ITU-T

X.500

(11/2008)

TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU

SERIES X: DATA NETWORKS, OPEN SYSTEM COMMUNICATIONS AND SECURITY

Directory

Information technology – Open Systems Interconnection – The Directory: Overview of concepts, models and services

ITU-T Recommendation X.500





### ITU-T X-SERIES RECOMMENDATIONS

## DATA NETWORKS, OPEN SYSTEM COMMUNICATIONS AND SECURITY

PUBLIC DATA NETWORKS	
Services and facilities	X.1-X.19
Interfaces	X.20–X.49
Transmission, signalling and switching	X.50–X.89
Network aspects	X.90–X.149
Maintenance	X.150–X.179
Administrative arrangements	X.180–X.199
OPEN SYSTEMS INTERCONNECTION	
Model and notation	X.200-X.209
Service definitions	X.210-X.219
Connection-mode protocol specifications	X.220-X.229
Connectionless-mode protocol specifications	X.230-X.239
PICS proformas	X.240-X.259
Protocol Identification	X.260-X.269
Security Protocols	X.270-X.279
Layer Managed Objects	X.280-X.289
Conformance testing	X.290-X.299
INTERWORKING BETWEEN NETWORKS	
General	X.300-X.349
Satellite data transmission systems	X.350-X.369
IP-based networks	X.370-X.379
MESSAGE HANDLING SYSTEMS	X.400-X.499
DIRECTORY	TT #00 TT #00
DIRECTORY	X.500-X.599
OSI NETWORKING AND SYSTEM ASPECTS	X.500-X.599
	X.500–X.599 X.600–X.629
OSI NETWORKING AND SYSTEM ASPECTS	
OSI NETWORKING AND SYSTEM ASPECTS Networking	X.600-X.629
OSI NETWORKING AND SYSTEM ASPECTS  Networking Efficiency Quality of service Naming, Addressing and Registration	X.600–X.629 X.630–X.639
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1)	X.600–X.629 X.630–X.639 X.640–X.649
OSI NETWORKING AND SYSTEM ASPECTS  Networking Efficiency Quality of service Naming, Addressing and Registration	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729 X.730–X.799
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729 X.730–X.799
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS Commitment, Concurrency and Recovery	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729 X.730–X.799 X.800–X.849 X.850–X.859
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS Commitment, Concurrency and Recovery Transaction processing	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729 X.730–X.799 X.800–X.849 X.850–X.859 X.860–X.879
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS Commitment, Concurrency and Recovery Transaction processing Remote operations	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729 X.730–X.799 X.800–X.849 X.850–X.859 X.860–X.859 X.860–X.879 X.880–X.889
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS Commitment, Concurrency and Recovery Transaction processing Remote operations Generic applications of ASN.1	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729 X.730–X.799 X.800–X.849 X.850–X.859 X.860–X.879 X.880–X.889 X.890–X.899
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS Commitment, Concurrency and Recovery Transaction processing Remote operations Generic applications of ASN.1 OPEN DISTRIBUTED PROCESSING	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729 X.730–X.799 X.800–X.849 X.850–X.859 X.860–X.879 X.880–X.889 X.890–X.899 X.900–X.999
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS Commitment, Concurrency and Recovery Transaction processing Remote operations Generic applications of ASN.1 OPEN DISTRIBUTED PROCESSING INFORMATION AND NETWORK SECURITY	X.600–X.629 X.630–X.639 X.640–X.649 X.650–X.679 X.680–X.699 X.700–X.709 X.710–X.719 X.720–X.729 X.730–X.799 X.800–X.849 X.850–X.859 X.860–X.879 X.880–X.889 X.890–X.899 X.900–X.999 X.1000–X.1099
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS Commitment, Concurrency and Recovery Transaction processing Remote operations Generic applications of ASN.1 OPEN DISTRIBUTED PROCESSING INFORMATION AND NETWORK SECURITY SECURE APPLICATIONS AND SERVICES	X.600-X.629 X.630-X.639 X.640-X.649 X.650-X.679 X.680-X.699 X.700-X.709 X.710-X.719 X.720-X.729 X.730-X.799 X.800-X.849 X.850-X.859 X.860-X.879 X.860-X.879 X.890-X.899 X.900-X.999 X.1000-X.1099 X.1100-X.1199
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS Commitment, Concurrency and Recovery Transaction processing Remote operations Generic applications of ASN.1 OPEN DISTRIBUTED PROCESSING INFORMATION AND NETWORK SECURITY SECURE APPLICATIONS AND SERVICES CYBERSPACE SECURITY	X.600-X.629 X.630-X.639 X.640-X.649 X.650-X.679 X.680-X.699 X.700-X.709 X.710-X.719 X.720-X.729 X.730-X.799 X.800-X.849 X.850-X.859 X.860-X.879 X.880-X.889 X.890-X.899 X.900-X.999 X.1000-X.1099 X.1100-X.1199 X.1200-X.1299
OSI NETWORKING AND SYSTEM ASPECTS Networking Efficiency Quality of service Naming, Addressing and Registration Abstract Syntax Notation One (ASN.1) OSI MANAGEMENT Systems Management framework and architecture Management Communication Service and Protocol Structure of Management Information Management functions and ODMA functions SECURITY OSI APPLICATIONS Commitment, Concurrency and Recovery Transaction processing Remote operations Generic applications of ASN.1 OPEN DISTRIBUTED PROCESSING INFORMATION AND NETWORK SECURITY SECURE APPLICATIONS AND SERVICES	X.600-X.629 X.630-X.639 X.640-X.649 X.650-X.679 X.680-X.699 X.700-X.709 X.710-X.719 X.720-X.729 X.730-X.799 X.800-X.849 X.850-X.859 X.860-X.879 X.860-X.879 X.890-X.899 X.900-X.999 X.1000-X.1099 X.1100-X.1199

