ASSET FINGERPRINTING & CACHE BUSTING WITH PHP

THE PROBLEM

- We want to serve assets as fast as possible
- “assets” are static resources (e.g. images, JS, CSS...)
- fastest way? => load it from local browser cache
- make it cacheable! => far-future expires header
- but what if the asset changes?

WHAT THEY DID IN RAILS 2

- We need a way to “bust the cache” when a file changes
- Rails view helpers:

  `<%= image_tag("rails.png") %>` in template generates this:

  `<img src="/images/rails.png?1230601161" ...>` in HTML

- = add a query-string with timestamp of file modification time

NOT GOOD ENOUGH

- Not fully cacheable by older proxies
- possibly different mtime on servers in clusters
- different mtime on every deploy => downloaded again
- there is a better way ...

THE RAILS 3 WAY

- use a unique id or “fingerprint” in the file name
- should only change when file itself changes
- create it based on MD5 of file content, e.g.

  ```
  application-4dd5b109ee3439da54f5bdfd78a80473.css
  ```

- now let’s re-create this in PHP! :)

PHP SOLUTION, PART I

- we don’t really want to change the file name every time
- let’s use a little mod_rewrite magic!

```
#in .htaccess file
<IfModule mod_rewrite.c>
  RewriteCond %{REQUEST_FILENAME} !-f
  RewriteCond %{REQUEST_FILENAME} !-d
  RewriteRule ^(.+)-[0-9a-z]{32}(.*)$ $1$2 [L]
</IfModule>
```

PHP SOLUTION, PART II

- use own view helper:

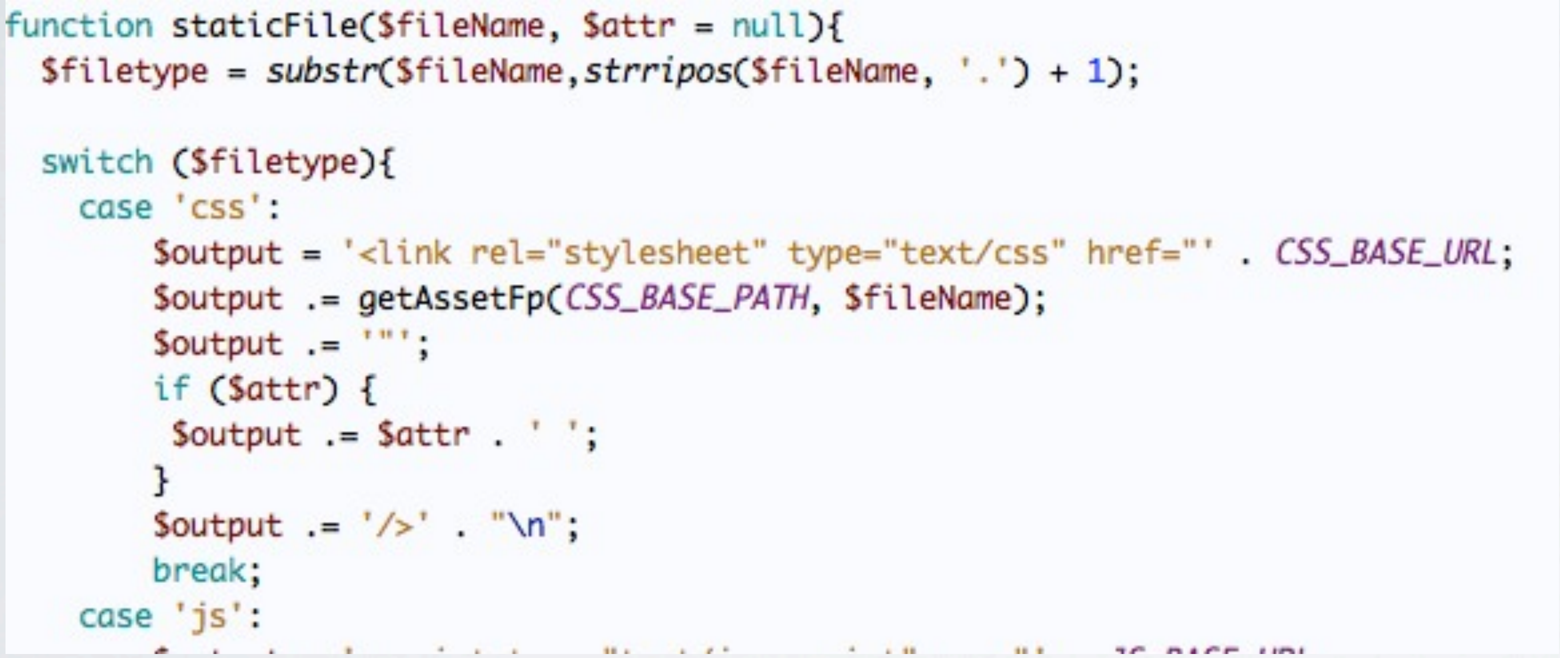
```
//in template:
<?php require_once('static_file.php'); ?>
  ...
<?php echo staticFile('style.css'); ?>
```

