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Abstract

This work is the result of the IETF Integrated Directory Services (IDS)
Working Group. The IDS Working Group proposes a standard specification
for a simple Internet White Pages service by defining a common schema for
use by the various White Pages servers. This schema is independent of
specific implementations of the White Pages service.

This document specifies the minimum set of core attributes of a White Pages
entry for an individual and describes how new objects with those attributes
can be defined and published. It does not describe how to represent other
objects in the White Pages service. Further, it does not address the search
sort expectations within a particular service.

1.0 Introduction to IWPS

The Internet community has stated a need for the development and deployment
of a White Pages service for use in locating information about people in the
Internet [PA94]. To facilitate interoperability and to provide a common user
experience, the Internet White Pages Service (IWPS) must have a common set
of information about each person.

A common user object would allow a user to go between implementations of
the service and to expect consistency in the types of information provided.
A common user object would also provide developers with an unambiguous
method of representing the information managed by the service.

This document will focus only on common information modeling issues to
which all IWPS providers must conform.

2.0 Scope
This document establishes the set of attributes that specify the Common User Information Object for the IWPS. It does not attempt to be an exhaustive specification of all objects that may be stored in the IWPS. The process used by this document to define the user object is recommended to be used to define other information objects used in the IWPS.

All conforming implementations must support at the minimum, the core attributes listed in Section 5.0. Implementations may include local attributes in addition to the core set and still be considered "in conformance".

This document will not specify rules with respect to information privacy. Each country has its own set of laws and practices. Previous work covering this area has been done by the North American Directory Forum (NADF), whose publication [NADF92] contain recommendations for registrants’ rights in both the USA and Canada.

This document does not specify a Directory access protocol (i.e. whois++, LDAP, DAP, etc.).

3.0 IWPS Schema Considerations

The description of the IWPS information object consists of the following requirements:

1. Syntax for definition/representation of information object templates.
2. Publication of information object templates, etc.
3. Database structure or schema.

Items 1 and 2 will be covered in this document. Because database structure can potentially restrict implementations (i.e. X.500 schema based versus DNS schema based) it will be treated as a separate research topic and will not be defined in this paper.

4.0 Syntax for Definition/Representation of Information Object Templates

A clear, precise, and consistent method must be used when discussing information object templates and their associated attributes are discussed within the context of IWPS. Therefore, this document uses the previously defined syntax used by LDAP. The syntax is included in section 6.0 for reference.

The IWPS Person Object specifies a limited set of recommended attributes that a White Pages Service should include. For instance, storage of user attributes is a local issue, therefore, this draft suggest storage sizes but not storage types.

This document lists the syntax with the attributes for developers of user interface (UIs) to use as a reference, but it does not specify how the UI should display these attributes.

Attributes that contain multiple-line text (i.e. Postal address) must use the procedure defined in RFC 822 in section 3.1.1 on "folding" long header lines [RFC-822].

5.0 Information Object Template Definitions

This section describes the IWPS Person Information Object Template and its associated attributes. The Person Object is a simple list of attributes, no structure nor object inheritance is implied.

IWPS client applications should use the following size recommendations as the maximum sizes of the attributes. However, applications should be able to handle attributes of arbitrary size, returned by a server which may not comply...
with these recommendation. All size recommendations are in characters.

Note: Multi-byte languages will require larger storage allocation to achieve
the character size recommendation.

This set of attributes describes information types, and are not defined
attributes in a particular schema. Any technology deploying a White Page
service (WHOIS ++, LDAP, vCard, etc.) will need to publish as a companion
document, their specific schema detailing how the general attributes of the
White Pages schema are expressed.

SPECIAL CONSIDERATIONS

Phone number: The full international form is recommended;
i.e. +1 206 703 0852. The field may contain
additional information following the phone
number. For example:

+1 800 759 7243 #123456
+1 505 882 8080 ext. 30852

Email address: Is multivalued and uses the otherMailbox syntax
to identify the different email addresses.

Certificate: Is multivalued.

Common Name: Is multivalued.

Language Spoken: Is multivalued.

THE INFORMATION OBJECT TEMPLATE FOR THE IWPS PERSON

--General Attributes --

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Size</th>
<th>Syntax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>360</td>
<td>otherMailbox</td>
</tr>
<tr>
<td>Cert</td>
<td>4000</td>
<td>Certificate</td>
</tr>
<tr>
<td>Home Page</td>
<td>128</td>
<td>URI</td>
</tr>
<tr>
<td>Common Name</td>
<td>64</td>
<td>DirectoryString</td>
</tr>
<tr>
<td>Given Name</td>
<td>48</td>
<td>DirectoryString</td>
</tr>
<tr>
<td>Surname</td>
<td>48</td>
<td>DirectoryString</td>
</tr>
<tr>
<td>Organization</td>
<td>64</td>
<td>DirectoryString</td>
</tr>
<tr>
<td>Locality</td>
<td>20</td>
<td>DirectoryString</td>
</tr>
<tr>
<td>Country</td>
<td>2</td>
<td>DirectoryString (ISO 3166)</td>
</tr>
<tr>
<td>Language Spoken</td>
<td>128</td>
<td>DirectoryString (RFC 1766)</td>
</tr>
</tbody>
</table>

--Personal Attributes

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Size</th>
<th>Syntax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Phone</td>
<td>30</td>
<td>PrintableString</td>
</tr>
<tr>
<td>Personal Fax</td>
<td>30</td>
<td>PrintableString</td>
</tr>
<tr>
<td>Personal Mobile Phone</td>
<td>30</td>
<td>PrintableString</td>
</tr>
<tr>
<td>Personal Pager Number</td>
<td>30</td>
<td>PrintableString</td>
</tr>
<tr>
<td>Personal Postal Address</td>
<td>255</td>
<td>PostalAddress</td>
</tr>
<tr>
<td>Description</td>
<td>255</td>
<td>DirectoryString</td>
</tr>
</tbody>
</table>

--Organizational Attributes

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Size</th>
<th>Syntax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>64</td>
<td>DirectoryString</td>
</tr>
<tr>
<td>Office Phone</td>
<td>30</td>
<td>PrintableString</td>
</tr>
<tr>
<td>Office Fax</td>
<td>30</td>
<td>PrintableString</td>
</tr>
<tr>
<td>Office Mobile Phone</td>
<td>30</td>
<td>PrintableString</td>
</tr>
<tr>
<td>Office Pager</td>
<td>30</td>
<td>PrintableString</td>
</tr>
<tr>
<td>Office Postal Address</td>
<td>255</td>
<td>PostalAddress</td>
</tr>
</tbody>
</table>
6.0 IWPS Person Information Object Template Syntax

This section defines the syntax used by the IWPS person information object template. It is copied in whole from the LDAP attribute working document with some modification for completeness.

Certificate:

Due to differences from version X.509(1988) and X.509(1993) and additional changes to support Certificate extensions, no string representation is defined. Values with Certificate syntax must only be transferred using the binary encoding, by requesting or returning the attributes with descriptions "userCertificate;binary" or "caCertificate;binary".

DirectoryString:

A string with DirectoryString syntax is encoded in the UTF-8 form of ISO 10646 (a superset of Unicode). Servers and clients must be prepared to receive arbitrary Unicode characters in values.

For characters in the PrintableString form, the value is encoded as the string value itself.

If it is of the TeletexString form, then the characters are transliterated to their equivalents in UniversalString, and encoded in UTF-8 [Davis].

If it is of the UniversalString or BMPString forms [UCS], UTF-8 is used to encode them.

Note: the form of DirectoryString is not indicated in protocol unless the attribute value is carried in binary. Servers which convert to DAP must choose an appropriate form. Servers must not reject values merely because they contain legal Unicode characters outside of the range of printable ASCII.

GeneralizedTime:

Values of this syntax are encoded as printable strings, represented as specified in X.208. Note that the time zone must be specified. It is strongly recommended that Zulu time zone be used. For example:

199412161032Z

OtherMailbox:

Values of the OtherMailbox syntax are encoded according to the following:

<otherMailbox> ::= <mailbox-type> '$' <mailbox>

<mailbox-type> ::= an encoded Printable String

<mailbox> ::= an encoded IA5 String

In the above, <mailbox-type> represents the type of mail system in which the mailbox resides, for example "MCIMail"; and <mailbox> is the
actual mailbox in the mail system defined by <mailbox-type>.

