

WEB PERFORMANCE OPTIMIERUNG (WPO) AM BEISPIEL EINES OXID-SHOPS

AUSGANGSLAGE

- Ubuntu 16 mit 4.4.0 Kernel
- PHP 7.1(.19) als CGI/FPM
- 256M memory_limit
- MySQL 5.7.21
- HTTP2 (TLS + LetsEncrypt)
- Apache 2.4
- managed Hosting (All-Inkl Premium)
- OXID 6.1.0 (composer-project)
- kein CDN

ZIEL

- unter 1s
- unter 1MB
- sehr gute Scores

21 requests | 2.5 MB transferred | Finish: 5.19 s | DOMContentLoaded: 1.35 s | Load: 5.15 s

21 requests | 10.1 KB transferred | Finish: 708 ms | DOMContentLoaded: 789 ms | Load: 864 ms

7 / 21 requests | 2.2 MB / 2.5 MB transferred | Finish: 5.19 s | DOMContentLoaded: 1.35 s | Load: 5.15 s

<https://oxid-demo.daniel-ruf.de/>

Sep 22, 2018, 10:18 PM GMT+2

No emulation, No throttling applied



Performance



Progressive Web App



Accessibility



Best Practices



SEO

Score scale: ● 0-49 ● 50-89 ● 90-100

Performance



Metrics



First Contentful Paint

1.0 s

First Meaningful Paint

1.3 s

Speed Index

4.4 s

First CPU Idle

1.4 s

Time to Interactive

1.4 s

Estimated Input Latency

20 ms

<https://oxid-demo.daniel-ruf.de/>

Sep 22, 2018, 9:28 PM GMT+2

Emulated Nexus 5X, Simulated Fast 3G network



Performance



Progressive Web App



Accessibility



Best Practices



SEO

Score scale: ● 0-44 ● 45-74 ● 75-100

Performance

Metrics

First Contentful Paint

2.3 s

First Meaningful Paint

2.3 s

Speed Index

7.3 s

First CPU Idle

3.9 s

Time to Interactive

9.4 s

Estimated Input Latency

10 ms

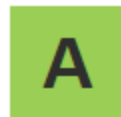


Web Page Performance Test for

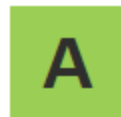
<https://oxid-demo.daniel-ruf.de/>

From: Frankfurt, Germany - EC2 - Chrome - Cable
22.9.2018, 22:23:22

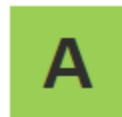
[Need help improving?](#)



First Byte
Time



Keep-alive
Enabled



Compress
Transfer



Compress
Images



Cache
static
content



Effective
use of CDN

[Summary](#)

[Details](#)

[Performance Review](#)

[Content Breakdown](#)

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[Processing Breakdown](#)

[Screen Shot](#)

[Image Analysis](#)

[Request Map](#)

Tester: i-06ca5cddd891c5edc

First View only

Test runs: 3

[Export HTTP Archive \(.har\)](#)

[Custom Metrics](#)

	Load Time	First Byte	Start Render	Visually Complete	<u>Speed Index</u>	<u>First Interactive (beta)</u>	Result (error code)	Document Complete			Fully Loaded		
								Time	Requests	Bytes In	Time	Requests	Bytes In
First View (Run 1)	4.906s	0.334s	0.700s	5.500s	4023	0.840s	0	4.906s	20	2,582 KB	5.526s	31	2,652 KB

<u>First Interactive (beta)</u>	Colordepth	RUM First Paint	<u>domInteractive</u>	<u>domContentLoaded</u>	<u>loadEvent</u>
0.840s	24	0.731s	0.820s	0.820s - 0.840s (0.020s)	4.906s - 4.939s (0.033s)

BILDER

- responsive Bilder (picture-Tags + picturefill)
- lazyloading
- Kompression (+ webp)
- progressive

Picture element 📄 - LS

Usage % of all users
Global 88.08%

A responsive images method to control which image resource a user agent presents to a user, based on resolution, media query and/or support for a particular image format

