Using Kotti Documentation

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Kotti is built in the tradition of web-based content management systems, with an eye toward clean design of core features, and use of a refined choice of foundational software components.

Content types include Document, Image, and File, and a variety of other content types made available through customization.

Abbreviation: CMS = Content Management System.

INTRODUCTION

1.1 The Nature of Kotti

Kotti is a software system used to build websites and web applications.

As a user, you don't have to know about the languages used, nor about the focus on browser or server programming described below. You just use a website made with Kotti. However, understanding the nature of the software will stimulate an appreciation of its strengths and build confidence in using it. Knowledge of the general environment of website and web application software can help you understand new ways we use software today, as compared to traditional desktop apps, and the many "apps" available for the iPhone, Android, and mobile devices.

Websites and web apps come in so many varieties. Broadly, for the modern World Wide Web, several main development approaches are used:

- `Web browser focus, with the server kept as a simple storage system.` By web browser here, we refer to the common denominator formed by Mozilla Firefox, Google Chrome, Microsoft Internet Explorer, and several other choices of programs used to "surf the web." A focus on the web browser involves programming primarily in languages dedicated to the task, such as Javascript and CSS (cascading style sheets, for controlling the look of pages and components). Most of the computer processing in such a system happens on your computer, where the browser is running like any other program there, but occasionally talking to the server to send or fetch data. Speed of the system is very good for a well-designed system, because traffic back and forth to the server is reduced.

- `Server focus, with a robust intelligent database system.` Browsers are still the primary way of interacting with the user, and javascript and CSS can be important, but here larger portions of the user interface are fetched from and modified by the server, which contains the "brains" of the operation. The server software builds web pages and forms by interacting with a database via queries to update or fetch data, preparing the final result after inserting updated bits of information. Speed of the system can be very good overall, because the server stores frequently used parts of a website to reduce the amount of rebuilding needed.

- `Combinations` that blur these two approaches.

Kotti uses the second approach primarily, in its default configuration, but has the flavor of a combined approach, with the latest browser programming techniques used for parts of the user interface, and with the programming language `Python` forming the heart of the system on the server. Kotti uses an expressive programming system called `Pyramid` that forms a very good foundation. Kotti uses an interface to data called `SQLAlchemy`, that provides an intelligent way to work with a choice of solid databases.

Kotti forms a great platform for extending with browser programming of advanced graphics and presentation features, combining the approaches described above in the construction of web applications that go beyond the traditional CMS.

Your Kotti-based website could be an out-of-the-box default site with just a few add-ons, or it could be a heavily customized site or web app. This user manual covers use of a default configuration, but should be useful for learning about any Kotti-based system.

Note: What's the difference between a website and a web app? A website often appears as multiple pages, and may stress the presentation of static information, while including traditional web forms for accepting input from users. A web app in classic form will appear as a single page with displays that swap out for one another in place, working more like a desktop application on your computer. These distinctions need not be limiting; a Kotti system can be built that has multiple pages, some of which can constitute "web apps" on their own. One page might present text and images for a static document. Another might involve dynamic graphics, "rich" interactivity, and multiple screens that swap out.

1.2 Design Goals

Kotti has marched through numerous revisions to become stable. A community formed by a group of dedicated software developers has assembled. Many of the developers have years of experience in CMS projects and in the languages used in Kotti. The future looks bright for the adoption of Kotti for small and large websites, for internal company systems, for social media, and many other niches. It is a capable CMS on its own, and forms a solid base for programming in the modern world of the web.

Programmers of Kotti try to:

- keep the core simple, using a *natural* design,
- use and re-use top-quality software components,
- write code that uses best practices for style and form,
- work collaboratively, using modern development tools, and
- test the software continuously.

The design of Kotti features content storage as something like an outline or tree, where content is nested in a meaningful way. This is the *natural* design aspect, for which the Document content type is central.

Documents are added to a Kotti website in the way word-processor documents are created on computers, but in the context of the web. Documents contain text and may include images, files, and links to other documents. Kotti's design makes linking documents to one another happen automatically as the site structure is built, document by document. There are easy ways to make custom links from documents to other content items, or to other websites.

Note: A document, thus, does double-duty, presenting its own textual and graphical content, while serving as the storage location for the associated images and files displayed or linked therein. A document is linked to its parent document, and may contain any number of child documents.


Consider a typical usage scenario for a fresh Kotti CMS website: You first add documents for each main part of your website. You then add documents within those. You may add documents within documents within documents to form a deeply nested structure. Other content types can be considered secondary for importance in organization, because you store images, files, and custom content items within documents as the structure unfolds during site construction.

1.3 Users and Roles

A website is usually available for view by anyone. The content of the website is added by any number of methods to build websites, but there is often no concept of "logging in" to see content. The content is viewable by all who visit the website. This can be called `anonymous` viewing, and the general website visitor can be called an anonymous user.

A CMS does involve the concept of "logging in," at least for the person adding content, and it involves the concept of having content in public vs. private state: public, for allowing open viewing by the anonymous user, as for a typical website, and private, for restricting viewing to the "logged in" user. Once a user has logged in, they can be called an `authenticated` user, because they have entered their correct username and password.
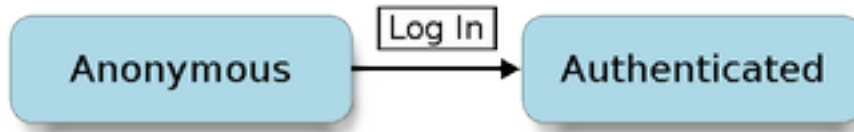
In its simplest form, Kotti allows a special user, called the Admin user, to log in and add and edit content. The Admin user has full rights to do anything to the website.

In Kotti websites with just one user, the site administrator may simply tell this sole user to use the Admin account, or they might set up an account for the user, and give this user account full content-adding and editing rights to the site, equivalent to the Admin user. Either way, there is just one user adding content, and this is inherently simpler than a multi-user system.

If you are such a sole user for a Kotti website, you may wish to skip the rest of this section, and the next, and go directly to the section presenting *A Fresh Kotti Site*. The discussion below and in the next section, about user roles and workflow, is important for websites where multiple users add content and where there is a more complex content organization.

For a Kotti website, where several people add content, the Admin user may create accounts for other people. One common approach is to divide the website into several top-level sections that different people manage. For example, imagine a scenario where Joe, Sally, and Xavier are the content managers for a musical act agency. First the Admin user logs in, then creates the three accounts for Joe, Sally, and Xavier, then sends them emails with user names and passwords. The Admin user also creates three top-level sections of the website, and notifies Joe, Sally, and Xavier about their responsibilities: Joe for the `Prospects` section, Sally for the `Existing Clients` section, and Xavier for the `Legal Affairs` section. The Admin user assigns rights to these three areas by creating three user groups: prospects, existing_clients, and legal_affairs. Then, by setting the respective groups as owners of the three website sections, a scheme for organization and responsibility is established. Additional people can be added by simply assigning them to a given group. For example, if Judy works with Xavier on the legal team, the Admin user creates a new account for Judy, then assigns her to the legal_affairs group, then emails her about the new account and her responsibilities. Judy and Xavier will both have rights to add and edit content in the `Legal Affairs` section. Joe, Sally, Xavier, and Judy share responsibilities like this:

Kotti includes a user registration system that can be open for general users to sign up. This is useful for social media

websites that seek out membership. It can also be useful for a larger organization or company to facilitate the account creation process. The system can be configured so that new registrants automatically receive a confirmation email. These new users can also be automatically assigned to a group by programming.

