Several meetings since WPEC 2018

• (US Only) unofficial SG-43/EG-GNDS meeting, ORNL, Feb. 2019

• ND2019, China National Convention Center, Beijing, China, 23 May 2019

• NEA Headquarters, Boulogne-Billancourt, France, 25 June 2019
# AGENDA

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Topic</th>
<th>Participant(s)</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:00</td>
<td>14:10</td>
<td>Welcome and introductions</td>
<td>David BROWN</td>
<td>UNITED STATES</td>
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<tr>
<td>14:10</td>
<td>14:20</td>
<td>Review of mailing list and membership</td>
<td>Michael FLEMING</td>
<td>NEA</td>
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<tr>
<td>14:20</td>
<td>14:40</td>
<td>Review of summary record and actions</td>
<td>David BROWN, Michael FLEMING</td>
<td>UNITED STATES, NEA</td>
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<tr>
<td>14:45</td>
<td>15:00</td>
<td>Status of the specifications for GNDS-1.9</td>
<td>David BROWN</td>
<td>UNITED STATES</td>
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<tr>
<td>15:00</td>
<td>15:30</td>
<td>Discussion and approval of version 1.9</td>
<td>All</td>
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<tr>
<td>15:30</td>
<td>15:45</td>
<td><strong>Coffee Break</strong></td>
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<tr>
<td>15:45</td>
<td>16:00</td>
<td>NEA GitLab and GNDS format proposal process</td>
<td>Michael FLEMING</td>
<td>NEA</td>
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<td>16:00</td>
<td>16:30</td>
<td>Discussion on proposal/approval processes, GitLab Q&amp;A</td>
<td>All</td>
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<tr>
<td>16:30</td>
<td>16:50</td>
<td>Report on SG43 activities</td>
<td>Jeremy CONLIN, Caleb MATTOON</td>
<td>UNITED STATES</td>
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<tr>
<td>16:50</td>
<td>17:10</td>
<td>Review of GNDS support in codes</td>
<td>All</td>
<td></td>
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<tr>
<td>17:10</td>
<td>17:30</td>
<td>Outreach and tutorials</td>
<td>TBD</td>
<td></td>
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<tr>
<td>17:30</td>
<td>17:50</td>
<td>Nuclear data structure and format: applications or science driven?</td>
<td>Jean-Christophe SUBLET</td>
<td>IAEA</td>
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<tr>
<td>17:50</td>
<td>18:00</td>
<td>Any other business</td>
<td>All</td>
<td></td>
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</table>
At WPEC EG-GNDS Meeting NEA, OECD Conference Centre, 15 May 2018, we agreed to several things

- GNDS-1.9 is first official version EG-GNDS will “bless”
- GNDS-1.9 needs complete specifications
- We will maintain GNDS using NEA’s Gitlab
- We will develop format improvement mechanism modeled on the operations of CSEWG’s ENDF Formats Committee
Draft specifications for GNDS-1.9 are ready
Specifications doc. also cover series of “format proposals”

• Several GNDS-1.9 formats are “quick-n-dirty” translation of ENDF-6, missing requested features:
  • TSL
  • FPY

• There are many loose ends
  • Resonances
  • Covariances

• Requirements mention several things we have not implemented
  • Documentation
  • Several processed data forms
Specifications doc. also cover series of “format proposals”

• Several GNDS-1.9 formats are “quick-n-dirty” translation of ENDF-6, missing requested features:
  • TSL
  • FPY
  • There are many
    • Resonances
    • Covariances
  • Requirements mention several things we have not implemented
    • Documentation
    • Several processed data forms

The format is big (385 pages), beautiful and complex
What next?

- We can’t approve the GNDS-1.9 specifications as is, can we?
- Very few of us have read it all, how can we make an informed decision?
- But, the document will always have typos, things to tweak, etc., so in a sense *it will never be done*

- Only LLNL has implemented the whole thing and LLNL is finding errors in their implementation *and* they already want to move beyond GNDS-1.9

**Suggestion:**
- approve 1.9 anyway, *and*
- engineer a mechanism for continuous improvement
Discussion and approval of version 1.9 and future revisions
Harness the power of git

I propose we
- approve GNDS-1.9, as is, today
- make 2 git branches
- lock them
Harness the power of git

I propose we

• approve GNDS-1.9, *as is*, today
• make 2 git branches
• *lock them*

Furthermore,

• use git’s branch and merge mechanism to manage fixes
Harness the power of git

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- approve GNDS-1.9, as is, today
- make 2 git branches
- *lock them*

**Furthermore,**
- use git’s branch and merge mechanism to manage fixes
- use this mechanism to manage format proposals as well!