Current aligned	Usage relative	Date relative	Show all	?							
IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Blackberry Browser	Opera Mobile *	Chrome for Android
			49								
			63								
			67			10.3					
		61	68	11.1	54	11.2		4.4			
11	17	62	69	12	55	11.4	all	67	10	46	69
	18	63	70	TP		12					
		64	71								
			72								

<https://caniuse.com/#feat=picture>



Responsive Image
Breakpoints Generator v2.0

<https://www.responsivebreakpoints.com/>

KOMPRESSION

- Photoshop
- imageoptim
- PNGGauntlet
- Caesium
- imagemin
- sharp
- ...

WebP image format 📄 - UNOFF

Usage

% of all users

Global

72.69% + 0.26% = 72.95%

Image format that supports lossy and lossless compression, as well as animation and alpha transparency.

Current aligned

Usage relative

Date relative

Show all

?

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Blackberry Browser	Opera Mobile *	Chrome for Android
			49								
			63								
			67								
		61	68	11.1		11.2		4.4.4			
11	17	62	69	12	55	11.4	all	67	10	46	69
	18	63	70	TP		12					
		64	71								
			72								

<https://caniuse.com/#feat=webp>

<https://developers.google.com/speed/webp/download>

<https://developers.google.com/speed/webp/docs/precompiled>

```
cwebp -q 80 -o output_file.webp input_file
```


libjpeg

<https://libjpeg-turbo.org/Documentation/OfficialBinaries>

```
jpegtran -copy none -optimize -progressive -outfile $outfile $infile
```

```
<picture>
```

```
  <source type="image/webp" sizes="(max-width: 1170px) 100vw, 1170px" srcset=  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_
```

```
  <source sizes="(max-width: 1170px) 100vw, 1170px" srcset="  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_  
    https://oxid.daniel-ruf.de/out/pictures/promo/surfer_wave_1__promo_
```

IMAGE SERVICES

- WURFL (Wireless Universal Resource FiLe).
- Cloudinary.
- imgix
- Sirv
- piio
- Thumbor
- flyimg

Brotli für weitere Dateien (css, js, svg)

Brotli Accept-Encoding/Content-Encoding - OTHER

Usage
Global % of all users 84.37%

More effective lossless compression algorithm than gzip and deflate.

Current aligned Usage relative Date relative Show all ?

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Blackberry Browser	Opera Mobile *	Chrome for Android
			49								
			63								
			67			10.3					
		61	68	11.1	54	11.2		4.4			
11	17	62	69	12	55	11.4	all	67	10	46	69
	18	63	70	TP		12					
		64	71								
			72								

<https://caniuse.com/#feat=brothli>

Agreed, executables for Windows (32/64 bit) would be a great start.



eustas (Eugene Kliuchnikov) on 14 Sep 2017 <>

Contributor



After [#596](#) windows binaries will be accessible as build artifacts.



eustas (Eugene Kliuchnikov) on 19 Sep 2017 <>

Contributor



Latest build could be taken from here: bintray.com/eustas/brotli/bin/snapshot/view/files?sort=name&order=asc#files
Next release will contain those artifacts as well.



1



eustas (Eugene Kliuchnikov) closed this on 19 Sep 2017

<https://github.com/google/brotli>

[https://bintray.com/eustas/brotli/bin/snapshot/view/files?
sort=name&order=asc#files/](https://bintray.com/eustas/brotli/bin/snapshot/view/files?sort=name&order=asc#files/)


```
brotili -5 -o index.html.br index.html
```

```
<IfModule mod_headers.c>

    RewriteCond %{HTTP:Accept-Encoding} br
    RewriteCond %{REQUEST_FILENAME}\.br -f
    RewriteRule \.(css|ics|js|json|html|svg)$ %{REQUEST_URI}.br [L]

    # Prevent mod_deflate double gzip
    RewriteRule \.br$ - [E=no-gzip:1]

<FilesMatch "\.br$">

    <IfModule mod_mime.c>
        # Serve correct content types
        AddType text/css css.br
        AddType text/calendar ics.br
```

<https://github.com/powturbo/TurboBench>

<https://sites.google.com/site/powturbo/compression-benchmark>

CACHING

HTML5 Boilerplate .htaccess

CACHING (AUSZUG)

```
<IfModule mod_expires.c>

    ExpiresActive on
    ExpiresDefault "access plus 1 month"

    # CSS

    ExpiresByType text/css "access plus 1 year"

    # HTML

    ExpiresByType text/html "access plus 0 seconds"

    # JavaScript
```

SCHRIFTEN

self hosted!