Many different scenarios are possible for creating roles for users of the CMS. For a large multi-level organization, user groups can be created that mimic that organization. Rights can be assigned so that users in one group are restricted in what they can view, what they can add and edit. In the classic example, a newspaper could have user groups for `reporters`, `photographers`, `editors`, `managers`, etc. Each would have specific responsibilities and rights. A `reporter` can only write and compile articles, along with `photographers`. Together they could belong to a "Creators" group. An `editor` can edit their work, but is not allowed to publish. Only `managers` can publish content.
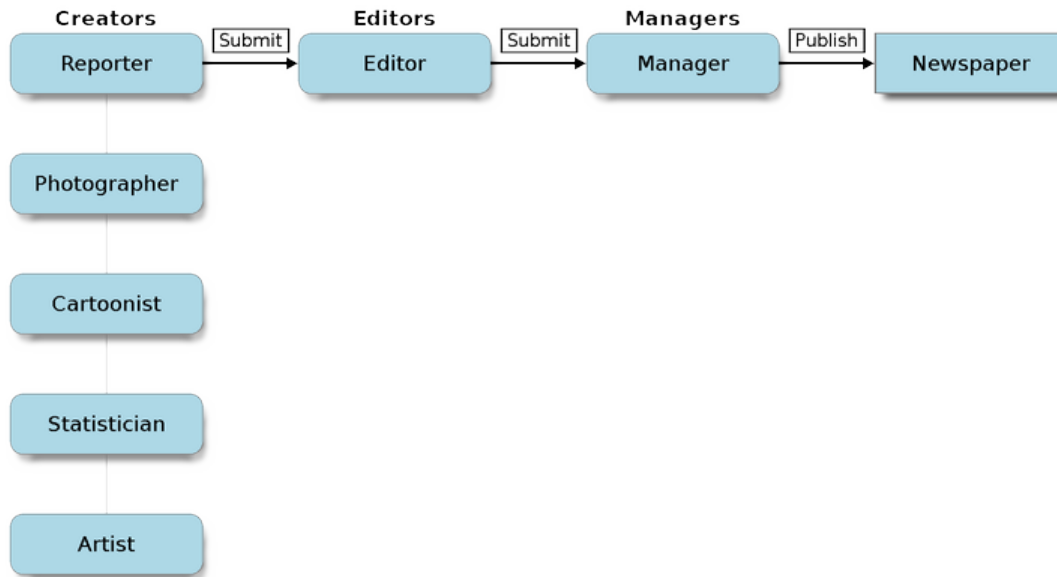
Even a small business with a handful of employees, or a small non-profit with just a few members, can benefit from some form of structure like this.

1.4 Workflow Policies

The term used for the setup for user and roles and related functionality is `workflow`. You do not need to create a workflow policy to use a Kotti website. If you are the sole user of the website, roles are not needed – you are `it`! But when multiple people are involved, discrete roles can be useful. Even then, a custom workflow is not needed, because as user groups are created by the Admin user, a simple defacto workflow is created using the built-in states, Private and Public.

A custom workflow is needed when there is more involved in the process of creating and editing content items.

A workflow is constituted by a set of policies created for a given CMS setup, wherein user groups and roles are defined, and relationships and responsibilities established by creation of workflow states that expand upon Private and Public. These could include Pending, Postponed, Scheduled, Ready-For-Circulation, Needs-Full-Review, etc., depending on specific needs. As these state names suggest, this is an area where creativity can help to build a fine-grained system.

For example, a manufacturing operation, e.g. for custom clothing, could have an in-house Kotti CMS for documenting and controlling flow of project work. The designers of the workflow would need to understand the physical layout of the manufacturing area and would need to plan for work schedules and timing constraints. They would create user roles for different stages of manufacture and assembly work, and custom content types with web forms that people

would use to enter data into computer terminals on the work floor. A sequential flow of work stages would develop, starting with the initial work on the project piece, followed by quality control checks before it moves to the next workstation area. A given workstation could check a list of project pieces and where they are in the queue. The names of the workflow states and transitions might look like this:
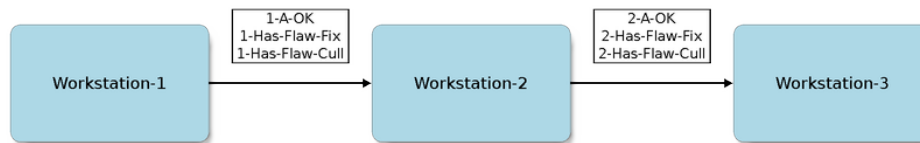
Think of documents tied to individual project pieces by serial number, that would be marked as the items are carried through the process.

For a similar example, Kotti could be used for a video production shop, which might have roles in the workflow such as "Ingestion," which would have people working with raw video in the first processing steps, along with roles for "Color Correcting," "Titles," "Special Effects," etc. And the states used along the way could include "Raw footage," "Initial Compression Good,", "Initial Compression Failed," "Color Corrected," "Ending Credits Added," etc.

AN EXAMPLE

2.1 A Fresh Kotti Site

For the website associated with this user manual we will add content for a fruit stand. Our fresh default Kotti website looks simple enough:
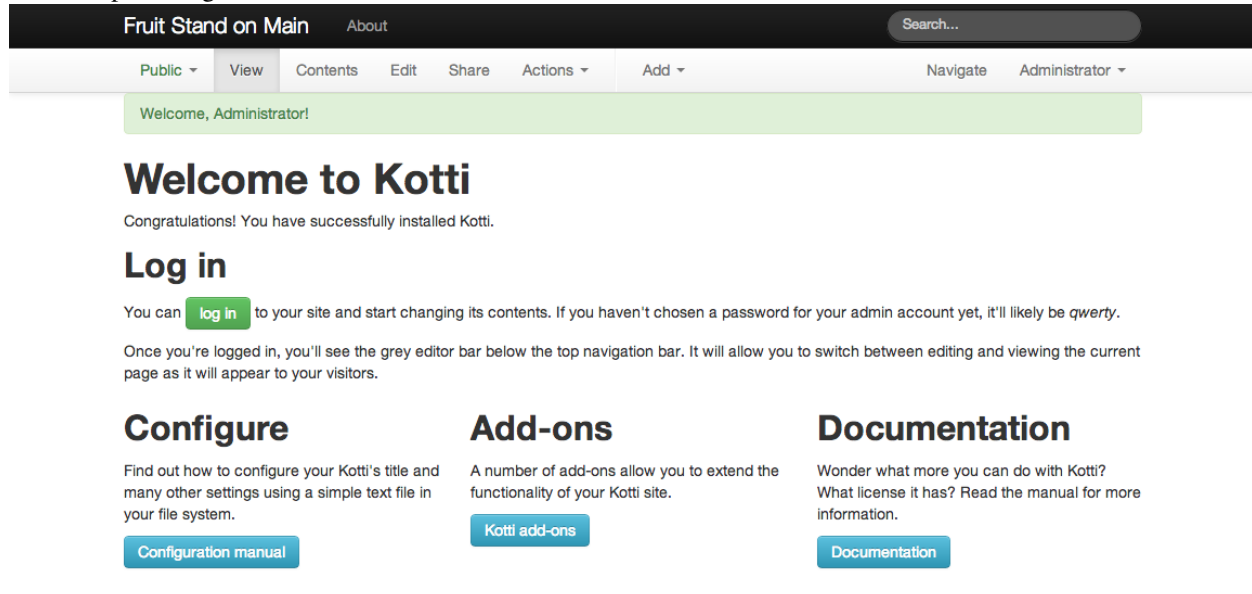
You see where the site has already been given a proper "Fruit Stand on Main" title when the site was created by our website hosting provider. You also see a search box on the right side of the toolbar at the top. There is a welcome statement, instructions for logging in, configuring the site, viewing a list of available add-ons, and viewing documentation. The amusing default footer is a signature of a software system called Pyramid that Kotti uses as a foundation.

We have the site title already, but the rest will change when we add content for the fruit stand.

2.2 Logging In

Let's log in by clicking the "Log In" button on the default Kotti website's front page. That takes us to a page with the web address "/login" (which would be on the end of the base web address, e.g., "http://www.example.com/login"). Here you can see where the username "Admin" and the password is being entered:

You should be given a password by the person or company who set up your site.

