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# Migrating to Drupal 8 as part of a website redesign

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Physicians  
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for Responsible Medicine



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The Physicians Committee is dedicated to saving and improving human and animal lives through **plant-based diets** and **ethical and effective scientific research**.

PhysiciansCommittee  
for Responsible Medicine

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# Overview

- Reasons for Redesign
- Migrate API
- Migrating Components
- Selecting Content
- Migrating News Articles

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# Reasons for Redesign

# Before Redesign

- Dated look and feel
- Information siloed and hard to find
- Limited flexibility when creating pages
- Not designed for mobile

The screenshot shows the website's layout with a top navigation bar containing a search box, links for HOME, ABOUT, EVENTS, and BLOG, and input fields for email address and zip/postal code, along with a DONATE button. A left sidebar lists categories like FOR PHYSICIANS, HEALTH AND NUTRITION, ETHICAL RESEARCH & EDUCATION, MEDIA CENTER, CLINICAL RESEARCH, EDUCATIONAL LITERATURE, MEMBERSHIP, and SHOP. Below this is a 'Become a MONTHLY DONOR TODAY!' banner and a 'Connect with Us' section with a Facebook link. Further down are banners for 'Comité de Médicos Recursos en ESPAÑOL', 'WAYS TO DONATE', 'PhysiciansCommittee ONLINE Sign up for FREE NEWS UPDATES', and 'Remembering Rodney Society WALL of APPRECIATION'. The main content area features two large featured articles: 'HEALTH and NUTRITION' with a 'BREAK UP WITH BACON' headline, and 'ETHICAL RESEARCH and EDUCATION' with a 'VICTORY! California Cruelty-Free Cosmetics Act Becomes Law' headline. Below these are several news items under the 'NEWS and FEATURES' section, including 'New In Vitro Alternative for Prosthesis Testing', 'California Gov. Brown Signs Cruelty-Free Cosmetics Act into Law', 'Human Gut Simulator: Diet and the Microbiome', 'Gov. Jerry Brown Makes Plant-Based Meals the Law in California Hospitals', and 'Heart Healthy Foods for Hospitals'. The footer includes social media icons, a disclaimer, and the organization's address: 5100 Wisconsin Ave., N.W., Ste. 400, Washington DC, 20016.

# After Redesign

- Modern look and feel
- Information integrated with clear navigation
- Component based design
- Mobile first design

The screenshot shows the website's header with the logo "Physicians Committee for Responsible Medicine" and navigation links for "For Clinicians", "For Medical Students", "For Scientists", and "About Us". A search bar and a "DONATE" button are also present. The main navigation menu includes "GOOD NUTRITION", "HEALTH TOPICS", "ETHICAL SCIENCE", "OUR RESEARCH", "NEWS", and "SUPPORT US".

The hero section features a large image of a hand holding a "COVID-19 Blood sample" vial, with the text: "Leading a revolution in medicine that puts a new focus on health and compassion." Below this, three news items are displayed:

- NEWS RELEASE:** Doctors Call on the U.S. to Follow China's Lead and Phase Out Live Animal Markets →
- EXAM ROOM PODCAST:** Identical Twins: One Goes Vegan, One Does Not →
- NEWS RELEASE:** Iowa Governor Targeted with Hard-Hitting Billboards →

A "Help Your Health" section includes a call to action: "Please support our mission to advocate for ethical research and education, end cruelty to animals in labs and classrooms, and promote lifesaving nutrition policies and practices." with a "Donate Now" button.

A video player titled "During COVID-19" is shown with a "Watch later" and "Share" option.

The footer features a "Facebook LIVE" event titled "THE EXAM ROOM live COVID-19 HEALTH UPDATE NOON ET" with a "Watch on Facebook" button.

# After Redesign

- Modern look and feel
- Information integrated with clear navigation
- Component based design
- Mobile first design

The screenshot displays the website's header with navigation links for 'Physicians Committee for Responsible Medicine', 'For Clinicians', 'For Medical Students', 'For Scientists', and 'About Us'. A search bar and a 'DONATE' button are also present. The main navigation menu includes 'GOOD NUTRITION', 'HEALTH TOPICS', 'ETHICAL SCIENCE', 'OUR RESEARCH', 'NEWS', and 'SUPPORT US'. The featured article is titled 'Protein' with the subtitle 'Power Up With Plant-Based Protein'. The article text discusses the benefits of a plant-based diet for protein intake, noting that whole grains, vegetables, and beans can meet daily needs without the risks of animal products. It also provides information on protein requirements and the risks of excessive animal protein consumption. Below the text is a section titled 'Plant-Based Protein Sources' featuring five items: Tofu, Broccoli, Chickpeas, Lentils, and Quinoa. Each item has a corresponding image and a 'HOW MUCH PROTEIN?' link. A final card promotes a 'Kickstart Kale and Grains Bowl' recipe with a 'RECIPE' link.

