

Improving the speed and performance of your WordPress site



AWESOME
TECH TRAINING

Housekeeping

- All the attendee mics are muted - you can hear us but we cannot hear you
- This session is being recorded - we will send you a link to the recording and a downloadable copy of the slides after the event
- If you have any questions please use the Q&A function to ask them - we'll cover the questions at the end if we have time otherwise we will follow up with you individually





Who we are

Agenda

- Introduction to Awesome Tech Training
- Why is speed important
- Why is WordPress sometimes slow?
- How to measure speed
- What can be done to make things quicker?
 - Caching
 - Images
 - Hosting
- Things that can trip you up
- Next Steps





If anything isn't clear...

- Please ask a question!
- There is no such thing as a stupid question

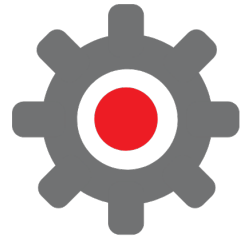




About us

- We're a small business based in Ireland and the UK
- We each worked in sales, marketing and IT for many years before forming Awesome Tech Training
- Our focus is on using our own experience to help small businesses take control of their own web presence
- Digital marketing / WordPress advice and support
 - Book sessions by the hour - [contact us](#) to talk about how we can help you
- [Other webinars](#)
- Discounted sessions and special offers for webinar attendees - details at the end of the webinar





**Why is speed
important?**



These users found what they wanted quickly
That makes both them and Google happy





Slow results after clicking a search result or an advert makes users sad ☹️

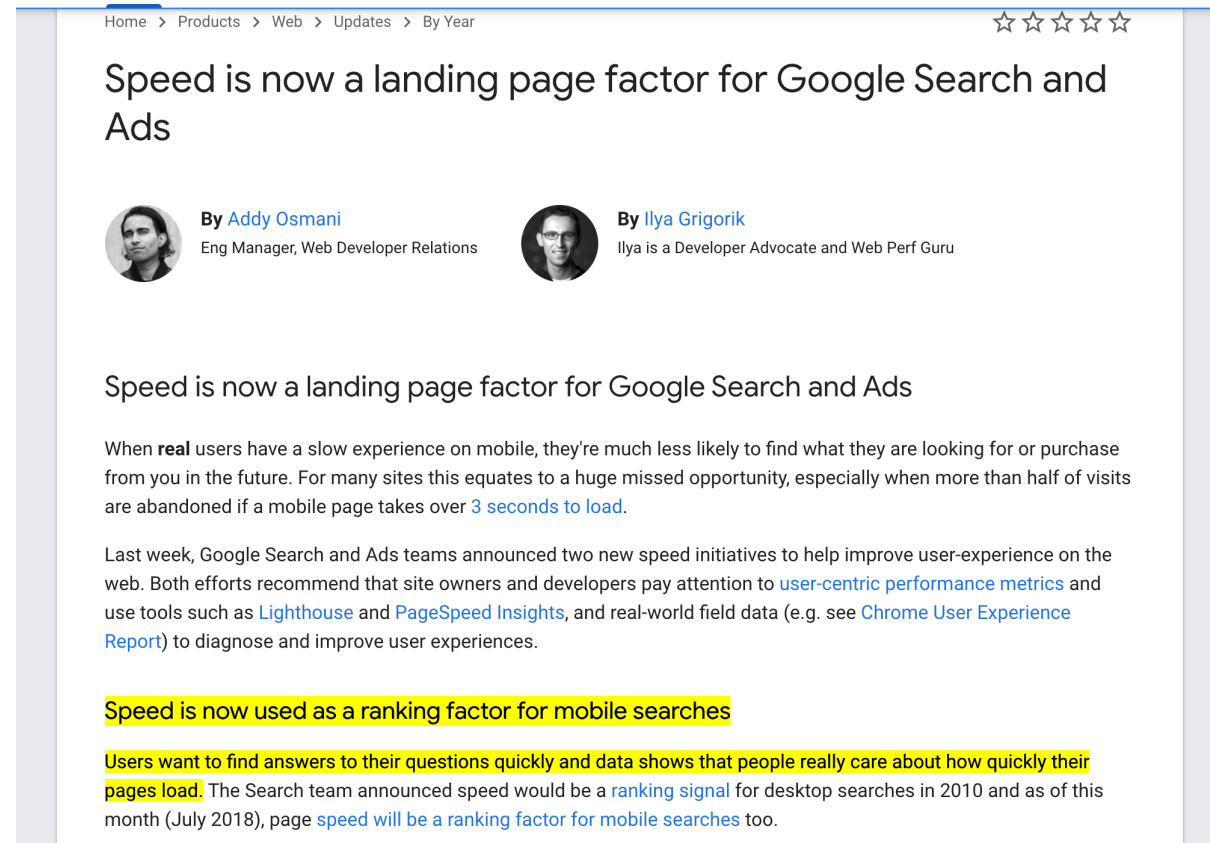
And sad users make Google sad

So Google will PUNISH you



Why is speed important?

- Since July 2018 speed has been a ranking factor both for search and for deciding what ads to show
- Google will penalise your site (and your business) if your site is slow. It will show other, faster sites before yours
- In a nutshell - if you want your site to be found on Google then it needs to run quickly



The screenshot shows a blog post with the following content:

Home > Products > Web > Updates > By Year ☆☆☆☆☆

Speed is now a landing page factor for Google Search and Ads

By **Addy Osmani**
Eng Manager, Web Developer Relations

By **Ilya Grigorik**
Ilya is a Developer Advocate and Web Perf Guru

Speed is now a landing page factor for Google Search and Ads

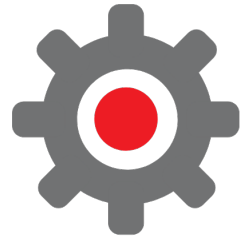
When **real** users have a slow experience on mobile, they're much less likely to find what they are looking for or purchase from you in the future. For many sites this equates to a huge missed opportunity, especially when more than half of visits are abandoned if a mobile page takes over **3 seconds to load**.

Last week, Google Search and Ads teams announced two new speed initiatives to help improve user-experience on the web. Both efforts recommend that site owners and developers pay attention to **user-centric performance metrics** and use tools such as **Lighthouse** and **PageSpeed Insights**, and real-world field data (e.g. see **Chrome User Experience Report**) to diagnose and improve user experiences.

Speed is now used as a ranking factor for mobile searches

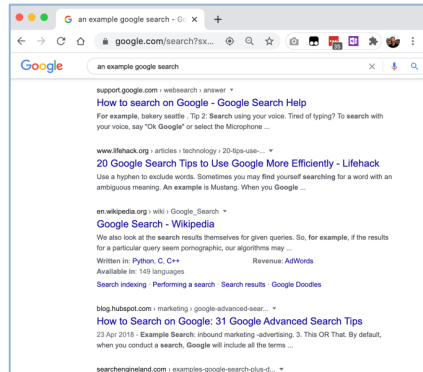
Users want to find answers to their questions quickly and data shows that people really care about how quickly their pages load. The Search team announced speed would be a **ranking signal** for desktop searches in 2010 and as of this month (July 2018), page **speed will be a ranking factor for mobile searches** too.



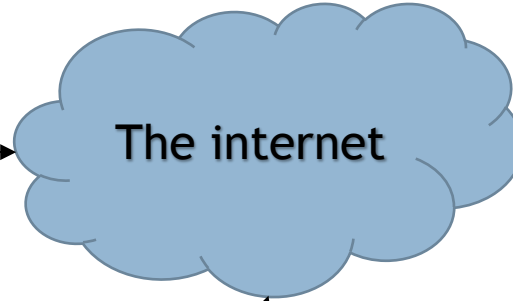


Why is WordPress sometimes slow?

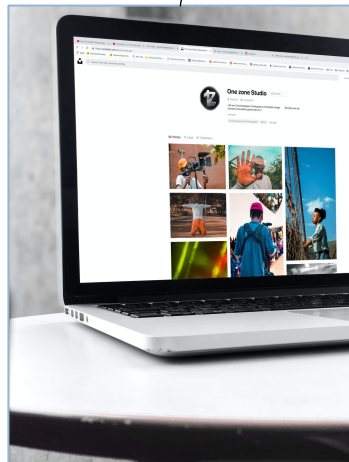
Steps to create a page



DNS and web requests

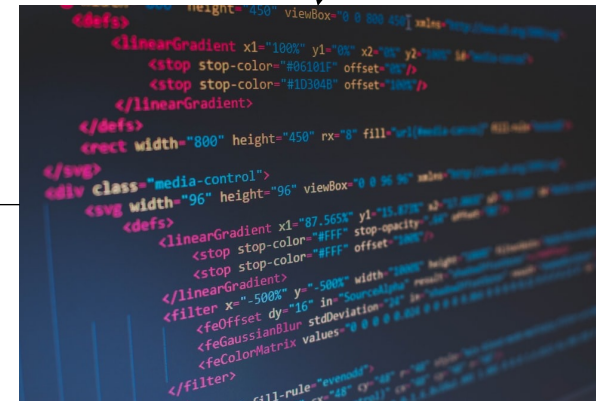


DNS and web requests



Webpage and assets sent over network:

- HTML
- CSS
- Javascript
- Images



Page building speed factors:

- Hosting
- PHP code
- Plugins
- Third party calls



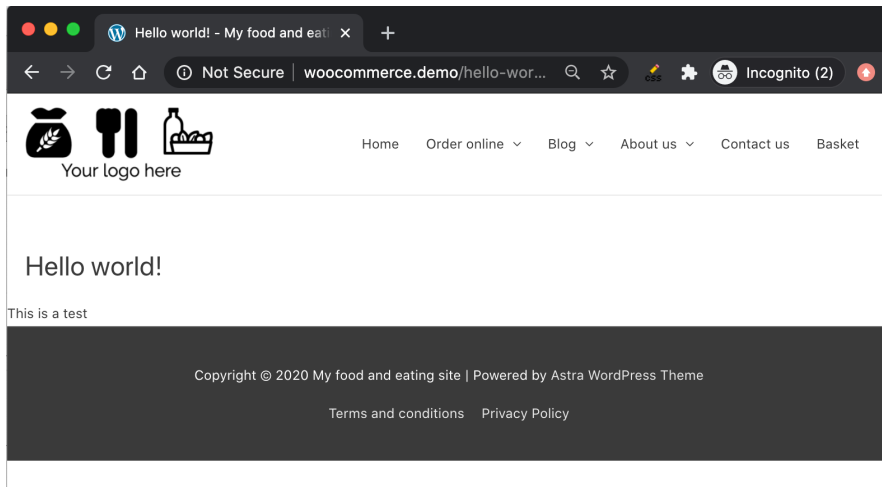
Where are the bottlenecks?

