

AttributeManagementPilot

Introduction

The purpose of the demonstrator is to show with a practical implementation how group membership attributes or other attributes from multiple sources can be used in a federated environment to regulate access to services.

The use of COmanage, as an attribute source, for managing the users' attributes allows to regulate the authorization on services based on externally provided attributes. Such a service can be entirely managed by the research community, independently from service providers or identity providers. It simplifies the configuration at both the service provider and attribute authority level.

Detailed description

A detailed description can be found in this [wiki page](#).

The setup consist of:

- an IdP proxy based on SimpleSAMLphp
- a COnmanage server (configured as service provider) as aggregation service
- a cloud framework (OpenStack) as service provider.

For the purpose of this pilot, we have enabled federated access to the dashboard of a demo OpenStack Cloud deployment and we are using a set of dummy users registered in the testbed IdP. Specifically, the pilot IdP proxy has been configured to authenticate users and communicate the result of the authentication to an OpenStack's Identity service (Keystone) using SAML assertions. Before passing the authentication results to OpenStack, the pilot IdP proxy contacts a COnfigure instance, on which some collaborations (COs) have been created that have a corresponding project in OpenStack for the mapping of users: it attaches additional entitlement regarding the user's membership of the COs to the SAML assertion. At this point the new SAML assertion is passed to OpenStack and it is mapped to keystone user groups, based on which, the authenticated user can access cloud resources using his /her federated ID.

There was no need to create local accounts on the cloud framework, ephemeral users are used instead: we created a set of mapping rules that, depending on the entitlements provided by COmanage (managing COs and groups with users having specific rules in the CO), associate the external users to the right group defined into openstack, after which each of them can access a particular OpenStack project with different user rights (either admin or simple user).

Demonstration workflow

The research collaborations on COmanage

a) some research collaborations who want to access OpenStack services were created on a CManage instance. In our case:

aarc-white.pilots.aarc-project.eu

Platform

Isaac Newton (Isaac@university-example.org)

0

Logout

aarc-white.pilots.aarc-project.eu

COmanage™

People

Groups

Configuration

Collaborations

[Home](#) > [aarc-white.pilots.aarc-project.eu](#) > My Population

aarc-white.pilots.aarc-project.eu People

Toggle All: [Open](#) [Closed](#)

Sort By: [Name](#) [Status](#) [Created](#) [Modified](#)

Search:

Given Name

Family Name

Email

Identifier

Status (select...)

Search

Clear

a b c d e f g h i j k l m n o p q r s t u v w x y z

▶ Student One	Active	Edit
▶ Student Two	Active	Edit
▶ Joseph Wheeler	Active	Edit

Page 1 of 1, Viewing 1-3 of 3

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COmanage™

aarc-yellow.pilots.aarc-project.eu

COmanage™

People

Groups

Configuration

Collaborations

[Home](#) > [aarc-yellow.pilots.aarc-project.eu](#) > My Population

aarc-yellow.pilots.aarc-project.eu People

Toggle All: [Open](#) [Closed](#)

Search:

Given Name

Family Name

EMail

a b c d e f g h i

▶ Paul	Deleted
▶ Ben Shalom Bernanke	Active
▶ Paul Robin Krugman	Active
▶ Joseph Eugene Stiglitz	Active
▶ Anthony West	Active

Page 1 of 1, Viewing 1-5 of 5

Powered by

COmanage™

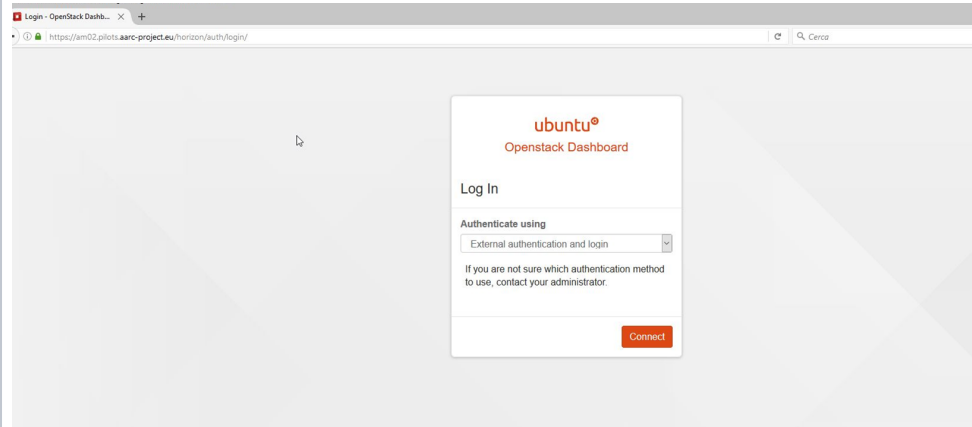
b) Each CO has got an admin who approves the membership requests and several users registered

