

# LDAP Subject API example

|                           |                                               |                                |                                          |                                         |                                              |
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## Public LDAP example

CMU has a public LDAP server. We can hook up a subject source to it as an example

Server: ldap.andrew.cmu.edu

Base DN: dc=cmu,dc=edu

URL: <ldap://ldap.andrew.cmu.edu:389/dc=cmu,dc=edu>

Top OU: ou=person

Users: guid=ABC123

Attributes:

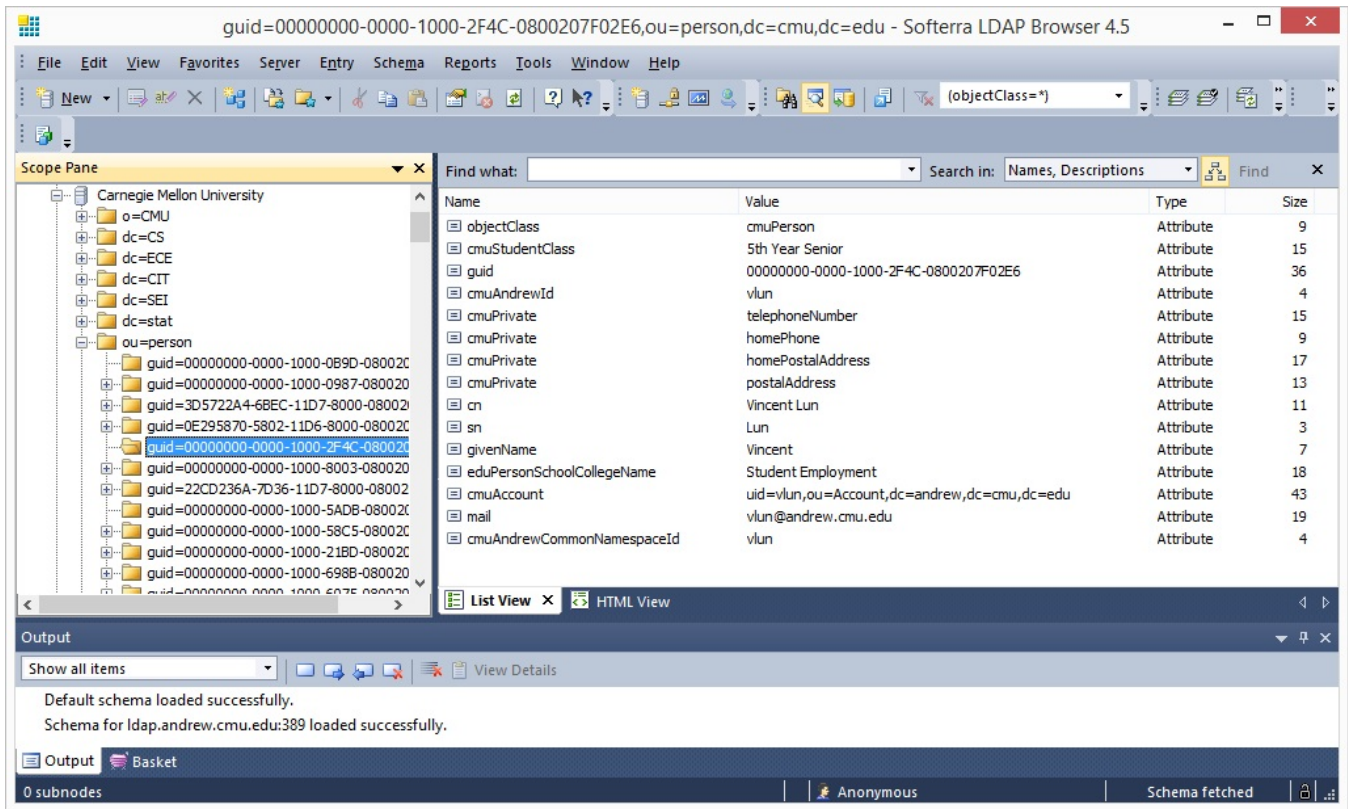
- objectClass: cmuPerson
- cn (First Last)
- mail
- eduPersonSchoolCollegeName
- cmuAndrewId: netId

This example shows a description that is the concatenation of the name and the school college name. It will concatenate if it exists or not if there is no school college name.