After submitting the username and password by clicking the "Log In" button, and after they have been successfully matched to an existing user account, the site will be shown in "logged in" view:

2.3 Preliminary Tasks

The default installation of a Kotti website has a front page with general information about Kotti itself, and a single document called "About" that has a photograph of airplanes and placeholder text. You will likely see some "starter" example content of some sort when your site is created. We'll go throught this example for the absolute default case.

Both the front page and the "About" page need to be changed for a new website. Someone may have already set up

your site, or you may be part of a larger organization where you work on just one part of a large site, but as we go through this user manual, we'll work as if you are starting with your own new website for the fruit stand as the sole user, the Admin user.

We will replace the default "About" page with information about the fruit stand offerings and schedule, and we will put introductory information on the front page. We will add a Document called "Fruits" and to it we will add images of the fruits for sale. We will tag the fruit images for fruit categories to which they belong. This will be enough to demonstrate Kotti's main features.

2.3.1 Deleting the Default About Page

For the first task, let's delete the default "About" page. We are logged in, so we can see it. Notice that it is in the Private state (left side of screen, see "Private" in what is called the editor bar, the row of menu choices underneath the black toolbar):

Note: You need to be logged in to see Add, Edit, and other forms, and you need rights as either the Admin user or a user with a role given Edit rights. After logging in, you will see a menu bar at the bottom of the site header, with menu choices for Private vs. Public (state), View, Contents, Edit, Share, Actions, Add, Navigate. Your username is at the far right (We are logged in as Admin, which is labeled Administrator), where there is a pull-down menu for setting your personal site preferences. Here is the editor bar:

Since we have the "About" page in view, we have certain actions available via the "Actions" pull-down menu, one of which is "Delete":

When we click the "Actions" menu, and the "Delete" choice, we get a confirmation page:

Clicking "Delete" here will permanently delete the "About" page.
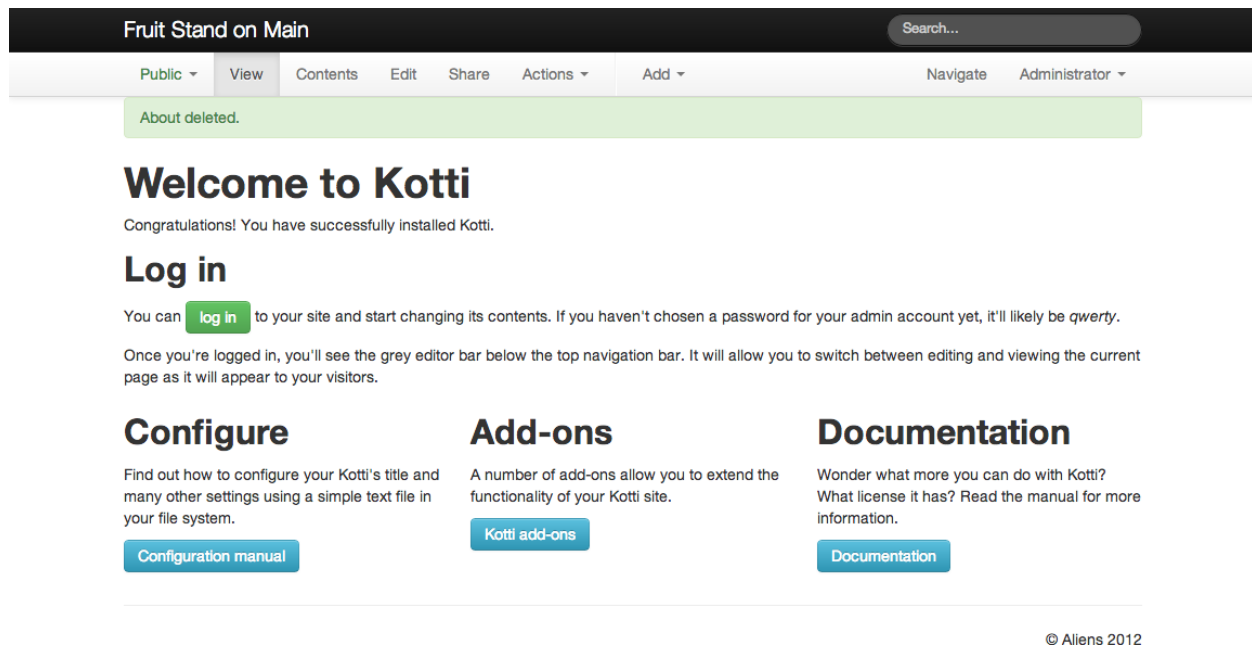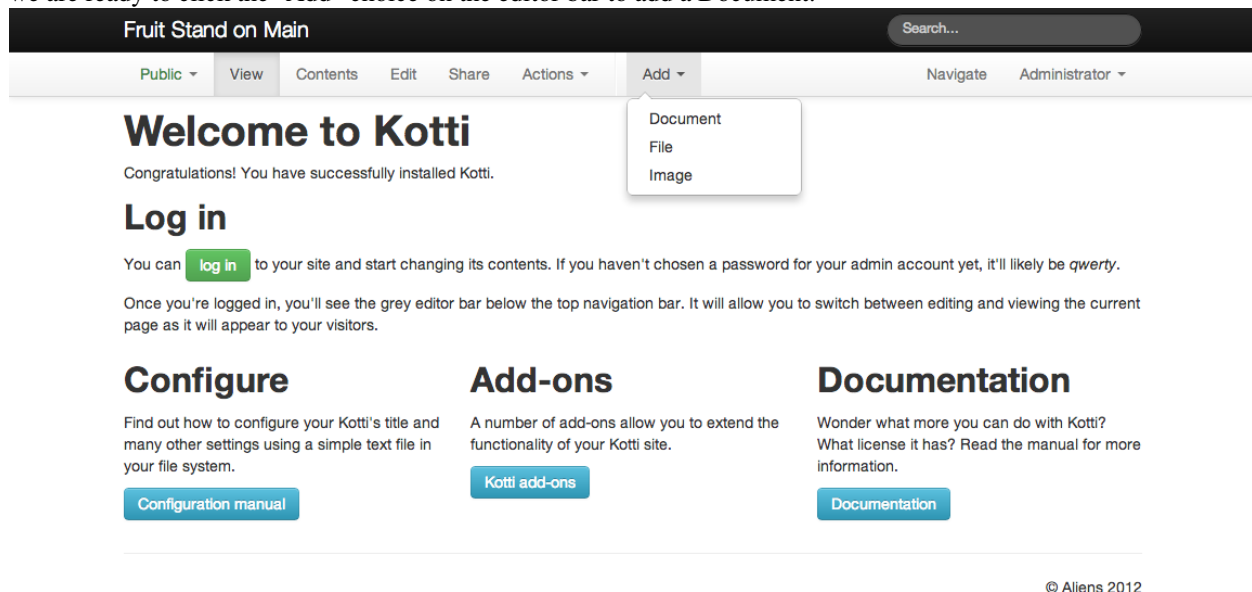
The "About" page has been deleted. You no longer see "About" in the toolbar across the top of the page.

2.3.2 Adding a New About Page

We will now add a new "About" page for our fruit stand website. We want to add the "About" page as a top-level document – from the "root" of the website. We get ready to add the "About" page by clicking on the name of the website at upper left ("Fruit Stand on Main"). You can think of this as "going home" on the website, if you are used to this terminology and common navigation – click the name of the website to go to its "main" or "home" page. Now we are ready to click the "Add" choice on the editor bar to add a Document:

We enter text for "About" as the title, description and body, and then click the "Save" button:

After saving, Kotti will flash a message saying the save was successful:

And now we have our new "About" page.

2.3.3 Editing the Front Page

Editing a document is very similar to adding one. We visit the page by clicking its title whereever we can see it. In the case of the front page, we get there the same way as above, by clicking on the "Fruit Stand on Main" name at upper left. But now, instead of "Add," we choose "Edit" in the editor bar.

And we select and delete the existing description and body, replacing it with a bit of information about our fruit stand (Use your mouse and/or keyboard as you normally would to select text and images and delete, then type new text):

After saving, the front page doesn't have much, but at least it is about our fruit stand now:

And now we are off and running with a new fruit stand website.

ADDING CONTENT

3.1 Adding Documents

Adding content to a new Kotti website usually involves adding top-level documents for main sections of the website, followed by adding documents within these sections. Documents, Files, and Images are added in course, where they are needed within documents. Before you know it, a nested structure of documents materializes. Kotti makes this a very natural process, principally through the design of the Document content type.

Note: Where do "folders" fit in? You may have noticed by now that, without mentioning the term "folder," we have described the Document content type as working both as a traditional document containing text, but also as a container of other documents, and of images, files and any custom content types. However, the term "Folder" is used sparingly in Kotti, as compared to what you may have seen in other systems, or for your local computer system.

We added the "About" document already, but here details are explained about the process of adding it, or any other document. You recall that we have "Document" as a choice in the "Add" menu:
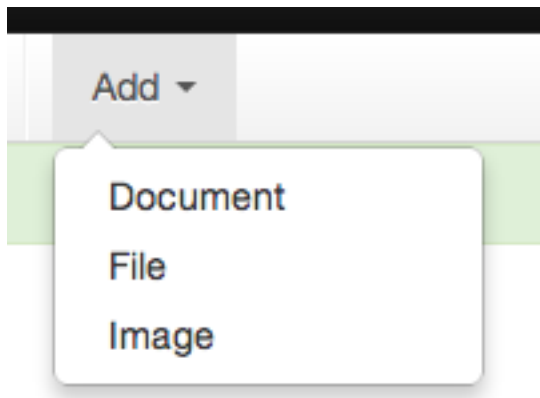
The web form for adding a Document has the title at the top, then the description, then the body. The title and description have simple text fields for keyboard entry. The body has a special user interface, something like that seen in word processing software, for formatting text, headings, and paragraphs.

Let's add a new top-level document called "Fruit Rootstock" for listing a few fruit tree rootstock packs available at our fruit stand. We will cover the details below, but here is what the add document web form looks like just before the "Save" button is clicked.

3.1.1 Title

The `title` of a document is, of course, very important. Kotti is smart about how titles are transformed to work as key parts of the "web address" of each document. The counterpart to the title, the part used in the web address, is called the `name`. Normally you do not enter the name directly; Kotti creates it from the title. For our "Fruit Rootstock" document, the title will be "Fruit Rootstock" and the name will be set to "fruit-rootstock" by Kotti automatically (You won't see the name when you enter the title, but you will when you look at your browser's web address display at the top).

You see web addresses everywhere as you use the Internet. www.google.com is a web address, and so is www.bbc.com. And so is www.bbc.com/news. And so is www.bbc.com/news/asia. These web addresses are called URLs, for Universal Resource Locator, the official name that goes back to the creation of the World Wide Web. When you add a Document, you don't have to worry so much about the rules of making good URLs from titles, because Kotti takes care it.

The following table shows what the URLs would be for titles of documents about apple rootstock choices (the corresponding name is the part after the last /):

Title	URL
Red Delicious	www.example.com/fruit-rootstock/red-delicious
Bramley's Seedling	www.example.com/fruit-rootstock/bramleys-seedling
King-of-the-Pippins	www.example.com/fruit-rootstock/king-of-the-pippins
MM.106 Rootstock	www.example.com/fruit-rootstock/mm-106-rootstock

You see that blanks are replaced by dashes. Special characters such as apostrophes are ignored, backslashes are replaced with dashes, and so on. Look at the URLs again. Kotti ensures that they are clean and simple, and that you can make the titles however you want without worry.

The title is mandatory. You have to add one to make the URL for the document.

3.1.2 Description

Kotti follows the tradition of CMS software in the handling of descriptions. Descriptions are plain text-only. You can't make some words bold. You can't make paragraphs. These restrictions may cramp your style, literally, but they are in place to force a simplicity. If you need special formatted text, put it in the body.

Make good descriptions. Complete sentences with proper punctuation are great. Use words that fit the item, thinking of words that match search text strings you imagine people would use. Keep it fairly short.

We follow these rules for our "Fruit Rootstock" document description.

The description is optional, but it is a good habit to write one, because it provides more searchable text.

3.1.3 Tags

Tags are keywords that are unique site-wide. The tags entry field is smart. After you have typed a few characters, for example "roo" in rootstock, Kotti will check the existing set of tags for the site for matches, and if it finds a pre-existing tag, or several tags, that begin with "roo" you will see a small pop-up display of those tags to choose one. When you have entered a new tag or selected an existing tag, hit the tab key to add another.

Tags are optional. As for descriptions, it is a good habit to add them, because doing so provides an immediate organization of content that can be searched categorically. If you see the rootstock tag anywhere on an item, click it to seach for all content that has been tagged for the rootstock tag. Likewise, use the general search to find content associated with multple tags by using a search string such as "rootstock apple" to find all content items that have been tagged with either the rootstock or apple tags.

When we tag our "Fruit Rootstock" document with the "rootstock" tag, Kotti will create it anew, because this is its first use.

Tags are case-sensitive. Use this to advantage, by considering whether a formal name works well for a tag, versus an informal word or phrase. For example, imagine a service business that has a Kotti website for managing information about multiple clients. Formal names of the client businesses would be appropriate tags: Jones Company, Edwards & Eagleford Law, Acme Plumbing, etc. But in the same website there could also be tags for general categories, such as law, maintenance, and plumbing. Formally and informally named tags are useful.

3.1.4 Body

The Document body is where you add the real content. Add text, format words for bold, italic, underline, and other styling options. Select a paragraph and indent it. Select several paragraphs and make a bulleted list. Create headings. You have the normal range of features available in word processing software.

But you have more. Make a blank line and put the text cursor on the blank line. Click the button to add an image and browse to find a photograph on your local computer. When you add the image, Kotti will put it at the position of the text cursor on the line. You can do the same for adding an image at the beginning of a paragraph. Click to place the

text cursor at the first character, on the first line of the paragraph, then click the button to add the image. The text will wrap around the image by default, but you have several image-to-text formatting options. This also works like word processing software, for embedding images in a document.

We list the available rootstock in the body of our "Fruit Rootstock" document. In an actual fruit stand website, we would probably add documents for each of these rootstock packs, but for this user manual, we will just add this one document.

3.1.5 Saving

Each Add and Edit form in Kotti has a button that you click to save. When you do, you will see the view change to that of the content type created. Having entered the title, description, tags, and body for our new document, we save and we then see the view for the new document:
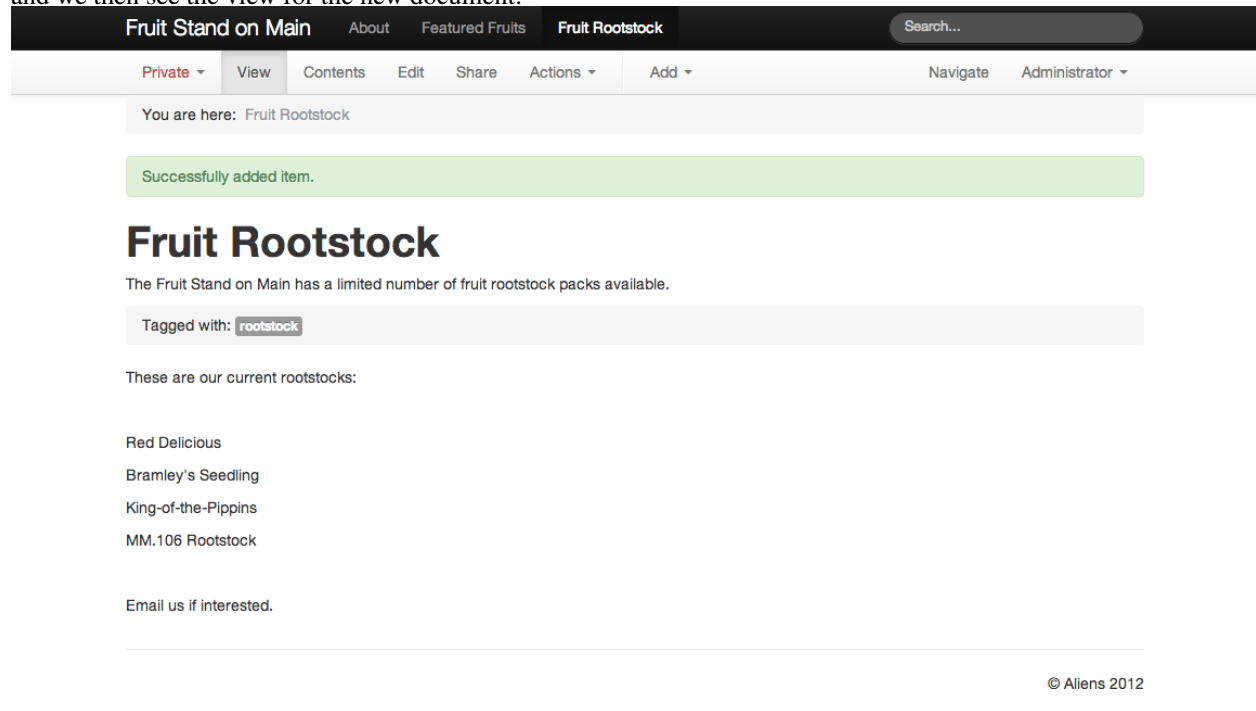
Note: You can add documents within other documents. At this point in a real fruit stand website, perhaps we would now add individual documents for each rootstock, containing information about care and feeding. We would simply click the "Add" menu choice to add another document. You need to pay attention to where you are when you add something, however. So, we would be sure to click the main "Fruit Rootstock" document each time we would add another individual rootstock document.

3.2 Adding Images

There are two ways to add images to a Kotti website:

1. One way is to add an image to the text of the body of a Document, using the word processor style interface, whereby the image is placed as a discrete part of the body of the document. There is a choice of formatting the image as a thumbnail size image, or a number of other size choices. The image can be placed left, right, above, or below the text associated with it. It can be part of a bullet point, or in a table cell, etc.

2. Another way is to add an Image directly from the "Add" menu, as we did for adding a Document. Adding an Image via the "Add" menu is equivalent, by position, to adding it to the body of a document. The Image would "live" on the website at the position of the document at which it was added, but the image would be visible only in the Navigate display of the website, because it was not added within the text of the body of a document. After adding an image with method 2, you can later add it to the body text using method 1, because already uploaded images are available in the word processor style user interface.

Note: Regardless of how an image is added, it will be stored at the position of the document to which it was added to the body text (method 1) or at which was added using the Add menu (method 2). And you can always see this structure in the "Navigate" display, with images and other content items shown indented within the documents with which they are associated.

Most often you will want to add images to the body of documents where they are needed, as you would add images to a word processor document (method 1). However, the flexibility for adding images as discrete items by position allows creativity.

We will demonstrate both approaches in this user manual:

1. We will add a document called "Featured Fruits" and within it another document called "Bramley's Seedling" to showcase a type of apple. We'll add some text to the body of the "Bramley's Seedling" document, about the interesting history of this tree, and will add there also, using `method 1`, an image showing a picture of the original Bramley's tree, planted by a little girl in 1809.

2. We will add a document called "Fruits" and will add images via the "Add" menu there using `method 2`. We will set the default view of the document to be "Folder View" to get an easy list of all the fruit images. The default view setting is in the Actions menu.

3.2.1 Method 1: Adding an Image to a Document Body

When you are adding or editing a document, you have the word-processor-like panel of icons to change the styling of text, to format paragraphs, add links, etc. One of these icons is the image icon, the one that features a tree. To add an image at some place in text you have typed in the body, click or move the cursor to the spot where you want the image to be placed. Usually this is at the beginning or end of a paragraph, or on a line by itself. Then click the image icon to show the image editing popup window to either paste the URL of the image, if it is available on some website, or to browse your computer for an image to upload. There are text entry fields for adding title and a description (sometimes called "alt" text for an image). This information is important for making your site accessible to blind people.

Let's add the image of the Bramley's Seedling tree, planted in 1809, to a document about the tree. Here you see where we are adding a document called "Bramley's Seedling" to "Featured Fruits", a document which had already been added. We have typed text describing the history of the tree, have entered three tags, "cooking," "juicing," and "heirloom," and are now ready to add a photograph.

At this point, after entering the body text, the cursor is at the end of the text. We now click the image icon, which shows the image editing window, into which we enter the title and description of the image, and we browse to find the image file on our computer:

After clicking the "Insert" button, we see the image as it appears within the body text:

To finish, we save the "Bramley's Seedling" document:

We see the desired result: text in the body first, and below it the image of the tree.

3.2.2 Method 2: Adding an Image via the Add Menu

We want to have a list of available fruits at our fruit stand. For this we will add a document called "Fruits," then, using the "Add" menu, we add images for each of the following fruits, shown with their tags:

Fruit	Tag
Apple	Core
Avocado	Tropical
Banana	Tropical
Cantaloupe	Melon
Cherry	Pit
Grape	Berry
Kiwi	Tropical
Lemon	Citrus
Nectarine	Pit
Orange	Citrus
Peach	Pit
Pineapple	Tropical
Plum	Pit
Strawberry	Berry

A content item can have more than one tag, but here they are used as fruit categories.

For each image we click the "Fruits" document, then the "Add" menu, then we find the local file with the photograph of the fruit. Each one is uploaded and stored with each "Add" action.

After the images have been added, if we click the "Fruits" document, we do not see the images as a list. There are there, at the position of the "Fruits" document within the website, but we have to click the "Contents" link to see them listed:

Note: The "Contents" view shows all contained items, not just images.

3.2.3 Image Handling

There is more to the Image content type. Images can be made from photographs, from scanned documents, from frame grabs of video, from screen captures, from the output of specialized programs–so many ways. But they mostly fall into a set of familar types, with filename endings like .jpg, .png, and .gif. They vary in size tremendously, from thumbnail images only a few kilobytes in size to the real whoppers, the ones coming off modern digital cameras, even point-and-shoot cameras. These can be many megabytes in size, and in dimension, thousands of pixels wide and tall.

Kotti helps make sense of all of this. Websites don't need huge-size images for normal display, although large images can certainly be stored on a website. A typical website is 1000 pixels wide or so, giving you a good idea of the largest size you will need.

The most common routine goes something like this. You take some photographs and download them from your camera to your computer. You look at them, delete the bad ones, keep the good, make adjustments to improve the contrast, brightness, etc. Some photographs you select for use on your website. At this point, you should follow these guidelines:

- Don't upload them to the website as the original huge images.

- Resize them first. Find the "export" or "save as" or "share" part of your image editing / photo viewing software. Save the photographs on your computer as 1200 pixels in width before uploading, or upload them as they are if they are less than 1200 pixels wide.

Upon uploading to a Kotti website, there is behind-the-scenes work done to prepare copies of the original image at several sizes that fit the design of the website. In the old days of the web, and in unsophisticated systems, you would have to manually do this work.

An image is given a title and description when you add it. Just as web addresses (URLs) are made for documents, the image will have its own URL. Consider a photograph you have on your computer named IMG_5381.jpg. That is the name that your camera gave it. Imagine it is a picture of a particular variety of apple, Bramley's Seedling. When you add the photograph to your website, you would give it a good title and description.

After the IMG_5381.jpg image has been uploaded, it is available as:

Image Title	URL (name is last part)
Bramley's Seedling	www.example.com/featured_fruits/bramleys-seedling

The name of files on your computer, such as IMG_5381.jpg, is usually not needed in the context of a website. A good approach is to label images in your desktop computer software, as with "Bramley's Seedling", so that when you upload them to your website, or change something later, you can identify items.

Consider working on your website after a year has passed, and you decide to crop the "Bramley's Seedling" image to a closer crop to the apple. Where is the original image on your computer? Find the original file, IMG_5381.jpg by the title, used also as the image label or caption on your computer.

Note: There is no avoiding the need for this kind of management. Try to develop good habits.

The image URL shows its context on the website. It lives within /featured_fruits. If you want to see the image all by itself, add /image on the end of the URL:

```
www.example.com/featured_fruits/bramleys-seedling/image
```

Visiting this URL would show the full-size image that you uploaded.

3.2.4 Image Sizes

Kotti uses a modern approach for layout, and it knows the default widths of the entire site, and of its parts. The behind-the-scenes preparation work described above, that Kotti does to prepare images automatically at different sizes, takes this layout knowledge into account. This results in the following additional available image URLs, along with their widths:

Image URL	Image Width
www.example.com/featured_fruits/bramleys-seedling/image/span1	60 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span2	160 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span3	260 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span4	360 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span5	460 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span6	560 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span7	660 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span8	760 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span9	860 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span10	960 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span11	1060 pixels
www.example.com/featured_fruits/bramleys-seedling/image/span12	1160 pixels

The structural layout for a default Kotti website is divided into these 12 span columns, that form an invisible underlying structure. Use these sizes as a general guideline for working with the Kotti layout system. You know that span12 covers the entire width of the website, span6 half of it. span1, at only 60 pixels wide, is small thumbnail size.

The default Kotti website uses a full-width design using the full width of 12 columns. If the design of the website is changed, however, as when a navigation menu is added on the left side, the underlying column structure manifests. The navigation menu might span 3 columns, leaving 9 columns for the right-hand side, where content items show. The image scale that fits such a navigation menu area on the left, 3 columns wide, is span3. The one that fits the right side in such a layout is span9.

The use of span columns makes working with website layout simpler than thinking in terms of absolute pixel dimensions.

The word-processor style user interface for composing the body of a document has an image picker that pops up when you click the image button. Upon saving, you can set the image scale you want, often experimenting until you find an image scale that works for a given need.

Images do not have to fit flush to column widths in a design layout. In the example above, in the area on the right that is 9 columns wide, you many want to use a medium-size image, centered at the top. The span5 image scale would work nicely for that. Or you might want to use a span2 thumbnail in a paragraph.

Note: Learning about Kotti's treatment of images helps you appreciate how Kotti is able to scale down from a full computer display to show the website on a tablet, or on a phone. It changes the size definitions of the spans dynamically, so that the site stays proportional, within reason, at different overall sizes. The span system for design layout avoids hard-coding to set pixel dimensions.

3.3 Adding Files

Files are normal files that you create on your computer, but for one reason or another, wish to post on your website. One common need is to post PDF files, perhaps for a newsletter or brochure. Another common need is to post word processor or spreadsheet files to share. You don't edit these files with Kotti, but you can add them anywhere, and you can link to them from documents.

Images are not Files, per se, in the context of Kotti. Images have their own content type.

3.4 Adding Custom Content

Kotti comes with built-in Document, Image, and File content types. These are general purpose content types. Keeping Kotti simple, with a focus on solid programming for these content types, is an important part of the vision for the software.

Add-ons are smaller software components that augment the base Kotti system. Add kotti_blog to your Kotti website and you get two new content types, Blog and BlogEntry. Add kotti_media to your website and you get Video, Audio, and other specialized content types.

Add-ons usually restrict how their content types can be added. For kotti_blog, BlogEntry items are addable only to a Blog. For kotti_media, the M4aFile content type is one of the available Audio media types. Kotti add-ons come with their own documentation that describes the available content types and how they work together.

Kotti maintains a listing of add-ons on its website and has a collaborative work area where software developers produce and maintain add-ons. Maintaining software can be a chore. Automation helps with this. Tests are run on add-ons to assure compatibility with Kotti as fixes and advancements are made.

Browse the list for available add-ons, and ask your website administrator to install the ones you need. It is good to decide on add-ons that are really needed for your website, after an initial phase of experimentation, because once you start adding content in earnest, the database grows with entries encoded with the specific structure of the add-on content types. Kotti includes functionality for its own and add-own updates however; when needed, a database "migration" can be run by the site adminstrator to translate and update older entries to newer formats.

NAVIGATION

4.1 Breadcrumbs
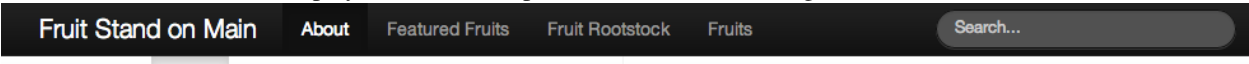
Once you have added several documents, perhaps following an outline to build a nested structure of documents, Kotti will handle linking the documents together in its navigation system, which you see as the menu system, perhaps up top in the header area, or in an indented tree display on the left or right, depending on the design of your website. There is also a "breadcrumbs" style display in the default Kotti system, that shows "You are here" path from the root of the site to a specific location in the site:

You are here: Fruit Rootstock

4.2 Toolbar

You see the main sections displayed across the top, in the toolbar, with navigation and searchbox:

Fruit Stand on Main   About   Featured Fruits   Fruit Rootstock   Fruits   Search...

4.3 Navigate View

For logged-in users, there is a main "Navigate" view that shows an outline for the entire site, showing content items as they are stored within the site structure.

Each item in the outline has an "Edit" icon, which offers a quick way to find and edit content items:

Navigate

- Fruit Stand on Main ⬚
    - About ⬚
    - Featured Fruits ⬚
        - Bramley's Seedling Apple Tree ⬚
        - Bramley's Seedling ⬚
    - Fruit Rootstock ⬚
    - Fruits ⬚
        - Apple ⬚
        - Avocado ⬚
        - Banana ⬚
        - Cantaloupe ⬚
        - Cherry ⬚
        - Grape ⬚
        - Kiwi ⬚
        - Lemon ⬚
        - Nectarine ⬚
        - Orange ⬚
        - Peach ⬚
        - Pineapple ⬚
        - Plum ⬚
        - Strawberry ⬚

FIVE

EDITING CONTENT

5.1 Views

Editing content uses the same, or very similar forms as the Add views. For a Document, you see the title and description at the top, then the tags, then the body. You see the same word processor-like user interface to change the body. For an Image, you see the title, description, tags, then a button to change the existing image – to upload a new version of the image or an altogether new image. The edit view for a File is exactly like that for an Image: there is a button to upload a new version of the file or an altogether new file. The edit view for custom content types is what you expect, following this general pattern.

After an item of content has been added, you may choose View, Contents, or Edit:

```
- View - the item in normal view
- Contents - a list of contained items (empty if there are none)
- Edit - the Edit form for the content item
```

View and Edit views are straightforward counterparts. The Contents view is dedicated to showing a list of contained items, but it is more than that, offering several "power" features.

5.1.1 Creating Links

You often want to make links from one document to another. When adding or editing the body of a document, select the word or phrase that you would like to make into a link, then click the button to add a link, then browse the website to find the target document for the link. Kotti will immediately format the link. You can use the same procedure to add a link to an external web page, pasting in the URL of the external web page.

We need to add a link to our "Fruits" document in the "About" document. We do this by clicking on "About," then clicking "Edit" in the editor bar:

Then, in the body select the text "current fruits" with your mouse. Then click the icon that looks like links of a chain. You will see the edit link widget. You can click the browse button to the right of the URL entry field, and then find the "Fruits" document and click on it, or you can enter the URL manually (especially useful for entering URLs of other websites).

Fruit Stand on Main   About   Featured Fruits   Fruit Rootstock   Fruits   Search...

Private ▾   View   Contents   Edit   Share   Actions ▾   Add ▾   Navigate   Administrator ▾

You are here: About

Edit *About*

Title* About

Description This website is for Fruit Stand on Main, founded 1985.

Tags

Body **B** *I*

We have
Our non

Monday
Saturda

We ofte

Address

Fruit Sta
123 Main Street
Somewhere, SW 01010

Email: fruits@example.com

Phone: +1-509-555-0100

Path: p

Insert/Edit Link

General Popup Events Advanced

General Properties

Link URL http://127.0.0.1:5000/fruits

Target Open in This Window/Frame

Title

Class -- Not Set --

Insert   Cancel

Save   Cancel

After saving the document, you will have a link on the "About" page from the "current fruits" text to the "Fruits" document:

5.2 Contents View

The Contents view for a given location shows contained items with data for each item: title, type, state (e.g. public or private), visibility (shown or hidden in navigation menu), and creation and modification dates:

Each item has a checkbox, so you can select one or more items for performing an action, as described below, via one of the buttons at the bottom of the view:

5.2.1 Copy and Cut

Copy and Cut start a copy/paste or a cut/paste operation. After copying or cutting items, go to the place where you want to move them, and there will be a Paste button active and ready. This is a powerful feature for reorganizing content.

5.2.2 Rename

Rename is used for changing the name, which is part of the web address (URL), and the title. If you select multiple items, then click Rename, you will be able to change the names and titles of all of the items in a single display. This another "power" feature. Imagine that you had named a number of items using a prefix 'NEWYK-', then later you see decide that the prefix 'New-York-' is better. Instead of visiting each item individually to change them with the Edit view, use this multi-edit feature of the Contents view.

5.2.3 Delete

Delete is available to delete single or multiple items in one operation, after confirming the operation.

5.2.4 Change State

Change State is for changing between Public and Private state. There is a checkbox for changing state of items that controls whether the state change should be applied recursively – whether or not it is carried to child items in a nested set of items. Consider a document about cars and information about makes and models. The "Cars" document could contain child items for British, French, German, American and other countries, and each of these could contain documents about specific makes and models. What if all of this content is in a Private state, because you have been working on it to prepare for publication. When ready to publish, you will want to change the state of all nested items to Public, but it would be laborious to visit the items individually, even with the aid of the Contents view. This is where the recursive setting helps. You would visit the main "Cars" document, and apply the state change recursively, and all of the car info content will instantly be made public.

Note: It is a good habit, when doing large state changes, especially when you publish a slug of content, to log out of the site, then browse around checking things, to check for missed or unintended actions.

5.2.5 Move Up and Move Down

Move Up and Move Down are used to walk a content item up or down in the list. This changes the position of the item in the list, but also in the navigation views. For top-level items – the ones under the home page (or can be called front page, landing page, etc.) – changing the order in the Contents view will change the order in the horizontal menu of main items in the header. Deeper within the content nesting of the website, ordering is apparent in the Contents view itself, or in the site-wide Navigation view, or in list-style or tree-style custom navigation menus.

5.2.6 Show and Hide

Show and Hide are for changing the visibility of items in the site-wide Navigation view. This is useful when you want items to be available on the website, perhaps for linking in documents, but you only want them to be found via these links. This can help keep navigation menus uncluttered.
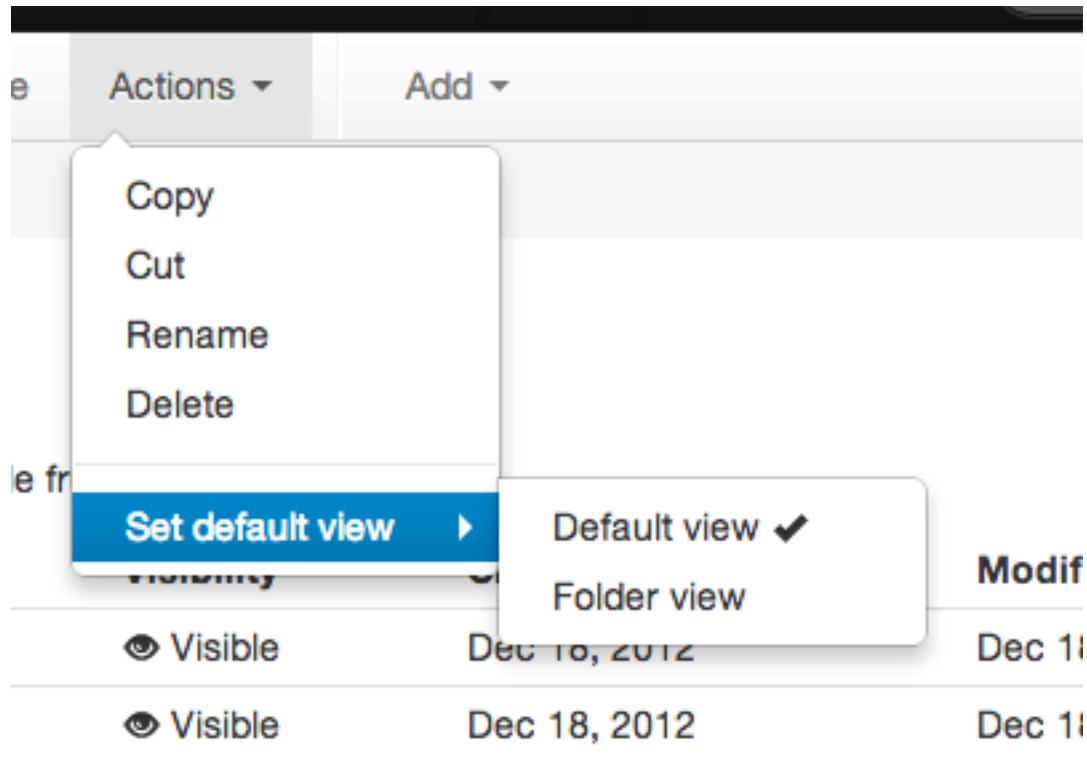
5.3 View Selection

The default view for a content item is set by the system for Document, Image, and File, and by custom add-on software for custom types. If a content item contains other items, a list of the items can always be seen in the Contents view.

Recall that we added fruit images for to the "Fruits" document, for which we saw a listing via the "Contents" view. Viewing the fruits in this way is useful, but it requires two steps:

1. Clicking on the "Fruits" document, which will only show a title and description, because we gave it no body text, since it is a container of fruit images.

2. Then clicking on "Contents" to see the contained fruit images.

We would rather make it so that when "Fruits" is clicked, it shows the list of contained items immediately, and by default. We do this by setting the default view for the "Fruits" document to "Folder view" ("Folder view" is about to be clicked in this view, and it will then show the check mark):

Now when we click directly on the "Fruits" document, we see a list view:

Should you later want to change the default view back to normal document view, you can set the it back to "Default view." This could happen if a document contains other documents, and is used as a simple list for a time, having default view set to "Folder view," but then the contained documents are removed for some reason. The original document could then have its default view set back to "Default view" and perhaps its description revised and body text entered or updated.

Or, perhaps the main document containing other documents, images, or files, has a custom body treatment, complete with links to the contained items. In this case, the default view would be kept as "Default view" to show the title, description, and custom body. We could do this for "Fruits" but consider the advantage of not maintaining a custom body with links – with default view set to "Folder view," anytime we add or delete a fruit image, the list view is automatically up-to-date.

SEARCHING

6.1 Searching by Keywords

The general site search is always available for standard keywords searching, which works as you probably expect that it should. The word or phrase is searched in titles, description, and in the body text, and matching content items are then presented in a search results list.

For the fruit stand website, we should expect to find a number of content items when we search for a general word like "fruit" and we do:

6.2 Searching by Clicking on a Tag

In the normal view for a content item, if you click a tag, the website will be searched for items that have been tagged with the clicked tag. Here we have visited the page for pineapple, and we see that it has been tagged with the "Tropical" tag, for the tropical fruit category.

We know that several other fruits were also tagged with "Tropical," such as kiwi and avocado. When we click the "Tropical" tag on the pineapple view above, a search is done to find items sharing the "Tropical" tag:

6.3 Searching Tags in General Search

You can also find content with certain tags by entering search terms into the general search field in the top toolbar of the site. If a tag is titled 'British cars', a search for either 'British cars' exactly, 'British', or 'cars' will find any items with the tag.

We know that, as for the "Tropical" tag, we expect to find multiple results when we do a general search on "Pit" and we do:
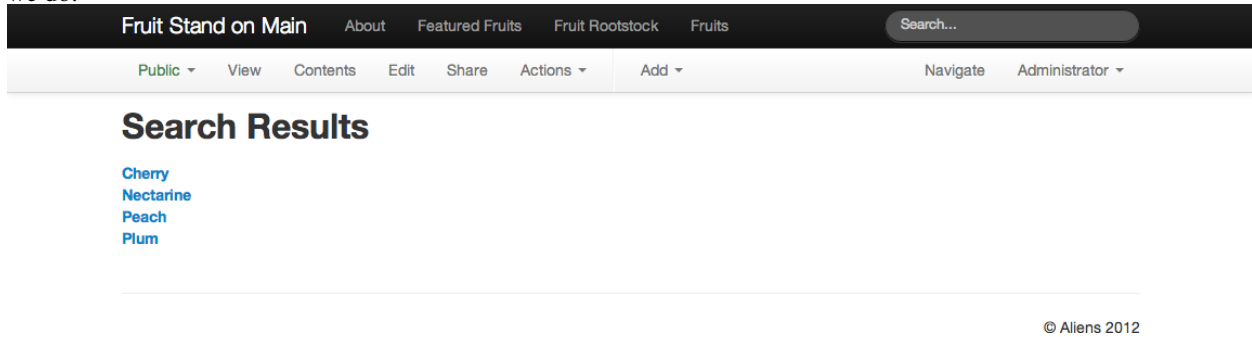
Note: Clicking on a tag is a tag-centric, single-tag search. General search will perhaps find more results, because it compares all of these for the search query text: title, description, body text, and tags.
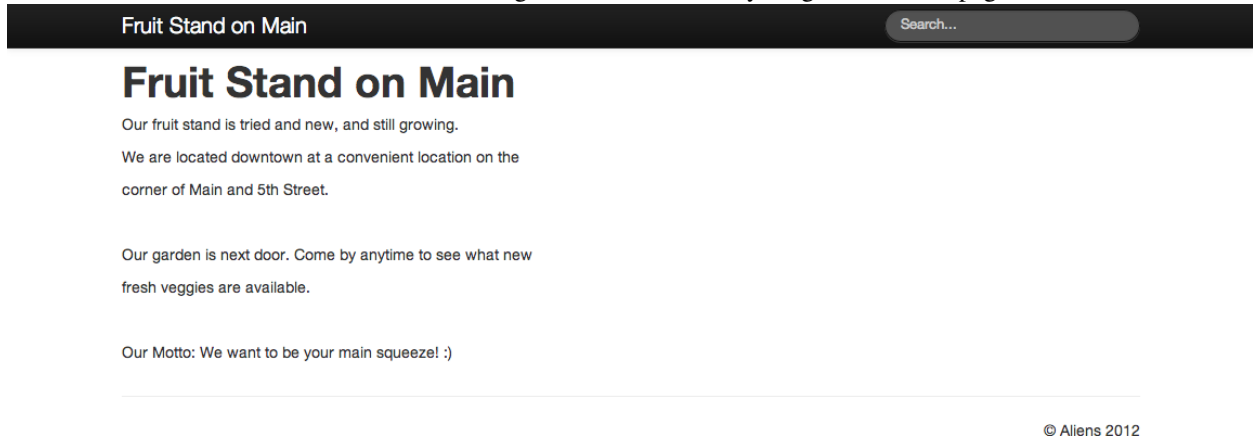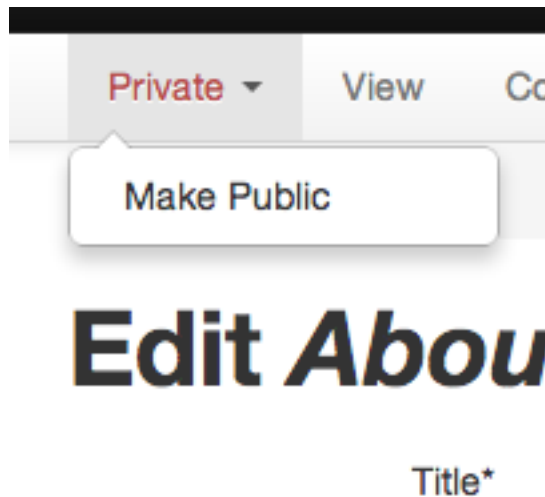
PUBLISHING

7.1 Publishing Content

Recall the two workflow states in the default Kotti website: Private and Public. All of the content we added to the fruit stand website is in the Private state. So, if we log out, we don't see anything but the front page:


We don't see the "About" page, nor any of the rest, because anonymous viewers can only see Public content. Private content is invisible to them.

We can publish content by changing the state of items from Private to Public by several methods. The quickest way for single items is to use the pulldown menu on the left side of the editor bar:

If we log back in and do that for "About," "Featured Fruits," "Fruit Rootstock," and "Fruits" main content items, and then log back out, we now can see those content items in anonymous view:
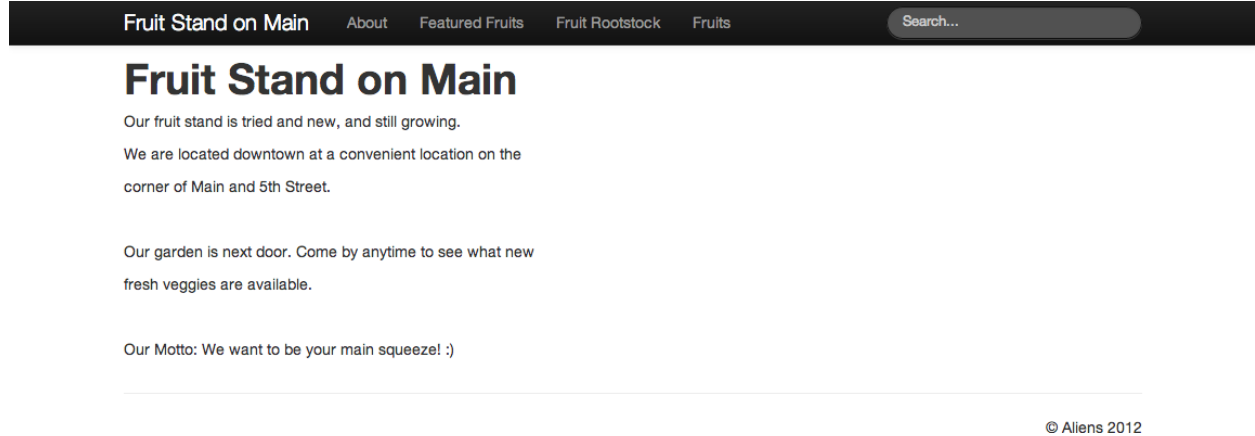
7.2 Recursive Publishing

The content of our fruit stand website does not have a deeply nested structure, because there isn't much content on the site yet. After more work, however, there could be sections within sections, made by a mix of documents, images, files, and custom content items. Kotti lets you change the publication state of entire sections by using a powerful feature called recursion:

```
recursion – The root word is recur, "occur again, periodically, or
            repeatedly," and in the context used for a Kotti website, we
            mean "walk through all nested content within a section of the
            website, performing an operation on all items within the
            section."
```

Consider a case where you would like to publish a large new section called "Fruit Tree Care and Feeding," all contained within a main document by that name. There are documents for subsections, and there are many images, pdf files, documents with tables, etc., within them. It would be impractical to click on each content item, changing Private to Public for each one. This is where recursion comes in. You get to this feature under the "Contents" view, which you would visit for the "Fruit Tree Care and Feeding" document. The bottom row of buttons has a "Change State" button:

When the "Change State" button is clicked, you are given a choice of the state change to perform, e.g. Private -> Public, and there is a checkbox for recursive. Check this to apply the operation to all content, no matter how deeply nested within the containing content item. The reverse operation can be just as important: you may wish to "unpublish" an entire section with a recursive Public -> Private change.

If you do not choose the recursive option when doing a state change, the change will be applied only to the content item itself, not any contained items.

INDICES AND TABLES

- *genindex*
- *modindex*
- *search*