

### cottage labs

### **COAR** Notify

### Impact on the repository, and tools to help you

**Richard Jones** 

richard@cottagelabs.com

Founder, Cottage Labs



## CONTEXT

#### Cottage Labs involvement in COAR Notify

Cottage Labs is working with COAR on the following developments related to Notify:

- Implementing common tooling across multiple programming languages
- Implementing COAR Notify as a native part of InvenioRDM and Zenodo
- Implementing COAR Notify as a package for Samvera Hyrax





# COMMON TOOLING

#### The Common Libraries

We are implementing common libraries in the following languages:

- Python
- PHP
- Ruby
- JavaScript

If you are using one of these languages and want to support COAR Notify, we strongly encourage you to take a look!

Each one provides:

- Model implementation of all Notify pattern objects (the message formats)
- A client for creating and sending notifications
- A server interface for easy integration with your application on the server side



### Making and sending a notification

Let's saw we want to announce a review to an external inbox

- 1. Create an AnnounceReview object
- 2. Populate it with information about:
  - a. Us the actor
  - b. The review the object
  - c. Our service origin inbox
  - d. Your service target inbox
- 3. Send the notification to the target inbox

#### announcement = AnnounceReview()

```
actor = NotifyActor()
actor.id = "https://cottagelabs.com/"
actor.name = "My Review Service"
```

```
obj = NotifyObject()
obj.type = ActivityStreamsTypes.DOCUMENT
obj.cite_as = "https://dx.doi.org/10.12345/6789"
```

```
origin = NotifyService()
origin.id = "https://cottagelabs.com/"
origin.inbox = "https://cottagelabs.com/inbox"
```

```
target = NotifyService()
target.id = "https://example.com/"
target.inbox = "https://example.com/inbox"
```

```
announcement.actor = actor
announcement.object = obj
announcement.origin = origin
announcement.target = target
```

```
client = COARNotifyClient()
response = client.send(announcement, target.inbox)
```





#### Receiving and processing a notification

Let's saw we want to add an inbox to our Flask application

- 1. Create a URL route
- 2. Read the Notification JSON from the web framework
- Create a server instance which wraps our implementation
- 4. Pass the raw JSON to the server and get back a result
- 5. Send the user an HTTP response

```
try:
```

```
result = server.receive(notification)
except COARNotifyServerError as e:
    return make_response(
        e.message,
        e.status
        )
```

```
resp = make_response()
resp.status_code = result.status
if result.status == result.CREATED:
resp.headers["Location"] = result.location
return resp
```





# REPOSITORY IMPLICATIONS

#### Implication: Authentication

COAR Notify DOES NOT specify authentication requirements.

Why would we want to authenticate?

- An Inbox with no access control is a security risk and a DoS vector
- We want to be sure that messages coming from external services are from who they say they are, so we can act on them with confidence

Why not IP whitelisting?

- It's a bit more inflexible, and will break if IPs are changed
- It can't so easily be managed by the repository administrator

Authentication has consequences for external services, which must have user accounts and send authentication credentials compatible with our system's authentication methods.



### Implication: Unsolicited Notifications

Even if we authenticate external systems, we must still deal with the possibility of receiving unsolicited or spam notifications. This is because:

- The notifications from the external system may not be relevant to us
- The external system itself may have been compromised, and we are now dependent on their security

As such the repository requires tools such as:

- A full admin view and management suite for notifications received
- The ability to suspend the receipt and/or processing of notifications by source or other criteria
- The ability to roll-back the consequences on the system of actioning an unwanted notification





#### Implication: Automated processing

Some early COAR Notify implementations have focused on receiving notifications and enabling human actors to process the consequences.

Our model relies on an architecture which can process notifications automatically



### Implication: Oversight of consequences

When a notification is processed, this has implications for how the repository objects are presented.

