Migrating web-site and web tools

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CERN/PH/SFT

Content

- Current Geant4 web sites
- Creating new Geant4 web site in Drupal - ongoing
  - Static pages
  - Documentation pages generated at each release
- Migration of existing web tools - completed
  - TagsDB web interface
  - geant4ca
- Drupal intro – very short

Current Geant4 Websites

- Main Geant4 web site: http://cern.ch/geant4 :
  - plain website based on shtml files in afs, using server side includes
  - Mirror at http://geant4.org
- TagsDB web interface and Collaboration agreement tool
  - Linked from main page, but independent pages
- Validation database portal at FNAL
  - Currently under rapid development
- Grid validation web page
- Several sites or wiki's for individual working groups or Geant4 institution specific pages

Current Geant4 website – Status

- Last major review and re-design in 2006
  - New design, unified
  - Overall look based on server side includes
  - Header pane, navigation & side panel
- By 2016, has become old technology
  - Static site, static pages
  - Editing files in filesystem
  - Restricted to few editors, would have required some work to open up
- Statistics on web pages: without download area 1.5-2 GB
  - In cvs ~ 2k files, 170 .shtml, 900 .html , …
  - UserGuides (6.5k files,275MB),
  - Doxygen (23k files, 450 Mb)
  - Download area (16GB)

Aspects in migration to Drupal

- No "One size fits all"
  - Adapt migration to different types of page
- 'Normal' pages, ie. plain pages maintained by collaborators
  - Migrate once, then maintain in Drupal
- Generated pages
  - User documentation generated at each release
    - Avoid extra overhead at release time, solution may be specific for
      - Docbook, User guides, PDF and web
      - LaTex, Physics reference manual, PDF only
      - Doxygen, examples documentation
      - Physics list documentation, will be created from G4 code
  - Collaboration membership and working group membership pages generated from xml using saxon and xlst.
    - Migrate once, then maintain in Drupal
- Maintain possibility to mirror to off site geant4.org web server

New Geant4 Drupal 7 web site

- Started to create Drupal web site http://new-geant4-dev.web.cern.ch
  - An exercise in using Drupal
  - Stay close to design of current page
- Only few top level pages created so far,
  - only Applications is correct and complete
  - Full set of static pages shall be imported using Importer tool
- Created a trial mirror of site using a web crawler (wget), available at http://cern.ch/gunter/mirror
  - A tar file of this mirror successfully tested

Current homepage layout

Geant 4

Collaborator Login

Download | User Forum | Gallery
Contact Us

Home | Applications | Support | Collaboration

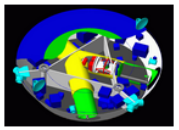
Overview

Geant4 is a toolkit for the simulation of the passage of particles through matter. Its areas of application include high energy, nuclear and accelerator physics, as well as studies in medical and space science. The two main reference papers for Geant4 are published in Nuclear Instruments and Methods in Physics Research A 506 (2003) 250-303, and IEEE Transactions on Nuclear Science 53 No. 1 (2006) 270-278.

Applications

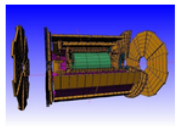
A sampling of applications, technology transfer and other uses of Geant4

User Support



Getting started, guides and information for users and developers

Publications



Validation of Geant4, results from experiments and publications

Collaboration

Who we are: collaborating institutions, members, organization and legal information

News

- **Geant4 10.2 Patch-02**
  Submitted by Gunter Folger on Wed, 09/07/2016 - 17:52

  Patch-02 to release 10.2 is available fr

- **Geant4 10.3 Beta**
  Submitted by Gunter Folger on Tue, 09/06/2016 - 18:40

  Release 10.3 BETA is available from the Beta download area.