Physicians Committee  
for Responsible Medicine

For Clinicians For Medical Students For Scientists About Us

Search DONATE

GOOD NUTRITION HEALTH TOPICS ETHICAL SCIENCE OUR RESEARCH NEWS SUPPORT US

## Protein

Power Up With Plant-Based Protein

A varied plant-based diet of **whole grains**, **vegetables**, and **beans** can easily meet your daily protein needs, without the risks of animal products.

Protein—an important nutrient that helps build, maintain, and repair body tissue—is widely available in beans, vegetables, and grains. Protein deficiency is almost unheard of in the United States. It's easy to get all the protein you need without eating meat, dairy, or eggs.

An average woman needs about 46 grams of protein per day; the average man about 56. But most Americans consume about double the amount they actually need.

And when it comes to protein, more isn't always better. One study found that people eating large amounts of animal protein have 23 times the risk of death from diabetes and 5 times the risk of death from cancer as those consuming less protein. Foods rich in animal protein are often packed with saturated fat and cholesterol.

### Plant-Based Protein Sources

- Tofu**  
HOW MUCH PROTEIN?
- Broccoli**  
HOW MUCH PROTEIN?
- Chickpeas**  
HOW MUCH PROTEIN?
- Lentils**  
HOW MUCH PROTEIN?
- Quinoa**  
HOW MUCH PROTEIN?

**Try the Kickstart Kale and Grains Bowl**

Quinoa and black beans pack this bowl with protein.

