

Understanding Drupal



<http://bit.ly/understanding-drupal>

Mauricio Dinarte @dinarcon

Drupal developer
@agaric



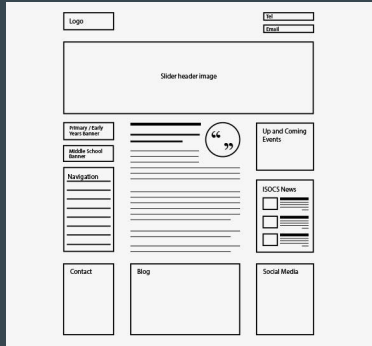
Nicaraguan Drupal
community lead



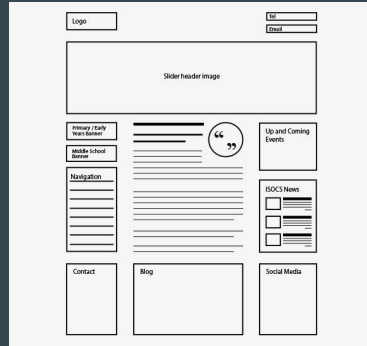
Outline

- Why Drupal?
- What is Drupal?
- Basic concepts
- Nodes
- Content types
- Fields
- Blocks
- Theme regions
- Views
- Users and permissions
- Menus
- Taxonomy

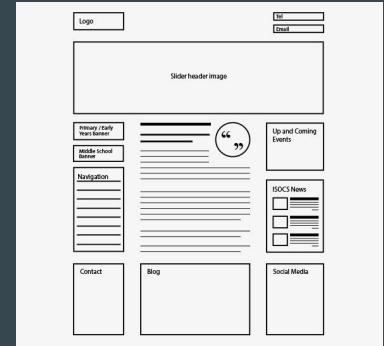
/



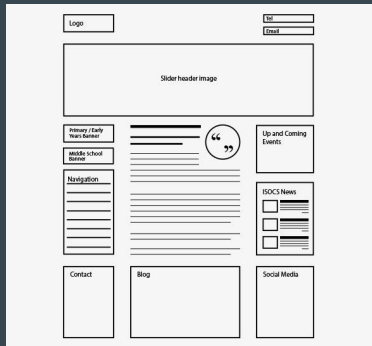
/about



/team



/services



/articles



/contact



Logo

Tel

Email

Slider header image

Primary / Early
Years Banner

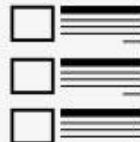
Middle School
Banner

Navigation



Up and Coming
Events

ISOCS News



Contact

Blog

Social Media

Why Drupal?

...



BRIEFING ROOM

ISSUES

THE ADMINISTRATION

PARTICIPATE

1600 PENN

Search



#AskDrH About Climate Change

Dr. John P. Holdren, the President's science advisor, wants to answer your questions about climate change.

FIND OUT MORE

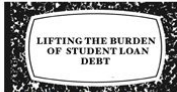


POPULAR TOPICS



Net Neutrality

President Obama is asking the FCC to protect net neutrality.



Making College Affordable

The President is making student debt more affordable and manageable to repay.



A Plan to Fight Climate Change

We have a moral obligation to lead the fight against carbon pollution.

TOP NEWS

November 13, 1:49pm

Getting Ready for Open Enrollment:

November 12, 7:48pm

President Obama Wraps Up Visit to China, Heads to Burma for Second Leg of His Trip

November 12, 3:06pm

You Can Check Out Health Care Plans and Prices for 2015 Right Now

@WHITEHOUSE

Health care open enrollment starts Saturday. See what plan works for you -- <https://t.co/c7Gci9XpHs> #GetCovered <http://t.co/cTHHGSEJaj>

Managua, Nicaragua Weather

Observation as of 12:00 am CST



79°F

Feels Like 82°

Fair

Wind SE 5 mph

Humidity 83%

Dew Point 73°F

Pressure 29.80 in ↓

Visibility 6.2 mi


UV Index 0 out of 10

DAY	COND	TEMP	DESCRIPTION	PRECIP	WIND
TODAY		90°	PM Thunderstorms	50%	ESE 9 mph
TONIGHT		75°	Thunderstorms Early	60%	SE 5 mph
SUN		91°	Isolated Thunderstorms	30%	ESE 7 mph

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ALL ABOARD

The inaugural GRAMMY cruise has docked, but here is a list of nine upcoming music cruises
Photo Gallery: GRAMMY Festival At Sea

Countdown to GRAMMY Sunday



GUCCI

COUNTDOWN TO FEBRUARY 6, 2012

85 21 2 52

DAY HOUR MIN SEC

THE 57TH ANNUAL GRAMMY AWARDS

Made with GRAMMIUM™. Click here

PHOTOS





How should CEOs be paid?

It's not just the level of pay, it's whether incentives work for the long-term benefit of companies and societies, argues LSE's Professor Alex Edmans.

[more](#)



Our experts on the top trends for 2015



Will 2015 be the year of jobless growth?



Outlook on 2015: Global Trends

The World Economic Forum is an international institution committed to improving the state of the world through public-private cooperation.

News: [11.11.14](#) > [Politics and Poor Policies Could Hamper Efforts to Tackle Major Global...](#) [Read more](#) < || >

Featured





News

Massive rock lobster breaks records, \$95K price snagged

A rock lobster weighing 56 pounds that was caught off the shores of China has clawed its way into headlines this week, breaking records and fetching a massive sum. Lobsters can sometimes be considered prizes to showcase instead of to dine on, but this was one pricey purchase.



Music

Drummer Mick Fleetwood exposes himself again in new autobiography

Musical intuition has certainly paid off for the 'Big Daddy' behind Fleetwood Mac. In his new autobiography, the towering 1998 Rock and Roll Hall of Fame inductee divulges the secrets behind his forty-plus year career and clarifies the myths surrounding his love life and interpersonal band relationships.

POPULAR VIDEOS



Woman Donates Kidney, Gets Incredible Gift in...



Facebook Gives Its Privacy Policy a Makeover



10 Of The World's Most Venomous Creatures



For 'Dumb and Dumber To' Directors, Bad...

NUESTRA TIENDA ONLINE



NARANJAS



MANDARINAS



CAJAS MIXTAS



MIEL



MERMELADA



LIMONES

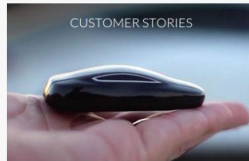


Introducing
Autopilot and Dual Motor All Wheel Drive

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Some features of these websites



What is Drupal?

...

Drupal as a CMS

Drupal is a content management system. It allows multiple people to participate in the creation of content. Also, it is possible to establish publication workflows, content revisioning, and granular access control over each piece of information.

Drupal as a Framework

Drupal is a development framework. Through custom code it is possible to extend Drupal beyond its pre-built functionality. For example, to create an ecommerce website or the backend of an application.

Drupal as a Community



- 200+ countries
- 150+ languages
- 30,000+ code contributors
- 97,000+ active users

Basic Concepts

...

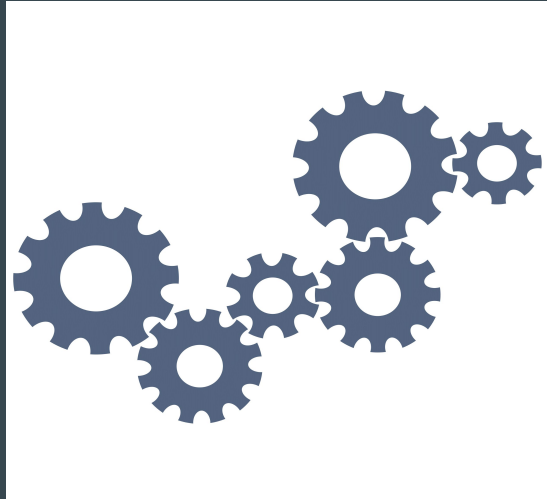
Core

- The minimum required software to start a drupal project.
- It contains **modules** and **themes**.
- Serves as a framework to build on top of.



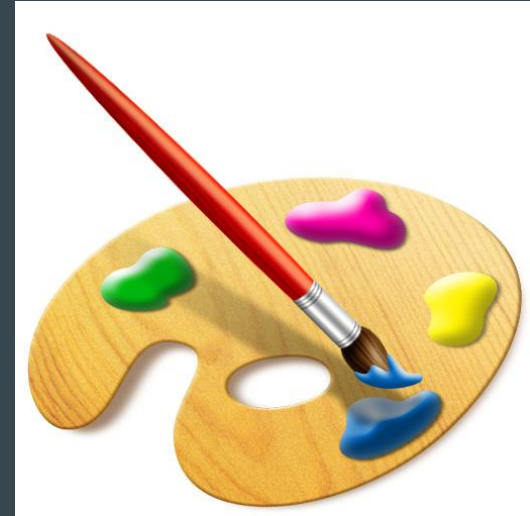
Modules

Add functionality



Themes

Control appearance



Contrib Repository

Community contributed **modules** and **themes**.
These extend Drupal beyond its pre-built
functionality.



Content

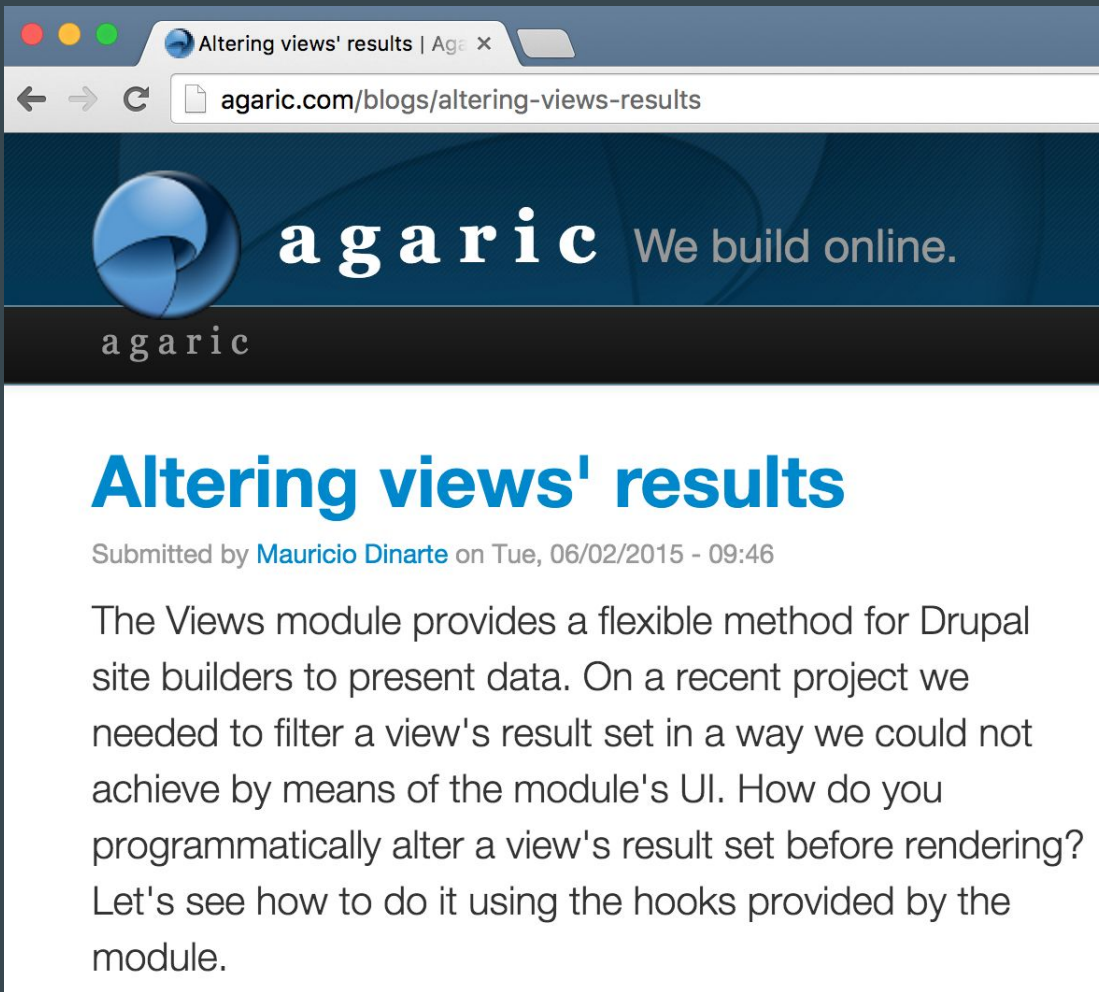
...

What is a Node?

A piece of information that can tell a story by itself.

It serves as a container of information used to describe something.





The image is a screenshot of a web browser window. The address bar shows the URL `agaric.com/blogs/altering-views-results`. The browser's title bar indicates the page is titled "Altering views' results | Age x". The website's header features the agaric logo, which is a blue sphere with a white ribbon-like shape, and the text "agaric We build online." Below the header, the word "agaric" is written in a smaller font. The main content area has a white background and contains the following text:

Altering views' results

Submitted by [Mauricio Dinarte](#) on Tue, 06/02/2015 - 09:46

The Views module provides a flexible method for Drupal site builders to present data. On a recent project we needed to filter a view's result set in a way we could not achieve by means of the module's UI. How do you programmatically alter a view's result set before rendering? Let's see how to do it using the hooks provided by the module.

CAN I HAVE



MORE WHEELS, PLZ?



Content Types

Abstraction that allows you to group nodes which share similar characteristics or describe the same idea. They serve as a template to collect information. Once collected, they ease the management of that information.



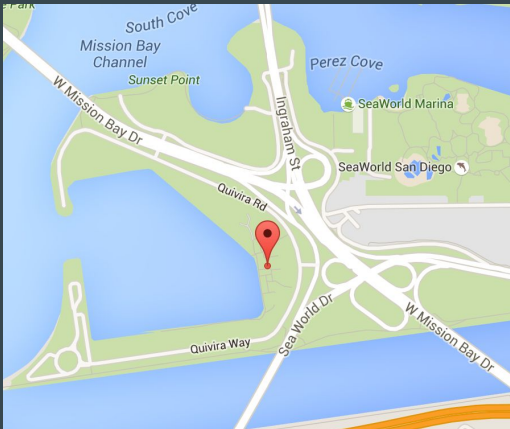
Fields

They are used to **structure** the information that is being stored. They save discrete data which can be used for **searching, filtering, and sorting** information. It is possible to enter and display a field's data in various ways.

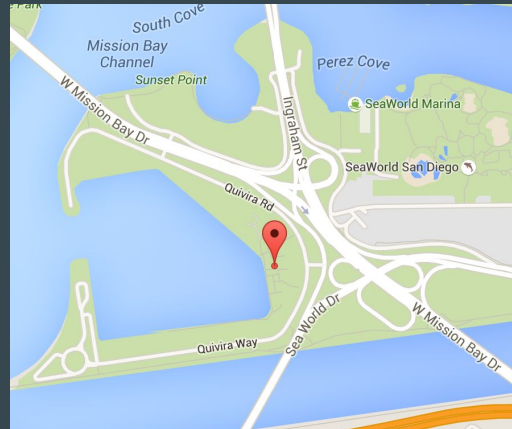
Collecting Data

☰ Marina Village Conference Center 🔍 | ✕

☰ $32^{\circ}45'42.0''\text{N } 117^{\circ}14'02.1''\text{W}$ 🔍 | ✕



Presenting Data



Aggregating Data

Powered by Leaflet — Map data © OpenStreetMap contributors (Terms) served by Mapbox (Terms)



Find Drupal events with ease!

All Continents ▾ All Countries ▾

- Feb 25** SANDcamp 2016
United States, San Diego, CA
25-27. February 2016
- Feb 25** Fresno Drupal Meetup
United States, Fresno, CA
25. February 2016 08:25
- Feb 25** Free Training! Ready, Set, Drupal 8
United States, Waltham, MA
25-26. February 2016
- Feb 25** Drupal NYC Meetup
United States, New York, NY
25. February 2016 10:20
- Feb 25** San Gabriel Valley Meetup
United States, Monrovia, CA
25. February 2016 18:00
- Feb 25** Drupal Meetup: Introduction to
Drupal 8 Module Development
Canada, Vancouver, BC
25. February 2016 18:30-20:00
- Feb 25** Drupal Cafe Lviv
Ukraine, Lviv, 46
25. February 2016 19:00
- Feb 25** Sessió d'introducció a Symfony per
Marc Morera i Drupal&Beers el 25 de
febrer
Spain, Barcelona

drupical *beta*

 **Drupalcon**  **Drupalcamp or Summit**  **User group meeting**  **Sprint**  **Training**  **Related event**

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Example of Field Types

Agaric



Established in 2006

Agaric is a Drupal shop based in Boston, MA, USA with offices in Germany and Nicaragua. We are active members of the Drupal community. Our contributions include maintenance of many modules and organization of free training.

<http://agaric.com/>

ask@agaric.com

+1 508 283 3557

Services: [Custom development](#) | [Migrations](#) | [Training](#) | [Maintenance](#)

Thu, 11/19/2015 - 08:00

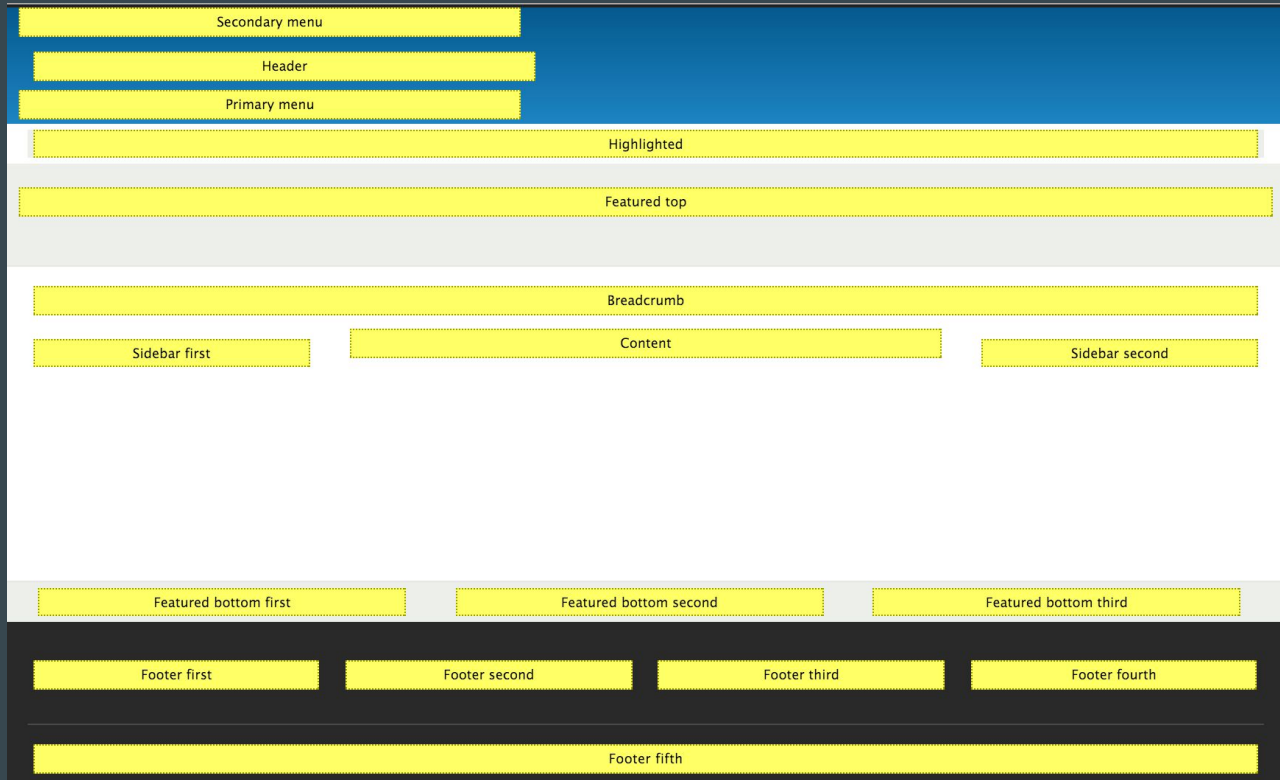
Block

...

What is a Block?

A container of extra information to display along the main content of your website. They are placed in a **theme region**.

Theme Region



Blocks Can Display Static or Dynamic Content

Static content

- Display the same data (almost) all the time. E.g.: copyright text and the banner of a sponsor.

Dynamic content

- Change its content regularly. E.g.: latest blog posts and newest products in the store.

Blocks Can Enforce Visibility Rules

Show or hide the block depending on certain conditions.

Language Not restricted	Content types <input type="checkbox"/> Article <input type="checkbox"/> Basic page
Content types Not restricted	
Pages Not restricted	
Roles Not restricted	

Blocks Can Be Aware of the Context

Use data from the context in which the block is displayed to **change the information to be presented.**

Examples:

- More posts from the same author.
- More vehicles on sale in the same city.

Block Can Have Fields

Similarly to content types, it is possible to define block types and add fields to them.

Example:

- A “special offer” block type with fields for title, description, image, and expiration date.

Views

...

What is a View?

A view is a **listing of information**. It can be a list of nodes, users, comments, taxonomy terms, files, etc.

Views allows to search your website and present the results in different formats. For example, a HTML table, a RSS feed, a PDF document, a CSV document, an interactive map, an image slideshow, and a JSON representation to be used as a REST endpoint.

Random car

M000505 - 2008 Toyota Yaris








[Read more](#)

Search

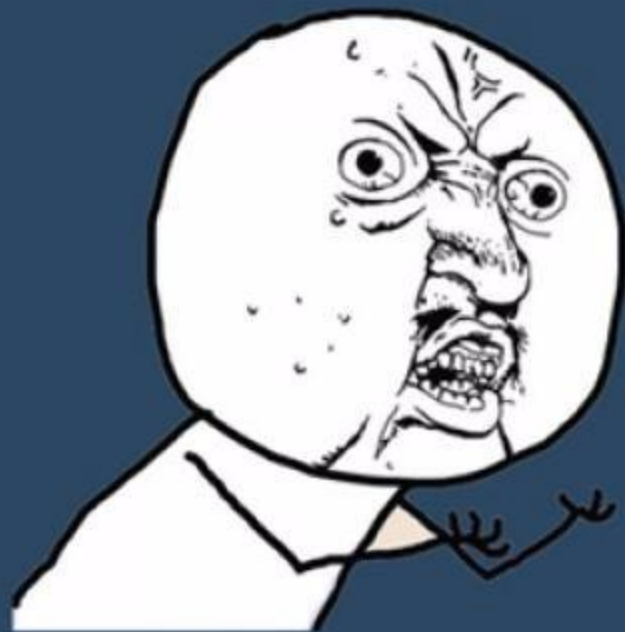
Cars

Year: - Any -
Make: - Any -
Model: - Any -
Sort by: Year
Order: Desc

Apply

ID	Image	Color	Transmission	Fuel
M000123 - 2014 Toyota Corolla		White	Automatic	Gasoline
M909522 - 2013 Tesla Model S		Red	Automatic	Electric
M3075681 - 2013 Mercedes S500		Black	Manual	Gasoline
M1463982 - 2011 BMW 535i		Black	Automatic	Gasoline
M000505 - 2008 Toyota Yaris		Silver	Manual	Gasoline

WHY SO MUCH



THEORY?

Drupal Loves Nests



Markup

```
▼ <div id="page">
  ▶ <header id="header" class="header" role="banner" aria-label="Site header">...</header>
  ▶ <div class="highlighted">...</div>
  ▼ <div id="main-wrapper" class="layout-main-wrapper layout-container clearfix">
    ▼ <div id="main" class="layout-main clearfix">
      ▶ <div class="region region-breadcrumb">...</div>
      ▼ <main id="content" class="column main-content" role="main">
        ▼ <section class="section">
          <a id="main-content" tabindex="-1"></a>
          ▼ <div class="region region-content">
            ▶ <div id="block-bartik-page-title" class="contextual-region block block-core block-page-title-block">...</div>
            ▶ <div id="block-bartik-local-tasks" class="contextual-region">...</div>
            ▼ <div id="block-bartik-content" class="block block-system block-system-main-block">
              ▼ <div class="content">
                ▼ <article data-history-node-id="1" data-quickedit-entity-id="node/1" role="article" class="contextual-region
                node node--type-article node--promoted node--view-mode-full clearfix" about="/node/1" typeof="schema:Article"
                data-quickedit-entity-instance-id="0">
                  ▶ <header>...</header>
                  ▼ <div class="node__content clearfix">
                    ▼ <div property="schema:text" data-quickedit-field-id="node/1/body/en/full" class="clearfix text-formatted
                    field field--name-body field--type-text-with-summary field--label-hidden field__item quickedit-field">
                      <p>Nests FTW!</p>
                      ::after
                    </div>
                  </div>
                </article>
              </div>
            </div>
          </section>
        </main>
      </div>
    </div>
  </div>
  </div>
  </div>
```

Render Arrays

✓

•

Found 5 elements

```
... (Array, 29 elements)
  page (Array, 22 elements)
    #show_messages (Boolean) TRUE
    #theme (String, 4 characters ) page
    #theme_wrappers (Array, 1 element)
    #type (String, 4 characters ) page
    content (Array, 4 elements)
    sidebar_first (Array, 5 elements)
      system_navigation (Array, 6 elements)
        5 (Array, 7 elements)
          #theme (String, 21 characters ) menu_link_navigation
          #attributes (Array, 1 element)
          #title (String, 11 characters ) Add content
          #href (String, 8 characters ) node/add
          #localized_options (Array, 0 elements)
          #below (Array, 0 elements)
          #original_link (Array, 45 elements)
            menu_name (String, 10 characters ) navigation
```


Concepts



Theme region



```
graph TD; Theme[Theme region] --- Block[Block]; Block --- View[View]; View --- Node[Node]; Node --- Field[Field];
```

Block

View

Node

Field

User

...

What is a User?

A visitor to the website. Depending on who is visiting the website it is possible to change the information they see.

Drupal can handle multiple users which makes account credential sharing among multiple people unnecessary. This is useful to keep track of changes to the website.

Mauricio Dinarte



Mauricio Dinarte is a passionate Drupal developer, consultant, and trainer with over 7 years of web development experience. After completing his BS in Computer Science, graduating with the highest GPA among 181 students, he completed a Masters in Business Administration.

Mauricio started his [Drupal journey](#) in 2011 and fell in love with Drupal right away. Through the years, he has worked on projects of large scale playing different roles such as site builder, themer, module developer, and project manager. He has great experience leveraging various core and contrib APIs, using and customizing Drupal distributions like Open Outreach and OpenChurch, as well as creating custom installation profiles and distributions. He brews top shelf modules into

elegant solutions. Views, Context, Display Suite, Panels, Feeds, OpenLayers, Features, and other modules are some of the ingredients. Drush is his ally to speed up development and manage workflows among different environments.

A role...

Is a collection of **permissions**. They are used to assign privileges to a group of users. For example: a C-level executive, a sales representative, etc.

Drupal ships with three default roles:

- Anonymous user
- Authenticated user
- Administrator.

A permission...

Checks if a user can perform a specific action. For example:

- Create content of type Article.
- Revert revisions for the content type Article.
- Post comments.
- Use the site-wide contact form.

Drupal's Permission System

Permissions



Role



User



Menu



What is a Menu?

Menus are a **collection of links** used to navigate the website. Drupal ships with default menus like the “Main Navigation” and others can be added by as needed.

Menus can be **hierarchical**. That is, a menu can be various level deep where a menu link can have other menu links under it.



agaric We build online.

agaric

Home

Services

Blogs

About

Contact

[Home](#)

[About Us](#)

[Content Types](#)

[Mega menu demo](#)

[Drupal themes](#)

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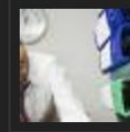
DEMO CONTENT

Full Width

Main - Right

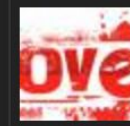
Superfish menu

SF NavBar



What our products' benefits

12/28/2012 - 15:53



Easy to customize

11/30/2011 - 14:57

Taxonomy

...

What is Taxonomy?

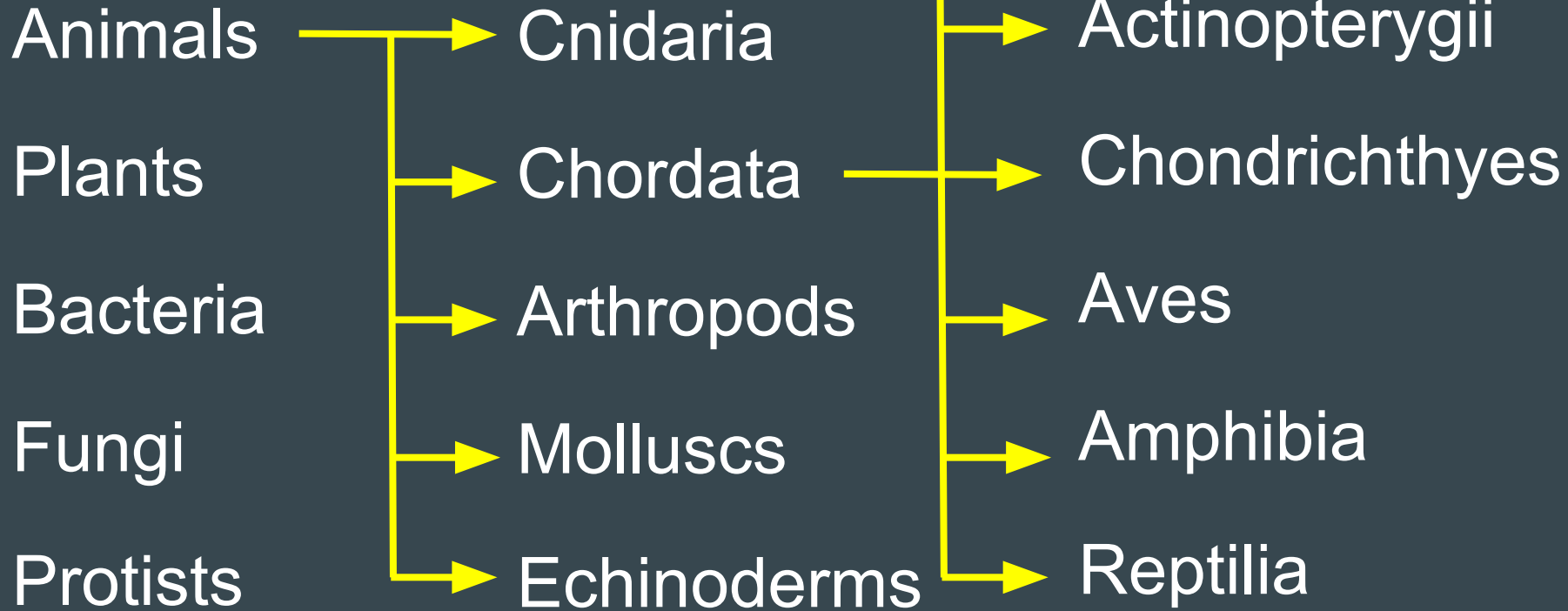
It is a system used for **categorization** which allows you to **connect, relate,** and **classify** your website's content.

In Drupal, taxonomy vocabularies are containers for a set of taxonomy **terms**. Vocabularies can be **hierarchical**. That is, a vocabulary can be various level deep where a term can have other terms under it.

Vocabulary: Fruits



Vocabulary: Living organisms



(Kingdom)

(Phylum)

(Class)

Example uses

- List every piece of content tagged with a specific term.
- Show additional content with the same tags. Similar By Terms module.
- Create editorial access controls based on hierarchies. Workbench Access module.
- Associate geographic location to terms to be rendered on a map. Location Taxonomize module.

Theme region



```
graph TD; Theme[Theme region] --- Block[Block]; Block --- View[View]; View --- Node[Node]; Node --- Field[Field];
```

Block

View

Node

Field

FAQ





Every time you hack core, God kills a kitten.
Please, think of the kittens!



Jeff Geerling
@geerlingguy

Is it a Good Idea to Change the Downloaded Code for a Quick Fix?

NO!

When performing updates, the new code can override your changes. Also, you might alter the framework's functionality and prevent other code from working. Instead, use the framework API to alter its behaviour as needed.

What is a Hook?

A mean by which modules can interact with Drupal to alter or extend its pre-built functionality. They allow modules to define new pages, add content to pages, set up custom database tables, and more.

They are a pause in the code execution to let modules and themes act upon the operation being performed.

How is a Hook Implemented?

In your module create a function named after the hook to implement and replace the 'hook' prefix with the name your module.

A module called 'nicaragua' implementing 'hook_node_presave' would define a function called 'nicaragua_node_presave'.

```
/**  
 * Implements hook_node_presave().  
 */  
function nicaragua_node_presave($node) {  
    /* custom code */  
}
```

What is Cron?

Cron is a system used to run resource intensive tasks at specified time intervals. These can be divided into smaller batches processed each cron run.

Example Uses for Cron

- Website's content indexation for search.
- Schedule tasks, such as email reminders.
- Temporary files removal.
- Cache invalidation.

What is an Entity?

It is an **abstraction** that allows you to model your website's data into elements with shared characteristics. Entities have a very rich API which make them appealing to use. The ability to attach **fields** to them make entities extremely flexible for data modeling. An entity can have one or more variations called **bundles**.

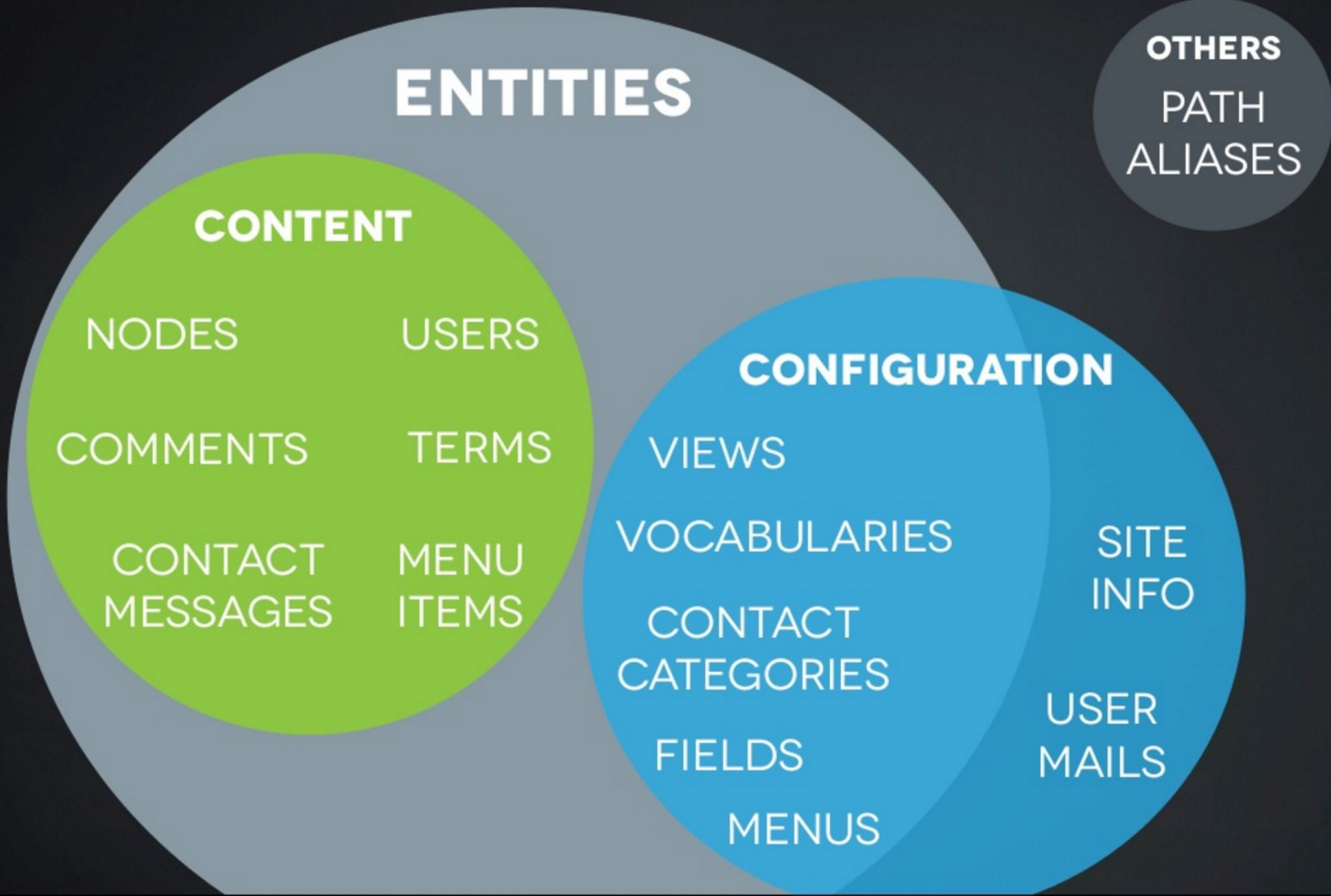
Bundle vs Content Types?

Entity: Node

Bundles: Basic page, Articles, Blog post, Forum, etc.

Content types are bundles of the Node entity.

CONFIG VS. CONTENT



Gábor Hojtsy
@gaborhojtsy

Acquia Podcast 144

Configuration vs State

Is supposed to be shared between environments. Dev → Test → Live	Is relevant to a single environment.
Can be stored in files.	Lives in the database only.
Ej: site name	Ej: last time cron ran

Get Involved with the Community!

- Create a user account

<https://www.drupal.org/user/register>

- Be part of the conversation

<https://www.drupal.org/irc>

#drupal @ freenode.net

- Get involved with your local community

<https://groups.drupal.org/>



Please Provide Feedback

@dinarcon

mauricio@agaric.com

Thank You!

Let's continue the conversation on twitter

#UnderstandingDrupal

