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ULTIMATE GUIDE TO DRUPAL 9

9.3 — December 2021

CONTENTS

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

Drupal 9 was released June 3, 2020, building upon a new development process established in Drupal 8. Drupal contributors used this opportunity to clean up the codebase and to ensure Drupal stays on supported versions of external dependencies.

Drupal 9 aimed to keep the Drupal platform safe and its code up to date. Drupal 9 revised some third-party dependencies, including Symfony 3 and Twig 1. At the same time, it removed deprecated solutions, such as most of jQuery UI, from Drupal core.

Organizations currently using Drupal 7 and Drupal 8 will want to upgrade to Drupal 9 for various reasons, chief among them being continued support. Community support for Drupal 8 ended in November 2021 due to its dependence on Symfony 3, which also reached end of life that month. Community support for Drupal 7 has been extended until Nov. 28, 2022.

Drupal 9's initial release did not offer new features, but did provide a leaner, more secure system and APIs that are easier to work with. These changes are most noticeable to developers. Future releases of Drupal 9 will continue to make improvements and add new features following the six-month release timeline 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 01

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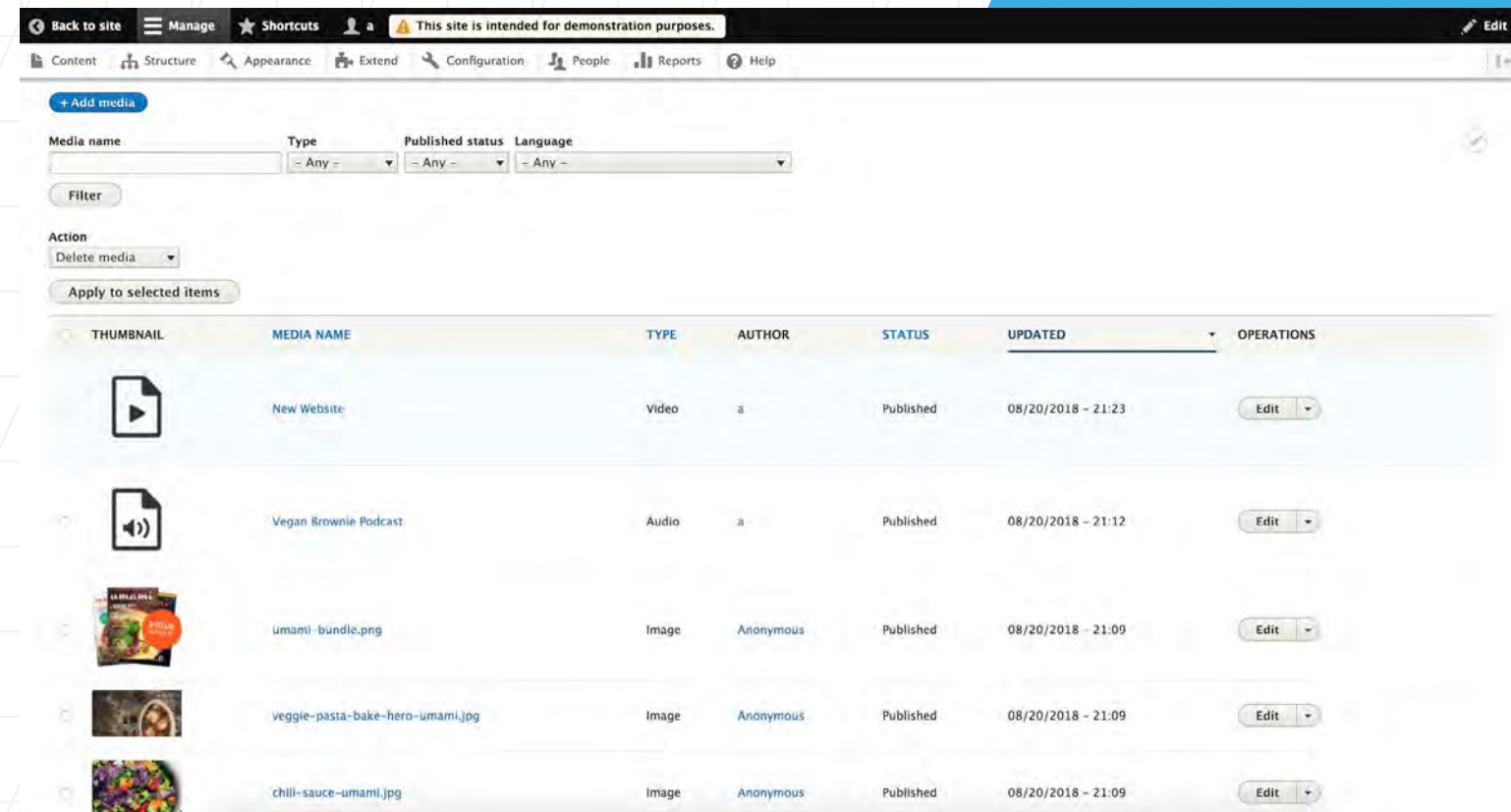
Drupal 8 to Drupal 9: An Evolution

