



WPSpeed – The professional solution to boost your website performance

Introduction

Google rolled out the new "Speed" reports within Google Search Console to confirm that the speed factor will be more and more important for the ranking of a website.

As if this wasn't enough, Google Chrome is going to integrate a special badge to mark slow websites, as already happened with the passage to the https protocol. This means that visitors will be scared of sites marked as slow and Google Chrome will suggest abandoning them... as a consequence having a fast website is no more an option but a 'must'!

The PageSpeed Insights (PSI) reports on the performance of a page on both mobile and desktop devices, and provides suggestions on how that page may be improved. At the top of the report, PSI provides a score which summarizes the page's performance.

This score is determined by running "Lighthouse" to collect and analyze lab data about the page. A score of 90 or above is considered fast, and 50 to 90 is considered moderate. Below 50 is considered to be slow.

WPSpeed increases performance of your website by applying automatically several improvements as suggested by Google PageSpeed best practices.

Main features of WPSpeed are:

- Scripts minification – Javascript can be minified to reduce the total scripts size and save bandwidth
- Stylesheets minification – CSS can be minified to reduce the total CSS size and save bandwidth
- HTML minification – the HTML source code can be minified to reduce the total page size and save bandwidth
- Combine multiple JS and CSS files– Javascript and CSS can be combined in single files to minimize the HTTP request overhead
- Lazy-load – Images, iframes and HTML elements that are out of view can be lazy-loaded only when the user scrolls down the page to display them
- Images optimization – Large images can be rescaled, resized and optimized on the fly to dramatically reduce the page size and bandwidth
- Htaccess optimization – A series of optimizations can be applied to the htaccess file in order to leverage the browser caching
- Combine images – It's possible to generate a single container image for multiple backgrounds applied through CSS
- HTTP/2 optimizations – WPSpeed works with HTTP/2 compatible servers to enable server push
- CDN support – Links for all assets can be automatically rewritten to point to your CDN

domain

Main configuration

After installing the WPSpeed plugin on your Wordpress website, you can open plugin settings and start to enable the various features and optimizations.

Combine assets

The basic optimizations that should always stay enabled, are the 'Combine Assets' and 'Minify Assets' ones. Thanks to these features, multiple Javascript and CSS files can be minified and combined into single files merging the contents of different assets into a unique resource.

This means that HTTP requests will be reduced to essential ones.

Both Javascript and CSS files are combined into aggregated ones

Assets are minified to reduce their size

Once activated the combine and minify features, it's also possible to manage advanced options such as:

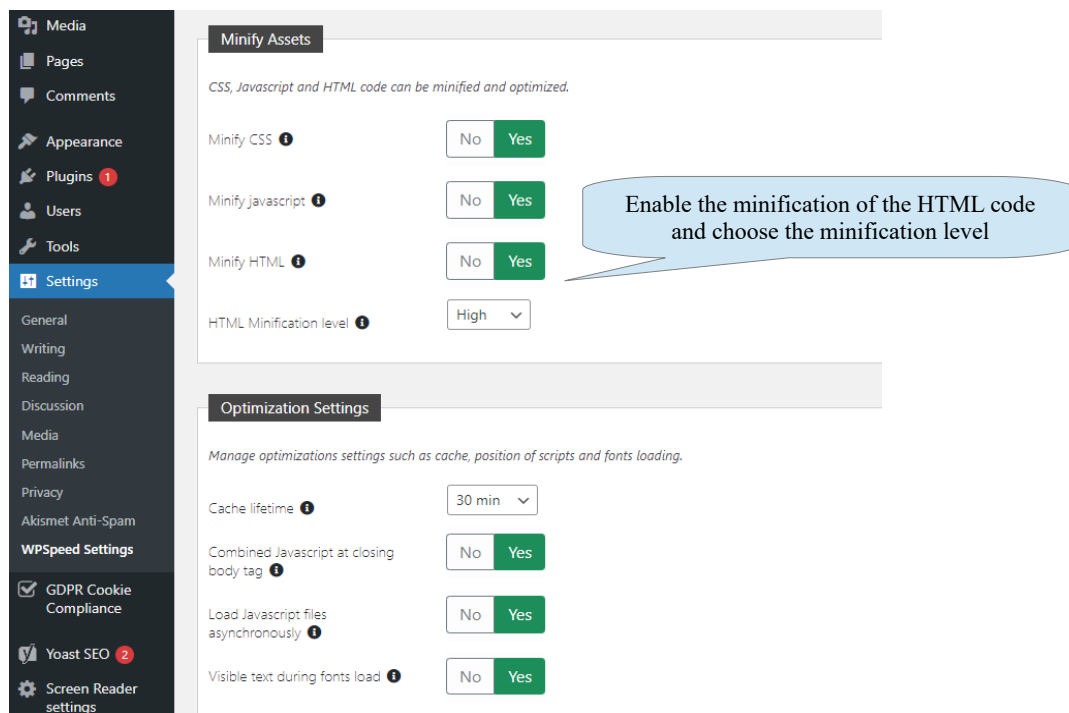
- The cache lifetime for combined files
- The possibility to 'defer' styles and scripts to further improve the performance
- The possibility to load the whole Javascript asynchronously to further improve the performance
- The possibility to improve Google fonts loading