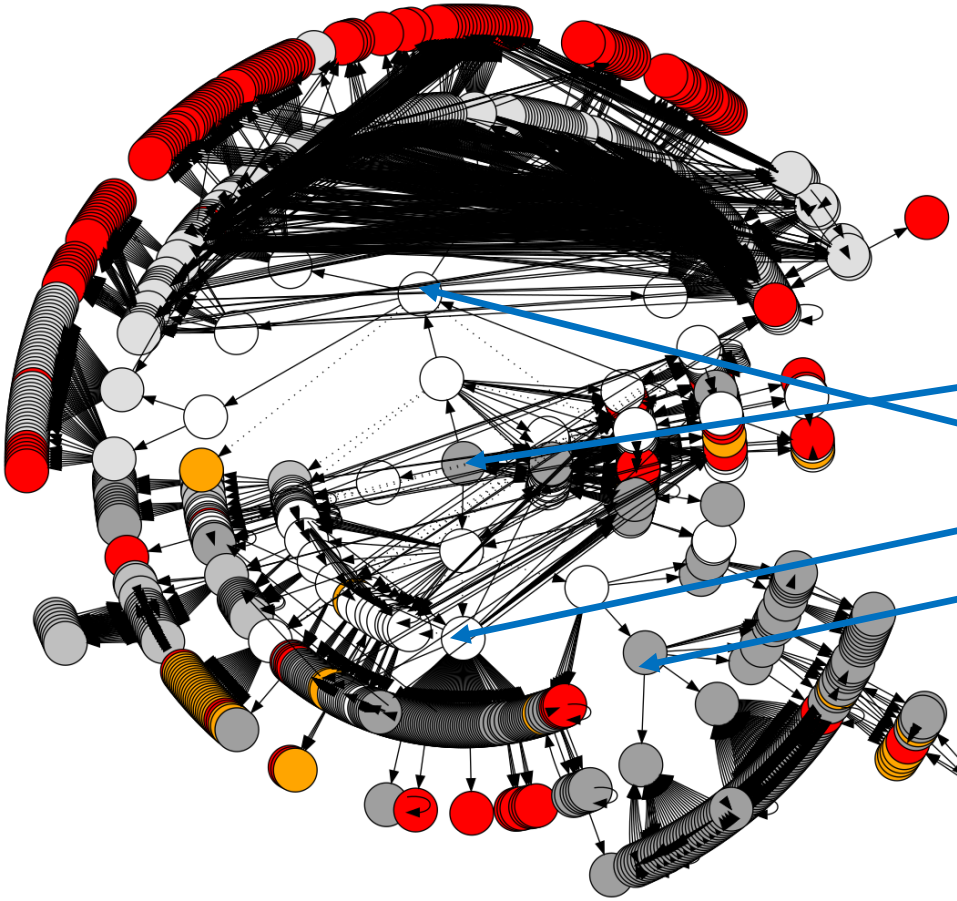
Events

- 21st Geant4 Collaboration Meeting, Ferrara (Italy), 12-16 September 2016.
- 4th International Geant4 School, Belgrade (Serbia), 23-28 October 2016.

Importer tool

- Plan to complete major part of pages using an importer tool, excluding generated pages
  - Created in 2011 by the summer-student Leszek Ślażyński for a demo migration to Drupal 7
  - Collaboration in 2011 was not ready to seriously consider a migration to Drupal.
  - The site created 2011 had problems with protected pages
  - Manpower and experience were lacking in Geant4 team
- Importer tool crawls the Geant4 website, parses obtained files, and imports the result into Drupal
- Importer also allows to analyse site structure
  - Via standard tools, a graph of the site can be drawn
    - See www.graphviz.org, pictures shown are from 'twopi'
  - Graphs can be drawn in different style
  - Graphs shown are 'onion' style, radius corresponds to distance from home page in number of links to follow.
  - Very useful to understand site structure, including links

Structure of G4 website



- http://cern.ch/gunter/g4-sitemap-full.svg
- In browser you can see URL for each item
  - Geant4 home page is in center
  - Process model catalog
  - Steering board minutes
  - ESA workshop 1999
- Red dots are missing links
- Orange dots represent files not parsed

