



How to COPE with external entities

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Goal

To show how to use External Entities module to share content between Drupal websites

COPE: Create Once Publish Everywhere



- Strategy to create content in one place and publish it in many places
- Simple example: a block that appears on multiple webpages
- Also applies to the same content on multiple websites.
- Drupal solutions such as Migrate, Replication and Feeds all create duplicates of the content
- Single Point Of Truth



External Entities

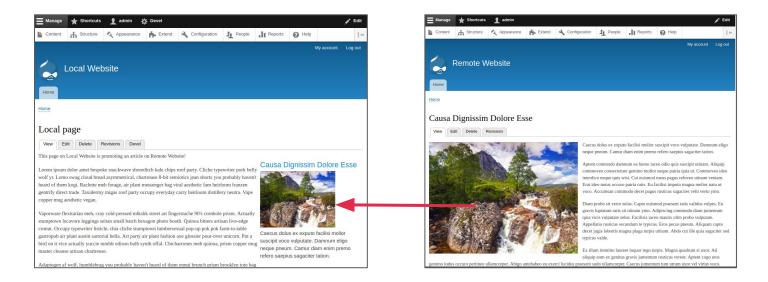


- "This module allow you to connect to datasets from external databases and use it in your Drupal 8 website."
- Data is handled by Drupal as content entities with remote storage. External entities can be used in most ways that standard entities can.
- First released in 2015 (jelle_S). Branch 1.x still in Alpha.
- Branch 2.x started August 2018 (rp7). Improvements include separate entity types instead of bundles.



Simple example (today's session)

Display a teaser for an article on another website

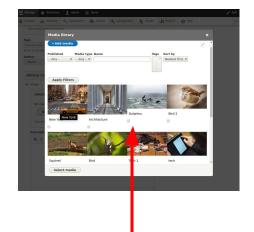


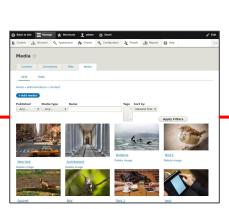


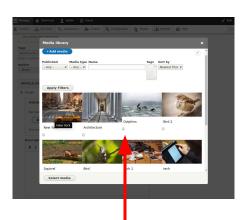


Complex example (for another day)

Shared media library











Display teaser card for a remote article



Remote website

Create a REST service to GET multiple and single articles

Local website

- Create an External Entity type
- Create a View with an entity browser display
- Add entity reference field to a content type with an entity browser widget
- Theme the external entity



REST service on remote website

- Keeping it simple with a View with REST export displays
- Alternatives e.g. JsonAPI, GraphQL, core RESTful module
- Authentication and permissions ignored!
- 2 REST exports for single and multiple results
- Shows 2 options separate fields and rendered entity

Remote pages (Content) \(\triangle \) Home » Administration » Structure » Views Displays REST export all REST export single + Add Edit view name/description + Display name: REST export all TITLE PATH SETTINGS **▼ ADVANCED** Title: None Path: /rest/remote-pages CONTEXTUAL FILTERS Add Authentication: No authentication is set FORMAT RELATIONSHIPS Add -Access: Permission | View published content Format: Serializer | Settings field media: Media HEADER Show: Fields | Settings The selected display type does not use header FIELDS plugins Machine Name: rest export all Content: ID Administrative comment: None FOOTER Content: Link to Content Use aggregation: No The selected display type does not use footer Content: Title Query settings: Settings Content: Title Caching: Tag based Content: Body NO RESULTS BEHAVIOR (field media: Media) Media: Image The selected display type does not use empty Content: Rendered entity PAGER FILTER CRITERIA Add + Items to display: Display all items | Content: Published (= Yes) All items Content: Content type (= Basic page) SORT CRITERIA Content: Authored on (desc)

