

Acquia

EXPERIENCE DIGITAL FREEDOM

ULTIMATE GUIDE TO DRUPAL 9



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Drupal 9: What It Is and What It Isn't

On June 3, 2020, Drupal 9 was released. Built mostly in Drupal 8, Drupal 9 offers users a nearly identical experience. Drupal contributors used this opportunity to clean up the codebase and ensure Drupal continues to use supported versions of external dependencies.

Drupal 9 aims to keep the Drupal platform safe and its code up to date. This version revises some third-party dependencies, which include Symfony 3 and Twig 1, and also removes deprecated solutions — such as most of the jQuery UI — from Drupal core.



Organizations using Drupal 7 and Drupal 8 will want to upgrade to Drupal 9 for various reasons, but among the greatest is continued support. Community support for both 7 and 8 will end in November 2021. (Support is ending for Drupal 8 due to its dependence on Symfony 3, which will reach end of life in November 2021.)

Drupal 9 hasn't included any new features upon its initial release, but it does provide a leaner, more secure system with APIs that are easier to work with. These changes will be most noticeable to developers. Future releases of Drupal 9 will continue to feature additions and improvements along the six-month release timeline that has been established with Drupal 8.

The bottom line for Drupal 9, according to project lead Dries Buytaert, is this: "The big deal about Drupal 9 is ... that it shouldn't be a big deal."



SECTION 02

**From Drupal 8 to Drupal 9:
An Evolution**



Drupal 8 to Drupal 9: An Evolution

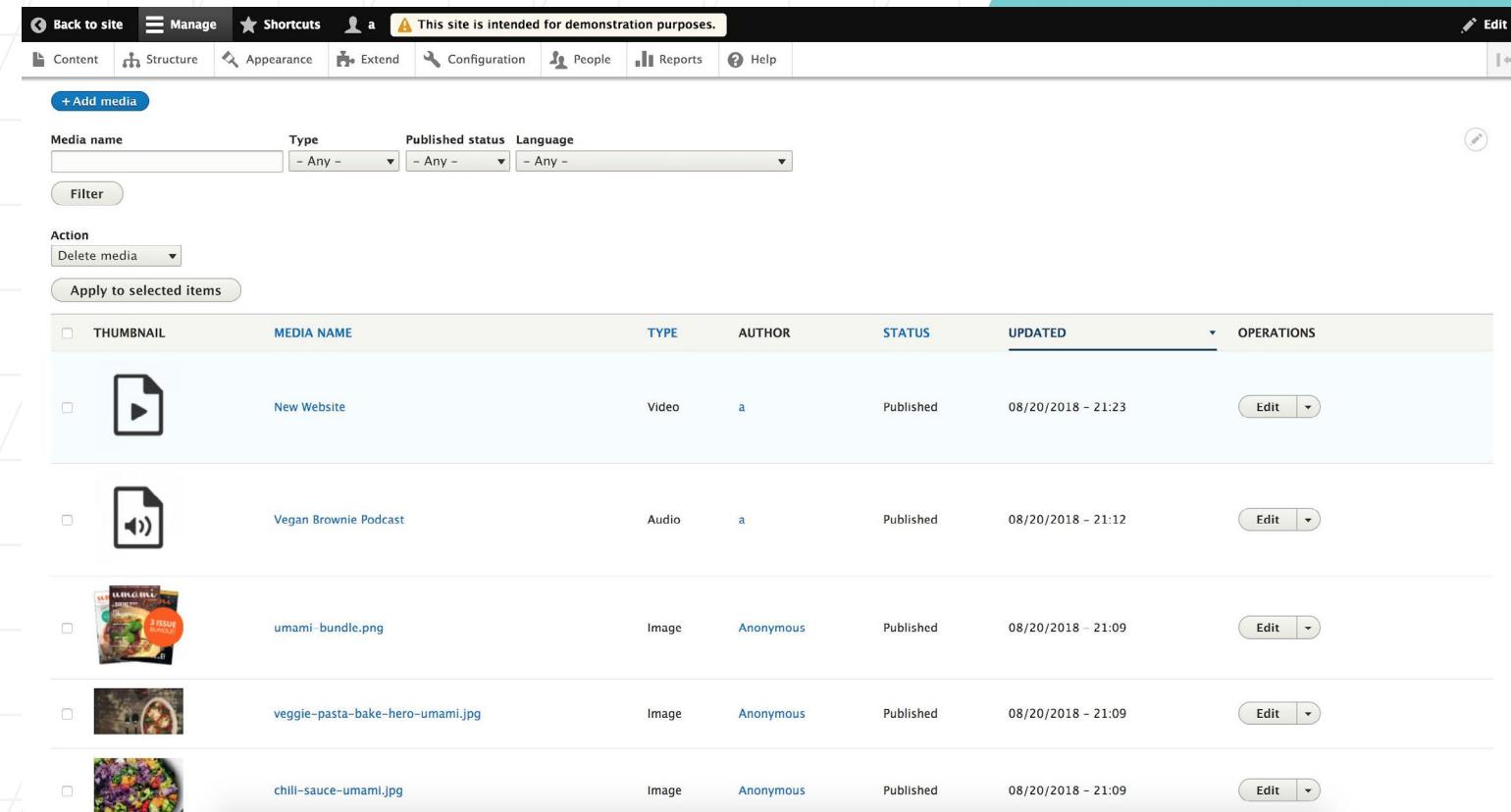
The next stage in Drupal's evolution, Drupal 9 was built in Drupal 8. This means that all the functionality and upgrades that made Drupal 8 powerful are still there in Drupal 9.

