

Extending NeXus for HDRI

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Extension proposal

- Backward compatible extension of the NeXus
- by additional meta-data and semantics

- Features
 - Split an data-set to multiple files in a convenient/smart way
 - Express connections between fields or field parts dynamically
 - Meta-data enhancements
 - Origin & Provenance
 - Data life cycle

Splitting data-sets

■ Motivation:

- ultra fast tomography → big data → difficult to handle as one file → split → split in a smart way

■ Current state:

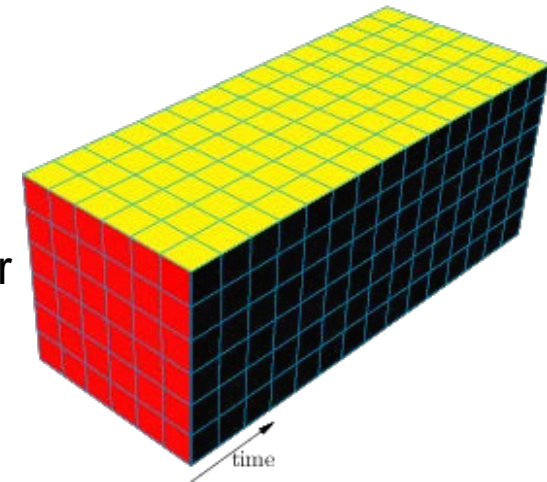
- NeXus supports external links but they work only for whole groups or fields

■ Proposed solution:

- Record the data layout as meta-data (in every file of the family)

■ Other benefits:

- No need for merging, horizontal scaling at acquisition and at processing



Dynamic relationships

■ Motivation:

- My beamline scientist wants to have a choice which supplementary channels should be recorded → dynamic connections and relationship

■ Current state:

- Relationships with: application definitions (static), NXnote (automation), NXdata (only for plotting), attributes (somewhat confusing)

■ Proposed solution:

- relationships and relationship meta-data base classes

■ Properties

- Harmonizes with the splitting

Reorganized and enriched meta-data

- Looser coupling between data and meta-data
 - Data set description without population with data

- Scenarios as:
 - multiple institutions or persons involved with roles in the different in data life-cycle
 - domain specific assertions
 - E.g.: where are the chunks?
 - connections between data-sets data set

This proposal

- Is backward compatible with the current NeXus
- Aims to make NeXus more flexible
- Needs to become a standardized part of NeXus