c) Each CO has got a corresponding project into OpenStack, reserved to its members

Access to the cloud resources

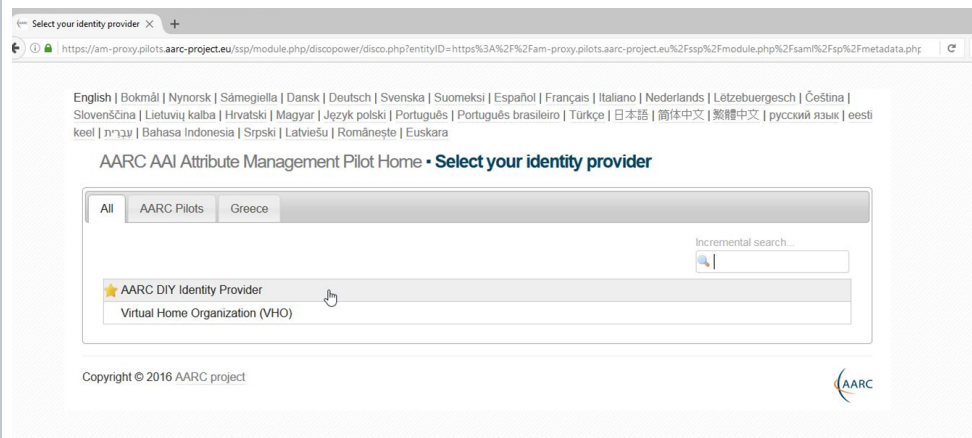
1. Access OpenStack's Dashboard (Horizon)

Select "External authentication and login" and click on "Connect".



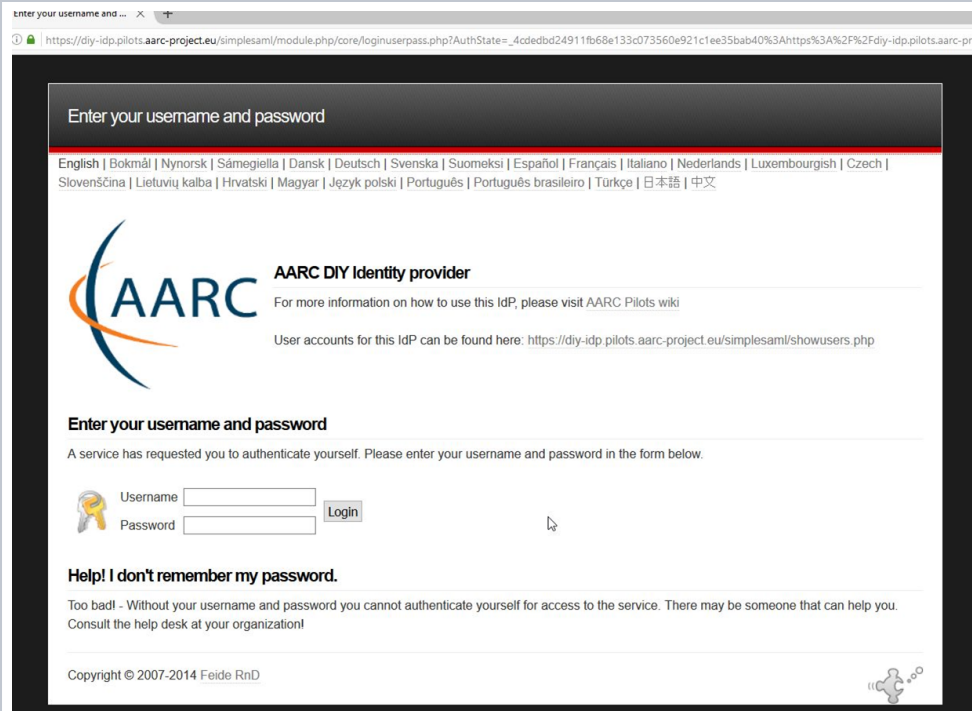
2. Select your Identity Provider from the discovery page (WAYF).

