



The Swiss Education & Research Network

# **AAI – Authentication and Authorization Infrastructure**

## **AAI Attribute Specification**

## Document management

Version/status: 1.2 / final  
Date: 05-SEP-2007  
Author(s): see Appendix F

File name: AAI\_Attr\_Specs\_v1\_2.doc  
Replacing: 1.1 / 15-JAN-2004

Change Log:

1.2	<ul style="list-style-type: none"><li>• document title modified: 'Authorization' replaced by 'AAI'</li><li>• new introduction text</li><li>• new attributes added: 'User ID', 'Matriculation number', 'Employee number'</li><li>• E-mail is mandatory instead of recommended only</li><li>• maximum length of swissEduPersonUniqueID 255 characters</li><li>• eduPerson attributes updated accordingly to eduPerson specification (200604)</li><li>• references to obsoleted RFCs adapted</li><li>• format of attribute description changed, Origin and OID added</li><li>• short descriptions of study levels added</li></ul>
1.1	<ul style="list-style-type: none"><li>• UAS: study branches updated, study levels added</li><li>• example of swissEduPersonUnquieID</li><li>• value of swissEduPersonOrganizationType in chap. 4.16-4.18</li><li>• references added</li><li>• eduPerson attributes updated accordingly to eduPerson specification (200312)</li><li>• chapter "5. Group membership ..." removed</li></ul>
1.0	<ul style="list-style-type: none"><li>• surname, givenname, mail, homePostalAddress, postalAddress: usage within AAI changed</li><li>• swissEduPersonOrgDN, swissEduPersonOrgUnitDN, swissEduPersonEntitlement, mobileTelephoneNumber: attribute name changed</li><li>• swissEduPersonDateOfBirth, swissEduPersonGender: format changed</li><li>• code lists for UAS study branches added (appendix B)</li></ul>

## Table of Contents

<b>1.</b>	<b>Introduction</b>	<b>4</b>
1.1	Privacy and Data Protection	4
1.2	Security	4
1.3	Home Organizations and Attributes	4
1.4	Resource Owners and Attributes	4
<b>2.</b>	<b>Attribute Overview</b>	<b>6</b>
<b>3.</b>	<b>Attribute Meta-Information and Notation</b>	<b>7</b>
<b>4.</b>	<b>Attribute Definitions</b>	<b>8</b>
4.1	Unique ID ( <i>swissEduPersonUniqueID</i> )	8
4.2	User ID ( <i>uid</i> )	8
4.3	Surname ( <i>sn</i> )	9
4.4	Given Name ( <i>givenName</i> )	10
4.5	Matriculation number ( <i>swissEduPersonMatriculationNumber</i> )	11
4.6	Employee number ( <i>employeeNumber</i> )	11
4.7	Date of Birth ( <i>swissEduPersonDateOfBirth</i> )	12
4.8	Gender ( <i>swissEduPersonGender</i> )	12
4.9	Preferred Language ( <i>preferredLanguage</i> )	13
4.10	E-mail Address ( <i>mail</i> )	13
4.11	Home Postal Address ( <i>homePostalAddress</i> )	14
4.12	Business Postal Address ( <i>postalAddress</i> )	14
4.13	Private Phone Number ( <i>homePhone</i> )	15
4.14	Business Phone Number ( <i>telephoneNumber</i> )	15
4.15	Mobile Phone Number ( <i>mobile</i> )	15
4.16	Home Organization ( <i>swissEduPersonHomeOrganization</i> )	16
4.17	Home Organization Type ( <i>swissEduPersonHomeOrganizationType</i> )	17
4.18	Affiliation ( <i>eduPersonAffiliation</i> )	17
4.19	Study Branch 1 ( <i>swissEduPersonStudyBranch1</i> )	18
4.20	Study Branch 2 ( <i>swissEduPersonStudyBranch2</i> )	19
4.21	Study Branch 3 ( <i>swissEduPersonStudyBranch3</i> )	20
4.22	Study Level ( <i>swissEduPersonStudyLevel</i> )	21
4.23	Staff Category ( <i>swissEduPersonStaffCategory</i> )	21
4.24	Organization Path ( <i>eduPersonOrgDN</i> )	22
4.25	Organizational Unit Path ( <i>eduPersonOrgUnitDN</i> )	22
4.26	Entitlement ( <i>eduPersonEntitlement</i> )	23
<b>5.</b>	<b>References</b>	<b>24</b>
<b>Appendix A</b>	<b>Study Branches for Swiss Universities</b>	<b>25</b>
<b>Appendix B</b>	<b>Study Branches for Swiss Universities of Applied Sciences</b>	<b>26</b>
<b>Appendix C</b>	<b>Study Levels for Swiss Universities</b>	<b>27</b>
<b>Appendix D</b>	<b>Study Levels for Swiss Universities of Applied Sciences</b>	<b>31</b>
<b>Appendix E</b>	<b>Staff Categories</b>	<b>33</b>
<b>Appendix F</b>	<b>Contributors</b>	<b>35</b>

## 1. Introduction<sup>1</sup>

The AAI Attribute Specification is crucial for the data exchange within the SWITCHaai federation. It provides the common ground on which two communicating entities are able to share information they know to interpret identically.

This document standardizes the attributes among all organizations participating in SWITCHaai. The format of the attribute definition is close to the LDAP syntax (see chapter 3 for further details). A schema for LDAP servers [LDAP Schema] is available.

This specification started with a basic set of attributes and is based on work of [Internet2] for the [eduPerson] specification. The set of attributes gets slightly extended with this version 1.2. It might get further extended in future versions, depending on attribute requirements of consumers (the resources) and the possibilities of the attribute providers (the home organizations) to supply them.

### 1.1 Privacy and Data Protection

The home organization administrator's and resource owner's first and foremost duty regarding attributes is **privacy** and **data protection**, which they have to respect!

Users perceive many of the attributes specified in this document as **very sensitive information**

*All people getting in touch with these attributes must fully respect user privacy and the relevant data protection laws and regulations which define how to deal with personal data.*

### 1.2 Security

Revealing attribute values can be a **security risk**.

A good example to show that aspect is the unique identifier 'uid'. It could provide valuable information to a malicious third party. Its intended semantics is to be a user's identifier for authentication (aka login), possibly also on the home organization. It is thus security sensitive and home organization administrators should ponder carefully the decision to release the uid attribute to any resource, even within their organization. Conversely, resource administrators should not require the uid attribute unless they have a bilateral agreement with the home organization administrators. Note that Shibboleth is designed to not release the credentials used for the authentication at the home organization.

*Whenever information is handed out to third parties, the security risk involved must be carefully considered.*

### 1.3 Home Organizations and Attributes

The information to be made available through attributes gets collected and maintained by the home organization. It is stored in a user directory, which can either be implemented using an LDAP compatible directory (e.g. OpenLDAP or Active Directory) or an SQL database.

The home organization is responsible for **proper identity management** and **up-to-date personal data**. In addition, it is also responsible for proper configuration of the Shibboleth Attribute Release Policy (ARP) defining which attributes may be released to which resources in order to protect the privacy of its users.

Each home organization participating in SWITCHaai has to implement at least the attributes with the implementation status 'mandatory' as defined in this document.

### 1.4 Resource Owners and Attributes

The set of attributes needed by a resource depends on the service it offers to its users. The set may be minimal for anonymous services and rather large for highly personalized services with granular authorization. Keep in mind: according to the data protection principles, as few as possible personal data should be processed!