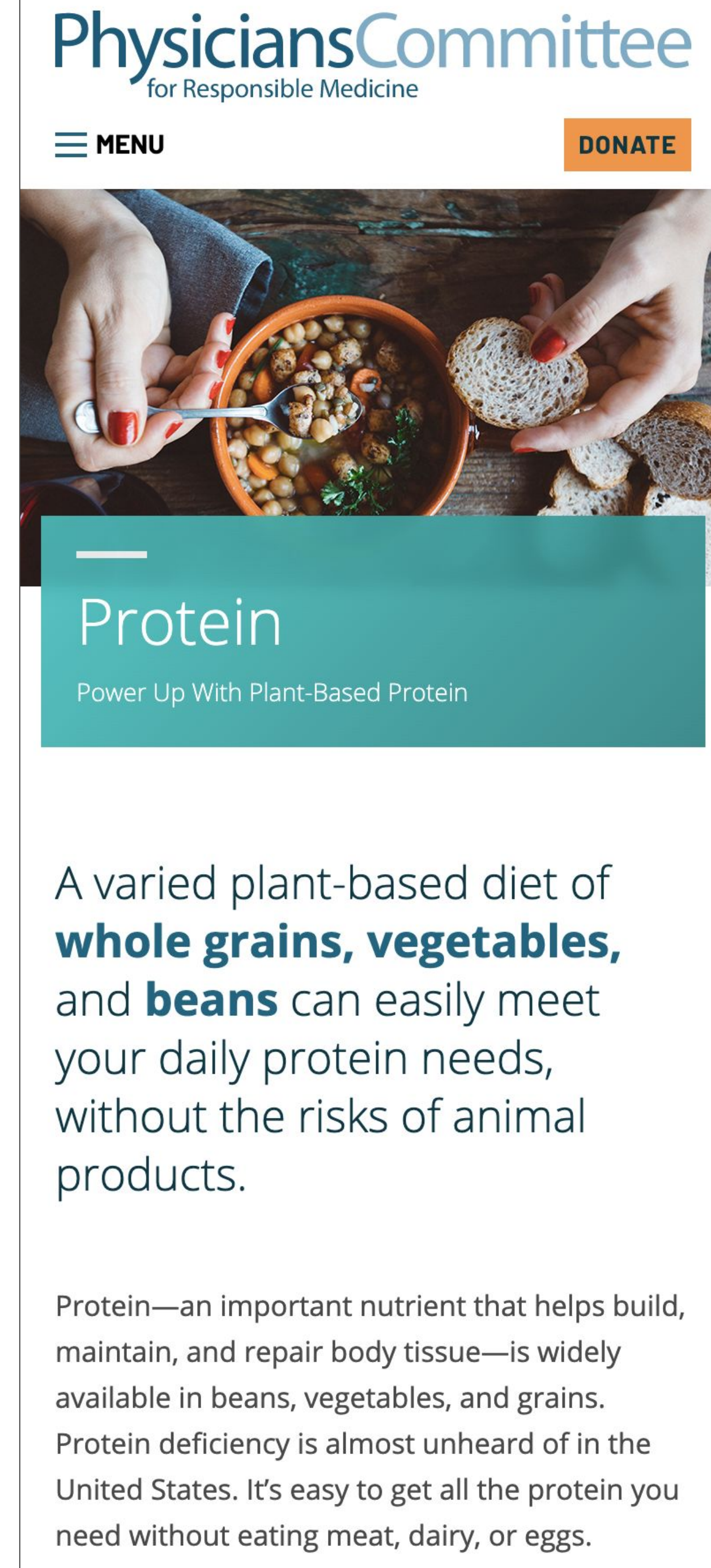
RECIPE →



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# After Redesign

- Modern look and feel
- Information integrated with clear navigation
- Component based design
- Mobile first design



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# Migration Challenges

Redesigns often involve changing the data structure of the website which means that data will need to be mapped from the old structure.

Redesigns also involve rewriting and reorganizing content which means only some content will need to be migrated from the old website.

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# Migrate API

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# Extract, Transform, Load (ETL)

Migration is an Extract, Transform, Load (ETL) process. In the Migrate API, the phases are referred to as the following:

- Source - extract phase
- Process - transform phase
- Destination - load phase

The phases are defined in YAML formatted migration definition files.

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# Migrate API Modules

## Core

- Migrate - provides framework for migrating content to Drupal 8/9.
- Migrate Drupal and Migrate Drupal UI - provides tools to upgrade from Drupal 6/7 to Drupal 8/9.

## Contributed

- Migrate Tools - provides drush and UI tools to manage custom migrations.
- Migrate Plus - allows migration plugins to be defined as configuration entities.

# Migration Definition File

- id with unique machine name
- label with description
- source
  - plugin examples: embedded\_data, csv, url
- process
  - plugin examples: get, concat, default\_value, file\_copy
- destination
  - plugin examples: entity:node, entity:taxonomy\_term, entity:file

```
id: custom_article_migration
label: 'Custom article migration'
source:
  plugin: embedded_data
  data_rows:
    -
      id: 1
      title: 'Page 1 title'
      content: '<p>Page 1 content</p>'
    -
      id: 2
      title: 'Page 2 title'
      content: '<p>Page 2 content</p>'
  ids:
    id:
      type: integer
process:
  nid: id
  title: title
  body: content
destination:
  plugin: entity:node
  default_bundle: article
```

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# Migrations in Code

- Changes are made to the migration definition file and are followed by a cache rebuild.
- Module directory structure:

```
|-- module_name  
    |-- module_name.info.yml  
    |-- migrations  
        |-- migrate_id.yml
```

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# Migrations in Configuration

- Changes can be made in the UI and are followed by a configuration synchronization.
- A uuid should be included in the migration definition file in addition to the id.
- Module directory structure:

```
|-- module_name
    |-- module_name.info.yml
    |-- config
        |-- install
            |-- migrate_plus.migration.migrate_id.yml
```



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# Executing Migrations

- Migrate Tools provides a UI for managing migrations at Administration > Structure > Migration.
- Migrate Tools also provides drush commands for managing migrations:

```
$ drush migrate:import migrate_id
```

```
$ drush migrate:status
```

```
$ drush migrate:rollback migrate_id
```

```
$ drush migrate:stop migrate_id
```

```
$ drush migrate:reset-status migrate_id
```

# Migrating Components

# Data Structure Before Redesign

- News content type
  - Body - long text field
  - Citations - long text field

- ▶ FOR PHYSICIANS
- ▶ HEALTH AND NUTRITION
- ▶ ETHICAL RESEARCH & EDUCATION
- ▶ MEDIA CENTER
- CLINICAL RESEARCH
- EDUCATIONAL LITERATURE
- MEMBERSHIP
- SHOP

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## BREAKING MEDICAL NEWS September 5, 2018

Whole Grains Help Protect Against Type 2 Diabetes  
September 5, 2018



Consumption of whole grains may help prevent type 2 diabetes, according to a study published in the *Journal of Nutrition*. Researchers investigated intake of different cereal types and type 2 diabetes risk in the Danish Diet, Cancer, and Health cohort. Daily intake of high-fiber whole grains, including rye bread, oatmeal, and whole-grain bread lowered risk for type 2 diabetes by up to 11 percent. The authors suggest dietary guidelines better promote whole grain intake across the population to curb high type 2 diabetes prevalence.

Kyrø C, Tjønneland A, Overvad K, Olsen A, Landberg R. Higher whole-grain intake is associated with lower risk of type 2 diabetes among middle-aged men and women: the Danish Diet, Cancer, and Health Cohort. *J Nutr.* 2018;148:1434-1444.

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Breaking Medical News is a service of the Physicians Committee for Responsible Medicine, 5100 Wisconsin Ave., Ste. 400, Washington, DC 20016, 202-686-2210. Join the Physicians Committee and receive the quarterly magazine, *Good Medicine*.



- Breaking Medical News Topics:**
- cancer (153)
  - heart disease (139)
  - diabetes (116)
  - type 2 diabetes (104)
  - vegetable (81)
  - vegan (78)
  - women's health (75)
  - obesity (71)
  - fruit (69)
  - cholesterol (67)
- [View All Topics](#)

- Breaking Medical News Archive:**
- 2018 (50)
  - 2017 (69)
  - 2016 (82)
  - 2015 (80)
  - 2014 (71)
  - 2013 (67)
  - 2012 (33)
  - 2011 (16)
  - 2010 (36)
  - 2009 (27)
  - 2008 (21)
  - 2007 (18)
  - 2006 (21)
  - 2005 (13)
  - 2004 (8)
  - 2003 (11)
  - 2002 (9)



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Physicians Committee  
5100 Wisconsin Ave., N.W., Ste.400, Washington DC, 20016  
Phone: 202-686-2210 Email: [pcrm@pcrm.org](mailto:pcrm@pcrm.org)

# Data Structure After Redesign

- News content type
  - Components - entity reference revisions (paragraphs) field
    - Rich Text paragraph
      - Rich Text Content - text (formatted, long) field
    - References paragraph
      - Rich Text Content - text (formatted, long) field

HEALTH AND NUTRITION NEWS | Sep 5, 2018

## Whole Grains Help Protect Against Type 2 Diabetes



Consumption of whole grains may help prevent type 2 diabetes, according to a study published in the *Journal of Nutrition*. Researchers investigated intake of different cereal types and type 2 diabetes risk in the Danish Diet, Cancer, and Health cohort. Daily intake of high-fiber whole grains, including rye bread, oatmeal, and whole-grain bread lowered risk for type 2 diabetes by up to 11 percent. The authors suggest dietary guidelines better promote whole grain intake across the population to curb high type 2 diabetes prevalence.

### References

1. Kyro C, Tjønneland A, Overvad K, Olsen A, Landberg R. Higher whole-grain intake is associated with lower risk of type 2 diabetes among middle-aged men and women: the Danish Diet, Cancer, and Health Cohort. *J Nutr*. 2018;148:1434-1444.

[Subscribe to the Physicians Committee's Breaking Medical News.](#)

### More on Diabetes



RESOURCE  
Diabetes →



HEALTH AND NUTRITION NEWS  
Plant-Based Diets Lower Risk for  
Gestational Diabetes →



HEALTH AND NUTRITION NEWS  
Out-of-Control Diabetes  
Increases COVID-19 Death  
Risk →

# Migrating the Paragraphs

- process
  - field\_rich\_text\_content is the name of a field in the rich\_text paragraph.
  - field\_rich\_text\_content is formatted text, so has value and format subfields.
- destination
  - Use entity\_reference\_revisions:paragraph plugin since it matches components field.
  - Use default\_bundle to specify the paragraph type.

```
uuid: d00aa67c-1d29-44ea-ba74-b527fd400bef
id: news_paragraphs
label: Import paragraphs for news nodes
source:
  plugin: news_nodes
  key: drupal_7
process:
  field_rich_text_content/value: body_value
  field_rich_text_content/format: body_format
destination:
  plugin: entity_reference_revisions:paragraph
  default_bundle: rich_text
```

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# Dependencies

- The migration\_lookup process plugin is used to lookup a value from a previous migration.
- The migration\_dependencies section is added to the migration definition file to explicitly set the migrations that need to be run before the current migration.

```
migration_dependencies:  
  required:  
    - news_paragraphs  
    - news_reference_paragraphs
```