The institutional IdP to select (considered for demo purposes only) is: **AARC DIY Identity Provider**



3. Enter your login credentials to authenticate yourself with the IdP of your Home Organisation. We will show three cases:

- a) an user belonging to aarc-yellow CO with admin role
- b) an user belonging to aarc-yellow CO with no particular roles
- c) an user belonging to aarc-blue CO with admin role



- 4 -- member of aarc-yellow CO
b. without any privileged role --

After successful authentication, the user needs to give the consent for releasing your personal information to the Service Provider mentioned in the page (the OpenStack framework in our case).

Among the data that will be passed to the Service Provider, there are the Entitlements released by the attribute authority COnfigure regarding the ownership in the COs and the roles.

In this case the Entitlement contains this piece of information:

urn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:members:member@aarc-yellow.pilots.aarc-project.eu

That is the piece of information used for properly mapping the users to the OpenStack projects.

Click on "yes" for going on.

AARC AAI Attribute Management Pilot Home • Consent about releasing personal information

<https://am02.pilots.aarc-project.eu/shibboleth> requires that the information below is transferred.

☐ Remember

Yes, continue

No, cancel

Information that will be sent to <https://am02.pilots.aarc-project.eu/shibboleth>

User ID	jstiglitz
Given name	Joseph
Surname	Stiglitz
Common name	Joseph Eugene Stiglitz
Mail	<ul style="list-style-type: none">J.E.Stiglitz@harvard-example.eduJoseph.Stiglitz@harvard-example.edujstiglitz@harvard-example.edu
Display name	Joseph Stiglitz
Home organization domain name	harvard-example.edu
Person's principal name at home organization	jstiglitz@harvard-example.edu
Affiliation	<ul style="list-style-type: none">memberemployeefaculty
Group membership	urn:collab:org:aarc-project.eu
Entitlement regarding the service	<ul style="list-style-type: none">urn:mace:incommon.org:reg:education-exampleurn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:members:member@aarc-yellow.pilots.aarc-project.euurn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:members:member@aarc-yellow.pilots.aarc-project.euurn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:members:member@aarc-yellow.pilots.aarc-project.eu

- 5 The user is successfully
b. redirected to the OpenStack Dashboard, mapped to a Keystone user group based on the values of the Entitlement attribute, with the eppn as username.

In this case the user is accessing the aarc-yellow project with the rights for a "regular user" (no administrative rights).

4 -- user belonging to aarc-yellow
a. CO and with admin role --

After successful authentication, the user needs to give the consent for releasing your personal information to the Service Provider mentioned in the page (the OpenStack framework in our case).

Among the data that will be passed to the Service Provider, there are the Entitlements released by the attribute authority COnfigure regarding the ownership in the COs and the roles.

In this case the Entitlement contains these pieces of information:

urn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:members:member@aarc-yellow.pilots.aarc-project.eu

urn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:admin:member@aarc-yellow.pilots.aarc-project.eu

That is the piece of information used for properly mapping the users to the OpenStack projects.

Click on "yes" for going on.

AARC AAI Attribute Management Pilot Home • Consent about releasing personal information

https://am02.pilots.aarc-project.eu/shibboleth requires that the information below is transferred.

☐ Remember

Yes, continue

No, cancel

Information that will be sent to https://am02.pilots.aarc-project.eu/shibboleth

Preferred language	en
User ID	awest
Given name	Anthony
Surname	West
Common name	Anthony West
Mail	Anthony_West@university-example.org
Display name	Anthony West
Home organization domain name	university-example.org
Person's principal name at home organization	awest@university-example.org
Affiliation	<div><div>• member</div><div>• employee</div><div>• staff</div></div>
Group membership	urn:collab.org:aarc-project.eu
Entitlement regarding the service	<div><div>• urn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:members:member@aarc-yellow.pilots.aarc-project.eu</div><div>• urn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:admin:member@aarc-yellow.pilots.aarc-project.eu</div></div>

5 The user is successfully
a. redirected to the OpenStack Dashboard, mapped to a Keystone user group based on the values of the Entitlement attribute, with the eppn as username.