Here's a quick overview of this functionality:

Richer Media Management

Drupal has long supported images and generic files, but 9 expands on this functionality with a generic Media field supporting local audio, video, images and additional files.

This iteration of Drupal also gives users the ability to embed remote content such as YouTube and Vimeo videos. Additionally, it features a Media Library module that allows users to, for example, add existing media assets.



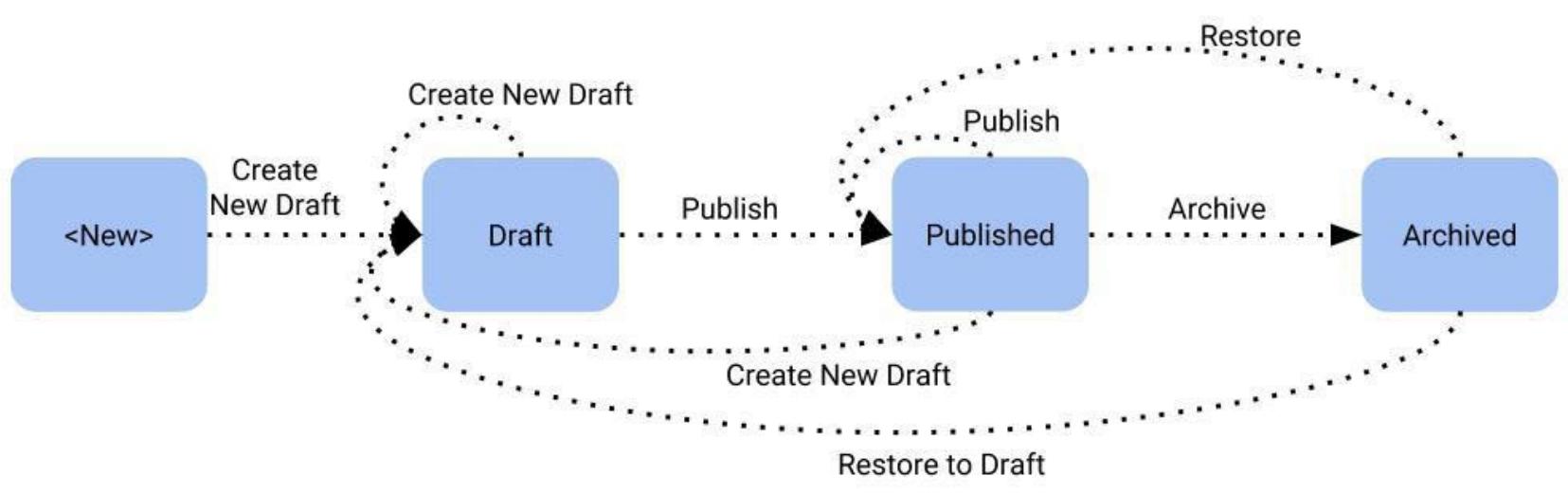
The screenshot shows the Drupal Media Library interface. At the top, there is a navigation bar with links for Back to site, Manage, Shortcuts, and Help. A warning message states: "This site is intended for demonstration purposes." Below the navigation, there are search and filter fields for Media name, Type, Published status, and Language. An "Action" dropdown is set to "Delete media". There is also a "Filter" button. A "Apply to selected items" button is present. The main area displays a table of media items with columns: THUMBNAIL, MEDIA NAME, TYPE, AUTHOR, STATUS, UPDATED, and OPERATIONS. The table contains five rows:

THUMBNAIL	MEDIA NAME	TYPE	AUTHOR	STATUS	UPDATED	OPERATIONS
	New Website	Video	a	Published	08/20/2018 - 21:23	<button>Edit</button>
	Vegan Brownie Podcast	Audio	a	Published	08/20/2018 - 21:12	<button>Edit</button>
	umami-bundle.png	Image	Anonymous	Published	08/20/2018 - 21:09	<button>Edit</button>
	veggie-pasta-bake-hero-umami.jpg	Image	Anonymous	Published	08/20/2018 - 21:09	<button>Edit</button>
	chili-sauce-umami.jpg	Image	Anonymous	Published	08/20/2018 - 21:09	<button>Edit</button>

Content Workflow

The Workflows module allows you to define multiple workflows, show their states and the transitions allowed between them. The Content Moderation module allows users to create content revisions that are not live yet, but have received updates since the last version.

