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# Flask-Cors Documentation

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**Cory Dolphin**

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A Flask extension for handling Cross Origin Resource Sharing (CORS), making cross-origin AJAX possible.



**Contact**

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Questions, comments or improvements? Please create an issue on [Github](#), tweet at [@wcdolphin](#) or send me an email.





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## Installation

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Install the extension with using pip, or easy\_install.

```
$ pip install -U flask-cors
```



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## Usage

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This extension enables CORS support either via a decorator, or a Flask extension. This extension enables CORS support either via a decorator, or a Flask extension. There are three examples shown in the examples directory, showing the major use cases.

### 3.1 Simple Usage

In the simplest case, initialize the Flask-Cors extension with default arguments in order to allow CORS on all routes.

```
app = Flask(__name__)
cors = CORS(app)

@app.route("/")
def helloWorld():
    return "Hello, cross-origin-world!"
```

#### 3.1.1 Resource specific CORS

Alternatively, a list of resources and associated settings for CORS can be supplied, selectively enables CORS support on a set of paths on your app.

Note: this resources parameter can also be set in your application's config.

```
app = Flask(__name__)
cors = CORS(app, resources={r"/api/*": {"origins": "*"}})

@app.route("/api/v1/users")
def list_users():
    return "user example"
```

#### 3.1.2 Route specific CORS via decorator

This extension also exposes a simple decorator to decorate flask routes with. Simply add `@cross_origin()` below a call to Flask's `@app.route(...)` incarnation to accept the default options and allow CORS on a given route.

```
@app.route("/")
@cross_origin() # allow all origins all methods.
def helloWorld():
    return "Hello, cross-origin-world!"
```

## 3.2 Using JSON with CORS

When using JSON cross origin, browsers will issue a pre-flight OPTIONS request for POST requests. In order for browsers to allow POST requests with a JSON content type, you must allow the Content-Type header. The simplest way to do this is to simply set the CORS\_HEADERS configuration value on your application: e.g.

```
app.config['CORS_HEADERS'] = 'Content-Type'
```

## 3.3 Full description of options

**class** flask\_cors.CORS (*app=None, \*\*kwargs*)

Initializes Cross Origin Resource sharing for the application. The arguments are identical to `cross_origin()`, with the addition of a *resources* parameter. The resources parameter defines a series of regular expressions for resource paths to match and optionally, the associated options to be applied to the particular resource. These options are identical to the arguments to `cross_origin()`.

**The settings for CORS are determined in the following order:** Resource level settings (e.g when passed as a dictionary) Keyword argument settings App level configuration settings (e.g. CORS\_\*) Default settings

Note: as it is possible for multiple regular expressions to match a resource path, the regular expressions are first sorted by length, from longest to shortest, in order to attempt to match the most specific regular expression. This allows the definition of a number of specific resource options, with a wildcard fallback for all other resources.

**Parameters** *resources* – the series of regular expression and (optionally)

associated CORS options to be applied to the given resource path.

If the argument is a dictionary, it is expected to be of the form: `regex : dict_of_options`

If the argument is a list, it is expected to be a list of regular expressions, for which the app-wide configured options are applied.

If the argument is a string, it is expected to be a regular expression for which the app-wide configured options are applied.

Default : '\*'

flask\_cors.cross\_origin (*\*args, \*\*kwargs*)

This function is the decorator which is used to wrap a Flask route with. In the simplest case, simply use the default parameters to allow all origins in what is the most permissive configuration. If this method modifies state or performs authentication which may be brute-forced, you should add some degree of protection, such as Cross Site Forgery Request protection.

**Parameters**

- **origins** (*list or string*) – The origin, or list of origins to allow requests from. The origin(s) may be regular expressions, exact origins, or else an asterisk.

Default : '\*'

- **methods** (*list or string*) – The method or list of methods which the allowed origins are allowed to access for non-simple requests.

Default : [GET, HEAD, POST, OPTIONS, PUT, PATCH, DELETE]

- **expose\_headers** (*list or string*) – The header or list which are safe to expose to the API of a CORS API specification

Default : None

- **headers** (*list or string*) – The header or list of header field names which can be used when this resource is accessed by allowed origins

Default : None

- **supports\_credentials** (*bool*) – Allows users to make authenticated requests. If true, injects the *Access-Control-Allow-Credentials* header in responses.

**note** This option cannot be used in conjunction with a '\*' origin

Default : False

- **max\_age** (*timedelta, integer, string or None*) – The maximum time for which this CORS request maybe cached. This value is set as the *Access-Control-Max-Age* header.

Default : None

- **send\_wildcard** (*bool*) – If True, and the origins parameter is \*, a wildcard *Access-Control-Allow-Origin* header is sent, rather than the request's *Origin* header.