# Constants and Pseudo fields

- Constants are set in the source section and store constant values.
- Pseudo fields are set in the process section and temporarily store data for use later in the process section.

```
source:
  constants:
    FILE_DEST_PATH: 'public://2020-07'
process:
  file_dest:
    plugin: concat
    delimiter: /
    source:
      - constants/FILE_DEST_PATH
      - filename
  uri:
    plugin: file_copy
    source:
      - url
      - '@file_dest'
```

---

# Migrating the Nodes

- The temp\_text and temp\_references pseudo fields lookup paragraphs associated with the nid and store the result.
- For paragraphs, the result is an array with the entity id and entity revision id.
- The sub\_process plugin iterates over each result and assigns the element with index 0 to target\_id and the element with index 1 to target\_revision\_id in the components field.

```
process:
  title: title
  created: created
  temp_text:
    plugin: migration_lookup
    migration: news_paragraphs
    source: nid
  temp_references:
    plugin: migration_lookup
    migration: news_references_paragraphs
    source: nid
  field_components:
    plugin: sub_process
    source:
      - '@temp_text'
      - '@temp_references'
  process:
    target_id: '0'
    target_revision_id: '1'
```



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# Selecting Content

# News Articles Before Redesign

- News content type contained three types of news articles:
  - Breaking Medical News
  - Breaking Research News
  - News Releases
- The category text field indicated the type of news article.
- All Breaking Medical News and Breaking Research News articles were migrated, but only News Releases since 2016 were migrated.

The screenshot shows the website header with the logo 'PhysiciansCommittee for Responsible Medicine' and navigation links: HOME | ABOUT | EVENTS | BLOG. There are search and donation buttons. A sidebar on the left lists categories: FOR PHYSICIANS, HEALTH AND NUTRITION, ETHICAL RESEARCH & EDUCATION, MEDIA CENTER, CLINICAL RESEARCH, EDUCATIONAL LITERATURE, MEMBERSHIP, and SHOP. The main content area features a news release dated September 28, 2018, with a yellow banner. The article title is 'California Gov. Brown Signs Cruelty-Free Cosmetics Act into Law'. Below the title is a graphic with two rabbits and the text 'VICTORY! California Cruelty-Free Cosmetics Act Signed into Law'. The article text begins with 'SACRAMENTO—The Physicians Committee applauds California Gov. Jerry Brown for signing Senate Bill 1249, the California Cruelty-Free Cosmetics Act, into law on Fri., Sept. 28.' It continues with a quote from Sen. Cathleen Galgiani and a paragraph about the bill's passage. The article also includes a quote from Kristie Sullivan, M.P.H., and a quote from Judie Mancuso, founder of Social Compassion in Legislation. The article concludes with a statement about the bill's impact on animal testing in cosmetics. A 'Connect with Us' section at the bottom left of the article area provides social media links for Facebook and Twitter. On the right side of the article, there is a 'Media Contact' section for Reina Pohl, M.P.H., and a 'News Release Topics' section listing various categories and their counts. A 'News Release Archive' section at the bottom right shows the number of releases for each year from 2015 to 2018.



# Custom SQL Source Plugin

- PHP plugin is placed in the custom module's src/Plugin/migrate/source subdirectory.
- @MigrateSource annotation includes id, which is the source plugin name in the migration definition file.
- Plugin extends the SqlBase class provided by the core Migrate module.
- Plugin must implement the methods query(), fields(), getIds(). prepareRow() is optional.

```
namespace
Drupal\migrate_news\Plugin\migrate\source;

use
Drupal\migrate\Plugin\migrate\source\SqlBase;

use Drupal\migrate\Row;

use Drupal\Core\DateTime\DrupalDateTime;

/**
 * @MigrateSource(
 *   id = "news_nodes",
 *   source_module = "migrate_news",
 * )
 */
class NewsNodes extends SqlBase {

// query(), fields(), getIds(), prepareRow()

}
```

# query() method

- The query() method builds a query using the Database API.
- select() queries nid, title, and created from the node table.
- The body, category, and citations fields are each contained in their own tables, which are joined to the query with leftJoin().
- addField() adds the fields field\_category\_value and field\_citations\_value to the query and creates aliases for those fields.

```
public function query() {
    $query = $this->select('node', 'n')
        ->fields('n', ['nid', 'title', 'created'])
        ->condition('n.type', 'news')
        ->condition('n.status', '1');
    $query->leftJoin('field_data_body',
        'b', 'n.nid = b.entity_id');
    $query->fields('b',
        ['body_value', 'body_format']);
    $query->leftJoin(
        'field_data_field_category',
        'c', 'n.nid = c.entity_id');
    $query->addField('c',
        'field_category_value', 'category');
    $query->leftJoin(
        'field_data_field_citations',
        'd', 'n.nid = d.entity_id');
    $query->addField('d',
        'field_citations_value', 'citations');
    return $query;
}
```