- and in helper:

```
...
md5_file($basePath . $fileName)
...
```

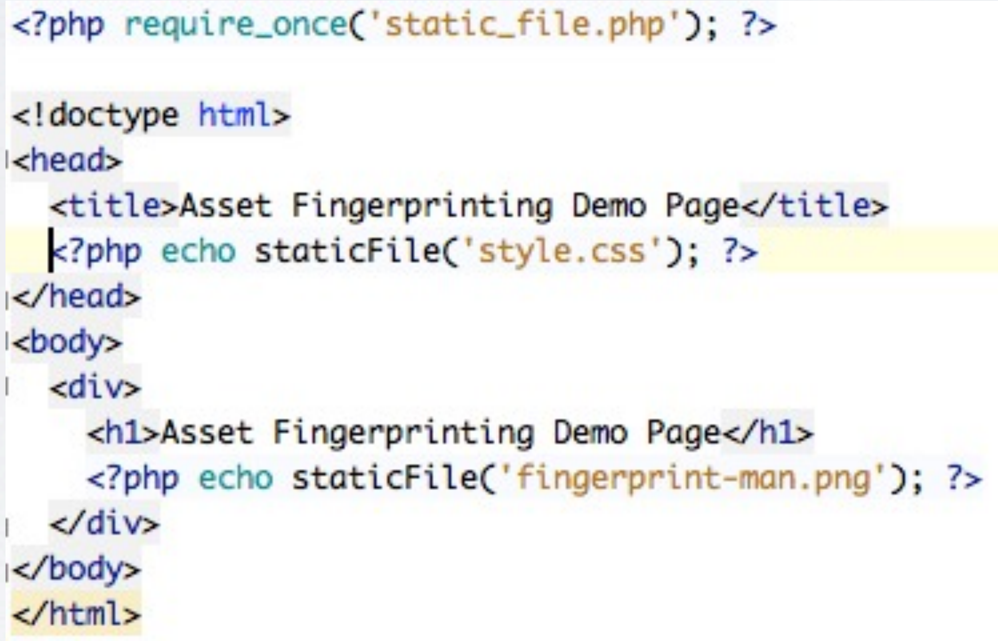
JUST A LITTLE MORE CODE...

see: https://github.com/michaelkrenz/asset-fingerprinting-php-demo



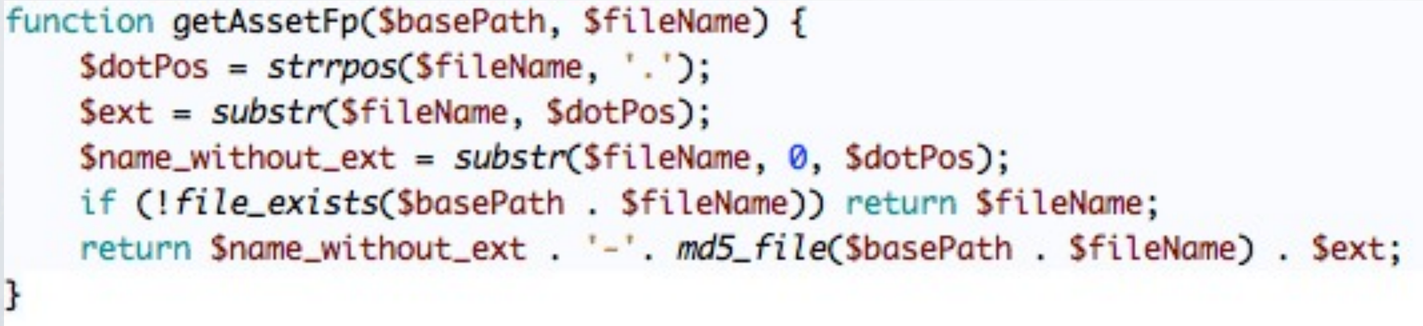
```php
function staticFile($fileName, $attr = null){
  $filetype = substr($fileName,strripos($fileName, '.') + 1);

  switch ($filetype){
    case 'css':
        $output = '<link rel="stylesheet" type="text/css" href="' . CSS_BASE_URL;
        $output .= getAssetFp(CSS_BASE_PATH, $fileName);
        $output .= '"';
        if ($attr) {
         $output .= $attr . ' ';
        }
        $output .= '/>' . "\n";
        break;
    case 'js':
```