The next stage in Drupal's evolution, Drupal 9, was built in Drupal 8. Consequently, all the functionality that made Drupal 8 powerful has been retained 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.
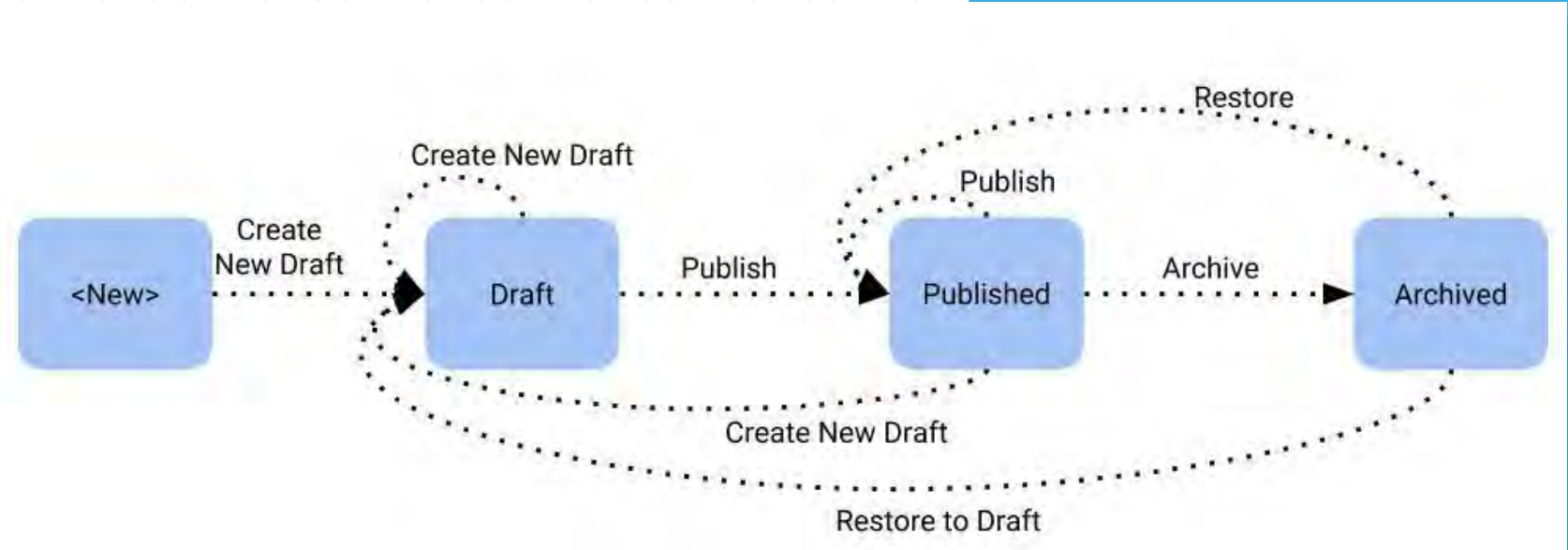
This iteration of Drupal also gives users the ability to embed remote content such as YouTube and Vimeo videos. Additionally, it features a Media Library module that allows users to add existing media assets to a site as well as upload new items directly into the library.

