Autosave and concurrent editing in Drupal 8

Hristo Chonov
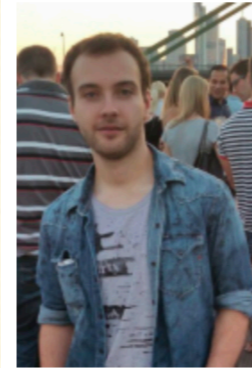
Senior Software Engineer

Hristo Chonov

Senior Software Engineer

- Official Drupal 8 Core Entity API Maintainer

Author and/or main maintainer/developer:

- Autosave Form

- Conflict (8.x-2.x)

- Prefetch Cache

- Widget on Demand

- Entity Reference Inline

- Entity Reference Revisions Inline

Hristo Chonov

Senior Software Engineer

bio.logis Genetic Information Management GmbH

Frankfurt am Main, Germany

https://www.biologis.com

Drupal facts

- #16 in Drupal Marketplace (09/03/2019) [1]

- one of the two end-users in the top 30 corporate sponsors according to "Who sponsors Drupal development? (2016-2017 edition)" by Dries Buytaert [2]

- one of the three end-users in the top 30 corporate sponsors according to "Who sponsors Drupal development? (2017-2018 edition)" by Dries Buytaert [3]
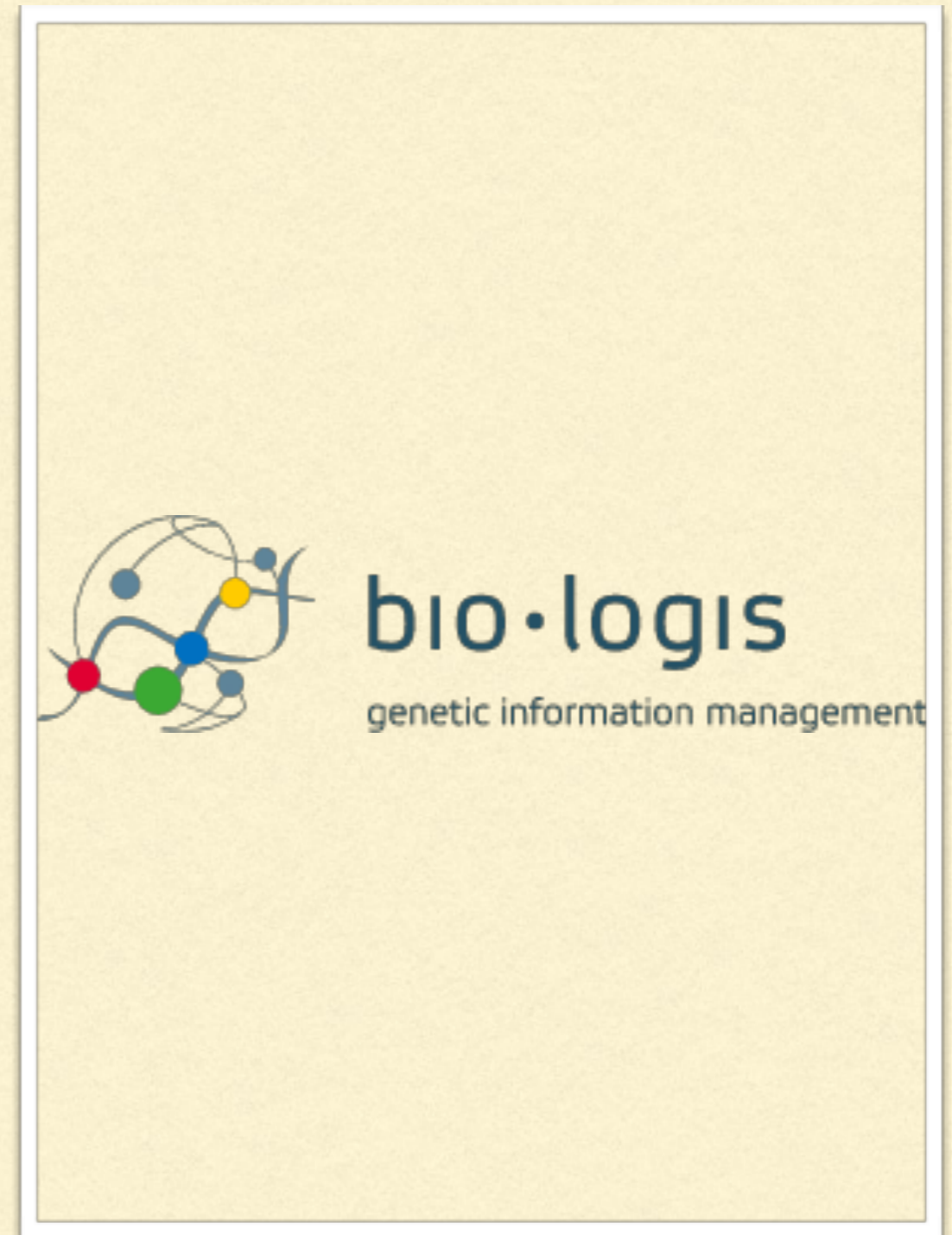
[1] Drupal Marketplace - https://www.drupal.org/drupal-services
[2] Who sponsors Drupal development? (2016-2017 edition) - https://dri.es/who-sponsors-drupal-development-2017
[3] Who sponsors Drupal development? (2017-2018 edition) - https://dri.es/who-sponsors-drupal-development-2018