---

<sup>1</sup> For a general introduction into AAI: <http://www.switch.ch/aai> and <http://www.switch.ch/aai/glossary>

In addition, a resource owner should carefully consider which information to store across user sessions. The fewer information is stored, the smaller impact a potential misuse has in case of an incident.

So it is the duty of the resource owner to specify which attributes are **really required** to offer the service and which **additional desired attributes** might allow him/her to offer optional advanced services.

When defining their attribute requirements, resource owners should always check the attribute implementation status as defined in chapter 2. If a resource requires an attribute not (yet) implemented in the home organization of its prospective users, these users will not be able to access the resource.

*Resource owners have to maintain the attribute requirements of their resource in the [Resource Registry] provided by SWITCH.*

### **An Example for Attribute Requirements**

A resource offers personalized access for biology students to an on-line database. Therefore, the user needs to be identified in order to allow the storage of personal search preferences.

#### **Required Attributes**

- `swissEduPersonUniqueID` to identify each user individually,
- `eduPersonAffiliation` to distinguish students from other AAI users,
- `swissEduPersonStudyBranch3` to single out the biology students.

#### **Desired Attributes**

- `mail` to be able to offer an optional service for e-mail notification of content changes,
- `mobile` to be able to offer an optional service for SMS notification of content changes.

## 2. Attribute Overview

Table 1 shows in the upper part the individual attributes describing the person and in the lower part the group related attributes describing to which group or collection of people a user belongs to.

		Implementation Status		
		mandatory	recommended	optional
	Attribute	LDAP Name		
Individual attributes	Unique ID	swissEduPersonUniqueID	X	
	User ID	uid		X
	Surname	sn	X	
	Given name	givenName	X	
	Matriculation number	swissEduPersonMatriculationNumber		X
	Employee number	employeeNumber		X
	Date of birth	swissEduPersonDateOfBirth		X
	Gender	swissEduPersonGender		X
	Preferred language	preferredLanguage		X
	E-mail	mail	X	
	Home postal address	homePostalAddress		X
	Business postal address	postalAddress		X
	Private phone number	homePhone		X
	Business phone number	telephoneNumber		X
	Mobile phone number	mobile		X
Group related attributes	Home organization	swissEduPersonHomeOrganization	X	
	Home organization type	swissEduPersonHomeOrganizationType	X	
	Affiliation	eduPersonAffiliation	X	
	Study branch 1	swissEduPersonStudyBranch1		X
	Study branch 2	swissEduPersonStudyBranch2		X
	Study branch 3	swissEduPersonStudyBranch3		X
	Study level	swissEduPersonStudyLevel		X
	Staff category	swissEduPersonStaffCategory		X
	Organization path	eduPersonOrgDN		X
	Organizational unit path	eduPersonOrgUnitDN		X
Entitlement	eduPersonEntitlement		X	

Table 1: Attributes specified for SWITCHaai and their implementation status

The list of attributes with descriptions and examples is online at: <http://www.switch.ch/aai/attributes>

### 3. Attribute Meta-Information and Notation

For all attributes, the following metadata is defined:

Description	A short description of the attribute	
Semantics	The semantics of the attribute	
Permissible values	A list of permissible values. Where possible, the list of values is based on international or national standards (e.g. ISO country codes)	
Implementation status	mandatory to implement	A home organization <b>MUST</b> be able to provide this attribute in order to be part of the SWITCHaai community (only if applicable for a specific user)
	recommended to implement	It is strongly <b>RECOMMENDED</b> that a home organization is able to provide this attribute (only if applicable for a specific user)
	optional to implement	A home organization <b>MAY</b> provide this attribute. Some resources may need this attribute
	<i>Independent of the implementation status, attributes <b>SHOULD</b> only be transferred to resources with a valid cause to use it (a data protection principle).</i>	
Typical usage	authorization	Typically, a resource uses this attribute to make the access control decision
	accounting	This attribute is used for accounting reasons
	additional user information	Information which is typically not used for authorization or accounting, but may be used to offer a better service to the user (e.g. Given name, Surname used within a personalized portals)
	AAI internal (not used yet)	Used for SWITCHaai internal purposes; attribute is not accessible by the resource
Origin	The standard from where the attribute originates.	
OID	Object Identifier	
LDAP syntax	The LDAP syntax of an attribute, see [RFC 4517] <i>Directory String and Postal Address are the most often used syntaxes, they both use UTF-8 encoding.</i>	
#of values	single multiple	
Example values	Example values in the LDIF Format LDIF = LDAP Data Interchange Format, see [RFC 2849]	

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119].

## 4. Attribute Definitions

### 4.1 Unique ID (*swissEduPersonUniqueID*)

Description	A unique identifier for a person, mainly for inter-institutional user identification on personalized services.
Semantics	<p>&lt;unique-local-ID&gt;@&lt;Internet-domain&gt;</p> <p>The format used is derived from the e-mail address format.</p> <p><b>&lt;Internet-domain&gt;</b> (domain part)</p> <p>It is equivalent to the registered Internet domain the home organization uses, i.e. the same value as the content of the attribute <code>swissEduPerson-HomeOrganization</code>.</p> <p><b>&lt;unique-local-ID&gt;</b> (local part)</p> <p>It is an ID uniquely allocated by the home organization for a user they correctly authenticated according to the local authentication policy.</p> <p>It has to be unique. It MAY NOT be reassigned, also if the former user left the home organization.</p> <p>Unlike the 'matriculation number' or 'AHV-Nummer', it should not carry semantics. However, a home organization has to be able to identify the person matching that &lt;unique-local-ID&gt;.</p> <p>The local part can contain any characters which can be part of the local part of an e-mail address according to [RFC 2822], namely: <code>- . _ %</code></p> <p><b>Notes:</b></p> <ul style="list-style-type: none"><li>- One SHOULD NOT expose the Unique ID to end users; especially one SHOULD NOT require a user to provide his Unique ID manually!</li><li>- The &lt;unique-local-ID&gt; COULD be a hash value based on information about the user.</li></ul>
Permissible values	not applicable, no controlled vocabulary
Impl. status	mandatory to implement
Typical usage	authorization, accounting
Origin	This document itself
OID	2.16.756.1.2.5.1.1.1
LDAP Syntax	Directory String
	<p><b>Note:</b></p> <ul style="list-style-type: none"><li>- The minimum length of the local part SHOULD be 6 and the maximum length of the whole value SHOULD be 255 characters.</li></ul>
#of values	single
Example values	845938727494@ethz.ch e2d8e08-248b-11dc-8314-0800200c9a66@uzh.ch

### 4.2 User ID (*uid*)

Description	A unique identifier for a person, mainly used for user identification within the user's home organization.
Semantics	The User ID attribute type specifies a computer system login name. <code>uid</code> is the short name for User Identifier. It should not be confused with the Unix <code>uid</code> (a



user's unique numerical ID) nor with the 'Unique ID' (swissEduPerson-UniqueID). Unlike the 'Unique ID', the uid is well known by the user, may carry visible semantics and may be presented to the user. It may be reassigned, if the former user left the home organization.

