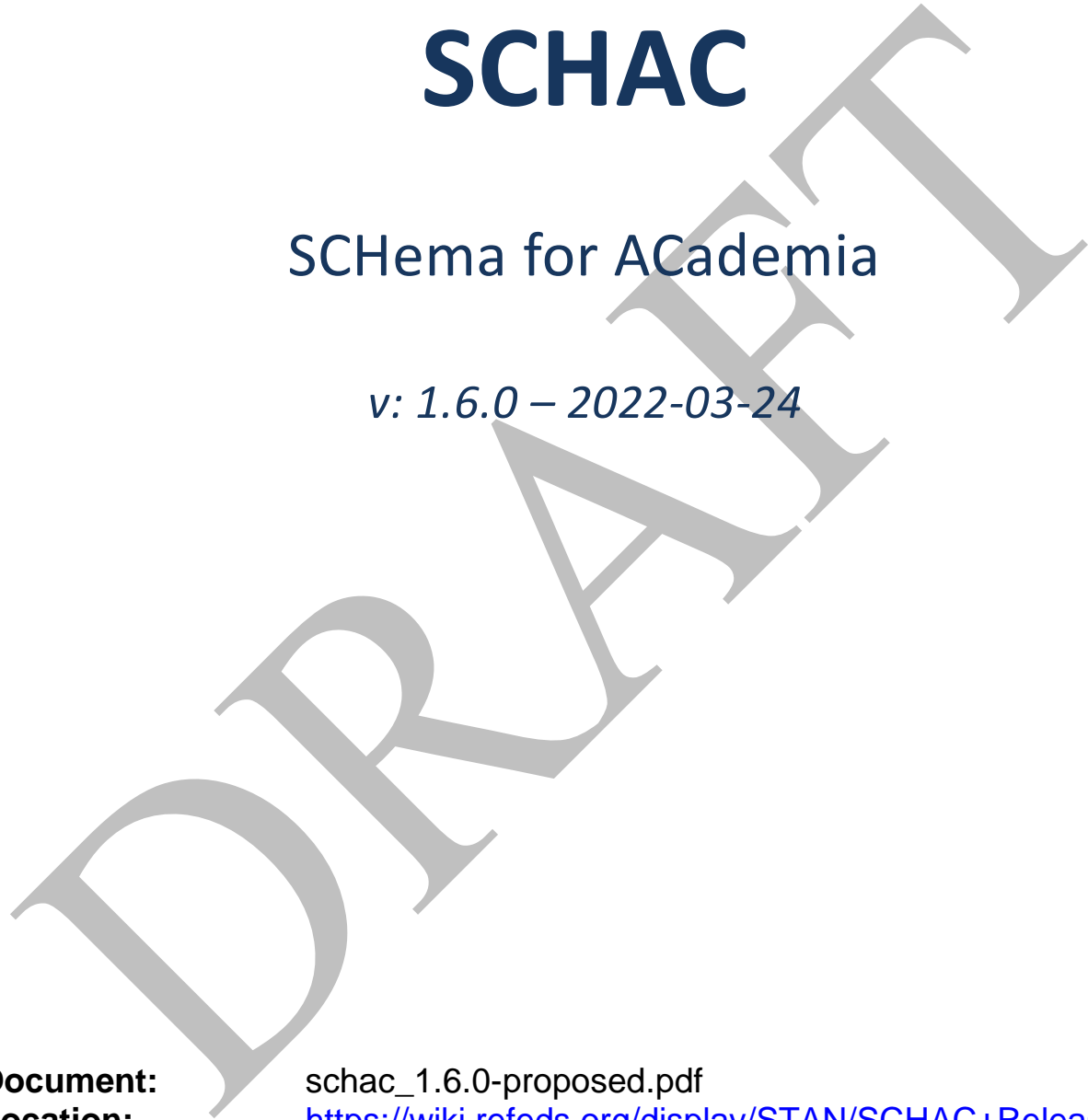


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SCHAC

SCHema for ACademia

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81 **About SCHAC**

82 The SCHEMA for ACademia, SCHAC <<https://wiki.refeds.org/display/STAN/SCHAC>>, aims to define and promote
83 common schemas in the field of higher education to facilitate inter-institutional data exchange. This schema is
84 originally the result of the work in the area of attributes coordination carried out within the now-discontinued
85 TERENA Task Force on Middleware, TF-EMC2, and is now being maintained under the auspices of REFEDS
86 <<https://refeds.org>> and the Schema Editorial Board.

87
88 SCHAC work started in 2005; the first release of "SCHAC Individual Attributes Specification" was issued in May
89 2006.

90
91 Current as well as older SCHAC specifications can be found on SCHAC web page
92 <<https://wiki.refeds.org/display/STAN/SCHAC>>, under the section called "SCHAC Releases"
93 <<https://wiki.refeds.org/display/STAN/SCHAC+Releases>>.

94
95 For more information about SCHAC, please refer to the SCHAC web page
96 <<https://wiki.refeds.org/display/STAN/SCHAC>>.

97 **Related Work**

98 In its current version, the SCHAC schemas are not oriented to any particular technology. They define a set of
99 attributes to describe individuals in the academic and research institutions. An appropriate LDAP profile is
100 included as an appendix of this document. An XML profile will be defined in [Appendix B](#) at the end of this
101 document.

102
103 These definitions assume that other attributes describing individuals are already available and properly encoded,
104 according to the following standards:

- 105
106 The eduPerson schema v. 202111, as defined at <https://wiki.refeds.org/display/STAN/eduPerson>
- 107 The person schema, as defined by X.521 (2001) - [RFC 4517, RFC 4519]
- 108 The organizationalPerson schema, as defined by X.521 (2001) - [RFC 4517, RFC 4519]
- 109 The inetOrgPerson schema, as defined by RFC 2798

110
111 Please note that where newer versions of the references exist, only the versions referred to in the current SCHAC
112 specifications normatively apply.

