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Flask (Python framework) .csv (file extension) Python (programming language)

How do I serve large CSV files using flask?

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Aaron Mefford, Software developer and systems architect.

Answered Oct 4, 2017 · Upvoted by Sidharth Shah, Python Fanboy, been coding for 10+ years now in it



The answer by [Kristof Degros](#) is spot on. The documentation is very good on how to do this but misses one point. Sometimes setting the Content-Type header alone to text/csv will not accomplish what you want, usually downloading and opening the file in Excel. Also, with only that header, when the file is saved, it will save with final part of the path as the filename.

PATH_INFO

You can work around the wrong filename by using PathInfo, and avoid it saving as [csv_generator.py](#) or in flask it might just be csv_generator or whatever your path is. By appending additional path information that you then ignore in Flask.

```
1 #Allow for a path like /csv_download/MonthlyReport-2017-10-04.csv
2 @app.route('/csv_download/<filename>')
3 def csv_generator(filename):
4     #filename is ignored here and only to aid saving the file
5     pass
```

[Common Gateway Interface - Wikipedia](#)[PATH_INFO- The Common Gateway Interface \(CGI\) Version 1.1](#)

Content-Disposition Header

Using the Content-Disposition header can also be effective, and may be easier to use than PATH_INFO, particularly as your filename may need to be generated by code.

```
1 #Allow for a path like /csv_download/MonthlyReport-2017-10-04.csv
2 @app.route('/report_generator/<filename>')
3 def large_csv_route_with_path_info(filename):
4     return generate_monthly_report(filename)
5
6
7 @app.route('/monthly_report')
8 def monthly_report_route():
9     return generate_monthly_report(build_filename())
10
11 def build_filename():
12     return "MonthlyReport-{}.csv".format(
13         datetime.date.today().isoformat()
14     )
15
16 def generate_large_csv(filename)
17     def generate():
```

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```

22 headers.add('Content-Disposition', attachment, filename=filename)
23
24 return Response(generate(), mimetype='text/csv', headers=headers)

```

[Response Headers - Flask Documentation \(0.12\)](#)
[Headers - Werkzeug Documentation \(0.12\)](#)

Other Headers

Many people list other headers as “required” for csv, but the only two that are really required are the Content-Type and Content-Disposition headers. Pragma, Expires, Cache-Control, should all be used as needed, but are not specific to transferring CSV files. I found one referencing Content-Description, which is not a valid Http header.

Flask.send_from_directory and Flask.send_file

If the files already exist on disk, or you otherwise have a filehandle for the contents of the file, you may want to consider using the flask.send_from_directory method and let it do the heavy lifting for you. Additionally, if your web server handles it, the send_file and send_from_directory methods can dispatch the task of serving the file to the web server, instead of serving the file in application code. This will free up your application container to do more involved work. This is supported by lighthttpd, mod_xsendfile in Apache2 and Nginx.

```

1 import flask, re
2
3 CSV_DIR = '/var/tmp/csv_files/'
4 #Allow the filename to be included in the path
5 @app.route('/risky_csv_sender/<filename>')
6 def csv_sender(filename):
7     #Make sure that they cannot request files outside of your CSV DIR
8     if re.search(r'/', filename) or re.search(r'^\. ', filename):
9         return "Illegal Filename, File Not Found", 404
10
11     full_filename = CSV_DIR + filename
12     return flask.send_file(full_filename,
13                           mimetype='text/csv',
14                           as_attachment=True,
15                           attachment_filename=filename
16     )
17
18 @app.route('/safer_faster_simpler_file_sender/<filename>')
19 def safe_csv_sender(filename):
20     return flask.send_from_dir(filename,
21                               mimetype='text/csv',
22                               as_attachment=True,
23                               attachment_filename=filename
24     )

```

[Flask.send_file - Flask Documentation \(0.12\)](#)
[XSendfile | NGINX](#)
[Serving authenticated media with nginx](#)

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to send if you enable HTTP compression. This will but additional load on your server, but often that is counterbalanced by the load of sending 10x as much data to the client.

In the ideal scenario, you would use the `send_from_file` method above with a supporting web server, that has gzip compression enabled for the files it sends. Often the gzip server module will even allow you to pre-compress the files, saving you the overhead of real-time compression and saving disk space as well.

[Module ngx_http_gzip_module](#)

[Apache HTTP Server Version 2.4](#)

[Docs ModCompress - Lighttpd - lighty labs](#)

However, if you are generating the CSV in real-time or for some other reason cannot pre-compress or dispatch the data to the web server for compression, then you can do the compression in your flask application code.

```

1  import re, zlib
2  import brotli # pip install brotli
3  from cStringIO import StringIO
4
5  def gzip_wrapper(iterable):
6      #This will trigger a gzip header from zlib
7      return zlib_wrapper(iterable,zlib.MAX_WBITS+16)
8
9  def zlib_wrapper(iterable,wbits=zlib.MAX_WBITS):
10     compressor = zlib.compressobj(
11         zlib.Z_DEFAULT_COMPRESSION,zlib.DEFLATED,wbits
12     )
13     return compressor_wrapper(iterable,compressor)
14
15 def compressor_wrapper(iterable,compressor):
16     for data in iterable:
17         yield compressor.compress(data)
18     yield compressor.flush()
19     #For brotli
20     if hasattr(compressor,'finish'):
21         yield compressor.finish()
22
23 encoders = [
24     ('gzip', gzip_wrapper),
25     ('deflate', zlib_wrapper)
26 ]
27
28 try:
29     import brotli
30     def brotli_wrapper(iterable):
31         compressor = brotli.Compressor()
32         return compressor_wrapper(iterable,compressor)
33     encoders.insert(0,('br',brotli_wrapper))
34 except ImportError as e:
35     print "brotli module is not installed, disabling 'br' support"
36
37 def generate():
38     for row in iter_all_rows():

```

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```
43 generator = generate()  
44  
45 encodings = flask.request.accept_encodings  
46  
47 headers = Headers()  
48 headers.add('Content-Disposition', 'attachment', filename=filename)  
49  
50 for encoding, encoder in encoders:  
51     if encoding in encodings:  
52         generator = encoder(generator)  
53         headers.add('Content-Encoding', encoding)  
54         break  
55  
56 return Response(generator, mimetype='text/csv', headers=headers)
```

Hope you found something useful in that.

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Kristof Degros, using python for quite a while
Answered Sep 28, 2017

You want to have a look at streaming

Streaming Contents

This is in the official documentation and should get you what you want to achieve

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