3GPP TS 32.431 V1.0.0 (2004-06)

Technical Specification

3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Performance measurement collection Integration Reference Point (IRP); Requirements (Release 6)

Keywords
management

3GPP

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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

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 32.431 "Performance measurement collection Integration Reference Point (IRP); Requirements";

TS 32.432: "Performance measurement collection Integration Reference Point (IRP); Information Service (IS)";

TS 32.433: "Performance measurement collection Integration Reference Point (IRP); eXtensible Markup Language (XML) file format definition".

TS 32.434: "Performance measurement collection Integration Reference Point (IRP); Abstract Syntax Notation number 1 (ASN.1) file format definition".

The present document is part of a set of specifications, which describe the requirements and information model necessary for the standardised Operation, Administration and Maintenance (OAM) of a multi-vendor 3G PLMN.

During the lifetime of a PLMN, its logical and physical configuration will undergo changes of varying degrees and frequencies in order to optimise the utilisation of the network resources. These changes will be executed through network configuration management activities and/or network engineering, see 3GPP TS 32.600 [4].

Many of the activities involved in the daily operation and future network planning of a PLMN require data on which to base decisions. This data refers to the load carried by the network and the grade of service offered. In order to produce this data performance measurements are executed in the NEs, which comprise the network. The data can then be transferred to an external system, e.g. an Operations System (OS) in TMN terminology, for further evaluation. The purpose of the present document and the other related 3GPP TSs listed above is to describe the mechanisms involved in the collection of the data.

1 Scope

The present document defines, in addition to the requirements defined in [1], [2], and [3], the requirements for the present IRP: Performance measurement collection IRP.

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 32.400: "Telecommunication management; Performance Management (PM); Concepts".

[Editor's notes: Creation of TS 32.400 is to be confirmed.]

[4] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".

[5] ISO 8571: "Information processing systems - Open Systems Interconnection - File Transfer, Access and Management".

[6] 3GPP TS 32.342: "Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Information Service (IS)".

3 Definitions and abbreviations

3.1 Definitions

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

Element Manager (EM): provides a package of end-user functions for management of a set of closely related types of Network Elements. These functions can be divided into two main categories:

- Element Management Functions for management of Network Elements on an individual basis. These are basically the same functions as supported by the corresponding local terminals.
- Sub-Network Management Functions that are related to a network model for a set of Network Elements constituting a clearly defined sub-network, which may include relations between the Network Elements. This model enables additional functions on the sub-network level (typically in the areas of network topology presentation, alarm correlation, service impact analysis and circuit provisioning).

Network Manager (NM): provides a package of end-user functions with the responsibility for the management of a network, mainly as supported by the EM(s) but it may also involve direct access to the Network Elements. All communication with the network is based on open and well-standardised interfaces supporting management of multi-vendor and multi-technology Network Elements.

Operations System (OS): generic management system, independent of its location level within the management hierarchy.

3.2 Abbreviations

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

3G	3rd Generation
EM	Element Manager
NE	Network Element
NM	Network Manager
OAM	Operation, Administration and Maintenance
PLMN	Public Land Mobile Network
PM	Performance Management
TMN	Telecommunications Management Network

4 Requirements

In addition to the requirements specified in the present clause, the following requirements shall also apply for the present IRP:

a) IRP-related requirements in 3GPP TS 32.101 [1].

b) IRP-related requirements in 3GPP TS 32.102 [2].

c) IRP-related requirements in 3GPP TS 32.400 [3].

[Editor's notes: Creation of TS 32.400 is to be confirmed.]

4.1 General

The measurement results are collected by the NEs and then they need to be forwarded to one or more OS(s), i.e. EM and/or NM. In the context of "Performance measurement collection", Itf-N can be used for the transfer of files containing performance measurement result data generated in the network. It should be pointed out that, on the network side, Itf-N may be implemented either in the NEs or in the EM, according to vendor choice. The NE shall be able to supply the result data at least to the NM if the Itf-N is implemented in the NEs. The NE shall be able to provide the result data to the EM if the Itf-N is implemented in the EM.

4.2 File generation requirements

Since vendors may choose to implement the NM interface in either the NEs or the EM, the measurement result files for collection by the NM (push or pull transfer mechanism) may be provided by the NEs or the EM. Within one 3G network both possibilities may occur, since NEs of different types may use either one of the two possible approaches (NE based or EM based). This is particularly true in a multi-vendor network. The result file shall be made available for transfer to or collection by the NM as soon as all applicable results have been assembled.

Unified file format and file naming convention shall be applied to the measurement result files.

4.3 Measurement result transfer requirements

The result transfer requirements in the present document are limited to the file based Itf-N, used to forward the measurement results to the NM. If ItF-N is implemented in the EM, then measurement results can be transferred from the NE to the EM, and/or they are stored locally in the NE and can be retrieved when required. If Itf-N is implemented in the NEs, then the PM result files are sent directly from the NE to the NM, involving control by the EM as required, The EM shall support all administration functions necessary to fulfil the above result transfer requirement.

Measurement results can be stored in the network (NEs or EM, depending on implementation option chosen for Itf-N) for retrieval by the NM when required.

Each implementation shall support a file transfer facility to an external OS (i.e. not supplied by the NE vendor), such as an NM. This facility shall be implemented using either the FTAM ISO 8751 [5], (T)FTP protocol or FileTransferIRP (TS 32.342 [6]). This interface may be located either in the NEs or the EM, as chosen by the vendor. As a result, it may not at all be necessary to transfer measurement result reports to the EM, if:

- the NM interface is implemented in the NEs, and
- the Operator chooses to post-process measurement results only in the NM.

Details of the file format to be used on the NM interface can be found in the Information Service TS 32.432 [6].
The measurement report file conventions and transfer procedure are also specified in TS 32.432 [6].

Measurement results can be forwarded to the NM via a bulk transfer interface. It is an implementation option whether this interface resides in the EM or the NEs. Depending on the implementation, the control of the bulk transfer of measurement results to the NM may involve the EM and/or the NM (see TS 32.432 [6] for details).

In a network with more than one OS (e.g. EM and NM) the data produced may be required by several OSs.
It is therefore necessary to support the possibility for multiple destinations for transfer of data.

All scenarios for the result transfer, as far as they are relevant for standardisation of 3G systems, are defined above.
It should be noted that, depending on an Operator's needs, measurement results may have to be transferred to the EM only, the NM only, or both. Depending on a vendor's implementation, measurement results may be transferred to the NM directly from the NE or via the EM. This implies that not all of the result transfer options described above shall be implemented in all cases, however, those procedures that are implemented shall comply with the present document.
A detailed specification of the measurement result transfer to the NM can be found in TS 32.432 [6].

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2004	S_24	SP-040274	--	--	Submitted to TSG SA#24 for Information	1.0.0	