

SigMF.

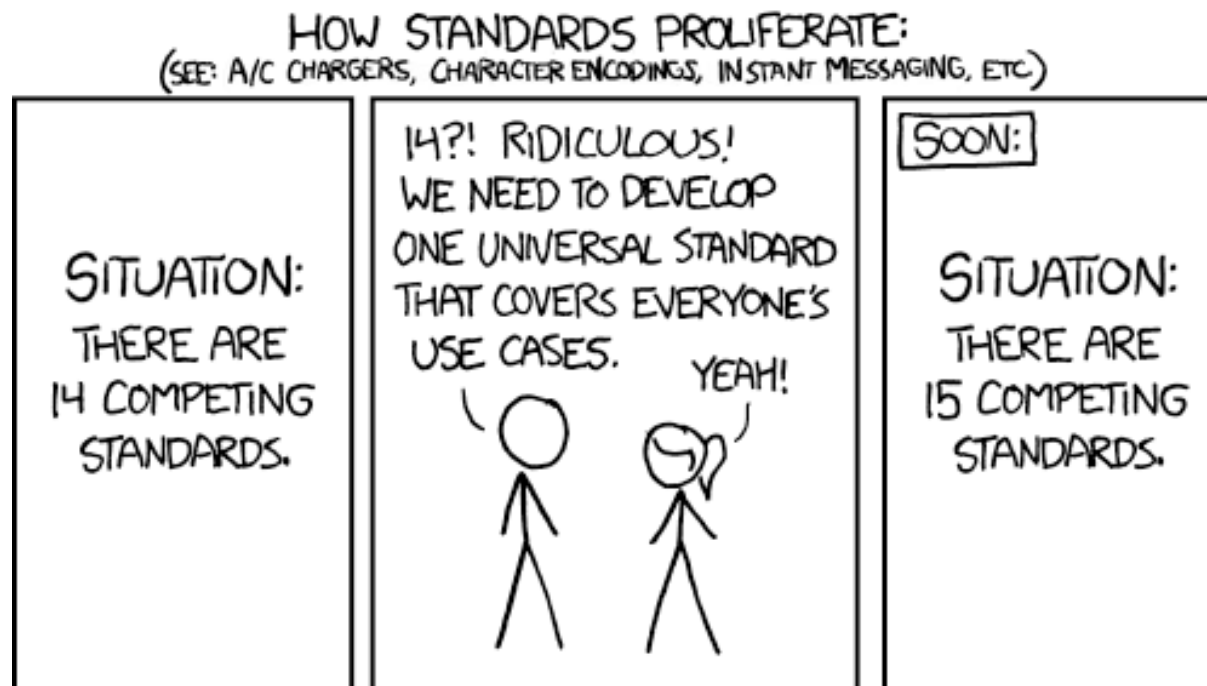
- Effort began in February 2017
- Grown substantially since then
 - (Despite not having a stable release.)
- This talk:
 - Brief intro
 - Current state
 - Where we're headed



What is it?

- A storage format for digital recordings of analog signals.
- Far more complex than it might sound.
- Done well, it enables far more than you might expect.

Because it's obligatory...



Original Design Goals

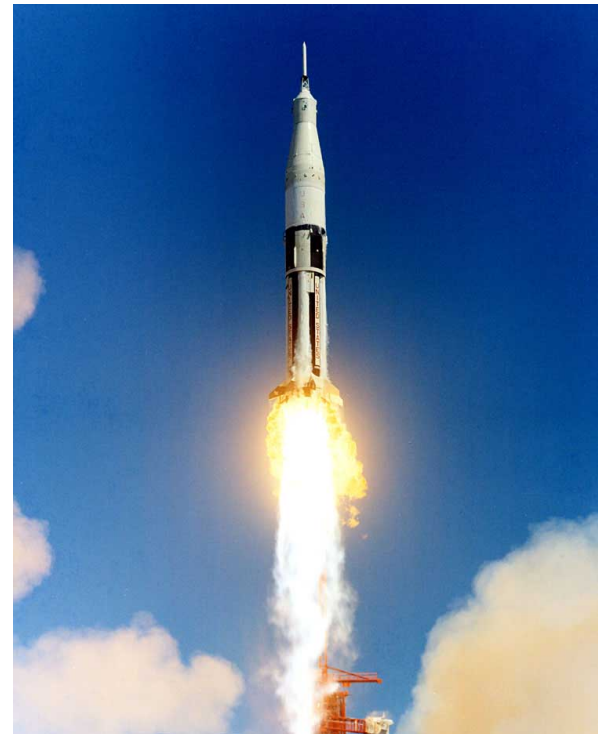
1. Maximize speed
2. Guarantee portability
3. Minimize SW requirements
4. Provide ability to link many time-varying recordings
5. Enable sharing portions of a dataset without the whole
6. Allow for arbitrary metadata
7. Facilitate easy integration with existing tools and workflows
8. Metadata must be easily indexable and editable
9. Specification must be understandable
10. Governed and maintained as an open-source project

So why not...

- VITA-49?
 - Transport format, not a storage format.
 - Describes data in motion, not at rest.
 - Also, portability.
- HDF5?
 - Portability.
- Digital RF?
 - Solves HDF5's portability!
 - Different goals re: metadata
- pickle?
 - Python-specific
 - Lacks some metadata mechanisms we need
- Midas BLUE
 - Designed to be used with Midas
 - Dramatically different design goals

Unforeseen Consequences

- Solved the hard problems in a way that made it simple to use.
- Adoption soared much faster than anticipated
- Check out Daina Bouquin's talk tomorrow on MetaSat!



Currently Available Tooling



<https://github.com/skysafe/gr-sigmf>
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gr-sigmf: GNU Radio SigMF Blocks

This module contains blocks to read from and write to SigMF (the Signal Metadata Format) recordings in GNU Radio.

Currently gr-sigmf is best described as alpha software. Basic interactions work, but features are not complete and the API should be considered somewhat unstable. We welcome any feature requests or bug reports. Pull requests are fine too, but will be met with more success if you make an issue first.

Data correctness issues will be prioritized over reliability issues, which will in turn be prioritized over new feature development.



<https://github.com/deepsig/libsigmf>
SIG ~..

libsigmf

libsigmf is a header-only C++ library for working with [SigMF](#) metadata. It is provided under the Apache License 2.0 and the copyright notice can be found in LICENSE.

<https://github.com/deepsig/sigmf-recorder>
SIG ~..

sigmf-recorder

a simple CLI tool for RF recording using [libsigmf](#), provided under the Apache License 2.0 and the copyright notice can be found in LICENSE.

New Themes and Objectives

- How can machines automatically understand metadata its never seen before?
- How can we describe the observation system in a way that's understandable to machines?
 - And the effects of that machine...

SETI / GNU Radio Hackathon

- Hosted by SETI Institute, UC Berkeley SETI, and Breakthrough Prize
- 30+ attendees from industry, academia, government, and hobbyists

Key areas of development:

- SigMF
- GNU Radio for the ATA
- GNU Radio for Radio Astronomy
- Antenna Array Monitoring & Health
- ML for Signals Detection & Classification



The plan...



Get Involved!

- I know there is a lot of SigMF code out there!
- We need help with internal tooling!
- We need help with external tooling!
- Discussion about the specification itself is invaluable.

sigmf.org