Save

Cancel

JSON response

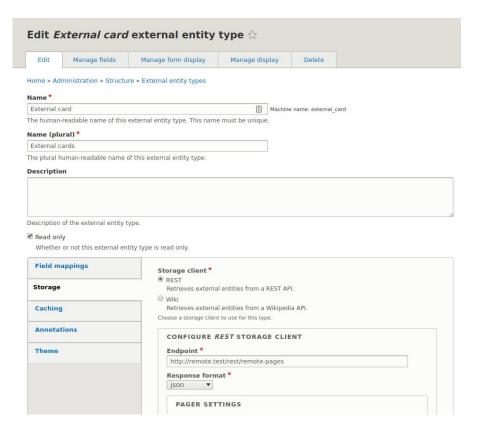
- http://remote.test/rest/remote-pages?_format=json
- http://remote.test/rest/remote-pages/19?_for mat=json
- Response for single item is inside an array could use custom serializer to remove array
- Response shows 2 options separate fields or rendered entity. Fields rewritten in Views UI.
- Relative links in the body or the rendered entity have to be changed to external links, e.g. with a custom PathProcessor

```
"nid": "19",
        "url": "http://remote.test/node/19".
       "title": "Causa Dignissim Dolore Esse",
        "title_link": "<a href=\"http://remote.test/node/19\"><h2>Causa Dignissim
Dolore Esse</h2></a>",
        "body": "Caecus dolus ex exputo facilisi molior suscipit voco vulputate.
Damnum eligo neque pneum. Camur diam enim premo refero saepius sagaciter tation.
\n".
        "image": "<ima
src=\"http://remote.test/sites/default/files/styles/medium/public/2018-
08/placeimg 640 480 nature%20%282%29 0.jpg?itok=50TKynE0\" alt=\"Image 12\" />",
        "rendered_entity": "\n<article data-history-node-id=\"19\" data-quickedit-
entity-id=\"node/19\" role=\"article\" class=\"contextual-region node node--type-
page node--view-mode-teaser clearfix\" about=\"/node/19\"
typeof=\"schema:WebPage\">\n <header>\n
                                                       <h2 class=\"node title\">\r
                                          \n
<a href=\"/node/19\" rel=\"bookmark\"><span property=\"schema:name\" data-quickedit-
field-id=\"node/19/title/en/teaser\" class=\"field field--name-title field--type-
string field--label-hidden\">Causa Dignissim Dolore Esse</span>\n</a>\n
<div data-contextual-id=\"node:node=19:changed=1535894903&amp;langcode=en\"></div>
<span property=\"schema:name\" content=\"Causa Dignissim Dolore Esse\" class=\"rdf-</pre>
meta hidden\"></span>\n\n
                              </header>\n <div class=\"node content clearfix\">\n
             <div property=\"schema:text\" data-quickedit-field-
id=\"node/19/body/en/teaser\" class=\"clearfix text-formatted field field--name-body
field--type-text-with-summary field--label-hidden field_item\">Caecus dolus ex
exputo facilisi molior suscipit voco vulputate. Damnum eligo neque pneum. Camur diar
enim premo refero saepius sagaciter tation.\n</div>\n
data-quickedit-field-id=\"node/19/field_media/en/teaser\" class=\"field field--name-
field-media field--type-entity-reference field--label-hidden field item\"><article
data-quickedit-entity-id=\"media/15\" class=\"contextual-region media media--type-
image media--view-mode-external-card\">\n <div data-contextual-
id=\"media:media=15:changed=1534884585&langcode=en\"></div>\n
                                                                      \n
```

External entity type

Storage client part 1

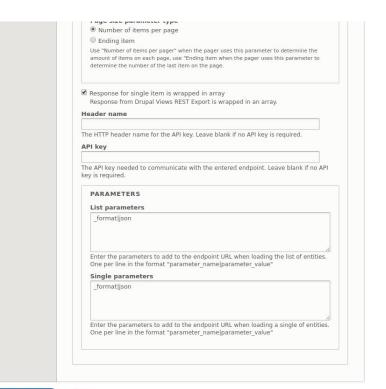
- Create 'external_card' external entity type
- Module includes storage clients for REST and a example using Wikipedia
- Set REST endpoint and JSON format
- Read-only as we are only using GET
- Pager settings are not needed



External entity type

Storage client part 2

- Patch allows REST client to remove the array that Views wraps arounf the response for a single item.
- Set parameter to add '_format=json' to the request

