CILogon

Supporting Research Collaborations

Jim Basney
jbasney@ncsa.illinois.edu
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UNIVERSITY OF ILLINOIS
URBANA-CHAMPAIGN

NCSA

IAM for Research Collaborations

CILogon: 15+ year sustained effort to enable secure logon to scientific cyberinfrastructure (CI)

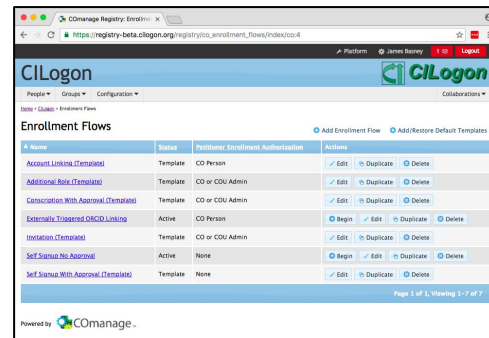for seamless identity and access management (IAM)

using federated identities (SAML, OIDC, OAuth, JWT) so researchers log on with their existing credentials
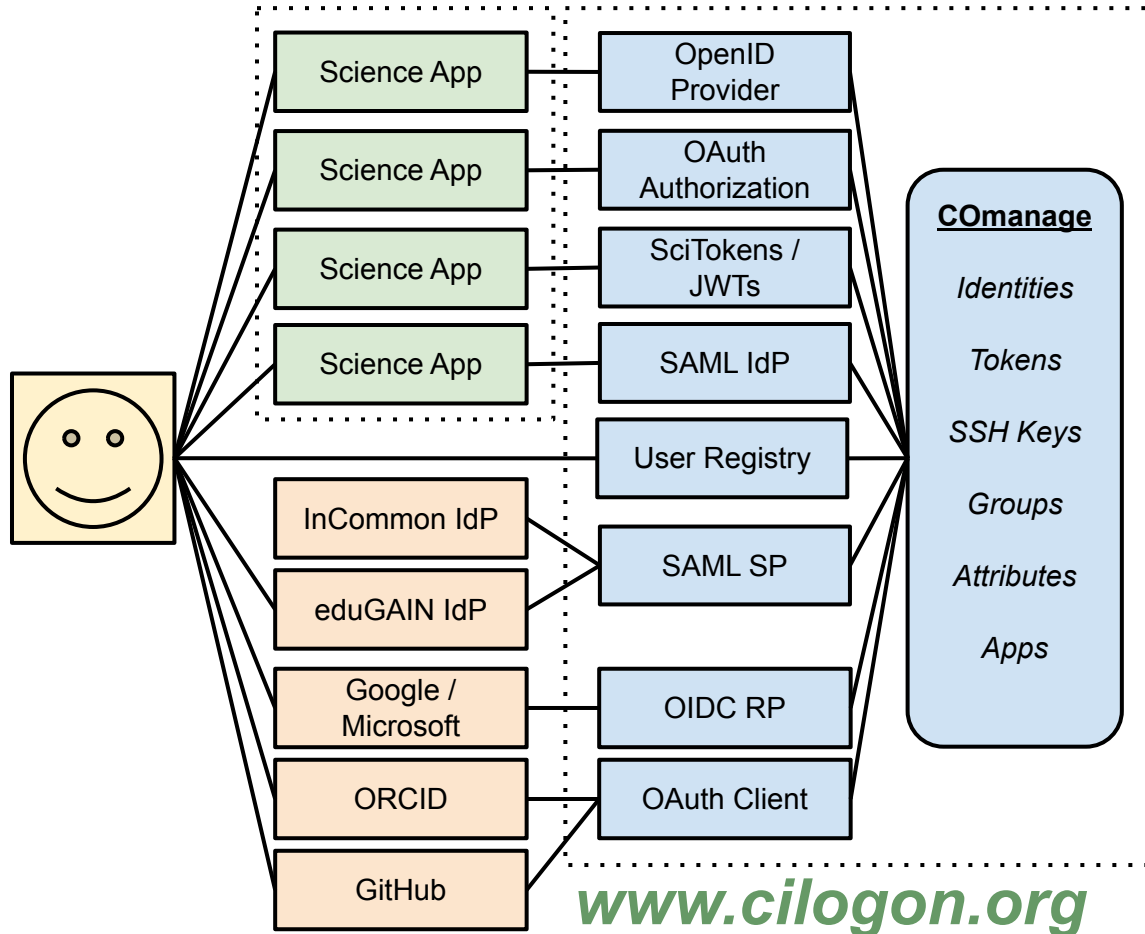
supporting 60,000+ active users from 800+ organizations around the world

with onboarding/offboarding/attributes/groups/roles managed consistently across multiple applications