Default : True

- **always\_send** (*bool*) – If True, CORS headers are sent even if there is no *Origin* in the request's headers.

Default : True

- **automatic\_options** (*bool*) – If True, CORS headers will be returned for OPTIONS requests. For use with cross domain POST requests which preflight OPTIONS requests, you will need to specifically allow the Content-Type header.

Default : True

- **vary\_header** (*bool*) – If True, the header Vary: Origin will be returned as per suggestion by the W3 implines.

Setting this header when the *Access-Control-Allow-Origin* is dynamically generated (e.g. when there is more than one allowed origin, and an Origin than '\*' is returned) informs CDNs and other caches that the CORS headers are dynamic, and cannot be re-used.

If False, the Vary header will never be injected or altered.

Default : True

## 3.4 More examples

## 3.5 A simple, and suggested example

This is the suggested approach to enabling CORS. The default configuration will work well for most use cases.

```
"""
Flask-Cors example
=====
This is a tiny Flask Application demonstrating Flask-Cors, making it simple
to add cross origin support to your flask app!

:copyright: (C) 2013 by Cory Dolphin.
:license: MIT/X11, see LICENSE for more details.
"""
```

```

from flask import Flask, jsonify
try:
    from flask.ext.cors import CORS # The typical way to import flask-cors
except ImportError:
    # Path hack allows examples to be run without installation.
    import os
    parentdir = os.path.dirname(os.path.dirname(os.path.abspath(__file__)))
    os.sys.path.insert(0, parentdir)

    from flask.ext.cors import CORS

app = Flask(__name__)
# One of the simplest configurations. Exposes all resources matching /api/* to
# CORS and allows the Content-Type header, which is necessary to POST JSON
# cross origin.
CORS(app, resources=r'/api/*', headers='Content-Type')

@app.route("/")
def helloWorld():
    """
        Since the path '/' does not match the regular expression r'/api/*',
        this route does not have CORS headers set.
    """
    return '''<h1>Hello CORS!</h1> Read about my spec at the
<a href="http://www.w3.org/TR/cors/">W3</a> Or, checkout my documentation
on <a href="https://github.com/wcdolphin/flask-cors">Github</a>'''

@app.route("/api/v1/users/")
def list_users():
    """
        Since the path matches the regular expression r'/api/*', this resource
        automatically has CORS headers set. The expected result is as follows:

        $ http get http://127.0.0.1:5000/api/v1/users/
        HTTP/1.0 200 OK
        Access-Control-Allow-Headers: Content-Type
        Access-Control-Allow-Origin: *
        Content-Length: 21
        Content-Type: application/json
        Date: Sat, 09 Aug 2014 00:26:41 GMT
        Server: Werkzeug/0.9.4 Python/2.7.8

        {
            "success": true
        }

    """
    return jsonify(success=True)

@app.route("/api/v1/users/create", methods=['POST'])
def create_user():
    """
        Since the path matches the regular expression r'/api/*', this resource
        automatically has CORS headers set. The expected result is as follows:
    """

```

```

$ http POST http://127.0.0.1:5000/api/v1/users/create
HTTP/1.0 200 OK
Access-Control-Allow-Headers: Content-Type
Access-Control-Allow-Origin: *
Content-Length: 21
Content-Type: application/json
Date: Sat, 09 Aug 2014 00:28:26 GMT
Server: Werkzeug/0.9.4 Python/2.7.8

{
    "success": true
}

'''
return jsonify(success=True)

if __name__ == "__main__":
    app.run(debug=True)

```

### 3.6 A more complicated example

If you require advanced configuration and more specific configuration of CORS support for your application, this example provides a useful example of multiple regular expressions and options.

```

'''
Flask-Cors example
=====
This is a tiny Flask Application demonstrating Flask-Cors, making it simple
to add cross origin support to your flask app!

:copyright: (C) 2013 by Cory Dolphin.
:license: MIT/X11, see LICENSE for more details.
'''
from flask import Flask, jsonify
try:
    # The typical way to import flask-cors
    from flask.ext.cors import CORS, cross_origin
except ImportError:
    # Path hack allows examples to be run without installation.
    import os
    parentdir = os.path.dirname(os.path.dirname(os.path.abspath(__file__)))
    os.sys.path.insert(0, parentdir)

    from flask.ext.cors import CORS, cross_origin

app = Flask(__name__)

# Set CORS options on app configuration
app.config['CORS_HEADERS'] = "Content-Type"
app.config['CORS_RESOURCES'] = {r"/api/*": {"origins": "*"}}

cors = CORS(app)