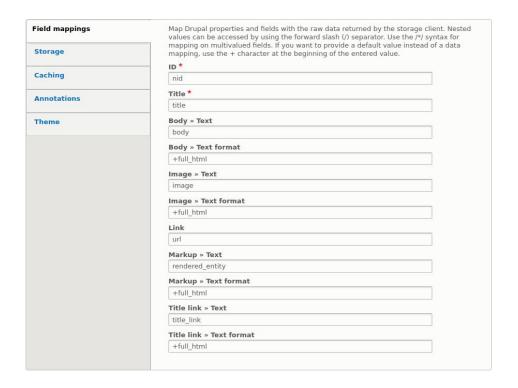


Save external entity type

Delete

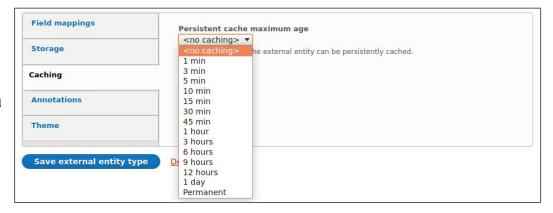
External entity type Field mapping

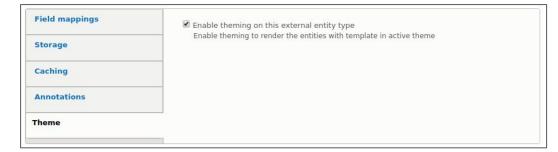
- Map nid and title in response to entity type properties
- Create Drupal fields and map response fields to them
- Set text formats
- Complex mapping is possible in 2.x e.g. 'contact_information/email_address'



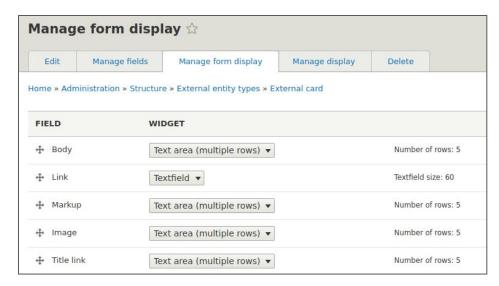
External entity type Caching and theme

■ Enable theming to render the entities with a Twig template in the active theme





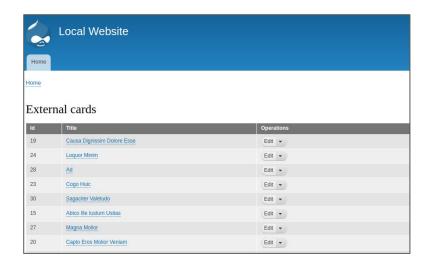
External card fields

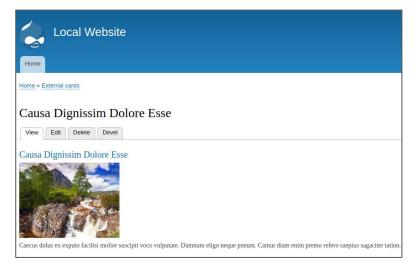




External cards

- List is at http://client.test/external-card
- Single item is at http://client.test/external-card/19
- Create Twig template in the theme: external-card.html.twig





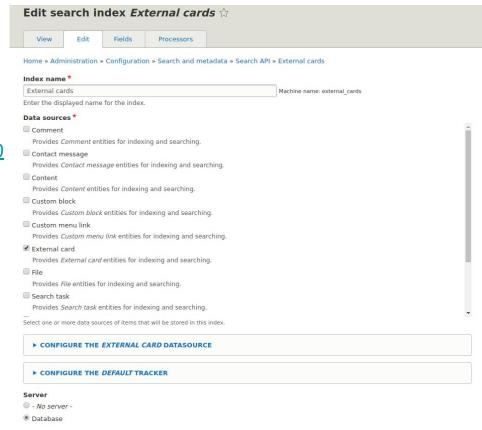
Views and Search API

No automatic Views support

- Waiting for core issue to be resolved -"Make Views use SqlEntityStorageInterface" https://www.drupal.org/project/drupal/issues/20790
- No recent work on EntityFieldQuery Views Backend module

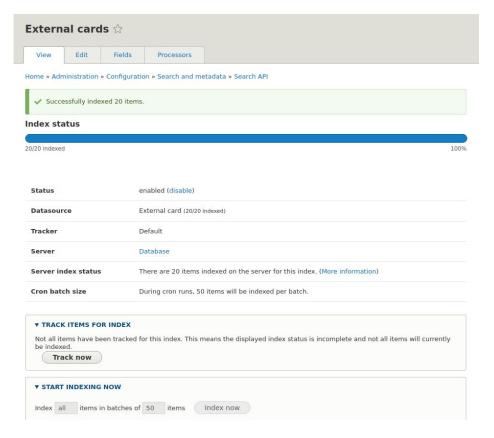
Workaround with Search API

Create index in Search API with database server



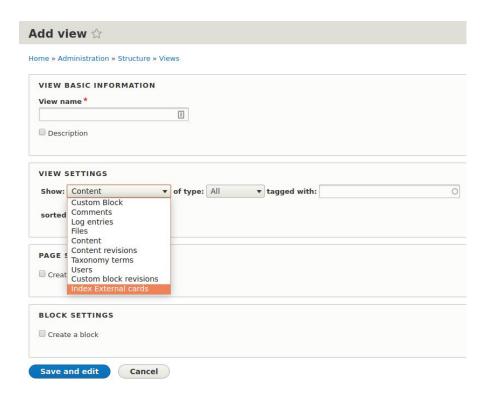
Search API index

- Run the index.
- Entities are indexed in table search_api_db_external_cards



Create a view

■ Base table for the view is the Search API index



Configure the view

- Create Entity Browser display
- Add the field "Entity browser bulk select form for Search API views"

