Building an API with Grape

When life gives you lemon grape, make an API

Real story time

"Client ABC wants an API. They want to be able to do X, Y and Z."

"YOU HAVE 3 WEEKS"



Grape to the rescue

Grape is a REST-like API framework for Ruby. It's designed to run on Rack or complement existing web application frameworks such as Rails and Sinatra by providing a simple DSL to easily develop RESTful APIs. It has built-in support for common conventions, including multiple formats, subdomain/prefix restriction, content negotiation, versioning and much more.

From the doc: https://github.com/ruby-grape/grape



```
# Gemfile
gem 'grape'
gem 'grape-entity'
gem 'grape-swagger'
gem 'grape-swagger-rails'
gem 'grape-swagger-entity'
```

```
# config/routes.rb
Rails.application.routes.draw do
    # [...] all your routes

# We will define this class with grape
    mount API::API => '/'
end
```

```
# Gemfile
gem 'grape'
gem 'grape-entity' # wait, what is this?
gem 'grape-swagger'
gem 'grape-swagger-rails'
gem 'grape-swagger-entity'
```

```
# config/routes.rb
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gem 'grape'
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gem 'grape-swagger' # swagger-what?
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gem 'grape-entity' # wait, what is this?
gem 'grape-swagger' # swagger-what?
gem 'grape-swagger-rails' # why not I guess?
gem 'grape-swagger-entity'
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gem 'grape-entity' # wait, what is this?
gem 'grape-swagger' # swagger-what?
gem 'grape-swagger-rails' # why not I guess?
gem 'grape-swagger-entity' # now you are just messing with me
```

```
# config/routes.rb
Rails.application.routes.draw do
    # [...] all your routes

# We will define this class with grape
    mount API::API => '/'
end
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```
# app/api/api.rb
module API
  class API < Grape::API</pre>
  end
end
```

The bells and whistles Provided as-is

```
# app/api/api.rb
module API
  class API < Grape::API</pre>
    class Root < Grape::API</pre>
      helpers :: Authenticate
      rescue from ActiveRecord::RecordNotFound do |e|
        error! (e.message, 404)
      end
      before { authenticate_user! }
      mount Public::V1::WorkspacesAPI
    end
    format : json
    version 'v1'
    prefix 'api'
    mount Root
  end
end
```

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      end
  before { authenticate user! }
  mount Public::V1::WorkspacesAPI
   end
   format : json
    version 'v1'
   prefix 'api'
   mount Root
```

end

end

```
# app/api/authenticate.rb
module Authenticate
  extend Grape::API::Helpers

def authenticate_user!
   error!('Access Denied', 401) unless current_user
   end

def current_user
   @current_user ||= authenticated_user
   end

def authenticated_user
   # your auth strategy here, returns a User
   end
end
```

The bells and whistles Provided as-is

```
# app/api/api.rb
module API
  class API < Grape::API</pre>
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  class API < Grape::API</pre>
    class Root < Grape::API</pre>
      helpers :: Authenticate
      rescue from ActiveRecord::RecordNotFound do |e|
        error! (e.message, 404)
      end
      before { authenticate_user! }
      mount Public::V1::WorkspacesAPI # This is our domain specific API
    end
    format :json
    version 'v1'
    prefix 'api'
    mount Root
  end
end
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# app/api/api.rb
module API
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      helpers :: Authenticate
      rescue from ActiveRecord::RecordNotFound do |e|
        error! (e.message, 404)
      end
      before { authenticate_user! }
     mount Public::V1
                                       # This is our domain specific API
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  end
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```
# app/public/v1/workspaces api.rb
module Public
 module V1
    class WorkspacesAPI < Grape::API</pre>
      desc 'Workspaces'
      resource :workspaces do
        desc 'Retrieve all workspaces' do
          tags ['workspaces']
          success Entities::Workspace
          is array true
        end
        get '/' do
          workspaces = current user.workspaces
          present workspaces,
                  with: Entities::Workspace
        end
        # [...] example with post ----->
        route param :workspace id, type: Integer do
          mount Public::V1::Workspaces::DocsAPI
        end
```

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        route param :workspace id, type: Integer do
          mount Public::V1::Workspaces::DocsAPI
        end
```

```
desc 'Create a workspace' do
  tags ['workspaces']
  success Entities::Workspace
end
params do
  requires :workspace, type: Hash do
    requires :title, type: String
    optional :public, type: Boolean, default: false
  end
end
post '/' do
  workspace = Workspace.new(
    declared(params)[:workspace]
  if workspace.save
    present workspace, with: Entities::Workspace
  else
    error! (
      workspace.errors.full messages.to sentence,
      422
  end
end
```

```
# app/public/v1/workspaces api.rb
module Public
 module V1
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   if workspace.save
     present workspace, with: Entities::Workspace
  else
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end
```

