

The Silex Book

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Chapter 1

Introduction

Silex is a PHP microframework for PHP 5.3. It is built on the shoulders of *Symfony2*¹ and *Pimple*² and also inspired by *Sinatra*³.

A microframework provides the guts for building simple single-file apps. Silex aims to be:

- *Concise*: Silex exposes an intuitive and concise API that is fun to use.
- *Extensible*: Silex has an extension system based around the Pimple micro service-container that makes it even easier to tie in third party libraries.
- *Testable*: Silex uses Symfony2's HttpKernel which abstracts request and response. This makes it very easy to test apps and the framework itself. It also respects the HTTP specification and encourages its proper use.

In a nutshell, you define controllers and map them to routes, all in one step.

Usage

Listing 1-1

```
1  // web/index.php
2  require_once __DIR__.'../../vendor/autoload.php';
3
4  $app = new Silex\Application();
5
6  $app->get('/hello/{name}', function ($name) use ($app) {
7      return 'Hello '.$app->escape($name);
8  });
9
10 $app->run();
```

All that is needed to get access to the Framework is to include the autoloader.

1. <http://symfony.com/>

2. <http://pimple.sensiolabs.org/>

3. <http://www.sinatrarb.com/>

Next a route for `/hello/{name}` that matches for `GET` requests is defined. When the route matches, the function is executed and the return value is sent back to the client.

Finally, the app is run. Visit `/hello/world` to see the result. It's really that easy!

Installation

Installing Silex is as easy as it can get. The recommend method is using *Composer*⁴ and requiring *silex/silex*⁵. Another way is to *download*⁶ the archive file and extract it.

4. <http://getcomposer.org/>

5. <https://packagist.org/packages/silex/silex>

6. <http://silex.sensiolabs.org/download>

Chapter 2

Usage

This chapter describes how to use Silex.

Installation

If you want to get started fast, *download*¹ Silex as an archive and extract it, you should have the following directory structure:

Listing 2-1

```
1  └── composer.json
2  └── composer.lock
3  └── vendor
4      └── ...
5  └── web
6      └── index.php
```

If you want more flexibility, use *Composer*² instead. Create a `composer.json` file and put this in it:

Listing 2-2

```
1  {
2      "require": {
3          "silex/silex": "~1.1"
4      }
5  }
```

And run Composer to install Silex and all its dependencies:

Listing 2-3

```
1  $ curl -s http://getcomposer.org/installer | php
2  $ php composer.phar install
```

1. <http://silex.sensiolabs.org/download>
2. <http://getcomposer.org/>



By default, Silex relies on the stable Symfony components. If you want to use their master version instead, add "minimum-stability": "dev" in your `composer.json` file.

Upgrading

Upgrading Silex to the latest version is as easy as running the `update` command:

Listing 2-4

```
1 $ php composer.phar update
```

Bootstrap

To bootstrap Silex, all you need to do is require the `vendor/autoload.php` file and create an instance of `Silex\Application`. After your controller definitions, call the `run` method on your application:

Listing 2-5

```
1 // web/index.php
2 require_once __DIR__.'../vendor/autoload.php';
3
4 $app = new Silex\Application();
5
6 // ... definitions
7
8 $app->run();
```

Then, you have to configure your web server (read the *dedicated chapter* for more information).



When developing a website, you might want to turn on the debug mode to ease debugging:

Listing 2-6

```
1 $app['debug'] = true;
```



If your application is hosted behind a reverse proxy at address `$ip`, and you want Silex to trust the `X-Forwarded-For`* headers, you will need to run your application like this:

Listing 2-7

```
1 use Symfony\Component\HttpFoundation\Request;
2
3 Request::setTrustedProxies(array($ip));
4 $app->run();
```

Routing

In Silex you define a route and the controller that is called when that route is matched.

A route pattern consists of:

- *Pattern*: The route pattern defines a path that points to a resource. The pattern can include variable parts and you are able to set RegExp requirements for them.

- *Method*: One of the following HTTP methods: GET, POST, PUT or DELETE. This describes the interaction with the resource. Commonly only GET and POST are used, but it is possible to use the others as well.

The controller is defined using a closure like this:

Listing 2-8

```
1 function () {
2     // ... do something
3 }
```

Closures are anonymous functions that may import state from outside of their definition. This is different from globals, because the outer state does not have to be global. For instance, you could define a closure in a function and import local variables of that function.



Closures that do not import scope are referred to as lambdas. Because all anonymous functions are instances of the `Closure` class in PHP, the documentation will not make a distinction here.

The return value of the closure becomes the content of the page.

Example GET Route

Here is an example definition of a GET route:

Listing 2-9

```
1 $blogPosts = array(
2     1 => array(
3         'date'      => '2011-03-29',
4         'author'    => 'igorw',
5         'title'     => 'Using Silex',
6         'body'      => '...',
7     ),
8 );
9
10 $app->get('/blog', function () use ($blogPosts) {
11     $output = '';
12     foreach ($blogPosts as $post) {
13         $output .= $post['title'];
14         $output .= '<br />';
15     }
16
17     return $output;
18 });
```

Visiting `/blog` will return a list of blog post titles. The `use` statement means something different in this context. It tells the closure to import the `$blogPosts` variable from the outer scope. This allows you to use it from within the closure.

Dynamic Routing

Now, you can create another controller for viewing individual blog posts:

Listing 2-10

```
1 $app->get('/blog/{id}', function (Silex\Application $app, $id) use ($blogPosts) {
2     if (!isset($blogPosts[$id])) {
3         $app->abort(404, "Post $id does not exist.");
4     }
5 }
```



```

5
6     $post = $blogPosts[$id];
7
8     return "<h1>{$post['title']}</h1>".
9           "<p>{$post['body']}</p>";
10 });

```

This route definition has a variable `{id}` part which is passed to the closure.

The current **Application** is automatically injected by Silex to the Closure thanks to the type hinting.

When the post does not exist, you are using **abort()** to stop the request early. It actually throws an exception, which you will see how to handle later on.

Example POST Route

POST routes signify the creation of a resource. An example for this is a feedback form. You will use the **mail** function to send an e-mail:

Listing 2-11

```

1 use Symfony\Component\HttpFoundation\Request;
2 use Symfony\Component\HttpFoundation\Response;
3
4 $app->post('/feedback', function (Request $request) {
5     $message = $request->get('message');
6     mail('feedback@yoursite.com', '[YourSite] Feedback', $message);
7
8     return new Response('Thank you for your feedback!', 201);
9 });

```

It is pretty straightforward.



There is a *SwiftmailerServiceProvider* included that you can use instead of **mail()**.

The current **request** is automatically injected by Silex to the Closure thanks to the type hinting. It is an instance of *Request*³, so you can fetch variables using the request **get** method.

Instead of returning a string you are returning an instance of *Response*⁴. This allows setting an HTTP status code, in this case it is set to **201 Created**.



Silex always uses a **Response** internally, it converts strings to responses with status code **200 Ok**.

Other methods

You can create controllers for most HTTP methods. Just call one of these methods on your application: **get**, **post**, **put**, **delete**:

Listing 2-12

3. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Request.html>

4. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Response.html>

```

1 $app->put('/blog/{id}', function ($id) {
2     // ...
3 });
4
5 $app->delete('/blog/{id}', function ($id) {
6     // ...
7 });

```



Forms in most web browsers do not directly support the use of other HTTP methods. To use methods other than GET and POST you can utilize a special form field with a name of `_method`. The form's `method` attribute must be set to POST when using this field:

Listing 2-13

```

1 <form action="/my/target/route/" method="post">
2     <!-- ... -->
3     <input type="hidden" id="_method" name="_method" value="PUT" />
4 </form>

```

If you are using Symfony Components 2.2+, you will need to explicitly enable this method override:

Listing 2-14

```

1 use Symfony\Component\HttpFoundation\Request;
2
3 Request::enableHttpMethodParameterOverride();
4 $app->run();

```

You can also call `match`, which will match all methods. This can be restricted via the `method` method:

Listing 2-15

```

1 $app->match('/blog', function () {
2     // ...
3 });
4
5 $app->match('/blog', function () {
6     // ...
7 })
8 ->method('PATCH');
9
10 $app->match('/blog', function () {
11     // ...
12 })
13 ->method('PUT|POST');

```



The order in which the routes are defined is significant. The first matching route will be used, so place more generic routes at the bottom.

Route Variables

As it has been shown before you can define variable parts in a route like this:

Listing 2-16

```

1 $app->get('/blog/{id}', function ($id) {
2     // ...
3 });

```

It is also possible to have more than one variable part, just make sure the closure arguments match the names of the variable parts:

Listing 2-17

```

1 $app->get('/blog/{postId}/{commentId}', function ($postId, $commentId) {
2     // ...
3 });

```

While it's not recommended, you could also do this (note the switched arguments):

Listing 2-18

```

1 $app->get('/blog/{postId}/{commentId}', function ($commentId, $postId) {
2     // ...
3 });

```

You can also ask for the current Request and Application objects:

Listing 2-19

```

1 $app->get('/blog/{id}', function (Application $app, Request $request, $id) {
2     // ...
3 });

```



Note for the Application and Request objects, Silx does the injection based on the type hinting and not on the variable name:

Listing 2-20

```

1 $app->get('/blog/{id}', function (Application $foo, Request $bar, $id) {
2     // ...
3 });

```

Route Variables Converters

Before injecting the route variables into the controller, you can apply some converters:

Listing 2-21

```

1 $app->get('/user/{id}', function ($id) {
2     // ...
3 })->convert('id', function ($id) { return (int) $id; });

```

This is useful when you want to convert route variables to objects as it allows to reuse the conversion code across different controllers:

Listing 2-22

```

1 $userProvider = function ($id) {
2     return new User($id);
3 };
4
5 $app->get('/user/{user}', function (User $user) {
6     // ...
7 })->convert('user', $userProvider);
8
9 $app->get('/user/{user}/edit', function (User $user) {

```

```

10     // ...
11 }->convert('user', $userProvider);

```

The converter callback also receives the `Request` as its second argument:

Listing 2-23

```

1 $callback = function ($post, Request $request) {
2     return new Post($request->attributes->get('slug'));
3 };
4
5 $app->get('/blog/{id}/{slug}', function (Post $post) {
6     // ...
7 }->convert('post', $callback);

```

A converter can also be defined as a service. For example, here is a user converter based on Doctrine ObjectManager:

Listing 2-24

```

1 use Doctrine\Common\Persistence\ObjectManager
2 use Symfony\Component\HttpKernel\Exception\NotFoundHttpException;
3
4 class UserConverter
5 {
6     private $om;
7
8     public function __construct(ObjectManager $om)
9     {
10         $this->om = $om;
11     }
12
13     public function convert($id)
14     {
15         if (null === $user = $this->om->find('User', (int) $id)) {
16             throw new NotFoundHttpException(sprintf('User %d does not exist', $id));
17         }
18
19         return $user;
20     }
21 }

```

The service will now be registered in the application, and the `convert` method will be used as converter:

Listing 2-25

```

1 $app['converter.user'] = $app->share(function () {
2     return new UserConverter();
3 });
4
5 $app->get('/user/{user}', function (User $user) {
6     // ...
7 }->convert('user', 'converter.user:convert'));

```

Requirements

In some cases you may want to only match certain expressions. You can define requirements using regular expressions by calling `assert` on the `Controller` object, which is returned by the routing methods.

The following will make sure the `id` argument is numeric, since `\d+` matches any amount of digits:

Listing 2-26

```

1 $app->get('/blog/{id}', function ($id) {
2     // ...
3 })
4 ->assert('id', '\d+');
```

You can also chain these calls:

Listing 2-27

```

1 $app->get('/blog/{postId}/{commentId}', function ($postId, $commentId) {
2     // ...
3 })
4 ->assert('postId', '\d+')
5 ->assert('commentId', '\d+');
```

Default Values

You can define a default value for any route variable by calling **value** on the **Controller** object:

Listing 2-28

```

1 $app->get('/{pageName}', function ($pageName) {
2     // ...
3 })
4 ->value('pageName', 'index');
```

This will allow matching `/`, in which case the `pageName` variable will have the value `index`.

Named Routes

Some providers (such as **UrlGeneratorProvider**) can make use of named routes. By default Silex will generate a route name for you, that cannot really be used. You can give a route a name by calling **bind** on the **Controller** object that is returned by the routing methods:

Listing 2-29

```

1 $app->get('/', function () {
2     // ...
3 })
4 ->bind('homepage');
5
6 $app->get('/blog/{id}', function ($id) {
7     // ...
8 })
9 ->bind('blog_post');
```



It only makes sense to name routes if you use providers that make use of the **RouteCollection**.

Controllers in Classes

If you don't want to use anonymous functions, you can also define your controllers as methods. By using the **ControllerClass::methodName** syntax, you can tell Silex to lazily create the controller object for you:

Listing 2-30

```

1  $app->get('/', 'Acme\Foo::bar');
2
3  use Silex\Application;
4  use Symfony\Component\HttpFoundation\Request;
5
6  namespace Acme
7  {
8      class Foo
9      {
10         public function bar(Request $request, Application $app)
11         {
12             // ...
13         }
14     }
15 }

```

This will load the `Acme\Foo` class on demand, create an instance and call the `bar` method to get the response. You can use `Request` and `Silex\Application` type hints to get `$request` and `$app` injected.

For an even stronger separation between Silex and your controllers, you can *define your controllers as services*.

Global Configuration

If a controller setting must be applied to all controllers (a converter, a middleware, a requirement, or a default value), you can configure it on `$app['controllers']`, which holds all application controllers:

Listing 2-31

```

1  $app['controllers']
2      ->value('id', '1')
3      ->assert('id', '\d+')
4      ->requireHttps()
5      ->method('get')
6      ->convert('id', function () { /* ... */ })
7      ->before(function () { /* ... */ })
8  ;

```

These settings are applied to already registered controllers and they become the defaults for new controllers.



The global configuration does not apply to controller providers you might mount as they have their own global configuration (read the *dedicated chapter* for more information).



The converters are run for **all** registered controllers.

Error Handlers

If some part of your code throws an exception you will want to display some kind of error page to the user. This is what error handlers do. You can also use them to do additional things, such as logging.

To register an error handler, pass a closure to the `error` method which takes an `Exception` argument and returns a response:

```
Listing 2-32 1 use Symfony\Component\HttpFoundation\Response;
2
3 $app->error(function (\Exception $e, $code) {
4     return new Response('We are sorry, but something went terribly wrong.');
```

You can also check for specific errors by using the `$code` argument, and handle them differently:

```
Listing 2-33 1 use Symfony\Component\HttpFoundation\Response;
2
3 $app->error(function (\Exception $e, $code) {
4     switch ($code) {
5         case 404:
6             $message = 'The requested page could not be found.';
7             break;
8         default:
9             $message = 'We are sorry, but something went terribly wrong.';
10    }
11
12    return new Response($message);
13 });
```



As Silex ensures that the Response status code is set to the most appropriate one depending on the exception, setting the status on the response won't work. If you want to overwrite the status code (which you should not without a good reason), set the `X-Status-Code` header:

```
Listing 2-34 1 return new Response('Error', 404 /* ignored */, array('X-Status-Code' => 200));
```

You can restrict an error handler to only handle some `Exception` classes by setting a more specific type hint for the Closure argument:

```
Listing 2-35 1 $app->error(function (\LogicException $e, $code) {
2     // this handler will only handle \LogicException exceptions
3     // and exceptions that extends \LogicException
4 });
```

If you want to set up logging you can use a separate error handler for that. Just make sure you register it before the response error handlers, because once a response is returned, the following handlers are ignored.



Silex ships with a provider for *Monolog*⁵ which handles logging of errors. Check out the *Providers* chapter for details.

5. <https://github.com/Seldaek/monolog>



Silex comes with a default error handler that displays a detailed error message with the stack trace when **debug** is true, and a simple error message otherwise. Error handlers registered via the **error()** method always take precedence but you can keep the nice error messages when debug is turned on like this:

```
Listing 2-36 1 use Symfony\Component\HttpFoundation\Response;
2
3 $app->error(function (\Exception $e, $code) use ($app) {
4     if ($app['debug']) {
5         return;
6     }
7
8     // ... logic to handle the error and return a Response
9 });
```

The error handlers are also called when you use **abort** to abort a request early:

```
Listing 2-37 1 $app->get('/blog/{id}', function (Silex\Application $app, $id) use ($blogPosts) {
2     if (!isset($blogPosts[$id])) {
3         $app->abort(404, "Post $id does not exist.");
4     }
5
6     return new Response(...);
7 });
```

Redirects

You can redirect to another page by returning a redirect response, which you can create by calling the **redirect** method:

```
Listing 2-38 1 $app->get('/', function () use ($app) {
2     return $app->redirect('/hello');
3 });
```

This will redirect from **/** to **/hello**.

Forwards

When you want to delegate the rendering to another controller, without a round-trip to the browser (as for a redirect), use an internal sub-request:

```
Listing 2-39 1 use Symfony\Component\HttpFoundation\Request;
2 use Symfony\Component\HttpKernel\HttpKernelInterface;
3
4 $app->get('/', function () use ($app) {
5     // redirect to /hello
6     $subRequest = Request::create('/hello', 'GET');
7
8     return $app->handle($subRequest, HttpKernelInterface::SUB_REQUEST);
9 });
```




If you are using `UrlGeneratorProvider`, you can also generate the URI:

```
Listing 2-40 1 $request = Request::create($app['url_generator']->generate('hello'), 'GET');
```

There's some more things that you need to keep in mind though. In most cases you will want to forward some parts of the current master request to the sub-request. That includes: Cookies, server information, session. Read more on *how to make sub-requests*.

JSON

If you want to return JSON data, you can use the `json` helper method. Simply pass it your data, status code and headers, and it will create a JSON response for you:

```
Listing 2-41 1 $app->get('/users/{id}', function ($id) use ($app) {
2     $user = getUser($id);
3
4     if (!$user) {
5         $error = array('message' => 'The user was not found.');
```

Streaming

It's possible to create a streaming response, which is important in cases when you cannot buffer the data being sent:

```
Listing 2-42 1 $app->get('/images/{file}', function ($file) use ($app) {
2     if (!file_exists(__DIR__.'/images/'.$file)) {
3         return $app->abort(404, 'The image was not found.');
```

If you need to send chunks, make sure you call `ob_flush` and `flush` after every chunk:

```
Listing 2-43 1 $stream = function () {
2     $fh = fopen('http://www.example.com/', 'rb');
3     while (!feof($fh)) {
4         echo fread($fh, 1024);
5         ob_flush();
6         flush();
7     }
8 }
```

```

8     fclose($fh);
9 };

```

Sending a file

If you want to return a file, you can use the `sendFile` helper method. It eases returning files that would otherwise not be publicly available. Simply pass it your file path, status code, headers and the content disposition and it will create a `BinaryFileResponse` based response for you:

Listing 2-44

```

1 $app->get('/files/{path}', function ($path) use ($app) {
2     if (!file_exists('/base/path/' . $path)) {
3         $app->abort(404);
4     }
5
6     return $app->sendFile('/base/path/' . $path);
7 });

```

To further customize the response before returning it, check the API doc for `Symfony\Component\HttpFoundation\BinaryFileResponse`⁶:

Listing 2-45

```

1 return $app
2     ->sendFile('/base/path/' . $path)
3     ->setContentDisposition(ResponseHeaderBag::DISPOSITION_ATTACHMENT, 'pic.jpg')
4 ;

```



HttpFoundation 2.2 or greater is required for this feature to be available.