<https://google-webfonts-helper.herokuapp.com/fonts>

<https://github.com/majodev/google-webfonts-helper>

<https://www.npmjs.com/package/google-webfonts-downloader>

3. Copy CSS: (default is **Best Support**)

Best Support

Modern Browsers

Choose **Modern Browsers** if supporting old browsers is not relevant. Formats in this snippet: **[woff,woff2]**

```
/* roboto-regular - latin */
@font-face {
  font-family: 'Roboto';
  font-style: normal;
  font-weight: 400;
  src: local('Roboto'), local('Roboto-Regular'),
       url('../fonts/roboto-v18-latin-regular.woff2') format('woff2'), /* Chrome 26+, Opera 23+, Firefox 39+ */
       url('../fonts/roboto-v18-latin-regular.woff') format('woff'); /* Chrome 6+, Firefox 3.6+, IE 9+ */
}
```

Customize folder prefix (optional):

Click on code to select all statements, then copy/paste it into your own CSS file.

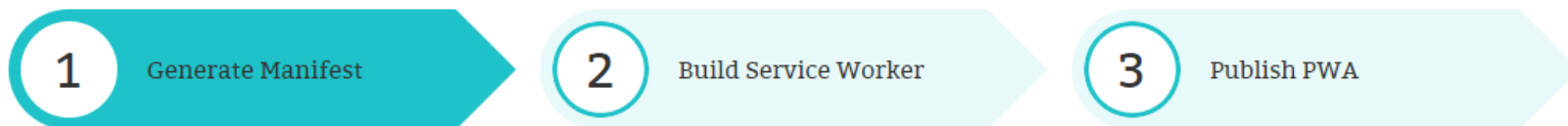
- modern browsers
- local raus
- nur benötigte Charsets

offline first (PWA)

[PWA Builder](#)[Documentation](#)[PWA Image Generator](#)[Windows APIs](#)[Github](#)

Generate your Progressive Web App

PWA.tools takes data from your site and uses that to generate cross-platform Progressive Web Apps



Provide a URL

Provide your URL and we'll help fill in the gaps if there are any.

URL

Service Workers 📄 - WD

Usage
Global

% of all users

84.43% + 0.2% = 84.63%

Method that enables applications to take advantage of persistent background processing, including hooks to enable bootstrapping of web applications while offline.

Current aligned	Usage relative	Date relative	Show all	?							
IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Blackberry Browser	Opera Mobile *	Chrome for Android
			49								
			63								
			67			10.3					
		61	68	11.1	54	11.2		4.4			
11	17	62	69	12	55	11.4	all	67	10	46	69
	18	63	70	TP		12					
		64	71								
			72								

<https://caniuse.com/#feat=serviceworkers>

Web App Manifest 📄 - WD

Usage

% of all users

Global

49.95% + 27.8% = 77.75%

The web app manifest provides information about an application (such as name, author, icon, and description) in a JSON file, which browsers can use to give richer offline experiences.

Current aligned Usage relative Date relative Show all ?

