

# APTrust and Hydra

**A good fit for a lightweight application**



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## Files

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edited by Bradley Daigle

Content Advisory Minutes

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This wiki contains details of the Services, Specifications and Implementation of the APTrust Aggregate Preservation Repository. See the appropriate section for more detail documentation or use the search feature as needed. As with any wiki this documentation may change over time so check back for additions or changes as they occur. For general information about APTrust, please visit [aptrust.org](http://aptrust.org).

Questions or Comments? Please send email to [info@aptrust.org](mailto:info@aptrust.org)

### Current APTrust Development Plan

[illegible]

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A demo of the current APTrust Test Application. See our wiki at <https://sites.google.com/a/aptrust.org/aptrust-wiki/>...

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The Academic Preservation Trust is an aggregated digital preservation ecosystem for a consortium of Universities nation wide.


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**APTrust on Github - [github.com/aptrust](https://github.com/aptrust)**

Based on notes from Scott Turnbull, APTrust Technical lead:

- With Fedora as a requirement, Hydra was very useful for rapidly building a front end with one Jr Engineer as the primary developer.
- Additionally the myriad of examples from other projects and community out on the Hydra lists were good resources.
- APTrust started developing after the availability of RDF datastreams in Hydra which was particularly useful. APTrust needs metadata to be portable between systems like DPN and it seems better to rely on semantic assertions rather than structured XML to package content for distribution between repositories with the intention of storing them on disk.
- APTrust's use of Hydra is a critical part of a strategy for upgrading to Fedora 4. APTrust is purposefully avoiding any unneeded complexity or uniqueness in the deployment of Hydra and will use the momentum of the Hydra community for the transition to Fedora 4
- The ability to leverage the rails framework and mix Hydra features with rails features. As APTrust is processing large batches of material the system is necessarily asynchronous and has latency depending on the load on the system and size of content being processed. This allows APTrust to manage workflows for system processing using simple ActiveRecord objects in rails. It also allows us to leverage known rails gems for things like user authentication (Devise) or user authorization (CanCan/Pundit).

## Benefits of Hydra for APTrust

Some Differences that may be of interest:

- Binary files are stored and managed externally from Fedora in S3. Externally Referenced Content (Pointer) datastreams point to binary files, which are actually stored in cloud storage.
- APTrust began developing its Hydra head using CanCan for authorization and user groups, which has been deprecated since last year. VirginiaTech partnered with APTrust and refactored CanCan authorization to use Pundit instead, with a much more maintainable set of code and permissions.
- In APTrust's particular use case Fedora is not the primary content manager but is primarily used for metadata storage and management, with Hydra for the reporting interface. APTrust currently uses S3 and Glacier for primary preservation storage and for receiving and restoration services and content transfer. Content processing, including ongoing checksum and fixity is managed by server side processes built using the Go language. The different components of the system ultimately talk to Fedora through REST calls implemented in the Hydra and rails interface, allowing a high degree of flexibility in running multiple servers and services if need be.

## Some differences

Some downsides:

- Hydra rights being separate from the Fedora rights and authorization is unpalatable particularly since the Hydra app needs administrative access to Fedora by default. This has been lamented by the community at large at times.
- The difficulties of keeping gems updated, particularly when some go in and out of favor in the Rails community can be disruptive. Additionally the differences in interfaces between some minor updates in either ruby, rails or individual gems can be unpredictably disruptive.
- Performance has been a problem even with only a few 10s of thousands of items. This seems due to a combination of Fedora itself, how related objects are loaded through Fedora and in Hydra, and how Indexing is done in Blacklight. APTTrust has done some work in improving performance through better implementations but further improvements are not apparent and the overall bottleneck isn't in transfer, or processing, but in the response time of Hydra and Fedora.

## Some downsides of Hydra



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Lightning talk at Hydra Connect #2  
presented by  
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