 $For {\it further details, please refer to the list of ITU-T Recommendations}.$ 



## Information technology – Open Systems Interconnection – The Directory: Overview of concepts, models and services

### **Summary**

ITU-T Recommendation X.500 | ISO/IEC 9594-1 introduces the concepts of the Directory and the DIB (Directory Information Base) and overviews the services and capabilities which they provide.

### Source

ITU-T Recommendation X.500 was approved on 13 November 2008 by ITU-T Study Group 17 (2009-2012) under the ITU-T Recommendation A.8 procedure. An identical text is also published as ISO/IEC 9594-1.



#### **FOREWORD**

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). 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.

### INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

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, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <a href="http://www.itu.int/ITU-T/ipr/">http://www.itu.int/ITU-T/ipr/</a>.

#### © ITU 2009

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.



### **CONTENTS**

	_	· · · · · · · · · · · · · · · · · · ·	
	Norm	ative references	
	2.1	Identical Recommendations   International Standards	
3	Defin	itions	
	3.1	Communication model definitions	
	3.2	Directory model definitions.	
	3.3	Distributed Operation definitions	
	3.4	Replication definitions	
	3.5	Basic directory definitions	
	Abbre	eviations	
	Conv	entions	
	Overv	view of the Directory	
		Directory Information Base (DIB)	
		•	
8		Directory service	
	8.1 8.2	Introduction Service qualification	
	8.3	Service qualification	
	8.4	Directory interrogation	
	8.5	Other outcomes	
9		istributed Directory	
	9.1 9.2	Functional model	
	9.2	Organizational model	
`		Operation of the model	
)		s control in the Directory.	
1	Servi	ce administration	
2	Replie	cation in the Directory	
	12.1	Introduction	
	12.2	Forms of Directory replication	
	12.3	Replication and consistency of Directory information.	
	12.4	Views of replication	
	12.5	Replication and Access Control	
3	Direc	tory protocols	
4	Syste	ms management of the Directory	
	14.1	Introduction	
	14.2	Management of the DIT domain	
	14.3	Management of Directory components	
nne	x A – A	Applying the Directory	
	A.1	The Directory environment	
	A.2	Directory service characteristics	
	A.3	Patterns of use of the Directory	
	A.4	Generic applications	
		Amendments and corrigenda	



# DOCKET

# Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

# **Real-Time Litigation Alerts**



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

# **Advanced Docket Research**



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

# **Analytics At Your Fingertips**



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

### API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

### **LAW FIRMS**

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

### **FINANCIAL INSTITUTIONS**

Litigation and bankruptcy checks for companies and debtors.

## **E-DISCOVERY AND LEGAL VENDORS**

Sync your system to PACER to automate legal marketing.

