



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

H.350.5

(08/2003)

SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Systems and
terminal equipment for audiovisual services

**Directory services architecture for non-standard
protocols**

ITU-T Recommendation H.350.5

ITU-T H-SERIES RECOMMENDATIONS
AUDIOVISUAL AND MULTIMEDIA SYSTEMS

CHARACTERISTICS OF VISUAL TELEPHONE SYSTEMS	H.100–H.199
INFRASTRUCTURE OF AUDIOVISUAL SERVICES	
General	H.200–H.219
Transmission multiplexing and synchronization	H.220–H.229
Systems aspects	H.230–H.239
Communication procedures	H.240–H.259
Coding of moving video	H.260–H.279
Related systems aspects	H.280–H.299
SYSTEMS AND TERMINAL EQUIPMENT FOR AUDIOVISUAL SERVICES	H.300–H.399
SUPPLEMENTARY SERVICES FOR MULTIMEDIA	H.450–H.499
MOBILITY AND COLLABORATION PROCEDURES	
Overview of Mobility and Collaboration, definitions, protocols and procedures	H.500–H.509
Mobility for H-Series multimedia systems and services	H.510–H.519
Mobile multimedia collaboration applications and services	H.520–H.529
Security for mobile multimedia systems and services	H.530–H.539
Security for mobile multimedia collaboration applications and services	H.540–H.549
Mobility interworking procedures	H.550–H.559
Mobile multimedia collaboration inter-working procedures	H.560–H.569
BROADBAND AND TRIPLE-PLAY MULTIMEDIA SERVICES	
Broadband multimedia services over VDSL	H.610–H.619

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

ITU-T Recommendation H.350.5

Directory services architecture for non-standard protocols

Summary

This Recommendation describes an LDAP schema to represent non-standard multimedia communications endpoints, and is meant to provide a very basic framework for representing these elements in a directory. It is an auxiliary class related to ITU-T Rec. H.350 and derives much of its functionality from that architecture. Implementors should review ITU-T Rec. H.350 in detail before proceeding with this Recommendation.

The scope of this Recommendation does not include normative methods for the use of the LDAP directory itself or the data it contains. The purpose of the schema is not to represent all possible data elements in the H.323 protocol, but rather to represent the minimal set required to accomplish the design goals enumerated in ITU-T Rec. H.350.

Source

ITU-T Recommendation H.350.5 was approved by ITU-T Study Group 16 (2001-2004) under the ITU-T Recommendation A.8 procedure on 6 August 2003.

Keywords

Directory Services, H.235, H.320, H.323, LDAP, SIP.

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.

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, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

© ITU 2003

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

CONTENTS

	Page
1 Scope	1
1.1 Extending the schema.....	1
2 References.....	1
2.1 Normative references.....	1
2.2 Informative references.....	1
3 Definitions	2
4 Abbreviations.....	2
5 Conventions	2
6 Object class definitions.....	2
6.1 genericIdentity	2
6.2 genericIdentityProtocolIdentifier	2
6.3 genericIdentityMessage	3
7 genericIdentity LDIF files	3
Annex A – Indexing profile	5
Appendix I – Electronic attachment.....	5

ITU-T Recommendation H.350.5

Directory services architecture for non-standard protocols

1 Scope

This Recommendation describes an LDAP schema to represent non-standard multimedia communications endpoints, and is meant to provide a very basic framework for representing these elements in a directory. It is an auxiliary class related to ITU-T Rec. H.350 and derives much of its functionality from that architecture. Implementors should review ITU-T Rec. H.350 in detail before proceeding with this Recommendation.

The scope of this Recommendation does not include normative methods for the use of the LDAP directory itself or the data it contains. The purpose of the schema is not to represent all possible data elements in the H.323 protocol, but rather to represent the minimal set required to accomplish the design goals enumerated in ITU-T Rec. H.350.

1.1 Extending the schema

The genericIdentity classes may be extended as necessary for specific implementations. See the base ITU-T Rec. H.350 for a discussion on schema extension.