Finally, a promising experimental feature that is still under development, Workspaces, allows for staging and publishing multiple content changes (article text, sidebar blocks, menu entries and so on) at once and previewing how they will look in their entirety. You can even prepare site content around multiple “scenarios,” such as election results or Oscar winners, publishing the appropriate version when the time comes.



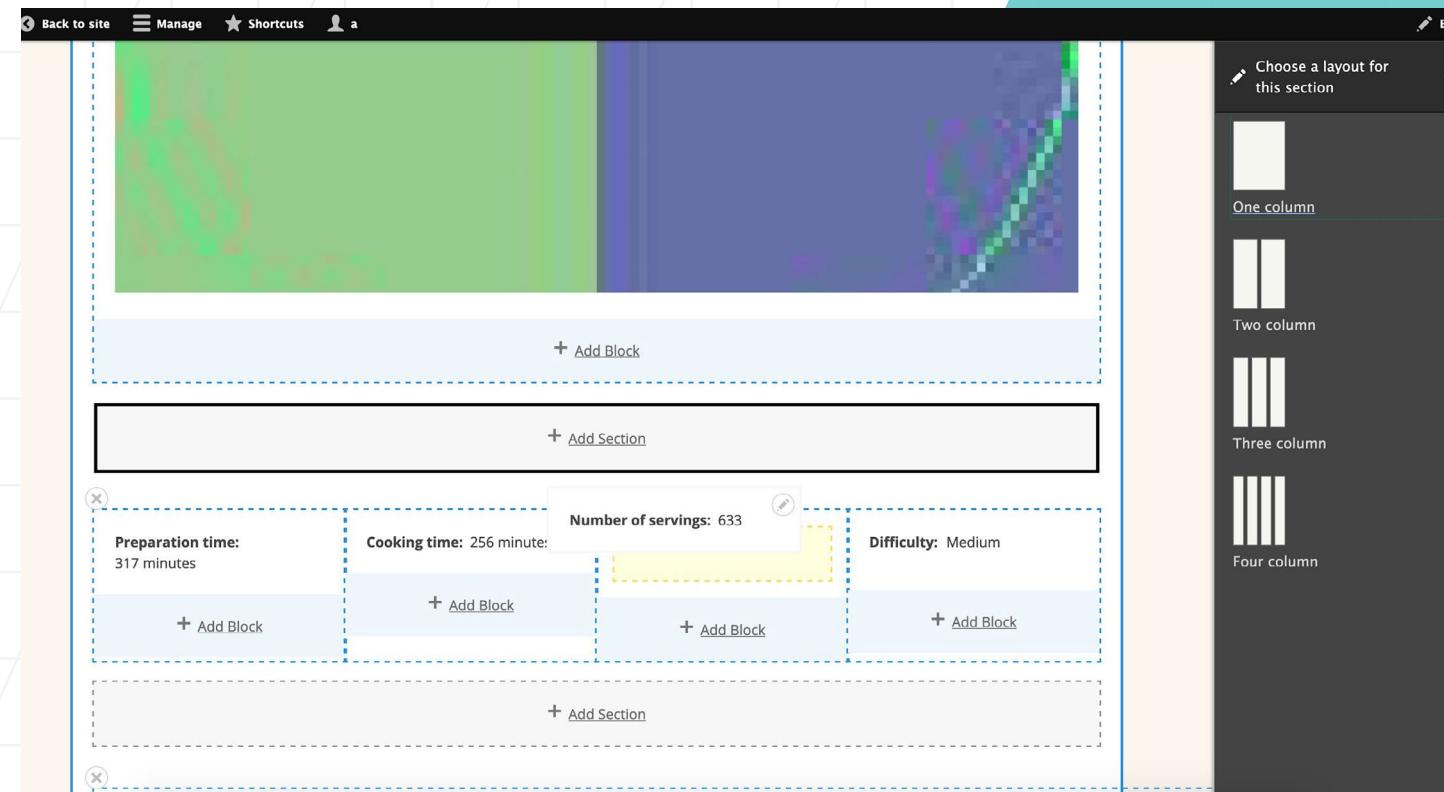
Layout Builder

The Layout Builder core module provides layout capabilities for content. Layout Builder is unique in offering a single, powerful visual design tool for the following three use cases:

- Layouts for templated content
- Customization for templated layouts
- Custom pages

BigPipe

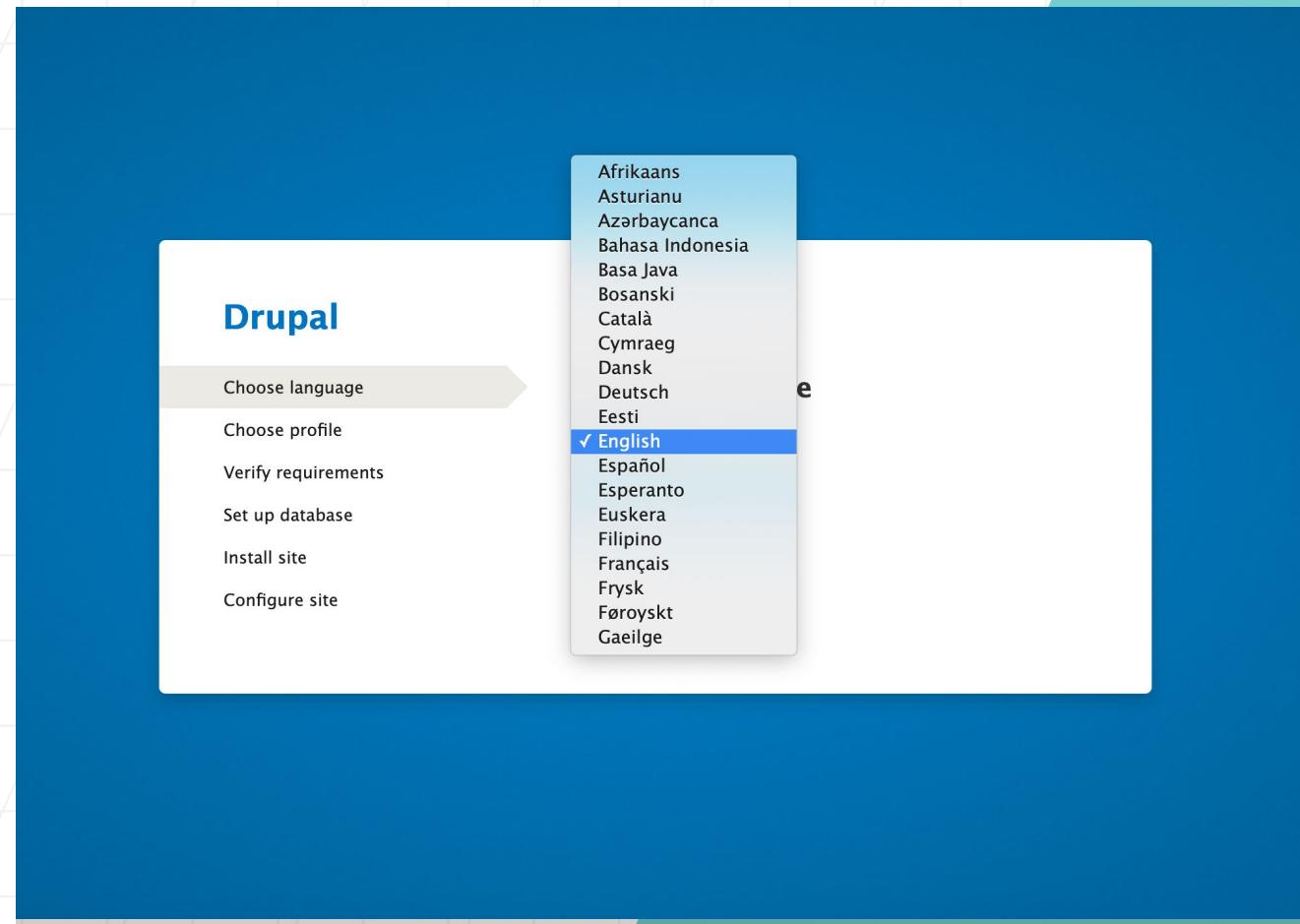
BigPipe, a module that increases page view performance by sending the main “content” area of a page while sidebars and other auxiliary content are still being generated, is another feature that Drupal users can enjoy.



Multilingual Capabilities

Drupal comes with no fewer than four modules for language support, each with a different role. These modules have enabled the following capabilities:

- The ability to install Drupal in 100 foreign languages from the get-go
- Translation for content items, such as nodes, taxonomy terms, menu items and user profiles
- Configuration translation, providing an interface to translate website configuration to multiple languages



Mobile Experience

The newest versions of Drupal have been designed with mobile in mind, from the installer to the modules page. To support the innumerable array of internet-enabled devices that are available, Drupal incorporates responsive design into all of its functionality.