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Content Workflow

The Workflows module allows users 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. Users can even prepare site content around multiple "scenarios," such as election results or Oscar winners, and publish the appropriate version when the time comes.
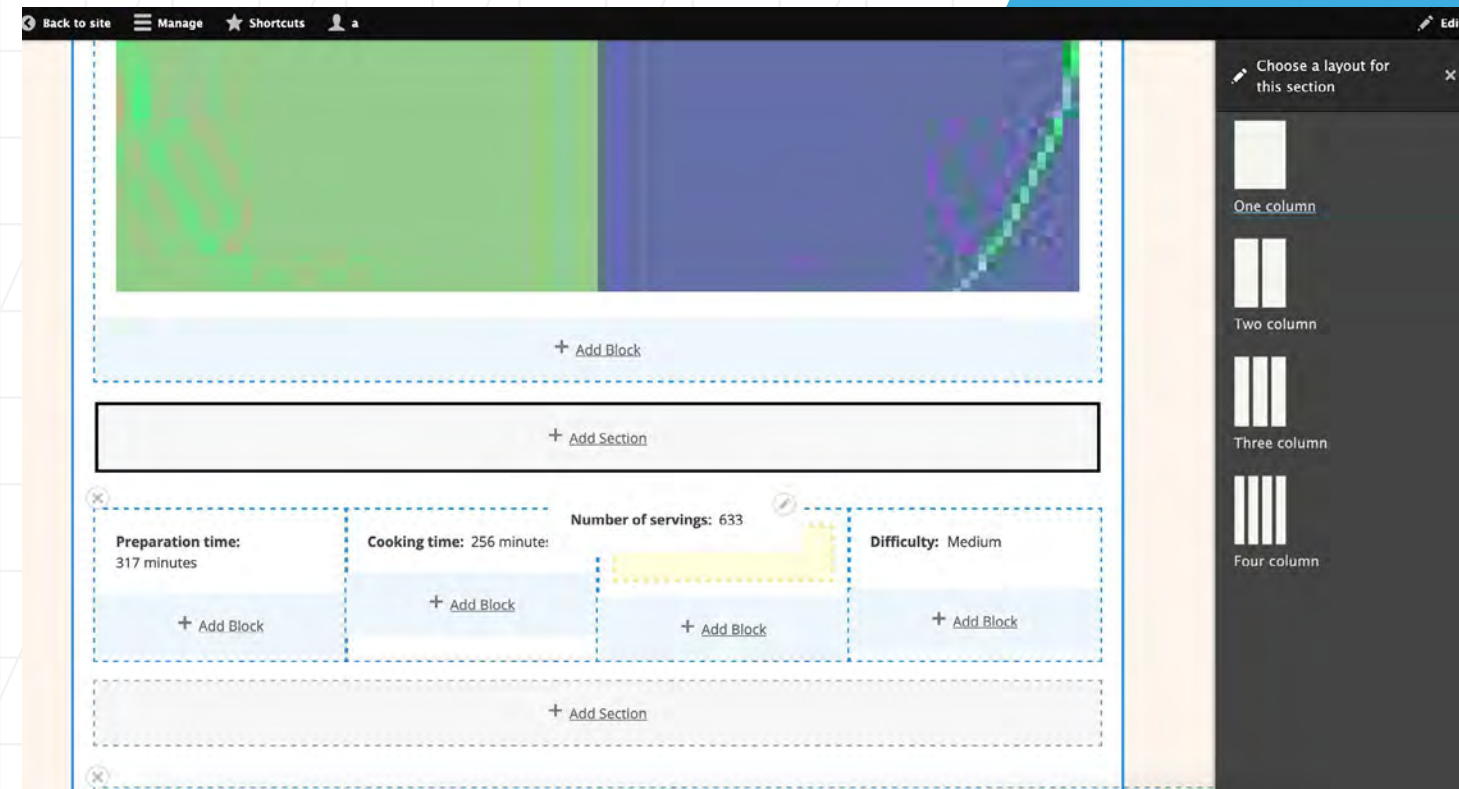
Layout Builder

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
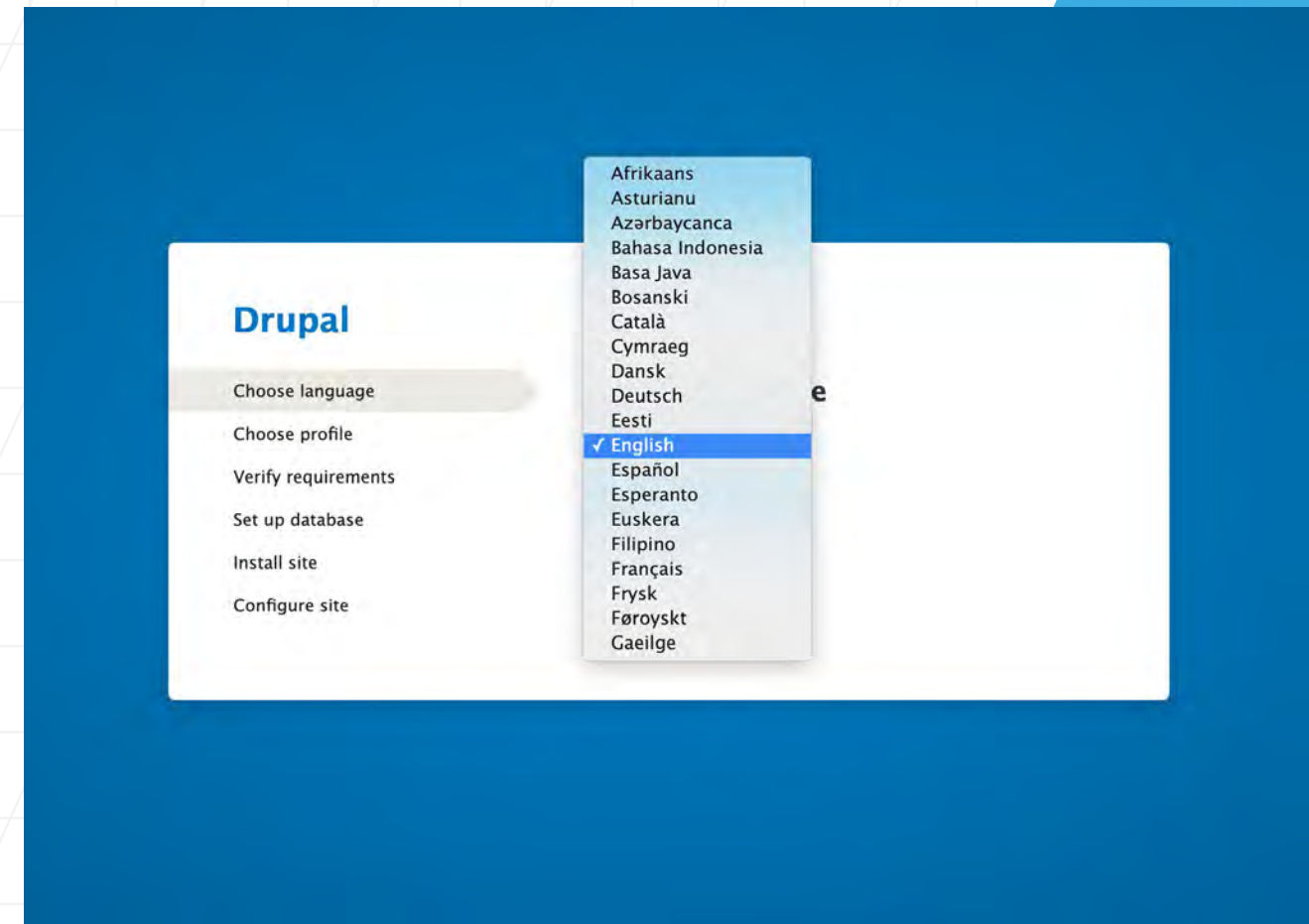
- Custom pages

BigPipe

Another feature that users will appreciate is 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.

Multilingual Capabilities

Drupal comes with no fewer than four modules for language support, each performing 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
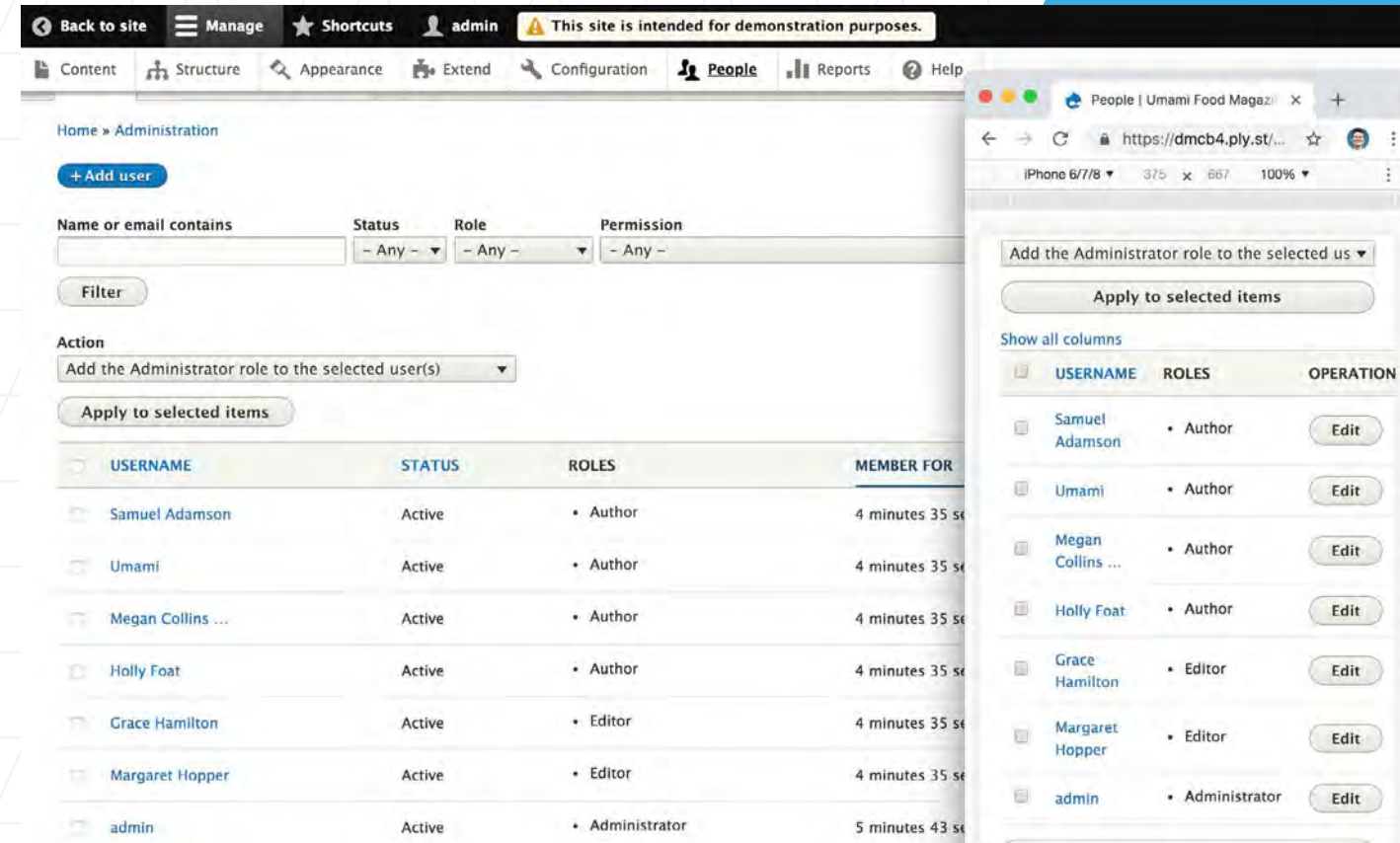
Mobile Experience

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. On wide screens, the toolbar automatically expands and orients itself horizontally. On small screens, the toolbar collapses into icons and orients itself vertically.

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

Building and Managing Your Site

Drupal also features a range of tools focused on site creation and management.
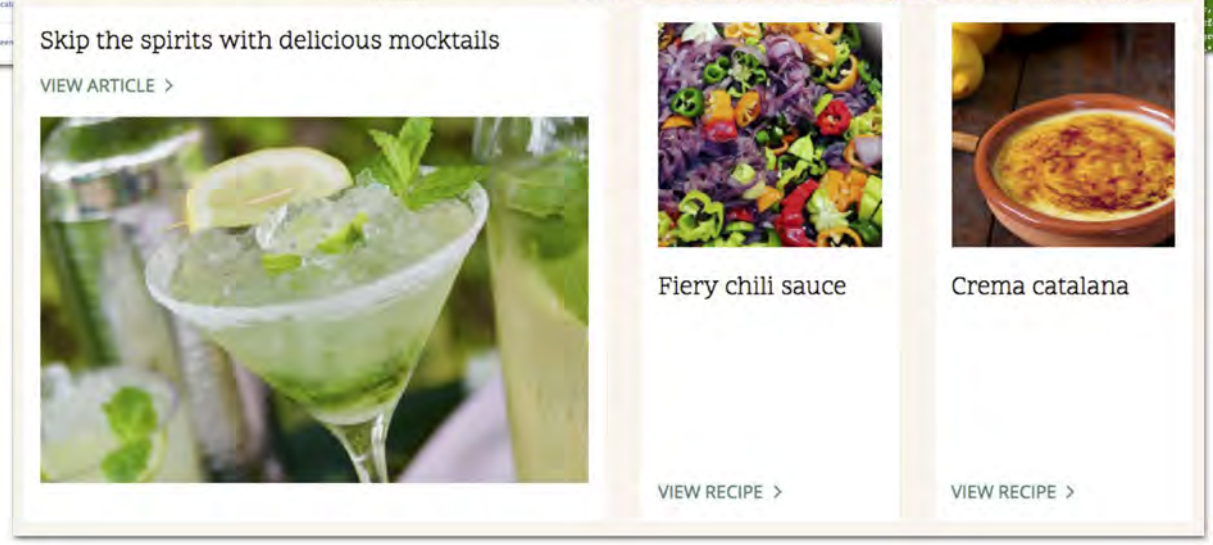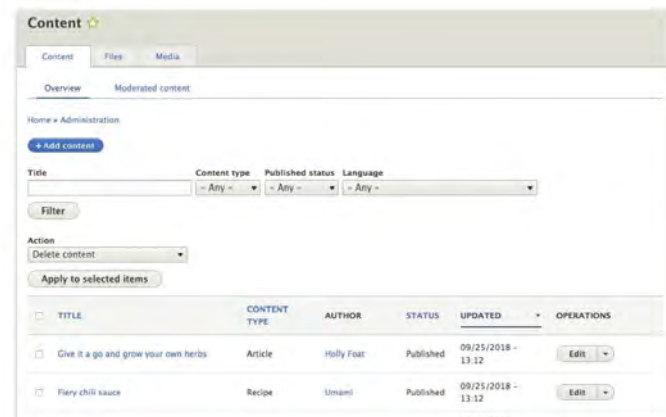
Views in Core

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. This facilitates improved content fetching from website databases, which 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 permits 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.

Structured Content

Drupal is built on the foundation of structured data management. Content, user profiles and comments are examples of entities. Users 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 entities are set up with fields, view modes make it possible to create multiple display options for content in different contexts. For example, a thumbnail image can be shown on the content's teaser view and a full-size image displayed on the default view.

Form modes make it easy to create data-entry forms. These components provide greater flexibility with more general purpose components.

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 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.).

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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 better performance.

Back-End Developer Experience

Drupal 8 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.

SECTION 02

Drupal 8 to Drupal 9: What's New

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, which results in improved security and stability.**

2. **Drupal 9 moved from Twig 1 to Twig 2.**

3. **CKEditor 4 remains in Drupal 9, but experimental CKEditor 5 support was added in 9.3.0. CKEditor 4 will be deprecated for removal in Drupal 10.**

4. **Drupal 9 still relies on jQuery itself, but most jQuery UI components have been removed from core.**

5. **Database version requirements have been increased for all supported database back ends within Drupal 9.**

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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 WAS DUE TO SYMFONY'S RELEASE PROCESS.

Minor releases of Symfony are not supported for the same length of time as minor releases of Drupal. The long-term support version of Symfony 5, version 5.4, wasn't released until November 2021, missing Drupal 9's development cycle by a consider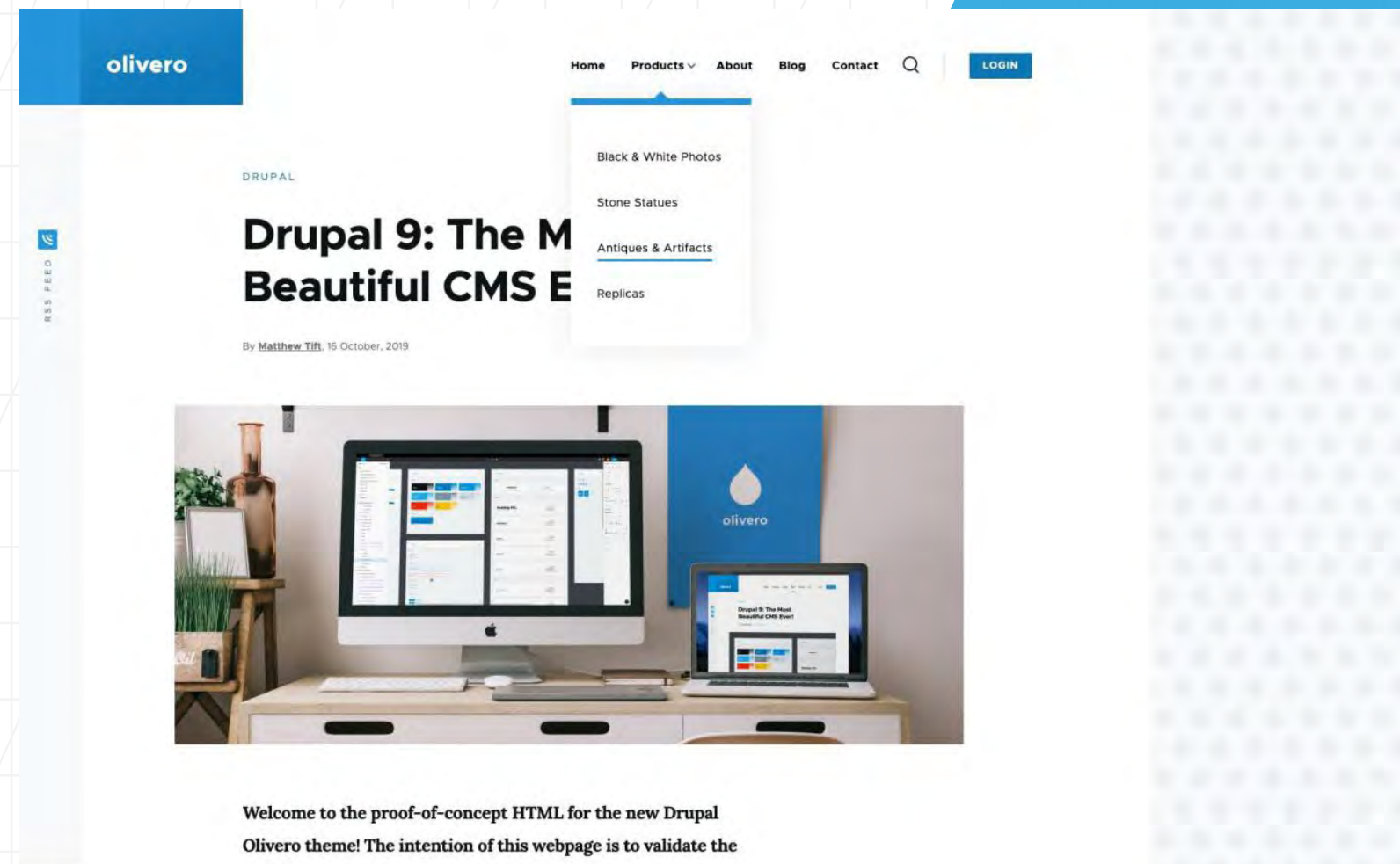able amount of time. However, the community keeps updating Drupal to be compatible with Symfony 5's API changes as it goes, preparing for the adoption of the new version in Drupal 10.

Drupal 9.1.0 introduced the experimental Olivero front-end theme which became stable in 9.3.0. This theme is intended to replace Bartik in a future Drupal 9 release, with Bartik to be removed in Drupal 10. Olivero is a more modern, cleaner theme with various new features and a greater focus on accessibility.

Composer offers the most future-compatible solution for constructing the codebase of a Drupal 9 site. Composer itself released version 2 on Oct. 24, 2020. This version is a massive improvement in terms of memory usage and speed. Drupal 9.1 onwards fully supports Composer 2. We recommend moving to that version as soon as possible.

The experimental Claro administration theme keeps improving. Updates since Drupal 9.0 include a clean module administration page, views administration UI designs, status report page and maintenance page updates. Claro is expected to achieve stability in a future Drupal 9 release and replace Seven as the default administration theme, while Seven will be removed in Drupal 10.

Drupal 9.1 was compatible with the then freshly released PHP 8.0. Drupal 9.3 is compatible with the also newly released PHP 8.1. Contributed modules may need work but Drupal 10 will require some version of PHP 8.

SECTION 03

Preparing for Drupal 9

Preparing for Drupal 9

In the last decade, upgrading from one major version of Drupal to another involved such extensive 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 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, install and enable the **Upgrade Status Module**, which can be used either on the Drupal back end or the command line with Drush. Scan your contributed modules for compatibility issues and uses of deprecated code. If a contributed project is not yet Drupal 9 compatible, use the **Lenient Composer Endpoint** to update the project on your site. If uncommitted patches are already available to said project, you can use **cweagans/composer-patches** to apply patches where necessary and provide feedback to the patch authors and module maintainers about your experience with them.

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

It is highly suggested to use **Drupal Rector** to generate fixes that address compatibility issues, rather than starting the code updates manually. Most common deprecated APIs are covered by Drupal Rector, so it can give you a good head start. Any remaining issues identified by Upgrade Status would need to be fixed manually, but the module provides directions to documentation about the changes.

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 it is.

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

Congratulations — you should now be fully switched to the latest version of Drupal!

A best practice to take away from this process for the future is to keep your Drupal core and contributed projects regularly updated as that would help you most in preparing for the next major Drupal release. Drupal 10 is expected soon in 2022.

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

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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

Acquia Migrate Accelerate – to expedite the migration from Drupal 7 to Drupal 9 by up to 50%

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.

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 2025.

SECTION 04

The Future of Drupal 9

The Future of Drupal 9

Drupal 9 is expected to have five minor release series: 9.0 to 9.4. **Drupal 9.4 is planned as a long-term support release, with community support until November 2023**. That date reflects the support timelines of Drupal 9's dependencies, Symfony 4 and CKEditor 4. **Project lead Dries Buytaert announced the following initiatives** to move key parts of Drupal 9 forward for the next major version:

1. **Drupal 10 readiness** to keep Drupal secure and up to date with regard to platform requirements and third-party dependencies

2. **An easier out-of-the-box experience** that seamlessly integrates Media Library and Layout Builder into the default experience and makes Claro the default administration theme

3. **A new front-end theme (Olivero)** to replace Bartik and better showcase Drupal's modern feature set

4. **Automated updates for security releases** with change detection and package signature checking

5. **Decoupled menus** to solve one of the more difficult Drupal decoupled integration problems and pave the way for additional components in the future

SECTION 05

When Will Drupal 10 Be Released?

When Will Drupal 10 Be Released?

Drupal 10 is planned to be released alongside Drupal 9.4 in June 2022 with fallback dates in August and December. It is expected to be based on Symfony 5 or 6 and include CKEditor 5 instead of 4. Functionally, Drupal 10 should be identical to Drupal 9.4.

Why invest in a new Drupal version when its lifetime will be so much shorter than previous versions? Drupal 9's minor versions are expected to offer new features (including a much-improved administration theme), expanded decoupled support and content management features that are better integrated out of the box. The upgrade to Drupal 10 is expected to be as easy (and hopefully even easier) than the move to Drupal 9 was.

Visit these resources:

https://dev.acquia.com/drupal9

https://www.acquia.com/drupal9

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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