The screenshot shows the Grouper web interface for a group named 'testGroup'. The interface includes a sidebar with navigation links, a search bar for members, and a table of members. The table lists the following member:

| Entity name                      | Membership |
|----------------------------------|------------|
| Vincent Lun - Student Employment | Direct     |

The table also includes a 'Show:' dropdown set to 50 and a 'Showing 1-1 of 1' indicator.



## subject.properties

```
# Copyright 2016 Internet2
#
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# distributed under the License is distributed on an "AS IS" BASIS,
# WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
# See the License for the specific language governing permissions and
# limitations under the License.
#
# Subject configuration
#
# The subject properties uses Grouper Configuration Overlays (documented on wiki)
# By default the configuration is read from subject.base.properties
# (which should not be edited), and the subject.properties overlays
# the base settings. See the subject.base.properties for the possible
# settings that can be applied to the subject.properties
#
# enter the location of the sources.xml. Must start with classpath: or file:
# blank means dont use sources.xml, use subject.properties
# default is: classpath:sources.xml
# e.g. file:/dir1/dir2/sources.xml
subject.sources.xml.location =

#####
## Configuration for source id: cmu
## Source configName: cmu
#####
```

```

subjectApi.source.cmu.id = cmu

# this is a friendly name for the source
subjectApi.source.cmu.name = cmu

# type is not used all that much. Can have multiple types, comma separate. Can be person, group, application
subjectApi.source.cmu.types = person

# the adapter class implements the interface: edu.internet2.middleware.subject.Source
# adapter class must extend: edu.internet2.middleware.subject.provider.BaseSourceAdapter
# edu.internet2.middleware.grouper subj.GrouperJdbcSourceAdapter2 : if doing JDBC this should be used if
possible. All subject data in one table/view.
# edu.internet2.middleware.grouper subj.GrouperJdbcSourceAdapter : oldest JDBC source. Put freeform queries
in here
# edu.internet2.middleware.grouper subj.GrouperJndiSourceAdapter : used for LDAP
subjectApi.source.cmu.adapterClass = edu.internet2.middleware.grouper subj.GrouperJndiSourceAdapter

# e.g. com.sun.jndi.ldap.LdapCtxFactory
subjectApi.source.cmu.param.INITIAL_CONTEXT_FACTORY.value = com.sun.jndi.ldap.LdapCtxFactory

# e.g. ldap://localhost:389
subjectApi.source.cmu.param.PROVIDER_URL.value = ldap://ldap.andrew.cmu.edu:389/dc=cmu,dc=edu

# e.g. simple, none, sasl_mech
subjectApi.source.cmu.param.SECURITY_AUTHENTICATION.value = none

# ldap attribute which is the subject id. e.g. exampleEduRegID Each subject has one and only one subject
id. Generally it is opaque and permanent.
subjectApi.source.cmu.param.SubjectID_AttributeType.value = guid

# if the subject id should be changed to lower case after reading from datastore. true or false
subjectApi.source.cmu.param.SubjectID_formatToLowerCase.value = false

# attribute which is the subject name
subjectApi.source.cmu.param.Name_AttributeType.value = cn

# attribute which is the subject description
subjectApi.source.cmu.param.Description_AttributeType.value = nameLong

# when evaluating the virtual attribute EL expression, this variable can be used from this java class.
# subjectVirtualAttributeVariable_grouperUtilElSafe variable is the edu.internet2.middleware.grouper.util.
GrouperUtilElSafe class.
Call static methods
subjectApi.source.cmu.param.subjectVirtualAttributeVariable_grouperUtilElSafe.value = edu.internet2.middleware.
grouper.util.GrouperUtilElSafe

# This virtual attribute index 0 is accessible via: subject.getAttributeValue("nameLong");
subjectApi.source.cmu.param.subjectVirtualAttribute_0_nameLong.value = ${grouperUtilElSafe.
appendIfNotBlankString(grouperUtilElSafe.
defaultIfBlank(subject.getAttributeValue('cn'), ''), ' - ', grouperUtilElSafe.defaultIfBlank(subject.
getAttributeValue('eduPersonSch
oolCollegeName'), ''))}

# the 1st sort attribute for lists on screen that are derived from member table (e.g. search for member in
group)
# you can have up to 5 sort attributes
subjectApi.source.cmu.param.sortAttribute0.value = nameLong

# the 1st search attribute for lists on screen that are derived from member table (e.g. search for member in
group)
# you can have up to 5 search attributes
subjectApi.source.cmu.param.searchAttribute0.value = nameLong

#searchSubject: find a subject by ID. ID is generally an opaque and permanent identifier, e.g. 12345678.
# Each subject has one and only one ID. Returns one result when searching for one ID.

# sql is the sql to search for the subject by id. %TERM% will be substituted by the id searched for
subjectApi.source.cmu.search.searchSubject.param.filter.value = (& (guid=%TERM%) (objectclass=cmuPerson))