Drupal sports a responsive administrative toolbar that automatically expands and orients itself horizontally on wide screens and collapses down to icons and orients itself vertically on smaller screens.

Data entry in Drupal is seamless thanks to HTML5 form elements that provide targeted user interfaces on mobile devices for fields such as date/time, phone numbers and email addresses.

The screenshot shows the Drupal 8 User administration interface. At the top, there's a navigation bar with links for Back to site, Manage, Shortcuts, admin, and a warning message: "This site is intended for demonstration purposes." Below the navigation is a breadcrumb trail: Home > Administration. A prominent button "+ Add user" is located above a search/filter section. The main area contains a table with columns: USERNAME, STATUS, ROLES, and MEMBER FOR. The table lists several users: Samuel Adamson (Active, Author), Umami (Active, Author), Megan Collins ... (Active, Author), Holly Foad (Active, Author), Grace Hamilton (Active, Editor), Margaret Hopper (Active, Editor), and admin (Active, Administrator). On the right side of the table, there's a sidebar with a dropdown menu "Action" set to "Add the Administrator role to the selected user(s)" and a button "Apply to selected items". The sidebar also includes a "Show all columns" link and a table of user roles with edit buttons. The entire interface is displayed within a browser window showing an iPhone 6/7/8 screen with dimensions 375 x 667 at 100% zoom.

USERNAME	STATUS	ROLES	MEMBER FOR
Samuel Adamson	Active	• Author	4 minutes 35 seconds
Umami	Active	• Author	4 minutes 35 seconds
Megan Collins ...	Active	• Author	4 minutes 35 seconds
Holly Foad	Active	• Author	4 minutes 35 seconds
Grace Hamilton	Active	• Editor	4 minutes 35 seconds
Margaret Hopper	Active	• Editor	4 minutes 35 seconds
admin	Active	• Administrator	5 minutes 43 seconds

Building and Managing Your Site

Drupal also features a range of tools focused on site creation and management:

Views in Core

The Views module, a query-builder UI used for creating dynamic content listings in a variety of formats, is part of Drupal and is now more tightly integrated than ever before, allowing for improved content fetching from website databases, which it can then display in any format or language.

Organizing Pages with Blocks

Most page elements are displayed through blocks, including breadcrumbs, site name and slogan. This makes it easy to adjust page organization in the user interface and enables in-place editing and Settings Tray compatibility.

The Settings Tray allows for changing the most common configurations simply on the front end, which eliminates the need for going back and forth to the back end to make visual changes. Blocks can also be reused, both through Settings Tray and Layout Builder.

The screenshot shows the Drupal Content management interface. On the left, there's a sidebar with 'Content' (selected), 'Files', and 'Media'. Below that are 'Overview' and 'Moderated content' tabs. The main area has a search bar and filters for 'Title', 'Content type', 'Published status', and 'Language'. An 'Add content' button is visible. A table lists four articles: 'Give it a go and grow your own herbs' (Article, Holly Foe, Published, 09/25/2018 - 13:12), 'Fiery chilli sauce' (Recipe, Umami, Published, 09/25/2018 - 13:12), 'Crema catalana' (Article, Holly Foe, Published, 09/25/2018 - 13:12), and 'Thai green' (Article, Holly Foe, Published, 09/25/2018 - 13:12). To the right, a preview of a recipe card for 'Fiery chili sauce' is shown with a thumbnail of colorful vegetables, the title, a 'VIEW ARTICLE >' link, and a 'VIEW RECIPE >' link. The background of the preview card contains some code snippets related to the recipe's configuration.

Structured Content

Drupal is built on the foundation of structured data management. Content, user profiles and comments are examples of Entities. You can add fields to all entities, including references to other entities. Drupal 9 ships with a wide range of available fields, including phone, email, date and time.

View Modes and Form Modes

Once you set up your entities with fields, “view modes” allow for creating multiple display options for content in different contexts, for example, showing a thumbnail image on your content’s teaser view and a full-size image on the default view.

“Form modes” make it easy to create data-entry forms; these components allow for greater flexibility with more general purpose components.