Minify assets and HTML

Javascript and CSS code can be minified stripping out optional comments, spaces, tabulations, etc.

Furthermore, also the HTML source code of the page can be minified to dramatically reduce the total page size that is directly downloaded by a browser.

To activate the HTML minification it's enough to turn on the following settings:



Pay attention to the level of minification reserved to the HTML source code. Indeed for the HTML there are 3 different stages and different types of compression that in certain cases could cause undesired effects or conflicts.

For this reason you can progressively increase the level choosing:

- Low level - multiple whitespaces outside of elements will be reduced to a single one
- Normal level - comments and all not needed whitespaces or carriage returns will be removed
- High level – comments, all not needed whitespaces or carriage returns, quotes or double quotes from around attributes will be removed

If you experience issues due to a too much high level of compression, it's recommended to reduce it to a lower level.

Obviously the higher the compression level the smaller the total page size will be. So from a performance perspective it's better to reach the highest possible level while keeping the website stable and working well with all various installed plugins.

Inclusions and exclusions of assets

When the 'Combine assets' feature is enabled, it's not uncommon to experience issues, errors or conflicts especially about the Javascript loaded on pages.

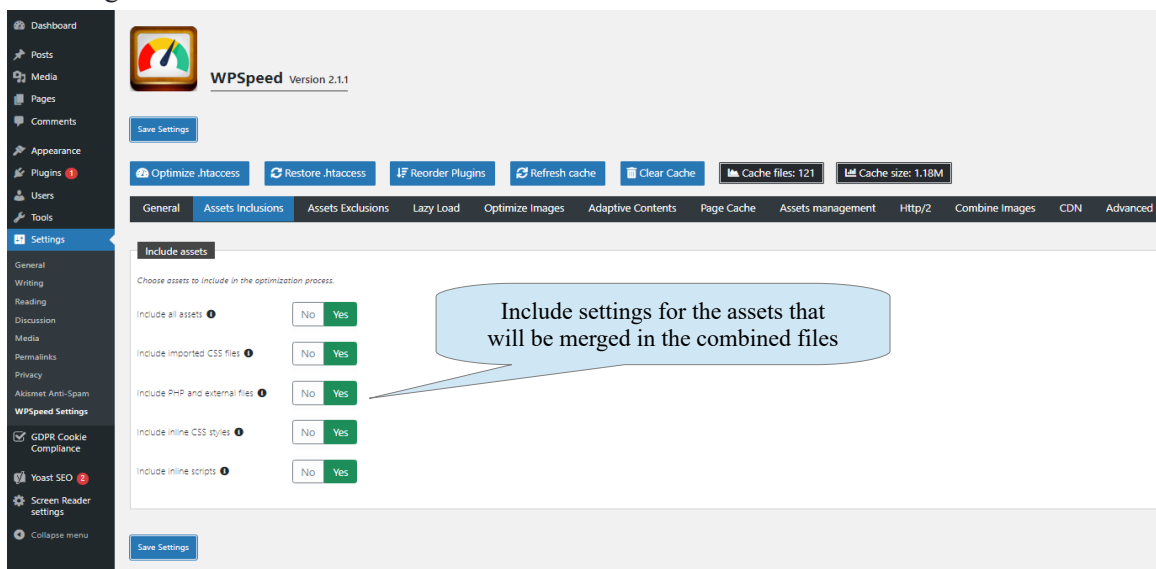
In most cases this is due to the change in the order of execution of scripts included by various plugins that have been installed on the Wordpress website.

To handle and solve this kind of problems, WPSpeed has a powerful system to manage inclusions and exclusions of assets that should not be included in the combined file.

When you choose to exclude a certain asset from the combined file, it will be extracted and listed in the page source code normally, thus preserving the correct order of execution applied when the browser is going to parse the HTML code.