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Blackberry Browser	Opera Mobile *	Chrome for Android
			1 49								
			1 63								
			1 67			10.3					
		61	1 68	11.1	54	11.2		4.4			
11	17	62	1 69	12	55	11.4	all	67	10	46	69
	18	63	1 70	TP		12					
		64	1 71								
			1 72								

<https://caniuse.com/#feat=web-app-manifest>

ERGEBNIS

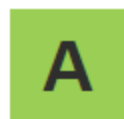
- unter 1s (0,8s - 1,2s Desktop, 1,0s - 2,2s Mobile)
- unter 1MB (~800KB)
- sehr gute Scores
- offline first

Web Page Performance Test for

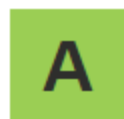
<https://oxid.daniel-ruf.de/>

From: Frankfurt, Germany - EC2 - Chrome - Cable
22.9.2018, 22:20:58

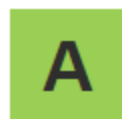
[Need help improving?](#)



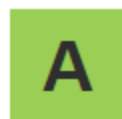
First Byte
Time



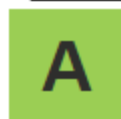
Keep-alive
Enabled



Compress
Transfer



Compress
Images



Cache
static
content



Effective
use of CDN

Summary

Details

Performance Review

Content Breakdown

Domains

Processing Breakdown

Screen Shot

Image Analysis [↗](#)

Request Map [↗](#)

