

Grouper Documents & Presentations

Wiki Home	Grouper Release Announcements	Grouper Guides	Grouper Deployment Guide	Community Contributions	Internal Developer Resources
---------------------------	---	--------------------------------	--	---	--

- [Adding a WG Member Document or Presentation](#)
- [WG Member \(and Community\) Presentations](#)
- [WG Archived Documents](#)
- [Early Foundational Documents on Directories and Groups](#)

Adding a WG Member Document or Presentation

1. Insert a row at the top of the appropriate table (newer items at top, older items at bottom).
2. Attach your Document or Presentation. Or link to a file on another server.
3. Add your information!
4. *Note: You may link directly to an attachment of this page.*

WG Member (and Community) Presentations

Note: To search by Speaker, please visit the Internet2 [Speakers Bureau](#).

PDF Slides

PPT Slides

	Presentation Title	Author / Editor	Author Home	Venue	Date	.HTML	.PDF	. PPT	Google slides	etc.
	Happy New Year from the Grouper Project (includes email use case)	Chris Hyzer	U Penn	Internet2 / InCommon Blog	January 2024	https://incommon.org/news/happy-new-year-from-the-grouper-project/				
	Wolverine vs Grouper2 : ABAC	Liam Hoekenga and Gail Lift	University of Michigan		2023	ABAC with Grouper at Michigan.pdf				
	Grouper BOF	Chris Hyzer Shilen Patel	U. Penn Duke	TechEx 2023	Sept 2023	https://docs.google.com/presentation/d/1Db3P1ULO62VKInmrkKSnhHYSFkA6xa4i4fyNTqmBjcU/edit#slide=id.p				
	Grouper Blog: Major Improvements to the Grouper Provisioning Framework	Chris Hyzer	U. Penn	Internet2 /InCommon Blog	Feb. 2023	https://incommon.org/news/major-improvements-to-the-grouper-provisioning-framework/				
	Modernizing Our Use of Grouper to Provisioning with midPoint and Developing Standard Populations	Moderator Erik Coleman, University of Illinois, and IAM team at University of Wisconsin–Madison (Abrianna Barca, Ryan Larscheidt, Andrew Parmer, Oaks Dobson)	University of Wisconsin–Madison	IAM Online	Feb 2023	CLICK THIS LINK				
	ACAMP Discussion on "Grouper Deployment Odds and Ends"	Convener were Wil Cooley (Portland State) and Aaron DeVore (Portland State)		Tech Ex	Dec. 2022	Google Doc				
	ACAMP Discussion on ABAC	Converer was Chris Hyzer		Tech Ex	Dec 2022	Google Doc				
	Grouper BOF	Chris Hyzer and Shilen Paten	U Penn Duke U	Tech Ex	Dec. 2022	Google Doc				
	Wolverine vs Grouper	Liam Hoekenga	U Michigan	Tech Ex	Dec 2022		PDF			
	BaseCAMP 201 Provisioning	Chris Hyzer	U Penn	BaseCAMP	June 8 2022		Pdf		Pres	
	GSH templates	Chris Hyzer	U Penn	Penn	May 12 2022		Pdf		Pres	
	Deprovisioning	Chris Hyzer	U Penn	Penn	April 8 2022		Pdf		Pres	