AUTOSAVE FORM

AUTOSAVE FORM MODULE

- continuous autosaving of the form

  - user input

  - form state

- configuration options

  - autosave interval (default - 60 seconds)

  - enable only for specific entity types & bundles (default - all)

- currently supported forms

  - content entity forms (default - all)

  - config entity forms support will be added on request

AUTOSAVE FORM INTERNALS

- Decorates the core form builder for autosave submissions

    - speeds up autosave submissions

    - prevents form & entity validation

    - prevents hook invocations

    - prevents altering the user input and form state

    - prevents updating the form build ID

AUTOSAVE FORM STATES

- Autosave states

  - autosave states are per user i.e. represent drafts per user

  - new state only when the form has actually changed (after previous autosave)

  - allows for implementing an undo and redo functionality on top

- On entity form save

  - with conflict module enabled - only the autosave states of the current form session are deleted

  - without conflict module - all autosave states for the entity being edited are deleted

    - if there are other active autosave sessions then they will be stopped and their users will be notified through a pop-up dialog

AUTOSAVE FORM

DEMO

AUTOSAVE FORM LIMITATIONS

- Out of the box support for entity form routes defined through

    - _entity_form

    - _controller and _form aren't supported

        - but could be enabled through custom code

AUTOSAVE FORM FUTURE

- Use the browser local storage

  - no active internet connection required

  - conserves bandwidth and server processing time

- Save autosave states as forward revisions in a revision branch

  - Technical limitations

    - DB Not Null Constraints

    - New inline entities

- Your ideas and requests …

CONFLICT

8.x-2.x

CONFLICT MODULE FOR CONCURRENT EDITING

- makes concurrent editing of entities possible

- content entity types

  - revisionable and non-revisionable entity types supported

- config entity types

  - not supported yet

CONFLICT INTERNALS

- main functionality implemented as an entity builder

- on entity build a three way comparison for each entity field **part of the form display** is performed using

    - the initially used entity to build the form

    - the current entity built from the form values

    - the entity from the storage (possibly a newer one)

CONFLICT FIELD COMPARATORS

- A field comparator plugin might be implemented for custom comparison

```
namespace Drupal\conflict\Plugin\Conflict\FieldComparator;

use ...

/**
 * Default field comparator plugin implementation covering all fields.
 *
 * @FieldComparator(
 *   id = "conflict_field_comparator_default",
 *   entity_type_id = "*",
 *   bundle = "*",
 *   field_type = "*",
 *   field_name = "*",
 * )
 */
class FieldComparatorPluginDefault implements FieldComparatorPluginInterface
```

- More specific field comparators will be used if found

CONFLICT INTERNALS

- Merge mechanisms

  - auto-merge

    - fields not enabled in the currently used entity form display

    - fields the current user has no access to

    - translatable fields from other entity translations

    - entity metadata - changed timestamp, revision metadata

    - fields changed only in the current form or in the newest storage version

  - conflict - fields changed both in the current form and in the newest storage version

CONFLICT ENTITY HANDLER

- Default conflict entity handler - ContentEntityConflictHandler

- for customizations extend from it and register the handler on the desired entity type - "conflict.resolution_handler"

    - directly on the entity type annotation

    - in hook_entity_type_alter()

```
$entity_type->setHandlerClass( handler_type: 'conflict.resolution_handler', value: ContentEntityConflictHandler::class);
```

CONFLICT - MANUAL RESOLUTION

- Still in progress … but some basic functionality:

  - Dialog Based

    - main target - nested inline entity forms

      - integration tested with the module Entity Reference Inline

  - Inline Based

    - main target - regular entity forms

  - a mix of both?

CONFLICT

DEMO

CONFLICT COMING SOON

- Field Comparators and Automatic Conflict Resolution will be exchanged or enhanced through events

  - EntityConflictDiscoveryEvent

    - left, right and base entities

    - context as parameter bag (form, form state, revision branch metadata)

    - => building a list of conflicting properties (fields)

  - EntityConflictResolutionEvent

    - + result entity

    - + conflicts list

    - => resolves automatically conflicts and removes them from the list

CONFLICT COMING SOON

- Auto merge of text fields with diff highlighting

  - https://xiphe.net/jQuery-Merge-for-php-diff/

CONFLICT COMING SOON

Old Version

```
 1  <html>
 2    <head>
 3        <meta http-equiv="Content-type" content="text/html; charset=utf-8"/>
 4        <title>Hello World!</title>
 5    </head>
 6    <body>
 7        <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et
        dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea
        commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla
        pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est
        laborum.</p>
 8
 9        <h2>A heading we'll be removing</h2>
10
11        <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et
        dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea
        commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla
        pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est
        laborum.</p>


12    </body>
13  </html>
```

CONFLICT COMING SOON

New Version

```
 1  <html>
 2    <head>
 3      <meta http-equiv="Content-type" content="text/html; charset=utf-8"/>
 4      <title>Goodbye Cruel World!</title>
 5    </head>
 6    <body>
 7      <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et
    dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea
    commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla
    pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est
    laborum.</p>
 8

 9
10      <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et
    dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea
    commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla
    pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est
    laborum.</p>
11
12      <p>Just a small amount of new text...</p>
13    </body>
14  </html>
```

Q&A

THANK YOU!