Traits

Silex comes with PHP traits that define shortcut methods.



You need to use PHP 5.4 or later to benefit from this feature.

Almost all built-in service providers have some corresponding PHP traits. To use them, define your own Application class and include the traits you want:

Listing 2-46

```

1 use Silex\Application;
2
3 class MyApplication extends Application
4 {
5     use Application\TwigTrait;
6     use Application\SecurityTrait;

```

6. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/BinaryFileResponse.html>

```

7     use Application\FormTrait;
8     use Application\UrlGeneratorTrait;
9     use Application\SwiftmailerTrait;
10    use Application\MonologTrait;
11    use Application\TranslationTrait;
12 }

```

You can also define your own Route class and use some traits:

Listing 2-47

```

1 use Silex\Route;
2
3 class MyRoute extends Route
4 {
5     use Route\SecurityTrait;
6 }

```

To use your newly defined route, override the `$app['route_class']` setting:

Listing 2-48

```

1 $app['route_class'] = 'MyRoute';

```

Read each provider chapter to learn more about the added methods.

Security

Make sure to protect your application against attacks.

Escaping

When outputting any user input (either route variables GET/POST variables obtained from the request), you will have to make sure to escape it correctly, to prevent Cross-Site-Scripting attacks.

- **Escaping HTML:** PHP provides the `htmlspecialchars` function for this. Silex provides a shortcut escape method:

Listing 2-49

```

1 $app->get('/name', function (Silex\Application $app) {
2     $name = $app['request']->get('name');
3     return "You provided the name {"$app->escape($name)}.";
4 });

```

If you use the Twig template engine you should use its escaping or even auto-escaping mechanisms.

- **Escaping JSON:** If you want to provide data in JSON format you should use the Silex `json` function:

Listing 2-50

```

1 $app->get('/name.json', function (Silex\Application $app) {
2     $name = $app['request']->get('name');
3     return $app->json(array('name' => $name));
4 });

```

Chapter 3

Middlewares

Silex allows you to run code, that changes the default Silex behavior, at different stages during the handling of a request through *middlewares*:

- *Application middlewares* are triggered independently of the current handled request;
- *Route middlewares* are triggered when their associated route is matched.

Application Middlewares

The application middlewares are only run for the "master" Request.

Before Middleware

A *before* application middleware allows you to tweak the Request before the controller is executed:

Listing 3-1

```
1 $app->before(function (Request $request) {
2     // ...
3 });
```

By default, the middleware is run after the routing and the security.

If you want your middleware to be run even if an exception is thrown early on (on a 404 or 403 error for instance), then, you need to register it as an early event:

Listing 3-2

```
1 $app->before(function (Request $request) {
2     // ...
3 }, Application::EARLY_EVENT);
```

Of course, in this case, the routing and the security won't have been executed, and so you won't have access to the locale, the current route, or the security user.



The *before* middleware is an event registered on the Symfony *request* event.

After Middleware

An *after* application middleware allows you to tweak the Response before it is sent to the client:

Listing 3-3

```
1 $app->after(function (Request $request, Response $response) {  
2     // ...  
3 });
```



The *after* middleware is an event registered on the Symfony *response* event.

Finish Middleware

A *finish* application middleware allows you to execute tasks after the Response has been sent to the client (like sending emails or logging):

Listing 3-4

```
1 $app->finish(function (Request $request, Response $response) {  
2     // ...  
3     // Warning: modifications to the Request or Response will be ignored  
4 });
```



The *finish* middleware is an event registered on the Symfony *terminate* event.

Route Middlewares

Route middlewares are added to routes or route collections and they are only triggered when the corresponding route is matched. You can also stack them:

Listing 3-5

```
1 $app->get('/somewhere', function () {  
2     // ...  
3 })  
4 ->before($before1)  
5 ->before($before2)  
6 ->after($after1)  
7 ->after($after2)  
8 ;
```

Before Middleware

A *before* route middleware is fired just before the route callback, but after the *before* application middlewares:

Listing 3-6

```

1 $before = function (Request $request, Application $app) {
2     // ...
3 };
4
5 $app->get('/somewhere', function () {
6     // ...
7 })
8 ->before($before);

```

After Middleware

An *after* route middleware is fired just after the route callback, but before the application *after* application middlewares:

Listing 3-7

```

1 $after = function (Request $request, Response $response, Application $app) {
2     // ...
3 };
4
5 $app->get('/somewhere', function () {
6     // ...
7 })
8 ->after($after);

```

Middlewares Priority

You can add as many middlewares as you want, in which case they are triggered in the same order as you added them.

You can explicitly control the priority of your middleware by passing an additional argument to the registration methods:

Listing 3-8

```

1 $app->before(function (Request $request) {
2     // ...
3 }, 32);

```

As a convenience, two constants allow you to register an event as early as possible or as late as possible:

Listing 3-9

```

1 $app->before(function (Request $request) {
2     // ...
3 }, Application::EARLY_EVENT);
4
5 $app->before(function (Request $request) {
6     // ...
7 }, Application::LATE_EVENT);

```

Short-circuiting the Controller

If a before middleware returns a Response object, the Request handling is short-circuited (the next middlewares won't be run, neither the route callback), and the Response is passed to the after middlewares right away:

Listing 3-10

```
1 $app->before(function (Request $request) {  
2     // redirect the user to the login screen if access to the Resource is protected  
3     if (...) {  
4         return new RedirectResponse('/login');  
5     }  
6 });
```



If a before middleware does not return a Response or `null`, a `RuntimeException` is thrown.

Chapter 4

Organizing Controllers

When your application starts to define too many controllers, you might want to group them logically:

Listing 4-1

```
1 // define controllers for a blog
2 $blog = $app['controllers_factory'];
3 $blog->get('/', function () {
4     return 'Blog home page';
5 });
6 // ...
7
8 // define controllers for a forum
9 $forum = $app['controllers_factory'];
10 $forum->get('/', function () {
11     return 'Forum home page';
12 });
13
14 // define "global" controllers
15 $app->get('/', function () {
16     return 'Main home page';
17 });
18
19 $app->mount('/blog', $blog);
20 $app->mount('/forum', $forum);
```



`$app['controllers_factory']` is a factory that returns a new instance of `ControllerCollection` when used.

`mount()` prefixes all routes with the given prefix and merges them into the main Application. So, `/` will map to the main home page, `/blog/` to the blog home page, and `/forum/` to the forum home page.



When mounting a route collection under `/blog`, it is not possible to define a route for the `/blog` URL. The shortest possible URL is `/blog/`.



When calling `get()`, `match()`, or any other HTTP methods on the Application, you are in fact calling them on a default instance of `ControllerCollection` (stored in `$app['controllers']`).

Another benefit is the ability to apply settings on a set of controllers very easily. Building on the example from the middleware section, here is how you would secure all controllers for the backend collection:

Listing 4-2

```
1 $backend = $app['controllers_factory'];
2
3 // ensure that all controllers require logged-in users
4 $backend->before($mustBeLogged);
```



For a better readability, you can split each controller collection into a separate file:

Listing 4-3

```
1 // blog.php
2 $blog = $app['controllers_factory'];
3 $blog->get('/', function () { return 'Blog home page'; });
4
5 return $blog;
6
7 // app.php
8 $app->mount('/blog', include 'blog.php');
```

Instead of requiring a file, you can also create a *Controller provider*.

Chapter 5

Services

Silex is not only a microframework. It is also a micro service container. It does this by extending *Pimple*¹ which provides service goodness in just 44 NCLOC.

Dependency Injection



You can skip this if you already know what Dependency Injection is.

Dependency Injection is a design pattern where you pass dependencies to services instead of creating them from within the service or relying on globals. This generally leads to code that is decoupled, reusable, flexible and testable.

Here is an example of a class that takes a `User` object and stores it as a file in JSON format:

Listing 5-1

```
1 class JsonUserPersister
2 {
3     private $basePath;
4
5     public function __construct($basePath)
6     {
7         $this->basePath = $basePath;
8     }
9
10    public function persist(User $user)
11    {
12        $data = $user->getAttributes();
13        $json = json_encode($data);
14        $filename = $this->basePath.'/'.$user->id.'.json';
15        file_put_contents($filename, $json, LOCK_EX);
16    }
17 }
```

1. <http://pimple.sensiolabs.org>

```
16     }  
17 }
```

In this simple example the dependency is the `basePath` property. It is passed to the constructor. This means you can create several independent instances with different base paths. Of course dependencies do not have to be simple strings. More often they are in fact other services.

Container

A DIC or service container is responsible for creating and storing services. It can recursively create dependencies of the requested services and inject them. It does so lazily, which means a service is only created when you actually need it.

Most containers are quite complex and are configured through XML or YAML files.

Pimple is different.

Pimple

Pimple is probably the simplest service container out there. It makes strong use of closures and implements the `ArrayAccess` interface.

We will start off by creating a new instance of Pimple -- and because `Silex\Application` extends `Pimple` all of this applies to Silex as well:

Listing 5-2 1 `$container = new Pimple();`

or:

Listing 5-3 1 `$app = new Silex\Application();`

Parameters

You can set parameters (which are usually strings) by setting an array key on the container:

Listing 5-4 1 `$app['some_parameter'] = 'value';`

The array key can be anything, by convention periods are used for namespacing:

Listing 5-5 1 `$app['asset.host'] = 'http://cdn.mysite.com/';`

Reading parameter values is possible with the same syntax:

Listing 5-6 1 `echo $app['some_parameter'];`

Service definitions

Defining services is no different than defining parameters. You just set an array key on the container to be a closure. However, when you retrieve the service, the closure is executed. This allows for lazy service creation:

Listing 5-7

```

1 $app['some_service'] = function () {
2     return new Service();
3 };

```

And to retrieve the service, use:

Listing 5-8

```
1 $service = $app['some_service'];
```

Every time you call `$app['some_service']`, a new instance of the service is created.

Shared services

You may want to use the same instance of a service across all of your code. In order to do that you can make a *shared* service:

Listing 5-9

```

1 $app['some_service'] = $app->share(function () {
2     return new Service();
3 });

```

This will create the service on first invocation, and then return the existing instance on any subsequent access.

Access container from closure

In many cases you will want to access the service container from within a service definition closure. For example when fetching services the current service depends on.

Because of this, the container is passed to the closure as an argument:

Listing 5-10

```

1 $app['some_service'] = function ($app) {
2     return new Service($app['some_other_service'], $app['some_service.config']);
3 };

```

Here you can see an example of Dependency Injection. `some_service` depends on `some_other_service` and takes `some_service.config` as configuration options. The dependency is only created when `some_service` is accessed, and it is possible to replace either of the dependencies by simply overriding those definitions.



This also works for shared services.

Going back to our initial example, here's how we could use the container to manage its dependencies:

Listing 5-11

```

1 $app['user.persist_path'] = '/tmp/users';
2 $app['user.persister'] = $app->share(function ($app) {
3     return new JsonUserPersister($app['user.persist_path']);
4 });

```

Protected closures

Because the container sees closures as factories for services, it will always execute them when reading them.

In some cases you will however want to store a closure as a parameter, so that you can fetch it and execute it yourself -- with your own arguments.

This is why Pimple allows you to protect your closures from being executed, by using the `protect` method:

```
Listing 5-12 1 $app['closure_parameter'] = $app->protect(function ($a, $b) {  
2     return $a + $b;  
3 });  
4  
5 // will not execute the closure  
6 $add = $app['closure_parameter'];  
7  
8 // calling it now  
9 echo $add(2, 3);
```

Note that protected closures do not get access to the container.

Core services

Silex defines a range of services which can be used or replaced. You probably don't want to mess with most of them.

- **request:** Contains the current request object, which is an instance of *Request*². It gives you access to GET, POST parameters and lots more!

Example usage:

```
Listing 5-13 1 $id = $app['request']->get('id');
```

This is only available when a request is being served, you can only access it from within a controller, an application before/after middlewares, or an error handler.

- **routes:** The *RouteCollection*³ that is used internally. You can add, modify, read routes.
- **controllers:** The *Silex\ControllerCollection* that is used internally. Check the *Internals* chapter for more information.
- **dispatcher:** The *EventDispatcher*⁴ that is used internally. It is the core of the Symfony2 system and is used quite a bit by Silex.
- **resolver:** The *ControllerResolver*⁵ that is used internally. It takes care of executing the controller with the right arguments.
- **kernel:** The *HttpKernel*⁶ that is used internally. The *HttpKernel* is the heart of Symfony2, it takes a Request as input and returns a Response as output.
- **request_context:** The request context is a simplified representation of the request that is used by the Router and the UrlGenerator.

2. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Request.html>

3. <http://api.symfony.com/master/Symfony/Component/Routing/RouteCollection.html>

4. <http://api.symfony.com/master/Symfony/Component/EventDispatcher/EventDispatcher.html>

5. <http://api.symfony.com/master/Symfony/Component/HttpKernel/Controller/ControllerResolver.html>

6. <http://api.symfony.com/master/Symfony/Component/HttpKernel/HttpKernel.html>

- **exception_handler**: The Exception handler is the default handler that is used when you don't register one via the `error()` method or if your handler does not return a Response. Disable it with `$app['exception_handler']->disable()`.
- **logger**: A `Psr\Log\LoggerInterface` instance. By default, logging is disabled as the value is set to `null`. To enable logging you can either use the `MonologServiceProvider` or define your own `logger` service that conforms to the PSR logger interface.

In versions of Silex before 1.1 this must be a `Symfony\Component\HttpKernel\Log\LoggerInterface`.



All of these Silex core services are shared.

Core parameters

- **request.http_port** (optional): Allows you to override the default port for non-HTTPS URLs. If the current request is HTTP, it will always use the current port.
Defaults to 80.
This parameter can be used by the `UrlGeneratorProvider`.
- **request.https_port** (optional): Allows you to override the default port for HTTPS URLs. If the current request is HTTPS, it will always use the current port.
Defaults to 443.
This parameter can be used by the `UrlGeneratorProvider`.
- **locale** (optional): The locale of the user. When set before any request handling, it defines the default locale (`en` by default). When a request is being handled, it is automatically set according to the `_locale` request attribute of the current route.
- **debug** (optional): Returns whether or not the application is running in debug mode.
Defaults to false.
- **charset** (optional): The charset to use for Responses.
Defaults to UTF-8.

Chapter 6

Providers

Providers allow the developer to reuse parts of an application into another one. Sillex provides two types of providers defined by two interfaces: `ServiceProviderInterface` for services and `ControllerProviderInterface` for controllers.

Service Providers

Loading providers

In order to load and use a service provider, you must register it on the application:

Listing 6-1

```
1 $app = new Sillex\Application();
2
3 $app->register(new Acme\DatabaseServiceProvider());
```

You can also provide some parameters as a second argument. These will be set **after** the provider is registered, but **before** it is booted:

Listing 6-2

```
1 $app->register(new Acme\DatabaseServiceProvider(), array(
2     'database.dsn'      => 'mysql:host=localhost;dbname=myapp',
3     'database.user'     => 'root',
4     'database.password' => 'secret_root_password',
5 ));
```

Conventions

You need to watch out in what order you do certain things when interacting with providers. Just keep to these rules:

- Overriding existing services must occur **after** the provider is registered.
Reason: If the service already exists, the provider will overwrite it.

- You can set parameters any time **after** the provider is registered, but **before** the service is accessed.

Reason: Providers can set default values for parameters. Just like with services, the provider will overwrite existing values.

Make sure to stick to this behavior when creating your own providers.

Included providers

There are a few providers that you get out of the box. All of these are within the `Silex\Provider` namespace:

- `DoctrineServiceProvider`
- `MonologServiceProvider`
- `SessionServiceProvider`
- `SerializerServiceProvider`
- `SwiftmailerServiceProvider`
- `TwigServiceProvider`
- `TranslationServiceProvider`
- `UrlGeneratorServiceProvider`
- `ValidatorServiceProvider`
- `HttpCacheServiceProvider`
- `FormServiceProvider`
- `SecurityServiceProvider`
- `RememberMeServiceProvider`
- `ServiceControllerServiceProvider`

Third party providers

Some service providers are developed by the community. Those third-party providers are listed on *Silex' repository wiki*¹.

You are encouraged to share yours.

Creating a provider

Providers must implement the `Silex\ServiceProviderInterface`:

Listing 6-3

```

1 interface ServiceProviderInterface
2 {
3     function register(Application $app);
4
5     function boot(Application $app);
6 }
```

This is very straight forward, just create a new class that implements the two methods. In the `register()` method, you can define services on the application which then may make use of other services and parameters. In the `boot()` method, you can configure the application, just before it handles a request.

Here is an example of such a provider:

Listing 6-4

```

1 namespace Acme;
2
3 use Silex\Application;
```

1. <https://github.com/silexphp/Silex/wiki/Third-Party-ServiceProviders>


```

4 use Silex\ServiceProviderInterface;
5
6 class HelloServiceProvider implements ServiceProviderInterface
7 {
8     public function register(Application $app)
9     {
10         $app['hello'] = $app->protect(function ($name) use ($app) {
11             $default = $app['hello.default_name'] ? $app['hello.default_name'] : '';
12             $name = $name ?: $default;
13
14             return 'Hello ' . $app->escape($name);
15         });
16     }
17
18     public function boot(Application $app)
19     {
20     }
21 }

```

This class provides a `hello` service which is a protected closure. It takes a `name` argument and will return `hello.default_name` if no name is given. If the default is also missing, it will use an empty string.

You can now use this provider as follows:

Listing 6-5

```

1 $app = new Silex\Application();
2
3 $app->register(new Acme\HelloServiceProvider(), array(
4     'hello.default_name' => 'Igor',
5 ));
6
7 $app->get('/hello', function () use ($app) {
8     $name = $app['request']->get('name');
9
10     return $app['hello']($name);
11 });

```

In this example we are getting the `name` parameter from the query string, so the request path would have to be `/hello?name=Fabien`.

Controller Providers

Loading providers

In order to load and use a controller provider, you must "mount" its controllers under a path:

Listing 6-6

```

1 $app = new Silex\Application();
2
3 $app->mount('/blog', new Acme\BlogControllerProvider());

```

All controllers defined by the provider will now be available under the `/blog` path.

Creating a provider

Providers must implement the `Silex\ControllerProviderInterface`:

Listing 6-7

```

1 interface ControllerProviderInterface
2 {
3     function connect(Application $app);
4 }

```

Here is an example of such a provider:

Listing 6-8

```

1 namespace Acme;
2
3 use Silex\Application;
4 use Silex\ControllerProviderInterface;
5
6 class HelloControllerProvider implements ControllerProviderInterface
7 {
8     public function connect(Application $app)
9     {
10         // creates a new controller based on the default route
11         $controllers = $app['controllers_factory'];
12
13         $controllers->get('/', function (Application $app) {
14             return $app->redirect('/hello');
15         });
16
17         return $controllers;
18     }
19 }

```

The `connect` method must return an instance of `ControllerCollection`. `ControllerCollection` is the class where all controller related methods are defined (like `get`, `post`, `match`, ...).



The `Application` class acts in fact as a proxy for these methods.

You can now use this provider as follows:

Listing 6-9

```

1 $app = new Silex\Application();
2
3 $app->mount('/blog', new Acme\HelloControllerProvider());

```

In this example, the `/blog/` path now references the controller defined in the provider.



You can also define a provider that implements both the service and the controller provider interface and package in the same class the services needed to make your controllers work.

Chapter 7

Testing

Because Silex is built on top of Symfony2, it is very easy to write functional tests for your application. Functional tests are automated software tests that ensure that your code is working correctly. They go through the user interface, using a fake browser, and mimic the actions a user would do.

Why

If you are not familiar with software tests, you may be wondering why you would need this. Every time you make a change to your application, you have to test it. This means going through all the pages and making sure they are still working. Functional tests save you a lot of time, because they enable you to test your application in usually under a second by running a single command.

For more information on functional testing, unit testing, and automated software tests in general, check out *PHPUnit*¹ and Bulat Shakirzyanov's talk on Clean Code.

PHPUnit

*PHPUnit*² is the de-facto standard testing framework for PHP. It was built for writing unit tests, but it can be used for functional tests too. You write tests by creating a new class, that extends the `PHPUnit_Framework_TestCase`. Your test cases are methods prefixed with `test`:

Listing 7-1

```
1 class ContactFormTest extends \PHPUnit_Framework_TestCase
2 {
3     public function testInitialPage()
4     {
5         ...
6     }
7 }
```

1. <https://github.com/sebastianbergmann/phpunit>

2. <https://github.com/sebastianbergmann/phpunit>

In your test cases, you do assertions on the state of what you are testing. In this case we are testing a contact form, so we would want to assert that the page loaded correctly and contains our form:

Listing 7-2

```
1 public function testInitialPage()
2 {
3     $statusCode = ...
4     $pageContent = ...
5
6     $this->assertEquals(200, $statusCode);
7     $this->assertContains('Contact us', $pageContent);
8     $this->assertContains('<form', $pageContent);
9 }
```

Here you see some of the available assertions. There is a full list available in the *Writing Tests for PHPUnit*³ section of the PHPUnit documentation.

WebTestCase

Symfony2 provides a `WebTestCase` class that can be used to write functional tests. The Silex version of this class is `Silex\WebTestCase`, and you can use it by making your test extend it:

Listing 7-3

```
1 use Silex\WebTestCase;
2
3 class ContactFormTest extends WebTestCase
4 {
5     ...
6 }
```



To make your application testable, you need to make sure you follow "Reusing applications" instructions from *Usage*.



If you want to use the Symfony2 `WebTestCase` class you will need to explicitly install its dependencies for your project. Add the following to your `composer.json` file:

Listing 7-4

```
"require-dev": {
    "symfony/browser-kit": ">=2.3,<2.4-dev"
}
```

For your `WebTestCase`, you will have to implement a `createApplication` method, which returns your application. It will probably look like this:

Listing 7-5

```
1 public function createApplication()
2 {
3     return require __DIR__.'/path/to/app.php';
4 }
```

Make sure you do **not** use `require_once` here, as this method will be executed before every test.

3. <http://www.phpunit.de/manual/current/en/writing-tests-for-phpunit.html>



By default, the application behaves in the same way as when using it from a browser. But when an error occurs, it is sometimes easier to get raw exceptions instead of HTML pages. It is rather simple if you tweak the application configuration in the `createApplication()` method like follows:

Listing 7-6

```
1 public function createApplication()
2 {
3     $app = require __DIR__ . '/path/to/app.php';
4     $app['debug'] = true;
5     $app['exception_handler']->disable();
6
7     return $app;
8 }
```



If your application use sessions, set `session.test` to `true` to simulate sessions:

Listing 7-7

```
1 public function createApplication()
2 {
3     // ...
4
5     $app['session.test'] = true;
6
7     // ...
8 }
```

The `WebTestCase` provides a `createClient` method. A client acts as a browser, and allows you to interact with your application. Here's how it works:

Listing 7-8

```
1 public function testInitialPage()
2 {
3     $client = $this->createClient();
4     $crawler = $client->request('GET', '/');
5
6     $this->assertTrue($client->getResponse()->isOk());
7     $this->assertCount(1, $crawler->filter('h1:contains("Contact us")'));
8     $this->assertCount(1, $crawler->filter('form'));
9     ...
10 }
```

There are several things going on here. You have both a `Client` and a `Crawler`. You can also access the application through `$this->app`.

Client

The client represents a browser. It holds your browsing history, cookies and more. The `request` method allows you to make a request to a page on your application.



You can find some documentation for it in the client section of the testing chapter of the `Symfony2` documentation.

Crawler

The crawler allows you to inspect the content of a page. You can filter it using CSS expressions and lots more.



You can find some documentation for it in the crawler section of the testing chapter of the Symfony2 documentation.

Configuration

The suggested way to configure PHPUnit is to create a `phpunit.xml.dist` file, a `tests` folder and your tests in `tests/YourApp/Tests/YourTest.php`. The `phpunit.xml.dist` file should look like this:

Listing 7-9

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <phpunit backupGlobals="false"
3         backupStaticAttributes="false"
4         colors="true"
5         convertErrorsToExceptions="true"
6         convertNoticesToExceptions="true"
7         convertWarningsToExceptions="true"
8         processIsolation="false"
9         stopOnFailure="false"
10        syntaxCheck="false"
11 >
12   <testsuites>
13     <testsuite name="YourApp Test Suite">
14       <directory>./tests/</directory>
15     </testsuite>
16   </testsuites>
17 </phpunit>
```

You can also configure a bootstrap file for autoloading and whitelisting for code coverage reports.

Your `tests/YourApp/Tests/YourTest.php` should look like this:

Listing 7-10

```
1 namespace YourApp\Tests;
2
3 use Silex\WebTestCase;
4
5 class YourTest extends WebTestCase
6 {
7     public function createApplication()
8     {
9         return require __DIR__.'../../app.php';
10    }
11
12    public function testFooBar()
13    {
14        ...
15    }
16 }
```

Now, when running `phpunit` on the command line, your tests should run.

Chapter 8

Accepting a JSON Request Body

A common need when building a restful API is the ability to accept a JSON encoded entity from the request body.

An example for such an API could be a blog post creation.

Example API

In this example we will create an API for creating a blog post. The following is a spec of how we want it to work.

Request

In the request we send the data for the blog post as a JSON object. We also indicate that using the **Content-Type** header:

Listing 8-1

```
1 POST /blog/posts
2 Accept: application/json
3 Content-Type: application/json
4 Content-Length: 57
5
6 {"title":"Hello World!","body":"This is my first post!"}
```

Response

The server responds with a 201 status code, telling us that the post was created. It tells us the **Content-Type** of the response, which is also JSON:

Listing 8-2

```
1 HTTP/1.1 201 Created
2 Content-Type: application/json
3 Content-Length: 65
4 Connection: close
```

```
5
6 {"id":"1","title":"Hello World!","body":"This is my first post!"}
```

Parsing the request body

The request body should only be parsed as JSON if the **Content-Type** header begins with **application/json**. Since we want to do this for every request, the easiest solution is to use an application before middleware.

We simply use `json_decode` to parse the content of the request and then replace the request data on the `$request` object:

Listing 8-3

```
1 use Symfony\Component\HttpFoundation\Request;
2 use Symfony\Component\HttpFoundation\ParameterBag;
3
4 $app->before(function (Request $request) {
5     if (0 === strpos($request->headers->get('Content-Type'), 'application/json')) {
6         $data = json_decode($request->getContent(), true);
7         $request->request->replace(is_array($data) ? $data : array());
8     }
9 });
```

Controller implementation

Our controller will create a new blog post from the data provided and will return the post object, including its `id`, as JSON:

Listing 8-4

```
1 use Symfony\Component\HttpFoundation\Request;
2 use Symfony\Component\HttpFoundation\Response;
3
4 $app->post('/blog/posts', function (Request $request) use ($app) {
5     $post = array(
6         'title' => $request->request->get('title'),
7         'body' => $request->request->get('body'),
8     );
9
10    $post['id'] = createPost($post);
11
12    return $app->json($post, 201);
13 });
```

Manual testing

In order to manually test our API, we can use the `curl` command line utility, which allows sending HTTP requests:

Listing 8-5

```
1 $ curl http://blog.lo/blog/posts -d '{"title":"Hello World!","body":"This is my first
2 post!"}' -H 'Content-Type: application/json'
   {"id":"1","title":"Hello World!","body":"This is my first post!"}
```


Chapter 9

Translating Validation Messages

When working with Symfony2 validator, a common task would be to show localized validation messages. In order to do that, you will need to register translator and point to translated resources:

Listing 9-1

```
1 $app->register(new Silex\Provider\TranslationServiceProvider(), array(
2     'locale' => 'sr_Latn',
3     'translator.domains' => array(),
4 ));
5
6 $app->before(function () use ($app) {
7     $app['translator']->addLoader('xlf', new
8     Symfony\Component\Translation\Loader\XliffFileLoader());
9     $app['translator']->addResource('xlf', __DIR__.'/vendor/symfony/validator/Symfony/
    Component/Validator/Resources/translations/validators/validators.sr_Latn.xlf', 'sr_Latn',
    'validators');
10 });
```

And that's all you need to load translations from Symfony2 xlf files.

Chapter 10

Using PdoSessionStorage to store Sessions in the Database

By default, the *SessionServiceProvider* writes session information in files using Symfony2 *NativeFileSessionStorage*. Most medium to large websites use a database to store sessions instead of files, because databases are easier to use and scale in a multi-webserver environment.

Symfony2's *NativeSessionStorage*¹ has multiple storage handlers and one of them uses PDO to store sessions, *PdoSessionHandler*². To use it, replace the `session.storage.handler` service in your application like explained below.

With a dedicated PDO service

Listing 10-1

```
1 use Symfony\Component\HttpFoundation\Session\Storage\Handler\PdoSessionHandler;
2
3 $app->register(new Silex\Provider\SessionServiceProvider());
4
5 $app['pdo.dsn'] = 'mysql:dbname=mydatabase';
6 $app['pdo.user'] = 'myuser';
7 $app['pdo.password'] = 'mypassword';
8
9 $app['session.db_options'] = array(
10     'db_table'      => 'session',
11     'db_id_col'     => 'session_id',
12     'db_data_col'   => 'session_value',
13     'db_time_col'   => 'session_time',
14 );
15
16 $app['pdo'] = $app->share(function () use ($app) {
17     return new PDO(
```

1. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Session/Storage/NativeSessionStorage.html>

2. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Session/Storage/Handler/PdoSessionHandler.html>

```

18         $app['pdo.dsn'],
19         $app['pdo.user'],
20         $app['pdo.password']
21     );
22 });
23
24 $app['session.storage.handler'] = $app->share(function () use ($app) {
25     return new PDOSessionHandler(
26         $app['pdo'],
27         $app['session.db_options'],
28         $app['session.storage.options']
29     );
30 });

```

Using the DoctrineServiceProvider

When using the *DoctrineServiceProvider* You don't have to make another database connection, simply pass the *getWrappedConnection* method.

Listing 10-2

```

1 use Symfony\Component\HttpFoundation\Session\Storage\Handler\PdoSessionHandler;
2
3 $app->register(new Silex\Provider\SessionServiceProvider());
4
5 $app['session.db_options'] = array(
6     'db_table'      => 'session',
7     'db_id_col'     => 'session_id',
8     'db_data_col'   => 'session_value',
9     'db_time_col'   => 'session_time',
10 );
11
12 $app['session.storage.handler'] = $app->share(function () use ($app) {
13     return new PDOSessionHandler(
14         $app['db']->getWrappedConnection(),
15         $app['session.db_options'],
16         $app['session.storage.options']
17     );
18 });

```

Database structure

PdoSessionStorage needs a database table with 3 columns:

- **session_id**: ID column (VARCHAR(255) or larger)
- **session_value**: Value column (TEXT or CLOB)
- **session_time**: Time column (INTEGER)

You can find examples of SQL statements to create the session table in the *Symfony2 cookbook*³

3. http://symfony.com/doc/current/cookbook/configuration/pdo_session_storage.html#example-sql-statements

Chapter 11

Disabling CSRF Protection on a Form using the FormExtension

The *FormExtension* provides a service for building form in your application with the Symfony2 Form component. By default, the *FormExtension* uses the CSRF Protection avoiding Cross-site request forgery, a method by which a malicious user attempts to make your legitimate users unknowingly submit data that they don't intend to submit.

You can find more details about CSRF Protection and CSRF token in the *Symfony2 Book*¹.

In some cases (for example, when embedding a form in an html email) you might want not to use this protection. The easiest way to avoid this is to understand that it is possible to give specific options to your form builder through the `createBuilder()` function.

Example

Listing 11-1

```
1 $form = $app['form.factory']->createBuilder('form', null, array('csrf_protection' => false));
```

That's it, your form could be submitted from everywhere without CSRF Protection.

Going further

This specific example showed how to change the `csrf_protection` in the `$options` parameter of the `createBuilder()` function. More of them could be passed through this parameter, it is as simple as using the Symfony2 `getDefaultOptions()` method in your form classes. *See more here*².

1. <http://symfony.com/doc/current/book/forms.html#csrf-protection>

2. <http://symfony.com/doc/current/book/forms.html#book-form-creating-form-classes>

Chapter 12

Using YAML to configure Validation

Simplicity is at the heart of Silex so there is no out of the box solution to use YAML files for validation. But this doesn't mean that this is not possible. Let's see how to do it.

First, you need to install the YAML Component. Declare it as a dependency in your `composer.json` file:

Listing 12-1

```
"require": {  
    "symfony/yaml": "~2.3"  
}
```

Next, you need to tell the Validation Service that you are not using `StaticMethodLoader` to load your class metadata but a YAML file:

Listing 12-2

```
1 $app->register(new ValidatorServiceProvider());  
2  
3 $app['validator.mapping.class_metadata_factory'] = new  
4 Symfony\Component\Validator\Mapping\ClassMetadataFactory(  
5     new Symfony\Component\Validator\Mapping\Loader\YamlFileLoader(__DIR__.'/validation.yml')  
6 );
```

Now, we can replace the usage of the static method and move all the validation rules to `validation.yml`:

Listing 12-3

```
1 # validation.yml  
2 Post:  
3     properties:  
4         title:  
5             - NotNull: ~  
6             - NotBlank: ~  
7         body:  
8             - Min: 100
```

Chapter 13

Making sub-Requests

Since Silex is based on the `HttpKernelInterface`, it allows you to simulate requests against your application. This means that you can embed a page within another, it also allows you to forward a request which is essentially an internal redirect that does not change the URL.

Basics

You can make a sub-request by calling the `handle` method on the `Application`. This method takes three arguments:

- **`$request`: An instance of the `Request` class which represents the** HTTP request.
- **`$type`:** Must be either `HttpKernelInterface::MASTER_REQUEST` or `HttpKernelInterface::SUB_REQUEST`. Certain listeners are only executed for the master request, so it's important that this is set to `SUB_REQUEST`.
- **`$catch`:** Catches exceptions and turns them into a response with status code 500. This argument defaults to `true`. For sub-requests you will most likely want to set it to `false`.

By calling `handle`, you can make a sub-request manually. Here's an example:

Listing 13-1

```
1 use Symfony\Component\HttpFoundation\Request;
2 use Symfony\Component\HttpKernel\HttpKernelInterface;
3
4 $subRequest = Request::create('/');
5 $response = $app->handle($subRequest, HttpKernelInterface::SUB_REQUEST, false);
```

There's some more things that you need to keep in mind though. In most cases you will want to forward some parts of the current master request to the sub-request. That includes: Cookies, server information, session.

Here is a more advanced example that forwards said information (`$request` holds the master request):

Listing 13-2

```

1 use Symfony\Component\HttpFoundation\Request;
2 use Symfony\Component\HttpKernel\HttpKernelInterface;
3
4 $subRequest = Request::create('/', 'GET', array(), $request->cookies->all(), array(),
5 $request->server->all());
6 if ($request->getSession()) {
7     $subRequest->setSession($request->getSession());
8 }
9
10 $response = $app->handle($subRequest, HttpKernelInterface::SUB_REQUEST, false);

```

To forward this response to the client, you can simply return it from a controller:

Listing 13-3

```

1 use Silex\Application;
2 use Symfony\Component\HttpFoundation\Request;
3 use Symfony\Component\HttpKernel\HttpKernelInterface;
4
5 $app->get('/foo', function (Application $app, Request $request) {
6     $subRequest = Request::create('/', ...);
7     $response = $app->handle($subRequest, HttpKernelInterface::SUB_REQUEST, false);
8
9     return $response;
10 });

```

If you want to embed the response as part of a larger page you can call `Response::getContent()`:

Listing 13-4

```

1 $header = ...;
2 $footer = ...;
3 $body = $response->getContent();
4
5 return $header.$body.$footer;

```

Rendering pages in Twig templates

The *TwigServiceProvider* provides a `render` function that you can use in Twig templates. It gives you a convenient way to embed pages.

Listing 13-5

```

1 {{ render('/sidebar') }}

```

For details, refer to the *TwigServiceProvider* docs.

Edge Side Includes

You can use ESI either through the *HttpCacheServiceProvider* or a reverse proxy cache such as Varnish. This also allows you to embed pages, however it also gives you the benefit of caching parts of the page.

Here is an example of how you would embed a page via ESI:

Listing 13-6