CILogon   *www.cilogon.org*

supporting access to science applications on HPC clusters, in Jupyter notebooks, using Globus, via REST APIs, and many other interfaces

using Google, GitHub, InCommon/eduGAIN, Microsoft, OneID, and ORCID credentials

Science App — OpenID Provider

Science App — OAuth Authorization

Science App — SciTokens / JWTs

Science App — SAML IdP

User Registry

InCommon IdP
eduGAIN IdP — SAML SP

Google / Microsoft — OIDC RP

ORCID — OAuth Client

GitHub

COmanage

Identities

Tokens

SSH Keys

Groups

Attributes

Apps

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tokens for science

OpenID Connect (OIDC) ID Tokens (e.g., ACCESS)
    containing user attributes and group memberships
    from the research community (via COmanage Registry)
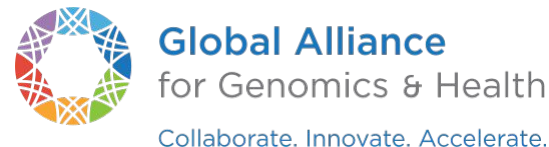   and from the researcher's home institution (via InCommon)

SciTokens (e.g., LIGO)
    containing authorization scope values
    determined by per client/subscriber policy

WLCG Tokens (e.g., Fermilab)
    support for wlcg.groups and storage.*|compute.* scopes

GA4GH Passports (e.g., Australian BioCommons)
    support for AffiliationAndRole, AcceptedTermsAndPolicies, ResearcherStatus,
    ControlledAccessGrants, and LinkedIdentities

OpenID®

SCITOKENS

WLCG
Worldwide LHC Computing Grid

Global Alliance
for Genomics & Health
Collaborate. Innovate. Accelerate.

CILogon   https://www.cilogon.org/jwt   ***www.cilogon.org***

trustworthy long-term operations

reliability

scalability

sustainability

operational security

managing technical debt

managing dependencies

preparing for transitions

community engagement

our team

NCSA Team
Jeff Gaynor, Jim Basney, Richelle Lu-Rivera, Robin Blair, Scott Koranda, Shayna Atkinson, and Terry Fleury

Partners
Australian Access Federation, InCommon, and SCG Collaboration Group

our subscription model

Basic Authentication
best effort support for academic research projects using manually approved OIDC clients

Essential Service
multi-tenant COmanage Registry, OAuth dynamic client registration, cloud integrations, custom configurations, SLA

Full Service
dedicated COmanage Registry, custom JWTs, OAuth dynamic client registration, cloud integrations, custom configurations, SLA

https://www.cilogon.org/subscribe

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our 15+ year history (1)

2009 Federated login to TeraGrid. NSF ARRA award.

2010 CILogon operations begin. IGTF X.509 CAs operational.

2011 NSF SDCI award. OAuth support. InCommon Silver support.

2012 DOE ASCR award. Globus identity linking. InCommon R&S.

2013 XSEDE operations support. LIGO Data Grid use.

2016 NSF CICI award. eduGAIN support. OIDC support.

2017 COmanage support. AWS deployment.

2019 Transition to subscription funding model with 5 subscribers.

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our 15+ year history (2)

2020 AWS, Azure, GCP, and IBM Cloud integration for NSF CloudBank.

2021 SciTokens and WLCG JWT support.

2022 COmanage Registry for NSF ACCESS. Virgo and KAGRA for IGWN.

2023 AWS Sydney deployment for Australian Access Federation. IPv6 support.

2024 25 subscribers including Digital Research Alliance of Canada.