```

```

# Scope Values can be: OBJECT_SCOPE, ONELEVEL_SCOPE, SUBTREE_SCOPE
subjectApi.source.cmu.search.searchSubject.param.scope.value = ONELEVEL_SCOPE

# base dn to search in
subjectApi.source.cmu.search.searchSubject.param.base.value = ou=person

#searchSubjectByIdentifier: find a subject by identifier. Identifier is anything that uniquely
# identifies the user, e.g. jsmith or jsmith@institution.edu.
# Subjects can have multiple identifiers. Note: it is nice to have if identifiers are unique
# even across sources. Returns one result when searching for one identifier.

# sql is the sql to search for the subject by identifier. %TERM% will be substituted by the identifier searched
for
subjectApi.source.cmu.search.searchSubjectByIdentifier.param.filter.value = (& (cmuAndrewId=%TERM%)
(objectclass=cmuPerson))

# Scope Values can be: OBJECT_SCOPE, ONELEVEL_SCOPE, SUBTREE_SCOPE
subjectApi.source.cmu.search.searchSubjectByIdentifier.param.scope.value = ONELEVEL_SCOPE

# base dn to search in
subjectApi.source.cmu.search.searchSubjectByIdentifier.param.base.value = ou=person

# search: find subjects by free form search. Returns multiple results.

# sql is the sql to search for the subject by free form search. %TERM% will be substituted by the text searched
for
subjectApi.source.cmu.search.search.param.filter.value = (& (|(|(cmuAndrewId=%TERM%)(cn=%TERM%*)))(guid=%TERM%))
(objectclass=cmuPerson))

# Scope Values can be: OBJECT_SCOPE, ONELEVEL_SCOPE, SUBTREE_SCOPE
subjectApi.source.cmu.search.search.param.scope.value = ONELEVEL_SCOPE

# base dn to search in
subjectApi.source.cmu.search.search.param.base.value = ou=person

# attributes from ldap object to become subject attributes. comma separated
subjectApi.source.cmu.attributes = eduPersonSchoolCollegeName, sn, cmuStudentClass, givenName, mail

# internal attributes are used by grouper only not exposed to code that uses subjects. comma separated
subjectApi.source.cmu.internalAttributes = searchAttribute0

```

## sources.xml (pre v2.3)

```

<source adapterClass="edu.internet2.middleware.grouper.subj.GrouperJndiSourceAdapter">
  <id>cmu</id>
  <name>cmu</name>
  <type>person</type>
  <init-param>
    <param-name>INITIAL_CONTEXT_FACTORY</param-name>
    <param-value>com.sun.jndi.ldap.LdapCtxFactory</param-value>
  </init-param>
  <init-param>
    <param-name>PROVIDER_URL</param-name>
    <param-value>ldap://ldap.andrew.cmu.edu:389/dc=cmu,dc=edu</param-value>
  </init-param>
  <init-param>
    <param-name>SECURITY_AUTHENTICATION</param-name>
    <param-value>none</param-value>
    <!-- param-value>simple</param-value -->
  </init-param>
  <!-- init-param>
    <param-name>SECURITY_PRINCIPAL</param-name>
    <param-value>CN=grouperad,OU=Service Accounts</param-value>
  </init-param>

