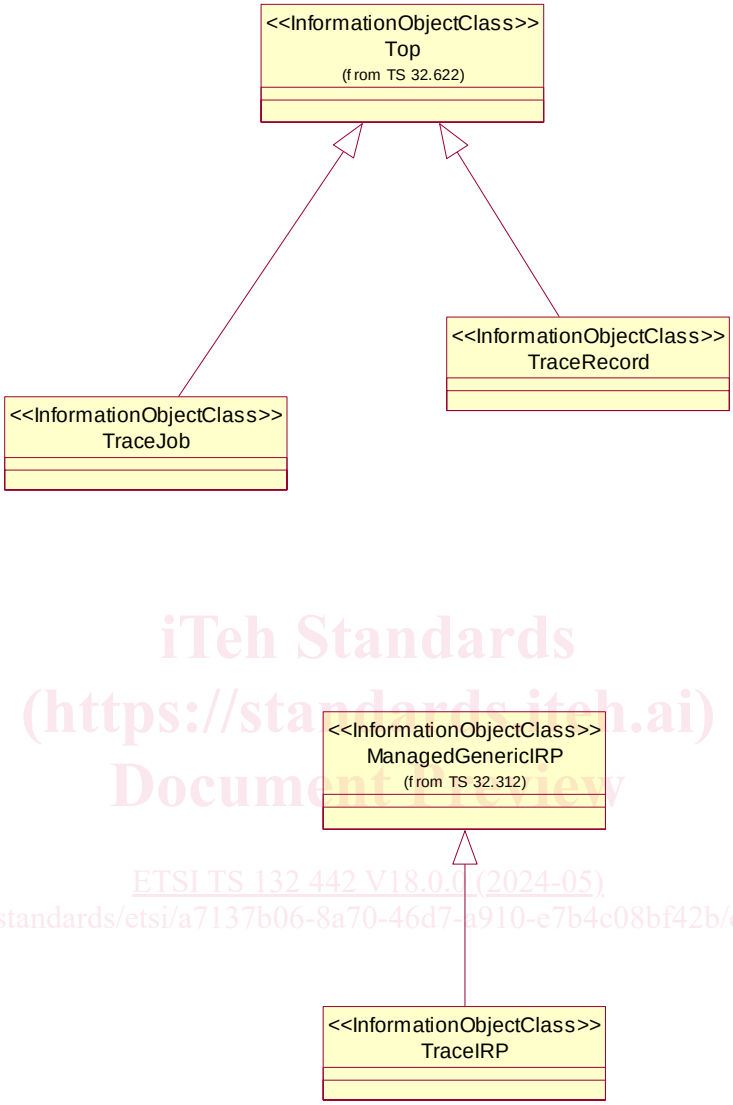

Figure 5.2.2: Information Object Class Inheritance UML Diagram

5.3 Information object class definitions

5.3.1 `TraceJob`

5.3.1.1 Definition

It represents a task that controls the Trace Sessions and collects the trace data (i.e. collects the `TraceRecord` of multiple `ManagedEntity` instances). The `TraceReference` is a unique ID, which identifies the Trace Session that has been created by the `TraceJob` and activated to one or multiple `ManagedEntity` instance(s).

It represents also the task that controls the UE based network performance measurements.

When a `TraceJob` is created the following attributes cannot be modified via the Itf-N: