



mdToolkit

Metadata Tools and Standards

Inter-Tribal Monitoring Data Project Meeting

April 26, 2023

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Talk Outline

- Metadata concepts
- Introducing mdToolkit
- Content standards
- Group discussion

Metadata Concepts

- Supports FAIR data
- Supports discovery
- Documents data (projects, collections...)
- Supports interoperability

Discovery Metadata

- Supports data Findability and Accessibility
- Supports data exchange
- Darwin Core, Dublin Core

Archival Metadata

- Accompanies data as documentation
- Supports Reusability and Integration
- Describes the “How”
- Written for the user in 40 years
- CSDGM, ISO 19115+

Discovery vs Archival

- Archival level supports discovery
- Discovery level does not support archival
- Discovery for data inventories
- Archival for data that supports decisions
- Supports scientific reproducibility

CSDGM vs ISO

- CSDGM 25 YO, deprecated
- ISO is modern, robust vocabulary, international
- ISO is flexible but also complex

CARE

- Collective benefit,
- Authority to control,
- Responsibility,
- Ethics
- IEEE Indigenous People's Data
- Registries: www.enrich-hub.org; www.localcontexts.org
- www.iccaregistry.org

Introducing mdToolkit

- Collaboration between USGS and FWS
- Open source tools
- Organizationally agnostic
- Supports ISO, CSDGM

ADlwg* (established 2010)

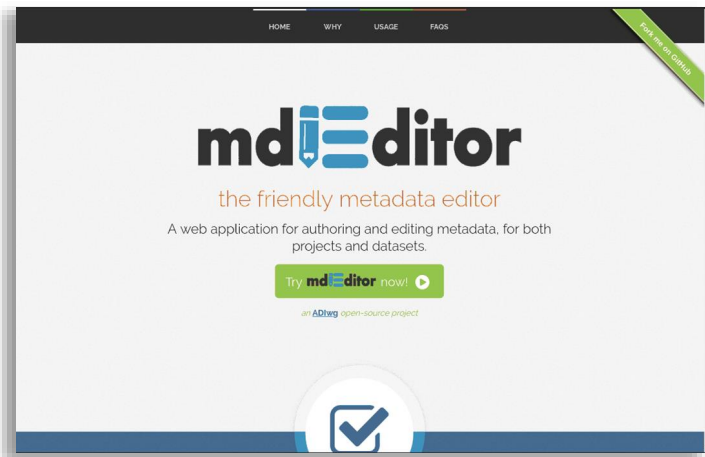
Mission: “The Alaska Data Integration Working Group (ADlwg) was formed by the Alaska Climate Change Executive Roundtable (ACCER) to examine and address the technical barriers to **efficiently integrate and share data** within and among participating organizations.”

- **Federal**
 - DOI: BLM, BOEM, NPS, USFS, USFWS, USGS
- **State of Alaska**
 - University of Alaska (UAF, UAS)
 - Geographic Information Network of Alaska (GINA)
 - International Arctic Research Center (IARC)
- **Non-Governmental Organizations (NGOs)**
 - Arctic Ocean Observing System (AOOS)
 - Arctic Research Mapping Application (ARMAP) - Nunatech Consulting
 - North Pacific Research Board (NPRB)
 - North Slope Science Initiative (NSSI)
- **Cooperatives/Joint-Ventures**
 - Arctic LCC



*Pronounced *add-ee-wig*

metadata authoring tools for people
and organizations



mdToolkit is a community
driven, open-source suite of
applications for authoring
archival quality metadata

Try **mdeditor** >

[User Stories >](#)



community responsive, open-source

mdToolkit is a community driven, open-source suite of applications for authoring *archival* quality metadata to document data, projects and collections.

focus on content, not on standards

mdToolkit guides authors toward robust documentation without requiring knowledge of exchange standards.

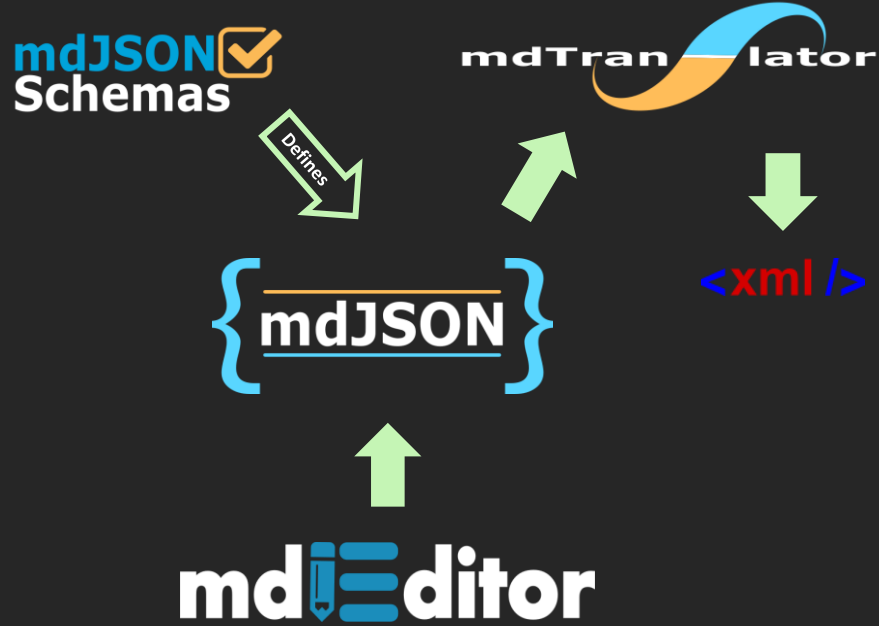
flexible and adaptable solutions

Supports single users with a web browser, or organizations that wish to integrate metadata authoring tools into their workflows and infrastructure.

manage standards transitions

mdToolkit separates metadata content management from exchange formats, allowing flexible transition workflows

Basic Workflow



mdEditor

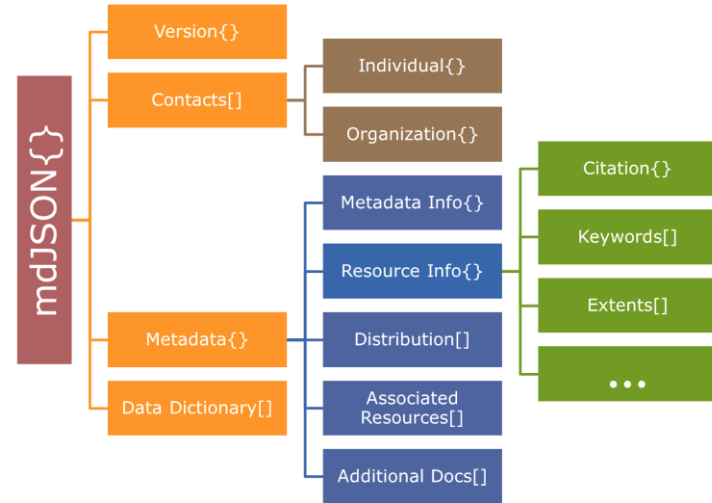
- No installation needed, runs in a web browser
- Data stored in browser cache
- Import/Export from/to local filesystem
- Manage multiple records and relationships
- Built-in validation and error reporting
- Re-usable components
 - metadata records
 - contacts (person or group)
 - data dictionaries
- Integration with mdTranslator web service

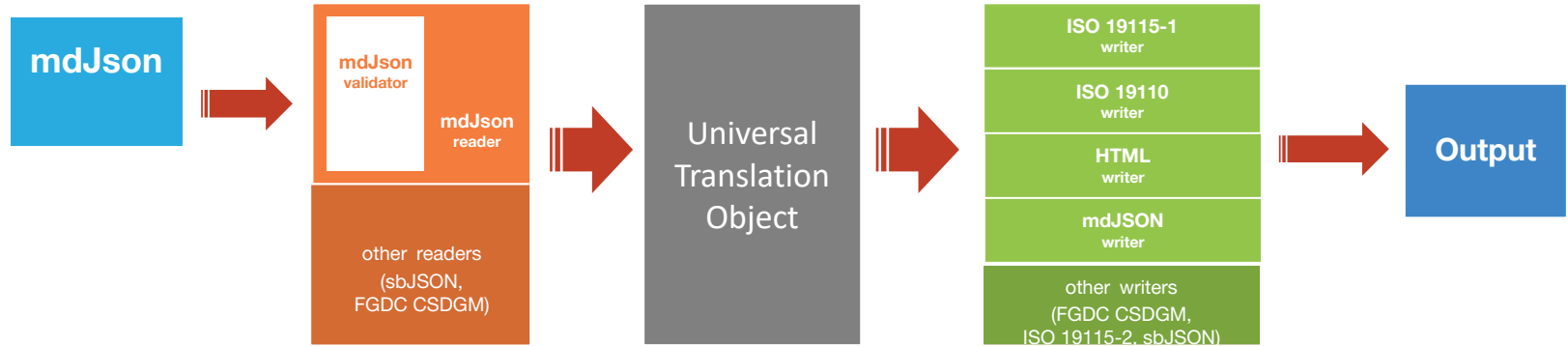


mdEditor:
www.mdeditor.org

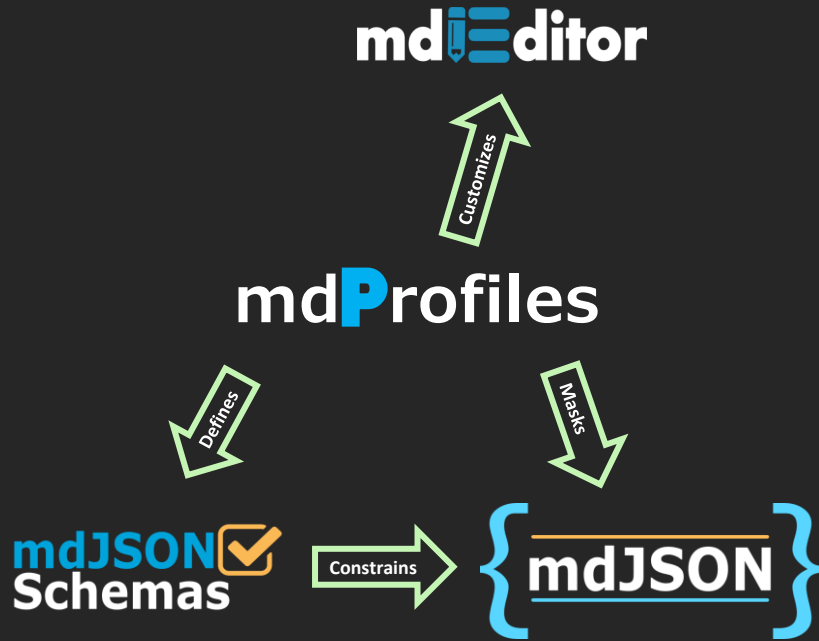


- Lightweight exchange and content management format
- JSON based, validated with json-schema (<https://json-schema.org>)
- Compatible with ISO 19115+, FGDC CSDGM
- Encapsulates GeoJSON for encoding geospatial extents
- Extensible





write once, export many times



mdProfiles

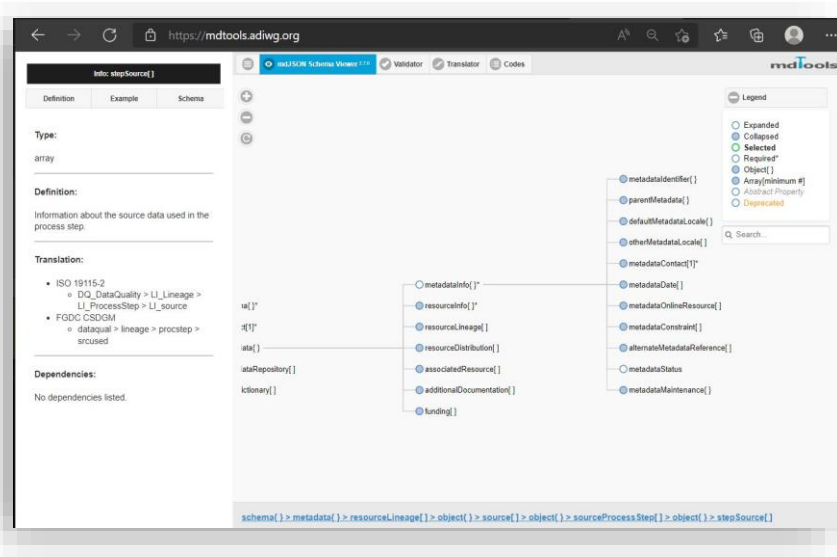
- Customize visibility of mdJSON elements in the mdEditor interface
- Create custom schemas to enforce content rules
- Exportable for distribution, update via auto notification
- Efficiently guides authors toward relevant content capture

Guide and validate metadata content relative to community defined standards



A set of support tools to understand and validate mdJSON, test metadata translations and lookup code domains

- Schema Viewer: An interactive GUI nodal mdJSON documentation tool
- Validation service to validate mdJSON snippets or full records
- Codelists lookup, export to CSV or JSON formats



Schema Viewer:
<https://mdtools.adiwg.org/#viewer>

ISO Challenges

- Few required elements
- Ensure consistent and robust metadata
- Take advantage of large vocabulary
- Guide authors efficiently
- Product specificity?

ISO Content Standards

- Constrain ISO elements to what is relevant to the data described
- Efficiently guide authors
- Ensure consistency and robustness
- Defined by relevant communities with vested interests

Bird Nest
Locations

Instrument
Observations

Seismic
Hazards

DEMs

ISO Content Spec Workshop

- Convened workshop in Ft. Collins, July 10-12, 2018
- Attendance by 25 specialists
- Participation from NOAA, NCAR, F&WS, NPS
- Developed four basic modules:

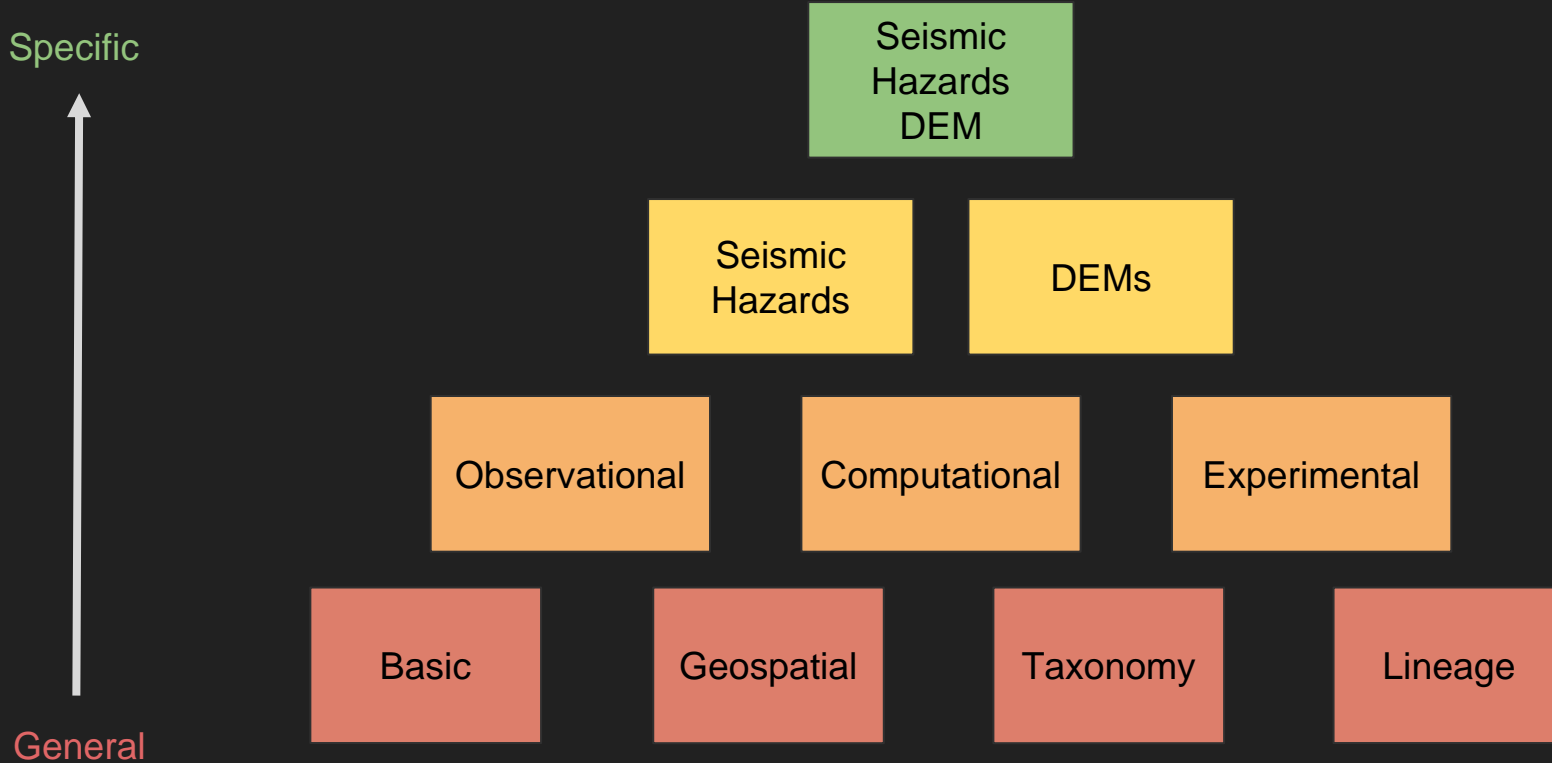
Basic

Geospatial

Taxonomy

Lineage

Content Spec Module Development Vision



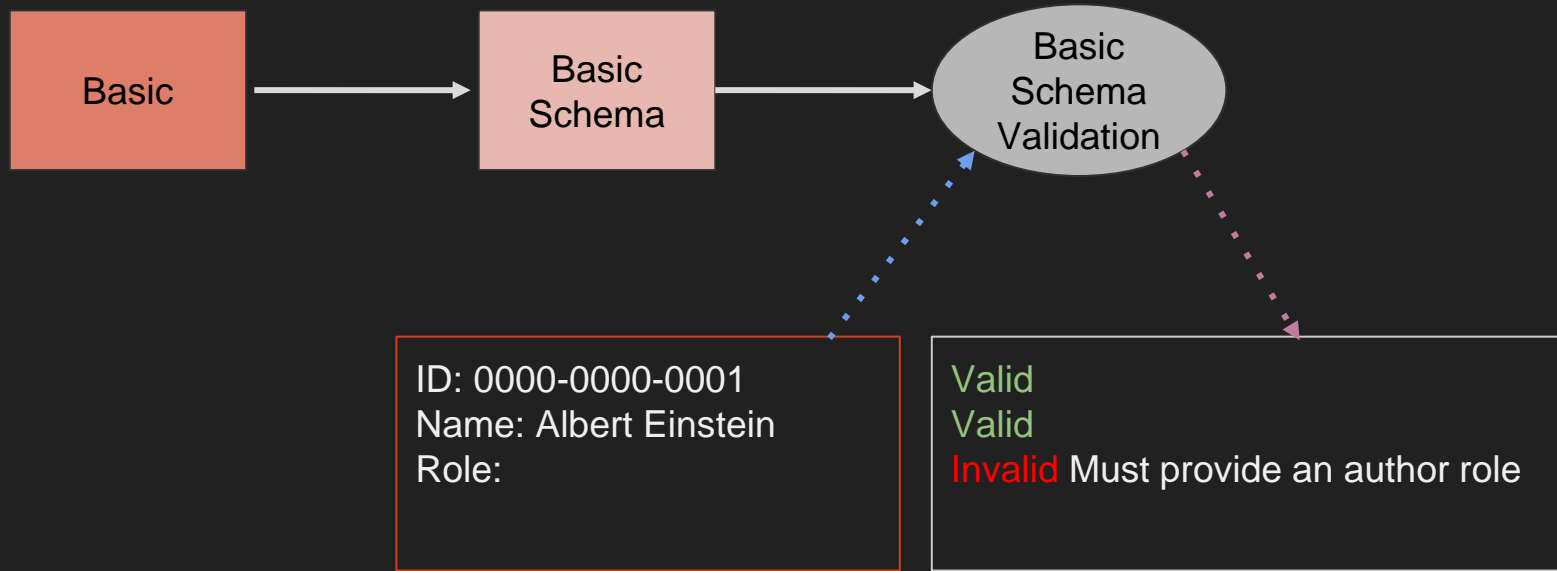
Basic Content Standard Example

2.2 Primary Citation

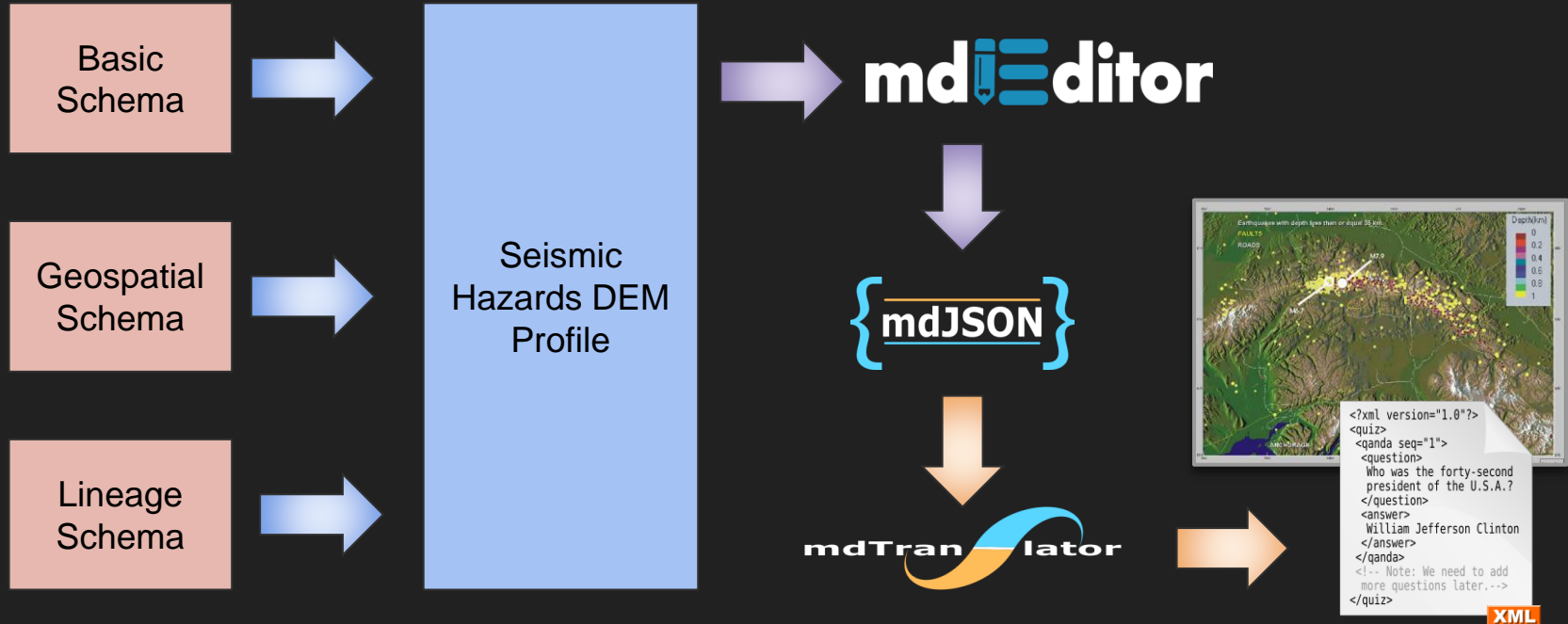
2.2.1 Title

Description:	Title of the data resource
Purpose:	Identification and at-a-glance understanding of what the data is about
Use:	<i>Should be in caps/lc format. Title should be brief and where applicable, include type of data, geospatial and temporal context. Ex: <u>Orthomosaic of the Totatlanika River Corridor, Alaska, 2021</u></i>
Requirement:	Mandatory
<u>mdJSON Mapping:</u>	<u>schema{ }</u> > <u>metadata{ }</u> > <u>resourceInfo{ }</u> > <u>citation{ }</u> > title

Content Spec Module Schemas



Content Spec mdEditor Profile



Resources

- Website: www.mdtoolkit.org
- mdEditor: www.mdeditor.org
- Guidebook: guide.mdeditor.org
- mdTools: mdtools.adiwg.org
- Github: <https://github.com/adiwg>
- Wiki: <https://github.com/adiwg/mdEditor/wiki>
- Issues: <https://github.com/adiwg/mdEditor/issues>

Awesome financial support from:

