



**DrupalCon**  
AMSTERDAM **2019**  
OCTOBER 28-31

# Autosave and Concurrent editing (conflict resolution) in Drupal 8

Hristo Chonov

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# Hristo Chonov

## Senior Software Engineer

■ Official Drupal 8 Core Entity API Co-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 (hchonov)



[Twitter](#)



**Current Role(s):**  
Senior Software Developer



#### Personal Info

**Primary language:** Bulgarian

**Languages spoken:** Bulgarian  
English  
German

#### Bio:

Entity API (ORM) Maintainer for Drupal 8 Core

#### History

On Drupal.org for 5 years 5 months

Over 5 edits to documentation

#### Drupal events:

DrupalCon Amsterdam 2014

DrupalCon Barcelona 2015

DrupalCon Dublin 2016

DrupalCon Vienna 2017

Drupal Europe 2018

#### Credited on 37 issues fixed in the past 1 year

- [Drupal core](#), 21 issues
- [Drupal Developer Days](#), 1 issue
- [Simple OAuth](#), 1 issue
- [Autosave Form](#), 5 issues
- [Drupal Bulgaria](#), 1 issue
- [Conflict](#), 2 issues
- [Search API Solr](#), 1 issue
- [Language Negotiator Content Entity \(All Routes\)](#), 1 issue
- [Prefetch Cache](#), 1 issue
- [Drupal.org customizations](#), 2 issues
- [JSON:API](#), 1 issue

[View all issue credits](#)

#### Projects

[Autosave Form](#) (44 commits)

[Prefetch Cache](#) (26 commits)

[Widget On Demand](#) (19 commits)

[Conflict](#) (13 commits)

[Language Negotiator Content Entity \(All Routes\)](#) (11 commits)

[Relation](#) (7 commits)

[HTML Diff](#) (4 commits)

[Ajax Confirm](#) (4 commits)

[Jira REST](#) (3 commits)

[Entity Reference Revisions Inline](#) (2 commits)

[Diff](#) (2 commits)

[RedirectLess](#) (2 commits)

[Entity Reference Inline](#) (2 commits)

[Search API Solr](#) (1 commit)

[Simple OAuth](#) (1 commit)

[Field Group](#) (1 commit)

[Entity Reference Revisions](#) (1 commit)

[Content locking \(anti-concurrent editing\)](#) (1 commit)

[Search API](#) (1 commit)

Total: 145 commits

## bio.logis Genetic Information Management GmbH

 This organization is a [Drupal services provider](#).



**bio•logis**

genetic information management

<https://www.biologis.com>

16 people on Drupal.org

#### Services

3rd party Integration, Consulting, Development, Information architecture, Infrastructure Planning, Multilingual websites, Quality Assurance, Support

#### Sectors

Healthcare, Technology

Offices in Germany

Organization type Software/tool vendor

#### Headquarters

Frankfurt am Main

#### Flagship product: GIMS

The knowledge of human genes, their variants and related medical facts is rapidly growing. At the same time, the effort of interpreting that data is also increasing. Identifying correlations or taking appropriate measures requires the aid of special tools.

bio.logis is developing services and IT applications for managing human genetics information in order to make our "genetic code" accessible and usable. Our [Genetic Information Management Suite \(GIMS\)](#) provides combined genetic data to enable decision making with a medical value.

GIMS consists of a web-based authoring and content management system based on Drupal, globally connecting expert knowledge, along with a genetic reports engine. A multilingual portal and mobile applications offer access to medial-ready knowledge for physicians, patients and healthy clients to support distributing and scaling genetics advice. The "pharma.sensor" online application provides ideas about adjusting drug therapies to your individual genetic makeup.

#### Drupal services

Based on our expertise on building products on top of Drupal and the individual drupal expertise of our developers we offer various Drupal services – especially for the healthcare sector.