- When we're improving page speed, we have to consider what can slow it down. There are four main areas:
 - Sending the queries (the DNS)
 - Building the page
 - Sending the page elements back to the browser
 - Rendering the page in the browser, running JavaScript and handling any other network activity



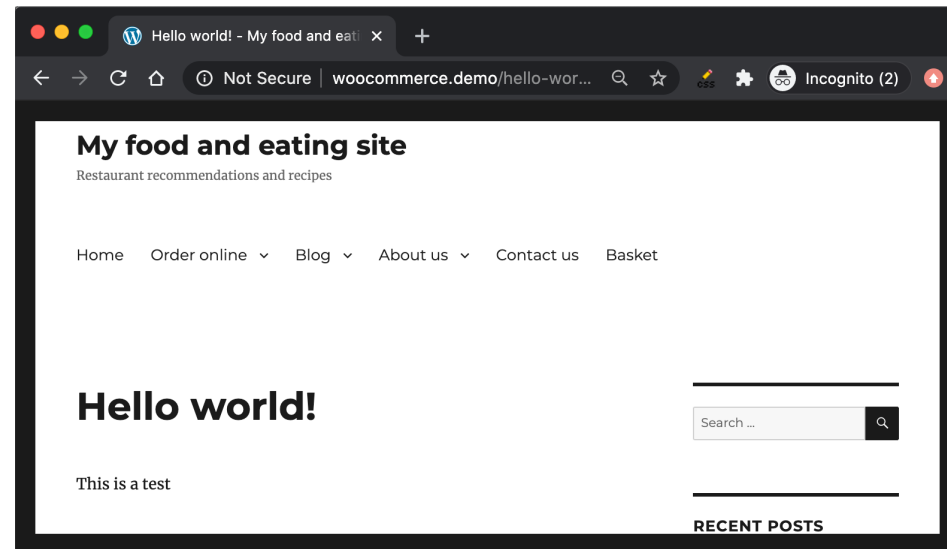
Hello world, TTFB comparison

Astra theme



TTFB approx 0.15
seconds

Twenty Sixteen theme



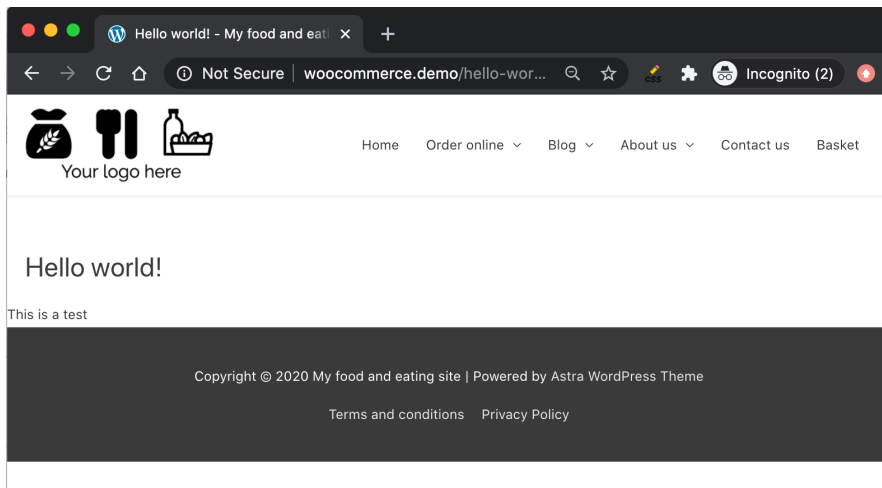
TTFB approx 0.10 seconds
Less work, 33% faster

TTFB = Time to first byte, gives us a feel for how much work the server has to do to build the page



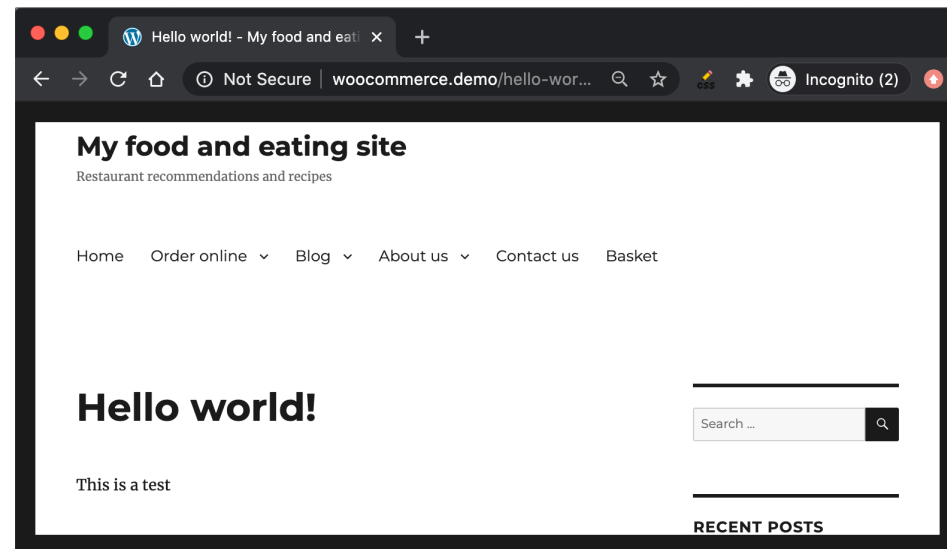
Hello world, browser comparison

Latest Astra theme



24 resources.
Load time approx
0.35 seconds

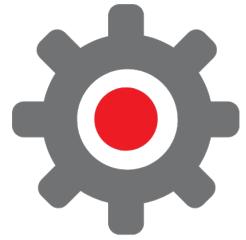
Twenty Sixteen theme



29 resources.
Load time approx
0.43 seconds

Astra is FASTER - turns out Twenty Sixteen was downloading a font from google which slowed it down, and Astra used fewer resources to make the page.





How to measure page speed

What are we measuring and what tools are there?

- Our testing of Time To First Byte (TTFB) and browser loading give us a rough idea how fast our site is
- It doesn't tell us what we can do to make things quicker
- There are tools on the web which will report on page speed and how it can be improved
- Popular browsers like Chrome, Firefox and Edge include developer tools which give us even more information



What are we measuring and what tools are there?

- Google Page Speed Insights
- Chrome Lighthouse
- GTMetrix
- There are other tools, Y-slow (which is listed in GTMetrix, old yahoo tool)



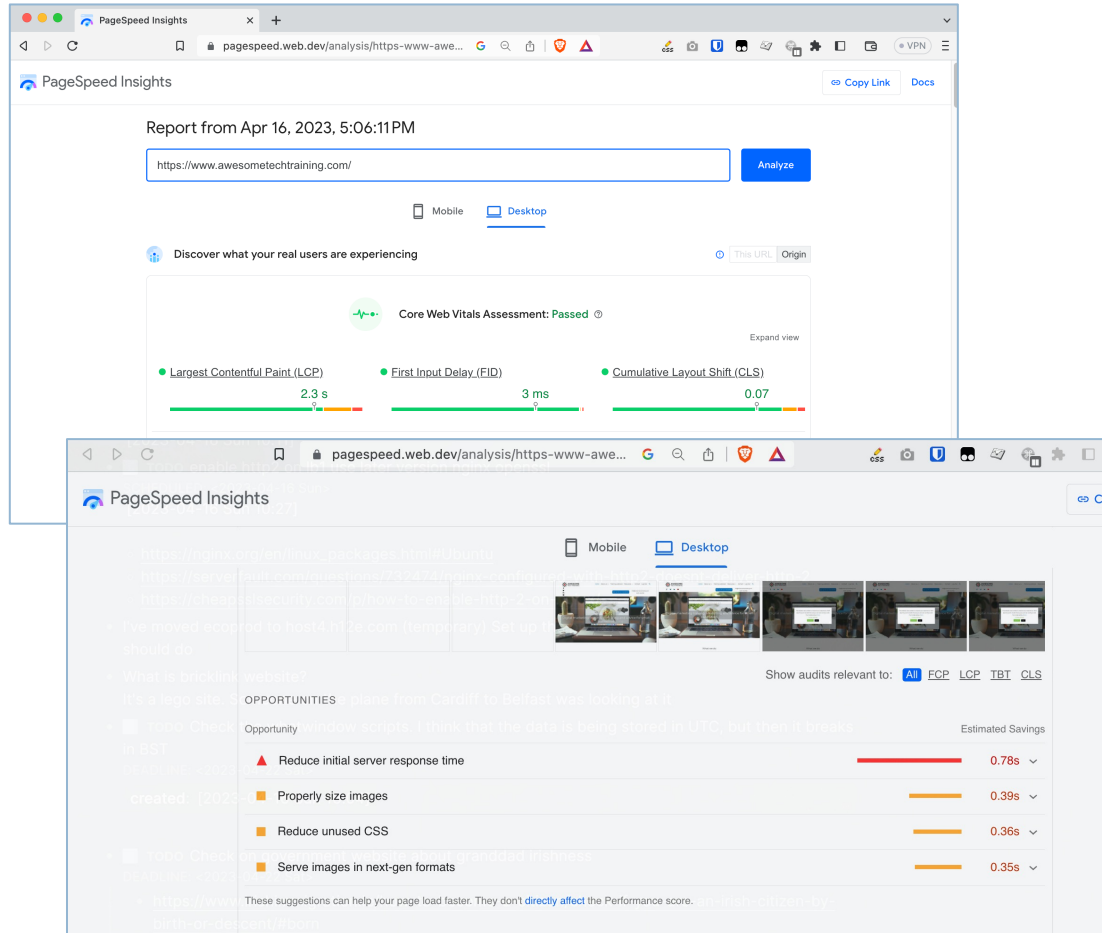
PageSpeed Insights



GTmetrix



Web tools – Google PageSpeed Insights



- <https://pagespeed.web.dev/>
- Reports run on the Google servers
- Uses the “lighthouse” speed measuring algorithm
- Includes specific recommendations for WordPress
- Mobile results often slower than desktop



Web tools – GT Metrix

GTmetrix.com/reports/www.awesometechtraining.com/YWpDJ0nS

GTmetrix Features Resources Blog GTmetrix PRO

Latest Performance Report for: <https://www.awesometechtraining.com/>

Report generated: Thu, Aug 20, 2020 7:15 AM -0700
Test Server Region: Vancouver, Canada
Using: Chrome (Desktop) 75.0.3770.100, PageSpeed 1.15-gt1.3, YSlow 3.1.8

Looks like you're running WordPress. [Have a look at our WP optimization tips.](#)

Performance Scores

PageSpeed Score A (92%) ^	YSlow Score C (79%) ^
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Page Details

Fully Loaded Time 2.5s ^	Total Page Size 477KB ^	Requests 50 ^
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PageSpeed

RECOMMENDATION	GRADE	TYPE	PRIORITY
Minimize redirects	D (60)	CONTENT	HIGH
Defer parsing of JavaScript	A (92)	JS	HIGH
Leverage browser caching	A (93)	SERVER	HIGH
Enable compression	A (97)	SERVER	HIGH
Minify JavaScript	A (97)	JS	HIGH
Optimize images	A (98)	IMAGES	HIGH
Minify CSS	A (99)	CSS	HIGH
Avoid bad requests	A (100)	CONTENT	HIGH
Avoid landing page redirects	A (100)	SERVER	HIGH
Enable Keep-Alive	A (100)	SERVER	HIGH
Inline small CSS	A (100)	CSS	HIGH
Inline small JavaScript	A (100)	JS	HIGH

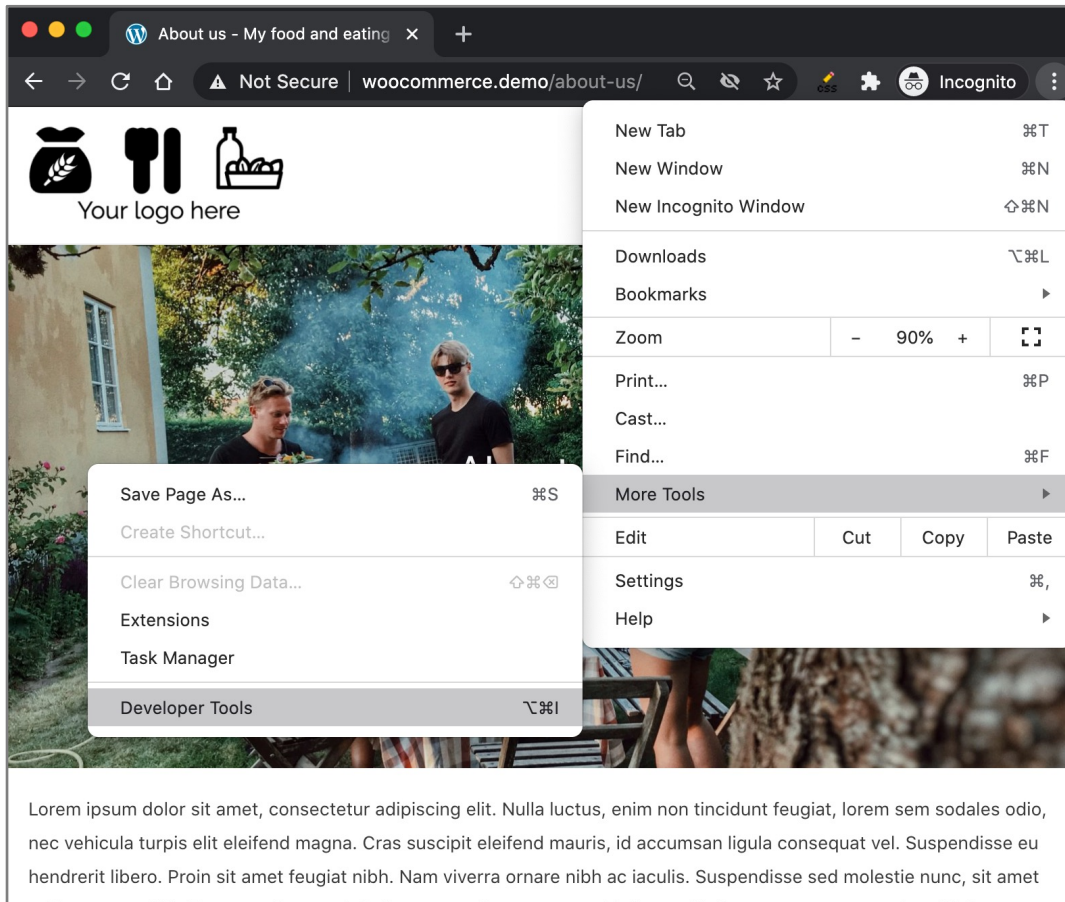
What do my scores mean?
Rules are sorted in order of impact upon score. Optimizing rules at the top of the list can greatly improve your overall score.
Not every recommendation will apply to your page. The recommendations are meant to be generic, best practices; some things will be out of your control (eg. external resources) or may not apply to your page.
[Learn more about PageSpeed/YSlow scores and how they affect performance.](#)

Need optimization help?
Read our [how to guides](#) and [optimization](#)

- <https://gtmetrix.com/>
- Independent (of Google) page speed analysis
- Reports tend to run in Vancouver, Canada
- Servers can be busy and reports can take a long time to generate
- Reports feel more technical
- PageSpeed and Y-Slow reports
- Recognises WordPress, but only general advice
- Need to create an account



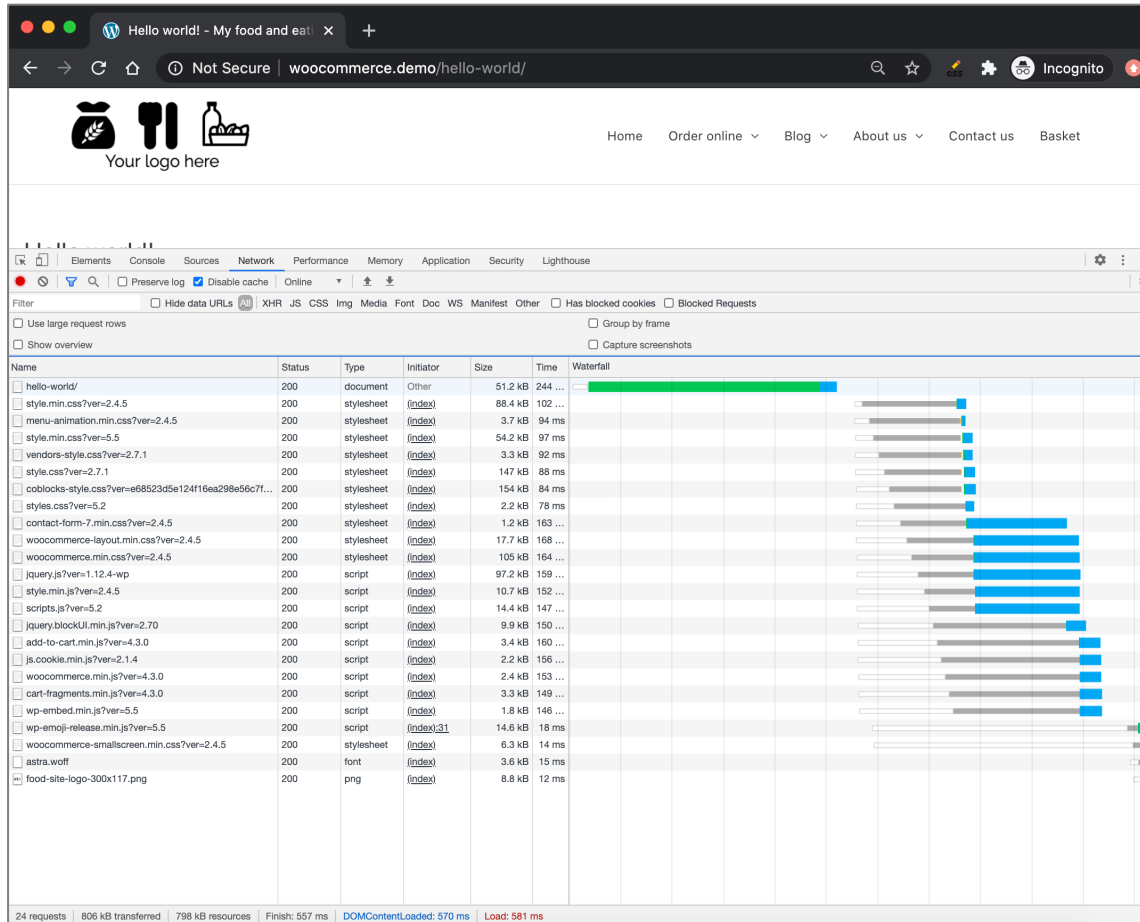
Chrome developer tools



- More technical tools can be found in the menu under *More Tools* -> *Developer Tools*
- If you use these tools, we recommend using “incognito mode” so that you get more reliable results
- Incognito mode turns off extensions and doesn’t use your normal cookies, so you visit your site as if it were for the first time



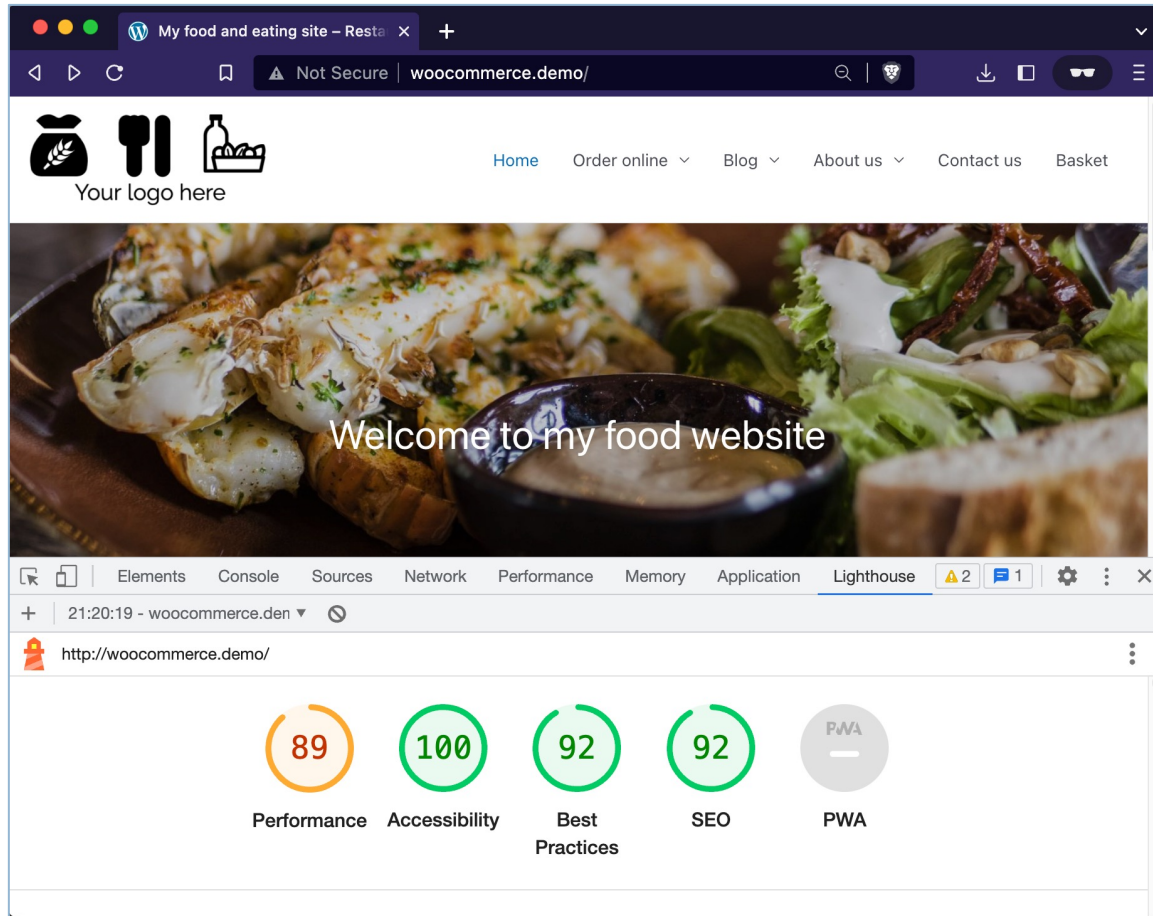
Chrome developer tools



- This is a view of the network tab with a “waterfall” view of the resources loading
- We can see TTFB for the HTML page, and how long all other resources take
- In this case, our biggest single improvement would come from speeding up the first page load
- We also make sure that “disable cache” is checked so that everything is loaded from the server

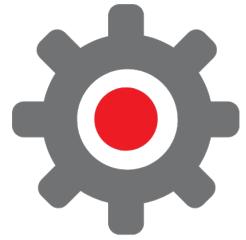


Lighthouse



- Lighthouse provides a more human-friendly report about page speed and other aspects of your site
- Not just the individual resource speeds
- Reports and recommendations for:
 - Performance
 - Accessibility
 - Best practice
 - SEO





How to improve speed



How to improve speed

- There are lots of things that you can change to improve speed
- Try one thing, check the results and then move on if it has worked, or back out if it hasn't
- Focus on big, easy wins
- Use all the measurement tools to see where improvements can be made
- However you will probably get your biggest improvements in four ways:
 - Caching - there are plugins to help this in WordPress
 - Make things smaller - compress and resize images, compress text
 - Lazy loading - use a plugin or the new WordPress 5.5
 - Upgrading / improving your hosting



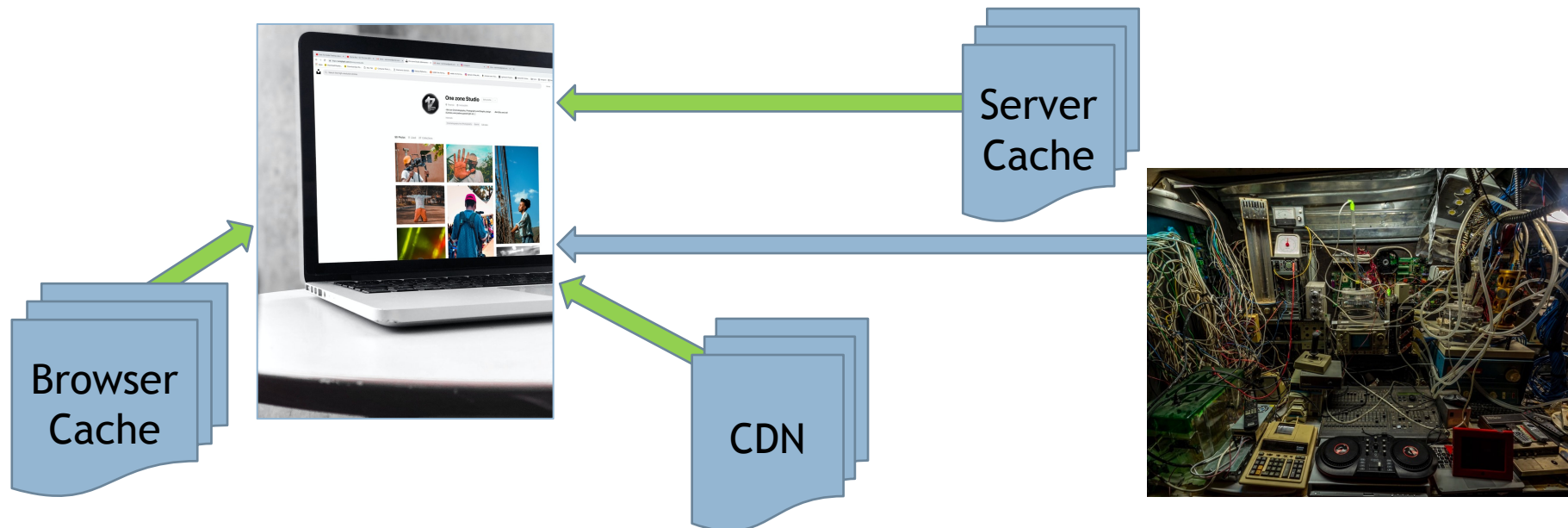
What is caching?

- Caching is simply keeping a copy of something so that we don't have to do a lot of work each time we request it.
- Imagine 100 visitors hitting your homepage. Every person who hits that page should see the same thing.
- Better to have a copy of that page which can be accessed quickly rather than building the page from scratch each time.



Where can we store copies?