In general, non-standard protocols will have a variety of attributes that only have meaning to the specific protocol. Implementors should be careful to use consistent and meaningful naming schemes to avoid confusion with other protocols that may be represented by the same object class.

It should be noted that standardized protocols should not extend and use genericIdentity, but should instead create and standardize their own protocol-specific auxiliary classes as new contributions to the H.350.x series of Recommendations.

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.

2.1 Normative references

- ITU-T Recommendation H.350 (2003), *Directory services architecture for multimedia conferencing*.
- IETF RFC 3377 (2002), *Lightweight Directory Access Protocol (v3): Technical Specification*.

2.2 Informative references

- HOWES (Timothy A.), PhD, SMITH (Mark C.), GOOD (Gordon S.): *Understanding And Deploying LDAP Directory Services*, New Riders Publishing, 1999, ISBN: 1578700701.
- HOWES (Timothy A.), PhD, SMITH (Mark C.): *LDAP Programming Directory-Enabled Applications with Lightweight Directory Access Protocol*, New Riders Publishing, 1997, ISBN: 1578700000.

3 Definitions

This Recommendation defines the following terms:

3.1 commObject: An LDAP object class defined in ITU-T Rec. H.350 that represents generic multimedia conferencing endpoints.

3.2 white pages: An application that allows end users to look up the address of another user.

4 Abbreviations

This Recommendation uses the following abbreviation:

LDAP Lightweight Directory Access Protocol (as defined in RFC 3377).

5 Conventions

In this Recommendation, the following conventions are used:

"Shall" indicates a mandatory requirement.

"Should" indicates a suggested but optional course of action.

"May" indicates an optional course of action rather than a recommendation that something take place.

References to clauses, subclauses, annexes and appendices refer to those items within this Recommendation unless another specification is explicitly listed.

6 Object class definitions

The genericIdentity object class represents generic multimedia conferencing information associated with a person or resource. It is an auxiliary class and is related to the commObject class, which is defined in ITU-T Rec. H.350. It should be noted that the particular user or resource with which an endpoint is associated via commOwner takes on special importance, as that may represent contact information required for further information in the use of the particular endpoint.

If specific attributes, such as IP address or URIs, are necessary to support this endpoint type, then the standard attributes defining IP address and URI should be used. Keep in mind that in a directory of directories scenario, external searches will only be aware of the genericIdentity attributes and will not know to display IP address or URI.

6.1 genericIdentity

```
OID: 0.0.8.350.1.1.7.2.1
objectclasses: (0.0.8.350.1.1.7.2.1
NAME 'genericIdentity'
DESC 'genericIdentity object'
SUP top AUXILIARY
    MAY (genericIdentityProtocolIdentifier $ genericIdentityMessage
    )
)
```

6.2 genericIdentityProtocolIdentifier

```
OID: 0.0.8.350.1.1.7.1.1
attributetypes: (0.0.8.350.1.1.7.1.1
NAME 'genericIdentityProtocolIdentifier'
DESC 'name of the non-standard protocol'
EQUALITY caseIgnoreMatch
SUBSTR caseIgnoreSubstringsMatch
```

SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)

Application utility class

Standard

Number of values

multi

Definition

Text string indicating the name of the non-standard protocol represented by this endpoint.

Notes

Semantics

Example applications for which this attribute would be useful

Search for endpoints that support a specific non-standard protocol.

Example (LDIF fragment)

```
genericIdentityProtocolIdentifier: 'MPEG2' //MPEG2 endpoint
```

6.3 genericIdentityMessage

```
OID: 0.0.8.350.1.1.7.1.2
attributetypes: (0.0.8.350.1.1.7.1.2
NAME 'genericIdentityMessage'
DESC 'informative text string'
EQUALITY caseIgnoreMatch
SUBSTR caseIgnoreSubstringsMatch
SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
```

Application utility class

Standard

Number of values

multi

Definition

Informative text string containing information about multimedia conferencing capabilities of the associated user and/or location of the service. This information may include instructions, other connection information, or pointers to specific documentation.