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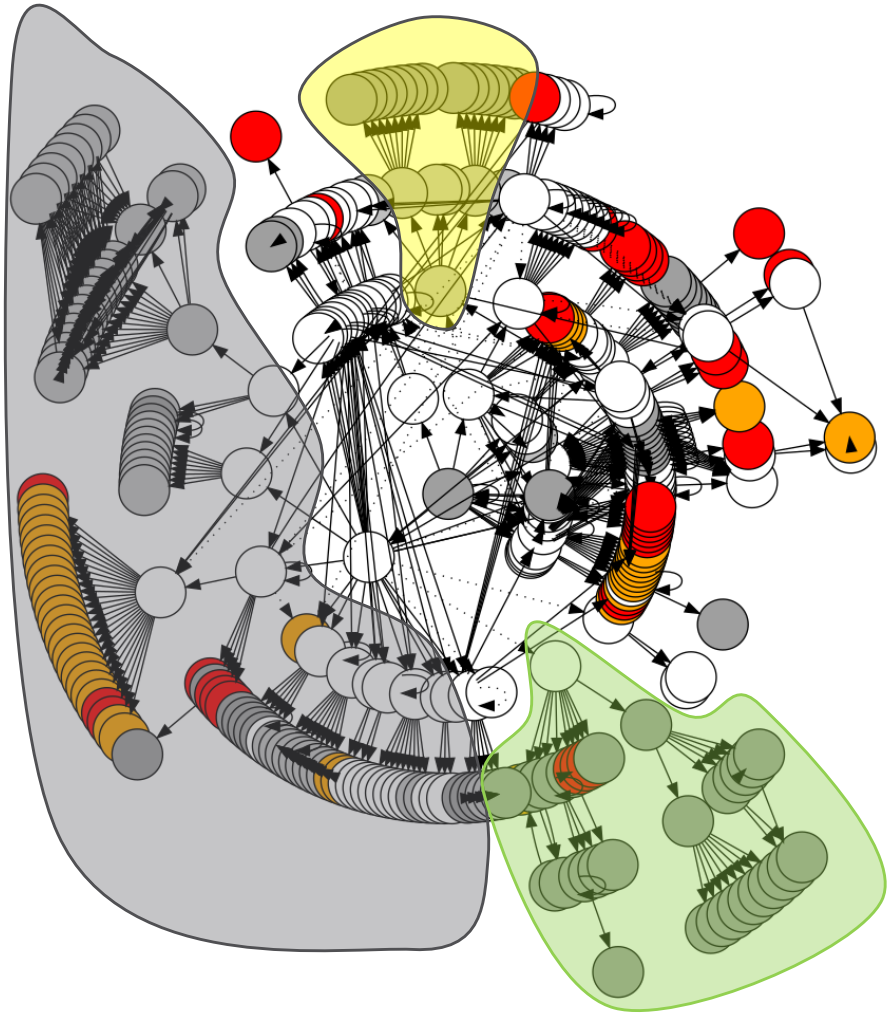
Structure of G4 website – 2



- Skipping ESA workshop, process-model catalog and SB minutes
- Geant4 home still in center
- Working groups in grey
- Workshops in green
- OOAD analysis diagram in yellow

Importer tool

- Importer tool crawls the Geant4 website, parses obtained files, and imports the result into Drupal
- Importer is independent python tool, run from command line
  - pyquery used in crawling, parsing
  - xmlrpclib python module to communicate with Drupal web server
  - Uses Services module of Drupal
    - plus small propriety module to insert links.
  - Importer tool now works, sort of.
    - Some missing modules and settings on Drupal server fixed
    - Need to adapt to also import SB pages as read/write restricted pages
    - Missing knowledge and experience
- There is a site to test imports, very unstable
  - http://test-g4-dp-import.web.cern.ch
- When import is done, this tool will not be needed any more
  - Might still be useful to produce graphs of new site

What should be imported to Drupal

- We should not include/import generated HTML in Drupal
- User Documentation pages compiled using
  - Docbook: Drupal has modules available, DocBook2Book, DocBookWiki, these need to be evaluated
  - Latex: DruTeX module or single pdf file
    - Currently we only offer PDF file for the Physics Reference Manual
  - Doxygen: modules available (Drupal uses Doxygen itself!)
  - Generated physics list documentation
- Possible solutions for each these need to be evaluated
  - consultation with documentation group is a must.
  - As a start, include these via iFrame from a afs web site.
  - When using a Drupal module, use well supported modules
    - Drupal 8 is coming
- Listings of Geant4 members, working groups, currently created from xml:
    - Drupal should be able to handle this, work started

Migration of existing web tools

Done!

