

Enabling efficient electronic collaboration  
between LIGO and other astronomy communities  
using federated identity and COnmanage

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LIGO and University of Wisconsin-Milwaukee

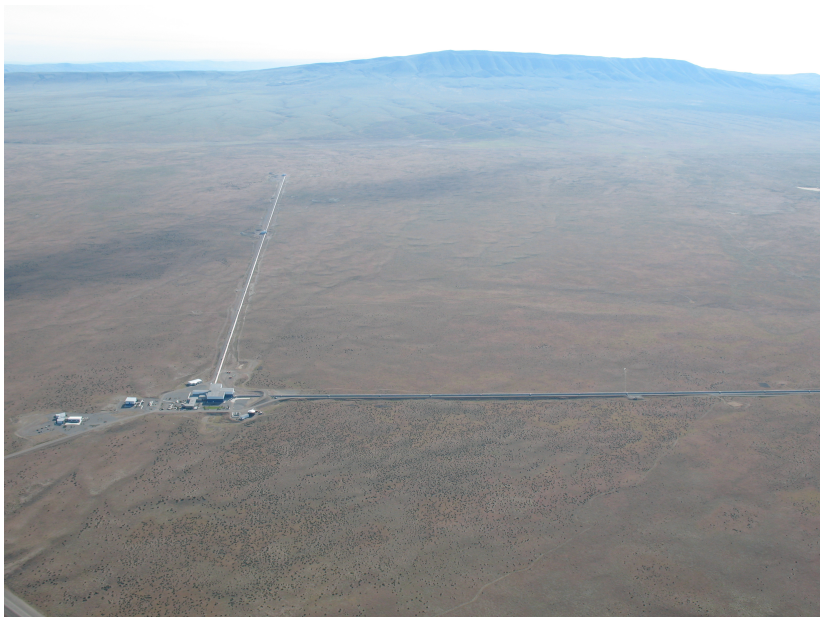
July 4, 2012  
LIGO-G1200682-v1



# LIGO Science Mission

*LIGO, the Laser Interferometer Gravitational-wave Observatory, seeks to detect gravitational waves – ripples in the fabric of spacetime. First predicted by Einstein in his theory of general relativity, gravitational waves are produced by exotic events involving black holes, neutron stars and objects perhaps not yet discovered.*

# LIGO Hanford, WA



# LIGO Livingston, LA





# LIGO Scientific Collaboration

*The LIGO Scientific Collaboration (LSC) is a self-governing collaboration seeking to detect gravitational waves, use them to explore the fundamental physics of gravity, and develop gravitational wave observations as a tool of astronomical discovery. The LIGO Scientific Collaboration was founded in 1997 and currently has more than 1000 members from 70 institutions worldwide.*

# LIGO LIGO Scientific Collaboration LSC



# LIGO Identity Management: We Had a Mess

LIGO scientists struggle in early 2007:

- [web](#) Many servers, wikis, log books—multiple identities
- [grid](#) Request, renew, manage own X.509 certificates
- [shell](#) Multiple identities each with distinct credential
- [email](#) Each list managed separately

# LIGO Identity Management Project

Started in Summer 2007

Knit together existing technologies and tools

Goals:

- ▶ Single identity for each LIGO person
- ▶ Single source of membership info
- ▶ Single credential for each LIGO person
- ▶ SSO across web, grid, command-line

## 3 guiding principles

1. LIGO science is collaborative across the grid *and* the web
2. One electronic identity or credential (federation)
3. Leverage existing tools—glue as necessary, invent rarely

# LIGO Identity Management Project

Building blocks...

**Kerberos** single identity and credential

**Grouper** single source of membership info

**OpenLDAP** solid distributed replication

**Shibboleth** web SSO with eye towards federation

**InCommon** U.S. based identity federation

**REFEDS** Towards international identity federation

**Sympa** sophisticated email list management

**CILogon** flexible and easy X.509

# Success: Inter-LIGO Collaboration Eased

- ▶ Each LIGO member has @LIGO.ORG identity
- ▶ Branded as `albert.einstein@LIGO.ORG`
- ▶ SSO across much of web and shell
- ▶ SSO for grid and clusters in progress (CILogon)
- ▶ “Killer app” was paper database (DCC)



A username and password are being requested by <https://login.ligo.org>. The site says: "This content is viewable by only LIGO/Virgo personnel and authorized guests. Please enter your LIGO Directory name, e.g. albert.einstein, and password..."

User Name:

Password:

Cancel

OK





WebHome < Main < Foswiki - Iceweasel

File Edit View History Bookmarks Tools Help

WebHome < Main < Foswiki

https://wiki.ligo.org/foswiki/bin/view/

Google



Jump

Search

Main

Hello Scott Koranda

My links:

- Signing Shib metadata
- MyLIGO development
- Auth Project RT
- Formatting

edit

Main Web

Create New Topic

Index

Search

Changes

Notifications

RSS Feed

Statistics

Preferences

You are here: Foswiki > Main Web > WebHome

(18 May 2011, [AdminGroup](#))

Edit

Attach

Welcome to the LSC/Virgo wiki

See the navigation bar on the left for available webs or topics.

Edit | Attach | Print version | History:

r49 < r48 < r47 < r46 < r45 | Backlinks | Raw View | Raw edit | More topic actions

Topic revision: r49 - 18 May 2011 - 18:05:17 - [AdminGroup](#)

13 / 30

# External Collaborators?

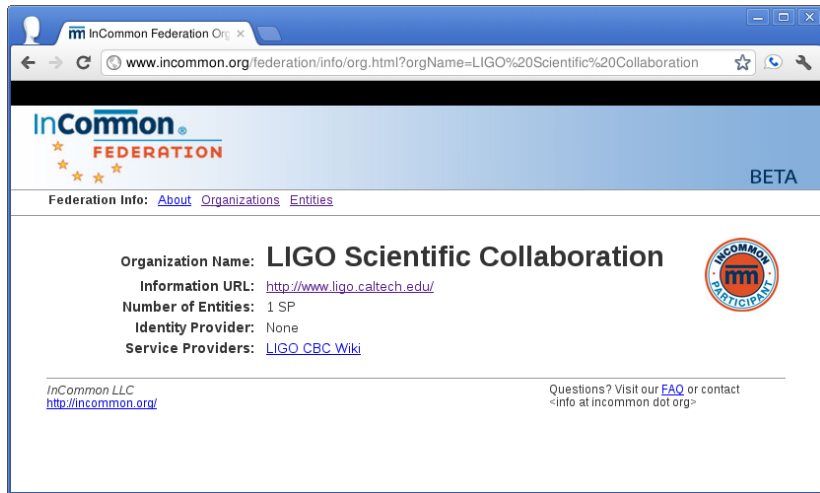
Hi,

Is it possible to get a ligo.org account for Fermi GBM scientists Pete Jenke and Valerie Connaughton? They are working with us on a LIGO-GBM coincidence analysis covered by MOU LIGO-M1000105-v1. I would like for them to be able to view and edit the project Wiki page,

<https://www.lsc-group.phys.uwm.edu/ligovirgo/cbcnote/NASAFollowUp>

Thanks,  
Lindy

# Identity Federation



The screenshot shows a web browser window with the address bar displaying `www.incommon.org/federation/info/org.html?orgName=LIGO%20Scientific%20Collaboration`. The page header features the InCommon logo with five stars and the word "FEDERATION" in red, followed by a "BETA" label on the right. Below the header is a navigation bar with links: "Federation Info: [About](#) [Organizations](#) [Entities](#)". The main content area displays the following information:

- Organization Name:** LIGO Scientific Collaboration
- Information URL:** <http://www.ligo.caltech.edu/>
- Number of Entities:** 1 SP
- Identity Provider:** None
- Service Providers:** [LIGO CBC Wiki](#)

To the right of this information is a circular "INCOMMON PARTICIPANT" logo. At the bottom left, it says "InCommon LLC" with a link to <http://incommon.org/>. At the bottom right, it says "Questions? Visit our [FAQ](#) or contact <info at incommon dot org>".

# Identity Federation

DiscoveryService - Comp... x

https://www.lsc-group.phys.uwm.edu/ligovirgo/cbcnote/DiscoveryService?entityID=https%3A%2F%2Fligo.c...


LVC Portal GEO LIGO LSC VIRGO Help


Search [ ] Titles Text

[Refresh my LIGO group memberships](#)

## Choose how to login

Use a suggested selection:

  
LIGO

  
LIGO Guest

Or select your organization from the list below

Massachusetts Institute of Technology ▼  
Please select your organization...  
LIGO  
LIGO Guest  
Massachusetts Institute of Technology  
University of Wisconsin-Milwaukee

Continue  
[Help](#)

### Navigation

- [InspiralAnalysisGlossary](#)
- [RecentChanges](#)
- [FindPage](#)
- [HelpContents](#)
- DiscoveryService**

### Page

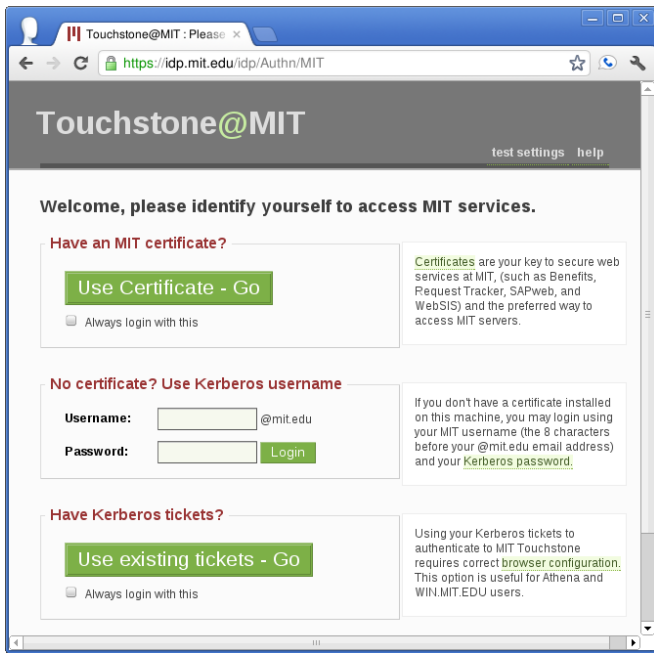
- Immutable Page
- Info
- Attachments
- More Actions: ▼

### User

- Login

[MainMoin Powered](#)  
[Python Powered](#)  
[GPL licensed](#)  
[Valid HTML 4.01](#)

# Identity Federation



The screenshot shows a web browser window with the address bar displaying `https://idp.mit.edu/idp/Authn/MIT`. The page title is "Touchstone@MIT : Please x". The page header features the "Touchstone@MIT" logo and links for "test settings" and "help".

The main content area is titled "Welcome, please identify yourself to access MIT services." and contains three login options:

- Have an MIT certificate?**
  - A green button labeled "Use Certificate - Go".
  - A checkbox labeled "Always login with this".
  - Help text: "Certificates are your key to secure web services at MIT, (such as Benefits, Request Tracker, SAPweb, and WebSIS) and the preferred way to access MIT servers."
- No certificate? Use Kerberos username**
  - Fields for "Username:" and "Password:".
  - A green "Login" button.
  - Help text: "If you don't have a certificate installed on this machine, you may login using your MIT username (the 8 characters before your @mit.edu email address) and your Kerberos password."
- Have Kerberos tickets?**
  - A green button labeled "Use existing tickets - Go".
  - A checkbox labeled "Always login with this".
  - Help text: "Using your Kerberos tickets to authenticate to MIT Touchstone requires correct browser configuration. This option is useful for Athena and WIN.MIT.EDU users."

# Identity Federation


[NASAFollowUp - Compact](#)

[←](#)
[→](#)
[↺](#)

<https://www.lsc-group.phys.uwm.edu/ligovirgo/cbcnote/NASAFollowUp>





[LVC Portal](#)
[GEO](#)
[LIGO](#)
[LSC](#)
[VIRGO](#)
[Help](#)

welcome: [ScottKoranda](#) | [settings](#)

[Refresh my LIGO group memberships](#)

[Wiki\\_Home](#) > [NASAFollowUp](#)

Quick Links

[inspiralanalysisglossary](#)  
[recentchanges](#)  
[findpage](#)  
[helpcontents](#)  
[wiki home](#)

Search Wiki

Titles

Text

Page Tools

[edit \(text\)](#)  
[page history](#)  
[email me changes](#)  
[add to quicklinks](#)  
[upload & manage files](#)  
[\[ more options \]](#)

NASA EM FollowUp of CBC GW Candidates







Summary

This analysis uses NASA high-energy photon data to search for EM counterparts to GW candidate events found by the CBC ihope analysis + Bayesian followup (inspnest). The processing is done completely offline, using archival (survey) data from the Fermi GBM and RXTE ASM instruments. The search targets weak (unreported) prompt gamma-ray counterparts, and x-ray afterglows to NS/NS and NS/BH mergers.