Attribute Based Access Control (ABAC) with Grouper: Questions & Answers	Chris Hyzer	U Penn	Internet2 /InCommon Blog	Feb 24 2022	https://incommon.org/news/new-features-with-grouper/				
News from the Grouper Project	Chris Hyzer	U Penn	Internet2 /InCommon Blog	Nov 17 2021	https://incommon.org/news/news-from-the-grouper-project/				
What's New with Grouper	Chris Hyzer	U Penn	InCommon and Geant 2021 CAMP week	Oct 4, 2021	PDF				
How InCommon Academy is supporting infrastructure modernization at Illinois State U	Majeed Abu-Qulbain, Senior Enterprise Architect, is the featured community member in this blog	Illinois State University	Internet2 blog	Sept 28, 2021	https://internet2.edu/how-incommon-academy-is-supporting-iam-infrastructure-modernization-at-illinois-state-university/				
Grouper Intro	Chad Redman	UNC	2021 Internet2 Base CAMP	Jul 14, 2021		101 pdf		101slides	
Grouper Use Cases	Chris Hyzer	U Penn				201 pdf		201slides	
Grouper New Provisioning Framework Blog	Chris Hyzer	U Penn	Internet2 Blog	Jan. 2021	https://incommon.org/news/flexible-and-powerful-to-address-community-needs-new-grouper-provisioning-framework				
Advance CAMP 2019 sessions on Grouper	various	various	2019 Internet2 TechEx New Orleans	Dec 12-13, 2019	Grouper Futures and Can Grouper be used to document access controls Grouper Deployment Guide - What's Next Grouper Designing Role Access in Hierarchy Service Grace Periods in Grouper				
Provisioning and Access management: Case Studies with Grouper and CManage	William Thompson Lafayette College, Laura Paglione Spherical Cow Group, Carey Black Ohio State U		2019 Internet2 TechEx New Orleans	Dec. 10, 2019		pdf			
Paranoid IAM: Process and Architecture	Mary McKee and Shilen Patel, Duke	Duke	2019 Internet2 TechEx New Orleans	Dec 12, 2019		pdf			
Grouper TechEx Fish of a Fin	Chris Hyzer Shilen Patel Chad Redman Bill Thompson	Penn Duke UNC LaFayette	2019 Internet2 TechEx New Orleans	Dec 11, 2019	Google doc	pdf			
Grouper container in cloud	Keith Wessel Ethan Kromhout Erik Coleman Bill Thompson Chris Hyzer Chris Hubing	Illinois UNC Illinois LaFayette Penn Internet2	2019 Internet2 TechEx New Orleans	Dec 11, 2019	Google doc	pdf			
Grouper BaseCAMP session	Chris Hyzer Shilen Patel	Penn Duke	BaseCAMP in Milwaukee	August 15, 2019	Google doc: https://docs.google.com/presentation/d/1NtwzvoGV4ntVdUZh3-mVv_iZNHjBmPBZ1hDQPX0twVE/edit#slide=id.g5eac3c3200_0_225	pdf	pptx		
Grouper Training Materials	Chris Hyzer, Bill Thompson		InCommon Grouper School Series in Madison	June 2019	https://spaces.at.internet2.edu/x/IRjtBw				
Grouper BoF	Chris Hyzer, Shilen Patel	Penn, Duke	2019 Global Summit in DC	March 6, 2019		2019 - Grouper BoF at Global Summit (PDF)		2019 Grouper BoF at Global Summit (PPT)	
Advance CAMP 2018 sessions on Grouper	various				Grouperfest Advance CAMP discussion Grouper Deployment Guide v2 Advance CAMP discussion				

Latest Grouper recipes	Chris Hyzer Michael Gettes Chad Redman Chris Sutherin Bert Bee-Lindgren John Gasper Carl Waldbieser James Babb	Penn Florida UNC UMBC GA Tech Unicon Lafayette College Internet2	2018 Internet2 TechEx Orlando	Oct 17, 2018		2018 - TechEx Latest Grouper recipes.pdf	2018 - TechEx Latest Grouper recipes. pptx		Google slides
Grouper BoF	Chris Hyzer Bill Thompson Shilen Patel Bert Bee-Lindgren Chad Redman	Penn Lafayette Duke GA Tech UNC	2018 Internet2 TechEx Orlando	Oct 16, 2018		2018 - TechEx Grouper BoF.pdf	2018 - TechEx Grouper BoF. pptx		
TIER Access Governance with Grouper and Friends	Bill Thompson Carl Waldbieser James Babb Chris Hyzer	Lafayette Lafayette Internet2 Penn	2018 Internet2 TechEx Orlando	Oct 15, 2018	Grouper Training Environment	Grouper Basics 101 part 1 Grouper Basics 101 part 2 Grouper Basics 101 part 3 Grouper Security Model 211			
IAM Access Governance and Grouper 2.4	Bill Thompson Chris Hyzer	Lafayette (Bill); Penn (Chris)	IAM Online webinar	Sept 12, 2018		PDF Slides Zoom Webinar			
Is Grouper the Answer for Role-based Access? It sure is for Deprovisioning!	Karen Herrington Keith Wessel Bill Thompson Chris Hyzer	Virginia Tech Illinois Lafayette Penn	2018 Internet2 Global Summit	May, 2018		RBAC and Grouper Big Ten Academic Alliance Grouper ABAC @ Lafayette College Grouper deprovisioni ng T itle	Grouper deprovis ioning Title		
Grouper BOF	Chris Hyzer Bill Thompson Shilen Patel Bert Bee-Lindgren	Penn Lafayette Duke Georgia Tech	2018 Internet2 Global Summit	May, 2018		Grouper BoF pdf	Grouper BoF pptx		
Grouper in Action Tutorial (4 hour session)	Chris Hyzer Bill Thompson Keith Wessel Chris Hubing Shilen Patel	Penn Lafayette Illinois Internet2 Duke	2018 Internet2 Global Summit	May, 2018		Intro, hands on, Grouper TIER packaging TIER Subject Attribute Managem ent and Access Governance Lafayette Reference Groups Grouper @Illinois	Intro, hands on Grouper @ Illinois		
Grouper BOF	Bill Thompson Chris Hyzer Shilen Patel Bert Bee-Lindgren	Lafayette Penn Duke GaTech	2017 Internet2 TechEx SF	Oct 17, 2017		PDF Slides	Grouper BoF		
Grouper in Action Tutorial (4 hour session)	Bill Thompson Chris Hyzer Carl Waldbieser Bert Bee-Lindgren	Lafayette Penn Lafayette GaTech	2017 Internet2 TechEx SF	Oct 15, 2017, 8am to noon		Chirs Hyzer - intro, overview and hands on Grouper at Lafayette Grouper at Georgia Tech & PSP Grouper Deployment Guide	PPT Chris Hyzer intro and overview		

