Infrastructure needs:
Plotting, processing, comparing and using data

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WPEC Subgroup 38

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Goal for infrastructure project

- Design an open source infrastructure to
  - Read/write new structure
  - Convert legacy formats to new structure
  - Process new structure
    - E.g., group data for deterministic transport
  - Plot data
    - Functions that convert data into pointwise
  - Modify data
  - Check data
  - Others?

Proposed Gantt chart

	2013 Nov	2014 May	Nov	2015 May	Nov
Low-level data containers	Review ENDF, EXFOR, GND, for proposed path	First draft documenting structure	Release structure documentation		
Reaction data hierarchy	Review ENDF, EXFOR, GND, …	First draft documenting structure	Second draft documenting structure	Release structure documentation	Release of ENDF, JEFF, JENDL, …
Particle data hierarchy	Review POP, ENSDF, RIPL, masses, …	First draft documenting structure	Second draft documenting structure	Release structure documentation	Release of particle database
Infrastructure		Review Fudge and other codes	Specification of required functionality	First draft of infrastructure	Release infrastructure
	Phase 1	**Phase 2**	**Phase 3**	**Phase 4**	**Phase 5**

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I plan to start infrastructure in Phase 1

Phase 1

- Ping various organizations to determine their
  - current infrastructure
  - supported formats
  - needs and wants
- Make a list of current infrastructures, and needs and wants
- Set up team
- Present at the 2013 Nov. meeting
- This will mainly involve me

Phase 2

- Review existing infrastructures
  - Compare to list from phase 1
- Have a report for 2014 May meeting
  - Language(s) to implement infrastructure in
  - Functions/Classes to implement
  - Features to implement

Phase 3, 4 and 5: Follow Gantt chart

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Potential issues

- Can LLNL/LANL/BNL/ORNL release all of its codes?
  - What about other institutions?
- What Language/Version
  - E.g., Python 2 or 3
  - Do we need to support more than one
- Need more than one independent working package
  - Especially for processing

Potential issues - 2

- I feel that testing of developing structure is important. Therefore, LLNL will create a branch of Fudge that will be up to date with the developing structure.
- It is important that the Low-level data containers, reaction data hierarchy and particle data hierarchy stay on time.
- Share low-level functions with API implementations?
- In GND we still have issues with meta-stables

Potential issues - 3

- MT numbers have an advantage
  - how to search for reactions
  - H3 + H3 -> 2n + He4
    - -> 2n + He4
    - -> n + (He5 -> n + He4)
    - -> n + (He5_e1 -> n + He4)

Volunteers?

- Do I have any volunteers?
  - I would like at least one from Asia, Europe and Americas
- List of institutions to contact?
  - USA: LLNL, LANL, BNL, ORNL
  - Europe: NEA, AWE, IAEA, CEA, IRSN, …
  - Asia: JAEA, KAERI
- We need to set up a Wiki – for all

Caveat Emptor: This is an aggressive schedule