- There are three main places copies of resources can be stored
 - On your hosting server
 - As part of a Content Delivery Network
 - In your browser



Using a caching plugin

- There are many caching plugins for WordPress
- The top three are:
 - WP Rocket (\$59 per year)
 - W3 Total Cache (free - easy)
 - WP Super Cache (free - more complex)
- We used to use WP Rocket on our site, we now use something a bit more hand-crafted
- We'll look at W3 Total Cache today

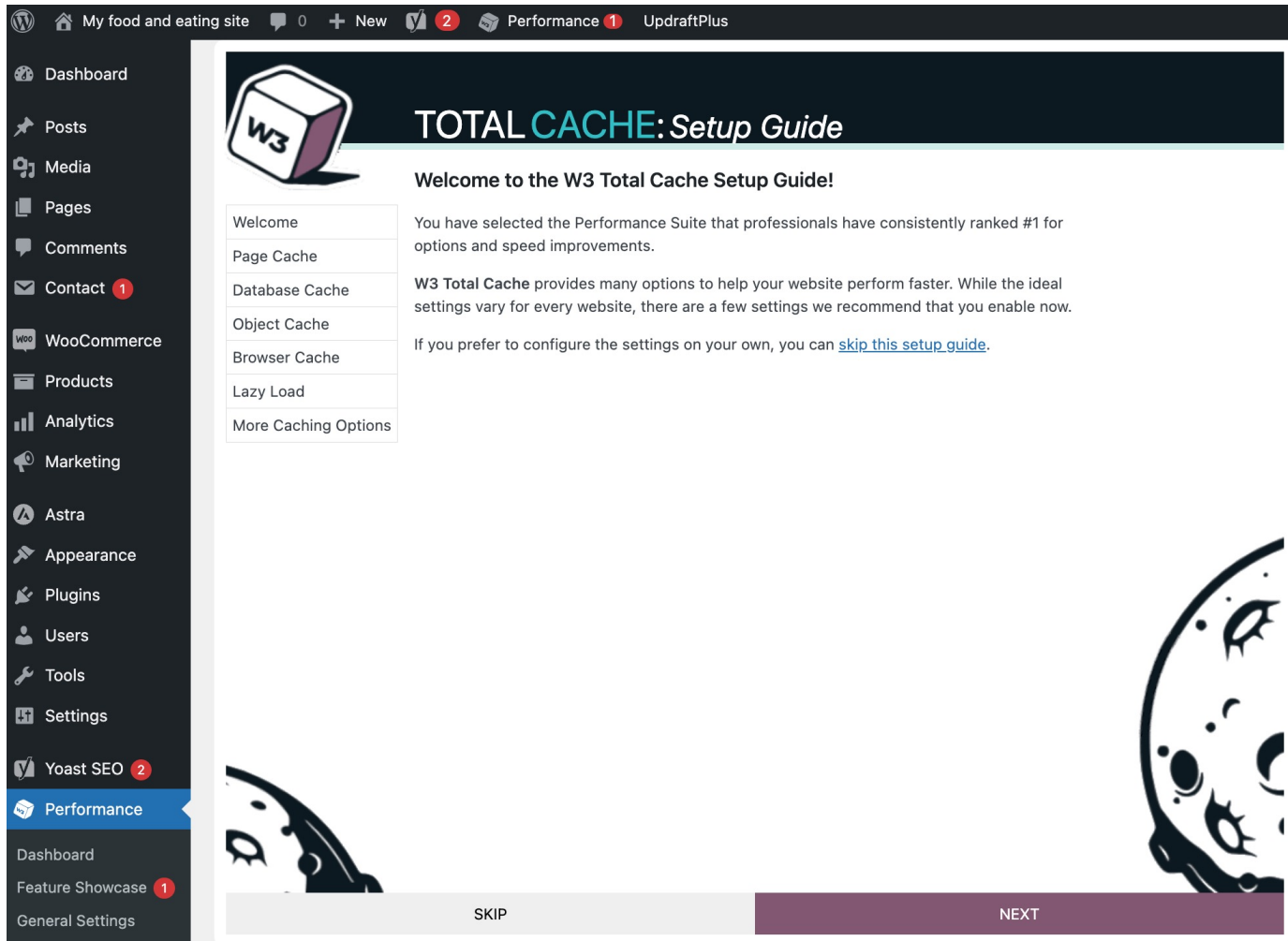


Using a caching plugin

- Caching plugins like W3 Total Cache will refresh the static HTML file when the page or post is updated
- Archives and homepage changes will be refreshed when a page / post is saved as well



W3 Total Cache – Setup Guide



The screenshot shows the WordPress dashboard with the W3 Total Cache plugin's setup guide. The dashboard header includes the site name 'My food and eating site', a 'New' button, and notification icons for 'Performance' (1) and 'UpdraftPlus'. The left sidebar lists various dashboard sections, with 'Performance' highlighted in blue. The main content area features a dark header with the W3 logo and the title 'TOTAL CACHE: Setup Guide'. Below the header, a welcome message reads: 'Welcome to the W3 Total Cache Setup Guide! You have selected the Performance Suite that professionals have consistently ranked #1 for options and speed improvements. W3 Total Cache provides many options to help your website perform faster. While the ideal settings vary for every website, there are a few settings we recommend that you enable now. If you prefer to configure the settings on your own, you can [skip this setup guide](#).' A table of contents lists: Welcome, Page Cache, Database Cache, Object Cache, Browser Cache, Lazy Load, and More Caching Options. At the bottom, there are 'SKIP' and 'NEXT' buttons.

- The setup guide is shown when you first install and activate the plugin
- It makes it very easy to configure the most basic elements of the cache
- <https://wordpress.org/plugins/w3-total-cache/>



W3 Total Cache – Setup Guide

Welcome

Page Cache

Database Cache

Object Cache

Browser Cache

Lazy Load

More Caching Options

The time it takes between a visitor's browser page request and receiving the first byte of a response is referred to as *Time to First Byte*.

W3 Total Cache can help you speed up *Time to First Byte* by using Page Cache.

We'll test your homepage with Page Cache disabled and then with several storage engines. You should review the test results and choose the best for your website.

[Test Page Cache](#)

Select	Storage Engine	Time (ms)
<input type="radio"/>	None	278.21
<input type="radio"/>	Disk: Basic	5.43 -98.05%
<input checked="" type="radio"/>	Disk: Enhanced (Recommended)	2.61 -99.06%
<input type="radio"/>	Redis	4.10 -98.53%
<input type="radio"/>	Memcached	Unavailable
<input type="radio"/>	APC	Unavailable
<input type="radio"/>	eAccelerator	Unavailable
<input type="radio"/>	XCache	Unavailable
<input type="radio"/>	WinCache	Unavailable

PREVIOUS

NEXT

- The plugin will test various aspects of the caching.
- By timing each available option, it finds the fastest
- Then presents the options for you to choose



W3 Total Cache – Setup Guide

My food and eating site 0 + New 2 Performance 1 UpdraftPlus

Dashboard

Posts

Media

Pages

Comments

Contact 1

WooCommerce

Products

Analytics

Marketing

Astra

Appearance

Plugins

Users

Tools

Settings

Yoast SEO 2

Performance

Dashboard

Feature Showcase 1

General Settings

Page Cache

TOTAL CACHE: Setup Guide

Database Cache

Welcome

Page Cache ✓

Database Cache

Object Cache

Browser Cache

Lazy Load

More Caching Options

Many database queries are made in every dynamic page request. A database cache may speed up the generation of dynamic pages. Database Cache serves query results directly from a storage engine.

[Test Database Cache](#)

Select	Storage Engine	Time (ms)
<input checked="" type="radio"/>	None	347.30
<input type="radio"/>	Disk	352.81 1.59%
<input type="radio"/>	Redis	331.25 -4.62%
<input type="radio"/>	Memcached	Unavailable
<input type="radio"/>	APC	Unavailable
<input type="radio"/>	eAccelerator	Unavailable
<input type="radio"/>	XCache	Unavailable
<input type="radio"/>	WinCache	Unavailable

Recommended

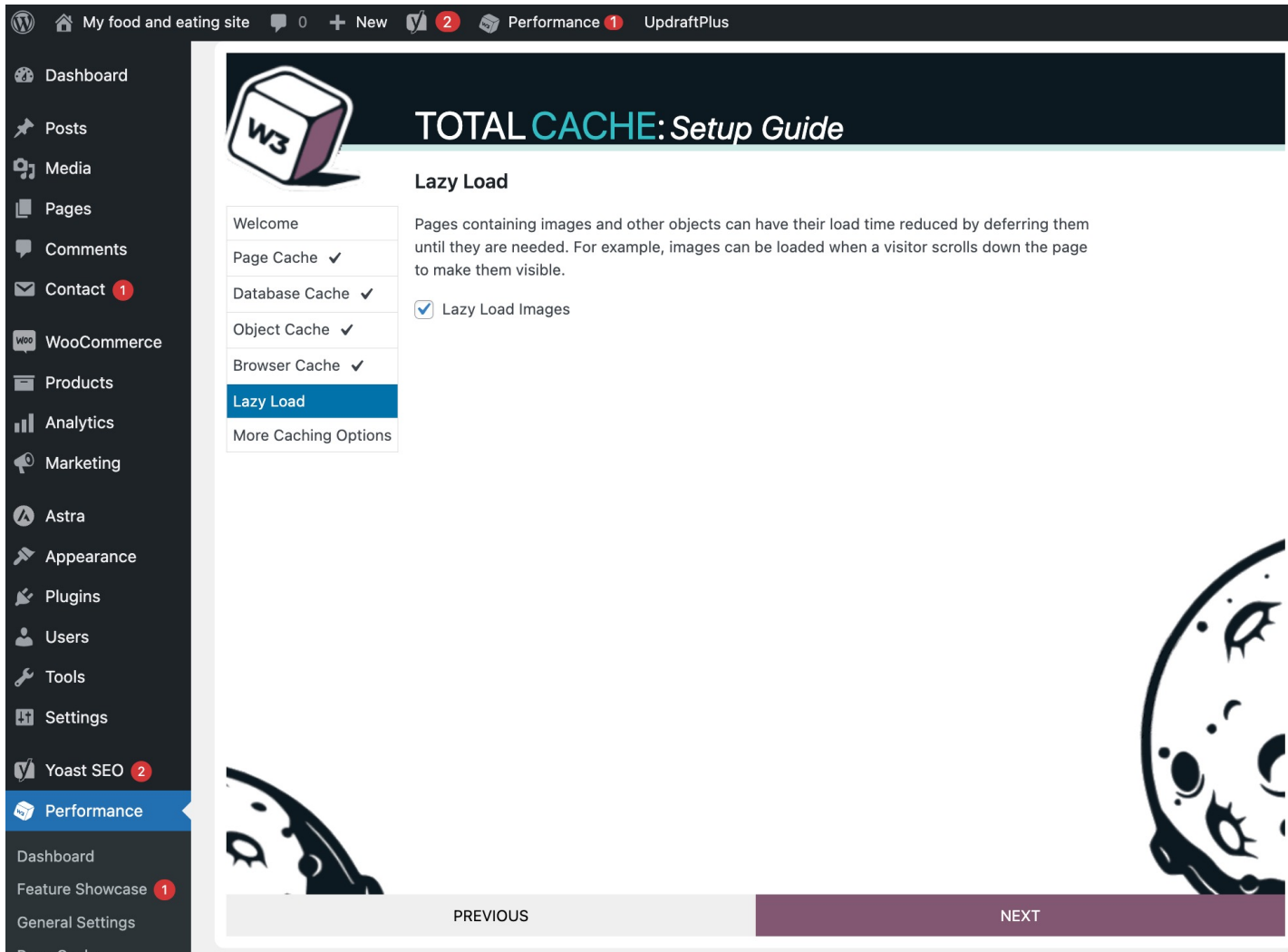
By default, this feature is disabled. We recommend using Redis or Memcached, otherwise leave this feature disabled as the server database engine may be faster than using disk caching.