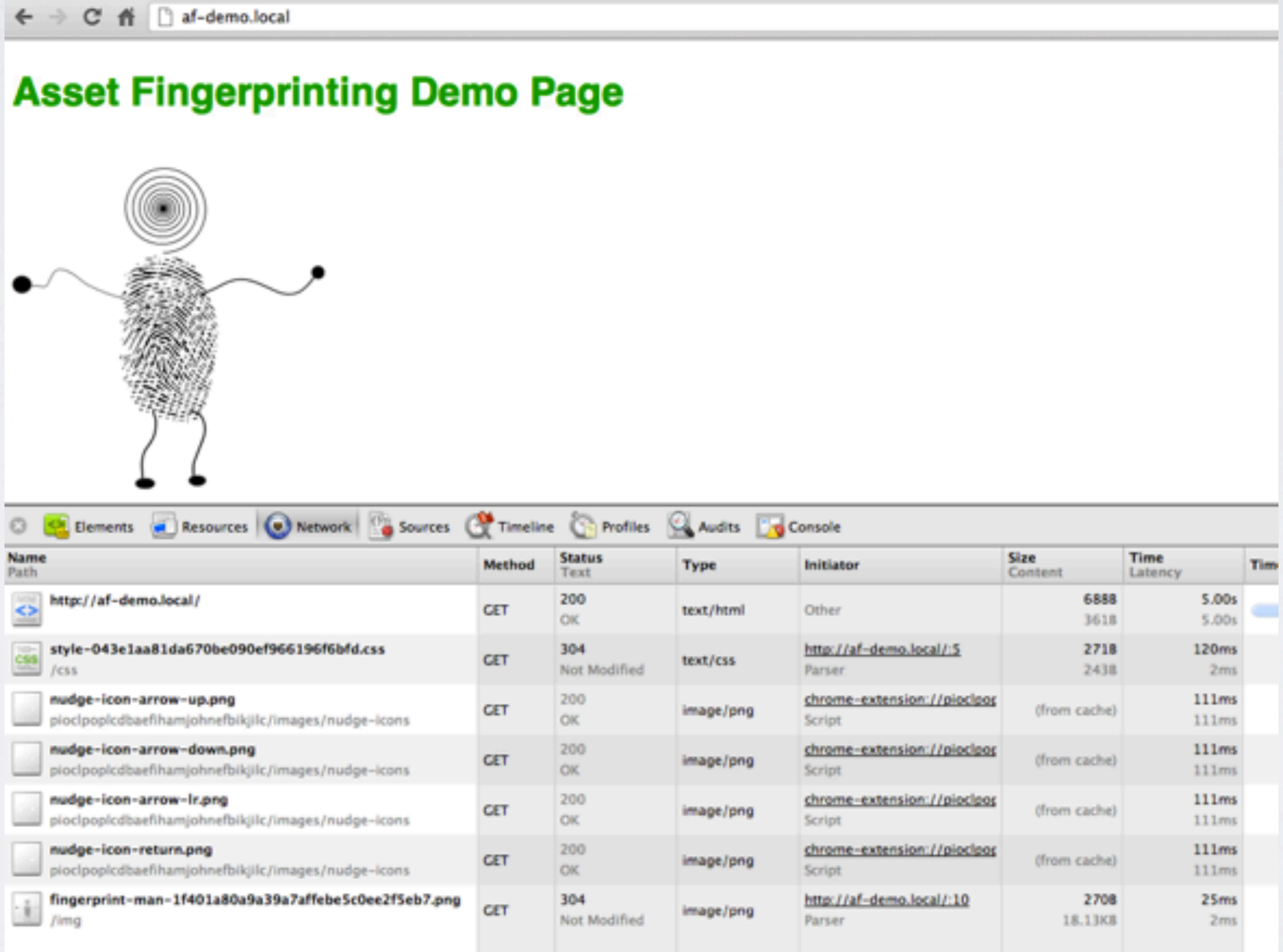
```php
<?php require_once('static_file.php'); ?>

<!doctype html>
<head>
  <title>Asset Fingerprinting Demo Page</title>
  <?php echo staticFile('style.css'); ?>
</head>
<body>
  <div>
    <h1>Asset Fingerprinting Demo Page</h1>
    <?php echo staticFile('fingerprint-man.png'); ?>
  </div>
</body>
</html>
```



```php
function getAssetFp($basePath, $fileName) {
    $dotPos = strrpos($fileName, '.');
    $ext = substr($fileName, $dotPos);
    $name_without_ext = substr($fileName, 0, $dotPos);
    if (!file_exists($basePath . $fileName)) return $fileName;
    return $name_without_ext . '-'. md5_file($basePath . $fileName) . $ext;
}
```

DEMO TIME!

