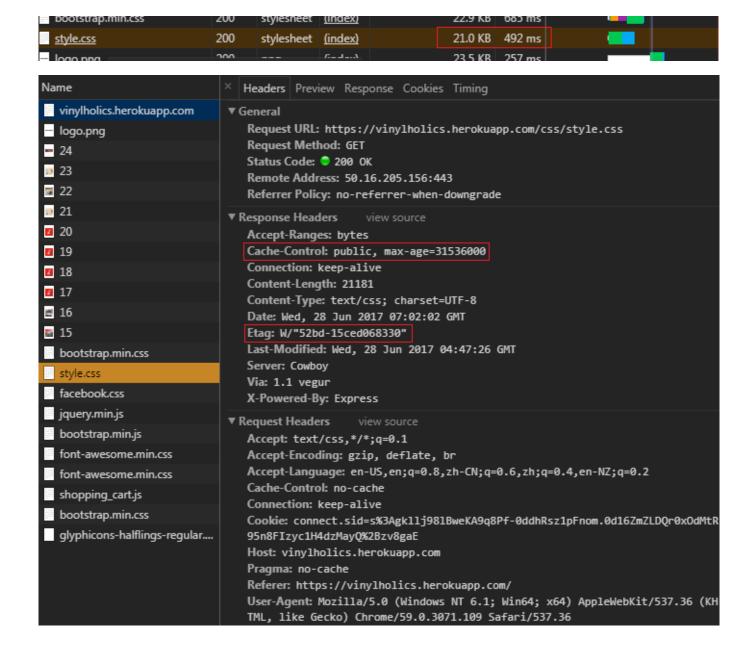
### 1. Public Resources

- css, scripts, fonts, static images like favicon or logo
- Cache for 1 year, public, weak ETag, stale resource allowed.
- Header example:

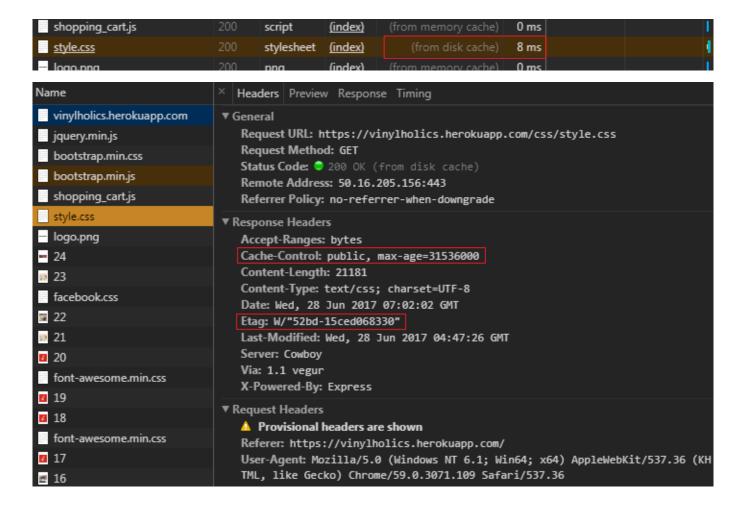
```
Cache-Control: public, max-age=31536000
ETag: W/"368d-15cc3a03146"
```

- Expected result:
  - ✓ status 200
  - √ from local cache
  - √ have Cache-Control: public, max-age=31536000
  - √ have ETag
- Test result (screenshot):
  - a) First load of style.css



### b) Reload of style.css

The resource is retrieved from disk cache, so there is no bandwidth use. Significantly reduced the loading time from 492ms to 8ms.