First of all you can choose which resources should be included in the combined files using the following settings:

- Include all assets – If this option is not enabled, only files that are part of the Wordpress core will be included
- Include imported CSS files – In the case that CSS files with an @import directive are detected, the target CSS file will be fetched and merged
- Include PHP and external resource files – In the case that there are dynamic CSS or JS files generated by the server through PHP, they will be fetched and merged
- Include inline CSS styles – All inline stylesheets directly embedded in the HTML source code will be merged
- Include inline scripts - All inline scripts directly embedded in the HTML source code will be merged



Once you have chosen which assets must be involved in the combine process, you can go on and exclude particular resources choosing them one by one or simply entering the name or substring.

It's possible to exclude:

- Single CSS files
- All CSS files for a given plugin
- Inline CSS styles
- Single Javascript files maintaining the original order of execution or not maintaining it
- All Javascript files for a given plugin maintaining the original order of execution or not maintaining it
- Inline scripts
- Certain pages or URLs

There are even more advanced settings to apply global exclusions or to improve the loading of files that have been excluded in order to preserve a performance improvement.

Files that are loaded in 'defer' mode (deferred) won't impact the page loading time, indeed they are only executed once the HTML document has been fully parsed.

The screenshot shows the WPSpeed settings interface with the following sections and callouts:

- Exclude CSS**
 - Exclude CSS files: **Exclude certain CSS files**
 - Exclude CSS files by plugin:
 - Exclude inline 'style' declarations:
 - Exclude all inline 'style' declarations: No Yes
- Exclude JS With Order**
 - Exclude Javascript files: **Exclude a specific JS file without preserving the original order of execution**
 - Exclude Javascript files by plugin: **Exclude all JS files for a given plugin while preserving the original order of execution**
 - Exclude inline 'script' declarations:
 - Exclude all inline 'script' declarations: No Yes
- Exclude Urls**
 - Exclude urls: **Exclude the whole plugin on certain pages or URLs**
 - Exclude logged in users: No Yes
- Keep Original Position**
 - Javascript files: **Keep the original position for excluded files**
 - Inline scripts:

Buttons: Save Settings, Optimize .htaccess, Restore .htaccess, Reorder Plugins, Refresh cache, Clear Cache, Cache files: 121, Cache size: 1.18M

Navigation: General, Assets Inclusions, **Assets Exclusions**, Lazy Load, Optimize Images, Adaptive Contents, Page Cache, Assets management, Http/2, Combine Images, CDN, Advanced

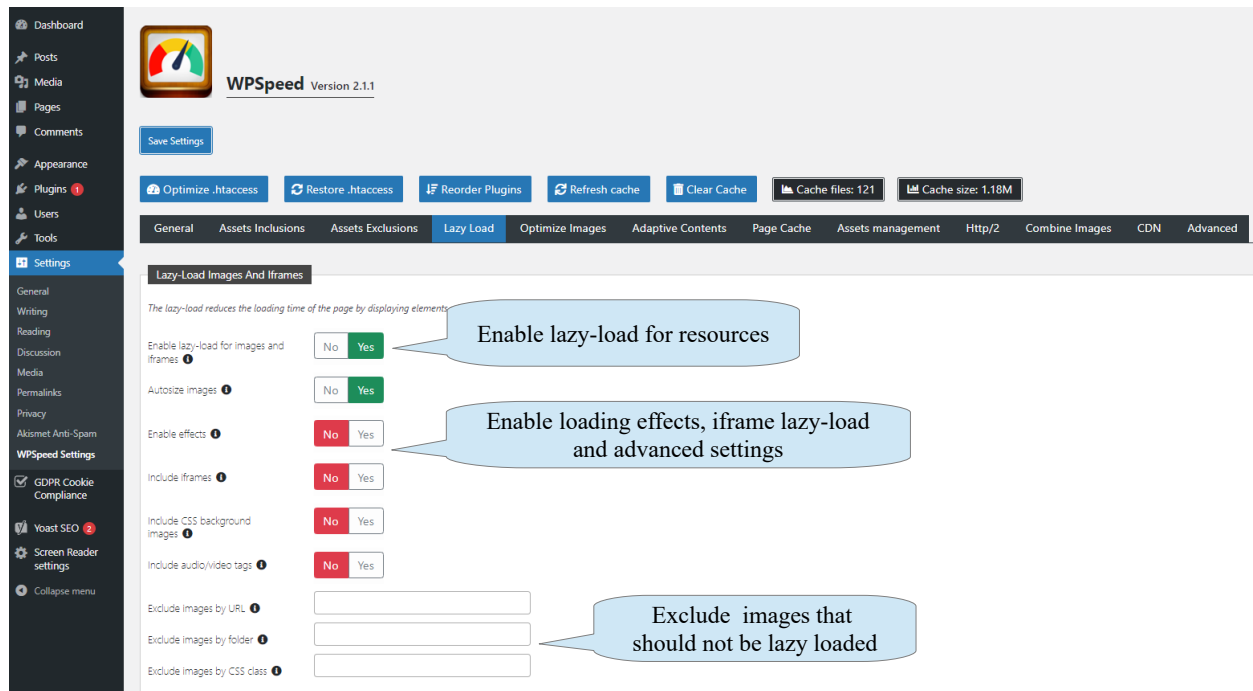
Left sidebar: Dashboard, Posts, Media, Pages, Comments, Appearance, Plugins (1), Users, Tools, Settings (selected), General, Writing, Reading, Discussion, Media, Permalinks, Privacy, Akismet Anti-Spam, WPSpeed Settings, GDPR Cookie Compliance, Yoast SEO (2), Screen Reader settings, Collapse menu

Lazy-load

WPSpeed is capable to lazy-load images, iframes, video/audio tags that are out of view and also HTML elements that are especially heavy, for example for the LCP (Largest Contentful Paint). To lazy-load HTML elements it's required to use common CSS selectors to identify target tags.

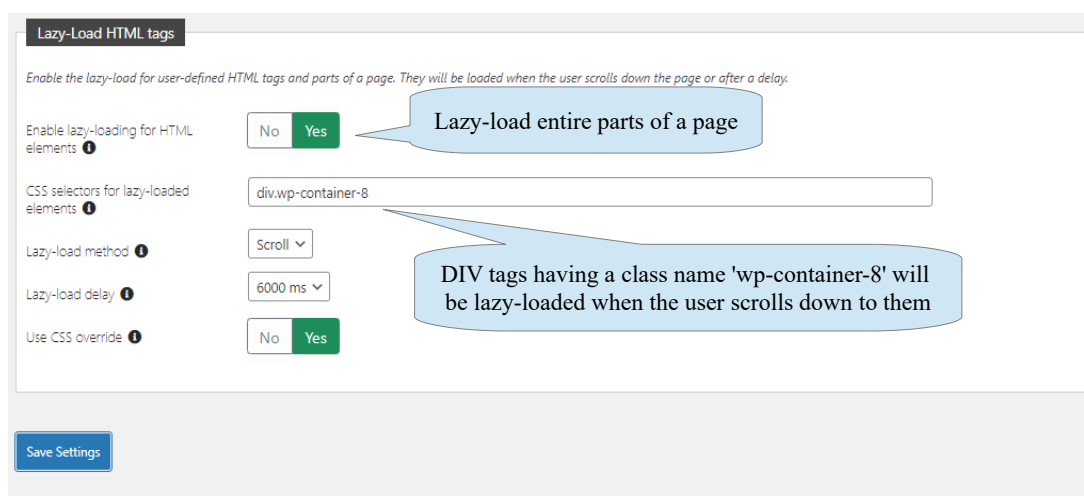
Indeed there is no need to fetch all resources at the beginning of the page load if they are not immediately visible, they can be lazy-loaded only when the user scrolls down the page to display them.

This feature dramatically reduces the loading time of the page and the usage of the bandwidth. You can enable lazy-loading and choose preferred settings for example to exclude images or apply a loading effect:



WPSpeed takes the lazy-load method to the next level making it possible to defer the loading of entire parts of a page.

Thanks to a powerful system based on CSS selectors you can choose to load certain elements such as the footer, only when the user scroll down to reach them or after a prefixed time delay.



Images optimization

WPSpeed has a powerful system to optimize heavy images on the fly that will be compressed and cached to reduce the bandwidth usage and speed up your site.

Pay attention that as a consequence of the optimization, the quality of images may be significantly decreased on large screens, so you have to properly evaluate which settings adapt better to the contents and type of visitors of your website.

It's possible to choose various aspects such as:

- The minimum width of an image to apply the optimization for
- The conversion to the new format WebP, if supported by your server, and settings for the quality for compressed images
- The resizing of optimized images
- The minimum width for an image to be resized
- The automatic generation of a srcset
- The optimization of images loaded through CSS and HTML background
- Exclusions for certain images that should not be altered in any way

The screenshot shows the WPSpeed settings interface. The left sidebar contains navigation options like Dashboard, Posts, Media, Pages, Comments, Appearance, Plugins, Users, Tools, and Settings. The main content area is titled 'WPSpeed Version 2.1.1' and includes a 'Save Settings' button. Below this are several utility buttons: 'Optimize .htaccess', 'Restore .htaccess', 'Reorder Plugins', 'Refresh cache', 'Clear Cache', 'Cache files: 121', and 'Cache size: 1.18M'. A horizontal menu at the top of the settings area includes 'General', 'Assets Inclusions', 'Assets Exclusions', 'Lazy Load', 'Optimize Images', 'Adaptive Contents', 'Page Cache', 'Assets management', 'Http/2', 'Combine Images', 'CDN', and 'Advanced'. The 'Optimize Images' section is active and contains the following settings:

- Optimize Heavy Images**
 - Enable image optimization: Yes (Callout: Enable the optimization of images)
 - Minimum width for image optimization: 50
 - Quality for compressed images: 45%
 - Enable image resizing: Yes (Callout: Resize images)
 - Resizing percentage: 60%
 - Minimum width for resizing images: 250
 - Convert all images to WebP: Yes (Callout: Convert images to the next generation format 'WebP')
 - Optimize CSS background images: Yes
 - Optimize HTML background images: Yes
 - GIF images optimization: Yes
 - Lossless optimization: Yes
 - Hash method of images name: Full
- Srset management**
 - Create srset: Yes (Callout: Automatically generate a srset for each image)
 - Initial quality value: 90%
 - Quality decrease: 15%
 - Initial resizing value: 100%
 - Resizing decrease: 20%
 - Standard image src: 2x

A 'Save Settings' button is located at the bottom of the settings area.

Adaptive Contents

The Adaptive Contents feature makes it possible to remove certain parts of HTML or CSS/JS files to generate a lightweight version of the website.

This dramatically raises the page speed score without losing website functionalities for regular visitors.

Thanks to this feature when the page is crawled by bots and page speed tools such as the Google PageSpeed Insights, Lighthouse or GTMetrix it's possible to:

1. Remove certain HTML elements from the page, for example to reduce the CLS value
2. Remove certain JS files
3. Remove certain CSS files
4. Remove all JS and CSS code

This is especially helpful to improve the following PageSpeed metrics:

- Minimize main-thread work
- Reduce Javascript execution time
- Avoid enormous network payloads

If necessary it's also possible to define a custom list of bots user-agent strings to match various page speed tools.

This feature will not affect the normal version of the website that is loaded by visitors, indeed the great advantage of Adaptive Contents is that it's possible to serve optimal contents for each use case and reach the maximum score otherwise impossible to achieve with other technologies.

The screenshot shows the WPSpeed plugin settings page. The left sidebar contains navigation links for Dashboard, Posts, Media, Pages, Comments, Appearance, Plugins, Users, Tools, and Settings. The main content area is titled 'WPSpeed Version 2.1.1' and includes a 'Save Settings' button. Below this are tabs for 'Optimize .htaccess', 'Restore .htaccess', and 'Reorder Plugins'. The 'Settings' tab is active, showing sub-tabs for 'General', 'Assets Inclusions', 'Assets Exclusions', 'JavaScript', 'Combine Images', 'CDN', and 'Advanced'. The 'Adaptive Contents Settings' section is expanded, showing options to 'Enable Adaptive Contents' (set to 'Yes'), 'CSS selectors for elements to remove' (with a text input field containing 'button.wp-block-navigation_responsive-container-open'), 'Bots user-agent strings' (with a list of bots like lighthouse, googlebot, etc.), 'Remove JS files' (set to 'No'), 'Select JS files to remove' (with a text input field containing 'x/navigation/view.min.js'), 'Remove CSS files' (set to 'No'), 'Select CSS files to remove' (with a text input field containing 'x/twentytwentytwo/style.css'), 'Remove all JS' (set to 'Yes'), 'Remove all CSS' (set to 'Yes'), and 'Essential CSS code' (with an empty text area). Callouts point to these settings: 'Enable Adaptive Contents and enter CSS selectors for elements to remove' points to the 'Enable Adaptive Contents' and 'CSS selectors' fields; 'Define the list of user-agent strings' points to the 'Bots user-agent strings' list; 'Choose certain JS or CSS files to remove' points to the 'Select JS files to remove' field; and 'Choose to remove all JS/CSS code' points to the 'Remove all JS' and 'Remove all CSS' options.

Page Cache and Instant Page

WPSpeed integrates in its core a page caching system, so that there is no need to use a separate plugin for this purpose, furthermore the great advantage is that the WPSpeed page cache perfectly copes with the rest of optimizations.

Thanks to a page cache, the HTML source code of pages can be entirely cached to significantly speed up the page load. Indeed there is no longer need to hit your server PHP to re-process the final page each time, nor to query your database. The resulting page once that has been cached, is reused as is for subsequent requests.

The page cache can be tricky while configuring the plugin or making changes to the site, in this case pay attention to keep the page cache disabled or clear it.