Manage form display ★

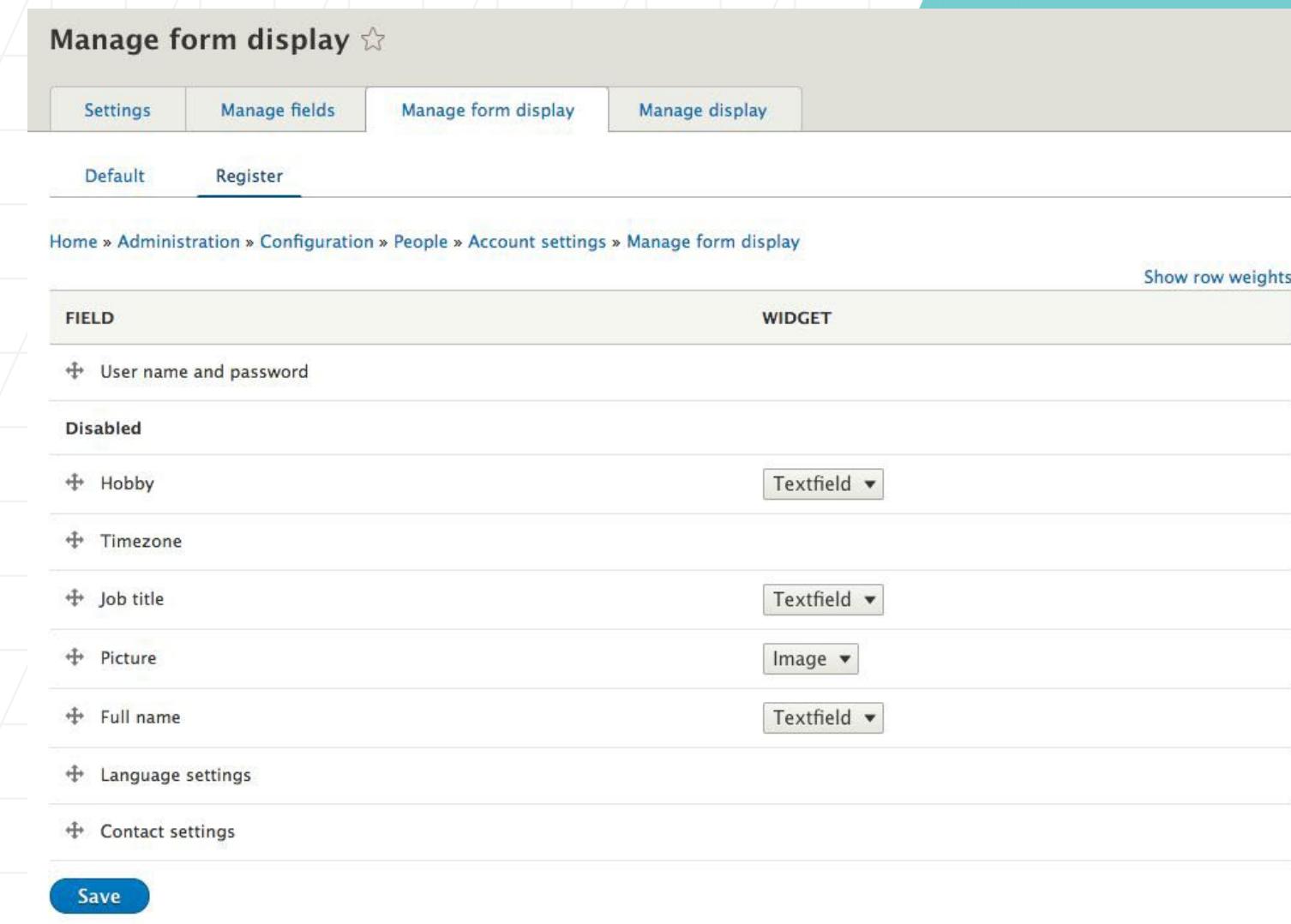
Settings Manage fields Manage form display **Manage display**

Default Register

Home » Administration » Configuration » People » Account settings » Manage form display Show row weights

FIELD	WIDGET
⊕ User name and password	
Disabled	
⊕ Hobby	Textfield ▾
⊕ Timezone	
⊕ Job title	Textfield ▾
⊕ Picture	Image ▾
⊕ Full name	Textfield ▾
⊕ Language settings	
⊕ Contact settings	