Notes

Semantics

Example applications for which this attribute would be useful

Multimedia conferencing services that are not H.323, H.320, or SIP; for example: MPEG2, Access Grid or other IP Multicast service; Instant Messaging Service

Example (LDIF fragment)

```
genericIdentityMessage: 'see www.foo.com/mpeg2 for connection instructions'
```

7 genericIdentity LDIF files

This clause contains a schema configuration file for genericIdentity that can be used to configure an LDAP server to support this class

```
# genericIdentity Object Schema
#
# Schema for representing a genericIdentity Protocol Object in an LDAP Directory
```

```

#
# Abstract
#
# This Recommendation defines the schema for representing genericIdentity
# object in an LDAP directory [LDAPv3]. It defines schema elements
# to represent an genericIdentity object [genericIdentity].
#
#           .1 = Communication related work
#           .1.7 = genericIdentity
#           .1.7.1 = attributes
#           .1.7.2 = objectclass
#           .1.7.3 = syntax
#
#
# Attribute Type Definitions
#
#   The following attribute types are defined in this Recommendation:
#
#   genericIdentityProtocolIdentifier
#   genericIdentityMessage
dn: cn=schema
changetype: modify
#
# if you need to change the definition of an attribute,
#           then first delete and re-add in one step
#
# if this is the first time you are adding the genericIdentity
# objectclass using this LDIF file, then you should comment
# out the delete attributetypes modification since this will
# fail. Alternatively, if your ldapmodify has a switch to continue
# on errors, then just use that switch -- if you are careful
#
delete: attributetypes
attributetypes: (0.0.8.350.1.1.7.1.1 NAME 'genericIdentityProtocolIdentifier' )
attributetypes: (0.0.8.350.1.1.7.1.2 NAME 'genericIdentityMessage' )
-
#
# re-add the attributes -- in case there is a change of definition
#
#
add: attributetypes
attributetypes: (0.0.8.350.1.1.7.1.1
    NAME 'genericIdentityProtocolIdentifier'
    DESC 'name of the non-standard protocol'
    EQUALITY caseIgnoreMatch
    SUBSTR caseIgnoreSubstringsMatch
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.15 )
attributetypes: (0.0.8.350.1.1.7.1.2
    NAME 'genericIdentityMessage'
    DESC 'informative text string'
    EQUALITY caseIgnoreMatch
    SUBSTR caseIgnoreSubstringsMatch
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.15 )
-
# Object Class Definitions
#
#   The following object class is defined in this Recommendation:
#
#   genericIdentity
# genericIdentity
#
#

```

```

delete: objectclasses
objectclasses: (0.0.8.350.1.1.7.2.1 NAME 'genericIdentity' )
-
add: objectclasses
objectclasses: (0.0.8.350.1.1.7.2.1
    NAME 'genericIdentity'
    DESC 'genericIdentity object'
    SUP top AUXILIARY
    MAY ( genericIdentityProtocolIdentifier $ genericIdentityMessage )
)
-
#
# end of LDIF
#

```

Annex A

Indexing profile

Indexing of attributes is an implementation-specific activity and depends upon the desired application. Non-indexed attributes can result in search times sufficiently long to render some applications unusable. Use of this profile is optional.

genericIdentityProtocolIdentifier: equality

genericIdentityMessage: equality

Appendix I

Electronic attachment¹

The attached file `genericIdentity.ldif.txt` contains a text only version of the LDIF file described in clause 7.



genericIdentity.ldi
f.txt

¹ In order to help paper copy users, the content of this appendix is available for free download from the ITU publication website at:

<http://www.itu.int/rec/recommendation.asp?type=folders&lang=e&parent=T-REC-H.350.5>

SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communications
Series Y	Global information infrastructure and Internet protocol aspects
Series Z	Languages and general software aspects for telecommunication systems