WPSpeed also includes an innovative feature to have an instant page load for human visitors, in order to optimize performance for bots but also for visitors.

This system is named 'Instant Page' and it preloads the page before that it's actually opened with the result to have it rendered instantly if the user chooses to click and open it.

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WPSpeed Version 2.1.1

Save Settings

Optimize .htaccess

Restore .htaccess

Reorder Plugins

Refresh cache

Clear Cache

Cache files: 121

Cache size: 1.18M

General Assets Inclusions Assets Exclusions Lazy Load Optimize Images Adaptive Contents Page Cache Assets management Http/2 Combine Images CDN Advanced

Page Cache

The HTML source code of pages can be fully cached to significantly speed up the page load. Keep the page cache disabled or clear it while configuring the plugin or making changes to the site.

Enable page caching No Yes

Platform specific cache No Yes

Page cache lifetime

Exclude page cache by URL

Instant Page

Enable the Instant Page preloading before a page is opened.

Enable Instant Page preloading No Yes

Preload delay

Save Settings

Enable page cache, choose settings such as the cache lifetime

Enable the Instant Page system

Assets management

WPSpeed includes a special feature to remove Javascript and CSS resources that have an heavy impact on the performance of the website.

Thanks to WPSpeed it's possible to easily remove the loading of these resources through below settings, but keep in mind that removing a resource could cause the loss of important functionalities for the website, or change its layout and aspect.

So you should use this feature carefully to disable only features that are not essential or assets that are not used on your website.

The screenshot shows the WPSpeed plugin interface with the following sections and callouts:

- Remove CSS Files:** A callout box says "Type in the Javascript files that need to be removed" pointing to the input field containing "x.../navigation/style.min.css".
- Remove Javascript Files:** An input field contains "x.../navigation/view.min.js".
- Add custom Javascript:** A callout box says "Type in the CSS files that need to be removed" pointing to the "Add custom JS code" section.
- Add custom CSS:** A callout box says "Add custom JS or CSS code" pointing to the "Custom JS code" text area.

Keep in mind that after removing a given resource you may need to clear the WPSpeed cache in order to refresh the compiled JS/CSS files and apply changes.

Furthermore it's also possible to add custom snippets of JS and CSS code if you need for example to apply certain fixes to styles or load dynamic scripts.

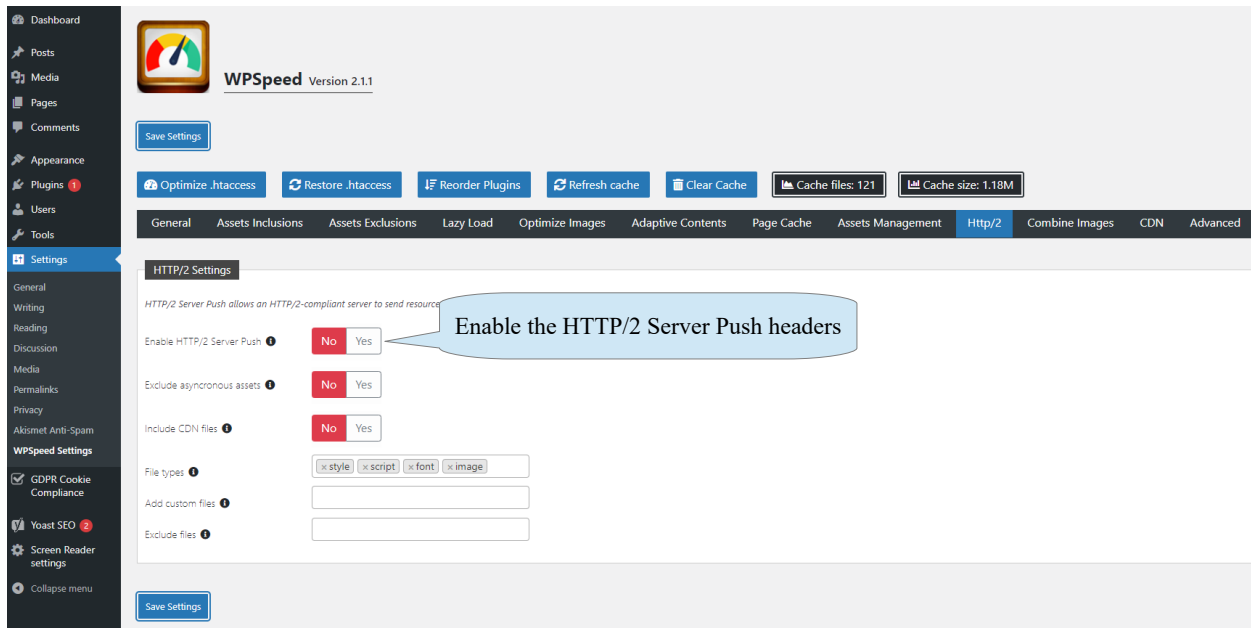
HTTP/2

HTTP/2 Server Push is a modern technology that allows an HTTP/2-compliant server to send resources to a HTTP/2-compliant client before the client requests them.

