



AAF & Big Science Workflows and Orchestration

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AUSTRALIAN ACCESS FEDERATION



WHAT IS THE AAF?

- The Australian Access Federation (AAF) provides the authentication framework for Australia's research and education community. The AAF is a **not-for-profit** that is owned and governed by the Australian research and education sector.
- Enables researchers to **securely access** national and international **research and collaboration** infrastructure. The AAF is part of the Australian Government's National Collaboration Research Infrastructure Strategy (NCRIS) and roadmap.

WHY THE AAF?

- Allows Australian researchers to use their **existing login details** to **seamlessly access** shared resources and services across national and international organisation boundaries **without additional usernames and passwords**.
- Operates a highly **secure and reliable** technical environment that delivers federated authentication to members. An AAF connection provides a trusted and secure solution.

Members include all Australian universities and:



AAF 2020 SNAPSHOT



AAF CONNECTS

1.4M
USERS

100+
ORGANISATIONS

230+
NATIONAL
SERVICES

200+
INTERNATIONAL
SERVICES

IN PARTNERSHIP
WITH

NCRIS

National Research
Infrastructure for Australia

An Australian Government Initiative

BENEFITS

CONNECTING
RESEARCH INFRASTRUCTURE



ACCESS TO SHARED
RESOURCES AND
SERVICES

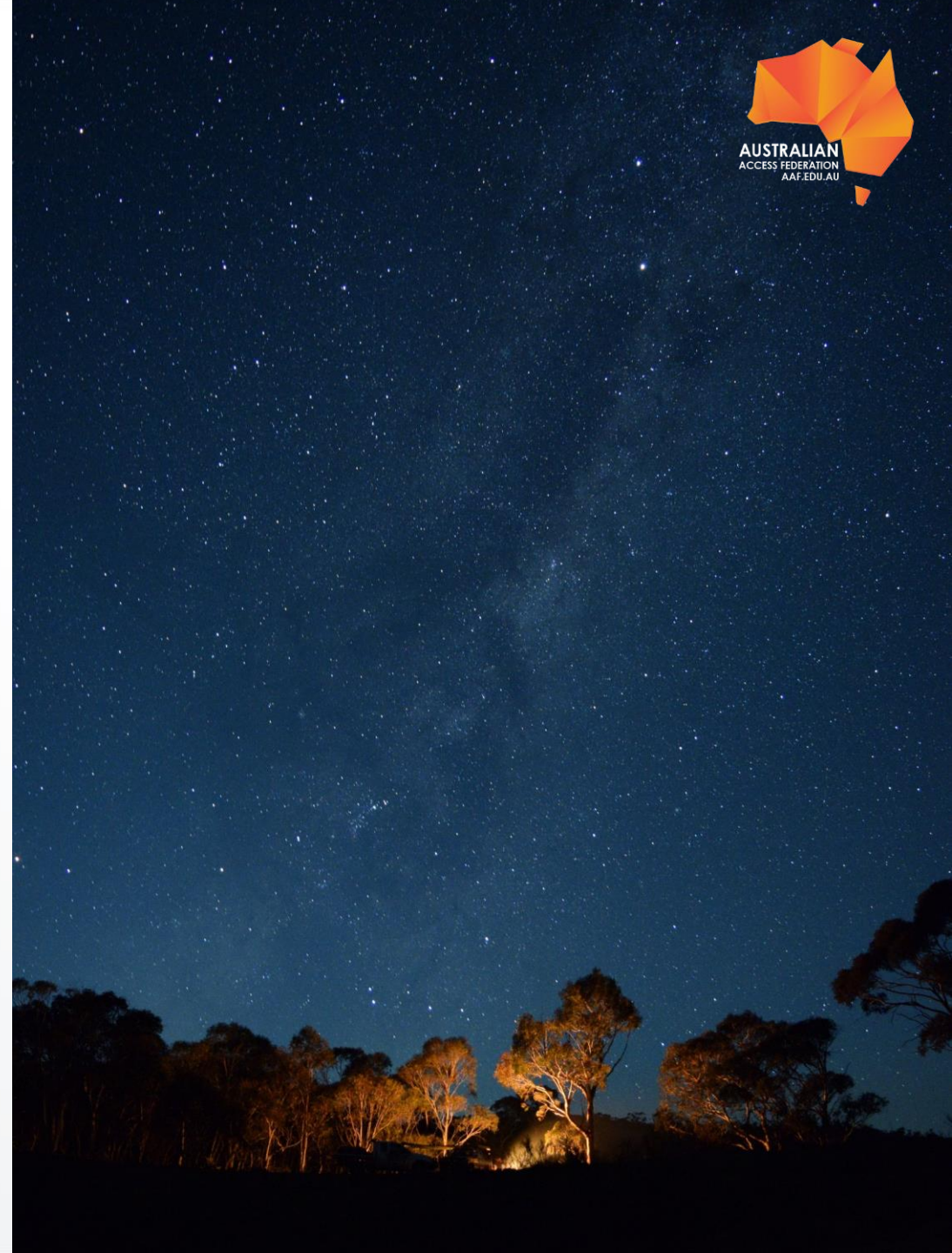


Empowering Australian Researchers

INTERNATIONAL RESEARCHERS CAN NOW MAP THE UNIVERSE WITH MURCHISON

The Murchison Widefield Array (MWA) is one of Australia's leading radio telescopes enabling astronomers from around the world to explore the universe. Global collaboration is integral to the success of the MWA and researcher outputs. To ensure seamless and secure collaboration the MWA has connected to eduGAIN, a connection which is made possible by the AAF.