Tester: i-0ce70bcd9116eef7

First View only

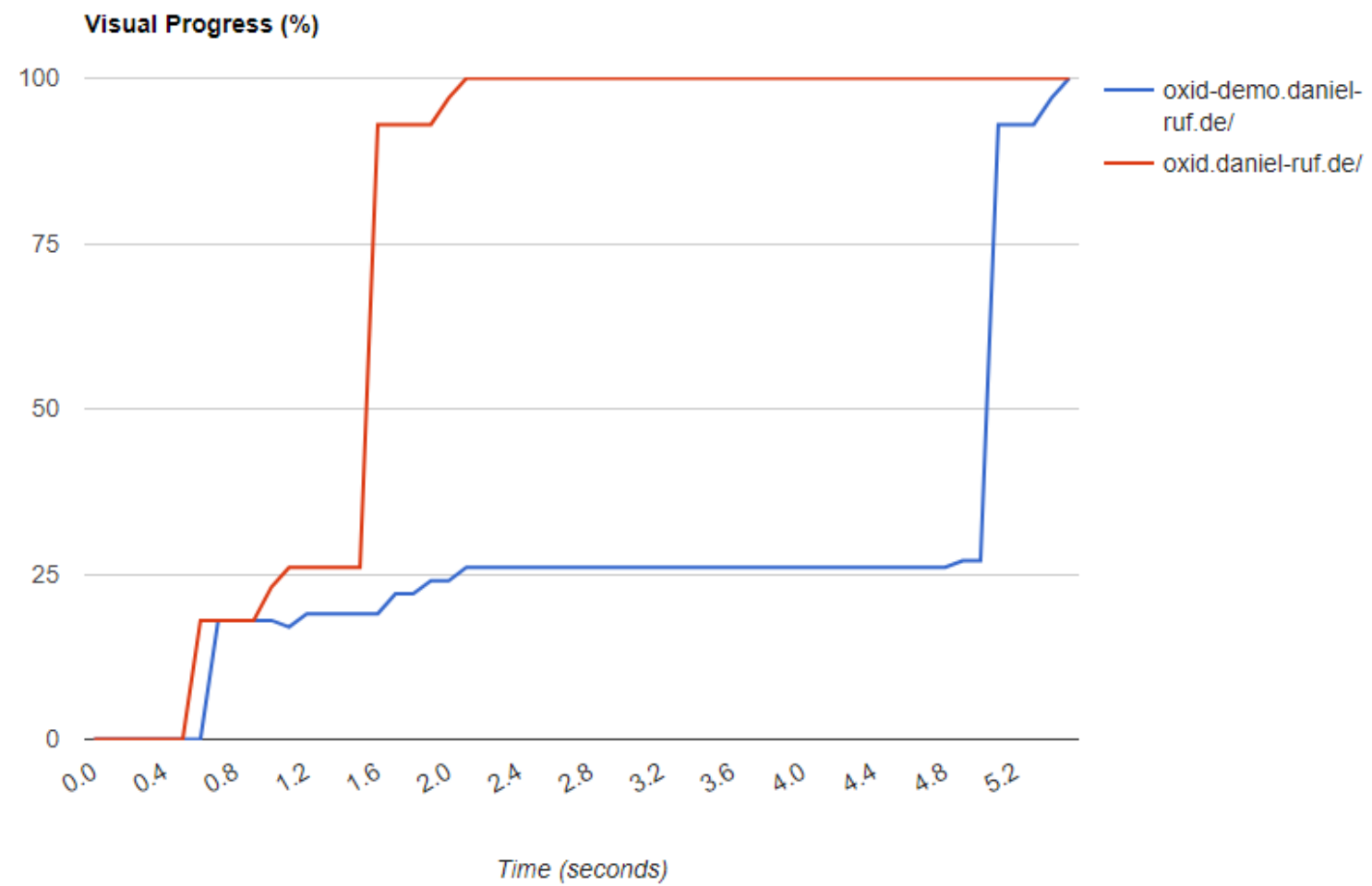
Test runs: 3

[Export HTTP Archive \(.har\)](#)

[Custom Metrics](#)

	Load Time	First Byte	Start Render	Visually Complete	<u>Speed Index</u>	<u>First Interactive (beta)</u>	Result (error code)	Document Complete			Fully Loaded		
								Time	Requests	Bytes In	Time	Requests	Bytes In
First View (<u>Run 1</u>)	1.454s	0.394s	0.600s	2.100s	1406	> 0.663s	0	1.454s	23	578 KB	2.352s	38	679 KB

<u>First Interactive (beta)</u>	Colordepth	RUM First Paint	<u>domInteractive</u>	<u>domContentLoaded</u>	<u>loadEvent</u>
> 0.663s	24	0.664s	0.827s	0.827s - 0.849s (0.022s)	1.455s - 1.481s (0.026s)



31 requests | 895 KB transferred | Finish: 6.96 s | DOMContentLoaded: 2.19 s | Load: 4.57 s

30 requests | 128 B transferred | Finish: 1.66 s | DOMContentLoaded: 607 ms | Load: 655 ms

<https://oxid.daniel-ruf.de/>

Sep 22, 2018, 10:15 PM GMT+2

No emulation, No throttling applied



Performance



Progressive Web App



Accessibility



Best Practices



SEO

Score scale: ● 0-49 ● 50-89 ● 90-100

Performance

Metrics



First Contentful Paint

0.8 s

First Meaningful Paint

1.2 s

Speed Index

1.5 s

First CPU Idle

1.3 s

Time to Interactive

1.3 s

Estimated Input Latency

20 ms

<https://oxid.daniel-ruf.de/>

Sep 22, 2018, 9:51 PM GMT+2

Emulated Nexus 5X, Simulated Fast 3G network



Performance



Progressive Web App



Accessibility



Best Practices



SEO

Score scale: ● 0-44 ● 45-74 ● 75-100

Performance



Metrics



First Contentful Paint

1.0 s ✓

First Meaningful Paint

2.2 s ✓

Speed Index

3.1 s ✓

First CPU Idle

2.2 s ✓

Time to Interactive

2.9 s ✓

Estimated Input Latency

10 ms ✓

HEADLESS ECOMMERCE LÖSUNGEN

- Magento PWA Studio
- Deity
- Vue Storefront
- Shopware Experiments
- ...

VERBESSERUNGSVORSCHLÄGE

- alte Code raus (IE 8 / 9 / 10)
- picture-Tags generieren / unterstützen
- weniger Abhängigkeiten (Fontawesome, jQuery UI, jQuery)
- user-scalable=no raus (a11y verbessern)
- gute Defaults (Caching etc)
- schlankere Slider (Swiper)

LINKS

<https://github.com/DanielRuf/my-slides/>

<https://lighthouse-ci.appspot.com/try>

<https://images.guide/>

<https://developers.google.com/web/fundamentals/performance/wperformance-matters/>

<https://www.smashingmagazine.com/2016/10/next-generation-server-compression-with-brotli/>

<https://github.com/thedaviddias/Front-End-Performance-Checklist/blob/master/README.md>

U E B E R B I T

Vielen Dank für Ihre Aufmerksamkeit.

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