[PREVIOUS](#) [NEXT](#)

- The plugin uses the following caches:
 - Page
 - Database
 - Object
 - Browser
- Some caches work better on disk and others in memory
- You don't have to be an expert



W3 Total Cache – Setup Guide



The screenshot shows the WordPress dashboard with the W3 Total Cache plugin settings page open. The page title is "TOTAL CACHE: Setup Guide". The left sidebar shows the "Performance" menu item selected. The main content area is titled "Lazy Load" and contains a table of settings:

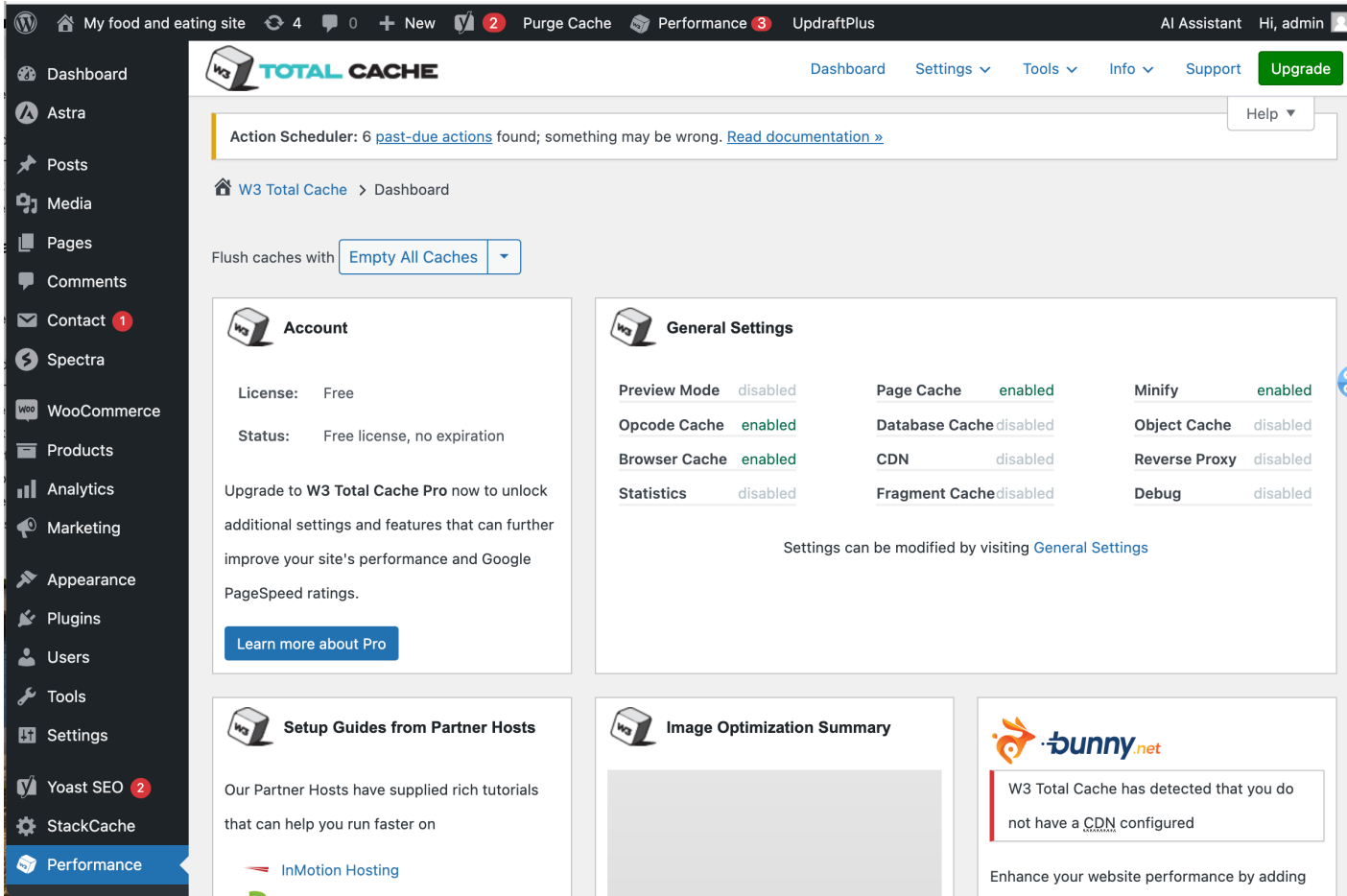
Welcome	
Page Cache	✓
Database Cache	✓
Object Cache	✓
Browser Cache	✓
Lazy Load	✓
More Caching Options	

Below the table, there is a checkbox labeled "Lazy Load Images" which is checked. The text below the table reads: "Pages containing images and other objects can have their load time reduced by deferring them until they are needed. For example, images can be loaded when a visitor scrolls down the page to make them visible."

- The plugin can configure lazy loading
- Useful if you find that the default WordPress lazy loading isn't working for you
- Lighthouse or Google Page Speed Insights will tell you if you need to enable this



W3 Total Cache – CDN



The screenshot shows the W3 Total Cache dashboard within a WordPress admin interface. The top navigation bar includes links for Dashboard, Settings, Tools, Info, Support, and Upgrade. A notification banner at the top indicates that 6 past-due actions were found. The main content area is divided into several sections:

- Account:** Shows the license status as 'Free' with no expiration date. It includes a call to action to upgrade to the Pro version.
- General Settings:** A grid of toggle switches for various features:
 - Preview Mode: disabled
 - Page Cache: enabled
 - Minify: enabled
 - Opcode Cache: enabled
 - Database Cache: disabled
 - Object Cache: disabled
 - Browser Cache: enabled
 - CDN: disabled
 - Reverse Proxy: disabled
 - Statistics: disabled
 - Fragment Cache: disabled
 - Debug: disabled
- Setup Guides from Partner Hosts:** Promotes tutorials from InMotion Hosting.
- Image Optimization Summary:** A section for image optimization settings.
- CDN Configuration:** A red-bordered box with the message: 'W3 Total Cache has detected that you do not have a CDN configured. Enhance your website performance by adding...'

- W3 Total Cache can work with a third party content delivery network (CDN)
- Services such as Bunny.net can help speed up some files by serving them from faster servers, closer to your visitors (\$\$)

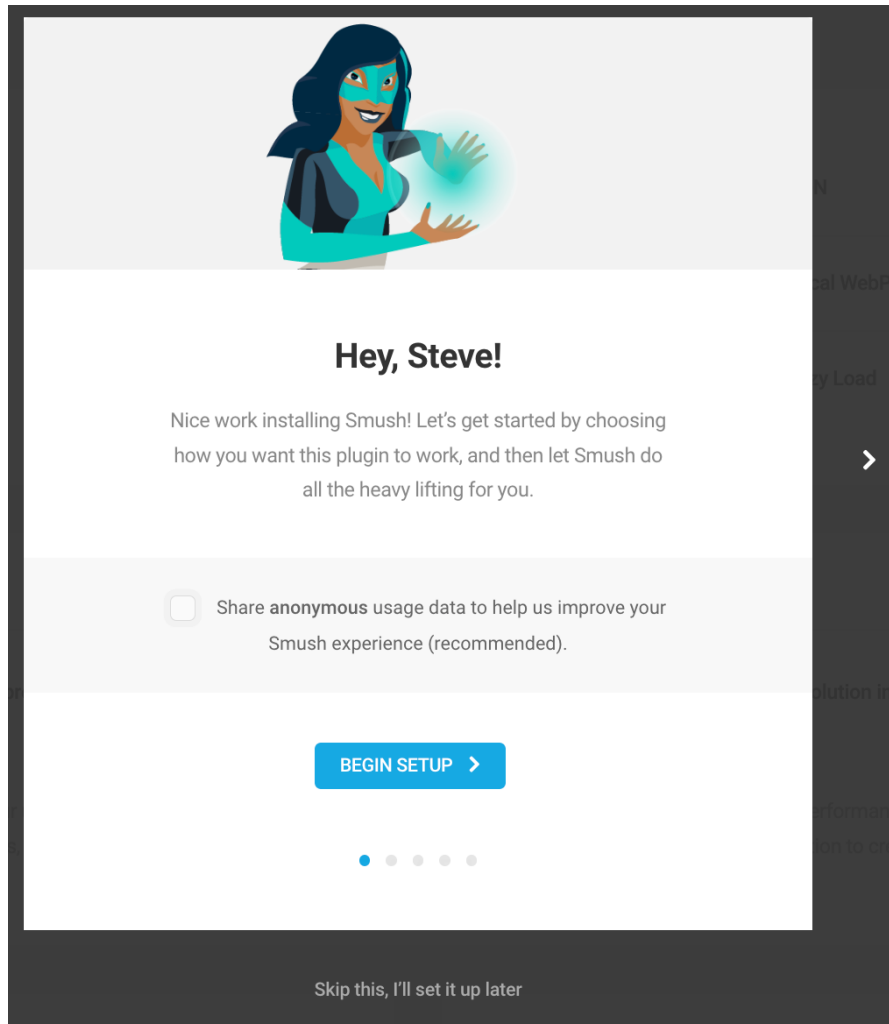


Compressing images

- Image sizes don't need to be massive - even on big screens
- Temptation for crystal clear large images will make your pages very slow
- Use plugins like Smush to resize, compress and convert your images
- Resize - use the right size of image for the browser size
- Compress and convert - use a highly compressed image format (webp instead of png or jpg)
- These can be handled automatically