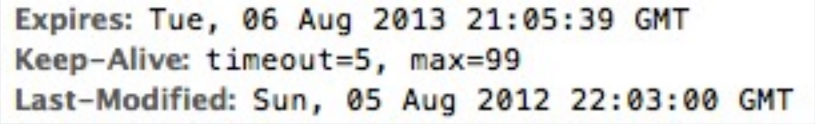


Asset Fingerprinting Demo Page

Name Path	Method	Status Text	Type	Initiator	Size Content	Time Latency	Tim
http://af-demo.local/	GET	200 OK	text/html	Other	6888 3618	5.00s 5.00s	
style-043e1aa81da670be090ef966196f6bfd.css /css	GET	304 Not Modified	text/css	http://af-demo.local/:5 Parser	2718 2438	120ms 2ms	
nudge-icon-arrow-up.png pioclpoplcdbaefihamjohnefbikjilc/images/nudge-icons	GET	200 OK	image/png	chrome-extension://pioclpoç Script	(from cache)	111ms 111ms	
nudge-icon-arrow-down.png pioclpoplcdbaefihamjohnefbikjilc/images/nudge-icons	GET	200 OK	image/png	chrome-extension://pioclpoç Script	(from cache)	111ms 111ms	
nudge-icon-arrow-lr.png pioclpoplcdbaefihamjohnefbikjilc/images/nudge-icons	GET	200 OK	image/png	chrome-extension://pioclpoç Script	(from cache)	111ms 111ms	
nudge-icon-return.png pioclpoplcdbaefihamjohnefbikjilc/images/nudge-icons	GET	200 OK	image/png	chrome-extension://pioclpoç Script	(from cache)	111ms 111ms	
fingerprint-man-1f401a80a9a39a7affebe5c0ee2f5eb7.png /img	GET	304 Not Modified	image/png	http://af-demo.local/:10 Parser	2708 18.13KB	25ms 2ms	

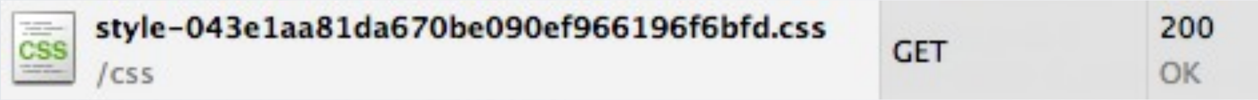
TEST IT IN YOUR BROWSER

assets have far-future expires header



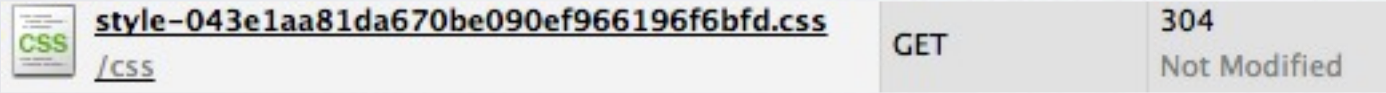
```
Expires: Tue, 06 Aug 2013 21:05:39 GMT
Keep-Alive: timeout=5, max=99
Last-Modified: Sun, 05 Aug 2012 22:03:00 GMT
```

first load:



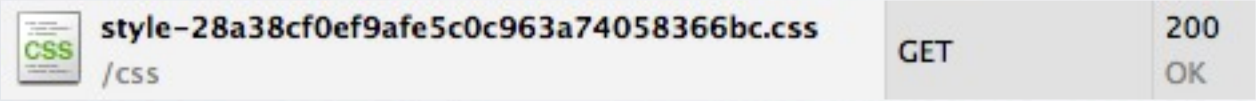
style-043e1aa81da670be090ef966196f6bfd.css /css	GET	200 OK

subsequent loads:



style-043e1aa81da670be090ef966196f6bfd.css /css	GET	304 Not Modified

now let’s change some styles:



style-28a38cf0ef9afe5c0c963a74058366bc.css /css	GET	200 OK

TIPS FOR PRODUCTION USE

- cache fingerprints for request duration or a few seconds
- serve assets from Nginx, use Apache behind it only for PHP
- serve assets from a different, cookie-less sub-domain
- put rewrite rules in Apache config, not .htaccess
- use a CDN to reduce server load and improve delivery
- don’t use ETags

BACKGROUND INFO

- http://sleeplessgeek.blogspot.de/2010/03/rails-caching-and-cache-busting-in-php.html
- http://sleeplessgeek.blogspot.de/2010/03/cache-busting-in-php-part-2.html
- http://www.stevesouders.com/blog/2008/08/23/revving-filenames-dont-use-querystring/
- http://guides.rubyonrails.org/asset_pipeline.html
- http://html5boilerplate.com/docs/cachebusting/
- https://github.com/eliotsykes/asset_fingerprint
- http://developer.yahoo.com/performance/rules.html#etags

Q&A TIME

Thank you!

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