Status of SCiMMA: The Hopskotch and HERMES services

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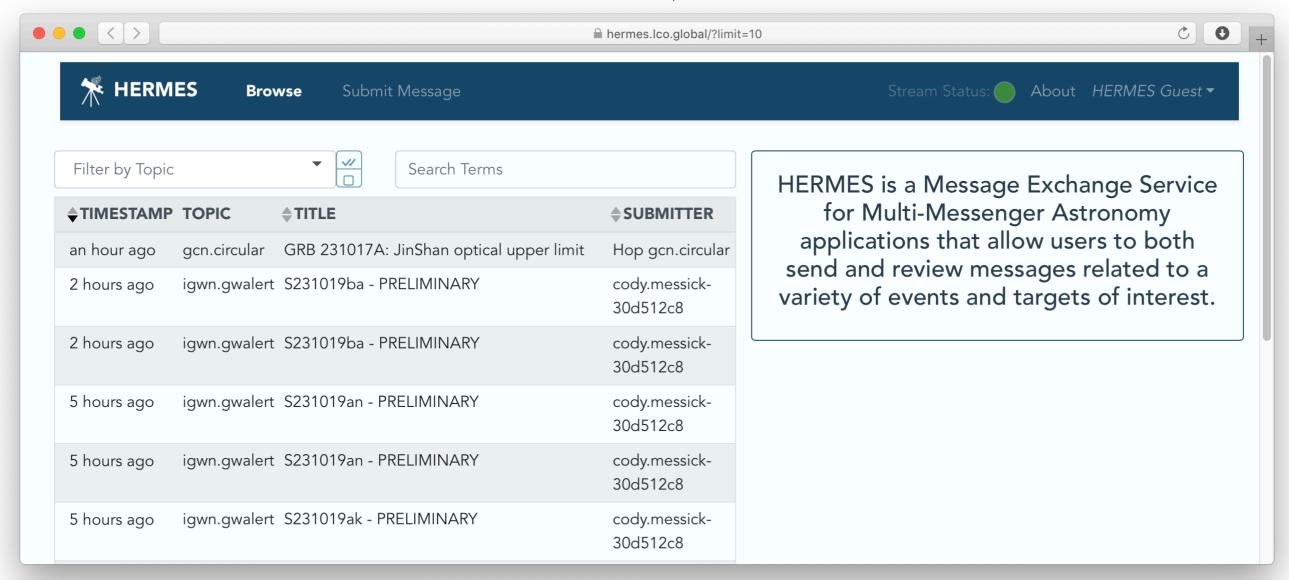
What is SCiMMA?

- "Scalable Cyberinfrastructure to support Multi-Messenger Astrophysics"
- To develop infrastructure and software to support Multi-Messenger science and the community which does that science
- Main products to-date:
 - Hopskotch alert broker infrastructure (with Apache Kafka), with client tools, private data streams, and more
 - HERMES web interface allowing users to easily browse, review, and publish MMA alerts
- Status: SCiMMA has transitioned to a new grant, and is funded into 2027

New Hopskotch Features

- More metadata automatically attached to messages
 - Each message is assigned a UUID
 - Username of the publisher is attached to each message
 - These are client-side features provided by hop-client
- We have a permanent message archive
 - Public data streams are automatically archived

HERMES



- https://hermes.lco.global
- Graphical, web interface to MMA alerts from GCN and Hopskotch
- Users can send alerts to GCN, Hopskotch, and TNS

New Features, Coming Soon

- (Opt-in) archiving of private message streams
 - Archive access controlled the same as real-time access
- REST API to the archive
 - Fetch a past message from the archive by UUID
 - Look up messages by time-range (on a topic/stream)
- Support for large messages and files
 - Automatic handling of large messages (data offloaded to the archive, placeholder message sent over Kafka)
 - Direct file uploads to the archive, to allow 'attaching' large files to messages
 - Files will be directly downloadable from the archive via HTTPS
- Reading messages from Kafka from a chosen start time
 - Thanks to A. Zhang for contributing the implementation!

Further Feature Roadmap

- A graphical, web interface to the archive
- Association of DOIs with archived messages
 - Probably on-demand by message/stream owners; don't want to overload DOI infrastructure
 - DOIs only make sense for public messages; if there is interest we could support 'promoting' past private messages to be public if owners want to get a DOI
- Better mirroring of GCN alerts
 - We currently have one stream of notices, one of circulars
 - 'GCN classic over Kafka' now breaks out many more separate streams, and we plan to mirror all of those so people can get just the alerts they want

Working with IceCube

- IceCube is sending us a little bit of data, and we would like to encourage sending more!
 - We now get one stream of high-energy tracks
 - Could we get all of the public alert streams?
- Are there other features we could support that would be useful for IceCube sharing alerts with the community?