Prologue

**Getting Started** 

Architecture Concepts

Laravel

The Basics

Frontend

Security

Authentication

API Authentication

Authorization

Email Verification

Encryption

Hashing

Password Reset

Digging Deeper

Database

Eloquent ORM

Testing

Official Packages



applications on DigitalOcean, Linode, δ ΔWS

ADS VIA CARBON

# **Authentication**

- # Introduction
  - # Database Considerations
- # Authentication Quickstart
  - # Routing
  - # Views
- # Authenticating
- # Retrieving The Authenticated User
- # Protecting Routes
- # Password Confirmation
- # Login Throttling
- # Manually Authenticating Users
  - # Remembering Users
  - #Other Authentication Methods
- # HTTP Basic Authentication
  - # Stateless HTTP Basic Authentication
- # Logging Out
  - # Invalidating Sessions On Other Devices
- # Social Authentication
- # Adding Custom Guards
  - # Closure Request Guards
- # Adding Custom User Providers
  - # The User Provider Contract
  - # The Authenticatable Contract
- # Events

# #Introduction



Want to get started fast? Install the <code>laravel/ui</code> Composer package and run <code>php artisan ui vue --auth</code> in a fresh Laravel application. After migrating your database, navigate your browser to <a href="http://your-app.test/register">http://your-app.test/register</a> or any other URL that is assigned to your application. These commands will take care of scaffolding your entire authentication system!

Laravel makes implementing authentication very simple. In fact, almost everything is configured for you out of the box. The authentication configuration file is located at config/auth.php, which contains several well documented options for tweaking the behavior of the authentication services.

At its core, Laravel's authentication facilities are made up of "guards" and "providers". Guards define how users are authenticated for each request. For example, Laravel ships with a session guard which maintains state using session storage and cookies.

Providers define how users are retrieved from your persistent storage. Laravel ships with support for retrieving users using Eloquent and the database query builder. However, you are free to define additional providers as needed for your application.

Don't worry if this all sounds confusing now! Many applications will never need to modify the default authentication configuration.

## # Database Considerations

By default, Laravel includes an App\User <u>Eloquent model</u> in your app directory. This model may be used with the default Eloquent authentication driver. If your application is not using Eloquent, you may use the <u>database</u> authentication driver which uses the Laravel query builder.

When building the database schema for the App\User model, make sure the password column is at least 60 characters in length. Maintaining the default string column length of 255 characters would be a good choice.

Also, you should verify that your users (or equivalent) table contains a nullable, string remember\_token column of 100 characters. This column will be used to store a token for users that select the "remember me" option when logging into your application.

Laravel ships with several pre-built authentication controllers, which are located in the App\Http\Controllers\Auth namespace. The RegisterController handles new user registration, the LoginController handles authentication, the ForgotPasswordController handles e-mailing links for resetting passwords, and the ResetPasswordController contains the logic to reset passwords. Each of these controllers uses a trait to include their necessary methods. For many applications, you will not need to modify these controllers at all.

# # Routing

Laravel's <u>laravel/ui</u> package provides a quick way to scaffold all of the routes and views you need for authentication using a few simple commands:

```
composer require laravel/ui --dev

php artisan ui vue --auth
```

This command should be used on fresh applications and will install a layout view, registration and login views, as well as routes for all authentication end-points. A HomeController will also be generated to handle post-login requests to your application's dashboard.



If your application doesn't need registration, you may disable it by removing the newly created

RegisterController and modifying your route declaration:

Auth::routes(['register' => false]);

## # Views

As mentioned in the previous section, the <code>laravel/ui</code> package's <a href="https://php.artisan.ui vue --auth command will create all of the views you need for authentication and place them in the <code>resources/views/auth</code> directory.

The ui command will also create a resources/views/layouts directory containing a base layout for your application. All of these views use the Bootstrap CSS framework, but you are free to customize them however you wish.

## # Authenticating

Now that you have routes and views setup for the included authentication controllers, you are ready to register and authenticate new users for your application! You may access your application in a browser since the authentication controllers already contain the logic (via their traits) to authenticate existing users and store new users in the database.

# Path Customization

When a user is successfully authenticated, they will be redirected to the /home URI. You can customize the post-authentication redirect location by defining a redirectTo property on the LoginController, RegisterController, ResetPasswordController, and VerificationController:

```
protected $redirectTo = '/';
```

Next, you should modify the RedirectIfAuthenticated middleware's handle method to use your new URI when redirecting the user.

If the redirect path needs custom generation logic you may define a redirectTo method instead of a redirectTo property:

```
protected function redirectTo()
{
    return '/path';
}
```



The redirectTo method will take precedence over the redirectTo property.

# Username Customization

By default, Laravel uses the email field for authentication. If you would like to customize this, you may define a username method on your LoginController:

```
public function username()
{
    return 'username';
}
```

## **Guard Customization**

You may also customize the "guard" that is used to authenticate and register users. To get started, define a guard method on your LoginController, RegisterController, and ResetPasswordController. The method should return a guard instance:

```
use Illuminate\Support\Facades\Auth;
protected function guard()
{
    return Auth::guard('guard-name');
}
```

#### Validation / Storage Customization

To modify the form fields that are required when a new user registers with your application, or to customize how new users are stored into your database, you may modify the RegisterController class. This class is responsible for validating and creating new users of your application.

The validator method of the RegisterController contains the validation rules for new users of the application. You are free to modify this method as you wish.

The create method of the RegisterController is responsible for creating new App\User records in your database using the Eloquent ORM. You are free to modify this method according to the needs of your database.

## # Retrieving The Authenticated User

You may access the authenticated user via the Auth facade:

```
use Illuminate\Support\Facades\Auth;

// Get the currently authenticated user...
$user = Auth::user();

// Get the currently authenticated user's ID...
$id = Auth::id();
```

Alternatively, once a user is authenticated, you may access the authenticated user via an Illuminate\Http\Request instance. Remember, type-hinted classes will automatically be injected into your controller methods:

# Determining If The Current User Is Authenticated

To determine if the user is already logged into your application, you may use the <a href="https://check.nethod.on.the.Auth">check.nethod.on.the.Auth</a> facade, which will return <a href="true">true</a> if the user is authenticated:

```
use Illuminate\Support\Facades\Auth;

if (Auth::check()) {
    // The user is logged in...
}
```



authenticated using the <a href="check">check</a> method, you will typically use a middleware to verify that the user is authenticated before allowing the user access to certain routes / controllers. To learn more about this, check out the documentation on protecting routes.

# # Protecting Routes

Route middleware can be used to only allow authenticated users to access a given route. Laravel ships with an auth middleware, which is defined at Illuminate\Auth\Middleware\Authenticate. Since this middleware is already registered in your HTTP kernel, all you need to do is attach the middleware to a route definition:

```
Route::get('profile', function () {
    // Only authenticated users may enter...
})->middleware('auth');
```

If you are using <u>controllers</u>, you may call the <u>middleware</u> method from the controller's constructor instead of attaching it in the route definition directly:

```
public function __construct()
{
    $this->middleware('auth');
}
```

#### Redirecting Unauthenticated Users

When the auth middleware detects an unauthorized user, it will redirect the user to the login named route. You may modify this behavior by updating the redirectTo function in your app/Http/Middleware/Authenticate.php file:

```
/**
  * Get the path the user should be redirected to.
  *
  * @param \Illuminate\Http\Request $request
  * @return string
  */
protected function redirectTo($request)
{
    return route('login');
}
```

# Specifying A Guard

When attaching the auth middleware to a route, you may also specify which guard should be used to authenticate the user. The guard specified should correspond to one of the keys in the guards array of your auth.php configuration file:

```
public function __construct()
{
    $this->middleware('auth:api');
}
```

# # Password Confirmation

Sometimes, you may wish to require the user to confirm their password before accessing a specific area of your application. For example, you may require this before the user modifies any billing settings within the application.

To accomplish this, Laravel provides a password.confirm middleware. Attaching the password.confirm middleware to a route will redirect users to a screen where they need to confirm their password before they can continue:

```
Route::get('/settings/security', function () {
    // Users must confirm their password before continuing...
})->middleware(['auth', 'password.confirm']);
```

After the user has successfully confirmed their password, the user is redirected to the route they originally tried to access. By default, after confirming their password, the user will not have to confirm their password again for three hours. You are free to customize the length of time before the user must re-confirm their password using the <a href="mailto:auth.password\_timeout">auth.password\_timeout</a> configuration option.

# # Login Throttling

If you are using Laravel's built-in LoginController class, the

controller. By default, the user will not be able to login for one minute if they fail to provide the correct credentials after several attempts. The throttling is unique to the user's username / e-mail address and their IP address.

# # Manually Authenticating Users

Note that you are not required to use the authentication controllers included with Laravel. If you choose to remove these controllers, you will need to manage user authentication using the Laravel authentication classes directly. Don't worry, it's a cinch!

We will access Laravel's authentication services via the Auth facade, so we'll need to make sure to import the Auth facade at the top of the class. Next, let's check out the attempt method:

```
caphp

namespace App\Http\Controllers;

use Illuminate\Http\Request;
use Illuminate\Support\Facades\Auth;

class LoginController extends Controller
{
    /**
    * Handle an authentication attempt.
    *
    * @param \Illuminate\Http\Request $request
    *
    * @return Response
    */
    public function authenticate(Request $request)
    {
        $credentials = $request->only('email', 'password');
        if (Auth::attempt($credentials)) {
            // Authentication passed...
            return redirect()->intended('dashboard');
        }
    }
}
```

The attempt method accepts an array of key / value pairs as its first argument. The values in the array will be used to find the user in your database table. So, in the example above, the user will be retrieved by the value of the <code>email</code> column. If the user is found, the hashed password stored in the database will be compared with the <code>password</code> value passed to the method via the array. You should not hash the password specified as the <code>password</code> value, since the framework will automatically hash the value before comparing it to the hashed password in the database. If the two hashed passwords match an authenticated session will be started for the user.

The attempt method will return true if authentication was successful. Otherwise, false will be returned.

The <u>intended</u> method on the redirector will redirect the user to the URL they were attempting to access before being intercepted by the authentication middleware. A fallback URI may be given to this method in case the intended destination is not available.

# **Specifying Additional Conditions**

If you wish, you may also add extra conditions to the authentication query in addition to the user's e-mail and password. For example, we may verify that user is marked as "active":

```
if (Auth::attempt(['email' => $email, 'password' => $password, 'active' => 1])) {
    // The user is active, not suspended, and exists.
}
```



In these examples, email is not a required option, it is merely used as an example. You should use whatever column name corresponds to a "username" in your database.

## **Accessing Specific Guard Instances**

You may specify which guard instance you would like to utilize using the <code>guard</code> method on the <code>Auth</code> facade. This allows you to manage authentication for separate parts of your application using entirely separate authenticatable models or user

tables.

The guard name passed to the <code>guard</code> method should correspond to one of the guards configured in your <code>auth.php</code> configuration file:

```
if (Auth::guard('admin')->attempt($credentials)) {
    //
}
```

#### **Logging Out**

To log users out of your application, you may use the logout method on the Auth facade. This will clear the authentication information in the user's session:

```
Auth::logout();
```

# # Remembering Users

If you would like to provide "remember me" functionality in your application, you may pass a boolean value as the second argument to the <a href="https://document.org/attended-number-me">https://document.org/attended-number-me</a> table must include the string <a href="remember-token">remember-token</a> column, which will be used to store the "remember me" token.

```
if (Auth::attempt(['email' => $email, 'password' => $password], $remember)) {
    // The user is being remembered...
}
```



If you are using the built-in LoginController that is shipped with Laravel, the proper logic to "remember" users is already implemented by the traits used by the controller.

If you are "remembering" users, you may use the <code>viaRemember</code> method to determine if the user was authenticated using the "remember me" cookie:

```
if (Auth::viaRemember()) {
    //
}
```

# # Other Authentication Methods

# Authenticate A User Instance

If you need to log an existing user instance into your application, you may call the login method with the user instance. The given object must be an implementation of the Illuminate\Contracts\Auth\Auth\Authenticatable contract. The App\User model included with Laravel already implements this interface:

```
Auth::login($user);

// Login and "remember" the given user...

Auth::login($user, true);
```

You may specify the guard instance you would like to use:

```
Auth::guard('admin')->login($user);
```

# Authenticate A User By ID

To log a user into the application by their ID, you may use the <code>loginUsingId</code> method. This method accepts the primary key of the user you wish to authenticate:

```
Auth::loginUsingId(1);

// Login and "remember" the given user...
Auth::loginUsingId(1, true);
```

## Authenticate A User Once

You may use the <code>once</code> method to log a user into the application for a single request. No sessions or cookies will be utilized, which means this method may be helpful when building a stateless API:

```
if (Auth::once($credentials)) {
    //
}
```

# # HTTP Basic Authentication

HTTP Basic Authentication provides a quick way to authenticate users of your application without setting up a dedicated "login" page. To get started, attach the auth.basic middleware to your route. The auth.basic middleware is included with the Laravel framework, so you do not need to define it:

```
Route::get('profile', function () {
    // Only authenticated users may enter...
})->middleware('auth.basic');
```

Once the middleware has been attached to the route, you will automatically be prompted for credentials when accessing the route in your browser. By default, the <a href="auth.basic">auth.basic</a> middleware will use the <a href="email: column on the user record as the" username".

#### A Note On FastCGI

If you are using PHP FastCGI, HTTP Basic authentication may not work correctly out of the box. The following lines should be added to your <code>.htaccess</code> file:

```
RewriteCond %{HTTP:Authorization} ^(.+)$
RewriteRule .* - [E=HTTP_AUTHORIZATION:%{HTTP:Authorization}]
```

### # Stateless HTTP Basic Authentication

You may also use HTTP Basic Authentication without setting a user identifier cookie in the session, which is particularly useful for API authentication. To do so, <u>define a middleware</u> that calls the <u>onceBasic</u> method. If no response is returned by the <u>onceBasic</u> method, the request may be passed further into the application:

```
c?php

namespace App\Http\Middleware;

use Illuminate\Support\Facades\Auth;

class AuthenticateOnceWithBasicAuth
{
    /**
    * Handle an incoming request.
    *
    * @param \Illuminate\Http\Request $request
    * @param \Closure $next
    * @return mixed
    */
    public function handle($request, $next)
    {
        return Auth::onceBasic() ?: $next($request);
    }
}
```

Next, register the route middleware and attach it to a route:

```
Route::get('api/user', function () {
    // Only authenticated users may enter...
})->middleware('auth.basic.once');
```

# #Logging Out

To manually log users out of your application, you may use the logout method on the Auth facade. This will clear the authentication information in the user's session:

```
use Illuminate\Support\Facades\Auth;
Auth::logout();
```

# # Invalidating Sessions On Other Devices

Laravel also provides a mechanism for invalidating and "logging out" a user's sessions that are active on other devices without invalidating the session on their current device. Before getting started, you should make sure that the

Illuminate\Session\Middleware\Authenticate\Session middleware is present and uncommented in your app/Http/Kernel.php class' web middleware group:

```
'web' => [
    // ...
\Illuminate\Session\Middleware\AuthenticateSession::class,
    // ...
],
```

Then, you may use the logoutOtherDevices method on the Auth facade. This method requires the user to provide their current password, which your application should accept through an input form:

```
use Illuminate\Support\Facades\Auth;
Auth::logoutOtherDevices($password);
```



When the <code>logoutOtherDevices</code> method is invoked, the user's other sessions will be invalidated entirely, meaning they will be "logged out" of all guards they were previously authenticated by.

# # Adding Custom Guards

You may define your own authentication guards using the extend method on the Auth facade. You should place this call to extend within a service provider. Since Laravel already ships with an AuthServiceProvider, we can place the code in that provider:

As you can see in the example above, the callback passed to the extend method should return an implementation of Illuminate\Contracts\Auth\Guard. This interface contains a few methods you will need to implement to define a custom guard. Once your custom guard has been defined, you may use this guard in the guards configuration of your auth.php configuration file:

```
'guards' => [
    'api' => [
        'driver' => 'jwt',
        'provider' => 'users',
    ],
],
```

# # Closure Request Guards

The simplest way to implement a custom, HTTP request based authentication system is by using the Auth::viaRequest method. This method allows you to quickly define your authentication process using a single Closure.

To get started, call the Auth::viaRequest method within the boot method of your AuthServiceProvider. The viaRequest method accepts an authentication driver name as its first argument. This name can be any string that describes your custom guard. The second argument passed to the method should be a Closure that receives the

incoming HTTP request and returns a user instance or, if authentication fails, null:

```
use App\User;
use Illuminate\Http\Request;
use Illuminate\Support\Facades\Auth;

/**
    * Register any application authentication / authorization services.
    *
    * Greturn void
    */
public function boot()
{
    $this->registerPolicies();

Auth::viaRequest('custom-token', function ($request) {
    return User::where('token', $request->token)->first();
    });
}
```

Once your custom authentication driver has been defined, you use it as a driver within guards configuration of your auth.php configuration file:

```
'guards' => [
    'api' => [
        'driver' => 'custom-token',
    ],
],
```

# # Adding Custom User Providers

If you are not using a traditional relational database to store your users, you will need to extend Laravel with your own authentication user provider. We will use the <a href="provider">provider</a> method on the <a href="Auth">Auth</a> facade to define a custom user provider:

```
c?php

namespace App\Providers;

use App\Extensions\RiakUserProvider;
use Illuminate\Foundation\Support\Providers\Auth\ServiceProvider as ServiceProvider
use Illuminate\Support\Facades\Auth;

class AuthServiceProvider extends ServiceProvider
{
    /**
        * Register any application authentication / authorization services.
        *
        * @return void
        */
    public function boot()
    {
        $this->registerPolicies();

        Auth::provider('riak', function ($app, array $config) {
            // Return an instance of Illuminate\Contracts\Auth\UserProvider...
            return new RiakUserProvider($app->make('riak.connection'));
        });
    }
}
```

After you have registered the provider using the provider method, you may switch to the new user provider in your auth.php configuration file. First, define a provider that uses your new driver:

```
'providers' => [
    'users' => [
        'driver' => 'riak',
    ],
],
```

Finally, you may use this provider in your guards configuration:

```
'guards' => [
    'web' => [
        'driver' => 'session',
        'provider' => 'users',
    ],
],
```

#### # The User Provider Contract

The Illuminate\Contracts\Auth\UserProvider implementations are only responsible for fetching a Illuminate\Contracts\Auth\Authenticatable implementation out of a persistent storage system, such as MySQL, Riak, etc. These two interfaces allow the Laravel authentication mechanisms to continue functioning regardless of how the user data is stored or what type of class is used to represent it.

Let's take a look at the Illuminate\Contracts\Auth\UserProvider contract:

```
namespace Illuminate\Contracts\Auth;
interface UserProvider
{
   public function retrieveById($identifier);
   public function retrieveByToken($identifier, $token);
   public function updateRememberToken(Authenticatable $user, $token);
   public function retrieveByCredentials(array $credentials);
   public function validateCredentials(Authenticatable $user, array $credentials)
}
```

The <a href="retrieveById">retrieveById</a> function typically receives a key representing the user, such as an auto-incrementing ID from a MySQL database. The <a href="Authenticatable">Authenticatable</a> implementation matching the ID should be retrieved and returned by the method.

The <a href="retrieve8yToken">retrieve8yToken</a> function retrieves a user by their unique <a href="sidentifier">\$identifier</a> and "remember me" <a href="stoken">\$token</a>, stored in a field <a href="remember\_token">remember\_token</a>. As with the previous method, the <a href="Authenticatable">Authenticatable</a> implementation should be returned.

The updateRememberToken method updates the <code>\$user</code> field <code>remember\_token</code> with the new <code>\$token</code>. A fresh token is assigned on a successful "remember me" login attempt or when the user is logging out.

The retrieveByCredentials method receives the array of credentials passed to the Auth::attempt method when attempting to sign into an application. The method should then "query" the underlying persistent storage for the user matching those credentials. Typically, this method will run a query with a "where" condition on \$credentials['username']. The method should then return an implementation of Authenticatable. This method should not attempt to do any password validation or authentication.

The validateCredentials method should compare the given <code>\$user</code> with the <code>\$credentials</code> to authenticate the user. For example, this method should probably use <code>Hash::check</code> to compare the value of <code>\$user->getAuthPassword()</code> to the value of <code>\$credentials['password']</code>. This method should return <code>true</code> or <code>false</code> indicating on whether the password is valid.

# # The Authenticatable Contract

Now that we have explored each of the methods on the <code>UserProvider</code>, let's take a look at the <code>Authenticatable</code> contract. Remember, the provider should return implementations of this interface from the <code>retrieveById</code>, <code>retrieveByToken</code>, and <code>retrieveByCredentials</code> methods:

```
namespace Illuminate\Contracts\Auth;

interface Authenticatable
{
   public function getAuthIdentifierName();
   public function getAuthIdentifier();
   public function getAuthPassword();
   public function getRememberToken();
   public function setRememberToken($value);
   public function getRememberToken($value);
   public function getRememberTokenName();
}
```

This interface is simple. The <code>getAuthIdentifierName</code> method should return the name of the "primary key" field of the user and the <code>getAuthIdentifier</code> method should return the "primary key" of the user. In a MySQL back-end, again, this would be the auto-incrementing primary key. The <code>getAuthPassword</code> should return the user's hashed password. This interface allows the authentication system to work with any User class, regardless of what ORM or storage abstraction layer you are using. By default, Laravel includes a <code>User</code> class in the <code>app</code> directory which implements this interface, so you may consult this class for an implementation example.



Laravel raises a variety of <u>events</u> during the authentication process. You may attach listeners to these events in your <u>EventServiceProvider</u>:

```
* The event listener mappings for the application.
 * @var array
protected $listen = [
   'Illuminate\Auth\Events\Registered' => [
       'App\Listeners\LogRegisteredUser',
   'Illuminate\Auth\Events\Attempting' => [
      'App\Listeners\LogAuthenticationAttempt',
    'Illuminate\Auth\Events\Authenticated' => [
       'App\Listeners\LogAuthenticated',
    'Illuminate\Auth\Events\Login' => [
       'App\Listeners\LogSuccessfulLogin',
    'Illuminate\Auth\Events\Failed' => [
       'App\Listeners\LogFailedLogin',
    'Illuminate\Auth\Events\Logout' => [
       'App\Listeners\LogSuccessfulLogout',
    'Illuminate\Auth\Events\Lockout' => [
      'App\Listeners\LogLockout',
    'Illuminate\Auth\Events\PasswordReset' => [
        'App\Listeners\LogPasswordReset',
   ],
];
```

# Become a Laravel Partner

Laravel Partners are elite shops providing top-notch Laravel development and consulting. Each of our partners can help you craft a beautiful, wellarchitected project.

Our Partners

# Laravel

Highlights	Resources
Release Notes	Laracasts
Getting Started	Laravel News
Routing	Laracon
Blade Templates	Laracon EU
Authentication	Laracon AU
Authorization	Jobs
Artisan Console	Certification
Database	Forums
Eloquent ORM	

Partners	Ecosystem
Vehikl	Vapor
Tighten Co.	Forge
Kirschbaum	Envoyer
Byte 5	Horizon
64Robots	Lumen
Cubet	Nova
DevSquad	Echo
Ideil	Valet
Cyber-Duck	Mix
ABOUT YOU	Spark
Become A Partner	Cashier
	Homestead
	Dusk
	Passport
	Scout
	Socialite

elegant syntax. We believe development must be an enjoyable and creative experience to be truly fulfilling. Laravel attempts to take the pain out of development by easing common tasks used in most web projects.