Save



Migration

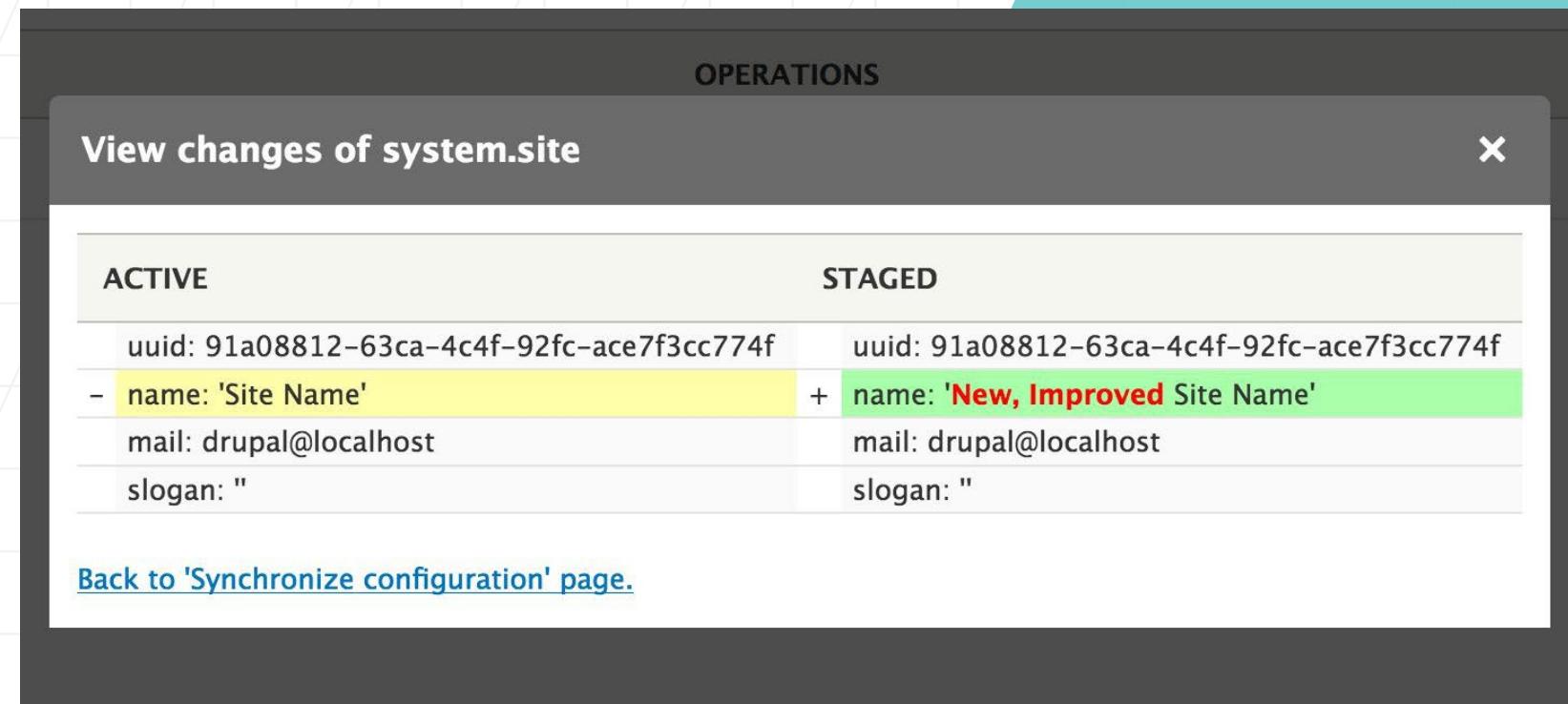
Drupal core has built-in support for migrating data to the system from third-party systems (e.g., WordPress), as well as specific solutions built to facilitate migration from Drupal 6 and 7 to Drupal 8 and 9.

Configuration Management System

This system allows sites that are following the best practice of having “development,” “staging” and “production” environments to seamlessly move configurations from one environment to another.

Headless Support

Drupal ships with an implementation of the JSON:API specification, allowing for the use of Drupal as a central content store on a decoupled front end (mobile application, JavaScript framework, etc.).



Front-End Developer Experience

Drupal contains many improvements for front-end developers, including HTML5, additional helper libraries, accessibility enhancements, enhanced base themes, UI elements and improved performance.

Back-End Developer Experience

Drupal offers numerous back-end developer improvements, including object-oriented code, improved caching, better integration with third-party services and extensive built-in web services features.



Drupal 8 to Drupal 9: What's New

As mentioned, Drupal 9 features all the Drupal 8 functionality described above.

Of course, Drupal 9 is also an evolutionary advancement over Drupal 8. Here's what's new:

1. Drupal 9 relies on Symfony 4 and requires at least PHP 7.3, leading to improved security and stability.
2. Drupal 9 moves from Twig 1 to Twig 2.
3. CKEditor 4 stays around in Drupal 9.0. However, CKEditor 5 support is planned to be added later in Drupal 9.x, at which point CKEditor 4 will be deprecated for removal in Drupal 10.
4. Drupal 9 still relies on jQuery itself, but most jQuery UI components will be removed from core.
5. Database version requirements have been increased for all supported database backends within Drupal 9.

Why Not Symfony 5?

Some members of the Drupal community have asked why Drupal 9 was built on Symfony 4 rather than Symfony 5. This has to do with Symfony's release process. Minor releases of Symfony are not supported as long as minor releases of Drupal; the long-term support version of Symfony 5, version 5.4, won't be released until November 2021, missing Drupal 9's development cycle by a considerable amount of time.

