

I n t e r n a t i o n a l   T e l e c o m m u n i c a t i o n   U n i o n

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**M.3016.0**

(05/2005)

SERIES M: TELECOMMUNICATION MANAGEMENT,  
INCLUDING TMN AND NETWORK MAINTENANCE

Telecommunications management network

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## **Security for the management plane: Overview**

ITU-T Recommendation M.3016.0

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TELECOMMUNICATION MANAGEMENT, INCLUDING TMN AND NETWORK MAINTENANCE

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*For further details, please refer to the list of ITU-T Recommendations.*

# ITU-T Recommendation M.3016.0

## Security for the management plane: Overview

### Summary

This Recommendation provides an overview and framework that identifies security threats to a TMN and outlines how available security services can be applied within the context of the TMN functional architecture.

### Source

ITU-T Recommendation M.3016.0 was approved on 22 May 2005 by ITU-T Study Group 4 (2005-2008) under the ITU-T Recommendation A.8 procedure.

## FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

## NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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# CONTENTS

## Page

|                                                                |                                                        |    |
|----------------------------------------------------------------|--------------------------------------------------------|----|
| 1                                                              | Scope .....                                            | 1  |
| 2                                                              | References.....                                        | 1  |
| 3                                                              | Definitions .....                                      | 2  |
| 4                                                              | Abbreviations and acronyms .....                       | 2  |
| 5                                                              | Rationale .....                                        | 3  |
| 6                                                              | System description.....                                | 3  |
| 6.1                                                            | Actors and roles.....                                  | 4  |
| 6.2                                                            | Security domains .....                                 | 5  |
| 7                                                              | Generic security objectives for TMN .....              | 5  |
| 8                                                              | Legislation issues.....                                | 6  |
| 9                                                              | Threats and risks .....                                | 6  |
| 10                                                             | Security requirements and services .....               | 7  |
| 10.1                                                           | Security requirements and corresponding services ..... | 8  |
| 10.2                                                           | Requirements on the management of security.....        | 12 |
| 10.3                                                           | Architectural requirements .....                       | 13 |
| 10.4                                                           | Security services and OSI layers .....                 | 13 |
| 10.5                                                           | Security management .....                              | 15 |
| Appendix I – Functional classes and security subprofiles ..... |                                                        | 16 |
| I.1                                                            | Grouping of security measures.....                     | 16 |
| I.2                                                            | Functional classes.....                                | 16 |
| I.3                                                            | Security profiles.....                                 | 18 |



Documents

Document Sharing Hub

ITU-T Rec. M.3016.0 (05/2005)

iii



# ITU-T Recommendation M.3016.0

## Security for the management plane: Overview

### 1 Scope

This Recommendation provides an overview and framework that identifies security threats to a TMN and outlines how available security services can be applied within the context of the TMN functional architecture, as described in ITU-T Rec. M.3010.

This Recommendation is generic in nature and does not identify or address the requirements for a specific TMN interface.

This Recommendation does not seek to define new security services but uses existing security services defined in other ITU-T Recommendations and ISO Standards.

This Recommendation is part of the M.3016.x series of ITU-T Recommendations intended to provide guidance and recommendations for securing the management plane of evolving networks:

ITU-T Rec. M.3016.0 – *Security for the management plane: Overview.*

ITU-T Rec. M.3016.1 – *Security for the management plane: Security requirements.*

ITU-T Rec. M.3016.2 – *Security for the management plane: Security services.*

ITU-T Rec. M.3016.3 – *Security for the management plane: Security mechanism.*

ITU-T Rec. M.3016.4 – *Security for the management plane: Profile proforma.*

ITU-T Recs M.3016.1, M.3016.2 and M.3016.3 specify a set of requirements, services and mechanisms for the appropriate security of the management functions necessary to support the telecommunications infrastructure. Because different administrations and organizations require varying levels of security support, ITU-T Recs M.3016.1, M.3016.2 and M.3016.3 do not specify whether a requirement/service/mechanism is mandatory or optional.

The proforma defined in ITU-T Rec. M.3016.4 is provided to assist organizations, administrations and other national/international organizations, to specify the mandatory and optional support of the requirements as well as value ranges, values, etc. to help implement their security policies.

### 2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- ITU-T Recommendation E.408 (2004), *Telecommunication networks security requirements.*
- ITU-T Recommendation M.3010 (2000), *Principles for a telecommunications management network.*
- ITU-T Recommendation M.3400 (2000), *TMN management functions.*
- ITU-T Recommendation X.509 (2000), *Information technology – Open Systems Interconnection – The Directory: Public-key and attribute certificate frameworks.*

- ITU-T Recommendation X.741 (1995), *Information technology – Open Systems Interconnection – Systems management: Objects and attributes for access control.*
- ITU-T Recommendation X.800 (1991), *Security architecture for Open Systems Interconnection for CCITT applications.*
- ITU-T Recommendation X.802 (1995), *Information technology – Lower layers security model.*
- ITU-T Recommendation X.803 (1994), *Information technology – Open Systems Interconnection – Upper layers security model.*
- ITU-T Recommendation X.810 (1995), *Information technology – Open Systems Interconnection – Security frameworks for open systems: Overview.*
- ITU-T Recommendation X.812 (1995), *Information technology – Open Systems Interconnection – Security frameworks for open systems: Access control framework.*
- ITU-T Recommendation X.813 (1996), *Information technology – Open Systems Interconnection – Security frameworks for open systems: Non-repudiation framework.*
- ITU-T Recommendation X.814 (1995), *Information technology – Open Systems Interconnection – Security frameworks for open systems: Confidentiality framework.*
- ITU-T Recommendation X.815 (1995), *Information technology – Open Systems Interconnection – Security frameworks for open systems: Integrity framework.*
- ITU-T Recommendation X.816 (1995), *Information technology – Open Systems Interconnection – Security frameworks for open systems: Security audit and alarms framework.*
- ISO/IEC 9979:1999, *Information technology – Security techniques – Procedures for the registration of cryptographic algorithms.*

### 3 Definitions

This Recommendation does not define any new terms.

### 4 Abbreviations and acronyms

This Recommendation uses the following abbreviations:

|       |                                                                                  |
|-------|----------------------------------------------------------------------------------|
| CCITT | International Telegraph and Telephone Consultative Committee                     |
| DCN   | Data Communication Network                                                       |
| FC    | Functional classes                                                               |
| ISO   | International Organization for Standardization                                   |
| ITU-T | International Telecommunication Union – Telecommunication Standardization Sector |
| LLA   | Logical Layered Architecture                                                     |
| MF    | Mediation Function                                                               |
| NEF   | Network Element Function                                                         |
| OSF   | Operation System Function                                                        |
| OSI   | Open System Interconnection                                                      |
| PIN   | Personal Identification Number                                                   |
| TF    | Transformation Function                                                          |