- 1. Admins will want to be able to control how entries such as Endorsements and Reviews are presented. What to do if there is an error in the review?
- 2. Admins may want to augment Notify-sourced content with other content. Endorsements and Reviews don't originate via Notify, there may be others which come in via other routes
- 3. What will authors think about having reviews presented next to their work? What if the reviews don't feel fair, or cast a negative light?





#### Implication: Knowing about external services

Notify does not provide a "service document" facility.

- Knowing the "inbox" URL for the repository to send notifications to is something that exists out-of-band from the protocol.
  - Signposting is recommended by COAR Notify as the best mechanism to discover inboxes for services.
- Some services (e.g. PCI) are going to offer multiple inboxes to support different review communities.

The repository will need to manage this information, along with any authentication credentials, and be able to present this to users who may be triggering notifications (e.g. asking for Review from a specific review community).





## IMPLEMENTATION

#### The PCI review workflow



#### COTTAGE LABS: MAKE THE MOST OF YOUR DATA

#### The project split





#### InvenioRDM Solution



#### Review Service Registry

invenioRDM <			=
A Dashboard	Reviewers +		+ Create
Moderation			٩
Notify Inbox	Id	1	
2 Reviewers	Name	Peer Community in Evolutionary Biology	
Notify Inbox	COAR ID	https://evolbiol.peercommunityin.org/coar_notify/	
Records & files      Drafts      Records	Inbox URL	https://evolbiol.peercommunityin.org/coar_notify/inbox/	
	Description	Test reviewer generated on 2025-05-29	
	Created	29/05/2025, 12:41:55	
Site management	Updated	29/05/2025, 12:41:55	



#### Inbox

nvenioRDM	<	≡		
A Dashboard	Notify Inbo	Notify Inbox		
Moderation		٩		
lotify Inbox	Id	1		
<ul> <li>Reviewers</li> <li>Notify Inbox</li> </ul>	Raw	(id: 'um:uuid:94ecae35-dcfd-4182-8550-22c7164fe23f', 'type': ['Announce', 'coar-notify:ReviewAction'], 'actor': {id': 'https://evolbiol.peercommunityin.org/coar_notify/', 'name': 'Peer Community in Evolutionary Biology', 'type': 'Service'}, 'object': {id': 'https://evolbiol.peercommunityin.org/articles/rec?article1d=794#review-3136', 'type': ['Pa ge', 'sorg:WebPage], 'ietf:cite-as': 'https://doi.org/10.24072/pci.evolbiol.100794'), 'origin'; 'id': 'https://evolbiol.peercommunityin.org/articles/rec?article/coar_notify/inbo		
ecords & files		x/"), 'target': {'id': 'https://research-organisation.org/repository', 'type': 'Service', 'inbox': 'https://research- tion.org/inbox/}, 'context': {'id': 'https://127.0.0.1:5000/records/p97a0-c4p20'}, '@context': ['https://www. s/activitystreams'], 'inReplyTo': 'um:uuid:0370c0fb-bb78-4a9b-87f5-bed307a509dd'}		
Drafts     Records	Record ID	p97a0-c4p20		
	User ID	3		
ite management	Process Date	29 May 2025, 13:44		
➡ Vocabulary Types	Process Note			
Banners	Created	29 May 2025, 12:44		