TagsDB web interface
and Collaboration agreement tool

- Custom made Drupal 6 modules, created in 2010 by Przemyslaw Paprocki in time with the migration from cvs to svn
  - TagDB web interface replaced previous Bonsai system
- Written for Drupal 6, server at the time provided by SFT,
  - Now shut down since few weeks/months
- TagsDB web interface used by Geant4 developers to steer testing of new/modified code
- Collaboration agreement tool is small tool
  - Needed in yearly membership review process
  - Forces collaborators to agree to collaboration rules

Migration out of Drupal 6

- Drupal 6 obsolete, was running on private webserver:

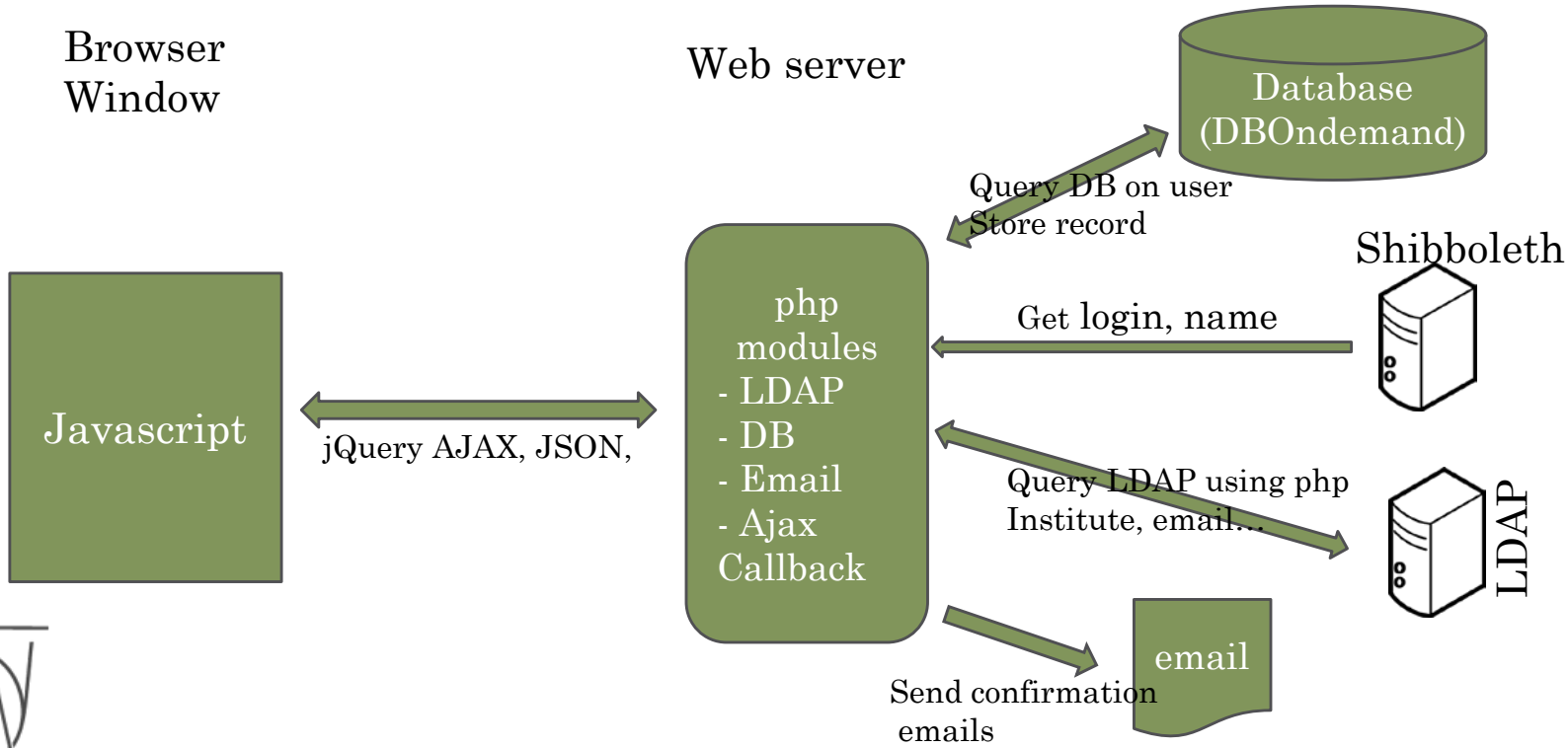
  Must migrate

- Choice was to migrate to **Drupal 7** or to **Apache server** (LAMP)
  - Move to Drupal 7:
    - we need to adapt for changes in API between Drupal 6 and 7
    - Possibly again for Drupal 8
  - Move to Apache / LAMP
    - Software becomes independent tool, depending only on standard packages and usable on Apache server → more stable interfaces

