



Caching Header	Validation Header
<div> <div> <div>expires</div> <div>pragma</div> </div> <div> <div>Cache-control</div> </div> </div> <div> <div>HTTP 1.0</div> <div>HTTP 1.1</div> </div>	<div> <div>etag / If-None-Match</div> <div>Last-Modified /</div> <div>If-Modified-Since</div> </div>

Cache-control values

private → Content can be cached on client

public → Content can be cached on public proxy cache & can be shared among users.

no-store → Content is not cached & always get fresh copy from origin server

no-cache → Content can be cached but client must validate before using

max-age → depend in seconds (TTL)

must-revalidate → Force the browser to validate the stale content. Sometimes, if server is not reachable, browser serve the stale content, this value prevent the behaviour

Example

cache-control: max-age=3600,
s-max-age=600,
public,
must-revalidate

⇒ private cache TTL = 3600sec (1hr) client cache

public cache TTL = 600sec (10mins) proxy cache

can be cached in public cache

cannot serve stale cached content.

Validation Header.

ETag → is a arbitrary value generated by the server
There is no restriction on how the value of etag must be generated. (Hash, version)

If-None-Match → used by client to validate the resource from origin server using etag.

Example

if the etag for index.html resource is 33a64df5

Http Response from Origin Server

```
Content-Type: text/html
Content-Length: 1024
Date: Tue, 22 Feb 2024 22:22:22 GMT
ETag: "33a64df5"
Cache-control: max-age=3600
```

once the resource is stale client will send a validation request

```
GET /index.html
Host: example.com
Accept: text/html
If-None-Match: "33a64df5"
```

The server will return **304 Not Modified** if resource still has same etag or **200 OK** along with updated resource & new Etag

Last-Modified / If-Modified-Since

- Server send the last modified info along with other cache-control info.
- Client use this info in If-Modified-Since validation header to validate resource
- Server can respond to validation request with **304 Not Modified** or **200 OK** along with update Resource

If both ETag & Last-modified validation

header are present the client will us

If-None-Match & If-Modified-Since

both to validate the resource