

## RECOMMENDATION FOR A SHORT HAND X.400 ADDRESS

CERN Ref: CERN/DD/89/30  
RARE Ref: WG1-MHS-89.06.27  
Status: Final  
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CM-P00059930

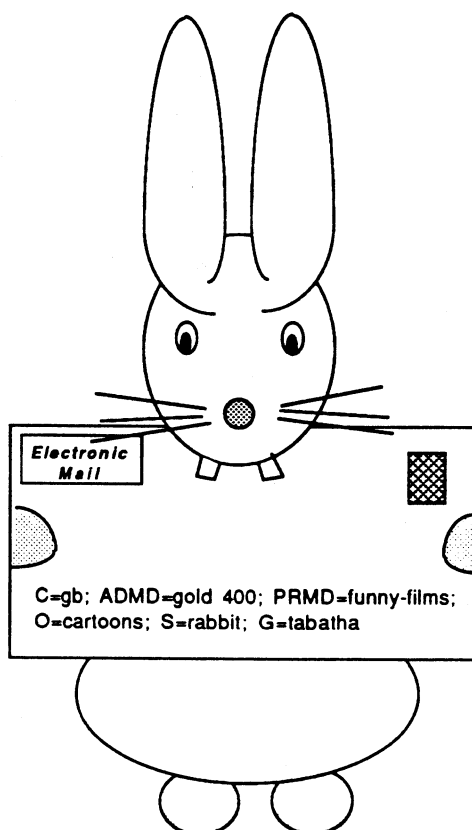
Published in Computer Networks and ISDN Systems 17 (1989)

ISO Contribution: ISO/IEC JTC 1/SC 18/WG 4 N1042

### Abstract

This recommendation describes a short hand notation for writing X.400 addresses, thus allowing experienced X.400 users to exchange their addresses in a single, precise format. An example X.400 address written in the recommended notation is:

C=gb; ADMD=gold 400; PRMD=funny-films; O=cartoons; S=rabbit; G=tabatha



## Aims of this Recommendation

In X.400, messages are addressed to recipients by giving values to what are termed "attributes of the O/R-address (Originator/Recipient address)". The general attributes (1988) include Country code, Administration Management Domain, X121 address, Terminal identifier, Terminal type, Private Management Domain, Organisation Name, Organisational Units, Unique user agent identifier, Common name, Personal Name, Surname, Given Name, Initials and Generation Qualifier. X.400 does not however define a user interface for entering values for these attributes. Some X.400 systems prompt for values via menus, others define their own differing syntax for assigning values to attributes. This has the consequence that there is no standard textual representation for people to exchange their X.400 addresses, for example, on the back of a business card or attendance lists at meetings. If each attribute name is written in full then deducing the values is rather obvious, however the tendency is to use a short hand representation. The objectives of this recommendation are therefore:

- To suggest a preferred short hand notation for writing X.400 addresses which could be used and understood by any experienced X.400 user.
- To simplify local X.400 user guides which should define the mapping between the recommended notation and the local user interface. (Note that the recommended notation is not intended to replace the local user interface.)
- To give a meaning to some alternative notations already known to be in use.

The short hand notation described here is intended for communities of experienced X.400 users. When exchanging addresses with those unfamiliar with X.400 O/R-addresses, a longer self-explanatory form is more appropriate, as discussed in the section 'Guidelines for Business Cards' at the end of this recommendation.

## Examples of the Recommended Notation

C = de; ADMD = dbp; PRMD = gmd; OU = darmstadt; S = grimm

C = fr; ADMD = atlas; PRMD = aristote; O = inria; OU = mirsa; S = huiterna

C = gb; ADMD = gold 400; PRMD = uk.ac; O = rutherford; S = craigie; G = jim

## Definition of the Notation

The notation takes the form:

<keyword> = <value>; <keyword> = <value>; ... <keyword> = <value>

where <keyword> can be:

C	Country name
ADMD	Administration management domain name
X121	X121 address (network address)
T-ID	Terminal identifier
T-TY	Terminal type
PRMD	Private management domain name
O	Organisation name
OU	Organisational unit name
UA-ID	Unique user agent identifier (numeric user identifier)
CN	Common name
S	Surname
G	Given name
I	Initials
GQ	Generation Qualifier

Note:

1. Keywords and their values should be written in hierarchically descending order starting with country name.  
(C>ADMD>X121>T-ID>T-TY>PRMD>O>OU>UA-ID>CN>S>G>I>GQ).
2. Organisation Units are written in their natural hierarchically descending order (i.e. OU1>OU2...>OU<sub>n</sub>).
3. Keywords with empty values are omitted.
4. No distinction is made between upper and lower case although keywords in upper case and their values in lower case gives a clearer display.
5. Consecutive spaces inside <value> are interpreted as a single space. Leading or trailing spaces inside <value> along with all other space characters are considered as insignificant.
6. No keyword abbreviation is given for the personal name attribute since it is more completely described by the 4 attributes: S,G,I and GQ.