```

1 <esi:include src="/sidebar" />

```

For details, refer to the *HttpCacheServiceProvider* docs.

Dealing with the request base URL

One thing to watch out for is the base URL. If your application is not hosted at the webroot of your web server, then you may have an URL like `http://example.org/foo/index.php/articles/42`.

In this case, `/foo/index.php` is your request base path. Silex accounts for this path prefix in the routing process, it reads it from `$request->server`. In the context of sub-requests this can lead to issues, because if you do not prepend the base path the request could mistake a part of the path you want to match as the base path and cut it off.

You can prevent that from happening by always prepending the base path when constructing a request:

```
Listing 13-7 1 $url = $request->getUriForPath('/');
2 $subRequest = Request::create($url, 'GET', array(), $request->cookies->all(), array(),
  $request->server->all());
```

This is something to be aware of when making sub-requests by hand.

Lack of container scopes

While the sub-requests available in Silex are quite powerful, they have their limits. The major limitation/danger that you will run into is the lack of scopes on the Pimple container.

The container is a concept that is global to a Silex application, since the application object **is** the container. Any request that is run against an application will re-use the same set of services. Since these services are mutable, code in a master request can affect the sub-requests and vice versa. Any services depending on the `request` service will store the first request that they get (could be master or sub-request), and keep using it, even if that request is already over.

For example:

```
Listing 13-8 1 use Symfony\Component\HttpFoundation\Request;
2
3 class ContentFormatNegotiator
4 {
5     private $request;
6
7     public function __construct(Request $request)
8     {
9         $this->request = $request;
10    }
11
12    public function negotiateFormat(array $serverTypes)
13    {
14        $clientAcceptType = $this->request->headers->get('Accept');
15
16        ...
17
18        return $format;
19    }
20 }
```

This example looks harmless, but it might blow up. You have no way of knowing what `$request->headers->get()` will return, because `$request` could be either the master request or a sub-request. The answer in this case is to pass the request as an argument to `negotiateFormat`. Then you can pass it in from a location where you have safe access to the current request: a listener or a controller.

Here are a few general approaches to working around this issue:

- Use ESI with Varnish.
- Do not inject the request, ever. Use listeners instead, as they can access the request without storing it.
- Inject the Silex Application and fetch the request from it.

Chapter 14

Converting Errors to Exceptions

Silex will catch exceptions that are thrown from within a request/response cycle. It will however *not* catch PHP errors and notices. You can catch them by converting them to exceptions, this recipe will tell you how.

Why does Silex not do this?

Silex could do this automatically in theory, but there is a reason why it does not. Silex acts as a library, this means that it does not mess with any global state. Since error handlers are global in PHP, it is your responsibility as a user to register them.

Registering the ErrorHandler

Fortunately, the `Symfony/Debug` package has an `ErrorHandler` class that solves this issue. It converts all errors to exceptions, and exceptions can be caught by Silex.

You register it by calling the static `register` method:

Listing 14-1

```
1 use Symfony\Component\Debug\ErrorHandler;
2
3 ErrorHandler::register();
```

It is recommended that you do this in your front controller, i.e. `web/index.php`.

Handling fatal errors

To handle fatal errors, you can additionally register a global `ExceptionHandler`:

Listing 14-2

```
1 use Symfony\Component\Debug\ExceptionHandler;
2
3 ErrorHandler::register();
```

In production you may want to disable the debug output by passing **false** as the **\$debug** argument:

```
Listing 14-3 1 use Symfony\Component\Debug\ExceptionHandler;
2
3 ErrorHandler::register(false);
```

Chapter 15

Using multiple Monolog Loggers

Having separate instances of *Monolog* for different parts of your system is often desirable and allows you to configure them independently, allowing for fine grained control of where your logging goes and in what detail.

This simple example allows you to quickly configure several monolog instances, using the bundled handler, but each with a different channel.

Listing 15-1

```
1 $app['monolog.factory'] = $app->protect(function ($name) use ($app) {
2     $log = new $app['monolog.logger.class']($name);
3     $log->pushHandler($app['monolog.handler']);
4
5     return $log;
6 });
7
8 foreach (array('auth', 'payments', 'stats') as $channel) {
9     $app['monolog.'.$channel] = $app->share(function ($app) use ($channel) {
10         return $app['monolog.factory']($channel);
11     });
12 }
```

As your application grows, or your logging needs for certain areas of the system become apparent, it should be straightforward to then configure that particular service separately, including your customizations.

Listing 15-2

```
1 use Monolog\Handler\StreamHandler;
2
3 $app['monolog.payments'] = $app->share(function ($app) {
4     $log = new $app['monolog.logger.class']('payments');
5     $handler = new StreamHandler($app['monolog.payments.logfile'],
6 $app['monolog.payment.level']);
7     $log->pushHandler($handler);
8
9     return $log;
10 });
```

Alternatively, you could attempt to make the factory more complicated, and rely on some conventions, such as checking for an array of handlers registered with the container with the channel name, defaulting to the bundled handler.

Listing 15-3

```
1 use Monolog\Handler\StreamHandler;
2 use Monolog\Logger;
3
4 $app['monolog.factory'] = $app->protect(function ($name) use ($app) {
5     $log = new $app['monolog.logger.class']($name);
6
7     $handlers = isset($app['monolog.'.$name.'.handlers'])
8         ? $app['monolog.'.$name.'.handlers']
9         : array($app['monolog.handler']);
10
11     foreach ($handlers as $handler) {
12         $log->pushHandler($handler);
13     }
14
15     return $log;
16 });
17
18 $app['monolog.payments.handlers'] = $app->share(function ($app) {
19     return array(
20         new StreamHandler(__DIR__.'/../payments.log', Logger::DEBUG),
21     );
22 });
```

Chapter 16

Managing Assets in Templates

A Silex application is not always hosted at the web root directory. To avoid repeating the base path whenever you link to another page, it is highly recommended to use the *URL generator service provider*.

But what about images, stylesheets, or JavaScript files? Their URLs are not managed by the Silex router, but nonetheless, they need to get prefixed by the base path. Fortunately, the Request object contains the application base path that needs to be prepended:

Listing 16-1

```
1 // generate a link to the stylesheets in /css/styles.css
2 $request->getBasePath().'/css/styles.css';
```

And doing the same in a Twig template is as easy as it can get:

Listing 16-2

```
1 {{ app.request.basepath }}/css/styles.css
```

If your assets are hosted under a different host, you might want to abstract the path by defining a Silex parameter:

Listing 16-3

```
1 $app['asset_path'] = 'http://assets.examples.com';
```

Using it in a template is as easy as before:

Listing 16-4

```
1 {{ app.asset_path }}/css/styles.css
```

If you need to implement some logic independently of the asset, define a service instead:

Listing 16-5

```
1 $app['asset_path'] = $app->share(function () {
2     // implement whatever logic you need to determine the asset path
3
4     return 'http://assets.examples.com';
5 });
```

Usage is exactly the same as before:

Listing 16-6

```
1 {{ app.asset_path }}/css/styles.css
```

If the asset location depends on the asset type or path, you will need more abstraction; here is one way to do that with a Twig function:

```
Listing 16-7 1 $app['twig'] = $app->share($app->extend('twig', function($twig, $app) {  
2     $twig->addFunction(new \Twig_SimpleFunction('asset', function ($asset) {  
3         // implement whatever logic you need to determine the asset path  
4  
5         return sprintf('http://assets.examples.com/%s', ltrim($asset, '/'));  
6     }));  
7  
8     return $twig;  
9 }));
```

The `asset` function can then be used in your templates:

```
Listing 16-8 1 {{ asset('/css/styles.css') }}
```

Chapter 17

Internals

This chapter will tell you a bit about how Silex works internally.

Silex

Application

The application is the main interface to Silex. It implements Symfony2's *HttpKernelInterface*¹, so you can pass a *Request*² to the **handle** method and it will return a *Response*³.

It extends the **Pimple** service container, allowing for flexibility on the outside as well as the inside. You could replace any service, and you are also able to read them.

The application makes strong use of the *EventDispatcher*⁴ to hook into the Symfony2 *HttpKernel*⁵ events. This allows fetching the **Request**, converting string responses into **Response** objects and handling Exceptions. We also use it to dispatch some custom events like before/after middlewares and errors.

Controller

The Symfony2 *Route*⁶ is actually quite powerful. Routes can be named, which allows for URL generation. They can also have requirements for the variable parts. In order to allow setting these through a nice interface, the **match** method (which is used by **get**, **post**, etc.) returns an instance of the **Controller**, which wraps a route.

1. <http://api.symfony.com/master/Symfony/Component/HttpKernel/HttpKernelInterface.html>
2. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Request.html>
3. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Response.html>
4. <http://api.symfony.com/master/Symfony/Component/EventDispatcher/EventDispatcher.html>
5. <http://api.symfony.com/master/Symfony/Component/HttpKernel/HttpKernel.html>
6. <http://api.symfony.com/master/Symfony/Component/Routing/Route.html>

ControllerCollection

One of the goals of exposing the *RouteCollection*⁷ was to make it mutable, so providers could add stuff to it. The challenge here is the fact that routes know nothing about their name. The name only has meaning in context of the **RouteCollection** and cannot be changed.

To solve this challenge we came up with a staging area for routes. The **ControllerCollection** holds the controllers until **flush** is called, at which point the routes are added to the **RouteCollection**. Also, the controllers are then frozen. This means that they can no longer be modified and will throw an Exception if you try to do so.

Unfortunately no good way for flushing implicitly could be found, which is why flushing is now always explicit. The Application will flush, but if you want to read the **ControllerCollection** before the request takes place, you will have to call flush yourself.

The **Application** provides a shortcut **flush** method for flushing the **ControllerCollection**.



Instead of creating an instance of **RouteCollection** yourself, use the `$app['controllers_factory']` factory instead.

Symfony2

Following Symfony2 components are used by Silex:

- **HttpFoundation**: For Request and Response.
- **HttpKernel**: Because we need a heart.
- **Routing**: For matching defined routes.
- **EventDispatcher**: For hooking into the HttpKernel.

For more information, *check out the Symfony website*⁸.

7. <http://api.symfony.com/master/Symfony/Component/Routing/RouteCollection.html>

8. <http://symfony.com/>

Chapter 18

Contributing

We are open to contributions to the Silex code. If you find a bug or want to contribute a provider, just follow these steps.

- Fork *the Silex repository*¹ on github.
- Make your feature addition or bug fix.
- Add tests for it. This is important so we don't break it in a future version unintentionally.
- Optionally, add some technical documentation.
- *Send a pull request*², to the correct target branch. Bonus points for topic branches.

If you have a big change or would like to discuss something, please join us on the *mailing list*³.



Any code you contribute must be licensed under the MIT License.

1. <https://github.com/silexphp/Silex>
2. <https://help.github.com/articles/creating-a-pull-request>
3. <http://groups.google.com/group/silex-php>

Chapter 19

Target branch

Before you create a pull request for Silex, you need to determine which branch to submit it to. Read this section carefully first.

Silex has two active branches: *1.0* and *master* (*1.1*).

- **1.0:** Bugfixes and documentation fixes go into the 1.0 branch. 1.0 is periodically merged into master. The 1.0 branch targets versions 2.1, 2.2 and 2.3 of Symfony2.
- **1.1:** All new features go into the 1.1 branch. Changes cannot break backward compatibility. The 1.1 branch targets the 2.3 version of Symfony2.

Chapter 20

Writing Documentation

The documentation is written in *reStructuredText*⁴ and can be generated using *sphinx*⁵.

4. <http://docutils.sourceforge.net/rst.html>

5. <http://sphinx-doc.org>

Listing 20-1

```
1 $ cd doc
2 $ sphinx-build -b html . build
```

Chapter 21

DoctrineServiceProvider

The *DoctrineServiceProvider* provides integration with the *Doctrine DBAL*¹ for easy database access.



There is only a Doctrine DBAL. An ORM service is **not** supplied.

Parameters

- **db.options**: Array of Doctrine DBAL options.

These options are available:

- **driver**: The database driver to use, defaults to `pdo_mysql`. Can be any of: `pdo_mysql`, `pdo_sqlite`, `pdo_pgsql`, `pdo_oci`, `oci8`, `ibm_db2`, `pdo_ibm`, `pdo_sqlsrv`.
- **dbname**: The name of the database to connect to.
- **host**: The host of the database to connect to. Defaults to `localhost`.
- **user**: The user of the database to connect to. Defaults to `root`.
- **password**: The password of the database to connect to.
- **charset**: Only relevant for `pdo_mysql`, and `pdo_oci/oci8`, specifies the charset used when connecting to the database.
- **path**: Only relevant for `pdo_sqlite`, specifies the path to the SQLite database.
- **port**: Only relevant for `pdo_mysql`, `pdo_pgsql`, and `pdo_oci/oci8`, specifies the port of the database to connect to.

These and additional options are described in detail in the Doctrine DBAL configuration documentation.

1. <http://www.doctrine-project.org/projects/dbal>

Services

- **db**: The database connection, instance of `Doctrine\DBAL\Connection`.
- **db.config**: Configuration object for Doctrine. Defaults to an empty `Doctrine\DBAL\Configuration`.
- **db.event_manager**: Event Manager for Doctrine.

Registering

Listing 21-1

```
1 $app->register(new Silex\Provider\DoctrineServiceProvider(), array(  
2     'db.options' => array(  
3         'driver' => 'pdo_sqlite',  
4         'path' => __DIR__.'/app.db',  
5     ),  
6 ));
```



Doctrine DBAL comes with the "fat" Silex archive but not with the regular one. If you are using Composer, add it as a dependency to your `composer.json` file:

Listing 21-2

```
"require": {  
    "doctrine/dbal": "2.2.*",  
}
```

Usage

The Doctrine provider provides a **db** service. Here is a usage example:

Listing 21-3

```
1 $app->get('/blog/{id}', function ($id) use ($app) {  
2     $sql = "SELECT * FROM posts WHERE id = ?";  
3     $post = $app['db']->fetchAssoc($sql, array((int) $id));  
4  
5     return "<h1>{$post['title']}</h1>".  
6         "<p>{$post['body']}</p>";  
7 });
```

Using multiple databases

The Doctrine provider can allow access to multiple databases. In order to configure the data sources, replace the **db.options** with **db.options**. **db.options** is an array of configurations where keys are connection names and values are options:

Listing 21-4

```
1 $app->register(new Silex\Provider\DoctrineServiceProvider(), array(  
2     'db.options' => array (  
3         'mysql_read' => array(  
4             'driver' => 'pdo_mysql',  
5             'host' => 'mysql_read.someplace.tld',  
6             'dbname' => 'my_database',
```

```

7         'user'      => 'my_username',
8         'password' => 'my_password',
9         'charset'  => 'utf8',
10    ),
11    'mysql_write' => array(
12        'driver'      => 'pdo_mysql',
13        'host'        => 'mysql_write.someplace.tld',
14        'dbname'      => 'my_database',
15        'user'        => 'my_username',
16        'password'    => 'my_password',
17        'charset'     => 'utf8',
18    ),
19 ),
20 ));

```

The first registered connection is the default and can simply be accessed as you would if there was only one connection. Given the above configuration, these two lines are equivalent:

Listing 21-5

```

1 $app['db']->fetchAll('SELECT * FROM table');
2
3 $app['dbs']['mysql_read']->fetchAll('SELECT * FROM table');

```

Using multiple connections:

Listing 21-6

```

1 $app->get('/blog/{id}', function ($id) use ($app) {
2     $sql = "SELECT * FROM posts WHERE id = ?";
3     $post = $app['dbs']['mysql_read']->fetchAssoc($sql, array((int) $id));
4
5     $sql = "UPDATE posts SET value = ? WHERE id = ?";
6     $app['dbs']['mysql_write']->executeUpdate($sql, array('newValue', (int) $id));
7
8     return "<h1>{$post['title']}</h1>".
9         "<p>{$post['body']}</p>";
10 });

```

For more information, consult the *Doctrine DBAL documentation*².

2. <http://docs.doctrine-project.org/projects/doctrine-dbal/en/latest/>

Chapter 22

MonologServiceProvider

The *MonologServiceProvider* provides a default logging mechanism through Jordi Boggiano's *Monolog*¹ library.

It will log requests and errors and allow you to add logging to your application. This allows you to debug and monitor the behaviour, even in production.

Parameters

- **monolog.logfile**: File where logs are written to.
- **monolog.level** (optional): Level of logging defaults to `DEBUG`. Must be one of `Logger::DEBUG`, `Logger::INFO`, `Logger::WARNING`, `Logger::ERROR`. `DEBUG` will log everything, `INFO` will log everything except `DEBUG`, etc.

In addition to the `Logger::` constants, it is also possible to supply the level in string form, for example: `"DEBUG"`, `"INFO"`, `"WARNING"`, `"ERROR"`.

- **monolog.name** (optional): Name of the monolog channel, defaults to `myapp`.

Services

- **monolog**: The monolog logger instance.

Example usage:

Listing 22-1 1 `$app['monolog']->addDebug('Testing the Monolog logging.');`

1. <https://github.com/Seldaek/monolog>

Registering

Listing 22-2

```
1 $app->register(new Silx\Provider\MonologServiceProvider(), array(
2     'monolog.logfile' => __DIR__.'/development.log',
3 ));
```



Monolog comes with the "fat" Silx archive but not with the regular one. If you are using Composer, add it as a dependency to your `composer.json` file:

Listing 22-3

```
"require": {
    "monolog/monolog": ">=1.0.0"
}
```

Usage

The `MonologServiceProvider` provides a `monolog` service. You can use it to add log entries for any logging level through `addDebug()`, `addInfo()`, `addWarning()` and `addError()`:

Listing 22-4

```
1 use Symfony\Component\HttpFoundation\Response;
2
3 $app->post('/user', function () use ($app) {
4     // ...
5
6     $app['monolog']->addInfo(sprintf("User '%s' registered.", $username));
7
8     return new Response('', 201);
9 });
```

Customization

You can configure Monolog (like adding or changing the handlers) before using it by extending the `monolog` service:

Listing 22-5

```
1 $app['monolog'] = $app->share($app->extend('monolog', function($monolog, $app) {
2     $monolog->pushHandler(...);
3
4     return $monolog;
5 }));
```

By default, all requests are logged through a `before` and `after` middleware at boot time. You can disable or customize this behavior by overriding the `monolog.boot.before` and `monolog.boot.after` services respectively. The provider also registers a default `error` handler which logs errors; it can be customized via the `monolog.boot.error` service.

Traits

`Silx\Application\MonologTrait` adds the following shortcuts:

- **log**: Logs a message.

Listing 22-6 1 `$app->log(sprintf("User '%s' registered.", $username));`

For more information, check out the *Monolog documentation*².

2. <https://github.com/Seldaek/monolog>

Chapter 23

SessionServiceProvider

The *SessionServiceProvider* provides a service for storing data persistently between requests.

Parameters

- **session.storage.save_path** (optional): The path for the `NativeFileSessionHandler`, defaults to the value of `sys_get_temp_dir()`.
- **session.storage.options**: An array of options that is passed to the constructor of the `session.storage` service.

In case of the default *NativeSessionStorage*¹, the most useful options are:

- **name**: The cookie name (`_SESS` by default)
- **id**: The session id (null by default)
- **cookie_lifetime**: Cookie lifetime
- **cookie_path**: Cookie path
- **cookie_domain**: Cookie domain
- **cookie_secure**: Cookie secure (HTTPS)
- **cookie_httponly**: Whether the cookie is http only

However, all of these are optional. Sessions last as long as the browser is open. To override this, set the `lifetime` option.

For a full list of available options, read the *PHP*² official documentation.

- **session.test**: Whether to simulate sessions or not (useful when writing functional tests).

Services

- **session**: An instance of Symfony2's *Session*³.
- **session.storage**: A service that is used for persistence of the session data.

1. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Session/Storage/NativeSessionStorage.html>

2. <http://php.net/session.configuration>

3. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Session/Session.html>

- **session.storage.handler**: A service that is used by the **session.storage** for data access. Defaults to a *NativeFileSessionHandler*⁴ storage handler.

Registering

Listing 23-1 1 `$app->register(new Silex\Provider\SessionServiceProvider());`

Usage

The Session provider provides a **session** service. Here is an example that authenticates a user and creates a session for them:

Listing 23-2

```

1 use Symfony\Component\HttpFoundation\Response;
2
3 $app->get('/login', function () use ($app) {
4     $username = $app['request']->server->get('PHP_AUTH_USER', false);
5     $password = $app['request']->server->get('PHP_AUTH_PW');
6
7     if ('igor' === $username && 'password' === $password) {
8         $app['session']->set('user', array('username' => $username));
9         return $app->redirect('/account');
10    }
11
12    $response = new Response();
13    $response->headers->set('WWW-Authenticate', sprintf('Basic realm="%s"', 'site_login'));
14    $response->setStatusCode(401, 'Please sign in.');
```

Custom Session Configurations

If your system is using a custom session configuration (such as a redis handler from a PHP extension) then you need to disable the *NativeFileSessionHandler* by setting **session.storage.handler** to null. You will have to configure the **session.save_path** ini setting yourself in that case.

Listing 23-3 1 `$app['session.storage.handler'] = null;`

4. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/Session/Storage/Handler/NativeFileSessionHandler.html>

Chapter 24

SwiftmailerServiceProvider

The *SwiftmailerServiceProvider* provides a service for sending email through the *Swift Mailer*¹ library. You can use the **mailer** service to send messages easily. By default, it will attempt to send emails through SMTP.

Parameters

- **swiftmailer.options**: An array of options for the default SMTP-based configuration.

The following options can be set:

- **host**: SMTP hostname, defaults to 'localhost'.
- **port**: SMTP port, defaults to 25.
- **username**: SMTP username, defaults to an empty string.
- **password**: SMTP password, defaults to an empty string.
- **encryption**: SMTP encryption, defaults to null.
- **auth_mode**: SMTP authentication mode, defaults to null.

Example usage:

```
Listing 24-1 1 $app['swiftmailer.options'] = array(  
2     'host' => 'host',  
3     'port' => '25',  
4     'username' => 'username',  
5     'password' => 'password',  
6     'encryption' => null,  
7     'auth_mode' => null  
8 );
```

1. <http://swiftmailer.org>

Services

- **mailer**: The mailer instance.

Example usage:

Listing 24-2

```
1 $message = \Swift_Message::newInstance();
2
3 // ...
4
5 $app['mailer']->send($message);
```

- **swiftmailer.transport**: The transport used for e-mail delivery. Defaults to a `Swift_Transport_EsmtpTransport`.
- **swiftmailer.transport.buffer**: `StreamBuffer` used by the transport.
- **swiftmailer.transport.authhandler**: Authentication handler used by the transport. Will try the following by default: CRAM-MD5, login, plaintext.
- **swiftmailer.transport.eventdispatcher**: Internal event dispatcher used by Swiftmailer.

Registering

Listing 24-3

```
1 $app->register(new Silex\Provider\SwiftmailerServiceProvider());
```



SwiftMailer comes with the "fat" Silex archive but not with the regular one. If you are using Composer, add it as a dependency to your `composer.json` file:

Listing 24-4

```
"require": {
    "swiftmailer/swiftmailer": ">=4.1.2,<4.2-dev"
}
```

Usage

The Swiftmailer provider provides a **mailer** service:

Listing 24-5

```
1 $app->post('/feedback', function () use ($app) {
2     $request = $app['request'];
3
4     $message = \Swift_Message::newInstance()
5         ->setSubject('[YourSite] Feedback')
6         ->setFrom(array('noreply@yoursite.com'))
7         ->setTo(array('feedback@yoursite.com'))
8         ->setBody($request->get('message'));
9
10    $app['mailer']->send($message);
11
12    return new Response('Thank you for your feedback!', 201);
13 });
```

Usage in commands

The Swiftmailer provider sends the emails using the `KernelEvents::TERMINATE` event, which is fired after the response has been sent. However, as this event isn't fired for console commands, your emails won't be sent.

For that reason, if you send emails using a command console, make sure to flush the message spool by hand before ending the command execution. To do so, use the following code:

Listing 24-6

```
1 $app['swiftmailer.spooltransport']
2     ->getSpool()
3     ->flushQueue($app['swiftmailer.transport'])
4 ;
```

Traits

`Silex\Application\SwiftmailerTrait` adds the following shortcuts:

- **mail**: Sends an email.

Listing 24-7

```
1 $app->mail(\Swift_Message::newInstance()
2     ->setSubject('[YourSite] Feedback')
3     ->setFrom(array('noreply@yoursite.com'))
4     ->setTo(array('feedback@yoursite.com'))
5     ->setBody($request->get('message')));
```

For more information, check out the *Swift Mailer documentation*².

2. <http://swiftmailer.org>

Chapter 25

TranslationServiceProvider

The *TranslationServiceProvider* provides a service for translating your application into different languages.

Parameters

- **translator.domains** (optional): A mapping of domains/locales/messages. This parameter contains the translation data for all languages and domains.
- **locale** (optional): The locale for the translator. You will most likely want to set this based on some request parameter. Defaults to **en**.
- **locale_fallbacks** (optional): Fallback locales for the translator. It will be used when the current locale has no messages set. Defaults to **en**.

Services

- **translator**: An instance of *Translator*¹, that is used for translation.
- **translator.loader**: An instance of an implementation of the translation *LoaderInterface*², defaults to an *ArrayLoader*³.
- **translator.message_selector**: An instance of *MessageSelector*⁴.

Registering

Listing 25-1

1. <http://api.symfony.com/master/Symfony/Component/Translation/Translator.html>
2. <http://api.symfony.com/master/Symfony/Component/Translation/Loader/LoaderInterface.html>
3. <http://api.symfony.com/master/Symfony/Component/Translation/Loader/ArrayLoader.html>
4. <http://api.symfony.com/master/Symfony/Component/Translation/MessageSelector.html>


```

1 $app->register(new Silex\Provider\TranslationServiceProvider(), array(
2     'locale_fallbacks' => array('en'),
3 ));

```



The Symfony Translation Component comes with the "fat" Silex archive but not with the regular one. If you are using Composer, add it as a dependency to your `composer.json` file:

Listing 25-2

```

"require": {
    "symfony/translation": "~2.3"
}

```

Usage

The Translation provider provides a `translator` service and makes use of the `translator.domains` parameter:

Listing 25-3

```

1 $app['translator.domains'] = array(
2     'messages' => array(
3         'en' => array(
4             'hello' => 'Hello %name%',
5             'goodbye' => 'Goodbye %name%',
6         ),
7         'de' => array(
8             'hello' => 'Hallo %name%',
9             'goodbye' => 'Tschüss %name%',
10        ),
11        'fr' => array(
12            'hello' => 'Bonjour %name%',
13            'goodbye' => 'Au revoir %name%',
14        ),
15    ),
16    'validators' => array(
17        'fr' => array(
18            'This value should be a valid number.' => 'Cette valeur doit être un nombre.',
19        ),
20    ),
21 );
22
23 $app->get('/{_locale}/{message}/{name}', function ($message, $name) use ($app) {
24     return $app['translator']->trans($message, array('%name%' => $name));
25 });

```

The above example will result in following routes:

- `/en/hello/igor` will return `Hello igor`.
- `/de/hello/igor` will return `Hallo igor`.
- `/fr/hello/igor` will return `Bonjour igor`.
- `/it/hello/igor` will return `Hello igor` (because of the fallback).

Traits

Silex\Application\TranslationTrait adds the following shortcuts:

- **trans**: Translates the given message.
- **transChoice**: Translates the given choice message by choosing a translation according to a number.

Listing 25-4

```
1 $app->trans('Hello World');
2
3 $app->transChoice('Hello World');
```

Recipes

YAML-based language files

Having your translations in PHP files can be inconvenient. This recipe will show you how to load translations from external YAML files.

First, add the Symfony2 Config and Yaml components in your composer file:

Listing 25-5

```
"require": {
    "symfony/config": "~2.3",
    "symfony/yaml": "~2.3"
}
```

Next, you have to create the language mappings in YAML files. A naming you can use is `locales/en.yml`. Just do the mapping in this file as follows:

Listing 25-6

```
1 hello: Hello %name%
2 goodbye: Goodbye %name%
```

Then, register the `YamlFileLoader` on the `translator` and add all your translation files:

Listing 25-7

```
1 use Symfony\Component\Translation\Loader\YamlFileLoader;
2
3 $app['translator'] = $app->share($app->extend('translator', function($translator, $app) {
4     $translator->addLoader('yaml', new YamlFileLoader());
5
6     $translator->addResource('yaml', __DIR__.'/locales/en.yml', 'en');
7     $translator->addResource('yaml', __DIR__.'/locales/de.yml', 'de');
8     $translator->addResource('yaml', __DIR__.'/locales/fr.yml', 'fr');
9
10     return $translator;
11 }));
```

XLIFF-based language files

Just as you would do with YAML translation files, you first need to add the Symfony2 Config component as a dependency (see above for details).

Then, similarly, create XLIFF files in your locales directory and add them to the translator:

Listing 25-8

```

1 $translator->addResource('xliiff', __DIR__.'/locales/en.xlf', 'en');
2 $translator->addResource('xliiff', __DIR__.'/locales/de.xlf', 'de');
3 $translator->addResource('xliiff', __DIR__.'/locales/fr.xlf', 'fr');

```



The XLIFF loader is already pre-configured by the extension.

Accessing translations in Twig templates

Once loaded, the translation service provider is available from within Twig templates:

Listing 25-9 1 `{{ app.translator.trans('translation_key') }}`

Moreover, when using the Twig bridge provided by Symfony (see *TwigServiceProvider*), you will be allowed to translate strings in the Twig way:

Listing 25-10 1 `{{ 'translation_key'|trans }}`
 2 `{{ 'translation_key'|transchoice }}`
 3 `{% trans %}translation_key{% endtrans %}`

Chapter 26

TwigServiceProvider

The *TwigServiceProvider* provides integration with the *Twig*¹ template engine.

Parameters

- **twig.path** (optional): Path to the directory containing twig template files (it can also be an array of paths).
- **twig.templates** (optional): An associative array of template names to template contents. Use this if you want to define your templates inline.
- **twig.options** (optional): An associative array of twig options. Check out the *twig documentation*² for more information.
- **twig.form.templates** (optional): An array of templates used to render forms (only available when the *FormServiceProvider* is enabled).

Services

- **twig**: The *Twig_Environment* instance. The main way of interacting with Twig.
- **twig.loader**: The loader for Twig templates which uses the **twig.path** and the **twig.templates** options. You can also replace the loader completely.

Registering

Listing 26-1

```
1 $app->register(new Silex\Provider\TwigServiceProvider(), array(  
2     'twig.path' => __DIR__.'/views',  
3 ));
```

1. <http://twig.sensiolabs.org/>

2. <http://twig.sensiolabs.org/doc/api.html#environment-options>



Twig comes with the "fat" Silex archive but not with the regular one. If you are using Composer, add it as a dependency to your `composer.json` file:

Listing 26-2

```
"require": {
    "twig/twig": ">=1.8,<2.0-dev"
}
```

Symfony2 Components Integration

Symfony provides a Twig bridge that provides additional integration between some Symfony2 components and Twig. Add it as a dependency to your `composer.json` file:

Listing 26-3

```
"require": {
    "symfony/twig-bridge": "~2.3"
}
```

When present, the `TwigServiceProvider` will provide you with the following additional capabilities:

- **UrlGeneratorServiceProvider:** If you are using the `UrlGeneratorServiceProvider`, you will have access to the `path()` and `url()` functions. You can find more information in the *Symfony2 Routing documentation*.
- **TranslationServiceProvider:** If you are using the `TranslationServiceProvider`, you will get the `trans()` and `transchoice()` functions for translation in Twig templates. You can find more information in the *Symfony2 Translation documentation*³.
- **FormServiceProvider:** If you are using the `FormServiceProvider`, you will get a set of helpers for working with forms in templates. You can find more information in the *Symfony2 Forms reference*⁴.
- **SecurityServiceProvider:** If you are using the `SecurityServiceProvider`, you will have access to the `is_granted()` function in templates. You can find more information in the *Symfony2 Security documentation*.

Usage

The Twig provider provides a `twig` service:

Listing 26-4

```
1 $app->get('/hello/{name}', function ($name) use ($app) {
2     return $app['twig']->render('hello.twig', array(
3         'name' => $name,
4     ));
5 });
```

This will render a file named `views/hello.twig`.

In any Twig template, the `app` variable refers to the Application object. So you can access any service from within your view. For example to access `$app['request']->getHost()`, just put this in your template:

Listing 26-5

```
1 {{ app.request.host }}
```

A `render` function is also registered to help you render another controller from a template:

3. <http://symfony.com/doc/current/book/translation.html#twig-templates>

4. http://symfony.com/doc/current/reference/forms/twig_reference.html

Listing 26-6

```

1 {{ render(app.request.baseUrl ~ '/sidebar') }}
2
3 {# or if you are also using the UrlGeneratorServiceProvider #}
4 {{ render(url('sidebar')) }}

```



You must prepend the `app.request.baseUrl` to render calls to ensure that the render works when deployed into a sub-directory of the docroot.

Traits

`Silex\Application\TwigTrait` adds the following shortcuts:

- **render**: Renders a view with the given parameters and returns a `Response` object.

Listing 26-7

```

1 return $app->render('index.html', ['name' => 'Fabien']);
2
3 $response = new Response();
4 $response->setTtl(10);
5
6 return $app->render('index.html', ['name' => 'Fabien'], $response);

```

Listing 26-8

```

1 // stream a view
2 use Symfony\Component\HttpFoundation\StreamedResponse;
3
4 return $app->render('index.html', ['name' => 'Fabien'], new StreamedResponse());

```

Customization

You can configure the Twig environment before using it by extending the `twig` service:

Listing 26-9

```

1 $app['twig'] = $app->share($app->extend('twig', function($twig, $app) {
2     $twig->addGlobal('pi', 3.14);
3     $twig->addFilter('levenshtein', new \Twig_Filter_Function('levenshtein'));
4
5     return $twig;
6 }));

```

For more information, check out the *official Twig documentation*⁵.

5. <http://twig.sensiolabs.org>

Chapter 27

UrlGeneratorServiceProvider

The *UrlGeneratorServiceProvider* provides a service for generating URLs for named routes.

Parameters

None.

Services

- **url_generator**: An instance of *UrlGenerator*¹, using the *RouteCollection*² that is provided through the **routes** service. It has a **generate** method, which takes the route name as an argument, followed by an array of route parameters.

Registering

Listing 27-1

```
1 $app->register(new Silex\Provider\UrlGeneratorServiceProvider());
```

Usage

The UrlGenerator provider provides a **url_generator** service:

Listing 27-2

```
1 $app->get('/', function () {  
2     return 'welcome to the homepage';  
3 })
```

1. <http://api.symfony.com/master/Symfony/Component/Routing/Generator/UrlGenerator.html>

2. <http://api.symfony.com/master/Symfony/Component/Routing/RouteCollection.html>

```

4  ->bind('homepage');
5
6  $app->get('/hello/{name}', function ($name) {
7      return "Hello $name!";
8  })
9  ->bind('hello');
10
11 $app->get('/navigation', function () use ($app) {
12     return '<a href="'. $app['url_generator']->generate('homepage').'">Home</a>'.
13         ' | '.
14         '<a href="'. $app['url_generator']->generate('hello', array('name' =>
15     'Igor')).'">Hello Igor</a>';
16 });

```

When using Twig, the service can be used like this:

Listing 27-3 1 {{ app.url_generator.generate('homepage') }}

Moreover, if you have `twig-bridge` in your `composer.json`, you will have access to the `path()` and `url()` functions:

Listing 27-4 1 {{ path('homepage') }}

```

2 {{ url('homepage') }} {# generates the absolute url http://example.org/ #}
3 {{ path('hello', {name: 'Fabien'}) }}
4 {{ url('hello', {name: 'Fabien'}) }} {# generates the absolute url http://example.org/hello/
    Fabien #}

```

Traits

`Silex\Application\UrlGeneratorTrait` adds the following shortcuts:

- **path**: Generates a path.
- **url**: Generates an absolute URL.

Listing 27-5 1 \$app->path('homepage');

```

2 $app->url('homepage');

```


Chapter 28

ValidatorServiceProvider

The *ValidatorServiceProvider* provides a service for validating data. It is most useful when used with the *FormServiceProvider*, but can also be used standalone.

Parameters

none

Services

- **validator**: An instance of *Validator*¹.
- **validator.mapping.class_metadata_factory**: Factory for metadata loaders, which can read validation constraint information from classes. Defaults to *StaticMethodLoader--ClassMetadataFactory*.

This means you can define a static `loadValidatorMetadata` method on your data class, which takes a *ClassMetadata* argument. Then you can set constraints on this *ClassMetadata* instance.

- **validator.validator_factory**: Factory for *ConstraintValidators*. Defaults to a standard *ConstraintValidatorFactory*. Mostly used internally by the *Validator*.

Registering

Listing 28-1 1 `$app->register(new Silex\Provider\ValidatorServiceProvider());`

1. <http://api.symfony.com/master/Symfony/Component/Validator/Validator.html>



The Symfony Validator Component comes with the "fat" Silex archive but not with the regular one. If you are using Composer, add it as a dependency to your `composer.json` file:

Listing 28-2

```
"require": {  
    "symfony/validator": "~2.3"  
}
```

Usage

The Validator provider provides a `validator` service.

Validating Values

You can validate values directly using the `validateValue` validator method:

Listing 28-3

```
1 use Symfony\Component\Validator\Constraints as Assert;  
2  
3 $app->get('/validate/{email}', function ($email) use ($app) {  
4     $errors = $app['validator']->validateValue($email, new Assert\Email());  
5  
6     if (count($errors) > 0) {  
7         return (string) $errors;  
8     } else {  
9         return 'The email is valid';  
10    }  
11 });
```

Validating Associative Arrays

Validating associative arrays is like validating simple values, with a collection of constraints:

Listing 28-4

```
1 use Symfony\Component\Validator\Constraints as Assert;  
2  
3 class Book  
4 {  
5     public $title;  
6     public $author;  
7 }  
8  
9 class Author  
10 {  
11     public $first_name;  
12     public $last_name;  
13 }  
14  
15 $book = array(  
16     'title' => 'My Book',  
17     'author' => array(  
18         'first_name' => 'Fabien',  
19         'last_name' => 'Potencier',  
20     ),  
21 );  
22
```

```

23 $constraint = new Assert\Collection(array(
24     'title' => new Assert\Length(array('min' => 10)),
25     'author' => new Assert\Collection(array(
26         'first_name' => array(new Assert\NotBlank(), new Assert\Length(array('min' =>
27 10))),
28         'last_name' => new Assert\Length(array('min' => 10)),
29     )),
30 ));
31 $errors = $app['validator']->validateValue($book, $constraint);
32
33 if (count($errors) > 0) {
34     foreach ($errors as $error) {
35         echo $error->getPropertyPath().' '.$error->getMessage()."\n";
36     }
37 } else {
38     echo 'The book is valid';
39 }

```

Validating Objects

If you want to add validations to a class, you can define the constraint for the class properties and getters, and then call the `validate` method:

Listing 28-5

```

1 use Symfony\Component\Validator\Constraints as Assert;
2
3 $author = new Author();
4 $author->first_name = 'Fabien';
5 $author->last_name = 'Potencier';
6
7 $book = new Book();
8 $book->title = 'My Book';
9 $book->author = $author;
10
11 $metadata = $app['validator.mapping.class_metadata_factory']->getMetadataFor('Author');
12 $metadata->addPropertyConstraint('first_name', new Assert\NotBlank());
13 $metadata->addPropertyConstraint('first_name', new Assert\Length(array('min' => 10)));
14 $metadata->addPropertyConstraint('last_name', new Assert\Length(array('min' => 10)));
15
16 $metadata = $app['validator.mapping.class_metadata_factory']->getMetadataFor('Book');
17 $metadata->addPropertyConstraint('title', new Assert\Length(array('min' => 10)));
18 $metadata->addPropertyConstraint('author', new Assert\Valid());
19
20 $errors = $app['validator']->validate($book);
21
22 if (count($errors) > 0) {
23     foreach ($errors as $error) {
24         echo $error->getPropertyPath().' '.$error->getMessage()."\n";
25     }
26 } else {
27     echo 'The author is valid';
28 }

```

You can also declare the class constraint by adding a static `loadValidatorMetadata` method to your classes:

Listing 28-6

```

1 use Symfony\Component\Validator\Mapping\ClassMetadata;
2 use Symfony\Component\Validator\Constraints as Assert;
3
4 class Book
5 {
6     public $title;
7     public $author;
8
9     static public function loadValidatorMetadata(ClassMetadata $metadata)
10    {
11        $metadata->addPropertyConstraint('title', new Assert\Length(array('min' => 10)));
12        $metadata->addPropertyConstraint('author', new Assert\Valid());
13    }
14 }
15
16 class Author
17 {
18     public $first_name;
19     public $last_name;
20
21     static public function loadValidatorMetadata(ClassMetadata $metadata)
22    {
23        $metadata->addPropertyConstraint('first_name', new Assert\NotBlank());
24        $metadata->addPropertyConstraint('first_name', new Assert\Length(array('min' =>
25 10)));
26        $metadata->addPropertyConstraint('last_name', new Assert\Length(array('min' =>
27 10)));
28    }
29 }
30
31 $app->get('/validate/{email}', function ($email) use ($app) {
32     $author = new Author();
33     $author->first_name = 'Fabien';
34     $author->last_name = 'Potencier';
35
36     $book = new Book();
37     $book->title = 'My Book';
38     $book->author = $author;
39
40     $errors = $app['validator']->validate($book);
41
42     if (count($errors) > 0) {
43         foreach ($errors as $error) {
44             echo $error->getPropertyPath(). ' '. $error->getMessage(). "\n";
45         }
46     } else {
47         echo 'The author is valid';
48     }
49 });

```



Use `addGetterConstraint()` to add constraints on getter methods and `addConstraint()` to add constraints on the class itself.

Translation

To be able to translate the error messages, you can use the translator provider and register the messages under the `validators` domain:

```
Listing 28-7 1 $app['translator.domains'] = array(  
2     'validators' => array(  
3         'fr' => array(  
4             'This value should be a valid number.' => 'Cette valeur doit être un nombre.',  
5         ),  
6     ),  
7 );
```

For more information, consult the *Symfony2 Validation documentation*².

2. <http://symfony.com/doc/master/book/validation.html>

Chapter 29

FormServiceProvider

The *FormServiceProvider* provides a service for building forms in your application with the Symfony2 Form component.

Parameters

- **form.secret**: This secret value is used for generating and validating the CSRF token for a specific page. It is very important for you to set this value to a static randomly generated value, to prevent hijacking of your forms. Defaults to `md5(__DIR__)`.

Services

- **form.factory**: An instance of *FormFactory*¹, that is used for build a form.
- **form.csrf_provider**: An instance of an implementation of the *CsrfProviderInterface*², defaults to a *DefaultCsrfProvider*³.

Registering

Listing 29-1

```
1 use Silex\Provider\FormServiceProvider;
2
3 $app->register(new FormServiceProvider());
```

1. <http://api.symfony.com/master/Symfony/Component/Form/FormFactory.html>

2. <http://api.symfony.com/master/Symfony/Component/Form/Extension/Csrf/CsrfProvider/CsrfProviderInterface.html>

3. <http://api.symfony.com/master/Symfony/Component/Form/Extension/Csrf/CsrfProvider/DefaultCsrfProvider.html>



If you don't want to create your own form layout, it's fine: a default one will be used. But you will have to register the *translation provider* as the default form layout requires it.

If you want to use validation with forms, do not forget to register the *Validator provider*.



The Symfony Form Component and all its dependencies (optional or not) comes with the "fat" Silex archive but not with the regular one.

If you are using Composer, add it as a dependency to your `composer.json` file:

Listing 29-2

```
"require": {
    "symfony/form": "~2.3"
}
```

If you are going to use the validation extension with forms, you must also add a dependency to the `symfony/config` and `symfony/translation` components:

Listing 29-3

```
"require": {
    "symfony/validator": "~2.3",
    "symfony/config": "~2.3",
    "symfony/translation": "~2.3"
}
```

The Symfony Form Component relies on the PHP intl extension. If you don't have it, you can install the Symfony Locale Component as a replacement:

Listing 29-4

```
"require": {
    "symfony/locale": "~2.3"
}
```

If you want to use forms in your Twig templates, make sure to install the Symfony Twig Bridge:

Listing 29-5

```
"require": {
    "symfony/twig-bridge": "~2.3"
}
```

Usage

The `FormServiceProvider` provides a `form.factory` service. Here is a usage example:

Listing 29-6

```
1 $app->match('/form', function (Request $request) use ($app) {
2     // some default data for when the form is displayed the first time
3     $data = array(
4         'name' => 'Your name',
5         'email' => 'Your email',
6     );
7
8     $form = $app['form.factory']->createBuilder('form', $data)
9         ->add('name')
10        ->add('email')
11        ->add('gender', 'choice', array(
12            'choices' => array(1 => 'male', 2 => 'female'),
13            'expanded' => true,
14        ))
15        ->getForm();
```

```

16
17     $form->handleRequest($request);
18
19     if ($form->isValid()) {
20         $data = $form->getData();
21
22         // do something with the data
23
24         // redirect somewhere
25         return $app->redirect('...');
26     }
27
28     // display the form
29     return $app['twig']->render('index.twig', array('form' => $form->createView()));
30 });

```

And here is the `index.twig` form template (requires `symfony/twig-bridge`):

Listing 29-7

```

1 <form action="#" method="post">
2     {{ form_widget(form) }}
3
4     <input type="submit" name="submit" />
5 </form>

```

If you are using the validator provider, you can also add validation to your form by adding constraints on the fields:

Listing 29-8

```

1 use Symfony\Component\Validator\Constraints as Assert;
2
3 $app->register(new Silex\Provider\ValidatorServiceProvider());
4 $app->register(new Silex\Provider\TranslationServiceProvider(), array(
5     'translator.domains' => array(),
6 ));
7
8 $form = $app['form.factory']->createBuilder('form')
9     ->add('name', 'text', array(
10         'constraints' => array(new Assert\NotBlank(), new Assert\Length(array('min' => 5)))
11     ))
12     ->add('email', 'text', array(
13         'constraints' => new Assert\Email()
14     ))
15     ->add('gender', 'choice', array(
16         'choices' => array(1 => 'male', 2 => 'female'),
17         'expanded' => true,
18         'constraints' => new Assert\Choice(array(1, 2)),
19     ))
20     ->getForm();

```

You can register form extensions by extending `form.extensions`:

Listing 29-9

```

1 $app['form.extensions'] = $app->share($app->extend('form.extensions', function
2 ($extensions) use ($app) {
3     $extensions[] = new YourTopFormExtension();
4
5     return $extensions;
6 }));

```


You can register form type extensions by extending `form.type.extensions`:

```
Listing 29-10 1 $app['form.type.extensions'] = $app->share($app->extend('form.type.extensions', function
2 ($extensions) use ($app) {
3     $extensions[] = new YourFormTypeExtension();
4
5     return $extensions;
6 }));
```

You can register form type guessers by extending `form.type.guessers`:

```
Listing 29-11 1 $app['form.type.guessers'] = $app->share($app->extend('form.type.guessers', function
2 ($guessers) use ($app) {
3     $guessers[] = new YourFormTypeGuesser();
4
5     return $guessers;
6 }));
```

Traits

`Silex\Application\FormTrait` adds the following shortcuts:

- **form**: Creates a `FormBuilder` instance.

```
Listing 29-12 1 $app->form($data);
```

For more information, consult the *Symfony2 Forms documentation*⁴.

4. <http://symfony.com/doc/2.3/book/forms.html>

Chapter 30

HttpCacheServiceProvider

The *HttpCacheServiceProvider* provides support for the Symfony2 Reverse Proxy.

Parameters

- **http_cache.cache_dir**: The cache directory to store the HTTP cache data.
- **http_cache.options** (optional): An array of options for the *HttpCache*¹ constructor.

Services

- **http_cache**: An instance of *HttpCache*².
- **http_cache.esi**: An instance of *Esi*³, that implements the ESI capabilities to Request and Response instances.
- **http_cache.store**: An instance of *Store*⁴, that implements all the logic for storing cache metadata (Request and Response headers).

Registering

Listing 30-1

```
1 $app->register(new Silex\Provider\HttpCacheServiceProvider(), array(  
2     'http_cache.cache_dir' => __DIR__.'/cache/',  
3 ));
```

1. <http://api.symfony.com/master/Symfony/Component/HttpKernel/HttpCache/HttpCache.html>
2. <http://api.symfony.com/master/Symfony/Component/HttpKernel/HttpCache/HttpCache.html>
3. <http://api.symfony.com/master/Symfony/Component/HttpKernel/HttpCache/Esi.html>
4. <http://api.symfony.com/master/Symfony/Component/HttpKernel/HttpCache/Store.html>

Usage

Silex already supports any reverse proxy like Varnish out of the box by setting Response HTTP cache headers:

Listing 30-2

```
1 use Symfony\Component\HttpFoundation\Response;
2
3 $app->get('/', function() {
4     return new Response('Foo', 200, array(
5         'Cache-Control' => 's-maxage=5',
6     ));
7 });
```



If you want Silex to trust the **X-Forwarded-For*** headers from your reverse proxy at address \$ip, you will need to whitelist it as documented in *Trusting Proxies*⁵.

If you would be running Varnish in front of your application on the same machine:

Listing 30-3

```
1 use Symfony\Component\HttpFoundation\Request;
2
3 Request::setTrustedProxies(array('127.0.0.1', '::1'));
4 $app->run();
```

This provider allows you to use the Symfony2 reverse proxy natively with Silex applications by using the `http_cache` service. The Symfony2 reverse proxy acts much like any other proxy would, so you will want to whitelist it:

Listing 30-4

```
1 use Symfony\Component\HttpFoundation\Request;
2
3 Request::setTrustedProxies(array('127.0.0.1'));
4 $app['http_cache']->run();
```

The provider also provides ESI support:

Listing 30-5

```
1 $app->get('/', function() {
2     $response = new Response(<<<EOF
3     <html>
4         <body>
5             Hello
6             <esi:include src="/included" />
7         </body>
8     </html>
9     EOF
10    , 200, array(
11        'Surrogate-Control' => 'content="ESI/1.0"',
12    ));
13
14    $response->setTtl(20);
15
16    return $response;
17 });
18
19
```

5. http://symfony.com/doc/current/components/http_foundation/trusting_proxies.html

```

20 $app->get('/included', function() {
21     $response = new Response('Foo');
22     $response->setTtl(5);
23
24     return $response;
25 });
26
27 $app['http_cache']->run();

```

If your application doesn't use ESI, you can disable it to slightly improve the overall performance:

Listing 30-6

```

1 $app->register(new Silex\Provider\HttpCacheServiceProvider(), array(
2     'http_cache.cache_dir' => __DIR__.'/cache/',
3     'http_cache.esi'       => null,
4 ));

```



To help you debug caching issues, set your application **debug** to true. Symfony automatically adds a **X-Symfony-Cache** header to each response with useful information about cache hits and misses.

If you are *not* using the Symfony Session provider, you might want to set the PHP `session.cache_limiter` setting to an empty value to avoid the default PHP behavior.

Finally, check that your Web server does not override your caching strategy.

For more information, consult the *Symfony2 HTTP Cache documentation*⁶.

6. http://symfony.com/doc/current/book/http_cache.html

Chapter 31

HttpFragmentServiceProvider

The *HttpFragmentServiceProvider* provides support for the Symfony2 fragment sub-framework, which allows you to embed fragments of HTML in a template.



This service provider only work with Symfony 2.4+.

Parameters

- **fragment.path**: The path to use for the URL generated for ESI and HInclude URLs (`/_fragment` by default).
- **uri_signer.secret**: The secret to use for the URI signer service (used for the HInclude renderer).
- **fragment.renderers.hinclude.global_template**: The content or Twig template to use for the default content when using the HInclude renderer.

Services

- **fragment.handler**: An instance of *FragmentHandler*¹.
- **fragment.renderers**: An array of fragment renderers (by default, the inline, ESI, and HInclude renderers are pre-configured).

Registering

Listing 31-1 1 `$app->register(new Silex\Provider\HttpFragmentServiceProvider());`

1. <http://api.symfony.com/master/Symfony/Component/HttpKernel/Fragment/FragmentHandler.html>

Usage



This section assumes that you are using Twig for your templates.

Instead of building a page out of a single request/controller/template, the fragment framework allows you to build a page from several controllers/sub-requests/sub-templates by using **fragments**.

Including "sub-pages" in the main page can be done with the Twig `render()` function:

Listing 31-2

```
1 The main page content.
2
3 {{ render('/foo') }}
4
5 The main page content resumes here.
```

The `render()` call is replaced by the content of the `/foo` URL (internally, a sub-request is handled by Silex to render the sub-page).

Instead of making internal sub-requests, you can also use the ESI (the sub-request is handled by a reverse proxy) or the HInclude strategies (the sub-request is handled by a web browser):

Listing 31-3

```
1 {{ render(url('route_name')) }}
2
3 {{ render_esi(url('route_name')) }}
4
5 {{ render_hinclude(url('route_name')) }}
```

Chapter 32

SecurityServiceProvider

The *SecurityServiceProvider* manages authentication and authorization for your applications.

Parameters

- **security.hide_user_not_found** (optional): Defines whether to hide user not found exception or not. Defaults to `true`.

Services

- **security**: The main entry point for the security provider. Use it to get the current user token.
- **security.authentication_manager**: An instance of *AuthenticationProviderManager*¹, responsible for authentication.
- **security.access_manager**: An instance of *AccessDecisionManager*², responsible for authorization.
- **security.session_strategy**: Define the session strategy used for authentication (default to a migration strategy).
- **security.user_checker**: Checks user flags after authentication.
- **security.last_error**: Returns the last authentication errors when given a Request object.
- **security.encoder_factory**: Defines the encoding strategies for user passwords (default to use a digest algorithm for all users).
- **security.encoder.digest**: The encoder to use by default for all users.



The service provider defines many other services that are used internally but rarely need to be customized.

1. <http://api.symfony.com/master/Symfony/Component/Security/Core/Authentication/AuthenticationProviderManager.html>

2. <http://api.symfony.com/master/Symfony/Component/Security/Core/Authorization/AccessDecisionManager.html>

Registering

Listing 32-1

```
1 $app->register(new Silex\Provider\SecurityServiceProvider(), array(
2     'security.firewalls' => // see below
3 ));
```



The Symfony Security Component comes with the "fat" Silex archive but not with the regular one. If you are using Composer, add it as a dependency to your `composer.json` file:

Listing 32-2

```
"require": {
    "symfony/security": "~2.3"
}
```



The security features are only available after the Application has been booted. So, if you want to use it outside of the handling of a request, don't forget to call `boot()` first:

Listing 32-3

```
1 $application->boot();
```



If you're using a form to authenticate users, you need to enable `SessionServiceProvider`.

Usage

The Symfony Security component is powerful. To learn more about it, read the *Symfony2 Security documentation*³.



When a security configuration does not behave as expected, enable logging (with the Monolog extension for instance) as the Security Component logs a lot of interesting information about what it does and why.

Below is a list of recipes that cover some common use cases.

Accessing the current User

The current user information is stored in a token that is accessible via the `security` service:

Listing 32-4

```
1 $token = $app['security']->getToken();
```

If there is no information about the user, the token is `null`. If the user is known, you can get it with a call to `getUser()`:

Listing 32-5

3. <http://symfony.com/doc/2.3/book/security.html>


```

1 if (null !== $token) {
2     $user = $token->getUser();
3 }

```

The user can be a string, an object with a `__toString()` method, or an instance of *UserInterface*⁴.

Securing a Path with HTTP Authentication

The following configuration uses HTTP basic authentication to secure URLs under `/admin/`:

Listing 32-6

```

1 $app['security.firewalls'] = array(
2     'admin' => array(
3         'pattern' => '^/admin',
4         'http' => true,
5         'users' => array(
6             // raw password is foo
7             'admin' => array('ROLE_ADMIN',
8                 '5FZZ8QIkA7UTZ4BYkoC+GsReLf569mSKDsfoDs6LYQ8t+a8EW9oaircfMpmalBPBh4F0BiiFyLfzTSUwzZg=='),
9         ),
10    );

```

The `pattern` is a regular expression (it can also be a *RequestMatcher*⁵ instance); the `http` setting tells the security layer to use HTTP basic authentication and the `users` entry defines valid users.

Each user is defined with the following information:

- The role or an array of roles for the user (roles are strings beginning with `ROLE_` and ending with anything you want);
- The user encoded password.



All users must at least have one role associated with them.

The default configuration of the extension enforces encoded passwords. To generate a valid encoded password from a raw password, use the `security.encoder_factory` service:

Listing 32-7

```

1 // find the encoder for a UserInterface instance
2 $encoder = $app['security.encoder_factory']->getEncoder($user);
3
4 // compute the encoded password for foo
5 $password = $encoder->encodePassword('foo', $user->getSalt());

```

When the user is authenticated, the user stored in the token is an instance of *User*⁶

Securing a Path with a Form

Using a form to authenticate users is very similar to the above configuration. Instead of using the `http` setting, use the `form` one and define these two parameters:

4. <http://api.symfony.com/master/Symfony/Component/Security/Core/User/UserInterface.html>

5. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/RequestMatcher.html>

6. <http://api.symfony.com/master/Symfony/Component/Security/Core/User/User.html>

- **login_path**: The login path where the user is redirected when they are accessing a secured area without being authenticated so that they can enter their credentials;
- **check_path**: The check URL used by Symfony to validate the credentials of the user.

Here is how to secure all URLs under `/admin/` with a form:

Listing 32-8

```

1 $app['security.firewalls'] = array(
2     'admin' => array(
3         'pattern' => '^/admin/',
4         'form' => array('login_path' => '/login', 'check_path' => '/admin/login_check'),
5         'users' => array(
6             'admin' => array('ROLE_ADMIN',
7                 '5FZ2Z8QIkA7UTZ4BYkoC+GsReLf569mSKDsFods6LYQ8t+a8EW9oaircfMpmalBpBh4F0BiiFyLfuzmTSUwzZg=='),
8             ),
9         ),
10    );

```

Always keep in mind the following two golden rules:

- The **login_path** path must always be defined **outside** the secured area (or if it is in the secured area, the **anonymous** authentication mechanism must be enabled -- see below);
- The **check_path** path must always be defined **inside** the secured area.

For the login form to work, create a controller like the following:

Listing 32-9

```

1 use Symfony\Component\HttpFoundation\Request;
2
3 $app->get('/login', function(Request $request) use ($app) {
4     return $app['twig']->render('login.html', array(
5         'error' => $app['security.last_error']($request),
6         'last_username' => $app['session']->get('_security.last_username'),
7     ));
8 });

```

The `error` and `last_username` variables contain the last authentication error and the last username entered by the user in case of an authentication error.

Create the associated template:

Listing 32-10

```

1 <form action="{{ path('admin_login_check') }}" method="post">
2     {{ error }}
3     <input type="text" name="_username" value="{{ last_username }}" />
4     <input type="password" name="_password" value="" />
5     <input type="submit" />
6 </form>

```



The `admin_login_check` route is automatically defined by Silex and its name is derived from the `check_path` value (all `/` are replaced with `_` and the leading `/` is stripped).

Defining more than one Firewall

You are not limited to define one firewall per project.

Configuring several firewalls is useful when you want to secure different parts of your website with different authentication strategies or for different users (like using an HTTP basic authentication for the website API and a form to secure your website administration area).

It's also useful when you want to secure all URLs except the login form:

```
Listing 32-11 1 $app['security.firewalls'] = array(  
2     'login' => array(  
3         'pattern' => '^/login$',  
4     ),  
5     'secured' => array(  
6         'pattern' => '^.*$',  
7         'form' => array('login_path' => '/login', 'check_path' => '/login_check'),  
8         'users' => array(  
9             'admin' => array('ROLE_ADMIN',  
10                '5FZ2Z8QIkA7UTZ4BYkoC+GsReLf569mSKDsfdos6LYQ8t+a8EW9oaircfMpmalBpBh4F0BiiFyLfuZmTSUwzZg=='),  
11            ),  
12     ),  
13 );
```

The order of the firewall configurations is significant as the first one to match wins. The above configuration first ensures that the `/login` URL is not secured (no authentication settings), and then it secures all other URLs.



You can toggle all registered authentication mechanisms for a particular area on and off with the `security` flag:

```
Listing 32-12 1 $app['security.firewalls'] = array(  
2     'api' => array(  
3         'pattern' => '^/api',  
4         'security' => $app['debug'] ? false : true,  
5         'wsse' => true,  
6     ),  
7     // ...  
8 ),  
9 );
```

Adding a Logout

When using a form for authentication, you can let users log out if you add the `logout` setting, where `logout_path` must match the main firewall pattern:

```
Listing 32-13 1 $app['security.firewalls'] = array(  
2     'secured' => array(  
3         'pattern' => '^/admin/',  
4         'form' => array('login_path' => '/login', 'check_path' => '/admin/login_check'),  
5         'logout' => array('logout_path' => '/admin/logout'),  
6     ),  
7     // ...  
8 ),  
9 );
```

A route is automatically generated, based on the configured path (all `/` are replaced with `_` and the leading `/` is stripped):

```
Listing 32-14 1 <a href="{{ path('admin_logout') }}">Logout</a>
```

Allowing Anonymous Users

When securing only some parts of your website, the user information are not available in non-secured areas. To make the user accessible in such areas, enabled the **anonymous** authentication mechanism:

```
Listing 32-15 1 $app['security.firewalls'] = array(  
2     'unsecured' => array(  
3         'anonymous' => true,  
4     ),  
5     // ...  
6 ),  
7 );
```

When enabling the anonymous setting, a user will always be accessible from the security context; if the user is not authenticated, it returns the **anon.** string.

Checking User Roles

To check if a user is granted some role, use the **isGranted()** method on the security context:

```
Listing 32-16 1 if ($app['security']->isGranted('ROLE_ADMIN')) {  
2     // ...  
3 }
```

You can check roles in Twig templates too:

```
Listing 32-17 1 {% if is_granted('ROLE_ADMIN') %}  
2     <a href="/secured?_switch_user=fabien">Switch to Fabien</a>  
3 {% endif %}
```

You can check if a user is "fully authenticated" (not an anonymous user for instance) with the special **IS_AUTHENTICATED_FULLY** role:

```
Listing 32-18 1 {% if is_granted('IS_AUTHENTICATED_FULLY') %}  
2     <a href="{{ path('logout') }}">Logout</a>  
3 {% else %}  
4     <a href="{{ path('login') }}">Login</a>  
5 {% endif %}
```

Of course you will need to define a **login** route for this to work.



Don't use the **getRoles()** method to check user roles.



isGranted() throws an exception when no authentication information is available (which is the case on non-secured area).

Impersonating a User

If you want to be able to switch to another user (without knowing the user credentials), enable the **switch_user** authentication strategy:

```

Listing 32-19 1 $app['security.firewalls'] = array(
2     'unsecured' => array(
3         'switch_user' => array('parameter' => '_switch_user', 'role' =>
4     'ROLE_ALLOWED_TO_SWITCH'),
5
6         // ...
7     ),
8 );

```

Switching to another user is now a matter of adding the `_switch_user` query parameter to any URL when logged in as a user who has the `ROLE_ALLOWED_TO_SWITCH` role:

```

Listing 32-20 1 {% if is_granted('ROLE_ALLOWED_TO_SWITCH') %}
2     <a href="?_switch_user=fabien">Switch to user Fabien</a>
3 {% endif %}

```

You can check that you are impersonating a user by checking the special `ROLE_PREVIOUS_ADMIN`. This is useful for instance to allow the user to switch back to their primary account:

```

Listing 32-21 1 {% if is_granted('ROLE_PREVIOUS_ADMIN') %}
2     You are an admin but you've switched to another user,
3     <a href="?_switch_user=_exit"> exit</a> the switch.
4 {% endif %}

```

Defining a Role Hierarchy

Defining a role hierarchy allows to automatically grant users some additional roles:

```

Listing 32-22 1 $app['security.role_hierarchy'] = array(
2     'ROLE_ADMIN' => array('ROLE_USER', 'ROLE_ALLOWED_TO_SWITCH'),
3 );

```

With this configuration, all users with the `ROLE_ADMIN` role also automatically have the `ROLE_USER` and `ROLE_ALLOWED_TO_SWITCH` roles.

Defining Access Rules

Roles are a great way to adapt the behavior of your website depending on groups of users, but they can also be used to further secure some areas by defining access rules:

```

Listing 32-23 1 $app['security.access_rules'] = array(
2     array('^/admin', 'ROLE_ADMIN', 'https'),
3     array('^.*$', 'ROLE_USER'),
4 );

```

With the above configuration, users must have the `ROLE_ADMIN` to access the `/admin` section of the website, and `ROLE_USER` for everything else. Furthermore, the admin section can only be accessible via HTTPS (if that's not the case, the user will be automatically redirected).



The first argument can also be a *RequestMatcher*⁷ instance.

Defining a custom User Provider

Using an array of users is simple and useful when securing an admin section of a personal website, but you can override this default mechanism with your own.

The `users` setting can be defined as a service that returns an instance of *UserProviderInterface*⁸:

Listing 32-24

```
1 'users' => $app->share(function () use ($app) {
2     return new UserProvider($app['db']);
3 },
```

Here is a simple example of a user provider, where Doctrine DBAL is used to store the users:

Listing 32-25

```
1 use Symfony\Component\Security\Core\User\UserProviderInterface;
2 use Symfony\Component\Security\Core\User\UserInterface;
3 use Symfony\Component\Security\Core\User\User;
4 use Symfony\Component\Security\Core\Exception\UnsupportedUserException;
5 use Symfony\Component\Security\Core\Exception\UsernameNotFoundException;
6 use Doctrine\DBAL\Connection;
7
8 class UserProvider implements UserProviderInterface
9 {
10     private $conn;
11
12     public function __construct(Connection $conn)
13     {
14         $this->conn = $conn;
15     }
16
17     public function loadUserByUsername($username)
18     {
19         $stmt = $this->conn->executeQuery('SELECT * FROM users WHERE username = ?',
20 array(strtolower($username)));
21
22         if (!$user = $stmt->fetch()) {
23             throw new UsernameNotFoundException(sprintf('Username "%s" does not exist.',
24 $username));
25         }
26
27         return new User($user['username'], $user['password'], explode(',',
28 $user['roles']), true, true, true, true);
29     }
30
31     public function refreshUser(UserInterface $user)
32     {
33         if (!$user instanceof User) {
34             throw new UnsupportedUserException(sprintf('Instances of "%s" are not
35 supported.', get_class($user)));
36         }
37
38         return $this->loadUserByUsername($user->getUsername());
39     }
40
41     public function supportsClass($class)
42     {
43         return $class === 'Symfony\Component\Security\Core\User\User';
44     }
45 }
```

7. <http://api.symfony.com/master/Symfony/Component/HttpFoundation/RequestMatcher.html>

8. <http://api.symfony.com/master/Symfony/Component/Security/Core/User/UserProviderInterface.html>

```

    }
}

```

In this example, instances of the default `User` class are created for the users, but you can define your own class; the only requirement is that the class must implement `UserInterface`⁹

And here is the code that you can use to create the database schema and some sample users:

Listing 32-26

```

1 use Doctrine\DBAL\Schema\Table;
2
3 $schema = $app['db']->getSchemaManager();
4 if (!$schema->tablesExist('users')) {
5     $users = new Table('users');
6     $users->addColumn('id', 'integer', array('unsigned' => true, 'autoincrement' => true));
7     $users->setPrimaryKey(array('id'));
8     $users->addColumn('username', 'string', array('length' => 32));
9     $users->addUniqueIndex(array('username'));
10    $users->addColumn('password', 'string', array('length' => 255));
11    $users->addColumn('roles', 'string', array('length' => 255));
12
13    $schema->createTable($users);
14
15    $app['db']->insert('users', array(
16        'username' => 'fabien',
17        'password' =>
18        '5FZZZ8QIkA7UTZ4BYkoC+GsReLf569mSKDsFods6LYQ8t+a8EW9oaircfMpmaLbPBh4F0BiiFyLfuZmTSUwzZg==',
19        'roles' => 'ROLE_USER'
20    ));
21
22    $app['db']->insert('users', array(
23        'username' => 'admin',
24        'password' =>
25        '5FZZZ8QIkA7UTZ4BYkoC+GsReLf569mSKDsFods6LYQ8t+a8EW9oaircfMpmaLbPBh4F0BiiFyLfuZmTSUwzZg==',
26        'roles' => 'ROLE_ADMIN'
27    ));
28 }

```



If you are using the Doctrine ORM, the Symfony bridge for Doctrine provides a user provider class that is able to load users from your entities.

Defining a custom Encoder

By default, Silex uses the `sha512` algorithm to encode passwords. Additionally, the password is encoded multiple times and converted to base64. You can change these defaults by overriding the `security.encoder.digest` service:

Listing 32-27

```

1 use Symfony\Component\Security\Core\Encoder\MessageDigestPasswordEncoder;
2
3 $app['security.encoder.digest'] = $app->share(function ($app) {
4     // use the sha1 algorithm
5     // don't base64 encode the password
6     // use only 1 iteration

```

9. <http://api.symfony.com/master/Symfony/Component/Security/Core/User/UserInterface.html>

```

7     return new MessageDigestPasswordEncoder('sha1', false, 1);
8 });

```

Defining a custom Authentication Provider

The Symfony Security component provides a lot of ready-to-use authentication providers (form, HTTP, X509, remember me, ...), but you can add new ones easily. To register a new authentication provider, create a service named `security.authentication_listener.factory.XXX` where `XXX` is the name you want to use in your configuration:

Listing 32-28

```

1  $app['security.authentication_listener.factory.wsse'] = $app->protect(function ($name,
2  $options) use ($app) {
3      // define the authentication provider object
4      $app['security.authentication_provider.'.$name.'.wsse'] = $app->share(function () use
5  ($app) {
6      return new WsseProvider($app['security.user_provider.default'],
7      __DIR__.'/security_cache');
8  });
9
10     // define the authentication listener object
11     $app['security.authentication_listener.'.$name.'.wsse'] = $app->share(function () use
12 ($app) {
13     return new WsseListener($app['security'], $app['security.authentication_manager']);
14 });
15
16     return array(
17         // the authentication provider id
18         'security.authentication_provider.'.$name.'.wsse',
19         // the authentication listener id
20         'security.authentication_listener.'.$name.'.wsse',
21         // the entry point id
22         null,
23         // the position of the listener in the stack
24         'pre_auth'
25     );
26 });

```

You can now use it in your configuration like any other built-in authentication provider:

Listing 32-29

```

1  $app->register(new Silex\Provider\SecurityServiceProvider(), array(
2      'security.firewalls' => array(
3          'default' => array(
4              'wsse' => true,
5
6              // ...
7          ),
8      ),
9  ));

```

Instead of `true`, you can also define an array of options that customize the behavior of your authentication factory; it will be passed as the second argument of your authentication factory (see above).

This example uses the authentication provider classes as described in the Symfony *cookbook*¹⁰.

10. http://symfony.com/doc/current/cookbook/security/custom_authentication_provider.html

Stateless Authentication

By default, a session cookie is created to persist the security context of the user. However, if you use certificates, HTTP authentication, WSSE and so on, the credentials are sent for each request. In that case, you can turn off persistence by activating the **stateless** authentication flag:

```
Listing 32-30 1 $app['security.firewalls'] = array(  
2     'default' => array(  
3         'stateless' => true,  
4         'wsse' => true,  
5  
6         // ...  
7     ),  
8 );
```

Traits

Silex\Application\SecurityTrait adds the following shortcuts:

- **user**: Returns the current user.
- **encodePassword**: Encode a given password.

```
Listing 32-31 1 $user = $app->user();  
2  
3 $encoded = $app->encodePassword($user, 'foo');
```

Silex\Route\SecurityTrait adds the following methods to the controllers:

- **secure**: Secures a controller for the given roles.

```
Listing 32-32 1 $app->get('/', function () {  
2     // do something but only for admins  
3 })->secure('ROLE_ADMIN');
```

Chapter 33

RememberMeServiceProvider

The *RememberMeServiceProvider* adds "Remember-Me" authentication to the *SecurityServiceProvider*.

Parameters

n/a

Services

n/a



The service provider defines many other services that are used internally but rarely need to be customized.

Registering

Before registering this service provider, you must register the *SecurityServiceProvider*:

```
Listing 33-1 1 $app->register(new Silex\Provider\SecurityServiceProvider());
2 $app->register(new Silex\Provider\RememberMeServiceProvider());
3
4 $app['security.firewalls'] = array(
5     'my-firewall' => array(
6         'pattern'    => '^/secure$',
7         'form'       => true,
8         'logout'     => true,
9         'remember_me' => array(
10            'key'      => 'Choose_A_Unique_Random_Key',
11            'always_remember_me' => true,
```

```

12         /* Other options */
13     ),
14     'users' => array( /* ... */ ),
15 ),
16 );

```

Options

- **key**: A secret key to generate tokens (you should generate a random string).
- **name**: Cookie name (default: **REMEMBERME**).
- **lifetime**: Cookie lifetime (default: **31536000** ~ 1 year).
- **path**: Cookie path (default: **/**).
- **domain**: Cookie domain (default: **null** = request domain).
- **secure**: Cookie is secure (default: **false**).
- **httponly**: Cookie is HTTP only (default: **true**).
- **always_remember_me**: Enable remember me (default: **false**).
- **remember_me_parameter**: Name of the request parameter enabling remember_me on login. To add the checkbox to the login form. You can find more information in the *Symfony cookbook*¹ (default: **_remember_me**).

1. http://symfony.com/doc/current/cookbook/security/remember_me.html

Chapter 34

SerializerServiceProvider

The *SerializerServiceProvider* provides a service for serializing objects.

Parameters

None.

Services

- **serializer:** An instance of *Symfony\Component\Serializer\Serializer*¹.
- **serializer.encoders:** *Symfony\Component\Serializer\Encoder\JsonEncoder*² and *Symfony\Component\Serializer\Encoder\XmlEncoder*³.
- **serializer.normalizers:** *Symfony\Component\Serializer\Normalizer\CustomNormalizer*⁴ and *Symfony\Component\Serializer\Normalizer\GetSetMethodNormalizer*⁵.

Registering

Listing 34-1 1 `$app->register(new Silex\Provider\SerializerServiceProvider());`

1. <http://api.symfony.com/master/Symfony/Component/Serializer/Serializer.html>
2. <http://api.symfony.com/master/Symfony/Component/Serializer/Encoder/JsonEncoder.html>
3. <http://api.symfony.com/master/Symfony/Component/Serializer/Encoder/XmlEncoder.html>
4. <http://api.symfony.com/master/Symfony/Component/Serializer/Normalizer/CustomNormalizer.html>
5. <http://api.symfony.com/master/Symfony/Component/Serializer/Normalizer/GetSetMethodNormalizer.html>



The `SerializerServiceProvider` relies on Symfony's `Serializer Component`⁶, which comes with the "fat" Silex archive but not with the regular one. If you are using Composer, add it as a dependency to your `composer.json` file:

Listing 34-2

```
"require": {  
    "symfony/serializer": ">=2.3,<2.5-dev",  
}
```

Usage

The `SerializerServiceProvider` provider provides a `serializer` service:

Listing 34-3

```
1 use Silex\Application;  
2 use Silex\Provider\SerializerServiceProvider;  
3 use Symfony\Component\HttpFoundation\Response;  
4  
5 $app = new Application();  
6  
7 $app->register(new SerializerServiceProvider());  
8  
9 // only accept content types supported by the serializer via the assert method.  
10 $app->get("/pages/{id}.{_format}", function ($id) use ($app) {  
11     // assume a page_repository service exists that returns Page objects. The  
12     // object returned has getters and setters exposing the state.  
13     $page = $app['page_repository']->find($id);  
14     $format = $app['request']->getRequestFormat();  
15  
16     if (!$page instanceof Page) {  
17         $app->abort("No page found for id: $id");  
18     }  
19  
20     return new Response($app['serializer']->serialize($page, $format), 200, array(  
21         "Content-Type" => $app['request']->getMimeType($format)  
22     ));  
23 }->assert("_format", "xml|json")  
24 ->assert("id", "\d+");
```

6. <http://symfony.com/doc/current/components/serializer.html>

Chapter 35

ServiceControllerServiceProvider

As your Silex application grows, you may wish to begin organizing your controllers in a more formal fashion. Silex can use controller classes out of the box, but with a bit of work, your controllers can be created as services, giving you the full power of dependency injection and lazy loading.

Why would I want to do this?

- Dependency Injection over Service Location

Using this method, you can inject the actual dependencies required by your controller and gain total inversion of control, while still maintaining the lazy loading of your controllers and it's dependencies. Because your dependencies are clearly defined, they are easily mocked, allowing you to test your controllers in isolation.

- Framework Independence

Using this method, your controllers start to become more independent of the framework you are using. Carefully crafted, your controllers will become reusable with multiple frameworks. By keeping careful control of your dependencies, your controllers could easily become compatible with Silex, Symfony (full stack) and Drupal, to name just a few.

Parameters

There are currently no parameters for the `ServiceControllerServiceProvider`.

Services

There are no extra services provided, the `ServiceControllerServiceProvider` simply extends the existing **resolver** service.

Registering

Listing 35-1 `$app->register(new Silex\Provider\ServiceControllerServiceProvider());`

Usage

In this slightly contrived example of a blog API, we're going to change the `/posts.json` route to use a controller, that is defined as a service.

Listing 35-2

```
1 use Silex\Application;
2 use Demo\Repository\PostRepository;
3
4 $app = new Application();
5
6 $app['posts.repository'] = $app->share(function() {
7     return new PostRepository;
8 });
9
10 $app->get('/posts.json', function() use ($app) {
11     return $app->json($app['posts.repository']->findAll());
12 });
```

Rewriting your controller as a service is pretty simple, create a Plain Old PHP Object with your `PostRepository` as a dependency, along with an `indexJsonAction` method to handle the request. Although not shown in the example below, you can use type hinting and parameter naming to get the parameters you need, just like with standard Silex routes.

If you are a TDD/BDD fan (and you should be), you may notice that this controller has well defined responsibilities and dependencies, and is easily tested/specced. You may also notice that the only external dependency is on `Symfony\Component\HttpFoundation\JsonResponse`, meaning this controller could easily be used in a Symfony (full stack) application, or potentially with other applications or frameworks that know how to handle a *Symfony/HttpFoundation*¹ `Response` object.

Listing 35-3

```
1 namespace Demo\Controller;
2
3 use Demo\Repository\PostRepository;
4 use Symfony\Component\HttpFoundation\JsonResponse;
5
6 class PostController
7 {
8     protected $repo;
9
10    public function __construct(PostRepository $repo)
11    {
12        $this->repo = $repo;
13    }
14
15    public function indexJsonAction()
16    {
17        return new JsonResponse($this->repo->findAll());
18    }
19 }
```

1. http://symfony.com/doc/master/components/http_foundation/introduction.html

And lastly, define your controller as a service in the application, along with your route. The syntax in the route definition is the name of the service, followed by a single colon (:), followed by the method name.

Listing 35-4

```
1 $app['posts.controller'] = $app->share(function() use ($app) {  
2     return new PostController($app['posts.repository']);  
3 });  
4  
5 $app->get('/posts.json', "posts.controller:indexJsonAction");
```


Chapter 36

Webserver Configuration

Apache

If you are using Apache, make sure `mod_rewrite` is enabled and use the following `.htaccess` file:

Listing 36-1

```
1 <IfModule mod_rewrite.c>
2     Options -MultiViews
3
4     RewriteEngine On
5     #RewriteBase /path/to/app
6     RewriteCond %{REQUEST_FILENAME} !-f
7     RewriteRule ^ index.php [QSA,L]
8 </IfModule>
```



If your site is not at the webroot level you will have to uncomment the `RewriteBase` statement and adjust the path to point to your directory, relative from the webroot.

Alternatively, if you use Apache 2.2.16 or higher, you can use the *FallbackResource directive*¹ so make your `.htaccess` even easier:

Listing 36-2

```
1 FallbackResource /index.php
```



If your site is not at the webroot level you will have to adjust the path to point to your directory, relative from the webroot.

1. <http://www.adayinthelifeof.nl/2012/01/21/apaches-fallbackresource-your-new-htaccess-command/>

nginx

If you are using nginx, configure your vhost to forward non-existent resources to `index.php`:

Listing 36-3

```
1  server {
2      #site root is redirected to the app boot script
3      location = / {
4          try_files @site @site;
5      }
6
7      #all other locations try other files first and go to our front controller if none of
8      them exists
9      location / {
10         try_files $uri $uri/ @site;
11     }
12
13     #return 404 for all php files as we do have a front controller
14     location ~ /\.php$ {
15         return 404;
16     }
17
18     location @site {
19         fastcgi_pass    unix:/var/run/php-fpm/www.sock;
20         include fastcgi_params;
21         fastcgi_param   SCRIPT_FILENAME $document_root/index.php;
22         #uncomment when running via https
23         #fastcgi_param HTTPS on;
24     }
25 }
```

IIS

If you are using the Internet Information Services from Windows, you can use this sample `web.config` file:

Listing 36-4

```
1  <?xml version="1.0"?>
2  <configuration>
3      <system.webServer>
4          <defaultDocument>
5              <files>
6                  <clear />
7                  <add value="index.php" />
8              </files>
9          </defaultDocument>
10         <rewrite>
11             <rules>
12                 <rule name="Silex Front Controller" stopProcessing="true">
13                     <match url="^(.*)$" ignoreCase="false" />
14                     <conditions logicalGrouping="MatchAll">
15                         <add input="{REQUEST_FILENAME}" matchType="IsFile"
16 ignoreCase="false" negate="true" />
17                     </conditions>
18                     <action type="Rewrite" url="index.php" appendQueryString="true" />
19                 </rule>
20             </rules>
21         </rewrite>
22     </system.webServer>
23 </configuration>
```

```
21     </system.webServer>
22 </configuration>
```

Lighttpd

If you are using lighttpd, use this sample `simple-vhost` as a starting point:

Listing 36-5

```
1 server.document-root = "/path/to/app"
2
3 url.rewrite-once = (
4     # configure some static files
5     "^/assets/.*" => "$0",
6     "^/favicon\.ico$" => "$0",
7
8     "^(/[^\?]*)(\?.*)?" => "/index.php$1$2"
9 )
```

PHP 5.4

PHP 5.4 ships with a built-in webserver for development. This server allows you to run `silex` without any configuration. However, in order to serve static files, you'll have to make sure your front controller returns false in that case:

Listing 36-6

```
1 // web/index.php
2
3 $filename = __DIR__ . preg_replace('#(\?.*)$#', '', $_SERVER['REQUEST_URI']);
4 if (php_sapi_name() === 'cli-server' && is_file($filename)) {
5     return false;
6 }
7
8 $app = require __DIR__ . '/../src/app.php';
9 $app->run();
```

Assuming your front controller is at `web/index.php`, you can start the server from the command-line with this command:

Listing 36-7

```
1 $ php -S localhost:8080 -t web web/index.php
```

Now the application should be running at `http://localhost:8080`.



This server is for development only. It is **not** recommended to use it in production.

Chapter 37

Changelog

1.2.0 (2013-XX-XX)

- Allowed disabling the boot logic of MonologServiceProvider
- Reverted "convert attributes on the request that actually exist"
- [BC BREAK] Routes are now always added in the order of their registration (even for mounted routes)
- Added run() on Route to be able to define the controller code
- Deprecated TwigCoreExtension (register the new HttpFragmentServiceProvider instead)
- Added HttpFragmentServiceProvider
- Allowed a callback to be a method call on a service (before, after, finish, error, on Application; convert, before, after on Controller)

1.1.3 (2013-XX-XX)

- Fixed translator locale management

1.1.2 (2013-10-30)

- Added missing "security.hide_user_not_found" support in SecurityServiceProvider
- Fixed event listeners that are registered after the boot via the on() method

1.0.2 (2013-10-30)

- Fixed SecurityServiceProvider to use null as a fake controller so that routes can be dumped

1.1.1 (2013-10-11)

- Removed or replaced deprecated Symfony code
- Updated code to take advantages of 2.3 new features
- Only convert attributes on the request that actually exist.

1.1.0 (2013-07-04)

- Support for any `Psr\Log\LoggerInterface` as opposed to the monolog-bridge one.
- Made dispatcher proxy methods `on`, `before`, `after` and `error` lazy, so that they will not instantiate the dispatcher early.
- Dropped support for 2.1 and 2.2 versions of Symfony.

1.0.1 (2013-07-04)

- Fixed `RedirectableUrlMatcher::redirect()` when Silex is configured to use a logger
- Make `DoctrineServiceProvider` multi-db support lazy.

1.0.0 (2013-05-03)

- **2013-04-12**: Added support for validators as services.
- **2013-04-01**: Added support for host matching with symfony 2.2:

Listing 37-1

```
1 $app->match('/', function() {  
2     // app-specific action  
3 }->host('example.com');  
4  
5 $app->match('/', function ($user) {  
6     // user-specific action  
7 }->host('{user}.example.com');
```

- **2013-03-08**: Added support for form type extensions and guessers as services.
- **2013-03-08**: Added support for remember-me via the `RememberMeServiceProvider`.
- **2013-02-07**: Added `Application::sendFile()` to ease sending `BinaryFileResponse`.
- **2012-11-05**: Filters have been renamed to application middlewares in the documentation.
- **2012-11-05**: The `before()`, `after()`, `error()`, and `finish()` listener priorities now set the priority of the underlying Symfony event instead of a custom one before.
- **2012-11-05**: Removing the default exception handler should now be done via its `disable()` method:

Before:

```
unset($app['exception_handler']);
```

After:

```
$app['exception_handler']->disable();
```

- **2012-07-15:** removed the `monolog.configure` service. Use the `extend` method instead:

Before:

Listing 37-2

```
1 $app['monolog.configure'] = $app->protect(function ($monolog) use ($app) {  
2     // do something  
3 });
```

After:

Listing 37-3

```
1 $app['monolog'] = $app->share($app->extend('monolog', function($monolog,  
2 $app) {  
3     // do something  
4  
5     return $monolog;  
6 }));
```

- **2012-06-17:** `ControllerCollection` now takes a required route instance as a constructor argument.

Before:

Listing 37-4

```
1 $controllers = new ControllerCollection();
```

After:

Listing 37-5

```
1 $controllers = new ControllerCollection(new Route());  
2  
3 // or even better  
4 $controllers = $app['controllers_factory'];
```

- **2012-06-17:** added application traits for PHP 5.4
- **2012-06-16:** renamed `request.default_locale` to `locale`
- **2012-06-16:** Removed the `translator.loader` service. See documentation for how to use XLIFF or YAML-based translation files.
- **2012-06-15:** removed the `twig.configure` service. Use the `extend` method instead:

Before:

Listing 37-6

```

1 $app['twig.configure'] = $app->protect(function ($twig) use ($app) {
2     // do something
3 });

```

After:

Listing 37-7

```

1 $app['twig'] = $app->share($app->extend('twig', function($twig, $app) {
2     // do something
3
4     return $twig;
5 }));

```

- **2012-06-13:** Added a route **before** middleware
- **2012-06-13:** Renamed the route **middleware** to **before**
- **2012-06-13:** Added an extension for the Symfony Security component
- **2012-05-31:** Made the **BrowserKit**, **CssSelector**, **DomCrawler**, **Finder** and **Process** components optional dependencies. Projects that depend on them (e.g. through functional tests) should add those dependencies to their **composer.json**.
- **2012-05-26:** added **boot()** to **ServiceProviderInterface**.
- **2012-05-26:** Removed **SymfonyBridgesServiceProvider**. It is now implicit by checking the existence of the bridge.
- **2012-05-26:** Removed the **translator.messages** parameter (use **translator.domains** instead).
- **2012-05-24:** Removed the **autoloader** service (use **composer** instead). The ***.class_path** settings on all the built-in providers have also been removed in favor of **Composer**.
- **2012-05-21:** Changed **error()** to allow handling specific exceptions.
- **2012-05-20:** Added a way to define settings on a controller collection.
- **2012-05-20:** The **Request** instance is not available anymore from the **Application** after it has been handled.
- **2012-04-01:** Added **finish** filters.
- **2012-03-20:** Added **json** helper:

Listing 37-8

```

1 $data = array('some' => 'data');
2 $response = $app->json($data);

```

- **2012-03-11:** Added route middlewares.
- **2012-03-02:** Switched to use **Composer** for dependency management.
- **2012-02-27:** Updated to **Symfony 2.1** session handling.
- **2012-01-02:** Introduced support for streaming responses.
- **2011-09-22:** **ExtensionInterface** has been renamed to **ServiceProviderInterface**. All built-in extensions have been renamed accordingly (for instance, **Silex\Extension\TwigExtension** has been renamed to **Silex\Provider\TwigServiceProvider**).
- **2011-09-22:** The way reusable applications work has changed. The **mount()** method now takes an instance of **ControllerCollection** instead of an **Application** one.

Before:

Listing 37-9

```
1 $app = new Application();
2 $app->get('/bar', function() { return 'foo'; });
3
4 return $app;
```

After:

Listing 37-10

```
1 $app = new ControllerCollection();
2 $app->get('/bar', function() { return 'foo'; });
3
4 return $app;
```

- **2011-08-08:** The controller method configuration is now done on the Controller itself

Before:

Listing 37-11

```
1 $app->match('/', function () { echo 'foo'; }, 'GET|POST');
```

After:

Listing 37-12

```
1 $app->match('/', function () { echo 'foo'; })->method('GET|POST');
```


Chapter 38

Phar File



Using the Silex **phar** file is deprecated. You should use Composer instead to install Silex and its dependencies or download one of the archives.

Installing

Installing Silex is as easy as downloading the *phar*¹ and storing it somewhere on the disk. Then, require it in your script:

Listing 38-1

```
1 <?php
2
3 require_once __DIR__.'/silex.phar';
4
5 $app = new Silex\Application();
6
7 $app->get('/hello/{name}', function ($name) use ($app) {
8     return 'Hello '.$app->escape($name);
9 });
10
11 $app->run();
```

Console

Silex includes a lightweight console for updating to the latest version.

To find out which version of Silex you are using, invoke **silex.phar** on the command-line with **version** as an argument:

Listing 38-2

1. <http://silex.sensiolabs.org/get/silex.phar>

```
1 $ php silex.phar version
2 Silex version 0a243d3 2011-04-17 14:49:31 +0200
```

To check that you are using the latest version, run the `check` command:

Listing 38-3 1 \$ php silex.phar check

To update `silex.phar` to the latest version, invoke the `update` command:

Listing 38-4 1 \$ php silex.phar update

This will automatically download a new `silex.phar` from silex.sensiolabs.org and replace the existing one.

Pitfalls

There are some things that can go wrong. Here we will try and outline the most frequent ones.

PHP configuration

Certain PHP distributions have restrictive default Phar settings. Setting the following may help.

Listing 38-5

```
1 detect_unicode = Off
2 phar.readonly = Off
3 phar.require_hash = Off
```

If you are on Suhosin you will also have to set this:

Listing 38-6 1 suhosin.executor.include.whitelist = phar



Ubuntu's PHP ships with Suhosin, so if you are using Ubuntu, you will need this change.

Phar-Stub bug

Some PHP installations have a bug that throws a `PharException` when trying to include the Phar. It will also tell you that `Silex\Application` could not be found. A workaround is using the following include line:

Listing 38-7 1 `require_once 'phar:/' . __DIR__ . '/silex.phar/autoload.php';`

The exact cause of this issue could not be determined yet.

ioncube loader bug

Ioncube loader is an extension that can decode PHP encoded file. Unfortunately, old versions (prior to version 4.0.9) are not working well with phar archives. You must either upgrade Ioncube loader to version 4.0.9 or newer or disable it by commenting or removing this line in your `php.ini` file:

Listing 38-8 1 `zend_extension = /usr/lib/php5/20090626+lfs/ioncube_loader_lin_5.3.so`