**Notes:**

- uid, contrary to common belief, is multi-valued.  
Within SWITCHaai, home organizations MUST provide **a single value only**: the value most convenient for the user (e.g. well known or most meaningful).
- uid is case insensitive; provisioning this attribute with case sensitive values that otherwise fit the intended semantics might cause unexpected results (e.g. non-uniqueness within an organization).
- uid is security sensitive since it is used for authentication (login) at the home organization. This attribute SHOULD NOT be provided to resources outside the issuing home organization. It is mostly anyhow not unique across organizations.

Permissible values	not applicable, no controlled vocabulary
Impl. status	optional to implement
Typical usage	authorization, accounting
Origin	[RFC 4519], [eduPerson]
OID	0.9.2342.19200300.100.1.1
LDAP Syntax	Directory String <b>Note:</b> - The maximum length of the value SHOULD be 255 characters.
#of values	single (multiple in inetOrgPerson, see note above)
Example values	pmuster stud_05999123

**4.3 Surname (sn)**

Description	Surname or family name
Semantics	This is the X.500 surname attribute, which contains the family name of a person. The [eduPerson] specification says: If the person has a multi-part surname (whether hyphenated or not), store the multi-part name as one value and each component as separate values in this multi-valued attribute. That yields the best results for the broadest range of clients doing name searches. <b>Note:</b> - Within SWITCHaai, home organizations MUST provide <b>a single value only</b> : the surname which is used for official communication with that person.
Permissible values	not applicable, no controlled vocabulary
Impl. status	mandatory to implement
Typical AAI usage	additional user information
Origin	[RFC 4519], [eduPerson]
OID	2.5.4.4

LDAP syntax	Directory String
#of values	single (multiple in inetOrgPerson, see note above)
Example values	Meier-Müller Bauchière von Roten

#### 4.4 Given Name (*givenName*)

Description	Given name of a person
Semantics	<p>The givenName attribute is used to hold the part of a person's name which is not their surname.</p> <p>The [eduPerson] specification says:</p> <p style="padding-left: 40px;">If the person has a multi-part given name (whether hyphenated or not), store the multi-part name as one value and each component as separate values in this multi-valued attribute. That yields the best results for the broadest range of clients doing name searches.</p> <p><b>Note:</b></p> <p style="padding-left: 40px;">- Within SWITCHaa, home organizations <b>MUST</b> provide <b>a single value only</b>: the given name which is used for official communication with that person.</p>
Permissible values	not applicable, no controlled vocabulary
Impl. status	mandatory to implement
Typical AAI usage	additional user information
Origin	[RFC 4519], [eduPerson]
OID	2.5.4.42
LDAP syntax	Directory String
#of values	single (multiple in inetOrgPerson, see note above)
Example values	Hans-Peter Hans Jürg René

#### 4.5 Matriculation number (*swissEduPersonMatriculationNumber*)

Description	Matriculation number of a student
Semantics	<p>The matriculation number is a unique number assigned to each student when he/she matriculates the first time to a Swiss University or University of Applied Sciences.</p> <p>It is defined by the [SIUS/SHIS]. The first two digits represent the year of the first matriculation. The last digit is a check digit.</p>
Permissible values	not applicable, no controlled vocabulary
Impl. status	recommended to implement
Typical AAI usage	authorization, accounting
Origin	This document itself
OID	2.16.756.1.2.5.1.1.11
LDAP syntax	Numeric String {8}
#of values	single
Example values	04911506 72836596

#### 4.6 Employee number (*employeeNumber*)

Description	Identifies an employee within an organization
Semantics	<p>Numeric or alphanumeric identifier assigned to a person, typically based on order of hire or association with an organization.</p> <p>The use case for this attribute is internal to the issuing home organization, mainly for internal administrative purposes.</p> <p>It MUST to be unique within the issuing home organization but will not be unique across organizations.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"><li>- <code>employeeNumber</code> is security sensitive since it might be used for authentication at the home organization. This attribute SHOULD NOT be provided to resources outside the issuing home organization.</li></ul>
Permissible values	not applicable, no controlled vocabulary
Impl. status	optional to implement
Typical AAI usage	authorization, accounting
Origin	[RFC 2798]
OID	2.16.840.1.113730.3.1.3
LDAP syntax	Directory String
#of values	single
Example values	400345 74622225

#### 4.7 Date of Birth (*swissEduPersonDateOfBirth*)

Description	The date of birth of the person
Semantics	- Based on [RFC 3339] 'Date and Time on the Internet: Timestamps'. Using the 'full-date' format from paragraph 5.6: full-date = date-fullyear date-month date-mday date-fullyear = 4DIGIT date-month = 2DIGIT ; 01-12 date-mday = 2DIGIT ; 01-28, 01-29, 01-30, 01-31 based on month
Permissible values	date-mday MUST be within the proper range depending on the values of date-month and date-fullyear
Impl. status	optional to implement
Typical usage	additional user information
Origin	This document itself
OID	2.16.756.1.2.5.1.1.2
LDAP syntax	Numeric String {8}
#of values	single
Example values	19871022 20021010

#### 4.8 Gender (*swissEduPersonGender*)

Description	The state of being male or female
Semantics	The state of being male or female
Permissible values	The following codes are used (see [ISO 5218]): 0 Not known 1 Male 2 Female 9 Not specified
Impl. status	optional to implement
Typical usage	additional user information
Origin	This document itself
OID	2.16.756.1.2.5.1.1.3
LDAP syntax	Integer {1}
#of values	single
Example values	1 9

#### 4.9 Preferred Language (*preferredLanguage*)

Description	Preferred language of a user
Semantics	Preferred written or spoken language of a user
Permissible values	<p>The syntax and registry of language tags is the same as that defined by [RFC 4646]. In summary, a language tag is composed of 1 or more parts: A primary language tag and a possibly empty region subtags:</p> <pre>language-tag = language *( "-" region ) language     = 2ALPHA region       = 2ALPHA</pre> <p>Whitespace is NOT allowed within the tag and all tags are case-insensitive. The name space of language tags is administered by the [IANA]. Example tags are:</p> <pre>en, en-us, de, de-ch</pre> <p>where any two-letter language is an ISO 639 language abbreviation and any two-letter region is an ISO 3166 country code.</p>
Impl. status	optional to implement
Typical AAI usage	additional user information
Origin	[RFC 2798]
OID	2.16.840.1.113730.3.1.39
LDAP syntax	Directory String
#of values	single
Example values	en de-ch it fr-ch

#### 4.10 E-mail Address (*mail*)

Description	Preferred address for the "To:" field of e-mail to be sent to this person
Semantics	<p>The 'mail' (rfc822mailbox) attribute type holds Internet mail addresses in Mailbox [RFC 2821] form.</p> <pre>Mailbox = Local-part "@" Domain</pre> <p><b>Note:</b></p> <ul style="list-style-type: none"><li>- For SWITCHaai, the correctness of this attribute can NOT be guaranteed by the home organization since mailboxes may be changed by the user without informing the home organization (private mailboxes). If a person has more than one e-mail address, it is RECOMMENDED to provide a single address only (the address used by the home organization itself when sending e-mails to that person).</li></ul>
Permissible values	not applicable, no controlled vocabulary
Impl. status	recommended to implement
Typical AAI usage	additional user information
Origin	[RFC 4524]
OID	0.9.2342.19200300.100.1.3

LDAP syntax	IA5 string {256}
#of values	multiple
Example values	peter.meier@uzh.ch dumbledore@hsw.wiz