### Why use the recommended notation?

Agreeing to use a single notation for expressing X.400 addresses has the obvious result of simplifying exchange of addresses for people who should not have to be knowledgeable about the internal structure of X.400 messages. Some reasons for selecting the recommended notation defined in this paper are outlined below.

- The keywords match those defined in recommendation RFC 987 (Mapping between X.400 and RFC 822). RFC 987 will play an important role in the migration phase towards X.400 and consistent use of keywords were chosen to minimise any confusion.
- Descending order of keywords  
(C>ADMD>X121>T-ID>T-TY>PRMD>O>OU>UA-ID>CN>S>G>I>GQ) gives the most natural order for organisational units (O>OU1>OU2...>OU<sub>n</sub>). In addition, descending order seems to be preferred by the members of standards bodies who have used this order in their examples of X.400 addresses.
- Semicolon (;) was chosen as a separator since, unlike slash (/), it is unlikely to cause conflict with characters forming part of a keyword value and comma (,) is often used as a separator in a list of addresses.
- The notation is brief, complete, unambiguous and simple to understand.

**Formal Description:**

DEFINITIONS ::= BEGIN

--- An address of X.400 standard attributes is represented by a hierarchically descending  
 --- ordered list of Standard Attribute Value Assertions.

--- List of Standard Attribute Value Assertions:  
 SAVAList ::= SAVA | SAVA ";" Spaces SAVAList

--- Standard Attribute Value Assertion:  
 SAVA ::= KeywordRepresentation "=" ValueRepresentation

KeywordRepresentation ::=  
 "C" | "ADMD" | "X121" | "T-ID" | "T-TY" | "PRMD" | "O" | "OU" |  
 "UA-ID" | "CN" | "S" | "G" | "I" | "GQ"

ValueRepresentation ::= PrintableCharacter | PrintableCharacter ValueRepresentation | empty

Spaces ::= Space | Space Spaces | empty

Space ::= SPACE | TAB | CR | LF

--- No formal end of SAVAList is defined here. The start and stop delimiter of a SAVAList  
 --- must be made clear by the context.  
 --- (It is considered to be outside the scope of this description).

END

**Domain Defined Attributes**

Domain defined attributes are not standard attributes and will not normally form part of an X.400 address. They are used to express non-X.400 addresses. As some implementations of X.400 are unable to generate domain defined attributes their use should be avoided however when no X.400 address with standard attributes is possible, domain defined attributes can be written after any general attributes with the notation:

DD.<type> = <value>; DD.<type> = <value>; ...

e.g. C=us; ADMD=xyz; PRMD=gw; DD.rfc-822=user(a)subdomains.domain  
 C=nl; ADMD=abc; PRMD=gw; DD.uucp=host!user  
 C=gb; ADMD=gold 400; PRMD=gw; DD.jnt-mail=user(a)domain.subdomains

(Note that '@' is not a valid character for X.400 attribute values and is replaced by '(a)')

The simple <keyword> = <value> notation has been extended to <keyword>.<type> = <value> since domain defined attributes (unlike standard attributes) are composed of a type as well as a value.

## Alternative Notations

For technical or historical reasons you may find X.400 addresses written in alternative notations. These are not recommended notations but are mentioned here with the aim of clarifying their interpretation.

Most alternative notations follow the idea of using keyword expressions (keyword = value) but with many variations in the keywords used and the separator/delimiter between the expressions.