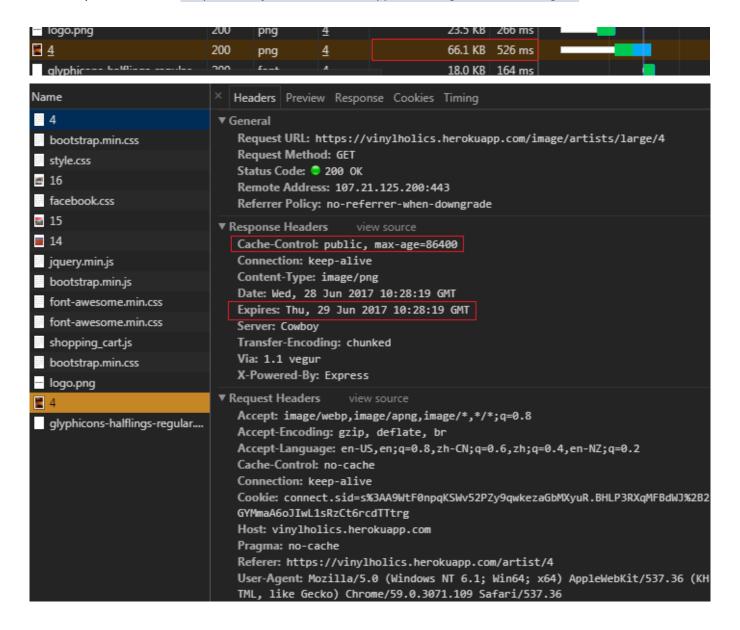


# 2. Relatively Static Resources

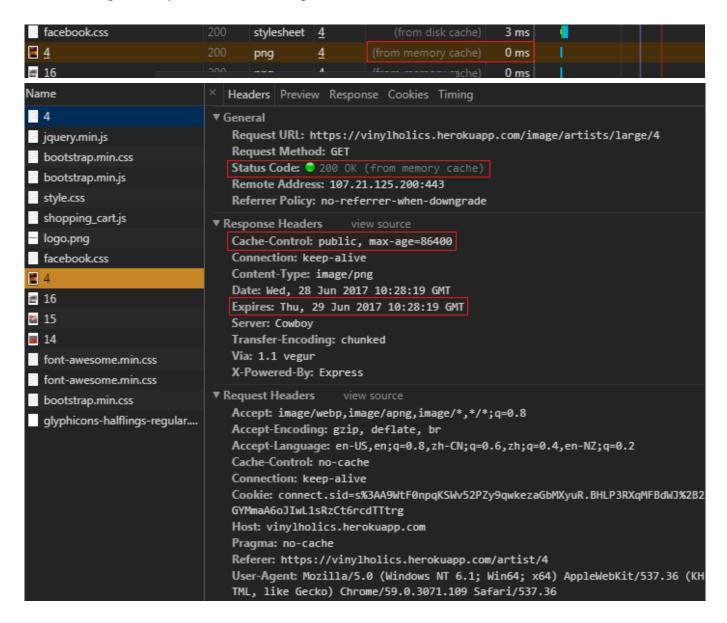
- Images for albums or artists
- Cache for 1 day, public, weak ETag, stale resource allowed.
- Header example:

Cache-Control: public, max-age=86400 Expires: Thu, 29 Jun 2017 02:45:31 GMT

- Expected result:
  - ✓ status 200
  - √ from local cache
  - √ have Cache-Control: public, max-age=86400
  - ✓ have Expires: ... (only for old browser compatibility)
- Test result (screenshot):
  - a) First load of https://vinylholics.herokuapp.com/image/artists/large/4



b) Reload of https://vinylholics.herokuapp.com/image/artists/large/4
The resource is retrieved from memory cache, so there is no bandwidth use.
Significantly reduced the loading time from 526ms to 0ms.