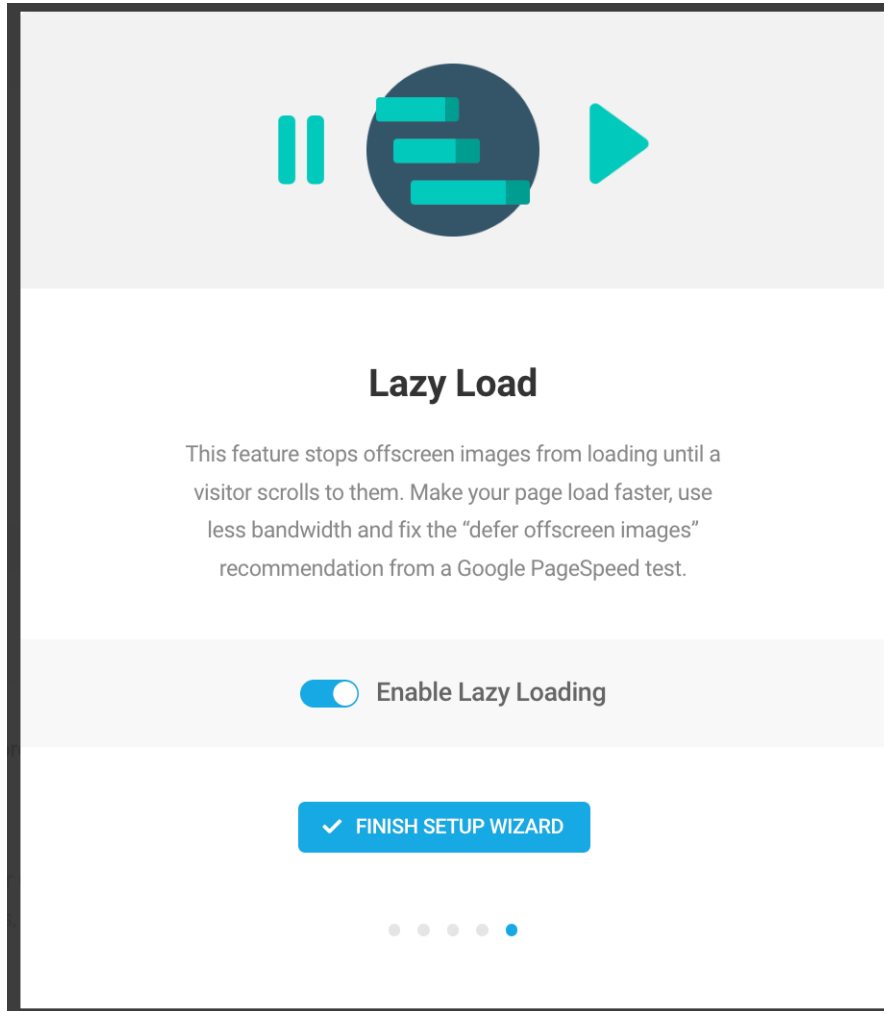
Smush plugin



- A plugin like Smush will resize and compress your images
- Pro version converts to webp
- Processing happens when images uploaded - doesn't slow down page loading
- <https://wordpress.org/plugins/wp-smushit/>



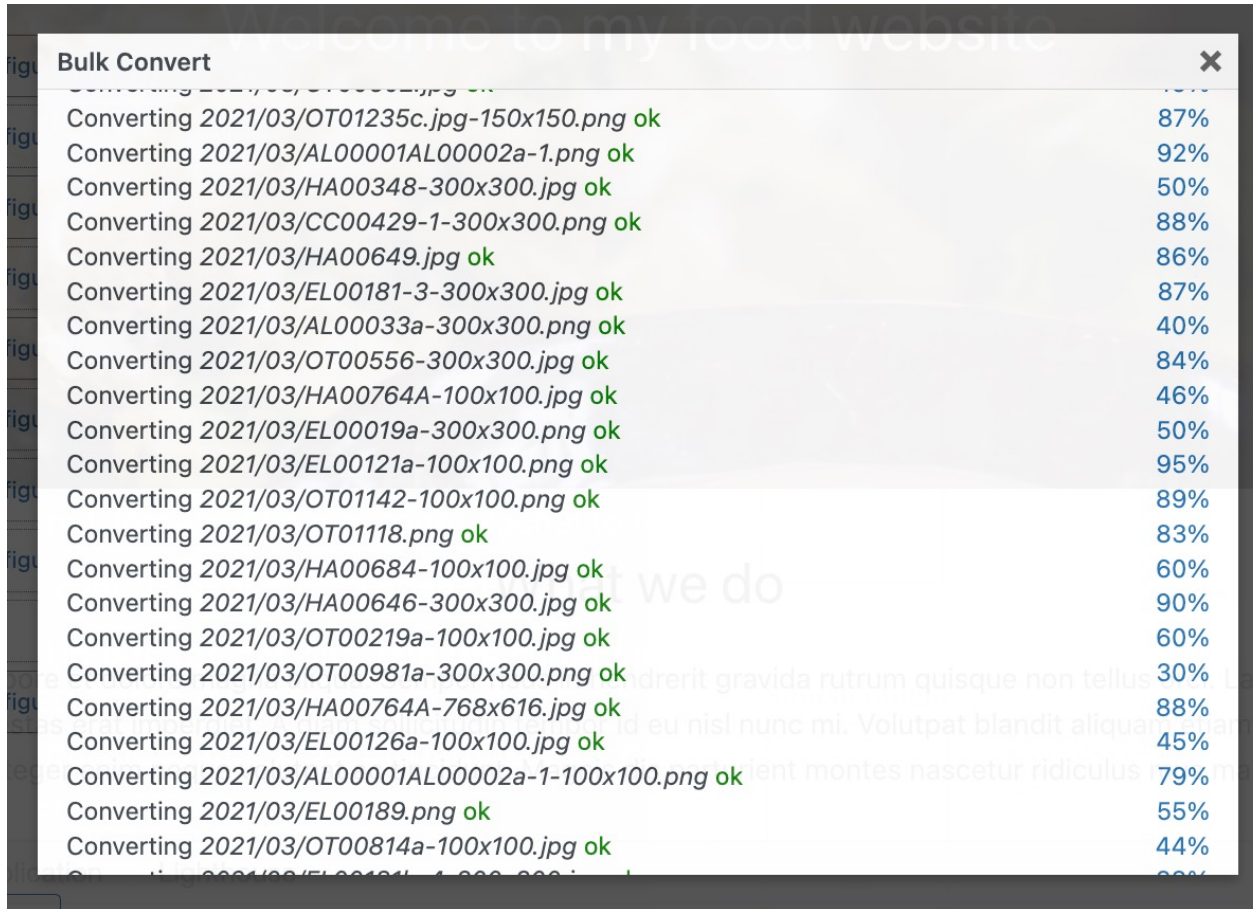
Smush plugin



- Smush also has a lazy load option, like W3 Total Cache
- When you have multiple plugins offering the same functionality, make sure that you only activate it on one.
- Otherwise, you might have problems with your images - they might not load