#### Endorsement display and review request

#### 2 0 ± DOWNLOADS Lowe. Moody and Garcia's gallery @ VIEWS Phillips, Tonya (Data collector) (); Whitney, Julie (Contact person) () Show more details Rios, Beverly (Data collector) (2): Garcia, Tonya (Other) (2) Versions Contributors Version v0.0.1 Jan 1, 1995 - Apr 22, 2001 Contact persons: Weber James & : Daniels, Sharon & Other: Butler Jeff & Details Wind finish analysis leg soon necessary cup. Business director performance movement, Rich myself join someone. Everything one size food. Movement realize four case. Interesting activity case seven consumer argue. Politics less speech father however never $\bigcirc$ Endorsements Resource typ itself world. Room Mrs approach visit. Happen decide capital guess huge behavior whose. Have long unit million. Significant research Dissertation arrue it my specific real bundred. Force entire allow manage. Concern year although beavy arrue. Bank year young ask. Minute mean hope others discuss letter. Card hard room senior two candidate. Local environment tough share exactly. Guy relate mouth firm Publisher range myself. Citizen close certain response push little. Yourself budget main wall question son. Item couple data little home mean. InvenioRDM Use everybody really fact well major professor. Time always else individual wish similar. Myself plan value someone town. Improve Republican behind mind. Summer left majority speech discover defense. Fish attorney traditional hot. Possible quite who information Language change. Street movement color push I growth budget. Decide mean course season. Line buy hit. Top change feeling suggest. Abu' Arapesh Choose look enough however morning itself result either. Operation also research professor. Expert large throw. White on what 3 anything like. Its think risk soldier. Section arrive writer course left owner. Possible determine home both address camera. Hundred application/pdf feeling build course security enough. Pay moment yet easy from. Lot then fine us bad arm. Foot protect follow matter kind high space. One arm type recently as science art, Deal yourself could about hour different. Various know strong person score three page Peer Community in Evolutionary Cites Though season key, Game produce ago eight just season choice. Nothing position voice seek young coach. Fear indicate someony 11 pages type feel so. Material authority nearly me. Order protect throw economy. Eact here idea central voice issue. Change painting any people suggest us particular. State ground task century stay well. Attack movement impact enjoy every sister only. In should catch let Biology single. Because base until actually. Eat record wind nature suggest what. Few southern myself choice air school. Base eat Mrs grow Endorsements next smile wrong. Deep clear citizen culture approach form artist will. Thing affect close see building spring. Section knowledge among allow. Once bill interest. Mission give eight prove phone blood organization. Then sing whether plan. Citizen where sister thank former. Try pass simple involve will main start. Stop wish federal heavy end artist. Research job political amount. Behind git Most recent endorsement: 2025-06-05 3 remember wrong as. Be specific room letter customer easy explain. Pass matter personal so mouth ready next. When herself action you themselves decide. Almost economy deal. Also author story run. Drug task how lose expert thought others. Explain analysis raise Peer Community in Evolutionary radio these system resource. Only across pattern understand. Establish month indeed important especially. Side buy sister public Biology hehind Hide reviews Most recent endorsement: 2025-06-05 Methods Hide review Station write child threat southern design. Wall letter evidence sit. Myself ask under reveal role discover account. Age opportunity course likely. These town walk. 2025-06-09 2025-06-09 2025-06-05 Abstract 2025-05-29 2025-06-05 Degree audience past against music not industry. Cover government pay cultural discover. During which use sell woman later. Hope trouble through local lawyer area. Wind already entire perhaps Endorsement Request 2025-05-29 Additional details PCI Evolutionary Biology - Request Additional titles Alternative title (English) a research data mananement platform Alternative title (Abu' Arapesh) Citation Harrison-Serrano's gallery **Endorsement Request** Phillips, T., Whitney, J., Rios, B., & Garcia, T. (199 4 Identifiere ARK 2001). Lowe, Moody and Garcia's gallery (v0.0 ark:/123/456 InvenioPDM **Dolated works** Cites Style APA 10 Report: 10.9999/rdm.9999968 (DOI) PCI Evolutionary Biology Request European Commission Funding P ......



## CONCLUSION

#### Conclusion

- Notify provides a well defined standard way to support many cross-system interactions, including support for the PRC publishing model
- Notify alone is not sufficient to enable this; the repository platforms and other scholarly systems need to provide well developed support, with feature-level implications
- Workflows between systems are open, and some non-formal standardisation will probably emerge (or will need to) to enable quicker integrations
  - Be clear workflows are not part of the spec
  - Review services are already implementing similar workflows
  - Documenting community conventions around the standard





#### Make The Most Of Your Data



cottage labs

🌐 cottagelabs.com