- Used small collaboration tool to estimate effort to migrate to Apache
  - And learn what Drupal module is, and what tools are provided by or used from Drupal
  - O(10) files in module

Custom geant4ca module

- Consists of javascript, php, css, and drupal templates



Tags Database: Testing new developments

- Geant4 development model is based on cvs style tags
- Tags database allows automated testing
  - Tags are recorded into database by svn pre-commit hook when creating a tag
  - Database in place since 2000, contains now >26k tags
- Continuous integration testing checks proposed tags do not break code using a restricted set of tests and a restricted set of platforms
- Nightly integration testing checks selected tags using full set of tests and examples on multitude of platforms and differing build options
  - Tag selection is role of testing shifter
- Physics regression, CPU performance monitoring, leak checking, static analysis,… done with monthly tags

Year	Tags	Accepted	Rejected
2013	3019	1873	418
2014	2387	1339	249
2015	1845	1164	249

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Tags | Taglists | Development lines

Query | Refresh | Print

X	Date	Author	Path	Tag name	Bugfix	Status	Description	Sentence	Development lines (Tag lists)
☐	2016-05-24 15:22:40	pandola	geant4/ source/ processes/ electromagnetic/ lowenergy	**emlowen-V10-02-06**	No	Proposed	Fix compiler warning on gcc-6. [...]	-	+
☐	2016-05-24 14:01:11	japost	geant4/ source/ geometry/ magneticfield	**field-V10-02-06**	No	Rejected	Changed default stepper in Cho [...]	Failing compila [...]	+
☐	2016-05-24 10:44:39	mnovak	geant4/ source/ physics_lists/ constructors/ electromagnetic	**phys-ctor-em-V10-02-16**	No	Proposed	GS step limit back to opt0	-	+
☐	2016-05-24 10:35:07	gcosmo	geant4/ source/ geometry/ solids/ specific	**geom-specific-V10-02-11**	Yes	Proposed	Correction in G4UExtrudedSolid [...]	-	+
☐	2016-05-24 09:13:16	ihrivnac	geant4/ examples/ basic/ B3	**exampleB3-V10-02-01**	No	Proposed	Fixed compiler warning introdu [...]	-	+
☐	2016-05-23 20:38:49	japost	geant4/ source/ geometry/ magneticfield	**field-V10-02-05**	No	Rejected	Made DormandPrince745 the defa [...]	Several failure [...]	+
☐	2016-05-23 19:38:17	vnivanch	geant4/ source/ processes/ hadronic/ models/ de_excitation	**hadr-deex-V10-02-26**	No	Rejected	cleanup FBU, MF, CoulombBarrie [...]	-	+
☐	2016-05-23 16:54:55	vnivanch	geant4/ source/ processes/ electromagnetic/ standard	**emstand-V10-02-17**	No	Postponed	modification of urban msc disp [...]	-	+
☐	2016-05-23 12:25:30	gcosmo	geant4/ examples/ advanced/ human_phantom	**human_phantom-V10-02-01**	No	Accepted	More compilation warnings in g [...]	-	**geant4-10-02-ref-04:** • 4050
☐	2016-05-23 12:22:48	vnivanch	geant4/ tests/ test36	**test36-V10-02-01**	Yes	Accepted	remaining fixes of gcc6.1 warn [...]	-	**geant4-10-02-ref-04:** • 4050
☐	2016-05-23 11:26:33	vuzhinsk	geant4/ source/ processes/ hadronic/ models/ parton_string/ hadronization	**had-hadronization-V10-02-01**	Yes	Accepted	Di-quark fragmentation into ba [...]	-	**geant4-10-02-ref-04:** • 4050
☐	2016-05-23 10:57:03	vuzhinsk	geant4/ source/ processes/ hadronic/ models/ parton_string/ diffraction	**hadr-string-diff-V10-02-02**	Yes	Accepted	FTF parameters are tuned.	-	**geant4-10-02-ref-04:** • 4050
☐	2016-05-20 19:08:57	vnivanch	geant4/ examples/ extended/ electromagnetic/ TestEm7	**testem7-V10-02-01**	Yes	Accepted	fixed gcc 6.1 warnings	-	**geant4-10-02-ref-04:** • 4049

