# django-registration Documentation Release 2.1

James Bennett

# Installation and configuration

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django-registration is a simple, extensible application providing user registration functionality for Django-powered Web sites.

Although nearly all aspects of the registration process are customizable, out-of-the-box support is provided for two common use cases:

- Two-phase registration, consisting of initial signup followed by a confirmation email with instructions for activating the new account.
- One-phase registration, where a user signs up and is immediately active and logged in.

To get up and running quickly, consult *the quick start guide*, which describes the steps necessary to configure django-registration for the built-in workflows. For more detailed information, including how to customize the registration process (and support for alternate registration systems), read through the documentation listed below.



## Installation guide

Before installing django-registration, you'll need to have a copy of Django already installed. For information on obtaining and installing Django, consult the Django download page, which offers convenient packaged downloads and installation instructions.

The 2.1 release of django-registration supports Django 1.8 and 1.9, on any Python version supported by those versions of Django:

- Django 1.8 suports Python 2.7, 3.3, 3.4 and 3.5.
- Django 1.9 supports Python 2.7, 3.4 and 3.5.

It is expected that django-registration 2.1 will also work with Django 1.10 and Python 3.6 once they are released.

#### **Important: Python 3.2**

Although Django 1.8 supported Python 3.2 at the time of its release, the Python 3.2 series has reached end-of-life, and as a result support for Python 3.2 has been dropped from django-registration as of 2.1.

## 1.1 Normal installation

The preferred method of installing django-registration is via pip, the standard Python package-installation tool. If you don't have pip, instructions are available for how to obtain and install it. If you're using Python 2.7.9 or later (for Python 2) or Python 3.4 or later (for Python 3), pip came bundled with your installation of Python.

Once you have pip, simply type:

pip install django-registration

## 1.2 Manual installation

It's also possible to install django-registration manually. To do so, obtain the latest packaged version from the listing on the Python Package Index. Unpack the .tar.qz file, and run:

python setup.py install

Once you've installed django-registration, you can verify successful installation by opening a Python interpreter and typing import registration.

If the installation was successful, you'll simply get a fresh Python prompt. If you instead see an ImportError, check the configuration of your install tools and your Python import path to ensure django-registration installed into a location Python can import from.

# 1.3 Installing from a source checkout

The development repository for django-registration is at <a href="https://github.com/ubernostrum/django-registration">https://github.com/ubernostrum/django-registration</a>. Presuming you have git installed, you can obtain a copy of the repository by typing:

```
git clone https://github.com/ubernostrum/django-registration.git
```

From there, you can use normal git commands to check out the specific revision you want, and install it using python setup.py install.

# 1.4 Next steps

To get up and running quickly, check out the quick start guide. For full documentation, see the documentation index.

# **Quick start guide**

First you'll need to have Django and django-registration installed; for details on that, see the installation guide.

The next steps will depend on which registration workflow you'd like to use. There are three workflows built in to django-registration; one is included largely for backwards compatibility with older releases, while the other two are recommended for new installations. Those two are:

- The HMAC activation workflow, which implements a two-step process: a user signs up, then is emailed an activation link and must click it to activate the account.
- The simple one-step workflow, in which a user simply signs up and their account is immediately active and logged in.

The guide below covers use of these two workflows.

#### Important: Django's authentication system must be installed

Before proceeding with either of the recommended built-in workflows, you'll need to ensure django.contrib.auth has been installed (by adding it to INSTALLED\_APPS and running manage.py migrate to install needed database tables). Also, if you're making use of a custom user model, you'll probably want to pause and read the custom user compatibility guide before using django-registration.

# 2.1 Configuring the HMAC activation workflow

The configuration process for using the HMAC activation workflow is straightforward: you'll need to specify a couple of settings, connect some URLs and create a few templates.

## 2.1.1 Required settings

Begin by adding the following setting to your Django settings file:

**ACCOUNT\_ACTIVATION\_DAYS** This is the number of days users will have to activate their accounts after registering. If a user does not activate within that period, the account will remain permanently inactive unless a site administrator manually activates it.

For example, you might have something like the following in your Django settings:

ACCOUNT\_ACTIVATION\_DAYS = 7 # One-week activation window; you may, of course, use a different value

You'll also need to have django.contrib.auth in your INSTALLED\_APPS setting, since all of the registration workflows in django-registration make use of it.

**Warning:** You should **not** add registration to your INSTALLED\_APPS setting if you're following this document. This section is walking you through setup of the *the HMAC activation workflow*, and that does not make use of any custom models or other features which require registration to be in INSTALLED\_APPS. Only add registration to your INSTALLED\_APPS setting if you're using *the model-based activation workflow*, or something derived from it.

## 2.1.2 Setting up URLs

Each bundled registration workflow in django-registration includes a Django URLconf which sets up URL patterns for *the views in django-registration*, as well as several useful views in django.contrib.auth (e.g., login, logout, password change/reset). The URLconf for the HMAC activation workflow can be found at registration.backends.hmac.urls, and so can simply be included in your project's root URL configuration. For example, to place the URLs under the prefix /accounts/, you could add the following to your project's root URLconf:

```
from django.conf.urls import include, url

urlpatterns = [
    # Other URL patterns ...
    url(r'^accounts/', include('registration.backends.hmac.urls')),
    # More URL patterns ...
]
```

Users would then be able to register by visiting the URL /accounts/register/, log in (once activated) at /accounts/login/, etc.

Another URLConf is also provided – at registration.auth\_urls – which just handles the Django auth views, should you want to put those at a different location.

## 2.1.3 Required templates

You will also need to create several templates required by django-registration, and possibly additional templates required by views in django.contrib.auth. The templates required by django-registration are as follows; note that, with the exception of the templates used for account activation emails, all of these are rendered using a RequestContext and so will also receive any additional variables provided by context processors.

#### registration/registration\_form.html

Used to show the form users will fill out to register. By default, has the following context:

**form** The registration form. This will likely be a subclass of RegistrationForm; consult Django's forms documentation for information on how to display this in a template.

#### registration/registration\_complete.html

Used after successful completion of the registration form. This template has no context variables of its own, and should simply inform the user that an email containing account-activation information has been sent.

#### registration/activate.html

Used if account activation fails. With the default setup, has the following context:

**activation\_key** The activation key used during the activation attempt.

#### registration/activation\_complete.html

Used after successful account activation. This template has no context variables of its own, and should simply inform the user that their account is now active.

#### registration/activation email subject.txt

Used to generate the subject line of the activation email. Because the subject line of an email must be a single line of text, any output from this template will be forcibly condensed to a single line before being used. This template has the following context:

activation\_key The activation key for the new account.

expiration\_days The number of days remaining during which the account may be activated.

user The user registering for the new account.

registered; site An object representing the which the user depending django.contrib.sites installed, of is this be an instance either may django.contrib.sites.models.Site (if the sites application is installed) django.contrib.sites.requests.RequestSite (if not). Consult the documentation for the Django sites framework for details regarding these objects' interfaces.

#### registration/activation\_email.txt

Used to generate the body of the activation email. Should display a link the user can click to activate the account. This template has the following context:

activation\_key The activation key for the new account.

**expiration\_days** The number of days remaining during which the account may be activated.

user The user registering for the new account.

site An object representing the site which the user registered; depending django.contrib.sites is installed, this may be an instance of django.contrib.sites.models.Site (if the sites application is installed) django.contrib.sites.requests.RequestSite (if not). Consult the documentation for the Django sites framework for details regarding these objects.

Note that the templates used to generate the account activation email use the extension .txt, not .html. Due to widespread antipathy toward and interoperability problems with HTML email, django-registration defaults to plain-text email, and so these templates should simply output plain text rather than HTML.

To make use of the views from django.contrib.auth (which are set up for you by the default URLconf mentioned above), you will also need to create the templates required by those views. Consult the documentation for Django's authentication system for details regarding these templates.

# 2.2 Configuring the simple one-step workflow

Also included is a simpler, *one-step registration workflow*, where a user signs up and their account is immediately active and logged in.

The simple workflow does not require any models other than those provided by Django's own authentication system, so only django.contrib.auth needs to be in your INSTALLED\_APPS setting.

You will need to configure URLs to use the simple workflow; the easiest way is to simply include () the URLconf registration.backends.simple.urls in your root URLconf. For example, to place the URLs under the prefix /accounts/ in your URL structure:

```
from django.conf.urls import include, url

urlpatterns = [
    # Other URL patterns ...
    url(r'^accounts/', include('registration.backends.simple.urls')),
    # More URL patterns ...
]
```

Users could then register accounts by visiting the URL /accounts/register/.

This URLconf will also configure the appropriate URLs for the rest of the built-in django.contrib.auth views (log in, log out, password reset, etc.).

Finally, you will need to create one template: registration/registration\_form.html. See the list of templates above for details of this template's context.

## The HMAC activation workflow

The HMAC workflow, found in registration.backends.hmac, implements a two-step registration process (signup, followed by activation), but unlike the older *model-based activation workflow* uses no models and does not store its activation key; instead, the activation key sent to the user is a timestamped, HMAC-verified value.

Unless you need to maintain compatibility in an existing install of django-registration which used the model-based workflow, it's recommended you use the HMAC activation workflow for two-step signup processes.

## 3.1 Behavior and configuration

Since this workflow does not make use of any additional models beyond the user model (either Django's default django.contrib.auth.models.User, or *a custom user model*), *do not* add registration to your INSTALLED\_APPS setting.

You will need to configure URLs, however. A default URLconf is provided, which you can include () in your URL configuration; that URLconf is registration.backends.hmac.urls. For example, to place user registration under the URL prefix /accounts/, you could place the following in your root URLconf:

```
from django.conf.urls import include, url

urlpatterns = [
    # Other URL patterns ...
    url(r'^accounts/', include('registration.backends.hmac.urls')),
    # More URL patterns ...
]
```

That URLconf also sets up the views from django.contrib.auth (login, logout, password reset, etc.), though if you want those views at a different location, you can include () the URLconf registration.auth\_urls to place only the django.contrib.auth views at a specific location in your URL hierarchy.

#### **Note:** URL patterns for activation

Although the actual value used in the activation key is the new user account's username, the URL pattern for ActivationView does not need to match all possible legal characters in a username. The activation key that will be sent to the user (and thus matched in the URL) is produced by django.core.signing.dumps(), which base64-encodes its output. Thus, the only characters this pattern needs to match are those from the URL-safe base64 alphabet, plus the colon (":") which is used as a separator.

The default URL pattern for the activation view in registration.backends.hmac.urls handles this for you.

This workflow makes use of up to three settings (click for details on each):

- ACCOUNT ACTIVATION DAYS
- REGISTRATION OPEN
- REGISTRATION\_SALT (see also note below)

By default, this workflow uses registration.forms.RegistrationForm as its form class for user registration; this can be overridden by passing the keyword argument form\_class to the registration view.

## 3.2 Views

Two views are provided to implement the signup/activation process. These subclass *the base views of django-registration*, so anything that can be overridden/customized there can equally be overridden/customized here. There are some additional customization points specific to the HMAC implementation, which are listed below.

For an overview of the templates used by these views (other than those specified below), and their context variables, see *the quick start guide*.

#### class registration.backends.hmac.views.RegistrationView

A subclass of registration.views.RegistrationView implementing the signup portion of this workflow.

Important customization points unique to this class are:

#### create\_inactive\_user (form)

Creates and returns an inactive user account, and calls <code>send\_activation\_email()</code> to send the email with the activation key. The argument <code>form</code> is a valid registration form instance passed from <code>register()</code>.

#### get\_activation\_key(user)

Given an instance of the user model, generates and returns an activation key (a string) for that user account.

#### get\_email\_context(activation\_key)

Returns a dictionary of values to be used as template context when generating the activation email.

#### send\_activation\_email(user)

Given an inactive user account, generates and sends the activation email for that account.

#### email\_body\_template

A string specifying the template to use for the body of the activation email. Default is "registration/activation\_email.txt".

#### email subject template

A string specifying the template to use for the subject of the activation email. Default is "registration/activation\_email\_subject.txt". Note that, to avoid header-injection vulnerabilities, the result of rendering this template will be forced into a single line of text, stripping newline characters.

#### class registration.backends.hmac.views.ActivationView

A subclass of registration.views.ActivationView implementing the activation portion of this workflow.

Important customization points unique to this class are:

#### get\_user (username)

Given a username (determined by the activation key), look up and return the corresponding instance of the user model. Returns None if no such instance exists. In the base implementation, will include is\_active=False in the query to avoid re-activation of already-active accounts.

#### validate\_key (activation\_key)

Given the activation key, verifies that it carries a valid signature and a timestamp no older than the number of days specified in the setting ACCOUNT\_ACTIVATION\_DAYS, and returns the username from the activation key. Returns None if the activation key has an invalid signature or if the timestamp is too old.

## 3.3 How it works

When a user signs up, the HMAC workflow creates a new User instance to represent the account, and sets the is\_active field to False. It then sends an email to the address provided during signup, containing a link to activate the account. When the user clicks the link, the activation view sets is\_active to True, after which the user can log in.

The activation key is simply the username of the new account, signed using Django's cryptographic signing tools (specifically, signing.dumps() is used, to produce a guaranteed-URL-safe value). The activation process includes verification of the signature prior to activation, as well as verifying that the user is activating within the permitted window (as specified in the setting ACCOUNT\_ACTIVATION\_DAYS, mentioned above), through use of Django's TimestampSigner.

# 3.4 Comparison to the model-activation workflow

The primary advantage of the HMAC activation workflow is that it requires no persistent storage of the activation key. However, this means there is no longer an automated way to differentiate accounts which have been purposefully deactivated (for example, as a way to ban a user) from accounts which failed to activate within a specified window. Additionally, it is possible a user could, if manually deactivated, re-activate their account if still within the activation window; for this reason, when using the <code>is\_active</code> field to "ban" a user, it is best to also set the user's password to an unusable value (i.e., by calling <code>set\_unusable\_password()</code> for that user). Calling <code>set\_unusable\_password()</code> will also make it easier to query for manually-deactivated users, as their passwords will (when using Django's default <code>User</code> implementation) begin with the exclamation mark (!) character.

Since the HMAC activation workflow does not use any models, it also does not make use of the admin interface and thus does not offer a convenient way to re-send an activation email. Users who have difficulty receiving the activation email can simply be manually activated by a site administrator.

However, the reduced overhead of not needing to store the activation key makes this generally preferable to *the model-based workflow*.

# 3.5 Security considerations

The activation key emailed to the user in the HMAC activation workflow is a value obtained by using Django's cryptographic signing tools.

In particular, the activation key is of the form:

encoded\_username:timestamp:signature

where <code>encoded\_username</code> is the username of the new account, (URL-safe) base64-encoded, <code>timestamp</code> is a base62-encoded timestamp of the time the user registered, and <code>signature</code> is a (URL-safe) base64-encoded HMAC of the username and timestamp.

Django's implementation uses the value of the SECRET\_KEY setting as the key for HMAC; additionally, it permits the specification of a salt value which can be used to "namespace" different uses of HMAC across a Django-powered site. The HMAC activation workflow will use the value (a string) of the setting REGISTRATION\_SALT as the salt,

3.3. How it works

defaulting to the string "registration" if that setting is not specified. This value does *not* need to be kept secret (only SECRET\_KEY does); it serves only to ensure that other parts of a site which also produce signed values from user input could not be used as a way to generate activation keys for arbitrary usernames (and vice-versa).

# The simple one-step workflow

As an alternative to the *HMAC* and *model-based* two-step (registration and activation) workflows, django-registration bundles a one-step registration workflow in registration.backends.simple. This workflow is deliberately as simple as possible:

- 1. A user signs up by filling out a registration form.
- 2. The user's account is created and is active immediately, with no intermediate confirmation or activation step.
- 3. The new user is logged in immediately.

## 4.1 Configuration

To use this workflow, simply include the URLconf registration.backends.simple.urls somewhere in your site's own URL configuration. For example:

```
from django.conf.urls import include, url

urlpatterns = [
    # Other URL patterns ...
    url(r'^accounts/', include('registration.backends.simple.urls')),
    # More URL patterns ...
]
```

To control whether registration of new accounts is allowed, you can specify the setting REGISTRATION\_OPEN.

Upon successful registration, the user will be redirected to the site's home page – the URL /. This can be changed by subclassing registration.backends.simple.views.RegistrationView and overriding the method get\_success\_url().

The default form class used for account registration will be registration.forms.RegistrationForm, overridden supplying a custom although this by URL pattern for the istration passing the keyword argument form\_class, or subclassing registration.backends.simple.views.RegistrationView and either overriding form\_class or implementing get\_form\_class(), and specifying the custom subclass in your URL patterns.

# 4.2 Templates

The one-step workflow uses only one custom template:

registration/registration\_form.html

Used to show the form users will fill out to register. By default, has the following context:

**form** The registration form. This will likely be a subclass of <code>RegistrationForm</code>; consult Django's forms documentation for information on how to display this in a template.

## The model-based activation workflow

This workflow implements a two-step – registration, followed by activation – process for user signup.

#### Note: Use of the model-based workflow is discouraged

The model-based activation workflow was originally the *only* workflow built in to django-registration, and later was the default one. However, it no longer represents the best practice for registration with modern versions of Django, and so it continues to be included only for backwards compatibility with existing installations of django-registration.

If you're setting up a new installation and want a two-step process with activation, it's recommended you use the HMAC activation workflow instead.

Also, note that this workflow was previously found in registration.backends.default, and imports from that location still function in django-registration 2.1 but now raise deprecation warnings. The correct location going forward is registration.backends.model activation.

# 5.1 Default behavior and configuration

To make use of this workflow, simply add registration to your INSTALLED APPS, manage.py migrate install its model, include the **URLconf** run and registration.backends.model\_activation.urls at whatever location you choose in your URL hierarchy. For example:

```
from django.conf.urls import include, url

urlpatterns = [
    # Other URL patterns ...
    url(r'^accounts/', include('registration.backends.model_activation.urls')),
    # More URL patterns ...
]
```

This workflow makes use of the following settings:

- ACCOUNT\_ACTIVATION\_DAYS
- REGISTRATION\_OPEN

By default, this workflow uses registration.forms.RegistrationForm as its form class for user registration; this can be overridden by passing the keyword argument form class to the registration view.

Two views are provided: registration.backends.model\_activation.views.RegistrationView and registration.backends.model\_activation.views.ActivationView. These views subclass django-registration's base RegistrationView and ActivationView, respectively, and implement the two-step registration/activation process.

Upon successful registration — not activation — the user will be redirected to the URL pattern named registration\_complete.

Upon successful activation, the user will be redirected to the URL pattern named registration\_activation\_complete.

This workflow uses the same templates and contexts as *the HMAC activation workflow*, which is covered in *the quick-start guide*. Refer to the quick-start guide for documentation on those templates and their contexts.

## 5.2 How account data is stored for activation

During registration, a new instance of the user model (by default, Django's django.contrib.auth.models.User — see the custom user documentation for notes on using a different model) is created to represent the new account, with the is\_active field set to False. An email is then sent to the email address of the account, containing a link the user must click to activate the account; at that point the is active field is set to True, and the user may log in normally.

Activation is handled by generating and storing an activation key in the database, using the following model:

#### class registration.models.RegistrationProfile

A simple representation of the information needed to activate a new user account. This is **not** a user profile; it simply provides a place to temporarily store the activation key and determine whether a given account has been activated.

Has the following fields:

#### user

A OneToOneField to the user model, representing the user account for which activation information is being stored.

#### activation\_key

A 40-character CharField, storing the activation key for the account. Initially, the activation key is the hex digest of a SHA1 hash; after activation, this is reset to ACTIVATED.

Additionally, one class attribute exists:

#### **ACTIVATED**

A constant string used as the value of activation\_key for accounts which have been activated.

And the following methods:

#### activation\_key\_expired()

Determines whether this account's activation key has expired, and returns a boolean (True if expired, False otherwise). Uses the following algorithm:

- 1.If activation\_key is ACTIVATED, the account has already been activated and so the key is considered to have expired.
- 2.Otherwise, the date of registration (obtained from the date\_joined field of user) is compared to the current date; if the span between them is greater than the value of the setting ACCOUNT ACTIVATION DAYS, the key is considered to have expired.

Return type bool

#### send activation email(site)

Sends an activation email to the address of the account.

The activation email will make use of two templates: registration/activation\_email\_subject.txt and registration/activation\_email.txt, which are used for the subject of the email and the body of the email, respectively. Each will receive the following context:

activation\_key The value of activation\_key.

**expiration\_days** The number of days the user has to activate, taken from the setting ACCOUNT\_ACTIVATION\_DAYS.

user The user registering for the new account.

site An object representing the site on which the account was registered; depending on whether django.contrib.sites is installed, this may be an instance of either django.contrib.sites.models.Site (if the sites application is installed) or django.contrib.sites.models.RequestSite (if not). Consult the documentation for the Django sites framework for details regarding these objects' interfaces.

Note that, to avoid header-injection vulnerabilities, the rendered output of registration/activation\_email\_subject.txt will be forcibly condensed to a single line.

Parameters site (django.contrib.sites.models.Site or django.contrib.sites.models.RequestSite) - An object representing the site on which account was registered.

#### Return type None

Additionally, RegistrationProfile has a custom manager (accessed as RegistrationProfile.objects):

#### class registration.models.RegistrationManager

This manager provides several convenience methods for creating and working with instances of RegistrationProfile:

#### activate\_user(activation\_key)

Validates activation\_key and, if valid, activates the associated account by setting its is\_active field to True. To prevent re-activation of accounts, the activation\_key of the RegistrationProfile for the account will be set to RegistrationProfile.ACTIVATED after successful activation.

Returns the user instance representing the account if activation is successful, False otherwise.

**Parameters activation\_key** (string, a 40-character SHA1 hexdigest) — The activation key to use for the activation.

**Return type** user or bool

#### delete\_expired\_users()

Removes expired instances of RegistrationProfile, and their associated user accounts, from the database. This is useful as a periodic maintenance task to clean out accounts which registered but never activated.

Accounts to be deleted are identified by searching for instances of <code>RegistrationProfile</code> with expired activation keys and with associated user accounts which are inactive (have their <code>is\_active</code> field set to <code>False</code>). To disable a user account without having it deleted, simply delete its associated <code>RegistrationProfile</code>; any <code>User</code> which does not have an associated <code>RegistrationProfile</code> will not be deleted.

A custom management command is provided which will execute this method, suitable for use in cron jobs or other scheduled maintenance tasks: manage.py cleanupregistration.

#### Return type None

#### create\_inactive\_user (form, site, send\_email=True)

Creates a new, inactive user account and an associated instance of <code>RegistrationProfile</code>, sends the activation email and returns the new <code>User</code> object representing the account.

#### **Parameters**

- **form** A bound instance of a subclass of *RegistrationForm* representing the (already-validated) data the user is trying to register with.
- **site** An object representing the site on which the account is being registered. :type site: django.contrib.sites.models.Site or django.contrib.sites.models.RequestSite :param send\_email: If True, the activation email will be sent to the account (by calling RegistrationProfile.send\_activation\_email()). If False, no email will be sent (but the account will still be inactive).:type send\_email: bool:rtype: user

#### create\_profile (user)

Creates and returns a RegistrationProfile instance for the account represented by user.

The RegistrationProfile created by this method will have its activation\_key set to a SHA1 hash generated from a combination of the account's username and a random salt.

**Parameters user** (User) - The user account; an instance of django.contrib.auth.models.User.

Return type RegistrationProfile

## **Base view classes**

In order to allow the utmost flexibility in customizing and supporting different workflows, django-registration makes use of Django's support for class-based views. Included in django-registration are two base classes which can be subclassed to implement whatever workflow is required.

The built-in workflows in django-registration provide their own subclasses of these views, and the documentation for those workflows will indicate customization points specific to those subclasses. The following reference covers useful attributes and methods of the base classes, for use in writing your own custom subclasses.

#### class registration.views.RegistrationView

A subclass of Django's FormView, which provides the infrastructure for supporting user registration.

Since it's a subclass of FormView, RegistrationView has all the usual attributes and methods you can override.

When writing your own subclass, one method is required:

#### register (form)

Implement your registration logic here. form will be the (already-validated) form filled out by the user during the registration process (i.e., a valid instance of registration.forms.RegistrationForm or a subclass of it).

This method should return the newly-registered user instance, and should send the signal registration.signals.user\_registered. Note that this is not automatically done for you when writing your own custom subclass, so you must send this signal manually.

Useful optional places to override or customize on a RegistrationView subclass are:

## disallowed\_url

The URL to redirect to when registration is disallowed. Should be a string name of a URL pattern. Default value is "registration\_disallowed".

#### form class

The form class to use for user registration. Can be overridden on a per-request basis (see below). Should be the actual class object; by default, this class is registration.forms.RegistrationForm.

#### success\_url

The URL to redirect to after successful registration. A string containing a (relative) URL, or a string name of a URL pattern, or a 3-tuple of arguments suitable for passing to Django's redirect shortcut. Can be overridden on a per-request basis (see below). Default value is None, so that per-request customization is used instead.

#### template name

The template to use for user registration. Should be a string. Default value is registration/registration\_form.html.

#### get form class()

Select a form class to use on a per-request basis. If not overridden, will use form\_class. Should be the actual class object.

#### get\_success\_url (user)

Return a URL to redirect to after successful registration, on a per-request or per-user basis. If not overridden, will use <code>success\_url</code>. Should return a string containing a (relative) URL, or a string name of a URL pattern, or a 3-tuple of arguments suitable for passing to Django's redirect shortcut.

#### registration allowed()

Should return a boolean indicating whether user registration is allowed, either in general or for this specific request.

#### Warning: Implementing form\_invalid()

To work around a potential performance issue in Django 1.9, RegistrationView implements the form\_invalid() method. If you choose to override form\_invalid() in a subclass of RegistrationView, be sure to read the implementation and comments in the source code of django-registration first. Note that Django 1.9.1, once released, will not be affected by this bug.

#### class registration.views.ActivationView

A subclass of Django's TemplateView which provides support for a separate account-activation step, in work-flows which require that.

One method is required:

#### activate(\*args, \*\*kwargs)

Implement your activation logic here. You are free to configure your URL patterns to pass any set of positional or keyword arguments to ActivationView, and they will in turn be passed to this method.

This method should return the newly-activated user instance (if activation was successful), or boolean False if activation was not successful.

Useful places to override or customize on an ActivationView subclass are:

#### template name

The template to use for user activation. Should be a string. Default value is registration/activate.html.

#### get\_success\_url (user)

Return a URL to redirect to after successful registration, on a per-request or per-user basis. If not overridden, will use success\_url. Should return a string containing a (relative) URL, or a string name of a URL pattern, or a 3-tuple of arguments suitable for passing to Django's redirect shortcut.

## Base form classes

Several form classes are provided with django-registration, covering common cases for gathering account information and implementing common constraints for user registration. These forms were designed with django-registration's built-in registration workflows in mind, but may also be useful in other situations.

#### class registration.forms.RegistrationForm

A simple form for registering an account. This is a subclass of Django's built-in UserCreationForm, and has the following fields, all of which are required:

- **username** The username to use for the new account. This is represented as a text input which validates that the username is unique, consists entirely of alphanumeric characters and underscores and is at most 30 characters in length.
- **email** The email address to use for the new account. This is represented as a text input which accepts email addresses up to 75 characters in length.
- password1 The password to use for the new account. This is represented as a password input (input type="password" in the rendered HTML).
- password2 The password to use for the new account. This is represented as a password input (input type="password" in the rendered HTML).

Because this is a subclass of Django's own UserCreationForm, the constraints on usernames and email addresses match those enforced by Django's default authentication backend for instances of django.contrib.auth.models.User. The repeated entry of the password serves to catch typos.

The validation error for mismatched passwords is attached to the password2 field. This is a backwards-incompatible change from django-registration 1.0.

#### Note: Validation of usernames

Because it's a subclass of Django's UserCreationForm, RegistrationForm will inherit the base validation defined by Django. It also adds a custom clean() method which applies one custom validator: ReservedNameValidator. See the documentation for ReservedNameValidator for notes on why it exists and how to customize its behavior.

#### class registration.forms.RegistrationFormTermsOfService

A subclass of RegistrationForm which adds one additional, required field:

tos A checkbox indicating agreement to the site's terms of service/user agreement.

#### class registration.forms.RegistrationFormUniqueEmail

A subclass of RegistrationForm which enforces uniqueness of email addresses in addition to uniqueness of usernames.

#### ${\bf class} \; {\tt registration.forms.RegistrationFormNoFreeEmail}$

A subclass of RegistrationForm which disallows registration using addresses from some common free email providers. This can, in some cases, cut down on automated registration by spambots.

By default, the following domains are disallowed for email addresses:

- •aim.com
- •aol.com
- •email.com
- •gmail.com
- •googlemail.com
- •hotmail.com
- •hushmail.com
- •msn.com
- •mail.ru
- •mailinator.com
- •live.com
- •yahoo.com

To change this, subclass this form and set the class attribute bad\_domains to a list of domains you wish to disallow.

## **Custom user models**

When django-registration was first developed, Django's authentication system supported only its own built-in user model, django.contrib.auth.models.User. More recent versions of Django have introduced support for custom user models.

Older versions of django-registration did not generally support custom user models due to the additional complexity required; as of version 2.1, however, django-registration now can support custom user models. Depending on how significantly your custom user model differs from Django's default, you may need to change only a few lines of code; custom user models significantly different from the default model may require more work to support.

## 8.1 Overview

The primary issue when using django-registration with a custom user model will be <code>RegistrationForm</code>. RegistrationForm is a subclass of Django's built-in <code>UserCreationForm</code>, which in turn is a <code>ModelForm</code> with its model set to <code>django.contrib.auth.models.User</code>. The only changes made by <code>django-registration</code> are to apply the reserved name validator (<code>registration.validators.ReservedNameValidator</code>) and make the email field required (by default, Django's user model makes this field optional; it is required in <code>RegistrationForm</code> because two of the three built-in workflows of <code>django-registration</code> require an email address in order to send account-activation instructions to the user). As a result, you will always be required to supply a custom form class when using <code>django-registration</code> with a custom user model.

In the case where your user model is compatible with the default behavior of django-registration, (see below) you will be able to simply subclass RegistrationForm, set it to use your custom user model as the model, and then configure the views in django-registration to use your form subclass. For example, you might do the following (in a forms.py module somewhere in your codebase – do **not** directly edit django-registration's code):

```
from registration.forms import RegistrationForm

from mycustomuserapp.models import MyCustomUser

class MyCustomUserForm(RegistrationForm):
    class Meta:
        model = MyCustomUser
```

And then in your URL configuration (example here uses the HMAC activation workflow):

If your custom user model is not compatible with the built-in workflows of django-registration (see next section), you will probably need to subclass the provided views (either the base registration views, or the views of the workflow you want to use) and make the appropriate changes for your user model.

# 8.2 Determining compatibility of a custom user model

The built-in workflows and other code of django-registration do as much as is possible to ensure compatibility with custom user models; django.contrib.auth.models.User is never directly imported or referred to, and all code in django-registration instead uses settings.AUTH\_USER\_MODEL or django.contrib.auth.get\_user\_model() to refer to the user model, and USERNAME\_FIELD when access to the username is required.

However, there are still some specific requirements you'll want to be aware of.

The two-step activation workflows – both *HMAC*- and *model*-based – require that your user model have the following fields:

- email a CharField or EmailField holding the user's email address. Note that this field is required by RegistrationForm, which is a difference from Django's default UserCreationForm.
- is active a BooleanField indicating whether the user's account is active.

You also *must* specify the attribute USERNAME\_FIELD on your user model to denote the field used as the username. Additionally, your user model must implement the <code>email\_user</code> method for sending email to the user.

The model-based activation workflow requires one additional field:

• date\_joined-a DateField or DateTimeField indicating when the user's account was registered.

The simple one-step workflow requires that your user model set USERNAME\_FIELD, and requires that it define a field named password for storing the user's password; the combination of USERNAME\_FIELD and password must be sufficient to log a user in. Also note that RegistrationForm requires the email field, so either provide that field on your model or subclass RegistrationForm.

If your custom user model defines additional fields beyond the minimum requirements, you'll either need to ensure that all of those fields are optional (i.e., can be NULL in your database, or provide a suitable default value defined in the model), or you'll need to specify the full list of fields to display in the fields option of your RegistrationForm subclass.

## Validation utilities

To ease the process of validating user registration data, django-registration includes some validation-related data and utilities in registration.validators.

The available error messages are:

```
registration.validators.DUPLICATE_EMAIL
```

Error message raised by RegistrationFormUniqueEmail when the supplied email address is not unique.

```
registration.validators.FREE_EMAIL
```

Error message raised by RegistrationFormNoFreeEmail when the supplied email address is rejected by its list of free-email domains.

```
\verb"registration.validators.RESERVED_NAME"
```

Error message raised by ReservedNameValidator when it is given a value that is a reserved name.

```
registration.validators.TOS_REQUIRED
```

Error message raised by RegistrationFormTermsOfService when the terms-of-service field is not checked.

All of these error messages are marked for translation; most have translations into multiple languages already in django-registration.

Additionally, one custom validator is provided:

```
class registration.validators.ReservedNameValidator
```

A custom validator (see Django's validators documentation) which prohibits the use of a reserved name as the value.

By default, this validator is applied to the username field of <code>registration.forms.RegistrationForm</code> and all of its subclasses. The validator is applied in a form-level <code>clean()</code> method on <code>RegistrationForm</code>, so to remove it (not recommended), simply subclass <code>RegistrationForm</code> and override <code>clean()</code>. For no custom form-level validation, you could simply implement it as:

```
def clean(self):
    pass
```

If you want to supply your own custom list of reserved names, you can subclass RegistrationForm and set the attribute reserved\_names to the list of values you want to disallow.

#### Note: Why reserved names are reserved

Many Web applications enable per-user URLs (to display account information), and some may also create email addresses or even subdomains, based on a user's username. While this is often useful, it also represents a risk: a user might register a name which conflicts with an important URL, email address or subdomain, and this might give that user control over it.

django-registration includes a list of reserved names, and rejects them as usernames by default, in order to avoid this issue.

The default list of reserved names, if you don't specify one, is *DEFAULT\_RESERVED\_NAMES*. The validator will also reject any value beginning with the string ".well-known" (see RFC 5785).

Several constants are provided which are used by this validator:

#### registration.validators.SPECIAL HOSTNAMES

A list of hostnames with reserved or special meaning (such as "autoconfig", used by some email clients to automatically discover configuration data for a domain).

## $\verb"registration.validators.PROTOCOL_HOSTNAMES"$

A list of protocol-specific hostnames sites commonly want to reserve, such as "www" and "mail".

#### registration.validators.CA\_ADDRESSES

A list of email usernames commonly used by certificate authorities when verifying identity.

#### registration.validators.RFC\_2142

A list of common email usernames specified by RFC 2142.

#### registration.validators.NOREPLY\_ADDRESSES

A list of common email usernames used for automated messages from a Web site (such as "noreply" and "mailer-daemon").

#### registration.validators.SENSITIVE\_FILENAMES

A list of common filenames with important meanings, such that usernames should not be allowed to conflict with them (such as "favicon.ico" and "robots.txt").

#### registration.validators.OTHER\_SENSITIVE\_NAMES

Other names, not covered by the above lists, which have the potential to conflict with common URLs or subdomains, such as "blog" and "docs".

## $\verb"registration.validators.\mathbf{DEFAULT}_{\tt RESERVED}\_{\tt NAMES}$

A list made of the concatentation of all of the above lists, used as the default set of reserved names for ReservedNameValidator.

## **Custom settings**

Although the choice of registration workflow does not necessarily require changes to your Django settings (as registration workflows are selected by including the appropriate URL patterns in your root URLconf), the built-in workflows of django-registration make use of several custom settings.

#### django.conf.settings.ACCOUNT ACTIVATION DAYS

An int indicating how long (in days) after signup an account has in which to activate.

This setting is required if using one of the built-in two-step workflows:

- •The two-step HMAC activation workflow
- •The model-based activation workflow

#### django.conf.settings.REGISTRATION\_OPEN

A bool indicating whether registration of new accounts is currently permitted.

A default of True is assumed when this setting is not supplied, so specifying it is optional unless you want to temporarily close registration (in which case, set it to False).

#### Used by:

- •The two-step HMAC activation workflow
- •The simple one-step workflow
- •The model-based activation workflow

Third-party workflows wishing to use an alternate method of determining whether registration is allowed should subclass registration.views.RegistrationView (or a subclass of it from an existing workflow) and override registration\_allowed().

#### django.conf.settings.REGISTRATION\_SALT

A str used as an additional "salt" in the process of generating HMAC-signed activation keys.

This setting is optional, and a default of "registration" will be used if not specified. The value of this setting does not need to be kept secret; see ref: the note about this salt value and security < salt-security > for details.

#### Used by:

•The two-step HMAC activation workflow

django-registration Documentation, Release 2.1		

# Signals used by django-registration

Much of django-registration's customizability comes through the ability to write and use different workflows for user registration. However, there are many cases where only a small bit of additional logic needs to be injected into the registration process, and writing a custom workflow to support this represents an unnecessary amount of work. A more lightweight customization option is provided through two custom signals which the built-in registration workflows send, and custom workflows are encouraged to send, at specific points during the registration process; functions listening for these signals can then add whatever logic is needed.

For general documentation on signals and the Django dispatcher, consult Django's signals documentation. This documentation assumes that you are familiar with how signals work and the process of writing and connecting functions which will listen for signals.

#### registration.signals.user\_activated

Sent when a user account is activated (not applicable to all workflows). Provides the following arguments:

**sender** The ActivationView subclass used to activate the user.

user A user-model instance representing the activated account.

request The HttpRequest in which the account was activated.

This signal is automatically sent for you by the base ActivationView, so unless you've overridden its get () method in a subclass you should not need to explicitly send it.

#### registration.signals.user\_registered

Sent when a new user account is registered. Provides the following arguments:

sender The RegistrationView subclass used to register the account.

**user** A user-model instance representing the new account.

request The HttpRequest in which the new account was registered.

This signal is **not** automatically sent for you by the base <code>RegistrationView</code>. It is sent by the subclasses implemented for the three included registration workflows, but if you write your own subclass of <code>RegistrationView</code>, you'll need to send this signal as part of the implementation of the <code>register()</code> method.



# **Upgrading from previous versions**

Prior to 2.0, the last widely-deployed release of django-registration was 0.8; a 1.0 release was published, and 2.1 is mostly backwards-compatible with it, but 1.0 appears not to have seen wide adoption. As such, this guide covers the process of upgrading from django-registration 0.8, as well as from 1.0.

## 12.1 Backends are now class-based views

In django-registration 0.8, a registration workflow was implemented as a class with specific methods for the various steps of the registration process. In django-registration 2.1, a registration workflow is implemented as one or more class-based views.

In general, the required changes to implement a 0.8 registration workflow in django-registration 2.1 is:

0.8 backend class implementation	2.1 view subclass implementation	
Backend class implementing register()	registration.views.RegistrationView.regist	er()
Backend class implementing activate()	registration.views.ActivationView.activate	
Backend class implementing	registration.views.RegistrationView.regist	ration_allow
registration_allowed()		
Backend class implementing	registration.views.RegistrationView.get_fo	rm_class()
<pre>get_form_class()</pre>		
Backend class implementing	registration.views.RegistrationView.get_su	ccess_url()
<pre>post_registration_redirect()</pre>		
Backend class implementing	registration.views.ActivationView.get_succ	ess_url()
<pre>post_activation_redirect()</pre>		

# 12.2 URLconf changes

If you were using one of the provided workflows in django-registration 0.8 without modification, you will not need to make any changes; both registration.backends.default.urls and registration.backends.simple.urls have been updated in django-registration 2.1 to correctly point to the new class-based views:

0.8 URLconf view reference	2.1 URLconf view reference	
registration.views.register	registration.views.RegistrationView.as_view()	
registration.views.activate	registration.views.ActivationView.as_view()	

However, if were using the two-step model-activation workflow, you should begin referring to registration.backends.model\_activation.urls instead of registration.backends.default.urls or registration.urls, as the latter two are deprecated and support for them will be removed in a future release.

If you were passing custom arguments to the built-in registration views, those arguments should continue to work, so long as your URLconf is updated to refer to the new class-based views. For details of how to pass custom arguments to class-based views, see the Django class-based view documentation.

## 12.3 Template changes

When using <code>RegistrationForm</code>, the error from mismatched passwords now is attached to the <code>password2</code> field rather than being a form-level error. To check for and display this error, you will need to change to accessing it via the <code>password2</code> field rather than via <code>non\_field\_errors()</code> or the <code>\_\_all\_\_</code> key in the errors dictionary.

# 12.4 Changes since 1.0

If you used django-registration 1.0, or a pre-release checkout of the 2.1 code, you will need to make some minor adjustments.

If you previously used registration.backends.default, you will now see deprecation warnings, as the former "default" workflow is now found in registration.backends.model\_activation. Use of registration.backends.default continues to work in django-registration 2.1, but will be removed in the future.

Similarly, references to registration.urls should become references to registration.backends.model\_activation.urls, and registration.urls is deprecated and will be removed in a future release.

If you had written custom subclasses of <code>RegistrationView</code> or of <code>RegistrationView</code> subclasses in the built-in workflows, the following changes need to be noted:

- The register method now receives the RegistrationForm instance used during signup, rather than keyword arguments corresponding to the form's cleaned\_data.
- RegistrationForm itself is now a subclass of Django's built-in UserCreationForm, and as such is now a ModelForm subclass. This can cause metaclass conflict errors if you write a class which is a subclass of both RegistrationForm and a non-ModelForm form class; to avoid this, ensure that subclasses of RegistrationForm and/or ModelForm come first in your subclass' method resolution order.
- As noted above, the password-mismatch error message is now attached to the password2 field rather than being a form-level error.

# 12.5 Changes since 2.0

Only one major change occurred between django-registration 2.0 and 2.1: the addition of the ReservedNameValidator, which is now used by default on RegistrationForm and its subclasses.

This is technically backwards-incompatible, since a set of usernames which previously could be registered now cannot be registered. If you need ot allow users to register with usernames forbidden by this validator, see its documentation for notes on how to customize or disable it.

# Frequently-asked questions

The following are miscellaneous common questions and answers related to installing/using django-registration, culled from bug reports, emails and other sources.

## 13.1 General

#### How can I support social-media and other auth schemes, like Facebook or GitHub?

By using django-allauth. No single application can or should provide a universal API for every authentication system ever developed; django-registration sticks to making it easy to implement typical signup workflows using Django's own user model and auth system (with some ability to use custom user models), while apps like django-allauth handle integration with third-party authentication services far more effectively.

#### What license is django-registration under?

django-registration is offered under a three-clause BSD-style license; this is an OSI-approved open-source license, and allows you a large degree of freedom in modifiying and redistributing the code. For the full terms, see the file LICENSE which came with your copy of django-registration; if you did not receive a copy of this file, you can view it online at <a href="https://github.com/ubernostrum/django-registration/blob/master/LICENSE">https://github.com/ubernostrum/django-registration/blob/master/LICENSE</a>.

#### What versions of Django and Python are supported?

As of django-registration 2.1, Django 1.8 and 1.9 are supported, on Python 2.7, 3.3, 3.4 or 3.5. Although Django 1.8 supported Python 3.2 at initial release, Python 3.2 is now at its end-of-life and django-registration no longer supports it.

It is expected that django-registration 2.1 will also work with Django 1.10 and Python 3.6 once they are released.

#### I found a bug or want to make an improvement!

The canonical development repository for django-registration is online at <a href="https://github.com/ubernostrum/django-registration">https://github.com/ubernostrum/django-registration</a>. Issues and pull requests can both be filed there.

If you'd like to contribute to django-registration, that's great! Just please remember that pull requests should include tests and documentation for any changes made, and that following PEP 8 is mandatory. Pull requests without documentation won't be merged, and PEP 8 style violations or test coverage below 100% are both configured to break the build.

#### How secure is django-registration?

In the nine-year history of django-registration, there have been no security issues reported which required new releases to remedy. This doesn't mean, though, that django-registration is perfectly secure: much will depend on ensuring best practices in deployment and server configuration, and there could always be security issues that just haven't been recognized yet.

django-registration does, however, try to avoid common security issues:

- django-registration 2.1 only supports versions of Django which were receiving upstream security support at the time of release.
- django-registration does not attempt to generate or store passwords, and does not transmit credentials which could be used to log in (the only "credential" ever sent out by django-registration is an activation key used in the two-step activation workflows, and that key can only be used to make an account active; it cannot be used to log in).
- django-registration works with Django's own security features (including cryptographic features) where possible, rather than reinventing its own.

#### How do I run the tests?

django-registration makes use of Django's own built-in unit-testing tools, and supports several ways to execute its test suite:

- Within a Django project, simply invoke manage.py test registration.
- If you've installed django-registration (so that it's on your Python import path) and Django, but don't yet have a project created or want to test independently of a project, you can run registration/runtests.py, or you can invoke python setup.py test (which will simply run registration/runtests.py).

Additionally, the setup.cfg file included in django-registration provides configuration for coverage.py, enabling easy recording and reporting of test coverage.

# 13.2 Installation and setup

#### How do I install django-registration?

Full instructions are available in the installation guide. For configuration, see the quick start guide.

#### Does django-registration come with any sample templates I can use right away?

No, for two reasons:

- 1. Providing default templates with an application is ranges from hard to impossible, because different sites can have such wildly different design and template structure. Any attempt to provide templates which would work with all the possibilities would probably end up working with none of them.
- 2. A number of things in django-registration depend on the specific registration workflow you use, including the variables which end up in template contexts. Since django-registration has no way of knowing in advance what workflow you're going to be using, it also has no way of knowing what your templates will need to look like.

Fortunately, however, django-registration has good documentation which explains what context variables will be available to templates, and so it should be easy for anyone who knows Django's template system to create templates which integrate with their own site.

# 13.3 Configuration

#### Should I used the model-based or HMAC activation workflow?

You're free to choose whichever one you think best fits your needs. However, *the model-based workflow* is mostly provided for backwards compatibility with older versions of django-registration; it dates to 2007, and though it is still as functional as ever, *the HMAC workflow* has less overhead (i.e., no need to install or work with any models) due to being able to take advantage of more modern features in Django.

#### Do I need to rewrite the views to change the way they behave?

Not always. Any behavior controlled by an attribute on a class-based view can be changed by passing a different value for that attribute in the URLConf. See Django's class-based view documentation for examples of this.

For more complex or fine-grained control, you will likely want to subclass *RegistrationView* or *ActivationView*, or both, add your custom logic to your subclasses, and then create a URLConf which makes use of your subclasses.

#### I don't want to write my own URLconf because I don't want to write patterns for all the auth views!

You're in luck, then; django-registration provides a URLconf which *only* contains the patterns for the auth views, and which you can include in your own URLconf anywhere you'd like; it lives at registration.auth\_urls.

#### I don't like the names you've given to the URL patterns!

In that case, you should feel free to set up your own URLconf which uses the names you want.

#### I'm using a custom user model; how do I make that work?

See the custom user documentation.

# 13.4 Tips and tricks

## How do I log a user in immediately after registration or activation?

Take a look at the implementation of *the simple one-step workflow*, which logs a user in immediately after registration.

## How do I re-send an activation email?

Assuming you're using *the model-based workflow*, a custom admin action is provided for this; in the admin for the RegistrationProfile model, simply click the checkbox for the user(s) you'd like to re-send the email for, then select the "Re-send activation emails" action.

#### How do I manually activate a user?

In *the model-based workflow*, a custom admin action is provided for this. In the admin for the RegistrationProfile model, click the checkbox for the user(s) you'd like to activate, then select the "Activate users" action.

In the HMAC-based workflow, simply toggle the is\_active field of the user in the admin.

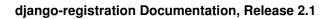
#### See also:

 Django's authentication documentation. Django's authentication system is used by django-registration's default configuration.

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