WebP Express



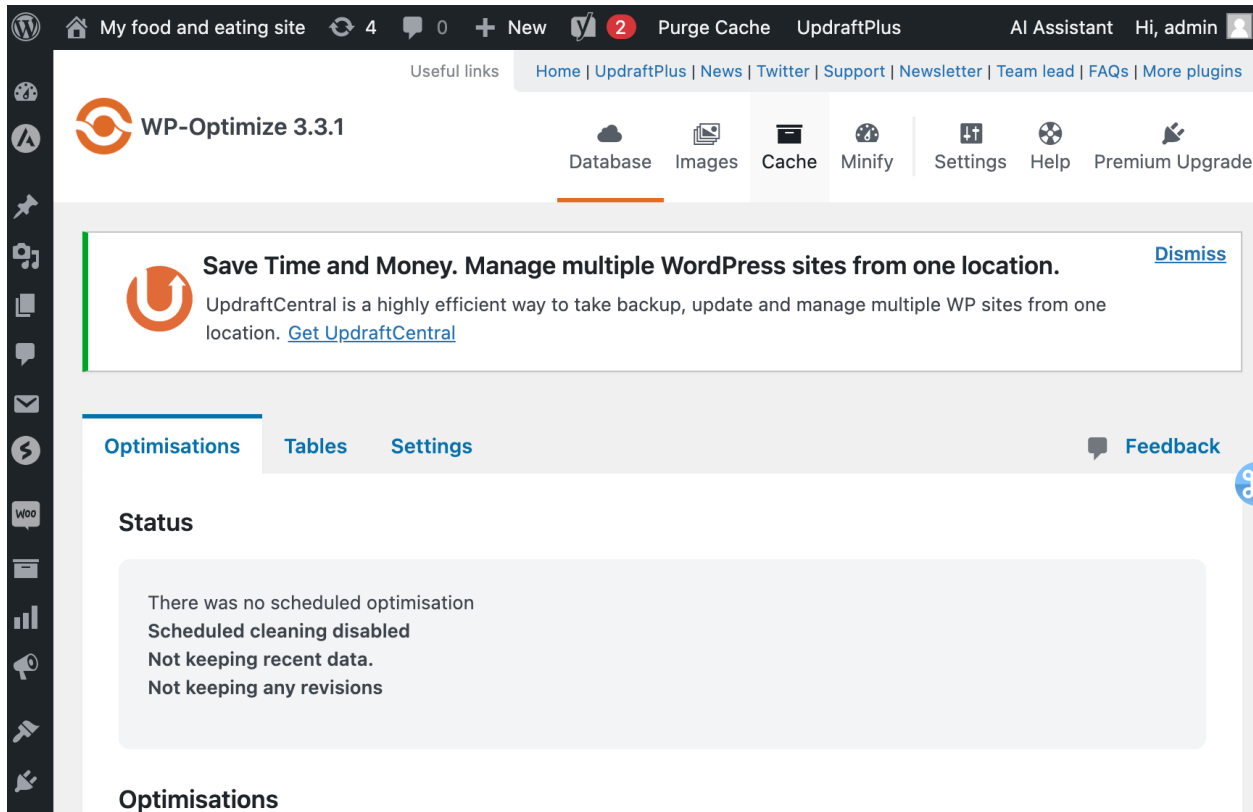
The screenshot shows a 'Bulk Convert' window with a list of image files being converted to WebP. Each row includes the file name, a status indicator ('ok'), and a percentage of completion.

File Name	Status	Progress
2021/03/OT01235c.jpg-150x150.png	ok	87%
2021/03/AL00001AL00002a-1.png	ok	92%
2021/03/HA00348-300x300.jpg	ok	50%
2021/03/CC00429-1-300x300.png	ok	88%
2021/03/HA00649.jpg	ok	86%
2021/03/EL00181-3-300x300.jpg	ok	87%
2021/03/AL00033a-300x300.png	ok	40%
2021/03/OT00556-300x300.jpg	ok	84%
2021/03/HA00764A-100x100.jpg	ok	46%
2021/03/EL00019a-300x300.png	ok	50%
2021/03/EL00121a-100x100.png	ok	95%
2021/03/OT01142-100x100.png	ok	89%
2021/03/OT01118.png	ok	83%
2021/03/HA00684-100x100.jpg	ok	60%
2021/03/HA00646-300x300.jpg	ok	90%
2021/03/OT00219a-100x100.jpg	ok	60%
2021/03/OT00981a-300x300.png	ok	30%
2021/03/HA00764A-768x616.jpg	ok	88%
2021/03/EL00126a-100x100.jpg	ok	45%
2021/03/AL00001AL00002a-1-100x100.png	ok	79%
2021/03/EL00189.png	ok	55%
2021/03/OT00814a-100x100.jpg	ok	44%

- A simpler alternative that might work for you is WebP Express
- <https://wordpress.org/plugins/search/WebP+Express/>
- This converts images to WebP if your hosting has the software to do it
- Images are compressed and served in “NextGen” format
- Best to choose one image plugin eg. Smush vs WebP Express



WP Optimize



The screenshot shows the WP-Optimize 3.3.1 dashboard. At the top, there's a navigation bar with site information, a 'Purge Cache' button, and user details. Below that, a 'Useful links' section contains various site links. The main dashboard area features a 'Database' tab, which is currently selected. A prominent message box encourages users to 'Save Time and Money' by using UpdraftCentral for managing multiple sites. Below this, there are tabs for 'Optimisations', 'Tables', and 'Settings'. The 'Optimisations' tab is active, displaying a 'Status' section with the following text: 'There was no scheduled optimisation', 'Scheduled cleaning disabled', 'Not keeping recent data.', and 'Not keeping any revisions'. A 'Feedback' button is also visible.

- A number of optimizing tools
- Handy if you like everything in one place
- Includes database optimization
- Good set of tools in the free version
- From the updraft plus team



Hosting

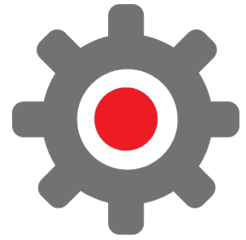
- Your hosting package dictates how fast WordPress can create the page
- Cheap hosting can be very slow because many websites are on one server
- Caching, CDNs and compression can only help with static pages
- Dynamic pages such as the dashboard or e-commerce pages have to be created on the server for every request - on a slow server this will result in slow pages



Hosting – what to look for

- Dedicated servers will give you the best performance
- Make sure they have SSD storage and as much memory as you can afford
- For the less technical, look for managed WordPress hosting
- Consider providers who will help with WordPress performance
- Also some hosting packages will provide development and staging areas and tools





**What can go
wrong?**

What could possibly go wrong?

- Your biggest gains and most of your problems will come from caching
- Plugins such as WooCommerce or other dynamic pages may not work when cached
- You don't want users to see someone else's order
- Use exclusion rules or per-page rules

Never cache this page

Activate these options on this post:

LazyLoad for images

LazyLoad for iframes/videos

Minify HTML

Minify/combine CSS

Minify/combine JS

CDN

Optimize CSS Delivery

Defer JS

Note: None of these options will be applied if this post has been excluded from cache in the global cache settings.

Advanced Rules

Never Cache URL(s) [NEED HELP?](#)

Sensitive pages like custom login/logout URLs should be excluded from cache. Cart, checkout and "my account" pages set in [WooCommerce](#) will be detected and never cached by default.

Specify URLs of pages or posts that should never be cached (one per line)

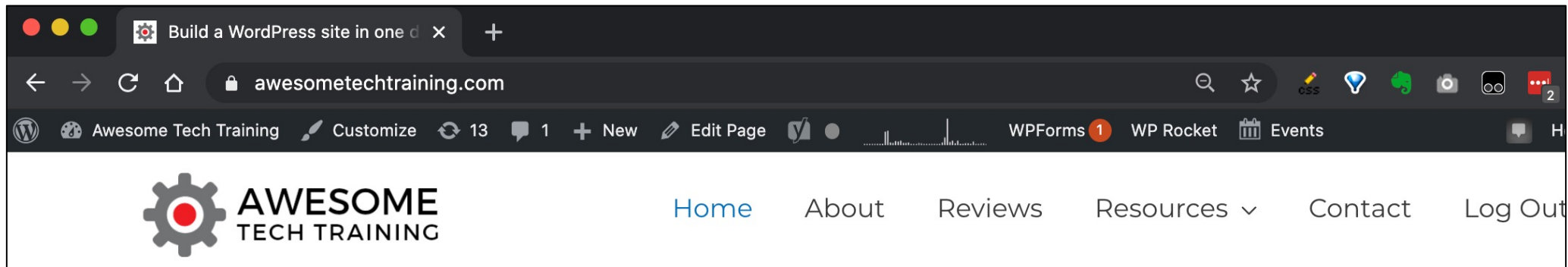
```
/cart/(.*)
/checkout/(.*)
/shop/(.*)
/courses/(.*)
/wordpress-surgery/
/woocommerce-surgery/
```

The domain part of the URL will be stripped automatically.
Use (*) wildcards to address multiple URLs under a given path.



What could possibly go wrong?

- Depending on how you cache, you might lose your admin bar - or worse, you might show it to all visitors
- This happens when the copy is made when you're logged in. Your caching plugin will have a setting for "logged in users"



How to avoid pitfalls

- Take a backup
- If your hosting includes a staging site then use that
- Test your site after each modification.
- Work through your plugins and make sure that everything works as expected
- Check your site when logged in and in incognito mode



Remember – speed isn't everything, but it helps

- The functionality of your site might be more important than shaving a few milliseconds off a page
- You don't have to get a score of 100% to rank with Google. It helps but is one of a number of things to look at
- Plugin and theme updates will affect the site speed
- Keep an eye on it and review regularly



How we can help

- WordPress training options
 - [Free WordPress resources](#)
 - [One-to-one tailored WordPress training for you / your team](#)
 - [Getting started with WordPress](#) - free webinar 20 December / also available on demand
 - [Half hour free 'surgery' session to discuss your business](#)
 - Ongoing help with WordPress maintenance / support / site development
- Free resources
 - [Written checklist](#)
 - [SEO guide](#)
 - [Video library](#)
- [Other webinars](#)
- 20% off other webinars for webinar attendees - quote code webinar20 at checkout



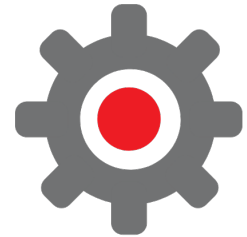
Other training and consulting

- Help configuring your Google Analytics account - [contact us for more info](#)
- Digital marketing audit - [contact us for more info](#)
- Website development - [contact us for more info](#)
- Website health-check or full technical review - [contact us for more info](#)
- Ongoing marketing support, advice and technical resource - [contact us for more info](#)



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Questions

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