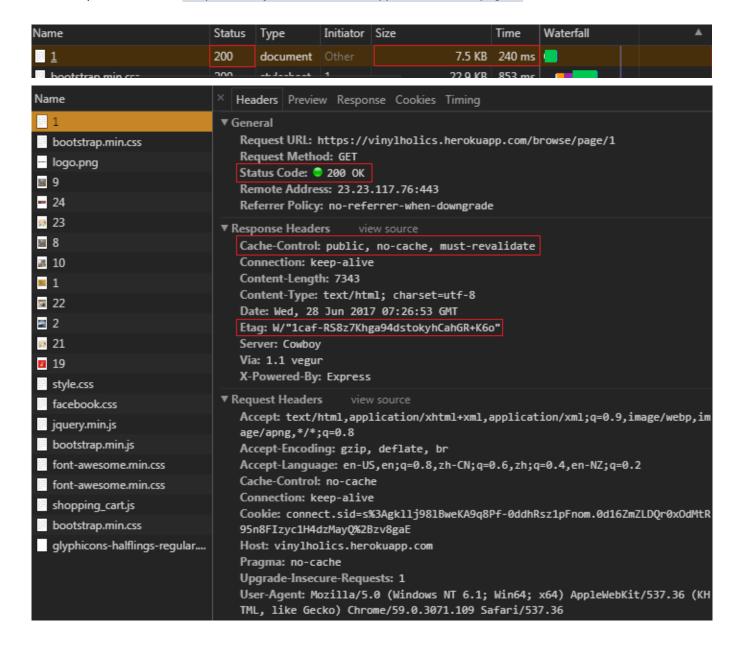
# 3. Dynamic Pages

- All pages, e.g. index, browse albums, album page
- Re-validate before using cached resource, public, weak ETag, stale resource not allowed.
- Header example:

```
Cache-Control: public, no-cache, must-revalidate

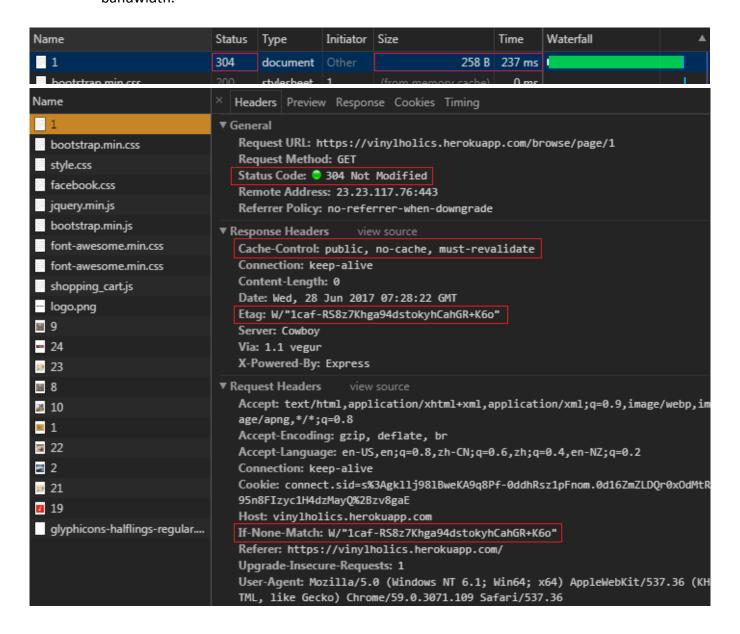
ETag: W/"1d97-t1Wdzs8mP00TMek25jjTJosI/QY"
```

- Expected result:
  - ✓ if not modified, status 304; if Modified, status 200.
  - ✓ if not modified, from local cache; if Modified, from server.
  - √ have Cache-Control: public, no-cache, must-revalidate
  - √ have ETag
- Test result (screenshot):
  - a) First load of https://vinylholics.herokuapp.com/browse/page/1



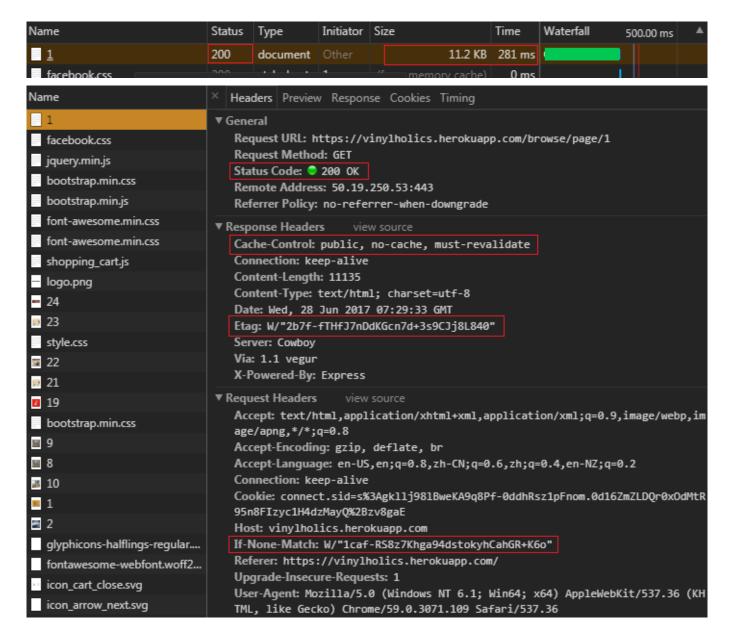
#### b) Reload of https://vinylholics.herokuapp.com/browse/page/1

The browser has to re-validate with server due to no-cache. Server replied with status 304 Not Modified, which means local cache can be used. Therefore, the resource is retrieved from disk cache which was saved in step a. There is a roundtrip for revalidation that consumes 258B of bandwidth.