```

```
## Equivalent to (but do not use both)
# cors = CORS(app, resources={r"/api/*": {"origins": "*"}},
#                       headers="Content-Type")

@app.route("/")
def helloWorld():
    """
    Since the path '/' does not match the regular expression r'/api/*',
    this route does not have CORS headers set.
    """
    return '''This view is not exposed over CORS.'''

@app.route("/api/v1/users/")
def list_users():
    """
    Since the path matches the regular expression r'/api/*', this resource
    automatically has CORS headers set. The expected result is as follows:

    $ http get http://127.0.0.1:5000/api/v1/users/
    HTTP/1.0 200 OK
    Access-Control-Allow-Headers: Content-Type
    Access-Control-Allow-Origin: *
    Content-Length: 21
    Content-Type: application/json
    Date: Sat, 09 Aug 2014 00:26:41 GMT
    Server: Werkzeug/0.9.4 Python/2.7.8

    {
      "success": true
    }

    """
    return jsonify(success=True)

@app.route("/api/v1/users/create", methods=['POST'])
@cross_origin(origins="http://foo.com")
def create_user():
    """
    This resource both matches the regular expression r'/api/*', and is
    also decorated with the cross_origin decorator. Since The decorator
    actually modifies the view function, and will run before the response
    is touched by the CORS object, the settings for CORS defined in the
    decorator will be used e.g. the allowed origin is only 'http://foo.com',
    rather than the more permissive '*' default.
    Thus, the expected headers are as follows:

    HTTP/1.0 200 OK
    Access-Control-Allow-Headers: Content-Type
    Access-Control-Allow-Origin: http://foo.com
    Content-Length: 21
    Content-Type: application/json
    Date: Sat, 09 Aug 2014 00:32:02 GMT
    Server: Werkzeug/0.9.4 Python/2.7.8
    Vary: Origin
    """
```



```

        {
            "success": true
        }
    """

    return jsonify(success=True)

if __name__ == "__main__":
    app.run(debug=True)

```

## 3.7 A view-based example

Alternatively, using the decorator on a per view basis enables CORS for only a particular view.

```

"""
Flask-Cors example
=====
This is a tiny Flask Application demonstrating Flask-Cors, making it simple
to add cross origin support to your flask app!

:copyright: (C) 2013 by Cory Dolphin.
:license: MIT/X11, see LICENSE for more details.
"""
from flask import Flask, jsonify
try:
    # The typical way to import flask-cors
    from flask.ext.cors import cross_origin
except ImportError:
    # Path hack allows examples to be run without installation.
    import os
    parentdir = os.path.dirname(os.path.dirname(os.path.abspath(__file__)))
    os.sys.path.insert(0, parentdir)

    from flask.ext.cors import cross_origin

app = Flask(__name__)

@app.route("/", methods=['GET'])
@cross_origin()
def helloWorld():
    """
    This view has CORS enabled for all domains, representing the simplest
    configuration of view-based decoration. The expected result is as
    follows:

    $ http get http://127.0.0.1:5000/
    HTTP/1.0 200 OK
    Access-Control-Allow-Origin: *
    Content-Length: 184
    Content-Type: text/html; charset=utf-8
    Date: Sat, 09 Aug 2014 00:35:39 GMT
    Server: Werkzeug/0.9.4 Python/2.7.8
    """

```

```
<h1>Hello CORS!</h1> Read about my spec at the
<a href="http://www.w3.org/TR/cors/">W3</a> Or, checkout my
documentation on <a href="https://github.com/wcdolphin/flask-cors">
Github</a>

'''
    return '''<h1>Hello CORS!</h1> Read about my spec at the
<a href="http://www.w3.org/TR/cors/">W3</a> Or, checkout my documentation
on <a href="https://github.com/wcdolphin/flask-cors">Github</a>'''

@app.route("/user/create", methods=['GET', 'POST'])
@cross_origin(headers=['Content-Type'])
def cross_origin_json_post():
    '''
        This view has CORS enabled for all domains, and allows browsers
        to send the Content-Type header, allowing cross domain AJAX POST
        requests.

        $ http post http://127.0.0.1:5000/user/create
        HTTP/1.0 200 OK
        Access-Control-Allow-Headers: Content-Type
        Access-Control-Allow-Origin: *
        Content-Length: 21
        Content-Type: application/json
        Date: Sat, 09 Aug 2014 00:38:47 GMT
        Server: Werkzeug/0.9.4 Python/2.7.8

        {
            "success": true
        }

    '''

    return jsonify(success=True)

if __name__ == "__main__":
    app.run(debug=True)
```

## C

CORS (class in flask\_cors), 8

cross\_origin() (in module flask\_cors), 8