#### 4.11 Home Postal Address (*homePostalAddress*)

Description	Home address of the user
Semantics	The 'homePostalAddress' attribute specifies home postal addresses for an object. Each value should be limited to up to 6 directory strings of 30 characters each.  <b>Note:</b> - Within SWITCHaai, the limitation to up to 6 lines of 30 characters is NOT relevant.
Permissible values	not applicable, no controlled vocabulary
Impl. status	optional to implement
Typical usage	additional user information
Origin	[RFC 4524]
OID	0.9.2342.19200300.100.1.39
LDAP syntax	Postal Address
#of values	multiple
Example values	Bernerstrasse 45\$CH-8048 Zürich ch. des Vignes 59\$CH-1260 Nyon

#### 4.12 Business Postal Address (*postalAddress*)

Description	Campus or office address
Semantics	The 'postalAddress' attribute type contains addresses used by a Postal Service to perform services for the object  <b>Note:</b> - For SWITCHaai, the limitation to up to 6 lines of 30 characters as defined in the X.520 standard is NOT relevant.
Permissible values	not applicable, no controlled vocabulary
Impl. status	recommended to implement
Typical usage	additional user information
Origin	[RFC 4519]
OID	2.5.4.16
LDAP syntax	Postal Address
#of values	multiple
Example values	ETH Zentrum\$CH-8092 Zürich Quartier UNIL-Sorge\$Bâtiment Amphimax\$CH-1015 Lausanne

#### 4.13 Private Phone Number (*homePhone*)

Description	Private phone number
Semantics	Private phone number of the user. Attribute values should follow the agreed format for international telephone numbers as specified in [ITU-T E.123].
Permissible values	not applicable, no controlled vocabulary
Impl. status	optional to implement
Typical usage	additional user information
Origin	[RFC 4524]
OID	0.9.2342.19200300.100.1.20
LDAP syntax	Telephone Number
#of values	multiple
Example values	+41 44 345 6789 +44 71 123 4567

#### 4.14 Business Phone Number (*telephoneNumber*)

Description	Office/campus phone number
Semantics	Office/campus phone number of the user. Attribute values should follow the agreed format for international telephone numbers as specified in [ITU-T E.123].
Permissible values	not applicable, no controlled vocabulary
Impl. status	recommended to implement
Typical usage	additional user information
Origin	[RFC 4519]
OID	2.5.4.20
LDAP syntax	Telephone Number
#of values	multiple
Example values	+41 44 345 6789 +44 71 123 4567

#### 4.15 Mobile Phone Number (*mobile*)

Description	Mobile phone number
Semantics	The 'mobile' attribute type specifies a mobile telephone number associated with a person. Attribute values should follow the agreed format for international telephone numbers as specified in [ITU-T E.123]. <b>Note:</b> - This attribute MAY be useful if a resource has the ability to send SMS (short message service).
Permissible values	not applicable, no controlled vocabulary

Impl. status	optional to implement
Typical usage	additional user information
Origin	[RFC 4524]
OID	0.9.2342.19200300.100.1.41
LDAP syntax	Telephone Number
#of values	multiple
Example values	+41 44 345 6789 +44 71 123 4567

#### 4.16 Home Organization (*swissEduPersonHomeOrganization*)

Description	Name of a home organization
Semantics	Domain name of a home organization
Permissible values	SWITCH maintains a register of organizations participating in SWITCHaai with their domain names and <code>swissEduPersonHomeOrganizationType</code> .
Impl. status	mandatory to implement
Typical usage	authorization, accounting
Origin	This document itself
OID	2.16.756.1.2.5.1.1.4
LDAP syntax	Directory String
#of values	single
Example values	unil.ch ethz.ch library.ethz.ch



#### 4.17 Home Organization Type (*swissEduPersonHomeOrganizationType*)

Description	Type of a home organization
Semantics	Type of home organization according to the controlled vocabulary below
Permissible values	university, uas, hospital, library, who, others <b>Notes:</b> - uas = university of applied sciences - who = virtual home organization
Impl. status	mandatory to implement
Typical usage	authorization
Origin	This document itself
OID	2.16.756.1.2.5.1.1.5
LDAP syntax	Directory String
#of values	single
Example values	university who hospital

#### 4.18 Affiliation (*eduPersonAffiliation*)

Description	Type of affiliation
Semantics	<p>Specifies the user's relationship(s) to the home organization in broad categories such as student, faculty, employee, etc. (see controlled vocabulary).</p> <p>The eduPerson specification (200604) says:</p> <p>The list of allowed values in the current version of the object class is certainly incomplete. We felt that any additional values should come out of discussions with the stakeholder communities. Any agreed-upon additional values will be included as part of the later versions of eduPerson.</p> <p>We also deliberately avoided including a value such as "other" or "misc" because it would be semantically equivalent to "none of the above." To indicate "none of the above," for a specific person, <b>leave the attribute empty</b>.</p> <p><i>member</i> is intended to include faculty, staff, student, and other persons with a basic set of privileges that go with membership in the university community (e.g., they are given institutional e-mail and calendar accounts). It could be glossed as "member in good standing of the university community."</p> <p><i>affiliate</i> is intended to apply to people with whom the university has dealings, but to whom no general set of "community membership" privileges are extended.</p> <p><b>Note:</b> - For SWITCHaai, do NOT use the value <i>employee</i>. Use <i>staff</i> instead.</p>
Permissible values	faculty, student, staff, alum, member, affiliate, <del>employee</del>
Impl. status	mandatory to implement
Typical usage	authorization
Origin	[eduPerson]

OID	1.3.6.1.4.1.5923.1.1.1.1
LDAP syntax	Directory String
#of values	multiple
Example values	student affiliate

#### 4.19 Study Branch 1 (*swissEduPersonStudyBranch1*)

Description	Study branch of a student, first level of classification.
Semantics	<p>This attribute follows the catalog of study branches of the SIUS/SHIS [SIUS/SHIS]. It is classified in branch, domain of branch and group of domain. This attribute is a code corresponding to the group of domain.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>- This attribute is meaningful only if the person is a student (<code>eduPersonAffiliation = student</code>).</li> <li>- The <code>uniStudyBranch1.csv</code> file (<code>uasStudyBranch1.csv</code>) lists possible values of this attribute and the corresponding meaning in German and French.</li> <li>- Example: the value 1 means that the student is studying in a branch belonging to "Geistes + Sozialwiss." ("Sciences humaines + sociales").</li> </ul>
Permissible values	<p>For <code>swissEduPersonOrganizationType = university</code>, possible values can be found in the first column of the <code>uniStudyBranch1.csv</code> file (see also Appendix A).</p> <p>For <code>swissEduPersonOrganizationType = uas</code>, possible values can be found in the first column of the <code>uasStudyBranch1.csv</code> file (see also Appendix B).</p>
Impl. status	optional to implement
Typical usage	authorization
Origin	This document itself
OID	2.16.756.1.2.5.1.1.6
LDAP syntax	Integer {6}
#of values	multiple
Example values	4 6