EG-GNDS Meeting, 2019
Harness the power of git

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Furthermore,
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• use this mechanism to manage format proposals as well!

Finally, I propose we
• reserve major EG-GNDS meetings for blessing new releases
Harness the power of git
In summary

I propose we

• approve GNDS-1.9, as is
• make 2 git branches
• put lock them

Furthermore,

• use git’s branch and merge mechanism to manage fixes
• use this mechanism to manage format proposals as well!

Finally, I propose we

• reserve major EG-GNDS meetings for blessing new releases

Consensus was: This is a good development model and GNDS-1.9 is imperfect, but we have to start somewhere!
What constitutes a format proposal vs. a “bugfix”?

- Typos (OK),
- Wrong equations (maybe),
- New formats (No)

It is very dependent on the nature of the change.

Consensus view: It’s the chair’s job to sort it out. If we get it wrong then we’ll invest in a formal procedure.
Creating a format proposal

• Bare minimum format proposal for next release (GNDS-1.10 or 2.0):
  • Latex descriptive text
  • JSON changes (these actually encode the format)
  • Also, has to correctly build to a PDF.
• In future releases we will discuss other requirements such as:
  • Reference implementation in a code
  • An example file
  • Code /stylesheet to translate back and forth
Approving a format proposal

- Format proposal get their own branch and must pass the CI. Submission of proposal done with “merge request” on gitlab

- Chair & EG nominate reviewers (self nomination allowed!)

- One or more reviewers interact with proposers through gitlab discussion board to resolve issues

- Chair performs the merge

Thank you Michael!
Problems with this mechanism

• The structure of the format is contained in a JSON-formatted meta-format (it isn’t scary)

• The PDF is built from frame LaTeX documents & automatically generated text from meta-format (not scary in principal)

• In the rush to put the whole system together, the project is a complex, fragile mess
  
  ● ACTION: C. Mattoon & D. Brown to clean up project

Until project is cleaned up & organized better, changes should be done in collaboration with someone who knows how system works: D. Brown, C. Mattoon, J. Conlin, W. Haeck, D. Wiarda, M. Fleming…
Other questions

• How would an eventual NEA document versioning align with this model?
  • ACTION: M. Fleming to investigate

• What reviews are needed for final documents at each or our institutions?
  • ACTION: All EG members need to investigate, but in US there is clear process

• With revision model, won’t there be a proliferation of formats?
  • Yes! At least one/year. This is what happens in ENDF, no one cared before because format only declared final once ENDF library is released.
  • Want to see the process in action to see if this is a problem

• What to do in the event of a conflict?
  • Surprisingly this hasn’t happened yet! So far potential conflicts quickly turned into collaboration on Gitlab.
  • If conflict can’t be resolved, then the annual EG-GNDS meeting is the place to resolve?
Housekeeping Actions

- ACTION: (D. Brown) Investigate “latexdiff” for use in comparing versions of specifications
- ACTION: (D. Brown) Clean up FIXME’s, TODO’s, DRAFT’s etc, turn off GNDS-1.10 items for clean GNDS-1.9 file
- ACTION: (C. Mattoon, D. Brown, M. Fleming) Prepare branch tree for future
- ACTION: (M. Fleming) Orchestrate formal email vote on GNDS-1.9 specifications once ready
- ACTION: (D. Brown) Investigate Latex->HTML build options
<table>
<thead>
<tr>
<th>Outreach and tutorials</th>
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<tbody>
<tr>
<td><strong>Pros</strong></td>
</tr>
<tr>
<td>• We’re getting asked for information</td>
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<tr>
<td>• We have specifications</td>
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<tr>
<td>• LLNL has C++ APIs: <a href="https://github.com/LLNL/gidiplus">https://github.com/LLNL/gidiplus</a></td>
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<tr>
<td>• We have a full library (ENDF/B-VIII.0) in GNDS-1.9</td>
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<tr>
<td><strong>Cons</strong></td>
</tr>
<tr>
<td>• Do we have a champion/lead for this activity?</td>
</tr>
<tr>
<td>• Current LLNL Python APIs are not publicly available yet. Old version available at BNL: <a href="https://www.nndc.bnl.gov/endf/codes/FUDGE/index.html">https://www.nndc.bnl.gov/endf/codes/FUDGE/index.html</a></td>
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* ACTION: Bret Beck volunteers to spearhead! Plan ANS or similar workshop*