# Success! (?)

This is fantastic!

Federation enables more science!

# Success! (?)

This is a tragedy!

Federation creates new problems!



# Details, Details, Details

- ▶ Not all MIT people should be authorized
- ▶ Use the wiki access control
- ▶ Wiki ACL consumes groups and names
- ▶ No source of “federated” groups...
- ▶ So what name should go into ACL?

# Details, Details, Details

MIT Identity Provider asserts attributes

- ▶ givenName: Ron
- ▶ sn: Remillard
- ▶ cn: Ron Remillard
- ▶ email: rr@space.mit.edu
- ▶ eduPersonPrincipalName: rrem@mit.edu

eduPersonPrincipalName (ePPN) is *not* an email

It is a scoped unique persistent identifier

# Problem

ePPN is the correct attribute to use...

Wiki ACL needs to have user's ePPN added for authorization

Problem is that only IdM administrators understand these details

# Problem

Users do not know what their ePPN is

Scientists should not have to email administrator for wiki access

Lindy knows Ron and wants to collaborate with him. A few mouse clicks is all it should take

Need to get IdM administrators and architects out of the way

# CManage

The screenshot shows a web browser window with the address bar displaying `https://demo.co.internet2.edu/registry/co_people/index/co:5`. The page has a blue header with navigation links: News, Support, Directory, Help. On the right of the header, it says "Scott Koranda" with a user icon and a "Logout" button. Below the header, there are three tabs: "Organizations", "Platform", and "My Account". The main content area is titled "LIGO Swift Collaboration People". Below the title is an "Invite" button. Underneath is a table with columns: Name, Status, Roles, and Actions. The table is currently empty. At the bottom right of the page, it says "Powered by CManage™".

News | Support | Directory | Help

Scott Koranda Logout

Organizations Platform My Account

## LIGO Swift Collaboration People

[+ Invite](#)

Name	Status	Roles	Actions
------	--------	-------	---------

Powered by CManage™

# COmanage

- ▶ Joint project Internet2, LIGO, iPlant, Project Bamboo, ...
- ▶ NSF OCI funded, 3 year project
- ▶ CO = Collaborative Organization
- ▶ A collaboration management platform (CMP)

# COmanage elevator pitch

*COmanage Registry combines group management with configurable and flexible onboarding and offboarding workflows to support the quick and easy spin up of collaborative organizations (COs) focusing on a common task or goal.*

# Get involved!

- ▶ Looking for more projects to get involved
- ▶ Provide use cases, requirements, ...
- ▶ Development opportunities
- ▶ LIGO especially interested in astronomy projects



What is SURFconext?

www.surfnet.nl/en/Thema/coin/whatis/Pages/Default.aspx

**SURF CONEXT**

**SURFCONEXT**  
is a website by SURFnet

Vision What is SURFconext? Cloud providers Results Links

[SURFconext](#) » What is SURFconext?

## WHAT IS SURFCONEXT?

### What is SURFconext?

SURFconext is a next generation collaboration infrastructure that creates new opportunities to collaborate online based on a combination of applications from different providers. Researchers, educators and students wish to select the tools that best fit their online collaboration needs. Institutions and virtual organizations struggle with the integration of self-hosted services with commercial cloud services and service providers seek for ways to make their services easily accessible for users in higher research and education. SURFconext offers interesting clues to facilitate these needs.

The SURFconext service is a flexible and open standards based collaboration infrastructure that connects a number of basic building blocks for online collaboration.

The core building blocks of the SURFconext infrastructure are:

**Federated authentication based on the [SAML](#) standard**  
Federating applications enables single sign-on to many different applications in a safe and simple way. Services for federated authentication are in use within Higher Education e.g. SURFfederatie in the Netherlands, InCommon in the US and UK Access federation in the UK. Almost [seventy Dutch higher education and research institutions](#) and a large number of collaboration [services](#) are connected to the SURFfederatie.

**Centralized group management**  
By centralizing group management users can determine which users are authorized to

# Enabling Efficient Collaboration

Federated identity does enable efficient collaboration

Consuming federated identity is just a start

Collaboration management platforms, tools, and services necessary to realize full potential of federated identity and enable efficient collaboration