	Grouper BOF	Chris Hyzer, Shilen Patel Bert Bee-Lindgren Bill Thompson	Penn Duke Georgia Tech Lafayette College	2017 Internet2 Global summit in DC	Apr 25, 2017		PDF Slides			
	Grouper BOF	Chris Hyzer, Shilen Patel Bert Bee-Lindgren Bill Thompson	Penn Duke Georgia Tech Lafayette College	2016 Internet2 Technology Exchange in Miami	Sept 27, 2016		PDF Slides			
	Grouper Provisioning: Locally and Cloud	Chris Hyzer, Bert Bee-Lindgren Bill Thompson	Penn Georgia Tech Lafayette College	2016 Internet2 Technology Exchange in Miami	Sept 26, 2016		PDF Slides			
	Shibboleth and Grouper at UCLA	Warren Leung, IAM Program Manager, UCLA, John Gasper, IAM Consultant, Unicon, Inc.		InCommon Affiliate Webinar	Sept. 22, 2016		PDF Slides Webinar			
	Grouper Intro and Case Studies, IAM Online	Bert Bee-Lindgren, John Bryson, Madan Dorairaj, Chris Hyzer, Julio Macavilca, Carl Waldbieser,	Georgia Tech New York University University of Pennsylvania Lafayette College	IAM Online webinar	July 13, 2016		PDF Slides			
	Scriptable Grouper	Carl Waldbeiser	Lafayette College	Open Apereo 2016	May 2016					https://cwaldbie.ser.github.io/reveal.js/#/
	Exploring Internet2 Grouper & NIST RBAC/ABAC	Misagh Moayyed, William G. Thompson, Jr,	Unicon Lafayette College	Open Apereo 2016	May 25, 2016		PDF Slides			
	Grouper in Action at NYU	Jeff Pasch, Julio Macavilca, Madan Dorairaj	New York University	Open Apereo 2016	May 22, 2016		PDF Slides			
	Grouper in Action: Access Management Strategies for Higher Education and Research	Chris Hyzer, Bill Thompson, Jeff Pasch, Julio Mascavilca, Madan Dorairaj	University of Pennsylvania Lafayette College New York University	Open Apereo 2016	May 22, 2016		PDF Slides			
	Grouper in Action: Access Policy and Reference Groups @ Lafayette College	William G. Thompson, Jr.,	Lafayette College	Open Apereo 2016	May 22, 2016		PDF Slides			