113

114 Attribute Information

115 For all attributes, the following metadata is defined:

Name	A label used to identify and distinguish one attribute from another
Description	A short description of the attribute
OID	Registered OID of the attribute
Format	The syntax for the representation of the attribute's values
Number of values	Single Only one value is permitted for describing a given individual Multi An indefinite number of values can be used
References	Additional information used to clarify some properties of attributes like format, description or number of values
RFC 4517 definition	Lightweight Directory Access Protocol (LDAP): Syntaxes and Matching Rules
Examples	Example of values used within the attribute

116

117 Attribute Classification

118 The attributes considered in this document are designed to contain information specifically about people. It is
119 helpful to consider this information within broad categories. The ten categories used in this document have been
120 collected from the NMI LocalDomainPerson survey <[http://www.nmi-edit.org/CAMP/EDIT_IdM/docs/internet2-](http://www.nmi-edit.org/CAMP/EDIT_IdM/docs/internet2-mace-dir-localdomainperson-200505.html)
121 [mace-dir-localdomainperson-200505.html](http://www.nmi-edit.org/CAMP/EDIT_IdM/docs/internet2-mace-dir-localdomainperson-200505.html)> and discussions with the International Schema Archives (Feb, 2004;
122 no longer available online). The categories are:

123

- 124 • Personal Characteristics
- 125 • Contact / Location Information
- 126 • Student Information
- 127 • Employee Information
- 128 • Linkage Identifiers / Foreign Keys
- 129 • Entry Metadata / Administration Information
- 130 • Confidentiality / Attribute Release (Visibility)
- 131 • Authorization, Entitlements
- 132 • Group-related Attributes

133

134

135 Attributes defined by SCHAC

136 Personal Characteristics

137 Personal characteristics describe the individual person represented by the entry.

138 schacMotherTongue

Name	schacMotherTongue
Description	Is the language a person learns first. Correspondingly, the person is called a native speaker of the language. Usually a child learns the basics of their first language from their family.
OID	1.3.6.1.4.1.25178.1.2.1
Format	See RFC 3066 Tags for the Identification of Languages
Number of values	Single
References	ISO 639 - Language Codes RFC 2798 - Definition of the inetOrgPerson LDAP Object Class RFC 3066 - Tags for the Identification of Languages
RFC 4517 definition	(schacAttributeType:1 NAME 'schacMotherTongue' DESC 'RFC 3066 code for preferred language of communication' EQUALITY caseExactMatch SINGLE-VALUE SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	schacMotherTongue = fr schacMotherTongue = es-ES

139 schacGender – moved to Deprecated Attributes

140 schacDateOfBirth

Name	schacDateOfBirth
Description	The date of birth for the subject it is associated with
OID	1.3.6.1.4.1.25178.1.2.3
Format	Numeric value YYYYMMDD, using 4 digits for year, 2 digits for month and 2 digits for day as described in RFC 3339 'Date and Time on the Internet: Timestamps' as reference using the 'full-date' format from paragraph 5.6 but without the dashes.
Number of values	Single
References	RFC 2985 - PKCS #9: Selected Object Classes and Attribute Types Version 2.0.Sections 5.2.4, B.3.8 RFC 3339 - Date and Time on the Internet: Timestamps.'Date and Time on the Internet: Timestamps' as reference using the 'full-date' format from paragraph 5.6 but without the dashes ISO 8601 - Data elements and interchange formats - Information interchange - Representation of dates and times
RFC 4517 definition	(schacAttributeType:3 NAME 'schacDateOfBirth' DESC 'Date of birth (format YYYYMMDD, only numeric chars)' EQUALITY numericStringMatch ORDERING numericStringOrderingMatch SUBSTR numericStringSubstringsMatch SINGLE-VALUE

	SYNTAX 1.3.6.1.4.1.1466.115.121.1.36)
Examples	schacDateOfBirth = 19660412

141

142 **schacYearOfBirth**

Name	schacYearOfBirth
Description	The year of birth for the subject it is associated with
OID	1.3.6.1.4.1.25178.1.0.2.3
Format	Numeric value YYYY, using 4 digits for the year, as described in RFC 3339 'Date and Time on the Internet: Timestamps' as reference using the 'full-date' format from paragraph 5.6 but without the dashes.
Number of values	Single
References	RFC 2985 - PKCS #9: Selected Object Classes and Attribute Types Version 2.0.Sections 5.2.4, B.3.8 RFC 3339 - Date and Time on the Internet: Timestamps.'Date and Time on the Internet: Timestamps' as reference using the 'full-date' format from paragraph 5.6 but without the dashes ISO 8601 - Data elements and interchange formats - Information interchange - Representation of dates and times
RFC 4517 definition	(schacExpAttr:3 NAME 'schacYearOfBirth' DESC 'Date of birth (format YYYY, only numeric chars)' EQUALITY numericStringMatch ORDERING numericStringOrderingMatch SUBSTR numericStringSubstringsMatch SINGLE-VALUE SYNTAX 1.3.6.1.4.1.1466.115.121.1.36)
Examples	schacYearOfBirth = 1966

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144 **schacPlaceOfBirth**

Name	schacPlaceOfBirth
Description	The schacPlaceOfBirth attribute specifies the place of birth for the subject it is associated with.
OID	1.3.6.1.4.1.25178.1.2.4
Format	Free format string
Number of values	Single
References	RFC 2985 - PKCS #9: Selected Object Classes and Attribute Types Version 2.0.Sections 5.2.5, B.3.9
RFC 4517 definition	(schacAttributeType:4 NAME 'schacPlaceOfBirth' DESC 'Birth place of a person' EQUALITY caseIgnoreMatch ORDERING caseIgnoreOrderingMatch SUBSTR caseIgnoreSubstringsMatch SINGLE-VALUE SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	schacPlaceOfBirth = Algeciras, Spain

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146 **schacCountryOfCitizenship**

Name	schacCountryOfCitizenship
Description	The schacCountryOfCitizenship attribute specifies the (claimed) countries of citizenship for the subject it is associated with.
OID	1.3.6.1.4.1.25178.1.2.5
Format	Two-letter country acronym in accordance with ISO 3166.
Number of values	Multi
References	RFC 2985 - PKCS #9: Selected Object Classes and Attribute Types Version 2.0.Sections 5.2.7, B.3.11 ISO 3166 - Codes for the representation of names of countries and their subdivisions
RFC 4517 definition	(schacAttributeType:5 NAME 'schacCountryOfCitizenship' DESC 'Country of citizenship of a person. Format two-letter acronym according to ISO 3166' EQUALITY caseIgnoreMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	schacCountryOfCitizenship = es

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schacSn1

Name	schacSn1
Description	First surname of a person ("the surname" in international terms). schacSn1 would contain whatever values the described person thinks they should contain. Splitting shall be done by humans. That means that, when filling a SCHAC-based description that allows the use of schacSn1 and schacSn2, the administrators must ask for 1st surname and 2nd surname (if applicable) as well as they do for givenName, surname, etc.
OID	1.3.6.1.4.1.25178.1.2.6
Format	Free format string
Number of values	Multi
RFC 4517 definition	(schacAttributeType:6 NAME 'schacSn1' DESC 'First surname of a person' EQUALITY caseIgnoreMatch ORDERING caseIgnoreOrderingMatch SUBSTR caseIgnoreSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	In Spain, if sn = Lopez de la Moraleda y de Las Altas Alcornias and that person uses Lopez de la Moraleda as the first component of the surname we can write: schacSn1 = Lopez de la Moraleda In Poland, if sn = Gorecka-Wolniewicz and we decide to use the national convention for the sn attribute, we can write: schacSn1 = Wolniewicz

schacSn2

Name	schacSn2
Description	Second surname of a person (how this is assigned is a local matter). schacSn2 would contain whatever values the described person thinks they should contain. Splitting shall be done by humans. That means that, when filling a SCHAC-based description that allows the use of schacSn1 and schacSn2, the administrators must ask for 1st surname and 2nd surname (if applicable) as well as they do for givenName, surname, etc.
OID	1.3.6.1.4.1.25178.1.2.7
Format	Free format string
Number of values	Multi
RFC 4517 definition	(schacAttributeType:7 NAME 'schacSn2' DESC 'Second surname of a person' EQUALITY caseIgnoreMatch ORDERING caseIgnoreOrderingMatch SUBSTR caseIgnoreSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	In Spain, if sn = Lopez de la Moraleda y de Las Altas Alcornias and that person uses de Las Altas Alcornias as the second component of the surname we can write: schacSn2 = de Las Altas Alcornias In Poland, if sn = Gorecka-Wolniewicz and we decide to use the national convention for the sn attribute, we can write: schacSn2 = Gorecka

152

153 **schacPersonalTitle**

Name	schacPersonalTitle
Description	The Personal Title attribute type specifies a personal title or salutation for a person. Examples of personal titles are "Ms", "Dr", "Prof", "Rev", "Sr".
OID	1.3.6.1.4.1.25178.1.2.8
Format	Free format string
Number of values	Single
References	RFC 1274 - The COSINE and Internet X.500 Schema, Sections 9.3.30
RFC 4517 definition	(schacAttributeType:8 NAME 'schacPersonalTitle' DESC 'RFC1274: personal title' EQUALITY caseIgnoreMatch SUBSTR caseIgnoreSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	schacPersonalTitle = Prof

154 **Contact / Location Information**

155 Higher education's established history of openness and collaboration gives rise to the use of institutional
156 directories as a primary means of locating and contacting potential collaborators and other persons-of-interest at
157 peer institutions.

158 **schacHomeOrganization**

Name	schacHomeOrganization
Description	Specifies a person's home organization using the domain name of the organization. Issuers of schacHomeOrganization attribute values via SAML are strongly encouraged to publish matching shibmd:Scope elements as part of their IDP's SAML metadata. Relaying Parties receiving schacHomeOrganization values via SAML are strongly encouraged to check attribute values against the Issuer's published shibmd:Scope elements in SAML metadata, and may discard any non-matching values.
OID	1.3.6.1.4.1.25178.1.2.9
Format	Domain name according to RFC 1035
Number of values	Single
References	RFC 1035 - Domain names - implementation and specification ShibMetaExt 1.0: https://wiki.shibboleth.net/confluence/display/SC/ShibMetaExt+V1.0
RFC 4517 definition	(schacAttributeType:9 NAME 'schacHomeOrganization' DESC 'Domain name of the home organization' EQUALITY caseIgnoreMatch SUBSTR caseIgnoreSubstringsMatch SINGLE-VALUE SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	schacHomeOrganization = tut.fi

159

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schacHomeOrganizationType

Name	schacHomeOrganizationType
Description	Type of a Home Organization
OID	1.3.6.1.4.1.25178.1.2.10
Format	urn:schac:homeOrganizationType:<country-code>:<string> The <country-code> must be a valid two-letter ISO 3166 country code identifier or the string "int", and assigned by the SCHAC URN Registry for this attribute at https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry <string> from a nationally controlled vocabulary, published through the URI identified at the above mentioned REFEDS URN registry.
Number of values	Multi
References	RFC 2141 - URN Syntax ISO 3166 - Codes for the representation of names of countries and their subdivisions SCHAC URN Registry: https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry
RFC 4517 definition	(schacAttributeType:10 NAME 'schacHomeOrganizationType' DESC 'Type of the home organization' EQUALITY caseIgnoreMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	Common values: urn:schac:homeOrganizationType:eu:higherEducationAllInstitution urn:schac:homeOrganizationType:eu:educationAllInstitution urn:schac:homeOrganizationType:int:NREN urn:schac:homeOrganizationType:int:universityHospital urn:schac:homeOrganizationType:int:NRENAffiliate urn:schac:homeOrganizationType:int:other National extensions: urn:schac:homeOrganizationType:ch:vho urn:schac:homeOrganizationType:es:opi

schacCountryOfResidence

Name	schacCountryOfResidence
Description	The schacCountryOfResidence attribute specifies the (claimed) country of residence for the subject is associated with.
OID	1.3.6.1.4.1.25178.1.2.11
Format	Two-letter country acronym in accordance with ISO 3166 country code identifier.
Number of values	Multi
References	RFC 2985 - PKCS #9: Selected Object Classes and Attribute Types Version 2.0.Sections 5.2.8, B.3.12 ISO 3166 - Codes for the representation of names of countries and their subdivisions
RFC 4517 definition	(schacAttributeType:11 NAME 'schacCountryOfResidence' DESC 'Country of residence of a person. Format two-letter acronym according to ISO 3166' EQUALITY caseIgnoreMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	schacCountryOfResidence = es

schacUserPresenceID

Name	schacUserPresenceID
Description	To store a set of values related to network presence protocols
OID	1.3.6.1.4.1.25178.1.2.12
Format	URI
Number of values	Multi
References	RFC 2396 - Uniform Resource Identifiers (URI): Generic Syntax RFC 3508 - H.323 URL Schema RFC 3261 - SIP: Session Initiation Protocol RFC 5122 - IRIs and URIs for XMPP
RFC 4517 definition	(schacAttributeType:12 NAME 'schacUserPresenceID' DESC 'Used to store a set of values related to the network presence' EQUALITY caseExactMatch SUBSTR caseExactSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	schacUserPresenceID = xmpp:pepe@im.univx.es schacUserPresenceID = sip:pepe@myweb.com schacUserPresenceID = sip:+34-95-505-6600@univx.es;transport=TCP;user=phone schacUserPresenceID = sips:alice@atlanta.com?subject=project%20x&priority=urgent schacUserPresenceID = h323:pepe@myweb.fi:808;params

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Student Information

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Student information includes attributes that have relevance to the student role, such as curriculum, major, and degree.

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No attributes defined

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Employee Information

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Employee information includes attributes that have relevance to the employee role, such as position, office hours, and job title

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schacPersonalPosition

Name	schacPersonalPosition
Description	The Personal Position attribute type specifies a personal position inside an institution.
OID	1.3.6.1.4.1.25178.1.2.13
Format	<p>urn:schac:personalPosition:<country-code>:<domain>:<iNSS></p> <p>The <country-code> must be a valid two-letter ISO 3166 country code identifier or the string "int", and assigned by the SCHAC URN Registry for this attribute at https://wiki.refeds.org/display/STAN/SCHAC+Registry</p> <p><domain> is the institution domain name according to RFC 1035</p> <p><iNSS> is a Namespace Specific String as defined in RFC 2141 but case insensitive. Valid components for it are those specified (or explicitly delegated) by the SCHAC URN Registry for this attribute at https://wiki.refeds.org/display/STAN/SCHAC+Registry</p>
Number of values	Multi
RFC 4517 definition	<pre>(schacAttributeType:13 NAME 'schacPersonalPosition' DESC 'Position inside an institution' EQUALITY caseIgnoreMatch SUBSTR caseIgnoreSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)</pre>
References	<p>RFC 1035 - Domain names - implementation and specification</p> <p>RFC 2141 - URN Syntax</p> <p>SCHAC URN Registry: https://wiki.refeds.org/display/STAN/SCHAC+Registry</p> <p>RFC 2256 - A Summary of the X.500(96) User Schema for use with LDAPv3.</p> <p>Section: 5.13 title</p> <p>This attribute contains the title, such as "Vice President", of a person in their organizational context. The "personalTitle" attribute would be used for a person's title independent of their job function.</p>
Examples	<p>National extensions:</p> <p>urn:schac:personalPosition:pl:umk.pl:programmer</p>

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180 Linkage Identifiers / Foreign Keys

181 Linkage attributes are those identifiers used to link a directory entry with records in external data stores or other
 182 directory entries. The use of linkage identifiers can obviate the need to synchronize data elements between
 183 systems of record and the enterprise directory. Linkage attributes are also used in the implementation of
 184 metadirectory services.

185 schacPersonalUniqueCode

Name	schacPersonalUniqueCode
Description	Specifies a “unique code” for the subject it is associated with. Its value does not necessarily correspond to any identifier outside the scope of the directories using this schema. This might be Student number, Employee number,...
OID	1.3.6.1.4.1.25178.1.2.14
Format	urn:schac:personalUniqueCode:<country-code>:<iNSS> The <country-code> must be a valid two-letter ISO 3166 country code identifier or the string “int”, and assigned by the SCHAC URN Registry for this attribute at https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry <iNSS> is a Namespace Specific String as defined in RFC 2141 but case insensitive, from a nationally controlled vocabulary, published through the URI identified at the above mentioned SCHAC URN registry.
Number of values	Multi
References	RFC 2141 - URN Syntax ISO 3166 - Codes for the representation of names of countries and their subdivisions SCHAC URN Registry: https://wiki.refeds.org/display/STAN/SCHAC+Registry
RFC 4517 definition	(schacAttributeType:14 NAME 'schacPersonalUniqueCode' DESC 'Unique code for the subject' EQUALITY caseIgnoreMatch ORDERING caseIgnoreOrderingMatch SUBSTR caseIgnoreSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	Common values: urn:schac:personalUniqueCode:int:studentID:<country-code>:<code> National extensions: urn:schac:personalUniqueCode:fi:tut.fi:hetu:010161-995A urn:schac:personalUniqueCode:es:uma:estudiante:a3b123c12 urn:schac:personalUniqueCode:se:LIN:87654321

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schacPersonalUniqueID

Name	schacPersonalUniqueID
Description	Specifies a "legal unique identifier" for the subject it is associated with. This might be DNI in Spain, FIC in Finland, NIN in Sweden,...
OID	1.3.6.1.4.1.25178.1.2.15
Format	urn:schac:personalUniqueID:<country-code>:<idType>:<idValue> The <country-code> must be a valid two-letter ISO 3166 country code identifier or the string "int", and assigned by the SCHAC URN Registry for this attribute at https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry <idType>. Acceptable values must be declared per each country code through the URI identified at the above mentioned SCHAC URN registry. <idValue>
Number of values	Multi
References	RFC 2141 - URN Syntax ISO 3166 - Codes for the representation of names of countries and their subdivisions SCHAC URN Registry: https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry
RFC 4517 definition	(schacAttributeType:15 NAME 'schacPersonalUniqueID' DESC 'Unique code for the subject' EQUALITY caseExactMatch ORDERING caseExactOrderingMatch SUBSTR caseExactSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	National extensions urn:schac:personalUniqueID:fi:FIC:260667-123F urn:schac:personalUniqueID:es:DNI:31241312L urn:schac:personalUniqueID:se:NIN:197104058289

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Entry Metadata / Administration Information

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Entry metadata attributes are used to contain information about the entry itself, often its status, birth, and death. Such attributes can be critical to metadirectory processing. While the object classes discussed here were designed to accommodate person entries, metadata attributes can also be useful with non-person entry types such as groups. In such cases the metadata attributes may be best defined in an auxiliary object class independent of the person object class.

201

schacExpiryDate

Name	schacExpiryDate
Description	The date from which the set of data is to be considered invalid (specifically, in what refers to rights and entitlements). This date applies to the entry as a whole.
OID	1.3.6.1.4.1.25178.1.2.17
Format	Values must be expressed in UTC and must include seconds (i.e., times are YYYYMMDDhhmmssZ), even where the number of seconds is zero. GeneralizedTime values must not include fractional seconds.
Number of values	Single
References	RFC 2630 - Cryptographic Message Syntax. Section 11.3 RFC 2985 - PKCS #9: Selected Object Classes and Attribute Types Version 2.0.Sections 5.2.4, B.3.8 RFC 3339 - Date and Time on the Internet: Timestamps.'Date and Time on the Internet: Timestamps' as reference using the 'full-date' format from paragraph 5.6 but without the dashes ISO 8601 - Data elements and interchange formats - Information interchange - Representation of dates and times
RFC 4517 definition	(schacAttributeType:17 NAME 'schacExpiryDate' DESC 'Date from which the set of data is to be considered invalid (format YYYYMMDDhhmmssZ)' EQUALITY generalizedTimeMatch ORDERING generalizedTimeOrderingMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.24)
Examples	schacExpiryDate = 20051231125959Z

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205 Confidentiality / Attribute Release (Visibility)

206 Confidentiality attributes are commonly used to indicate whether an entry is visible publicly, visible only to
207 affiliates of the institution, or not visible at all. In some cases only specific attributes, such as phone, address, and
208 email address, are restricted, in other cases all attributes are restricted.

209 schacUserPrivateAttribute

Name	schacUserPrivateAttribute
Description	Used to model privacy requirements, as expressed by the user and/or organizational policies. The values are intended to be attribute type names and applies to the attribute and any subtypes of it for a given entity. In what respects to data exchange, it applies to the expression of privacy requirements. This attribute can also have specific operational semantics (one has already been applied to LDAP servers: see references below), that will be defined in a separate document.
OID	1.3.6.1.4.1.25178.1.2.18
Format	An attribute type identifier. Operational semantics may imply specific values as wildcards.
Number of values	Multi
References	http://www.rediris.es/ldap/schema/iris/irisUserPrivateAttribute/
RFC 4517 definition	(schacAttributeType:18 NAME 'schacUserPrivateAttribute' DESC 'Set of denied access attributes' EQUALITY caseIgnoreIA5Match SUBSTR caseIgnoreIA5SubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.26)
Examples	Attributes mail and telephoneNumber are considered private: schacUserPrivateAttribute = mail schacUserPrivateAttribute = telephoneNumber

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212 Authorization, Entitlements

213 Authorization for services is generally implemented in LDAP directories either through the use of entry attributes
214 or group memberships. (For information regarding LDAP groups please see the MACE Best Practices for
215 Directory Groups document at
216 <http://web.archive.org/web/20111204210114/http://middleware.internet2.edu/dir/groups/>).
217 Applications such as Shibboleth (see <https://shibboleth.net>) can make use of entitlement attributes in an entry
218 to provide authorization information to requesting services.

219 schacUserStatus

Name	schacUserStatus
Description	Used to store a set of status of a person as user of services
OID	1.3.6.1.4.1.25178.1.2.19
Format	urn:schac:userStatus:<country-code>:<domain>:<iNSS> The <country-code> must be a valid two-letter ISO 3166 country code identifier or the string "int", and assigned by the SCHAC URN Registry for this attribute at https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry <domain> is the institution domain name according to RFC 1035 <iNSS> is a Namespace Specific String as defined in RFC 2141 but case insensitive
Number of values	Multi
References	RFC 1035 - Domain names - implementation and specification RFC 2141 - URN Syntax
RFC 4517 definition	(schacAttributeType:19 NAME 'schacUserStatus' DESC 'Used to store a set of status of a person as user of services' EQUALITY caseIgnoreMatch SUBSTR caseIgnoreSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	To store different user activity states at University of Málaga (uma.es): urn:schac:userStatus:es:uma.es:affiliation:expired urn:schac:userStatus:es:uma.es:sendMail:expired urn:schac:userStatus:es:uma.es:getMail:active A parameter in the URN can be used to represent the temporal validity of the statement. urn:schac:userStatus:si:ujl.si:webmail:active+ttl=20060531235959

220

221

222

223

Group-related Attributes

224 Directory groups are often used to provide authorization to entries and attributes, as well as to restrict or provide
 225 access to services. There are benefits to having group memberships described in members' entries as well as in
 226 a group entry. Because not all directory servers provide this functionality (Microsoft Active Directory and Novell
 227 eDirectory do) local attributes are often defined to meet organizational needs. For a complete treatment of issues
 228 concerning LDAP groups please see the MACE Best Practices for Directory Groups document at
 229 <http://middleware.internet2.edu/dir/groups>

230

schacProjectMembership

Name	schacProjectMembership
Description	The name of the project the user belongs to
OID	1.3.6.1.4.1.25178.1.2.20
Format	<project-name> The <project-name> must be a name assigned by the SCHAC URN Registry for this attribute at https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry
Number of values	Multi
RFC 4517 definition	(schacAttributeType:20 NAME 'schacProjectMembership' DESC 'Name of the project' EQUALITY caseIgnoreMatch SUBSTR caseIgnoreSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	schacProjectMembership = perfsonar

231

schacProjectSpecificRole

Name	schacProjectSpecificRole
Description	Used to store a set of roles inside specific projects
OID	1.3.6.1.4.1.25178.1.2.21
Format	urn:schac:projectSpecificRole:<project-name>:<iNSS> The <project-name> must be a name assigned by the SCHAC URN Registry for this attribute at https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry <iNSS> is a Namespace Specific String as defined in RFC 2141 but case insensitive
Number of values	Multi
References	RFC 2141 - URN Syntax
RFC 4517 definition	(schacAttributeType:21 NAME 'schacProjectSpecificRole' DESC 'Used to store a set of roles of a person inside a project' EQUALITY caseIgnoreMatch SUBSTR caseIgnoreSubstringsMatch SYNTAX 1.3.6.1.4.1.1466.115.121.1.15)
Examples	schacProjectSpecificRole = urn:schac:projectSpecificRole:perfsonar:developer

232

233

234 **Deprecated Attributes**

235 **schacGender**

Name	schacGender
Description	Deprecated as of SCHAC 1.6.0 This attribute does not have clearly defined applicability, and does not align with evolving requirements for gender representation
OID	1.3.6.1.4.1.25178.1.2.2
Format	0 Not known 1 Male 2 Female 9 Not specified
Number of values	Single
References	ISO 5218 - Information interchange -- Representation of human sexes. The standard ISO 5218 defines the representation of the human sexes by a numeric digital code. It was created by the Data Management and Interchange Technical Committee and proposed in November 1976
RFC 4517 definition	(schacAttributeType:2 NAME 'schacGender' DESC 'Representation of human sex (see ISO 5218)' EQUALITY integerMatchSINGLE-VALUE SYNTAX 1.3.6.1.4.1.1466.115.121.1.27)
Examples	schacGender = 2

236

237 **Appendix A: SCHAC LDAP Schema**

238 Definitions of the object classes and attribute types specified in this document have been done in accordance with
239 RFC 4517, in an attempt to ease integration with LDAP-accessible Directory systems. Lines have been folded in
240 some cases to improve readability.

241

242 The latest version of the SCHAC LDAP Schema is available at:
243 <https://wiki.refeds.org/display/STAN/SCHAC+Releases>

244 **Object identifiers**

245 objectIdentifier GÉANT 1.3.6.1.4.1.25178

246

247 objectIdentifier schac GÉANT:1

248 objectIdentifier schacExperimental schac:0

249 objectIdentifier schacObjectClass schac:1

250 objectIdentifier schacAttributeType schac:2

251 objectIdentifier schacExpObjClass schacExperimental:1

252 objectIdentifier schacExpAttr schacExperimental:2

253

254 **Object classes**

```
255 schacPersonalCharacteristics
256 (
257   schacObjectClass:1
258   NAME 'schacPersonalCharacteristics'
259   DESC 'Personal characteristics describe individual person represented by the entry'
260   AUXILIARY
261   MAY (
262     schacMotherTongue $ schacGender $ schacDateOfBirth $ schacPlaceOfBirth $
263     schacCountryOfCitizenship $ schacSn1 $ schacSn2 $ schacPersonalTitle
264   )
265 )
```

```
266 schacContactLocation
267 (
268   schacObjectClass:2
269   NAME 'schacContactLocation'
270   DESC 'Primary means of locating and contacting potential collaborators
271   and other persons-of-interest at peer institutions'
272   AUXILIARY
273   MAY (
274     schacHomeOrganization $ schacHomeOrganizationType $
275     schacCountryOfResidence $ schacUserPresenceID
276   )
277 )
278 )
279 )
```

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```

280
281
282 schacEmployeeInfo
283 ( schacObjectClass:3
284   NAME 'schacEmployeeInfo'
285   DESC 'Employee information includes attributes that have relevance to the employee
286     role, such as position, office hours, and job title'
287   AUXILIARY
288   MAY ( schacPersonalPosition )
289 )
290
291 schacLinkageIdentifiers
292 (
293   schacObjectClass:4
294   NAME 'schacLinkageIdentifiers'
295   DESC 'Used to link a directory entry with records in external
296     data stores or other directory entries'
297   AUXILIARY
298   MAY (
299     schacPersonalUniqueCode $ schacPersonalUniqueID
300   )
301 )
302
303 schacEntryMetadata
304 (
305   schacObjectClass:5
306   NAME 'schacEntryMetadata'
307   DESC 'Used to contain information about the entry itself, often
308     its status, birth, and death'
309   AUXILIARY
310   MAY (
311     schacExpiryDate
312   )
313 )
314
315 schacEntryConfidentiality
316 (
317   schacObjectClass:6
318   NAME 'schacEntryConfidentiality'
319   DESC 'Used to indicate whether an entry is visible publicly, visible only to
320     affiliates of the institution, or not visible at all'
321   AUXILIARY
322   MAY (
323     schacUserPrivateAttribute
324   )
325 )
326
327 schacUserEntitlements
328 (
329   schacObjectClass:7
330   NAME 'schacUserEntitlements'
331   DESC 'Authorization for services'
332   AUXILIARY
333   MAY (
334     schacUserStatus
335   )
336 )
337
338

```

```
339
340 schacGroupMembership
341 (
342     schacObjectClass:8
343     NAME 'schacGroupMembership'
344     DESC 'Groups used to provide/restrict authorization to entries and attributes'
345     AUXILIARY
346     MAY (
347         schacProjectMembership $ schacProjectSpecificRole
348     )
349 )
350
```

351 **Attribute types**

```
352 schacMotherTongue
353 (
354     schacAttributeType:1
355     NAME 'schacMotherTongue'
356     DESC 'RFC 3066 code for preferred language of communication'
357     EQUALITY caseExactMatch
358     SINGLE-VALUE
359     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
360 )
361
```

```
362 schacGender
363 (
364     schacAttributeType:2
365     NAME 'schacGender'
366     DESC 'Deprecated as of SCHAC 1.6. '
367     EQUALITY integerMatch
368     SINGLE-VALUE
369     SYNTAX 1.3.6.1.4.1.1466.115.121.1.27
370 )
371
```

```
372 schacDateOfBirth
373 (
374     schacAttributeType:3
375     NAME 'schacDateOfBirth'
376     DESC 'Date of birth (format YYYYMMDD, only numeric chars)'
377     EQUALITY numericStringMatch
378     ORDERING numericStringOrderingMatch
379     SUBSTR numericStringSubstringsMatch
380     SINGLE-VALUE
381     SYNTAX 1.3.6.1.4.1.1466.115.121.1.36
382 )
383
```

```
384 schacPlaceOfBirth
385 (
386     schacAttributeType:4
387     NAME 'schacPlaceOfBirth'
388     DESC 'Birth place of a person'
389     EQUALITY caseIgnoreMatch
390     ORDERING caseIgnoreOrderingMatch
391     SUBSTR caseIgnoreSubstringsMatch
392     SINGLE-VALUE
393     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
394 )
395
```

```
396 schacCountryOfCitizenship
397 (
398   schacAttributeType:5
399   NAME 'schacCountryOfCitizenship'
400   DESC 'Country of citizenship of a person. Format two-letter
401     acronym according to ISO 3166'
402   EQUALITY caseIgnoreMatch
403   SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
404 )
```

```
405 schacSn1
406 (
407   schacAttributeType:6
408   NAME 'schacSn1'
409   DESC 'First surname of a person'
410   EQUALITY caseIgnoreMatch
411   ORDERING caseIgnoreOrderingMatch
412   SUBSTR caseIgnoreSubstringsMatch
413   SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
414 )
```

```
415 schacSn2
416 (
417   schacAttributeType:7
418   NAME 'schacSn2'
419   DESC 'Second surname of a person'
420   EQUALITY caseIgnoreMatch
421   ORDERING caseIgnoreOrderingMatch
422   SUBSTR caseIgnoreSubstringsMatch
423   SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
424 )
```

```
425 schacPersonalTitle
426 (
427   schacAttributeType:8
428   NAME 'schacPersonalTitle'
429   DESC 'RFC1274: personal title'
430   EQUALITY caseIgnoreMatch
431   SUBSTR caseIgnoreSubstringsMatch
432   SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
433 )
```

```
434 schacHomeOrganization
435 (
436   schacAttributeType:9
437   NAME 'schacHomeOrganization'
438   DESC 'Domain name of the home organization'
439   EQUALITY caseIgnoreMatch
440   SUBSTR caseIgnoreSubstringsMatch
441   SINGLE-VALUE
442   SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
443 )
```

```
444
445
446
```

```
450
451 schacHomeOrganizationType
452 (
453     schacAttributeType:10
454     NAME 'schacHomeOrganizationType'
455     DESC 'Type of the home organization'
456     EQUALITY caseIgnoreMatch
457     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
458 )
459
460 schacCountryOfResidence
461 (
462     schacAttributeType:11
463     NAME 'schacCountryOfResidence'
464     DESC 'Country of residence of a person. Format two-letter
465         acronym according to ISO 3166'
466     EQUALITY caseIgnoreMatch
467     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
468 )
469
470 schacUserPresenceID
471 (
472     schacAttributeType:12
473     NAME 'schacUserPresenceID'
474     DESC 'Used to store a set of values related to the network presence'
475     EQUALITY caseExactMatch
476     SUBSTR caseExactSubstringsMatch
477     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
478 )
479
480 schacPersonalPosition
481 (
482     schacAttributeType:13
483     NAME 'schacPersonalPosition'
484     DESC 'Position inside an institution'
485     EQUALITY caseIgnoreMatch
486     SUBSTR caseIgnoreSubstringsMatch
487     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
488 )
489
490 schacPersonalUniqueCode
491 (
492     schacAttributeType:14
493     NAME 'schacPersonalUniqueCode'
494     DESC 'Unique code for the subject'
495     EQUALITY caseIgnoreMatch
496     ORDERING caseIgnoreOrderingMatch
497     SUBSTR caseIgnoreSubstringsMatch
498     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
499 )
500
501
```



```
502
503 schacPersonalUniqueID
504 (
505     schacAttributeType:15
506     NAME 'schacPersonalUniqueID'
507     DESC 'Unique code for the subject'
508     EQUALITY caseExactMatch
509     ORDERING caseExactOrderingMatch
510     SUBSTR caseExactSubstringsMatch
511     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
512 )
513
514 schacUUID
515 Attribute deleted after Málaga TF-EMC2 meeting.
516
517 schacExpiryDate
518 (
519     schacAttributeType:17
520     NAME 'schacExpiryDate'
521     DESC 'Date from which the set of data is to be considered
522         invalid (format YYYYMMDDhhmmssZ)'
523     EQUALITY generalizedTimeMatch
524     ORDERING generalizedTimeOrderingMatch
525     SYNTAX 1.3.6.1.4.1.1466.115.121.1.24
526 )
527
528 schacUserPrivateAttribute
529 (
530     schacAttributeType:18
531     NAME 'schacUserPrivateAttribute'
532     DESC 'Set of denied access attributes'
533     EQUALITY caseIgnoreIA5Match
534     SUBSTR caseIgnoreIA5SubstringsMatch
535     SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
536 )
537
538 schacUserStatus
539 (
540     schacAttributeType:19
541     NAME 'schacUserStatus'
542     DESC 'Used to store a set of status of a person as user of services'
543     EQUALITY caseIgnoreMatch
544     SUBSTR caseIgnoreSubstringsMatch
545     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
546 )
547
548 schacProjectMembership
549 (
550     schacAttributeType:20
551     NAME 'schacProjectMembership'
552     DESC 'Name of the project'
553     EQUALITY caseIgnoreMatch
554     SUBSTR caseIgnoreSubstringsMatch
555     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
556 )
557
558
```

```
559
560 schacProjectSpecificRole
561 (
562     schacAttributeType:21
563     NAME 'schacProjectSpecificRole'
564     DESC 'Used to store a set of roles of a person inside a project'
565     EQUALITY caseIgnoreMatch
566     SUBSTR caseIgnoreSubstringsMatch
567     SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
568 )
569
```

570 **Experimental object class**

```
571 schacExperimentalOC
572 (
573     schacExpObjClass:1
574     NAME 'schacExperimentalOC'
575     DESC 'Experimental Object Class'
576     AUXILIARY
577     MAY (
578         schacYearOfBirth
579     )
580 )
581
```

582 **Experimental attribute types**

```
583 schacProjectMembership
584 Attribute changed to official branch below schacGroupMembership object class. OID schacExpAttr:1 is obsoleted
585 and will not be reused ever.
586
```

```
587 schacProjectSpecificRole
588 Attribute changed to official branch below schacGroupMembership object class. OID schacExpAttr:2 is obsoleted
589 and will not be reused ever.
590
```

```
591 schacYearOfBirth
592 (
593     schacExpAttr:3
594     NAME 'schacYearOfBirth'
595     DESC 'Year of birth (format YYYY, only numeric chars)'
596     EQUALITY numericStringMatch
597     ORDERING numericStringOrderingMatch
598     SUBSTR numericStringSubstringsMatch
599     SINGLE-VALUE
600     SYNTAX 1.3.6.1.4.1.1466.115.121.1.36
601 )
602
603
```

604

605

Appendix B: SAML 2.x Profile

606

The rules defined by the SAML 2.0 X.500/LDAP attribute profile [SAML-X500] are to be applied, with the exception that the XML attribute named Encoding defined by that profile is NOT specified for use with this profile.

607

608

609

[SAML-X500] S.Cantor., SAML V2.0 X.500/LDAP Attribute Profile, Committee Specification 01. OASIS SSTC, March 2008. Document ID sstc-saml-attribute-x500-cs-01. See <http://wiki.oasis-open.org/security/>

610

611

612

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614 Appendix C: List of Changes

- 615 March 10, 2022. V:1.6.0 proposed
- 616 • Deprecated schacGender
- 617 • Noted registry reassignment from TERENA to GÉANT
- 618 March 31, 2015. V:1.5.0 final
- 619 • Added SAML 2.x profile (appendix B)
- 620 • Removed SAML2.0 names from tables
- 621 • Removed 'Security Attributes and Keys' (not applicable to today's security needs)
- 622 March 10, 2015. V:1.5.0 final-proposed
- 623 • added additional information to schacHomeOrganization
- 624 December 29, 2014. V:1.5.0.c
- 625 • All pointers to www.terena.org, including static registry, have been updated to point to the new
- 626 wiki.refeds.org space
- 627 • Minor wording cleanup
- 628 • Removal of pointers to documents no longer online
- 629 • Clarified what RFCs are normative when a newer RFC is available than what is listed
- 630 • Added SAML 2.0 name to each table
- 631 • Adjusted overall page layout
- 632 • Fixed example in `schacPersonalUniqueId`
- 633 • Added clear URLs in introduction to aid with accessibility
- 634 September 24, 2012. V:1.5.0.b1
- 635 • Changed SCHAC URN prefix from `urn:mace:terena.org:schac` to `urn:shac` following RFC 6338
- 636 • Added sHO as a second name for `schacHomeOrganization`
- 637 • Added sPUC as a second name for `schacPersonalUniqueCode`
- 638 • Added sPUID as a second name for `schacPersonalUniqueID`
- 639 • Added sUPA as a second name for `schacUserPrivateAttribute`
- 640 June 2, 2011. V:1.4.1.b2
- 641 • Changed the example of attribute `schacPersonalUniqueID` from "NIF" to "DNI".
- 642 September 16, 2010. V:1.4.1.b1
- 643 • Changed "Number of values" from single-valued to multivalued in `schacHomeOrganizationType`.
- 644 March 26, 2009. V:1.4.0
- 645 • Added a footnote related to "SCHAC URN Registry" and URN NID `urn:schac`
- 646 March 18, 2009. V:1.4.0 b4
- 647 • Links no longer underlined.
- 648 • `schacYearOfBirth` placed near `schacDateOfBirth`.
- 649 • Corrected a copy/paste error in `schacYearOfBirth`
- 650 March 16, 2009. V:1.4.0 b3
- 651 • Added section "About SCHAC".
- 652 • Suppression of the first paragraph in section "Normative References".
- 653 • Changed section name from "Introduction" to "Normative References".
- 654 March 13, 2009. V:1.4.0 b2
- 655 • Added `schacYearOfBirth` experimental attribute.
- 656 • Changed references to RFC 2252 by RFC 4517.
- 657 • Changed erroneous reference from RFC 2131 to RFC 2141 in `schacProjectSpecificRole`.
- 658 • Added name, location, editor and contact information.
- 659 • Added table of content with page references and alphabetical index of attributes.
- 660 • Added the date of the document to all pages.
- 661 • Made all useful URLs in the PDF clickable.
- 662 March 4, 2009. V:1.4.0 b1
- 663 • Added `schacGroupMembership` objectclass.
- 664 • Changed `schacProjectMembership` and `schacProjectSpecificRole` from experimental OID branch to
- 665 official branch below `schacGroupMembership` object class.
- 666 • OIDs `schacExpAttr:1` and `schacExpAttr:2` are obsoleted and will not be reused ever.

667 September 30, 2007. V:1.3.1 b1
668 • Added an experimental OID branch 1.3.6.1.4.1.25178.0.
669 • Defined an experimental schacExpObjClass objectclass.
670 • Added schacProjectMembership and schacProjectSpecificRole experimental attributes.
671 • Changed schacHomeOrganizationType values below namespaces "eu" and "int".
672 December 12, 2006. V:1.3.0
673 • Changed references from terena.nl to terena.org.
674 November 25, 2006. V:1.3.0 b3
675 • Changed schacPersonalPosition and schacUserStatus format and samples.
676 October 17, 2006. V:1.3.0 b2
677 • Deleted schacUUID attribute.
678 September 28, 2006. V:1.3.0 b1
679 • Changed schacHomeOrganization syntax OID.
680 • New definition of schacUUID attribute.
681 • Changed "?" by "+" in schacUserStatus sample.
682 May 4, 2006. V: 1.2.0
683 • Changed schacUserPresenceID syntax from URN to URI.
684 • Added references to the SCHAC URN registry.
685 • Clarify schacExpiryDate scope.
686 March 27, 2006. V: 1.1.2
687 • Changed from urn:SCHACPREFIX string to urn:schac:
688 • URN reserved for SCHAC: urn:mace:terena.org:schac:
689 March 10, 2006. V: 1.1.1
690 • Added TERENA OID.
691 • Branch reserved for SCHAC: 1.3.6.1.4.1.25178.1
692 February 10, 2006. V: 1.1.0
693 • Added appendix with LDAP schema.
694 November 22, 2005. V: 1.0.0
695 • Added attribute's classification according to HEP categories.
696 September 5, 2005. V: 1.0.0 RC3
697 June 24, 2005. V: 1.0.0 RC2
698 June 1, 2005. V: 1.0.0 RC1
699 May 24, 2005. V: 0.2
700 April 25, 2005. V: 0.1
701
702
703