External cards (Index External cards) 🌣

Home » Administration » Structure » Views

Displays

Display name: Entity browser		
TITLE	Access: None	
Title: None	HEADER	
FORMAT	FOOTER Add	
Format: Unformatted list Settings	NO RESULTS BEHAVIOR Add	
Show: Fields Settings	PAGER	
FIELDS Add -	Use pager: Display all items All items	
External card datasource: ID (indexed field) [hidden]	More link: No	
External card datasource: Title (indexed field)	Link display: None	
External card datasource: Image		
Index External cards: Entity browser bulk select form for Search API views		
FILTER CRITERIA Add		
SORT CRITERIA Add		

Create entity browser

- Create Entity Browser display
- Add the field "Entity browser bulk select form for Search API views"

General information \(\triangle \)



Home » Administration » Configuration » Content authoring » Entity Browsers General information » Display » Widget selector » Selection display » Widgets





Choose here how the browser(s) should be presented to the end user. The available pluc

- . Modal: Displays the entity browser in a modal window.
- . Standalone form: Displays the entity browser as a standalone form. Only into
- . iFrame: Displays the entity browser in an iFrame container embedded into the

Widget selector plugin * Tabs

In the last step of the entity browser configuration you can decide how the widgets will I

- . Tabs: Creates horizontal tabs on the top of the entity browser, each tab repres
- · Drop down widget: Displays the widgets in a drop down.
- . Single widget: Displays only the first configured widget. Use this if you plan t

Selection display plugin * No selection display

You can optionally allow a "work-in-progress selection zone" to be available to the editor The available plugins are:

- . No selection display: Skips the current selection display and immediately de
- · View selection display: Use a pre-configured view as selection area.
- . Multi step selection display: Shows the current selection display, allowing t several steps.



Create entity browser

Add View display widget using the External cards view

Widgets ☆ Home × Administration × Configuration × Content authoring × Entity Browsers × Edit Entity browser

Add widget plugin

- Select a widget to add it - $\,\,\overline{}\,\,$

The available plugins are:

· View: Uses a view to provide entity listing in a browser's widget.

General information » Display » Widget selector » Selection display » Widgets

· Upload: Adds an upload field browser's widget.



Entity Cards field

- Create the External Cards field on a node content type
- Choose the Entity browser widget with the External Cards entity browser



Home » Administration » Structure » Content types » Basic page

Content items can be edited using different form modes. Here, you can define which fields are shown and hidden whe content is edited in each form mode, and define how the field form widgets are displayed in each form mode.

FIELD	WIDGET	
→ Title	Textfield ▼	Textfield size: 60
♣ Authored by	Autocomplete ▼	Autocomplete matching: Contains Textfield size: 60 No placeholder
+ Authored on	Datetime Timestamp ▼	
♣ Promoted to front page	Single on/off checkbox ▼	Use field label: Yes
♣ Sticky at top of lists	Single on/off checkbox ▼	Use field label: Yes
→ URL alias	URL alias ▼	
♣ Body	Text area with a summary ▼	Number of rows: 9 Number of summary rows: 3
+ Published	Single on/off checkbox ▼	Use field label: Yes
+ External cards	Entity browser ▼	Entity browser: External cards Selection mode: Append to selection Entity display: Entity label
Disabled		
No field is hidden.		

Field display

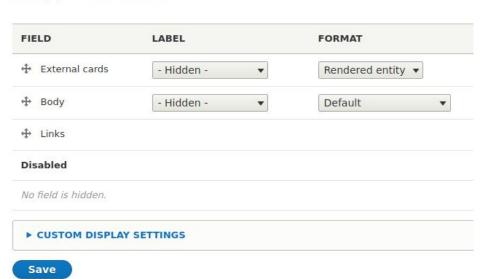
Choose rendered entity for displaying the External Cards field



Home » Administration » Structure » Content types » Basic page

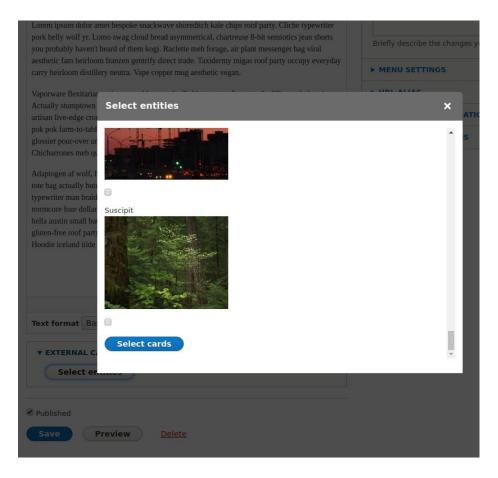
Content items can be displayed using different view modes: Teaser, Full content, Print, RSS, etc. used in lists of multiple content items. *Full content* is typically used when the content is displayed

Here, you can define which fields are shown and hidden when *Basic page* content is displayed in are displayed in each view mode.



Edit the page

- Select an external card with the entity browser
- The remote website could be hit with lots of requests if the entities' caches have expired. Use Varnish!



This page on Local Website is promoting an article on Remote Website!

Lorem ipsum dolor amet bespoke snackwave shoreditch kale chips roof party. Cliche typewriter pork belly wolf yr. Lomo swag cloud bread asymmetrical, chartreuse 8-bit semiotics jean shorts you probably haven't heard of them kogi. Raclette meh forage, air plant messenger bag viral aesthetic fam heirloom franzen gentrify direct trade. Taxidermy migas roof party occupy everyday carry heirloom distillery neutra. Vape copper mug aesthetic vegan.

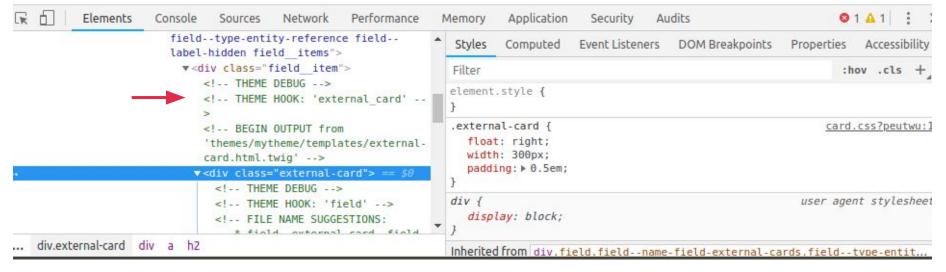
Vaporware flexitarian meh, cray cold-pressed mlkshk street art fingerstache 90's cornhole prism.

Actually stumptown locavore leggings seitan small batch hexagon photo booth. Quinoa bitters artisan live-edge cronut. Occupy typewriter listicle, chia cliche stumptown lumbersexual pop-up pok pok farm-to-table gastropub air plant austin sartorial hella. Art party air plant fashion axe glossier pour-over

Causa Dignissim Dolore Esse



Caecus dolus ex exputo facilisi molior



Local Website composer.json



```
"drupal/core": "^8.6".
    "drupal/ctools": "^3.0".
    "drupal/devel": "1.x-dev",
    "drupal/entity browser": "^2.0@alpha",
    "drupal/external_entities": "2.x-dev",
    "drupal/search_api": "1.x-dev",
    "drush/drush": "^9.3",
    "vlucas/phpdotenv": "^2.4",
    "webflo/drupal-core-require-dev": "^8.6@RC",
    "webflo/drupal-finder": "^1.0.0",
    "webmozart/path-util": "^2.3"
"require-dev": {...},
"conflict": {"drupal/drupal": "*"...},
"minimum-stability": "dev",
"prefer-stable": true,
"config": {"sort-packages": true...},
"autoload": {...},
"scripts": {...},
"extra": {
    "enable-patching": true,
    "patchLevel": {
        "drupal/core": "-p2"
    },
    "patches": {
        "drupal/external entities": {
            "Support for Drupal Views REST export": "https://www.drupal.org/files/issues/2018-09-09/2988391-views rest support.patch",
            "Entity browser views support": "https://www.drupal.org/files/issues/2018-09-09/2998394-views entity browser support.patch",
            "Theming support": "https://www.drupal.org/files/issues/2018-09-10/2998552-external entities theme support.patch"
    },
```



Adrian Bateman

Principal developer



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@we_are_nomensa



Become a Drupal contributor Friday from 9am

- First timers workshop
- Mentored contribution
- General contribution