	Grouper Birds of Feather session	Chris Hyzer	University of Pennsylvania	2016 Global Summit	May 18, 2016		PDF Slides			
	Grouper Birds of Feather session	Chris Hyzer	University of Pennsylvania	2015 TechEx	October 6, 2015		PDF Slides			
	IAM Online: Three Access Management Cases Studies	Mandeep Saini, Andrew Morgan, Albert Wu	GEANT, Oregon State University, UCLA	IAM Online Webinar	June 10, 2015		PDF Slides			
	Grouper Working Group	Chris Hyzer	University of Pennsylvania	2014 Technology Exchange in Indianapolis	Oct 29, 2014		PDF Slides			
	Implementing Grouper to Federate User Authorization	Andrea Biancini Consortium GARR and Maarten Kremers Surfnet BV		2014 Technology Exchange in Indianapolis	Oct. 29, 2014		PDF Slides			
	IAM Online: The New Grouper: Its New User Interface and More	Chris Hyer, Shilen Patel, Dave Langenberg		IAM Online Webinar	Sept. 10, 2014		PDF slides			Recorded Webinar using Adobe Connect
	Grouper for Beginners, How to create a group for each course section and provision to Active Directory	Bryan Wooten, University of Wooten		Open Apereo 2014 Conference	June 3, 2014		PDF of slides			Video of presentation
	Grouper intro, high availability, and new UI	Chris Hyzer		Penn	May 26, 2013		penngroups UiAvailability.pdf	pptx		High availability demo UI demo
	Enterprise Authorization Strategies - Intro to Grouper	Chris Hyzer (Penn) and Bill Thompson (Unicon)		Open Apereo 2013 Conference	June 2, 2013		GrouperTraining-Apereo-part1.pdf GrouperTraining-Apereo-part2.pdf GrouperTraining-Apereo_part3.pdf	ppt2 ppt3		youtube1 youtube2 youtube3 youtube4
	Grouper Virtual Working Group	Tom Barton of U. Chicago, Chris Hyzer of U. Penn, Chris Bongaarts of U. Minnesota, Michael Hodges of U. Hawaii		IAM Online	May 20, 2013	No longer available	PDF			
	IAM Online: Three Campus Case Studies of Managing Access with Grouper	Paul Donahue, U. of Wisconsin-Madison, Sébastien Gagné, U. of Montreal, Rahul Doshi and Michael Gettes, Carnegie Mellon U.		IAM Online Webinar	March 13, 2013	No longer available	PDF			
	Grouper after Groups Enabling Net+ Services with PAP, PEP, and PDP...Oh My!	Bill Thompson Unicon and Chris Hyzer		I2MM Fall Member Meeting 2012	October 3, 2012		PDF			
	One Fish Two Fish... Intro to Grouper	Bill Thompson, Unicon and Shilen Patel, Duke		Jasig Sakai Conference in Atlanta, June 2012	June 13, 2012					
	Integrating Sakai OAE with Grouper	Erik Froese	Hallway Technologies	Jasig Sakai Conference in Atlanta, June 2012	June 12, 2012		https://wiki.jasig.org/download/attachments/52957868/oae-grouper-2012.pdf			
	Access Management and Grouper	Tom Barton	University of Chicago	Internet2 Spring Member Meeting	April 25, 2012					
	Grouper Working Group Presentation	Tom Barton, Tom Zeller, Shilen Patel	University of Chicago, Unicon, Duke	Internet2 Spring Member Meeting	April 23, 2012					
	Grouper Working Group Presentation and Discussion Notes (focus on Grouper 2.0 and beyond)	Tom Barton	University of Chicago	Internet2 Fall Member Meeting	Oct. 3 2011					