The MWA Director, Professor Melanie Johnston-Hollitt, said, "the eduGAIN connection is a vital service for an international collaboration like the MWA making it simple for our team of global researchers to access data from the telescope". Connecting the MWA to eduGAIN not only enhances and accelerates innovation in astrophysics, it enables borderless research.



THE CHALLENGE

Horizontal authorisation across different research and e-infrastructures is difficult, particularly within the same project. An individual researcher may need to access resources provided by different infrastructures. Moreover, having different authentication and authorisation infrastructure (AAI) can create compatibility issues, let alone the time spent in creating new capabilities.

We need to find a way to integrate identity services across different infrastructures and provide research communities with the support they need to securely share data and resources. How to do it?

THE SOLUTION

The European Commission provided funding several years ago to document a standard architecture for collaborative research activities. Research and education federations like the AAF and major research organisations from around the world contributed to create the [AARC Blueprint Architecture](#).

This architectural pattern is used by major research initiatives including: Elixir (EU), National Institute of Health (US), Murchison Widefield Array (AU), LIGO (US) and many others.

AARC BLUEPRINTS HIGHLIGHTS



Objectives

- Brings federation to large-scale scientific collaborations
- Supports more nuanced role information not currently available via eduGAIN
- Provides a persistent identifier to track users across different services that make up the collaboration
- Reduces complexity for services/applications (a single point of integration)