Filter: ○ marked ◉ with status: ☑ Internal ☑ Proposed ☑ Superseded ☑ Selected ☑ Postponed ☑ Accepted ☑ Rejected ☑ Global None | All | Filter **Action on marked:** Change status | Taglists | Clear

Experience: Migration of Drupal 6 modules

- Running on standard Apache webserver provided by CERN/IT
- Technologies used in modules
  - Javascript, jQuery, AJAX, JSON, PHP, ….
  - Lots of possibilities to learn
- Migration of collaboration agreement module was relatively easy
  - Except my ignorance of the technologies used, including lack of knowledge/experience how to debug
  - Choose correct package for DB access, PHP/PDO vs MySQLi
  - JSON encoding of PHP data only works on CentOS7
- Migration of TagsDB interface
  - Migrate database access from Drupal API to standard PHP/PDO API
    - Straightforward, but not trivial, to migrate ~ 30 functions
  - Re-organisation of PHP code
  - Javascript almost worked as is, except a API change in jQuery, i.e attr() vs prop().
  - Some changed jQuery default settings, like order of buttons, default height of some elements

Experience: Migration of Drupal 6 modules

- Running on standard Apache webserver provided by CERN/IT
- Technologies used in modules
  - Javascript, jQuery, AJAX, JSON, PHP, ….
  - Lots of possibilities to learn
- Migration of collaboration agreement module was relatively easy
- Migration of TagsDB interface more work
- Migration to Drupal 7 – in theory
  - Database access methods changed, seems similar to PHP/PDO
  - jQuery likely is newer as well.
- In retrospect, dependency on Drupal today not necessary
  - Yet, in 2010, Drupal, or also Django, provided useful, extra functionality

Drupal basics

Basic Drupal slang

- **Theme**: layout of pages, regions, colors, fonts,
- **Node**: basic unit of content
  - A node is not a page, but node(s) are shown on page(s)
- **Content type**
  - Basic page
  - Imported page
  - News item
  - …
- **Region**
  - Nodes or blocks are placed in regions
- **Menu**, to ease navigation
- **Page**
- **View**
  - Combine nodes or parts of nodes including filtering
- **Taxonomy**: keywords which can be added to nodes,….

Basic introduction to edit/add pages

- Log in to change or add pages
- To edit, go to the page, and click on the edit just below the title of the page
- To add a page, click add content, choose type of page to add, e.g 'basic page'
  - Give a title, and body.
  - Choose the kind of text, plain asci, filtered or full html; usually we need full html
  - To add a link to another existing page, select the text to become the link, click on the link symbol, choose link type as URL, protocol to be
    - <other> for site internal link, address is something like content/….,
    - http(s):// for link to external page, address is URL without the http(s)://
  - At the bottom of the page, you set options:
    - you may create an entry in a menu:
      - Select 'Provide menu link'
      - choose parent menu where you want the entry
    - Create a new version, so we can revert
    - Under publishing information, select 'published'
  - Then click SAVE, you may also save before you are fully done and continue later.
    - If you exit without save, all is lost. Going to another page without save also looses changes.

Material

- Some URL's I found useful
- http://www.inmotionhosting.com/support/edu/drupal-7/working-with-content
  - Section 2, Basic pages
- The Drupal Cookbook (for beginners) | Drupal.org
  - Most focussed on creating sites than on editing
- A video showing how to add a basic page, https://www.youtube.com/watch?v=gQUsZk-lJbs

Summary

- New Geant4 Drupal web site
  - Preliminary site with very limited content exists
  - Will use importer tool for bulk of static pages
    - Tested with public pages, SB pages next
  - Start to look at solutions for generated pages
    - Pages listing collaborators, working groups, … ,
      - working on Drupal solution
    - User documentation
      - In first iteration include as is, using existing site
  - Hope to complete this in 2016
- Collaboration agreement tool was used for 2016 campaign
- TagsDB in production since February/March 2016
  - Server providing Drupal 6 based interface deleted in May 2016