	Grouper external users example	Chris Hyzer	University of Pennsylvania	Internet2 Fall Member Meeting - session titled "Getting to a Full-spectrum Open Source Identity and Access Management Solution"	Oct. 5 2011		PDF			
	Where sidewalk used to end, centralized privilege management	Chris Hyzer	University of Pennsylvania	Internet2 Fall Member Meeting	Oct. 4 2011					
	IAM Online - Oracle FGAC permissions and Grouper	Chris Hyzer	University of Pennsylvania	Webcast	Sept 2011		PDF			
	Grouper Survey Summary	Tom Barton	University of Chicago		Aug. 2011		PDF			
	PSU permissions	Chris Hyzer	University of Pennsylvania	Penn State	July 2011					
	Getting Started with Grouper	Tom Barton	University of Chicago	Jasig Spotlight on Open Source Conference in May 2011, Getting Started with Grouper Supplementary Seminar	May 2011					
	What's New With Grouper: Attribute Framework, Penn's Secure Space, Atlassian Connector, Group Sync with Another Grouper, Upgrading from Grouper 1.6	Chris Hyzer	University of Pennsylvania	Internet2 2011 Spring Member Meeting	April 2011					
	What's New With Grouper: Member Search and Sort, Point-in-time Audit	Shilen Patel	Duke	Internet2 2011 Spring Member Meeting	April 2011					
	Delegated Access Control in Grouper using Active Directory	Rob Carter and Shilen Patel	Duke	Internet2 2010 Fall Member Meeting	Nov. 2010					
	What's New with Grouper	Chris Hyzer	University of Pennsylvania	Internet2 2010 Fall Member Meeting	Nov. 2010					
	University of Washington Groups Service	Jim Fox	University of Washington	Internet2 2010 Fall Member Meeting	Nov. 2010					
	Using Grouper: Newcastle University Case Study	Richard James	Newcastle	Internet2 Fall Member Meeting	Nov 2010					
28	Kuali eDoclite and Grouper for access forms workflow at Penn	Chris Hyzer	University of Pennsylvania	Kuali Days 2010	Nov 2010					
27	IAM Online Webinar Slides Covers integration of Grouper with Kuali Rice KIM and with uPortal	Tom Barton Chris Hyzer	U. Chicago, University of Pennsylvania	Webinar Titled "Advanced Issues in Identity Access and Management - Toward Common Identity Services"	May 13, 2010					
26	Identity Management for the LIGO Project	Scott Koranda	University of Wisconsin-Milwaukee	Internet2 Spring Member Meeting (April 2010)						
25	What's New With Grouper	Chris Hyzer	University of Pennsylvania	Internet2 Spring Member Meeting(April 2010)						
24	Using Grouper to Manage AD Permissions	Rob Carter Shilen Patel	Duke	Internet2 Spring Member Meeting(April 2010)						
23	UC Groups: An Access Management Service <i>Note: This was a lightning round talk</i>	Tom Barton	U. Chicago	EDUCAUSE Midwest Regional Conference in Chicago	March 2010					
22	Toward Common Identity Services	Tom Barton	U. Chicago	Jasig Spring 2010 Conference in San Diego	March 2010					

21	Interview with Tom Barton November 2009	Tom Barton and Emily Eisbruch	U. Chicago	Available on the Grouper website homepage with the Grouper 1.5 release						
20	Whats new with Grouper	Chris Hyzer, Shilen Patel, Gary Brown	Penn, Duke, Bristol	Internet2 Fall Member Meeting 2009	Oct 2009			ppt		
19	Grouper Attributes and Privileges	Chris Hyzer	Univ of Penn	Access Management CAMP in Philadelphia	June 2009			ppt		
18	Access Management with Grouper	Tom Barton	U. Chicago	Jasig Spring 2009 Conference in Dallas	March 2009		pdf			
17	Grouper Web Services	Chris Hyzer	Univ of Penn	Philadelphia Java Users Group and Jasig Spring 09 Conference	Feb 2009			ppt		
16	PennGroups - Central Authorization at Penn	Bill Kasenchar and Chris Hyzer	Univ of Penn	Educause MidAtlantic Regional Conference	7-Jan-2009	-	pdf	ppt	-	-
15	Grouper Backgrounder for Authorization WG	Tom Barton	U Chicago	caBIG AuthZ WG	17-Jul-2006	-	-	ppt	-	-
14	Grouper/Signet	Lynn McRae Tom Barton	Stanford U. U Chicago	Spring 2006 Internet2 Member Meeting; Alexandria, VA	26-Apr-2006	-	-	ppt	-	-
13	Use Cases	Lynn McRae	Stanford U.	Spring 2006 Internet2 Member Meeting; Alexandria, VA	24-Apr-2006	-	-	ppt	-	-
12	Use Cases Wrap up	Tom Barton	U. Chicago	Signet/Grouper Early Adopters Workshop; USC, LA, CA	22-Mar-2006	-	-	ppt	-	-
11	Signet and Grouper for Distributed Attribute Administration	Tom Barton	U Chicago	GGF15	3-Oct-2005	-	-	ppt	-	-
10	Managing Authorization with Grouper and Signet	Tom Barton Lynn McRae	U Chicago\Stanford	Fall 2005 Internet2 Member Meeting	20-Sep-2005	-	-	ppt	-	-
9	Using Signet and Grouper for Access Management	Lynn McRae Tom Barton	Stanford U Chicago	Spring 2005 Internet2 Member Meeting	03-May-2005	-	-	ppt	-	-
8	Authorization Tools - I2/NMI Update: Signet, Grouper, & GridShib	Tom Barton	U. Chicago	TERENA TF-EMC2 Meeting Amsterdam, NL	Feb-2005	-	-	ppt	-	-
7	Moving Beyond Implementation: Authorization	Tom Barton	U Chicago	NMI CAMP	17-Nov-2004	-	-	ppt	-	-
6	Leveraging Campus Directories: Lightweight Authorization and Group Management	Keith Hazelton	U Wisconsin-Madison	EDUCAUSE 2004	20-Oct-2004	-	-	ppt	-	-
5	Grouper: A Toolkit for Managing Groups	Tom Barton	U Chicago	Fall 2004 Internet2 Member Meeting	28-Sep-2004	-	-	ppt	-	-
4	Introduction to Group Management	Tom Barton Blair Christensen	U Chicago	NMI CAMP	30-Jun-2004	-	-	ppt	-	-
3	Moving Beyond Implementation: Next Steps for Enterprise Directories	Tom Barton	U Chicago	NMI CAMP	06-Feb-2004	-	-	ppt	-	-
2	Authority Process & Policy	Sandra Senti	Stanford U.	NMI Advanced CAMP	9-Jul-2003	html	pdf	-	-	-
1	Topics in Directories: Groups	Tom Barton	U Memphis	NMI CAMP	25-Jun-2002	-	-	ppt	-	-
0	Identifiers, Authentication, and Directories: Best Practices for Higher Education			NMI-edit/Internet2 Middleware Initiative	9-May-2000	http://doi.org/10.26869/T1.24.1	PDF			