#### 4.20 Study Branch 2 (*swissEduPersonStudyBranch2*)

Description	Study branch of a student, intermediate level of classification.
Semantics	<p>This attribute follows the catalog of study branches of the SIUS/SHIS. It is classified in branch, domain of branch and group of domain. This attribute is a code corresponding to the domain of branch.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"><li>- This attribute is meaningful only if the person is a student (<code>eduPersonAffiliation = student</code>).</li><li>- The <code>uniStudyBranch2.csv</code> file (<code>uasStudyBranch2.csv</code>) lists possible values of this attribute and the corresponding meaning in German and French. Example: the value 42 means that the student is studying in a branch belonging to "Naturwissenschaften" ("Sciences naturelles").</li><li>- If a value of this attribute is set, it always implies a value of <code>swissEduPersonStudyBranch1</code> even if it is not explicitly defined; it is the value given on the fourth column of the csv file. Example: <code>swissEduPersonStudyBranch2 = 42</code> means that <code>swissEduPersonStudyBranch1 = 4</code></li></ul>
Permissible values	<p>For <code>swissEduPersonOrganizationType = university</code>, possible values can be found in the first column of the <code>uniStudyBranch2.csv</code> file (see also Appendix A).</p> <p>For <code>swissEduPersonOrganizationType = uas</code>, possible values can be found in the first column of the <code>uasStudyBranch2.csv</code> file (see also Appendix B).</p>
Impl. status	optional to implement
Typical usage	authorization
Origin	This document itself
OID	2.16.756.1.2.5.1.1.7
LDAP syntax	Integer {6}
#of values	multiple
Example values	42 62

#### 4.21 Study Branch 3 (*swissEduPersonStudyBranch3*)

Description	Study branch of a student.
Semantics	<p>This attribute follows the catalog of study branches of the SIUS/SHIS. It is classified in branch, domain of branch and group of domain. This attribute is the SIUS/SHIS code of the study branch.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"><li>- This attribute is meaningful only if the person is a student (<code>eduPersonAffiliation = student</code>).</li><li>- The <code>uniStudyBranch3.csv</code> file (<code>uasStudyBranch3.csv</code>) lists possible values of this attribute and the corresponding meaning in German and French. Example: the value 7450 means that the student is studying in the branch "Mikrotechnik" ("Microtechnique").</li><li>- If a value of this attribute is set, it implies always a value of <code>swissEduPersonStudyBranch1</code> even if it is not explicitly defined; it is the value given on the seventh column of the csv file. It also implies (not always) a value of <code>swissEduPersonStudyBranch2</code>.</li><li>- Example: <code>swissEduPersonStudyBranch3 = 7450</code> means that <code>swissEduPersonStudyBranch2 = 62</code> and <code>swissEduPersonStudyBranch1 = 6</code>.</li><li>- Change process: SHIS/SIUS may add new study branches, but will not delete or modify existing ones. Home organizations are obliged to implement new branches until the statistical data records have to be delivered to SHIS/SIUS (i.e. every year on Nov 15).</li></ul>
Permissible values	<p>For <code>swissEduPersonOrganizationType = university</code>, possible values can be found in the first column of the <code>uniStudyBranch3.csv</code> file (see also Appendix A).</p> <p>For <code>swissEduPersonOrganizationType = uas</code>, possible values can be found in the first column of the <code>uasStudyBranch3.csv</code> file (see also Appendix B).</p> <p>The possible values of this attribute and their meaning correspond exactly to the coding used by the SIUS/SHIS; this coding is already used by every university and ETH for the data that is regularly sent to SIUS/SHIS.</p>
Impl. status	recommended to implement
Typical usage	authorization
Origin	This document itself
OID	2.16.756.1.2.5.1.1.8
LDAP syntax	Integer {6}
#of values	multiple
Example values	4700 7450

#### 4.22 Study Level (*swissEduPersonStudyLevel*)

Description	Study level of a student in a particular study branch.
Semantics	This attribute follows the definition of study branch and study level of the SIUS/SHIS. The format is <code>&lt;swissEduPersonStudyBranch3&gt; - &lt;study level&gt;</code> <b>Notes:</b> <ul style="list-style-type: none"><li>- This attribute is meaningful only if the person is a student (<code>eduPersonAffiliation = student</code>).</li><li>- A student may study in more than one study branch and may have reached a different study level in each of these study branches. Therefore, this attribute may have multiple values, defining the study level for each study branches 3.</li><li>- Make sure that the content of the attribute <code>swissEduPersonStudyBranch3</code> and <code>swissEduPersonStudyLevel</code> are consistent (<code>swissEduPersonStudyBranch3</code> should contain at least the study branch part of each study level).</li></ul>
Permissible values	For <code>&lt;swissEduPersonStudyBranch3&gt;</code> , see chapter 4.21 For <code>&lt;study level&gt;</code> , the permissible values are listed in Appendix C and Appendix D.
Impl. status	recommended to implement
Typical usage	authorization
Origin	This document itself
OID	2.16.756.1.2.5.1.1.9
LDAP syntax	Directory String
#of values	multiple
Example values	4700-15 7450-20

#### 4.23 Staff Category (*swissEduPersonStaffCategory*)

Description	Workbranch of a staff member
Semantics	The classification is based on the staff categories of the SIUS/SHIS documents, suitably expanded to include non-school categories.
Permissible values	There are three main categories: <ul style="list-style-type: none"><li>100 Teachers</li><li>200 Researchers</li><li>300 Others (Support, Admin and technical staff)</li></ul> The last two digits detail the category, as explained in Appendix E.
Impl. status	recommended to implement
Typical usage	authorization, accounting
Origin	This document itself
OID	2.16.756.1.2.5.1.1.10
LDAP syntax	Integer {3}

#of values	multiple
Example values	101 305

#### 4.24 Organization Path (*eduPersonOrgDN*)

Description	The distinguished name (DN) of the directory entry representing the organization with which the person is associated.
Semantics	The directory entry pointed to by this DN should be represented in the X.521(2001) "organization" object class.  <b>Notes:</b> - With a distinguished name, the client can do an efficient lookup in the institution's directory to find out more about the organization with which the person is associated. - The value of <code>swissEduPersonHomeOrganization</code> attribute is better suited for authorization based on the organization the person is associated with.
Permissible values	not applicable, no controlled vocabulary
Impl. status	optional to implement
Typical usage	authorization
Origin	[eduPerson]
OID	1.3.6.1.4.1.5923.1.1.1.3
LDAP syntax	DN
#of values	single
Example values	<code>o=Universite de Lausanne, c=CH</code> <code>o=Hogwarts, dc=hsww, dc=wiz</code>

#### 4.25 Organizational Unit Path (*eduPersonOrgUnitDN*)

Description	The distinguished name (DN) of the directory entries representing the person's Organizational Unit(s).
Semantics	The directory entry pointed to by this DN should be represented in the X.521(2001) "organizational unit" object class.  <b>Notes:</b> - With a distinguished name, the client can do an efficient lookup in the institution's directory for information about the person's organizational unit(s). - It also possible to use this attribute to give some authorization to persons that belong to a known organizational unit.
Permissible values	not applicable, no controlled vocabulary
Impl. status	optional to implement
Typical usage	authorization
Origin	[eduPerson]
OID	1.3.6.1.4.1.5923.1.1.1.4

LDAP syntax	DN
#of values	multiple
Example values	ou=Faculte des sciences, o=Universite de Lausanne, c=CH ou=Potions, o=Hogwarts, dc=hsww, dc=wiz