In this case the user is accessing to the aarc-yellow project with administrative rights.

Instance Overview - OpenStack

https://am02.pilots.aarc-project.eu/openstack/

ubuntu

aarc-yellow

The username

awest@university-example.org

Overview

Limit Summary

The Project

Instances Used 0 of 10

VCPUs Used 0 of 20

RAM Used 0 of 51,200

Floating IPs Used 0 of 50

Security Groups Used 1 of 10

Usage Summary

Select a period of time to query its usage:

From: 2017-01-01 To: 2017-01-10 Submit

Active Instances: 0 Active RAM: 0 Bytes This Period's VCPU-Hours: 0.00 This Period's GB-Hours: 0.00 This Period's RAM-Hours: 0.00

Usage

Instance Name	VCPUs	Disk	RAM	Time since created
No items to display				

<div>4</div> <div>c.</div> <div>-- user belonging to aarc-blue CO and with admin role --</div> <div>After successful authentication, the user needs to give consent for releasing personal information to the Service Provider mentioned in the page (the OpenStack framework in our case).</div> <div>Among the data that will be passed to the Service Provider, there are the Entitlements released by the attribute aggregatore COnfigure regarding the ownership in the COs and the roles.</div> <div>In this case the Entitlement contain these pieces of information:</div> <div><i>urn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:members:member@aarc-blue.pilots.aarc-project.eu</i></div> <div><i>urn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:admin:member@aarc-blue.pilots.aarc-project.eu</i></div> <div>That is the piece of information used for properly mapping the users to the OpenStack projects.</div> <div>Click on "yes" for going on.</div>	<div>AARC AAI Attribute Management Pilot Home • Consent about releasing personal information</div> <div>https://am02.pilots.aarc-project.eu/shibboleth requires that the information below is transferred.</div> <div><input type="checkbox"/> Remember</div> <div>Yes, continueNo, cancel</div> <div>Information that will be sent to https://am02.pilots.aarc-project.eu/shibboleth</div> <div><div>User ID</div><div>oburton</div></div> <div><div>Given name</div><div>Oscar</div></div> <div><div>Surname</div><div>Burton</div></div> <div><div>Common name</div><div>Oscar Burton</div></div> <div><div>Mail</div><div>Osc@r__Burton@university-example.org</div></div> <div><div>Display name</div><div>Oscar Burton</div></div> <div><div>Home organization domain name</div><div>university-example.org</div></div> <div><div>Person's principal name at home organization</div><div>oburton@university-example.org</div></div> <div><div>Affiliation</div><div><ul style="list-style-type: none">employeememberstaff</div></div> <div><div>Group membership</div><div>urn:collab:org:aarc-project.eu</div></div> <div><div>Preferred language</div><div>en</div></div> <div><div>Entitlement regarding the service</div><div><ul style="list-style-type: none">urn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:members:member@aarc-blue.pilots.aarc-project.euurn:mace:aarc-project.eu:am03.pilots.aarc-project.eu:admin:member@aarc-blue.pilots.aarc-project.eu</div></div>										
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Instance Name	VCPUs	Disk	RAM	Time since created							
No items to display											

Mapping rules: an example

```

{
  "local": [
    {
      "user": {
        "name": "{0}"
      }
    },
    {
      "group": {
        "id": "3b609a4da6654625a3789d1a6bd1f
dc7"
      }
    }
  ],
  "remote": [
    {
      "type": "eppn"
    },
    {
      "type": "entitlement",
      "any_one_of": [
        "urn:mace:aarc-project.eu:am03.pilots.
aarc-project.eu:admin:member@aarc-blue.pilots.aarc-
project.eu"
      ]
    }
  ]
},

```

The mapping rules are passed in Keystone as a json file. Each set of rules is made of a local and a remote section.

In the remote part it is specified the external attributes to take into account and that we want to map to the local ones, following the order in which they are listed.

In our case, as local username, it will be used the eppn, and any SAML assertion presenting that particular value in the entitlement attribute will be mapped to the local group with that particular ID.