Strong params meets validation

A very extensive API

Q https://github.com/ruby-grape/grape
∷≣ README.md
Parameter Validation and Coercion
Supported Parameter Types
○ Integer/Fixnum and Coercions
Custom Types and Coercions
 Multipart File Parameters
○ First-Class JSON Types
Multiple Allowed Types
Validation of Nested Parameters
Dependent Parameters
○ Group Options
∘ Renaming
○ Built-in Validators
allow_blank
■ values
except_values
■ same_as
■ regexp
mutually_exclusive
exactly_one_of
at_least_one_of
all_or_none_of
Nested mutually_exclusive, exactly_one_of, at_least_one_of, all_or_none_of
Namespace Validation and Coercion
○ Custom Validators

Validation Errors

```
# app/public/v1/workspaces api.rb
module Public
 module V1
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      desc 'Workspaces'
      resource :workspaces do
        desc 'Retrieve all workspaces' do
          tags ['workspaces']
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          is array true
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        get '/' do
          workspaces = current_user.workspaces
          present workspaces, with: Entities::Workspace
        end
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        end
        get '/' do
          workspaces = current_user.workspaces
  ?? --- present workspaces, with: Entities::Workspace
        end
```

```
# app/public/v1/workspaces_api.rb
module Public
 module V1
    class WorkspacesAPI < Grape::API</pre>
      desc 'Workspaces'
      resource :workspaces do
        desc 'Retrieve all workspaces' do
          tags ['workspaces']
          success Entities::Workspace
          is array true
        end
        get '/' do
          workspaces = current_user.workspaces
          # present interface is pretty cool
  ?? --- present workspaces, with: Entities::Workspace
        end
```

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module Public
 module V1
    class WorkspacesAPI < Grape::API</pre>
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        desc 'Retrieve all workspaces' do
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          success Entities::Workspace
          is array true
        end
        get '/' do
          workspaces = current_user.workspaces
          # present interface is pretty cool
          # let's use grape-entity
  ?? --- present workspaces, with: Entities::Workspace
        end
```

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      desc 'Workspaces'
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        desc 'Retrieve all workspaces' do
          tags ['workspaces']
          success Entities::Workspace
          is array true
        end
                                                                   # app/api/entities/workspace.rb
        get '/' do
                                                                   module Entities
          workspaces = current user.workspaces
                                                                      class Workspace < Grape::Entity</pre>
                                                                        expose :id
          # present interface is pretty cool
                                                                        expose :title
          # let's use grape-entity
                                                                     end
  ?? --- present workspaces, with: Entities::Workspace
        end
```

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module V1
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# app/public/v1/workspaces_api.rb
module Public
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    class WorkspacesAPI < Grape::API
    desc 'Workspaces'
    resource :workspaces do
        # using grape-swagger for documentation
    desc 'Retrieve all workspaces' do
        tags ['workspaces']
        success Entities::Workspace
        is_array true
    end
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       success Entities::Workspace
        is array true
        get '/' do
          workspaces = current user.workspaces
          present workspaces, with: Entities::Workspace
        end
        params do
          requires :workspace, type: Hash do
            requires :title, type: String, documentation: { desc: 'Workspace title' }
            optional :public, type: Boolean, default: false
          end
        end
        post '/' do
```

```
# app/public/v1/workspaces api.rb
                                                                         # with grape-swagger-entity
module Public
                                                                         module Entities
 module V1
                                                                           class Workspace < Grape::Entity</pre>
    class WorkspacesAPI < Grape::API</pre>
                                                                             expose :id, documentation: {
      desc 'Workspaces'
                                                                               type: Integer,
      resource :workspaces do
                                                                               example: 1024,
       # using grape-swagger for documentation
                                                                               required: true,
        desc 'Retrieve all workspaces' do
          tags ['workspaces']
                                                                             expose :title, documentation: {
          success Entities::Workspace
                                                                               type: String,
          is array true
                                                                               example: 'My place',
        end
                                                                               required: true,
        get '/' do
          workspaces = current user.workspaces
                                                                           end
          present workspaces, with: Entities::Workspace
                                                                         end
        end
        params do
          requires :workspace, type: Hash do
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            optional :public, type: Boolean, default: false
          end
        end
        post '/' do
```

More documentation examples Root doc

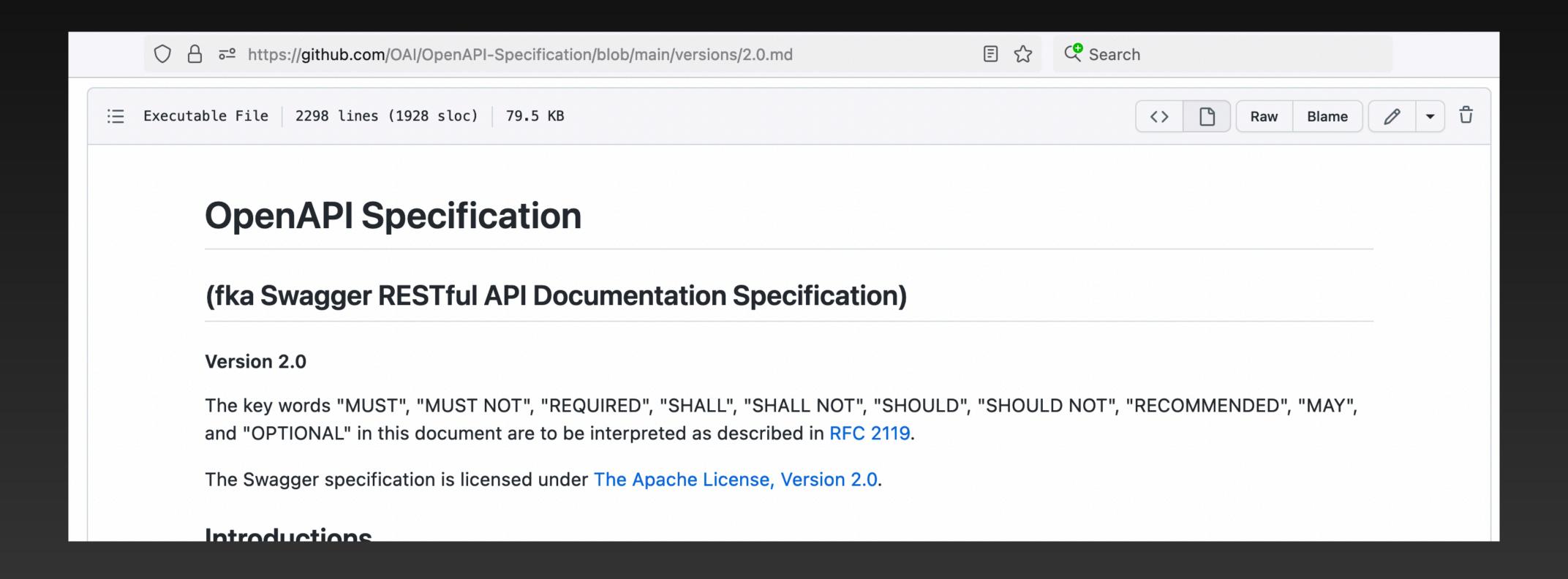
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      end
      before { authenticate_user! }
      mount Public::V1::WorkspacesAPI
    end
    format : json
    version 'v1'
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More documentation examples Root doc

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    add_swagger_documentation json: true,
                               doc version: '1.0.0',
                               api version: 'v1',
                               mount_path: '/open_api_doc',
                               info: {
                                  title: 'DocSys API',
                                  description: <<~TEXT,</pre>
                                    If you use _markdown_ *here*, `grape-swagger-rails` will support it,
                                    ## For ex titles and even
                                              | flavoured | like | tables
                                      GitHub
                                    | Pretty | cool
                                                            no?
                                                                   yeah
```

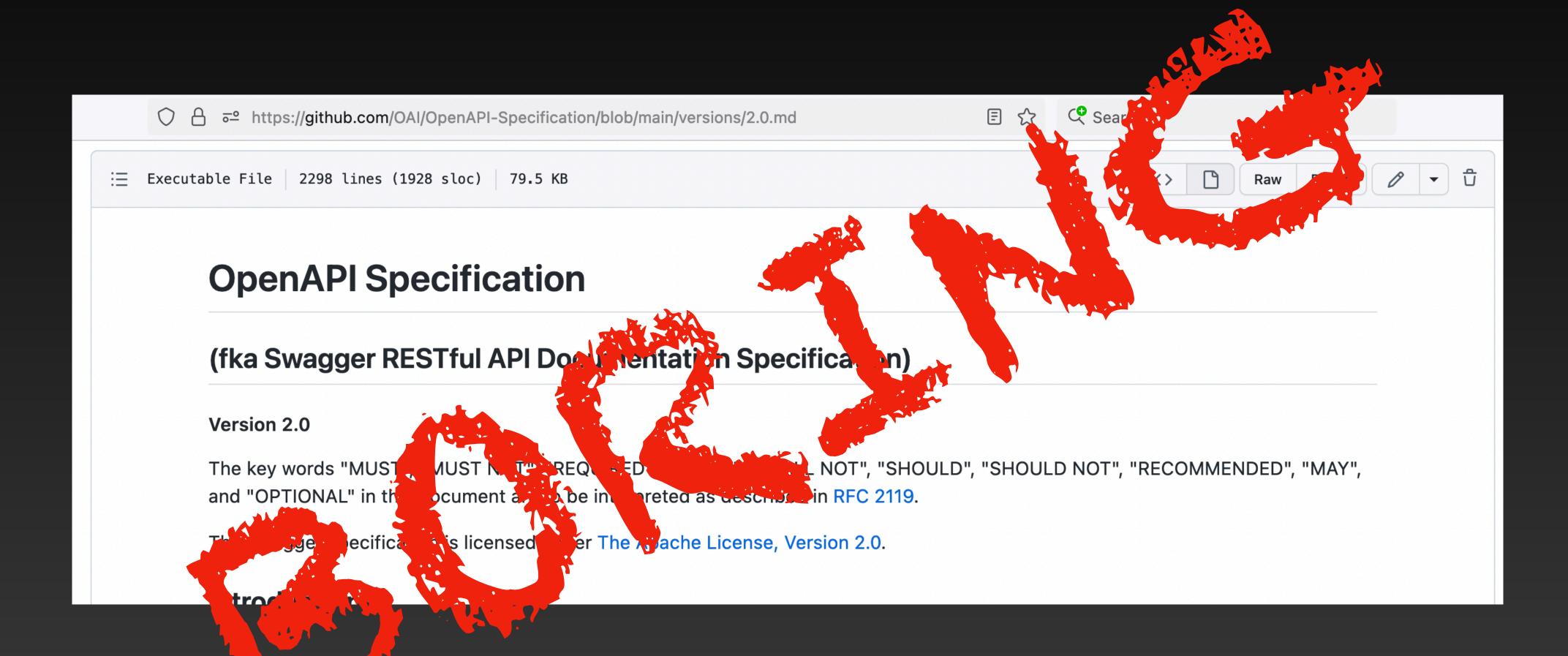
Documenting all the things

Swagger / OpenAPI Spec 2.0.



Documenting all the things

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More documentation examples Root doc

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                               doc version: '1.0.0',
                               api version: 'v1',
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    end
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    version 'v1'
    prefix 'api'
    add swagger documentation json: true,
                               doc version: '1.0.0',
                               api version: 'v1',
                               mount_path: '/open_api_doc', # Let's open this url /api/v1/open api doc
                               info: {
                                 title: 'DocSys API',
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Document all the things

Swagger / OpenAPI Spec 2.0.

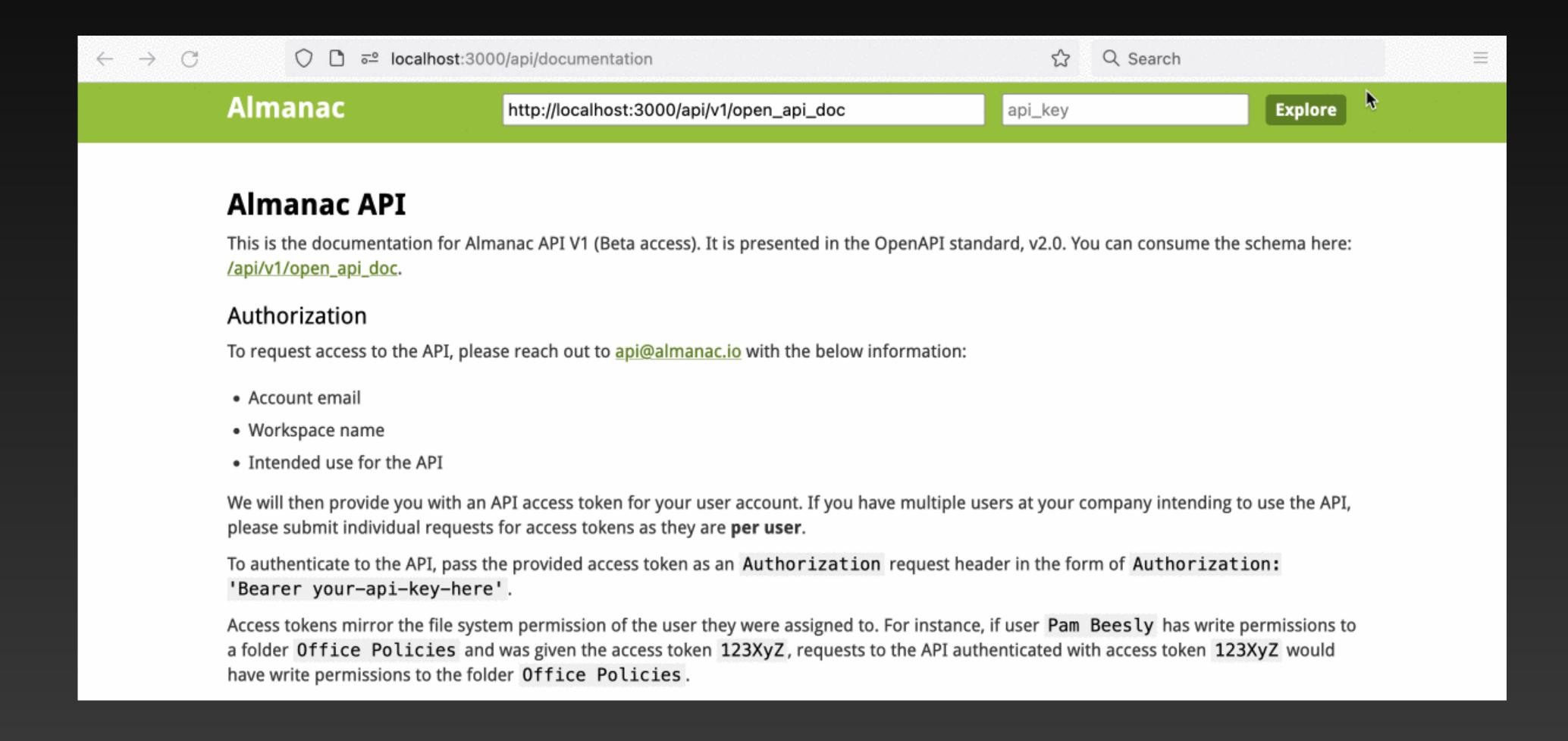
```
□ localhost:3000/api/v1/open_api_doc
                                                                                        Q Search
▼ info: {
    title: "Almanac API",
     description: "This is the documentation for Almanac API V1 (Beta access).\nIt is presented in the OpenAPI standard,
     v2.0.\nYou can consume the schema here:\n<a href=\"/api/v1/open_api_doc\">/api/v1/open_api_doc</a>.\n\n##
     Authorization\n\nTo request access to the API, please reach out to\n<a href=\"mailto:api@almanac.io\">api@almanac.io</a>
     with the below information:\n\n- Account email\n- Workspace name\n- Intended use for the API\n\nWe will then provide you
     with an API access token for your user account.\nIf you have multiple users at your company intending to use the API,
     please submit\nindividual requests for access tokens as they are **per user**.\n\nTo authenticate to the API, pass the
     provided access token as an `Authorization`\nrequest header in the form of `Authorization: 'Bearer your-api-key-here'`.\n
     \nAccess tokens mirror the file system permission of the user they were assigned to.\nFor instance, if user `Pam Beesly`
     has write permissions to a folder `Office Policies`\nand was given the access token `123XyZ`, requests to the API
     authenticated with access\ntoken `123XyZ` would have write permissions to the folder `Office Policies`.\n\n## Rate
     limiting\n\nThe API is rate limited to 10 requests per 10 seconds per access token, using the\nFixed window algorithm.\n
     \nWhen the rate limit is reached, the request response will have status code `429`\nand body `\"Retry later\\n\"`.\n\n##
     Errors\n\nWhen an error occurs, the request response will have a specific status code and a\npayload of this format:\n\n`{
     error: \"String error message\" }`\n\nThe possible errors are:\n\n| Code | Definition | Description
     parameter, wrong type, etc). Error message to give more information. |\n| 401 | Unauthorized | The access token is
     invalid. |\n| 403 | Forbidden | The user owning the (valid) access token does not have the permission level to proceed.
     |\n| 404 | Not Found | The resource is not found. |\n| 429 | Too Many Requests | The rate limit has been hit for this
     access token. |\n| 422 | Unprocessable Entity |The request parameters are in the correct format but there is a semantic
     error. Error message to give more information. |\n",
     version: "1.0.0"
 swagger: "2.0",
produces: [
     "application/json"
 host: "localhost:3000",
► tags: [...],
▶ paths: {...},
► definitions: {...}
```

Document all the things

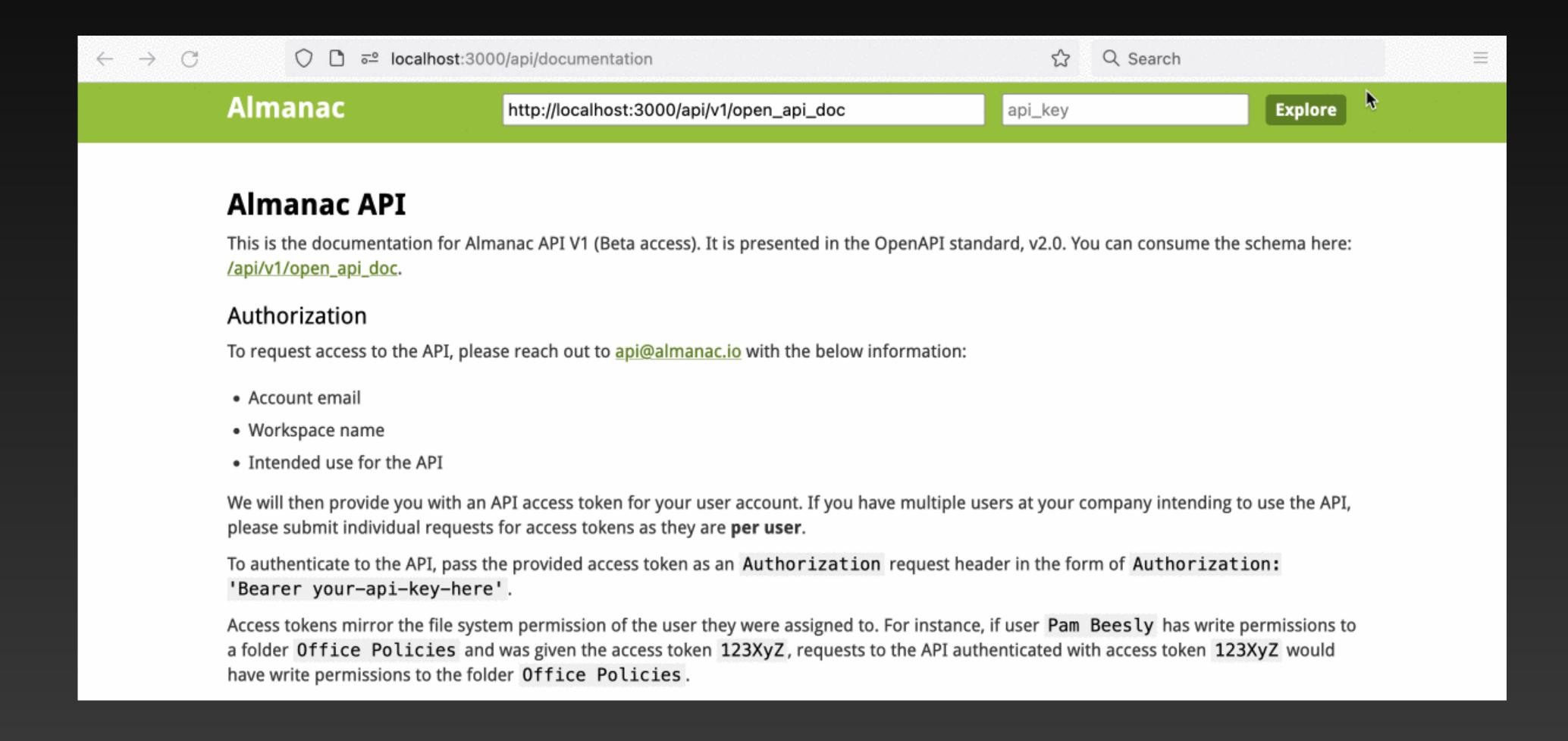
Swagger / OpenAPI Spec 2.0.

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Document all the things If you are lazy like me, grape-swagger-rails



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"Client ABC wants an API. They want to be able to do X, Y and Z."

"YOU HAVE 3 WEEKS"

Did we make it?



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Did we make it?



But it was not grape's fault