Some alternative keywords you may need to understand are:

Country name	C	CO	COUNTRY	CTN
Administration domain name	ADMD	A		ADM
X121 address	X121	X		
Terminal identifier	T-ID	T		
Terminal Type	T-TY	TT		
Private domain name	PRMD	P	PMD	PRI
Organisational name	O	ON		ORG
Organisational unit name	OU	OU1 OU2 ...		OUN
Unique UA identifier	UA-ID	U		
Common name	CN			COM
Surname	S	SN		SUR
Given name	G	GI	GN	GIV
Initials	I	IN		INI
Generation Qualifier	GQ	GE		GEN
Domain defined attributes, type XXX	DD.XXX	D.XXX		DDV DDT
Numeric User Identifier				NUS
Network Address for telex				TLX
teletex				TTX
facsimile				FAX
videotex				VTX

Alternative Separators/delimiters you may see are: ";", "/", " ", "

Keywords are sometimes expressed in ascending order, rather than the preferred hierarchically descending order (C > ADMD > X121 > T-ID > T-TY > PRMD > O > OU ...). You should note that in ascending order the organisation units should be interpreted with the least significant appearing first (OUn... < OU2 < OU1 < O).

You may therefore see the recommended address notation:

C = ch; ADMD = arcom; PRMD = ski; O = zermatt; OU = chairlift; S = mouse; G = mickey

written in some of the following ways:

/C = ch /ADMD = arcom /PRMD = ski /O = zermatt /OU = chairlift /S = mouse /G = mickey

C = CH; A = ARCOM; P = SKI; O = ZERMATT; OU = CHAIRLIFT; S = MOUSE; G = mickey

G = mickey, S = mouse, OU = chairlift, O = zermatt, PRMD = ski, ADMD = arcom, C = ch

CO = ch; ADMD = arcom; PRMD = ski; ON = zermatt; OU1 = chairlift; SN = mouse; GN = mickey

## Guidelines for Business Cards

Since business cards are mass produced, it might not be so important that the address is short to write, and the cards may be seen by a wide range of people, not all of them familiar with the short hand notation described in this recommendation. A longer form of X.400 address may then be more appropriate. This longer form should be self-explanatory so there is no need to define a precise format, however some general guidelines are:

- choose attribute names which are obvious and unambiguous
- clearly separate attribute names from their values
- print attributes in descending order (i.e. country code first) so that the organisational units appear in their natural sequence. If attributes are printed in ascending order and include more than one organisational unit, the least significant should appear first (...OU2 < OU1 < O).

Below is an example format suggested, for use on the back of a business card, by the UK research community.

Country	GB
ADMD	Gold 400
PRMD	UK.AC
Organisation	Rutherford
Surname	Bloggs
Given-name	Joe

## Annex A: Valid Characters for use in an O/R Address

Standard attribute values (and domain-defined attribute types and values) are constructed from Numeric, Printable, and Teletex Strings. The use of Printable Strings is the most common (see Definition of Printable String below). The exceptions are X121 address and Unique user agent whose values must be a Numeric string (defined below) and Terminal type which takes its value from a predefined list (given below).

### Definition of Printable String:

Below is a quotation of table 5 (PrintableString) of ISO 8824, ASN.1 (equivalent to X.208) paragraph 29.

#### Printable String:

Capital letters	A,B,...,Z
Small letters	a,b,...,z
Digits	0,1,...,9
Space	(space)
Apostrophe	'
Left Paranthesis	(
Right Paranthesis	)
Plus sign	+
Comma	,
Hyphen	-
Full stop	.
Solidus	/
Colon	:
Equal sign	=
Question mark	?

Note: Semicolon(;), Exclamation mark(!) and Underscore(\_) are NOT Printable String characters!

### Definition of Numeric String:

Below is a quotation of table 4 (NumericString) of ISO 8824, ASN.1 (equivalent to X.208) paragraph 29.

#### Numeric String:

Digits	0,1,...,9
Space	(space)

### Definition of Terminal Type:

The value of Terminal type is any one of the following:

Telex, Teletex, G3 facsimile, G4 facsimile, IA5 terminal and Videotex.

If this attribute is part of a short hand address notation, it is recommended to spell one of these words out, for example "T - TY = IA5 terminal".

### References:

The address attributes treated in this recommendation are the standard attributes of type "general" listed in table 9 (Standard Attributes) of ISO 10021-2 (equivalent to X.402) (Overall Architecture),



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paragraph 18.3 (Standard Attributes), and the domain defined attributes. Table 9 of ISO 10021-2/X.402 also describes the character sets from which the attribute values are constructed (see also ISO 10021-2/X.402, paragraph 18.2, Character Sets). All character string sets, including Numeric, Printable and Teletex String, and their defining registration numbers are listed in table 6 of ISO 8824, ASN.1 (equivalent to X.208), paragraph 29.