# fields() and getIds() methods

- fields() method returns the source fields.
- The fields are set to the column names or aliases returned by the query.
- getIds() method returns the source fields that uniquely identify the source row.
- Since the getIds() method specifies the IDs, they do not need to be included in the source section of the migration definition file.

```
public function fields() {
    $fields = [
        'nid' => $this->t('nid'),
        'title' => $this->t('title'),
        'created' => $this->t('created'),
        'body_value' => $this->t('body_value'),
        'body_format' => $this->t('body_format'),
        'category' => $this->t('category'),
        'citations' => $this->t('citations'),
    ];
    return $fields;
}

public function getIds() {
    return [
        'nid' => [
            'type' => 'integer',
            'alias' => 'n',
        ],
    ];
}
```

# prepareRow() method

- The prepareRow() method is optional, but can be used to modify the source data.
- The example uses this method to skip News Releases before 2016.
- The category and created date from the source are used to determine if the row is a News Release with a created date older than January 1, 2016. If so, FALSE is returned to skip the row.

```
public function prepareRow(Row $row) {
    $category =
        $row->getSourceProperty('category');
    $created =
        $row->getSourceProperty('created');
    // Skip news releases older than 2016
    if ($category == 'News Release') {
        $date = new DrupalDateTime(
            '2016-01-01T00:00:00', 'UTC'
        );
        $timestamp = $date->getTimestamp();
        if ($created < $timestamp) {
            return FALSE;
        }
    }
    return parent::prepareRow($row);
}
```

# Source Database Connection

- Drupal's Database API allows multiple database connections to be defined.
- The database connections are defined in settings.php.
- The first key in \$databases is the name of the database connection. The name is included in the source section of the migration definition file as the key.

```
$secretsFile = '/files/private/secrets.json';

if (file_exists($secretsFile)) {
    $secrets =
        json_decode(
            file_get_contents($secretsFile), 1
        );
}

$databases['drupal_7']['default'] = array (
    'database' => $secrets['base'],
    'username' => $secrets['user'],
    'password' => $secrets['pass'],
    'host' => $secrets['host'],
    'port' => $secrets['port'],
    'driver' => 'mysql',
);
```

—

# Migrating News Articles



# migrate\_news module

```
|-- migrate_news
  |-- migrate_news.info.yml
  |-- config
    |-- install
      |-- migrate_plus.migration.news_paragraphs.yml
      |-- migrate_plus.migration.news_reference_paragraphs.yml
      |-- migrate_plus.migration.news.yml
  |-- src
    |-- Plugin
      |-- migrate
        |-- source
          |-- NewsNodes.php
```

---

# Executing News Article Migration

```
$ drush migrate:import news_paragraphs
$ drush migrate:import news_reference_paragraphs
$ drush migrate:import news
$ drush migrate:status
$ drush migrate:rollback news
$ drush config:import --partial --source="migrate_news/config/install"
$ drush migrate:import news
```

---

# Other Challenges

- A featured image was part of the body content of the news articles on the old website. The images needed to be removed from the body content and migrated to a new media entity reference field on the new website.
- The prepareRow() method in the custom SQL source plugin was used to extract the image from the body content, then the image URL and the modified body content were added to the row with the setSourceProperty() method.

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# Other Challenges

- To migrate the images to media entity reference fields, the images must be media entities. This migration required three steps:
  - Copy the images to the new website and migrate them as file entities.
  - Use the first migration to migrate the file entities as media entities.
  - Use the second migration to reference the media entities in the media entity reference field.

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# Conclusion

Migrating as part of a redesign provides unique challenges that can be solved by creating a custom migration.

The Migrate API and the Migrate Tools and Migrate Plus contributed modules provide tools that allow you to customize a migration for the unique needs of your redesign.

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# Resources

- <https://www.drupal.org/docs/drupal-apis/migrate-api>
- <https://www.drupal.org/docs/upgrading-drupal/drupal-8-migrate-modules>
- <https://understanddrupal.com/31-days-of-migrations>

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# Thank You!

- Please complete the evaluation at

<https://www.surveymonkey.com/r/DCGlobal20SessionEval?title=MigratingD8&id=30504>

- Slides will be available at @karen11dev on Twitter.
- Questions?