```

```

<init-param>
  <param-name>SECURITY_CREDENTIALS</param-name>
  <param-value>etc/grouper/ADSource.pass</param-value>
</init-param -->
<init-param>
  <param-name>SubjectID_AttributeType</param-name>
  <param-value>guid</param-value>
</init-param>
<init-param>
  <param-name>SubjectID_formatToLowerCase</param-name>
  <param-value>>false</param-value>
</init-param>
<init-param>
  <param-name>Name_AttributeType</param-name>
  <param-value>cn</param-value>
</init-param>
<init-param>
  <param-name>Description_AttributeType</param-name>
  <param-value>nameLong</param-value>
</init-param>

<!-- ///
      /// For filter use -->

<search>
  <searchType>searchSubject</searchType>
  <param>
    <param-name>filter</param-name>
    <param-value>
      (& (guid=%TERM%) (objectclass=cmuPerson))
    </param-value>
  </param>
  <param>
    <param-name>scope</param-name>
    <!-- Scope Values can be: OBJECT_SCOPE, ONELEVEL_SCOPE, SUBTREE_SCOPE -->
    <param-value>
      ONELEVEL_SCOPE
    </param-value>
  </param>
  <param>
    <param-name>base</param-name>
    <param-value>
      ou=person
    </param-value>
  </param>
</search>
<search>
  <searchType>searchSubjectByIdentifier</searchType>
  <param>
    <param-name>filter</param-name>
    <param-value>
      (& (cmuAndrewId=%TERM%) (objectclass=cmuPerson))
    </param-value>
  </param>
  <param>
    <param-name>scope</param-name>
    <param-value>
      ONELEVEL_SCOPE
    </param-value>
  </param>
  <param>
    <param-name>base</param-name>
    <param-value>
      ou=person
    </param-value>
  </param>
</search>

<search>
  <searchType>search</searchType>

```

```

    <param>
      <param-name>filter</param-name>
      <param-value>
        (&(|(|(cmuAndrewId=%TERM%)(cn=%*TERM%*)))(guid=%TERM%))(objectclass=cmuPerson))
      </param-value>
    </param>
    <param>
      <param-name>scope</param-name>
      <param-value>
        ONELEVEL_SCOPE
      </param-value>
    </param>
    <param>
      <param-name>base</param-name>
      <param-value>
        ou=person
      </param-value>
    </param>
  </search>
  <!-- you need this to be able to reference GrouperUtilElSafe in scripts -->
  <init-param>
    <param-name>subjectVirtualAttributeVariable_grouperUtilElSafe</param-name>
    <param-value>edu.internet2.middleware.grouper.util.GrouperUtilElSafe</param-value>
  </init-param>
  <!-- make sure subjectVirtualAttributeVariable_grouperUtilElSafe is set above -->
  <init-param>
    <param-name>subjectVirtualAttribute_0_nameLong</param-name>
    <param-value>${grouperUtilElSafe.appendIfNotBlankString(grouperUtilElSafe.defaultIfBlank(subject.
getAttributeValue('cn'), ''), ' - ', grouperUtilElSafe.defaultIfBlank(subject.getAttributeValue
('eduPersonSchoolCollegeName'), ''))}</param-value>
  </init-param>

  <init-param>
    <param-name>sortAttribute0</param-name>
    <param-value>nameLong</param-value>
  </init-param>
  <init-param>
    <param-name>searchAttribute0</param-name>
    <param-value>nameLong</param-value>
  </init-param>
  <internal-attribute>searchAttribute0</internal-attribute>
  <!-- ///Attributes you would like to display when doing a search -->
  <attribute>eduPersonSchoolCollegeName</attribute>
  <attribute>sn</attribute>
  <attribute>cmuStudentClass</attribute>
  <attribute>givenName</attribute>
  <attribute>mail</attribute>

</source>

```

this is the Java test case: LdapSubjectTest.java in Grouper API

```
Subject subject = SubjectFinder.findByIdAndSource("00000000-0000-1000-2F4C-0800207F02E6", "cmu", true);

assertEquals("Vincent Lun", subject.getName());

assertEquals("vlun@andrew.cmu.edu", subject.getAttributeValue("mail"));

assertEquals("Vincent Lun - Student Employment", subject.getDescription());

assertEquals("Vincent Lun - Student Employment", subject.getAttributeValue("nameLong"));

//check the search and sort attributes
Member member = MemberFinder.findBySubject(GrouperSession.startRootSession(), subject, true);
assertEquals("Vincent Lun - Student Employment", member.getSortString0());
assertEquals("vincent lun - student employment", member.getSearchString0());

Subject subject2 = SubjectFinder.findByIdentifierAndSource("vlun", "cmu", true);

assertEquals(subject.getId(), subject2.getId());
Set<Subject> subjects = SubjectFinder.findAll("Vincent Lun", "cmu");

//hmmm, will this be one? maybe
assertEquals(1, GrouperUtil.length(subjects));
assertEquals(subject.getId(), subjects.iterator().next().getId());
```