NB: Practical experience has shown that developers will commonly use the attribute RFC822 address instead of otherMailbox with the value equal:

Internet$foo@bar.com.

PostalAddress:

Values with the PostalAddress syntax are encoded according to the following:

<postal-address> ::= <dstring> | <dstring> '$' <postal-address>

In the above, each <dstring> component of a postal address value is encoded as a value of type DirectoryString syntax. Backslashes and dollar characters, if they occur in the component, are quoted as follows:

A backslash quoting mechanism is used to encode symbol character such as '''', '$' or '#'. The backslash is followed by a pair of hexadecimal digits representing the next character. A backslash itself in the string which forms part of a larger syntax is always transmitted as '\5C' or '\5c'.

PrintableString:

The encoding of a value with PrintableString syntax is the string value itself. PrintableString is limited to the characters in production <p>. Where production <p> is described by the following:

<a> ::= 'a' | 'b' | 'c' | 'd' | 'e' | 'f' | 'g' | 'h' | 'i' | 'j' | 'k' | 'l' | 'm' | 'n' | 'o' | 'p' | 'q' | 'r' | 's' | 't' | 'u' | 'v' | 'w' | 'x' | 'y' | 'z' | 'A' | 'B' | 'C' | 'D' | 'E' | 'F' | 'G' | 'H' | 'I' | 'J' | 'K' | 'L' | 'M' | 'N' | 'O' | 'P' | 'Q' | 'R' | 'S' | 'T' | 'U' | 'V' | 'W' | 'X' | 'Y' | 'Z'

<d> ::= '0' | '1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9'

<p> ::= <a> | <d> | ''' | '(' | ')' | '+' | ',' | '-' | '.' | '/'

7.0 Publication of IWPS Information Object Templates.

The Working Group recommends that all information object templates used for the IWPS be published as an RFC at the minimum. To facilitate distribution, these publications should be made available on an Internet information server (i.e. InterNIC).

Individual organizations may define information object templates that are local in scope as required to meet local organizational needs. All information that the organization wishes to be part of the IWPS must use a published IWPS information object template.

8.0 Data Privacy

Each country, and each state within the US, has legislation defining information privacy. The suggested attributes in Section 5.0 may be considered private and the directory administrator is strongly advised to verify the privacy legislation for his domain.

As suggested in "Privacy and Accuracy in NIC Databases" [RFC 1355], each
directory provider should provide a clear statement of the purpose of the directory, the information that should be contained in it, and a privacy policy associated with that information. This policy should include restrictions for data dissemination.

This policy is strongly recommended for the US and Canada and required by many countries in the European Community for data sharing.

9.0 Data Integrity

Data Integrity was first addressed in RFC1107 [KS89], which states "a White Pages service will not be used, if the information it provides is out of date or incorrect." Therefore, any production IWPS provider must insure that all data is reasonably correct and up-to-date.

The Ancillary Attributes of the IWPS person template denote the information’s source and date of origin, and the source and date of its latest modification. They provide the user with some measurement of the quality of data making it easy to determine the owner and freshness of the data retrieved.

The IWPS User Agent must be able to retrieve and display Ancillary Attributes. Retrieval and display may be done as separate operations.

The Ancillary Attributes are recommended as the minimum set of attributes for any new information object template. Each IWPS server may individually decide whether to support the storage and retrieval of this data.

The Ancillary Attributes (also defined in Section 5.0) provide the following information about its associated information object:

1. The date and time the entry was created; Creation Date.
2. Owner or individual responsible for the data creation; Creator Name.
3. The date and time of the last modification; Modified Date.
4. Individual responsible for the last modification; Modifier Name.

10.0 Security Considerations

Security is implementation and deployment specific and as such is not addressed in this memo. Security must ensure that the constraints mentioned in the Data Privacy Section 8.0 are complied with.

11.0 References


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