see this wiki <https://spaces.at.internet2.edu/x/IRjtBw>

WG Archived Documents

These documents have either been abandon or absorbed into other documents.

	ARCHIVED Document	Author	Author Home	Venue	Notes	Date	. HTML	.PDF	. TXT
15									
14									
13	Grouper UI Demo	Gary Brown	U. Bristol, UK	Grouper	-	-	html	-	-
12	Grouper UI Architecture	Gary Brown	U. Bristol, UK	Grouper	-	-	html	-	-
11	Group Tools Architecture	Tom Barton	U. Chicago	MACE-Dir	-	Apr-2005		http://doi.org/10.26869/TI.64.1	-
10	Grouper Roadmap	Blair Christensen	U. Wisconsin	Grouper	-	15-Apr-2005	html	-	-
9	Grouper Phase 1 Specifications (Draft)	Tom Barton, Blair Christensen	U. Chicago	MACE-Dir-Grouper	-	3-May-2004	html	-	-
8	Grouper API Search & Browse Capabilities	Tom Barton	U. Chicago	MACE-Dir-Groups	-	4-Nov-2004	html	-	-
7	Grouper Roadmap	Tom Barton	U. Chicago	MACE-Dir-Groups	-	24-Feb-2004	html	-	-
6	Strawman architecture for group Tools	Tom Barton	U. Chicago	MACE-Dir-Groups	-	8-Oct-2003	html	-	-
5	SAGE (Service for Authorized Group Editing) (Draft)	Tom Barton	U. Chicago	MACE-Dir-Groups	-	24-Apr-2003	html	-	-
4	Inter-Domain Data Exchange	Rob Banz	UMB	MACE-Dir	-	Oct-2002	html	-	-
3	Groups Implementer's Guide	Eileen Shepard	Boston College	MACE-Dir-Groups	-	6-June-2002	html	-	-
2	MACE-Dir's Approach to Support of Authorization & Messaging by Core Middleware: Discussion Starter	Tom Barton	U. Memphis	MACE-Dir-Groups	-	18-Jul-2001	html	-	-
1	Directory Server Groups (People)	Todd Piket	MTU	MACE-Dir-Groups	-	17-Jul-2001	html	-	-

Early Foundational Documents on Directories and Groups

1. [Group Tools Architecture](#) 6-Dec-2003, MACE-Dir
Tom Barton, U. Chicago
2. [Practices in Directory Groups](#) Oct-2002, MACE-Dir-Groups
Tom Barton, U. Chicago
3. [LDAP representations of membership in groups \(aka eduMember\)](#) 5-Jul-2005, MACE-Dir
Keith Hazelton, U. Wisconsin
4. [Group and membership concepts](#) 5-Jul-2005, MACE-Dir
Keith Hazelton, U. Wisconsin

See Also:

[Grouper Community Contributions](#)