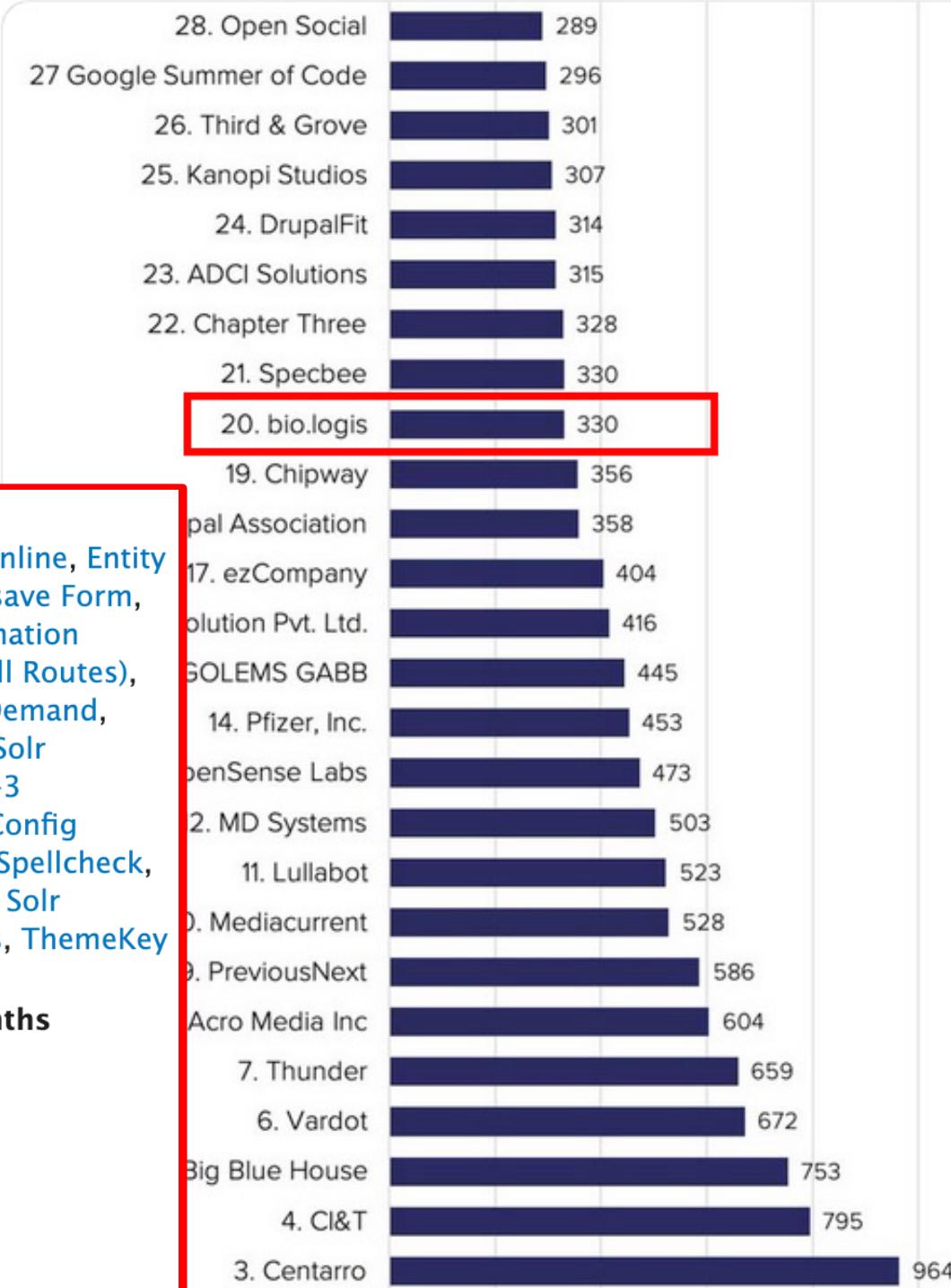


Dries Buytaert 

@Dries

Folgen

Blog post: Who sponsors Drupal development? (2018-2019 edition) [dri.es/who-sponsors-d...](https://dri.es/who-sponsors-d...)



#### Projects supported

[Default Content Set](#), [Entity Reference Revisions Inline](#), [Entity Reference Inline](#), [Config Overlay](#), [igbinary](#), [Autosave Form](#), [Ajax Confirm](#), [Search API Cross-language information retrieval](#), [Language Negotiator Content Entity \(All Routes\)](#), [Search API Multilingual Solr Search](#), [Widget On Demand](#), [Revision UI](#), [Prefetch Cache](#), [HTML Diff](#), [Apache Solr Address Field](#), [Mobile Detect API](#), [Jira REST](#), [PSR-3 Watchdog](#), [HealthVault® Connect](#), [Apache Solr Config Generator](#), [Conflict](#), [Print PDF Proxy](#), [Search API Spellcheck](#), [Biblio Advanced Import](#), [Search API Solr](#), [Apache Solr Multilingual](#), [Cron Control](#), [ThemeKey Properties](#), [ThemeKey](#)

#### Credited on 59 issues fixed in the past 3 months

- [Search API Solr](#), 44 issues
- [Drupal core](#), 10 issues
- [Drupal Developer Days](#), 1 issue
- [Simple OAuth](#), 1 issue
- [Autosave Form](#), 1 issue
- [Subrequests](#), 1 issue
- [Search API](#), 1 issue



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# Autosave Form

# Autosave Form

- 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 - 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
- non-revisionable entity types

## ■ Core inclusion? - Implement Autosave [#3029488]

## ■ Your ideas and requests ...



# Conflict

Branch - 8.x-2.x

# Conflict - Concurrent Editing

- makes concurrent editing of entities possible
- content entity types
  - revisionable
  - non-revisionable
- config entity types
  - not supported yet

## Conflict - Internals

- Entity handler - adds conflict entity builder to entity forms
  - 3-way comparison for each field 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)
  - default auto-merging
  - event system for extended conflict discovery and resolution

# 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 - Discovery & Resolution

## ■ EntityConflictDiscoveryEvent

- left, right and base entities
- context as parameter bag (form, form state, form display, 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 - 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 - Future

## ■ Auto merge of text fields with diff highlighting

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

**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>
```

## Conflict - Future

### ■ Core inclusion?

- WI: Phase H: Conflict management and local workspace merging support  
[#2867707]



# Demo



# Q&A



Want to learn more about us and what we do?

# Content Management as Critical Success Factor for Personalized Medicine

Markus Kalkbrenner, Rudolf Koopmann

Wednesday, 09:00 - 09:40



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# Thank you!



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contribution opportunities

Thursday, October 31, 2019

Mentored  
Contribution

9:00-18:00  
Room: Europe Foyer 2

First Time  
Contributor Workshop

9:00-14:00  
Room: Diamond Lounge

General  
Contribution

9:00-18:00  
Room: Europe Foyer 2

#DrupalContributions



# What did you think?

Locate this session at the DrupalCon Seattle website:

<https://drupal.kuoni-congress.info/2019/program/>

Take the Survey!

<https://www.surveymonkey.com/r/DrupalConAmsterdam>

# Thank you!