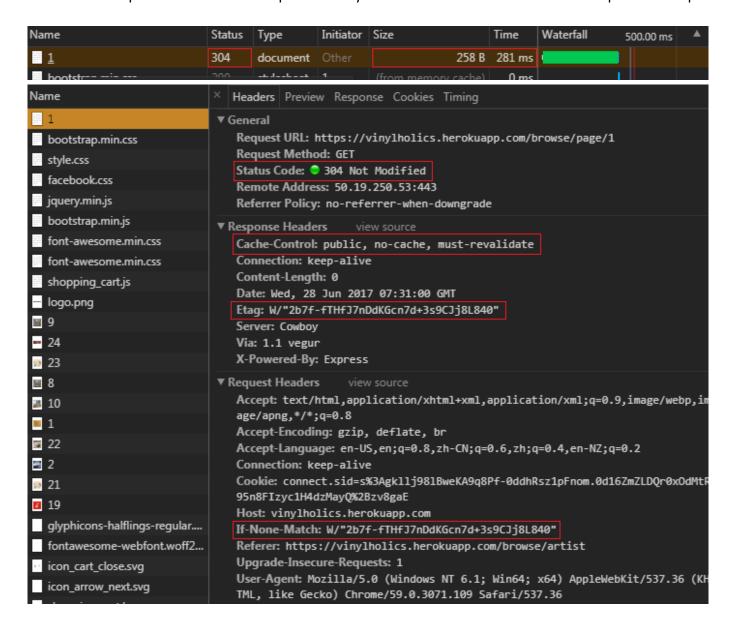
c) Log in to change the page content, then reload of https://vinylholics.herokuapp.com/browse/page/1

The browser tried to re-validate cached resource, but the server replied that the content has changed (ETag was different). Therefore, the new content was freshly retrieved from server.



#### d) Reload of https://vinylholics.herokuapp.com/browse/page/1

This process is similar to step b. The only difference is that the cache in this step is from step c.

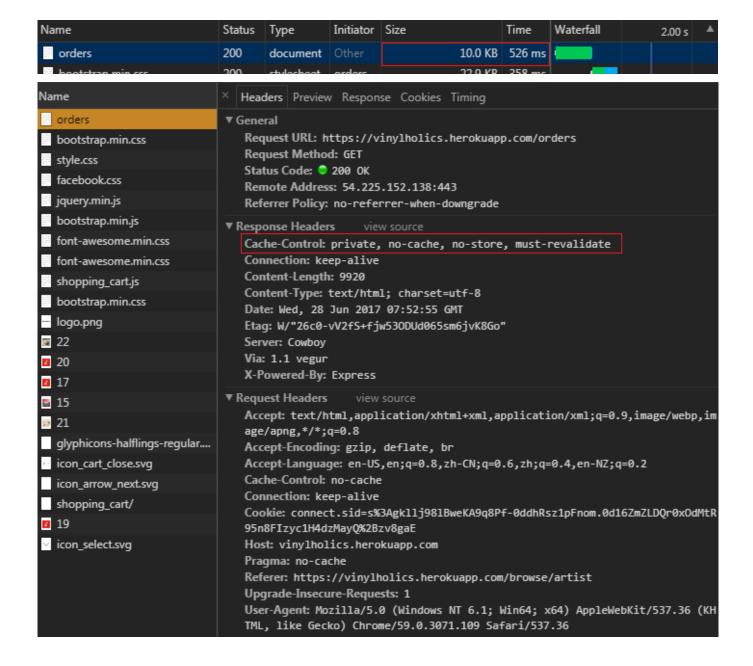


### 4. Private content

- Orders page, checkout page, user information
- No cache, no store, private, stale resource not allowed
- Header example:

Cache-Control: private, no-cache, no-store, must-revalidate

- Expected result:
  - ✓ status 200
  - ✓ always from server
  - √ have Cache-Control: private, no-cache, no-store, must-revalidate
- Test result (screenshot):
  - a) First load of https://vinylholics.herokuapp.com/orders (user logged in)



b) Reload of https://vinylholics.herokuapp.com/orders (user logged in)
The browser cannot cache this resource due to no-cache, no-store. The content has to be fresh

Name	Status	Туре	Initiator	Size	Time	Waterfall	500.00 ms	•
orders	200	document	Other	10.0 KB	265 ms			
bootstrap.min.css	200	stylesheet	<u>orders</u>	(from disk cache)	2 ms	1		
style.css	200	stylesheet	<u>orders</u>	(from disk cache)	1 ms			

every time.