SECTION 03

Preparing for Drupal 9



Preparing for Drupal 9

In the last decade, upgrading from one major version of Drupal to another involved so many changes that it often required a complete site rebuild. With the introduction of Drupal 8, that has changed and upgrading has been radically streamlined.

What will you need to do to prepare for an upgrade to Drupal 9?



For Drupal 8 Users

Upgrading to Drupal 9 is relatively straightforward

First, make sure your environment is compatible with the requirements for Drupal 9. The key things to note here are that Drupal 9 requires PHP 7.3 or higher and that version requirements have been raised for MySQL (at least to 5.7), MariaDB (at least to 10.2), PostgreSQL (to 9.6) and SQLite (to 3.26). Also, for those using [Drush](#), only Drush 10 is compatible with Drupal 9.

Next, update Drupal core to the latest version. Drupal 8's last minor release (8.9.0) became Drupal 9. You should also remove any dependencies you are not using at this time.

Make sure all your contributed modules are up to date (we'll address custom modules below); beginning with Drupal 8.7.7, it is possible for modules to be compatible with both Drupal 8 and 9 at the same time. In other words, you can update modules to their latest versions on Drupal 8 and still have a fully working site with modules that are already Drupal 9 compatible as well. You can also use [Acquia's Drupal 9 Deprecation Status](#) page to quickly search for the Drupal 9 readiness status of contributed modules and find related issues and patches.



Upgrade Tools

To ensure you are using the most current versions of contributed modules, you should install and enable the [Upgrade Status Module](#) or use the [Drupal Check](#) tool. As of this writing, Upgrade Status has additional code coverage, which includes .info.yml files and Twig deprecated syntax detection. Run either to scan your contributed modules for compatibility issues and uses of deprecated code. If uncommitted patches are already available, you can use [cweagans/composer-patches](#) to apply patches to contributed modules where necessary and provide feedback to the patch authors and module maintainers about your experience with them.

Use the same tools to analyze your custom modules and themes. Fixing problems found by these tools will result in code that is both Drupal 8 and Drupal 9 compatible.

Of course, fixing problems manually is not your only option. You can, instead, use [drupal-rector](#) directly or the [Upgrade Rector](#) user interface to generate patches that address compatibility issues. As of this writing, a limited number of transformations are available in drupal-rector that help with getting some deprecated API uses removed automatically.



At this point, your environment is suitable for Drupal 9 and all contributed projects have been updated to Drupal 9 compatible versions; your custom modules and themes have also been updated to be Drupal 9 compatible. However, you still have a fully operational Drupal 8 site you could run as is.

The final step, then, is to update Drupal core itself to Drupal 9 and run update.php.

Congratulations — you should now be fully migrated to the new version of Drupal!



You should find that the time it takes to upgrade is remarkably shorter than any major Drupal updates you have done in the past decade.

For Drupal 7 Users

Migrating from Drupal 7 to Drupal 9 will require a rebuild. However, there are numerous tools available that can get the right code in place and avoid migration challenges. These tools include:

[**Upgrade Status \(Drupal 7 version\)**](#) - to find out whether the contributed modules you use have Drupal 8/9 versions or replacements.

[**Drupal Module Upgrader**](#) - to generate changes for custom code, enabling Drupal 8/9 compatibility.

[**Core Migrate Suite**](#) - to move content, even supporting Drupal 6 data sources.

Additionally, there are a number of community add-ons aggregated in the [**Migrate Tools**](#) and [**Migrate Plus**](#) project, not to mention a suite of command line tools (such as Drush) that help streamline development.

For more information on migrations, we recommend you check out our ebook, [**Migrating to Drupal 8: It's Time**](#).

If you are not ready to upgrade to Drupal 9 and need longer-term support for your Drupal 7 website, [**Acquia is one of the companies providing Drupal 7 Vendor Extended Support \(D7ES\)**](#) until at least 2024.



SECTION 4

Say Hello
to Drupal 9!



Say Hello to Drupal 9!

Drupal 9 represents an important next step in the evolution of Drupal. It consolidates what already existed in Drupal 8 and lays the foundation for what comes next. We're very excited to see it come to life.

Drupal 9 was officially released June 3, 2020. The first scheduled feature update (minor release) to Drupal 9, Drupal 9.1, is scheduled for December 2020.

Keep in touch with the Drupal community:

Twitter: [@Drupal](#) [@dropismoving](#)
[groups.drupal.org/core](#)
[drupal.org/docs/9](#)

Visit these resources if you would like to know more or need help preparing:

[dev.acquia.com/drupal9](#)
[acquia.com/drupal9](#)

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