U.S. ARF / CI CoE Pilot / Trusted CI Identity Management (IdM) Engagement

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CI CoE PILOT

TRUSTED CI
THE NSF CYBERSECURITY CENTER OF EXCELLENCE

CILogon

COmanage™

R/V Sikuliaq  
College of Fisheries and Ocean Sciences  
https://www.sikuliaq.alaska.edu
ARF IdM Engagement Plan

https://docs.google.com/document/d/1Btb4VRaXrZzg_8brZ_viSMy20PNH-AlcTnamwwr22Ss/edit

May - October 2020

- **Milestone 1**: Catalog Current State of IdM in the ARF
- **Milestone 2**: Recommend an IdM solution
- **Milestone 3**: Proof of concept IdM solution
Objectives of a Federated IdM Service

This engagement explored how to:

- Provide an Opt-In per vessel per service IdM Solution
- Centralized Identity Management capability for the Fleet
- Facilitate Auditability of Authentication Events
- Monitor expired or inactive accounts for deactivation
- Reduce use of shared password accounts
- Leverage Institutional Identity Providers rather than creating new identities
- Streamline On/Off Boarding Processes
- Develop a Shipside Authentication Appliance
IdM Primer Video

https://youtu.be/rZWOXeOsN6E

IdM Primer Presentation

https://docs.google.com/presentation/d/1_riLUbkQYiqvOsPXezn3GLwehj1WEWLwfiELo4qwxiE/edit?usp=sharing

- Authentication
- Authorization
- Authentication Services
- Auditability
- Shared Accounts
- Federated Identity Services
Milestone 1: State of IdM in US ARF - Survey Results

- 10 Institution Responded / 15 Vessels Represented
- 60% don’t know how many Institute accounts are accessed each year
- 50% don’t know how many Transient accounts are accessed each year
- 80% don’t know how many inactive accounts are enabled
- Shared Password Roll Accounts are commonly used
- Majority of Credentials are managed locally on each device
- A small number of vessels use AD/LDAP
- End users are storing passwords insecurely
- 60% have only local system logs / 20% have centralized logging
- 10% regularly audit logs
- Majority require strong passwords / 30% use 2FA
- There is a mix of processes for adding / removing accounts
Milestone 1: State of IdM in US ARF

Survey Respondents:
- Support Federated IdM for Cruise Planning, Captive Portal, Science Logging, and File Sharing
- Are mixed or do not support Federated IdM for Email, Kiosks, VDI, SysAdmin, Ops Tech, Vessel Maintenance
- Agree that Federated IdM should never block logins if the Internet is down
- Strongly desire the ability to administer identities from vessel networks
- Agree that federated IdM will be opt-in on a per vessel per service basis
Milestone 2: Recommended Solution

43 of 58 UNOLS Institutions are in the InCommon Federation

Google Apps for Education and other GMail Accounts

ARF IdM Services

Shoreside Fleetwide AuthN + AuthZ Services

Shipside IdM / LDAP Appliances

Shipside IdM / LDAP Clients

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IdM Workflow

Federated Identity Providers (IdP)
- InCommon
- Google

CILogon

User Enrollment

Pre-Cruise Checkin

Provisioning

Per Vessel AuthN Appliances
- Active Directory
- OpenLDAP
- FreeIPA

Per Vessel Client Services
- Sophos
- OpenLDAP
- Samba
- HTML
- Windows
- OSX

ARF Identity Management (IdM) Services
- C0manage
- Grouper

ARF Authentication (AuthN) Services
- Active Directory
- OpenLDAP
- OpenID
- FreeIPA

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Milestone 3: Proof of Concept

How far did we get?

- Working InCommon / Google Federation
- Working ARF COManage Instance
- Partial Open LDAP Server
- Incomplete AD Server
- Incomplete Samba Client
Federated Authentication

https://drive.google.com/file/d/1-fXr5xxzAQ6m55ng5FYc6R0UKfqTwHsS/view?usp=sharing
### USARF People

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Roles</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Josh Drake</td>
<td>Active</td>
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<td>Edit</td>
</tr>
<tr>
<td><a href="mailto:drakejc@iu.edu">drakejc@iu.edu</a></td>
<td></td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>John Haverlack</td>
<td>Active</td>
<td>No Title</td>
<td>Edit</td>
</tr>
<tr>
<td><a href="mailto:jehaverlack@alaska.edu">jehaverlack@alaska.edu</a></td>
<td></td>
<td>Active</td>
<td></td>
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<tr>
<td>Ryan Kiser</td>
<td>Pending Confirmation</td>
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<td>Edit</td>
</tr>
<tr>
<td></td>
<td>Duplicate</td>
<td>No Title</td>
<td>Edit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duplicate</td>
<td></td>
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</tbody>
</table>
### Groups

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Open</th>
<th>Status</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO:admins</td>
<td>USARF Administrators</td>
<td>Closed</td>
<td>Active</td>
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</tr>
<tr>
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<tr>
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<tr>
<td>CO:COU:UNOLS Staff:admins</td>
<td>UNOLS Staff Administrators</td>
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<tr>
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<td>[View]</td>
</tr>
<tr>
<td>CO:COU:UNOLS Staff:members:call</td>
<td>UNOLS Staff Members</td>
<td>Closed</td>
<td>Active</td>
<td>[View]</td>
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<tr>
<td>CO:UAF:admins</td>
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<td>Active</td>
<td>[View]</td>
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</table>
## Enrollment Flows

<table>
<thead>
<tr>
<th>Name</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invite a collaborator</td>
<td>BEGIN</td>
</tr>
<tr>
<td>Link another account</td>
<td>BEGIN</td>
</tr>
<tr>
<td>Self Signup With Approval</td>
<td>BEGIN</td>
</tr>
</tbody>
</table>

Display [25] records GO  Page 1 of 1, Viewing 1-3 of 3
## COUs

<table>
<thead>
<tr>
<th>Name</th>
<th>Parent COU</th>
<th>Description</th>
<th>Actions</th>
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</thead>
<tbody>
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<td>Science Parties</td>
<td></td>
<td>A container for identities belonging to members and researchers associated with science parties.</td>
<td><img src="edit.png" alt="Edit" /> <img src="delete.png" alt="Delete" /></td>
</tr>
<tr>
<td>UNOLS Staff</td>
<td></td>
<td>Container object for identities permanently associated with UNOLS or the ARF.</td>
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</tr>
</tbody>
</table>

Display **25** records GO

Page 1 of 1, Viewing 1-2 of 2
## COUs

<table>
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<th>Description</th>
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<tbody>
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</table>

[Add a New COU]
Challenges

- Identity Management is Complicated
- There is more than one way to organize identity data
- Integrating authentication systems is hard
- Bi-directional administration (ship to shore) is not currently available
- CILogon annual subscription: ~$9,000 per year

There are resources that can help us.
Next Steps

● Write a **Federated Identity Management Service** Proposal
  ○ Available to U.S. ARF on a **per vessel / per service Opt-In** basis
  ○ Would pursue potential collaborations with
    - CILogon
    - CICoE
    - Trusted CI
    - Marine Facilities Planner (IdM Client)
  ○ Request funding to establish and run IdM service for 5 years