#### 4.26 Entitlement (*eduPersonEntitlement*)

Description	URI (either URL or URN) that indicates a set of rights to specific resources.
Semantics	<p>A simple example would be a URI for a contract with a licensed resource provider. When a principal's home institutional directory is allowed to assert such entitlements, the business rules that evaluate a person's attributes to determine eligibility are evaluated there. The target resource provider does not learn characteristics of the person beyond their entitlement. The trust between the two parties must be established out of band. One check would be for the target resource provider to maintain a list of subscribing institutions. Assertions of entitlement from institutions not on this list would not be honored.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>- This attribute is suitable when a home organization knows to which resources a certain set of their students, staff etc. should have access to. The home organization knows their users and can therefore add a specific entitlement value to the entries of entitled users.</li> </ul>
Permissible values	URIs only, i.e. a URL or URN, see [RFC 3986]
Impl. status	optional to implement
Typical usage	authorization, accounting
Origin	[eduPerson]
OID	1.3.6.1.4.1.5923.1.1.1.7
LDAP syntax	Directory String
#of values	multiple
Example values	http://unil.ch/resources/biblio92 urn:mace:dir:entitlement:common-lib-terms

## 5. References

- [eduPerson] EduPerson Object Class Specification (200604)  
<http://www.nmi-edit.org/eduPerson/internet2-mace-dir-eduperson-200604.html>  
<http://www.educause.edu/eduperson/>
- [IANA] Internet Assigned Numbers Authority  
<http://www.iana.org/>
- [ISO 5218] ISO 5218-2004: Information Interchange - Representation of Human Sexes  
<http://standards.iso.org/ittf/PubliclyAvailableStandards/>  
[http://en.wikipedia.org/wiki/ISO\\_5218](http://en.wikipedia.org/wiki/ISO_5218)
- [ISO 9834] ISO/IEC 9834-8:2005 Information Technology - Procedures for the operation of OSI Registration Authorities: Generation and registration of Universally Unique Identifiers (UIDs) and their use as ASN.1 Object Identifier components
- [ITU-T E.123] Notation for national and international telephone numbers, e-mail addresses and Web addresses  
<http://www.itu.int/rec/T-REC-E.123/en>
- [LDAP Schema] LDAP Schema for AAI Attributes  
<http://www.switch.ch/aai/docs/LDAP-schemas/>
- [Resource Registry] <http://www.switch.ch/aai/resourceregistry/>  
<https://aai-rr.switch.ch/>
- [RFC 2119] RFC 2119: Key words for use in RFCs to Indicate Requirement Levels  
<http://www.ietf.org/rfc/rfc2119.txt>
- [RFC 2798] RFC 2798: Definition of the inetOrgPerson LDAP Object Class  
<http://www.ietf.org/rfc/rfc2798.txt>
- [RFC 2821] RFC 2821: Simple Mail Transfer Protocol  
<http://www.ietf.org/rfc/rfc2821.txt>
- [RFC 2822] RFC 2822: Internet Message Format  
<http://www.ietf.org/rfc/rfc2822.txt>
- [RFC 2849] RFC 2849: The LDAP Data Interchange Format (LDIF) - Technical Specification  
<http://www.ietf.org/rfc/rfc2849.txt>
- [RFC 3339] RFC 3339: Date and Time on the Internet: Timestamps  
<http://www.ietf.org/rfc/rfc3339.txt>
- [RFC 3986] RFC 3986: Uniform Resource Identifiers (URI): Generic Syntax  
<http://www.ietf.org/rfc/rfc3986.txt>
- [RFC 4517] RFC 4517: Lightweight Directory Access Protocol (LDAP): Syntaxes and Matching Rules  
<http://www.ietf.org/rfc/rfc4517.txt>
- [RFC 4646] RFC 4646: Tags for Identifying Languages  
<http://www.ietf.org/rfc/rfc4646.txt>
- [SIUS/SHIS] Service d'Information Universitaire Suisse  
Schweizerisches Hochschulinformationssystem  
<http://www.bfs.admin.ch>  
<http://www.portal-stat.admin.ch/shs/index.php>  
<http://www.portal-stat.admin.ch/shsfh/index.php>



## Appendix A Study Branches for Swiss Universities

### Permissible values for study branch 1

For the entire list see <http://www.switch.ch/aai/docs/uniStudyBranch1.csv>

Study branch 1	German	French
1	Geistes- + Sozialwiss.	Sciences humaines + sociales
2	Wirtschaftswissenschaften	Sciences économiques
3	Recht	Droit
...	...	...

### Permissible values for study branch 2

For the entire list see <http://www.switch.ch/aai/docs/uniStudyBranch2.csv>

Study branch 2	German	French	Study branch 1
11	Theologie	Théologie	1
12	Sprach- + Literaturw. (SLW)	Langues + Littérature (LL)	1
13	Historische + Kulturw.	Sciences historiques + culture	1
...	...	...	...

### Permissible values for study branch 3

For the entire list see <http://www.switch.ch/aai/docs/uniStudyBranch3.csv>

Study branch 3	German	French	Study branch 1	Study branch 2
1201	Theologie fächerübergr./übrige	Théologie pluridisc./autres	1	11
1205	Protestantische Theologie	Théologie protestante	1	11
1210	Römisch-katholische Theologie	Théologie catholique-romaine	1	11
1215	Christkatholische Theologie	Théologie catholique-chrétienne	1	11
...	...	...	...	...

## Appendix B Study Branches for Swiss Universities of Applied Sciences

### Permissible values for study branch 1

For the entire list see <http://www.switch.ch/aai/docs/uasStudyBranch1.csv>

Study branch 1	German	French
10000	Architektur, Bau- und Planungswesen	Architecture, construction et planification
20000	Technik und IT	Technique et IT
30000	Chemie und Life Sciences	Chimie et sciences de la vie
40000	Land- und Forstwirtschaft	Agriculture et économie forestière
...	...	...

### Permissible values for study branch 2

For the entire list see <http://www.switch.ch/aai/docs/uasStudyBranch2.csv>

Study branch 2	German	French	Study branch 1
10101	Architektur	Architecture	10000
10102	Bauingenieurwesen	Génie civil	10000
10103	Bauprozessmanagement	Gestion des processus de construction	10000
10104	Raumplanung	Aménagement du territoire	10000
10105	Landschaftsarchitektur	Architecture de paysage	10000
...	...	...	...

### Permissible values for study branch 3

For the entire list see <http://www.switch.ch/aai/docs/uasStudyBranch3.csv>

Study Branch 3	German	French	Study branch 1	Study branch 2
3801	Architektur	Architecture	10000	10101
3802	Bauingenieurwesen	Génie civil	10000	10102
3803	Bauprozessmanagement	Gestion des processus de construction	10000	10103
...	...	...	...	...

## Appendix C Study Levels for Swiss Universities

SWITCHaa1 uses the following descriptions of the SHIS/SIUS study levels:

00	de en fr it	Vorbereitungs- oder Fortbildungskurs, Gaststudierende Preparatory or continuing education course, guest students Cours préparatoire, perfectionnement, auditeurs libre Corso preparatorio, perfezionamento, uditori	
10	de en fr it	Lizentiats- oder Diplomstudium Licentiate or diploma study Etudes conduisant à une licence ou un diplôme Studi che portano ad una licenza o un diploma	
15	de en fr it	Bachelor-Studium Bachelor study Etudes conduisant au Bachelor Studi che portano al bachelor	
20	de en fr it	Zweite Studienstufe 2nd cycle of the study Etudes 2e cycle Studi di 2do ciclo	
25	de en fr it	Master-Studium mit Bachelor Master study with Bachelor's degree Etudes conduisant au Master avec un Bachelor Studi che portano al master con un bachelor	
26	de en fr it	Master-Studium ohne Bachelor Master study without Bachelor's degree Etudes conduisant au Master sans Bachelor Studi che portano al master senza un bachelor	Obsolete since 2005/2006
31	de en fr it	Doktoratsstudium Doctorate study Etudes conduisant au doctorat Studi che portano ad un dottorato	
32	de en fr it	Nachdiplomstudium Postgraduate study Spécialisation postgrade Specializzazione postgrade	Obsolete since 2005/2006
33	de en fr it	Universitäre Weiterbildung University continuing education Formations continues universitaires Formazione post universitaria	
35	de en fr it	Universitäre Aufbau- und Vertiefungsstudien Advanced studies Etudes universitaires spécialisées et approfondies Studi universitari specializzati ed approfonditi	
39	de en fr it	Individuelles Nachdiplomstudium, Weiterbildung Individual postgraduate study, continuing education Postdiplôme, formation continue Postdiploma, formazione permanente	

The SHIS/SIUS specifications in German and French define the Study Levels as follows:

## STUDIENSTUFE

### Diplomstudien

Als Diplomstudien gelten alle Ausbildungsgänge, die zu einem Lizentiat, Diplom, Bachelor, Master, Gymnasial-, Sekundar- oder Primarlehrpatent führen. Ebenfalls einbegriffen sind Kurzstudiengänge.

#### 00 = Vorbereitungs- oder Fortbildungskurs, Gaststudierende

Studierende auf Diplomstufe, die nur vorübergehend an der betreffenden Hochschule eingeschrieben sind (Fremdsprachenaufenthalt, Fortbildung) und hier keine Abschlussprüfungen ablegen werden (Gaststudierende).

Studierende, die im Rahmen eines von der Hochschule durchgeführten Vorbereitungskurses auf die Zulassung zum eigentlichen Studium hinarbeiten (z.B. Cours de mathématiques spéciales EPFL; Zulassung zu spezialisierten Masterstudiengängen).

#### 10 = Lizentiats- oder Diplomstudium

Studierende in der Studienphase, die zu einem der folgenden Abschlüsse führt: Lizentiat, Diplom, Gymnasial-, Sekundar- oder Primarlehrpatent, Abschlussprüfung bei Kurzstudiengängen.

Studierende der Medizin und der Eidg. Technischen Hochschulen: Hier werden nur die Vorkliniker/innen bzw. die Studierenden vor dem 2. Vordiplom mit der Studienstufe 10 bezeichnet.

#### 15 = Bachelor-Studium

Studierende in der Studienphase, die zum Bachelor führt.

#### 20 = Zweite Studiehälfte

Medizinstudierende in den klinischen Semestern, d.h. Medizinstudierende, die das 2. Propädeutikum bestanden haben.

Studierende der Eidg. Technischen Hochschulen, die das 2. Vordiplom absolviert haben.

#### 25 = Master-Studium mit Bachelor

Studierende, die den Bachelortitel erworben haben und einen Master anstreben.

#### 26 = Master-Studium ohne Bachelor (obsolet seit 2005/2006)

«Direkter Master»: Studierende in gestuften Studiengängen, die einen Master anstreben, ohne zuvor den Bachelortitel erwerben zu müssen.

### Nachdiplomstudien

#### 31 = Doktoratsstudium

Studien, die auf das Doktorat vorbereiten und einen akademischen Titel (Master, Lizentiat, Diplom) oder einen gleichwertigen Abschluss voraussetzen.

#### 32 = Nachdiplomstudium (obsolet seit 2005/2006)

Im Rahmen eines strukturierten Lehrplanes zu besuchende Spezialisierungsstudien, welche als Eintrittsbedingung einen akademischen oder gleichwertigen Titel erfordern und die zur Erlangung eines Diploms/Nachdiploms führen.

#### 33 = Universitäre Weiterbildung

Angebote der universitären Weiterbildung mit mindestens 60 ECTS-Kreditpunkten, z.B. Master of Advanced Studies.

#### 35 = Universitäre Aufbau- und Vertiefungsstudien

Universitäre Aufbau- und Vertiefungsstudien mit mindestens 60 ECTS-Kreditpunkten: Diplôme d'études approfondies (DEA), Diplômes d'études supérieures spécialisées (DESS), «3e Cycle», zukünftig auch Master of Advanced Studies. Im Unterschied zur universitären Weiterbildung erfolgt der Besuch von Aufbau- und Vertiefungsstudien in der Regel direkt im Anschluss an den Erwerb eines universitären Abschlusses der zweiten Stufe (Master, Lizentiat/Diplom). Die Studien sind entweder auf eine zukünftige Forschungstätigkeit orientiert (z.B. DEA) oder bereiten die Studierenden auf die Berufspraxis vor (z.B. DESS).

### **39 = Individuelles Nachdiplomstudium, Weiterbildung**

Autres cursus de post-diplôme de caractère individuel, avec ou sans diplôme de fin de cursus, en particulier :

- Inscription dans la même spécialité après un premier diplôme (Licencié, Diplôme) sans objectif d'étude déterminé
- Formation de niveau post-diplôme
- Études après le doctorat

## **NIVEAU D'ÉTUDES**

### **Études diplômées**

Les études diplômées sont tous les cursus d'études qui conduisent à une licence, un diplôme, un titre de Bachelor, un titre de Master, un titre de maître ou maîtresse de gymnase ou de maître ou maîtresse primaire ou secondaire. Y sont comprises aussi les filières de cycle court.

### **00 = Cours préparatoire, perfectionnement, auditeurs libres**

Étudiants au niveau d'études diplômées qui sont inscrits temporairement à l'université concernée (séjour linguistique, perfectionnement) et qui n'y subiront pas d'examen (auditeurs libres).

Étudiants fréquentant des cours organisés par l'université préparant aux études supérieures proprement dites (p. ex. cours de mathématiques spéciales EPFL; qualifications supplémentaires pour l'admission aux études de master).

### **10 = Études conduisant à une licence ou un diplôme**

Étudiants réguliers se trouvant dans une phase d'études qui les conduit à un des examens finals suivants : licence, diplôme, titre de maître ou maîtresse de gymnase ou de maître ou maîtresse primaire ou secondaire, examen final pour des filières de cycle court.

Étudiants en médecine et des écoles polytechniques fédérales : seuls les précliniciens, c'est-à-dire les étudiants n'ayant pas subi le deuxième examen propédeutique sont recensés sous le niveau 10.

### **15 = Études conduisant au Bachelor**

Étudiants réguliers se trouvant dans une phase d'études qui les conduit au titre de Bachelor.

### **20 = Études 2<sup>e</sup> cycle**

Étudiants en médecine en semestres d'études cliniques.

Étudiants des écoles polytechniques fédérales qui ont passé le deuxième examen propédeutique.

### **25 = Études conduisant au Master avec un Bachelor**

Étudiants réguliers, ayant obtenu le titre de Bachelor et qui aspirent au titre de Master.

### **26 = Études conduisant au Master sans Bachelor (obsolète dès 2005/2006)**

«Master direct» : étudiants dans des cursus d'études échelonnées qui aspirent au titre de Master sans devoir acquiescer au préalable le titre de Bachelor.

### **Études postgrades**

#### **31 = Études conduisant au doctorat**

Études préparant au doctorat, après avoir obtenu un diplôme académique (Master, licence, diplôme) ou un titre équivalent

#### **32 = Spécialisation postgrade (obsolète dès 2005/2006)**

Études de spécialisation suivies dans le cadre d'un programme précis exigeant comme condition d'entrée un titre universitaire ou un titre jugé équivalent et débouchant normalement sur un diplôme/diplôme postgrade

#### **33 = Formations continues universitaires**

Formations continues universitaires d'au moins 60 points ECTS, p. ex. Master of Advanced Studies.

**35 = Etudes universitaires spécialisées et approfondies**

Etudes universitaires spécialisées et approfondies d'au moins 60 points ECTS: diplômes d'études supérieures spécialisées (DESS), diplôme d'études approfondies (DEA), «3e cycle», et désormais aussi Master of Advanced Studies. A la différence des formations continues, les études spécialisées et approfondies font en règle générale directement suite à l'acquisition d'un titre universitaire du 2e cycle (master, licence/diplôme). Il s'agit soit d'études préparant à une activité professionnelle (p. ex. DESS), soit d'études préparant à une activité de recherche (p. ex. DEA).

**39 = Postdiplôme, formation continue**

Autres études post-diplôme, à caractère individuel, avec ou sans diplôme final, notamment:

- inscription dans la même filière après un premier titre universitaire (licence, diplôme) sans but défini
- formation continue postdiplôme
- études postdoctorat

## Appendix D Study Levels for Swiss Universities of Applied Sciences

SWITCHaai uses the following descriptions of the SHIS/SIUS study levels:

10	de en fr it	Diplom Diploma Diplôme Diploma
15	de en fr it	Bachelor Bachelor Bachelor Bachelor
25	de en fr it	Master Master Master Master
33	de en fr it	Weiterbildung Continuing education Formations continues Formazione
34	de en fr it	Modulare Weiterbildung Modular continuing education Formations continues modulaire Formazione modulare

The SHIS/SIUS specifications in German and French define the Study Levels as follows:

### STUDIENSTUFE

#### Diplomstudien

##### 10 = **Diplom**

Studien im Hinblick auf ein FH-Diplom

##### 15 = **Bachelor**

Studien im Hinblick auf ein Bachelordiplom FH

##### 25 = **Master**

Studien im Hinblick auf ein Masterdiplom FH

(ohne Masterstudien im **Bereich Weiterbildung**; siehe unten)

#### Weiterbildung

##### 33 = **Weiterbildung**

Vertiefungs- und Spezialisierungsstudiengänge

– Master of Advanced Studies MAS (mindestens 60 ECTS)

– Executive Master of Business Administration EMBA (mindestens 60 ECTS)

– Nachdiplomstudien NDS (gemäss bisheriger Definition 600 + 200 Stunden;  
Start noch bis Oktober 2007 möglich)

##### 34 = **Modulare Weiterbildung**

Modular aufgebaute Vertiefungs- und Spezialisierungsstudien  
(Definitionen wie oben unter Code 33 beschrieben)

## **NIVEAU D'ÉTUDES**

### **Etudes diplômes**

**10 = Diplôme**

Etudes vers le diplôme HES

**15 = Bachelor**

Etudes vers un diplôme de bachelor HES

**25 = Master**

Etudes vers un diplôme de master HES

(**sans** les études de master dans **le domaine de la formation continue**; voir ci-dessous)

### **Formation continue**

**33 = Formation continue**

Etudes postgrades visant une spécialisation / approfondissement

– Master of Advanced Studies MAS (60 ECTS au minimum)

– Executive Master of Business Administration EMBA (60 ECTS au minimum)

– Etudes postgrades EPG (selon la définition de 600 + 200 heures;  
ces EPG peuvent débuter encore jusqu'en octobre 2007)

**34 = Formation continue modulaire**

Etudes postgrades modulaires visant une spécialisation ou un approfondissement (mêmes définitions comme pour le code 33; voir ci-dessus)



## Appendix E Staff Categories

The permissible values of the `swissEduPersonStaffCategory` attribute are, where possible, obtained from the SIUS/SHIS Documents:

[1] Technisches Handbuch für universitäre Hochschulen [SIUS/SHIS]

[2] Technisches Handbuch für die Erhebung des Personals der FH und der PH [SIUS/SHIS]

### 100 Teaching

Designates staff with teaching duties (including physicians working at university hospitals).

Completely based on the SIUS/SHIS documents.

Code	Name	Example	Remark
101	Professors	Ordinary Profs.	[1] Cat I-II [2] Cat 10
102	Oberer Mittelbau / Corps intermediaire superieur	Lecturers	[1] Cat III-VI [2] Cat 20
103	Unterer Mittelbau / Corps intermediaire inferieur	Assistants	[1] Cat VII-X [2] Cat 30

### 200 Research

Designates staff with research duties. Similar to the Teaching category, but for researchers only.

Code	Name	Example	Remark
201	Permanent Researchers	Ordinary Professors	[1] Cat I-II [2] Cat 10
202	Oberer Mittelbau / Corps intermediaire superieur	Lecturers	[1] Cat III-VI [2] Cat 20
203	Unterer Mittelbau / Corps intermediaire inferieur	Assistants	[1] Cat VII-X [2] Cat 30

### 300 Admin/Support/technical

This section has no direct correspondence to the SIUS/SHIS documents. Though, it's based on the categories XI-XVII of [1].

If needed more categories will have to be defined.

Code	Name	Example	Remark
301	Administrative Personnel	Members of HR	[1] Cat XI [2] Cat 40
302	Administrative Personnel: Apprentices and Interns		[1] Cat XII [2] Cat 40
303	Technical Personnel	Sysadmins	[1] Cat XIII [2] Cat 40
304	Technical Personnel: Apprentices and Interns		[1] Cat XIV [2] Cat 40

<b>Code</b>	<b>Name</b>	<b>Example</b>	<b>Remark</b>
305	Janitors, Building Managers		[1] Cat XV [2] Cat 40
306	Social and Wellness Personnel		[1] Cat XVI [2] Cat 40
307	Library Personnel		[1] Cat XVII [2] Cat 40
308	Safety Personnel	Radiation, Firefighters, Guards	

## Appendix F Contributors

The following people have contributed to this document

Version 1.2	Roland Dietlicher	ETH Zürich
	Peter Geiser	Universität Bern
	Thomas Lenggenhager	SWITCH
	Beat Müller	ETH Zürich
	Dominique Petitpierre	Université de Genève
	Pascal Py	Universität Zürich
	Alexandre Roy	Université de Lausanne
	Luzian Scherrer	Universität Zürich
	Patrik Schnellmann	SWITCH
Version 1.1	Thomas Lenggenhager	SWITCH
	André Redard	at rete ag
Version 1.0	Serge Droz	PSI
	Pascal Jacot-Guillarmod	Université de Lausanne
	Thomas Lenggenhager	SWITCH
	Christian Heim	Universität Bern
	David McLaughlin	ETH Zürich
	Pascal Py	Universität Zürich
	André Redard	at rete ag
	Alexandre Roy	Université de Lausanne
	Marc-Alain Steinemann	Universität Bern