2025 Federation with DOE OneID. X.509 CAs retired.

Next: COmanage Registry v5

COmanage Registry v5

major web application framework upgrade, addressing technical debt

UI/UX redesign focused on usability, accessibility, and workflow

UI/UX streamline and simplification for end user

improved customization of Enrollment Flows

https://spaces.at.internet2.edu/display/COmanage/COmanage+Product+Roadmap

Case Study: OSG Consortium (1)

The Open Science Grid (OSG) Consortium is a distributed high throughput computing (dHTC) organization that manages access to a global network of data and computing resources shared across more than 70 institutions

Using CILogon hosted COmanage Registry

Distributed onboarding, offboarding, and authorization workflows delegated to volunteer administrators across the globe

Support for nearly 200 research projects and growing, with 400+ active members

https://incommon.org/academy/cilogon-hosted-comanage-registry-for-the-osg-consortium/

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OSG

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Case Study: OSG Consortium (2)

Scalable authentication: InCommon, eduGAIN, ORCID, GitHub, Google, Microsoft

Support for SSH keys and OAuth Device Flow

Using group-based authorization with locally hosted SciTokens provider

Application integrations via OAuth/OIDC, REST and LDAP

Member documentation: https://osg-htc.org/docs/common/contact-registration/

https://incommon.org/academy/cilogon-hosted-comanage-registry-for-the-osg-consortium/

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OAuth Device Flow for SSH
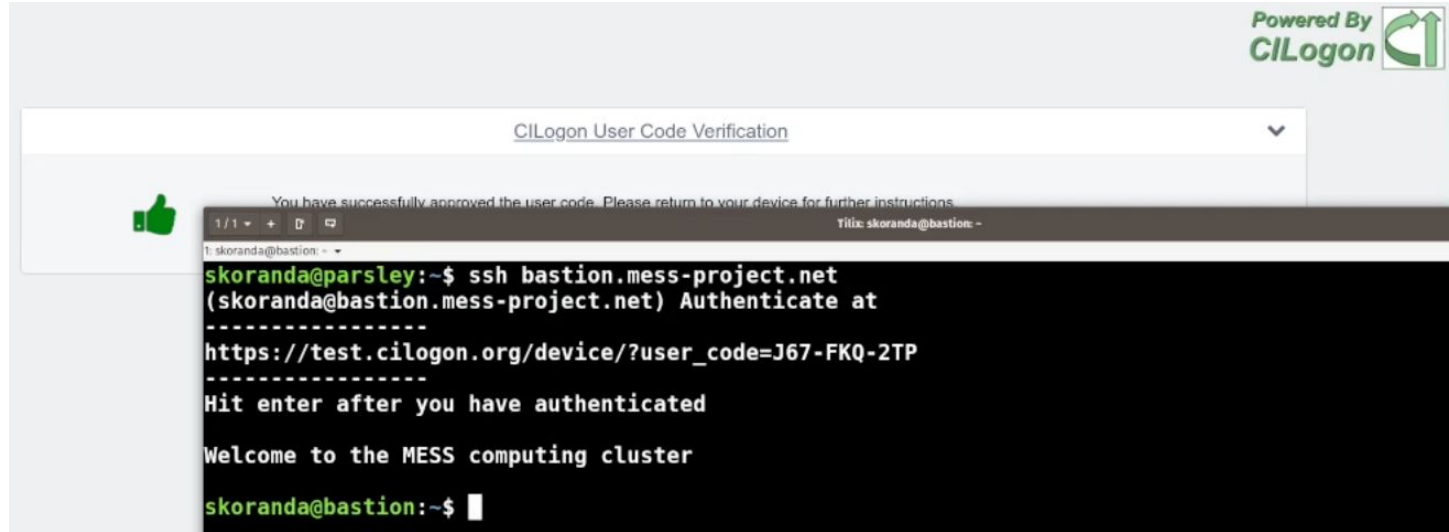
https://github.com/stfc/pam_oauth2_device

https://www.cilogon.org/device

https://youtu.be/swoxhqBd_es

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Thanks!

contact:

jbasney@ncsa.illinois.edu
help@cilogon.org