Integrate users from different identity sources

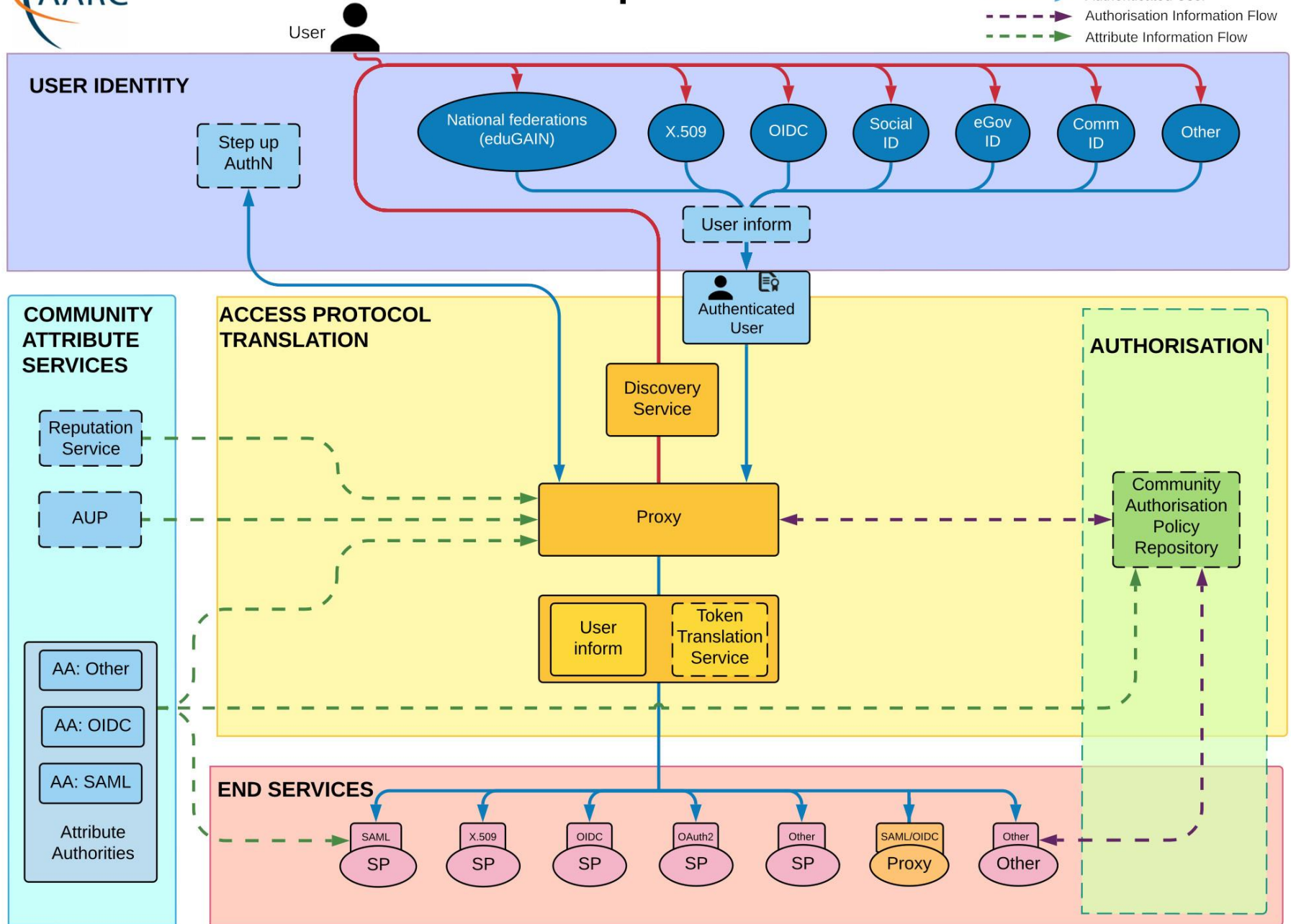
- SAML-based federations (AAF, eduGAIN)
- X.509 certificates
- OIDC providers (eg. Google, Facebook, GitHub)
- LDAP

Enrolment flows

- User-initiated request
- Automated provisioning using attribute values and/or manual approval steps

Group and entitlement management

- Consistent access to collections of systems based on groups and roles
- Centralised or delegated



AARC blueprints in the wild



AARC Blueprint deployments

- Murchison Widefield Array telescope proxy
- LIGO
- XSEDE
- EGI
- ELIXIR
- NIH / NIAID
- EUDAT
- DARIAH
- Globus

Deployment Options

- DIY with open source projects
- As a Service
 - CILogon (<https://www.cilogon.org>)
 - eduTEAMS (<https://eduteams.org>)

AAF and AARC Blueprint Architecture

- The AAF is partnering with **Australian BioCommons** to pilot an **AARC Blueprint deployment for life science research in Australia**
- **Pilot using CILogon** (<https://www.cilogon.org>)
- The AAF is investigating options to operate an Authentication & Authorisation Infrastructure in support of Australian research activities

Implementation considerations



BUSINESS PROCESS

- A solid understanding of the business process around authorisation steps and requirements is necessary prior to implementation.
- Data Classification may impact on the authorisation steps. Be aware of use cases where data or access to systems may need additional restrictions. Consider things like MFA assertion and other possible requirements.
- Understand the type of logging and reporting that will be required post go-live. Retrofitting this type of capability can be problematic in horizontally scaled infrastructure.

OPERATIONAL SUPPORT PLAN – **CONSIDER EARLY**

- Who is providing operational support for the accounts and attributes once the project phase is finished?
- Who is authorised to approve accounts and access once the project phase is finished?
- Who is the subject matter expert? This role is required on an ongoing basis to answer discipline specific questions that may arise during the daily operations of the service.

Questions and links

Australian Access Federation

<https://aaf.edu.au/>

NCRIS and AAF roadmap activities

<https://ncris.aaf.edu.au>

AARC Blueprint

<https://aarc-project.eu/architecture/>

International Access through the AAF (eduGAIN)

<https://aaf.edu.au/edugain/>

Full list of Australian eduGAIN connected institutions

<https://aaf.edu.au/edugain/connect.html>