It is, for the most part, a performance technique that can be helpful in loading resources preemptively.

If this option is enabled, WPSpeed will communicate to the server to operate using this technology, keep in mind that this only works on a HTTP/2 compliant server.

If you have doubts about the compatibility of your server with the HTTP/2 protocol, it's recommended to contact your hosting provider.

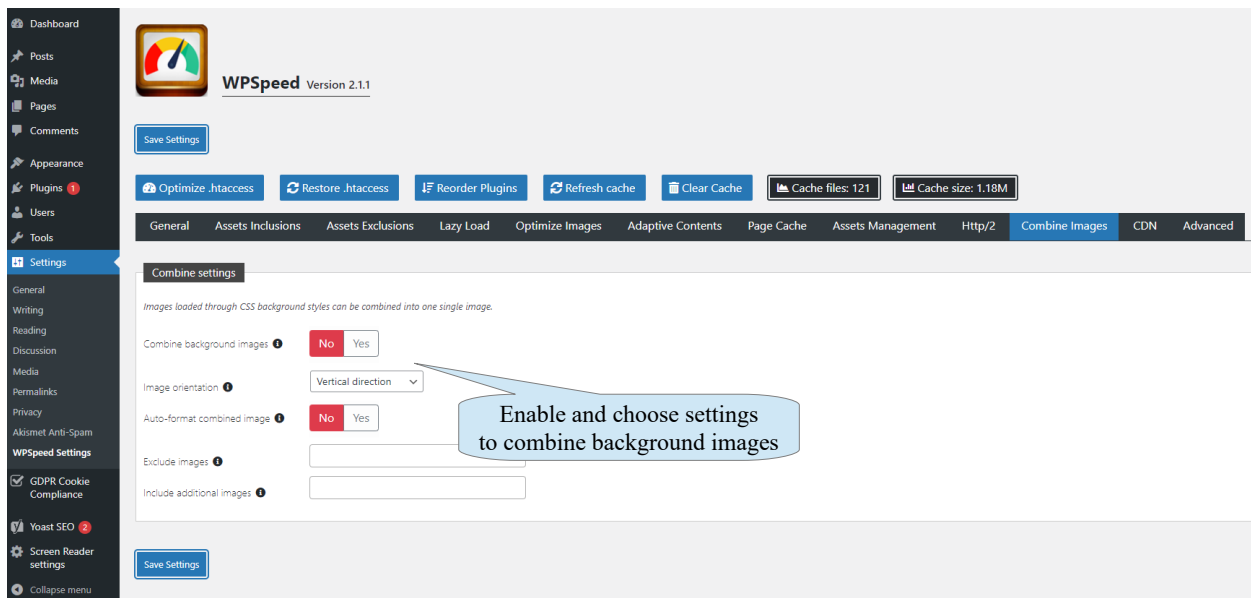


Server push lets the server preemptively “push” website assets to the client without the user having explicitly asked for them. When used with care, it's possible to send what it's known the user is going to need for the page they're requesting. Resources can be downloaded in parallel.

Combine images

In the case that your template and installed plugins load several images through CSS background styles, thanks to the 'Combine images' feature they can be combined into one single image working as a container, in order to reduce the number of HTTP requests.

You can choose and customize several aspects of this functionality, mainly to avoid issues and undesired results when original images are wrapped within the container:



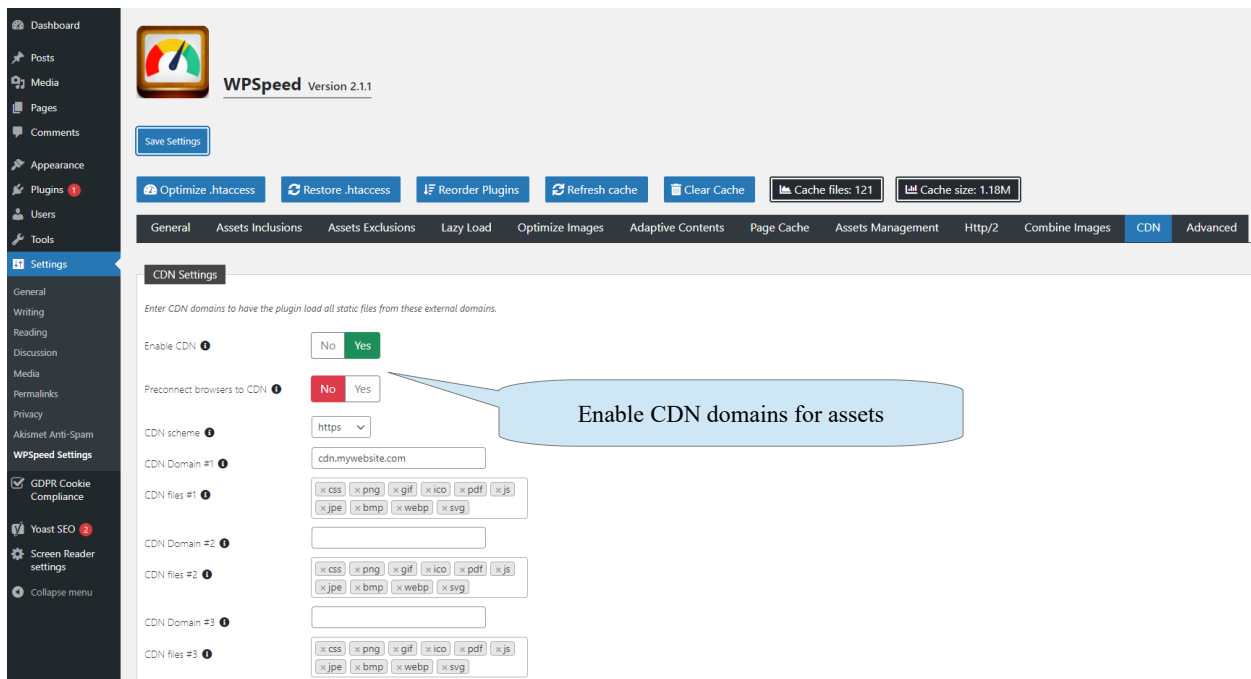
To avoid issues and incorrect display, it could be particularly useful to:

- Manage the orientation of combined images within the container image
- Enable the auto-format
- Exclude specific images
- Include additional images

CDN usage

If you use a CDN, you can take advantage of the WPSpeed plugin so that all static assets such as background images, Javascript, CSS files, etc will be loaded automatically from your CDN domain.

You can specify up to 3 different CDN domains for various assets loaded on the website, it's enough to choose the scheme, domain and resource types:



For all CDN domains it's possible to set:

1. CDN domain
2. Type of files loaded from a CDN
3. Preconnect mode to further speed up loading of resources

Advanced settings and features

Finally WPSpeed includes some advanced features that could help to improve the performance score of your website.

In more details WPSpeed is capable of:

- Extract Basic CSS Styles: this feature extracts basic CSS styles required to format the page

above the fold and put this in a <style> element inside the <head> section of the HTML to prevent 'render-blocking'.

- Reduce DOM Tree: HTML5 DOM elements exceeding the limit of 600 below the fold will be removed and loaded asynchronously using Javascript after that the page has been fully rendered.

The screenshot shows the WPSpeed plugin settings page. The left sidebar contains navigation options like Dashboard, Posts, Media, Pages, Comments, Appearance, Plugins, Users, Tools, and Settings. The main content area has tabs for General, Assets Inclusions, Assets Exclusions, Lazy Load, Optimize Images, Adaptive Contents, Page Cache, Assets Management, Http/2, Combine Images, CDN, and Advanced. The 'Advanced' tab is active, showing three sections:

- Extract Basic CSS styles:** Includes options for 'Enable extraction' (No/Yes), 'Number of elements' (800), and 'Remove unused CSS' (No/Yes).
- Reduce DOM Tree:** Includes 'Enable DOM reduction' (No/Yes) and 'HTML tags to load asynchronously' (section, header, footer, aside, nav).
- Advanced Settings:** Includes 'Cache encryption' (No/Yes), 'Debug Plugin' (No/Yes), 'Order plugins' (No/Yes), and 'Handle Javascript errors' (No/Yes).

Callout boxes highlight 'Advanced optimizations of WPSpeed' pointing to the 'Reduce DOM Tree' section and 'Debug mode and advanced settings' pointing to the 'Advanced Settings' section.

The plugin includes also a debug mode and a log system.

If you experience complex conflicts to solve, consider to enable the debug mode of WPSpeed.

Thanks to the debug mode of WPSpeed, each URL of an original file is included in the combined files and the log system will be enabled so that you can inspect the log file at the path: *root/wp-content/plugins/wpspeed/logs*

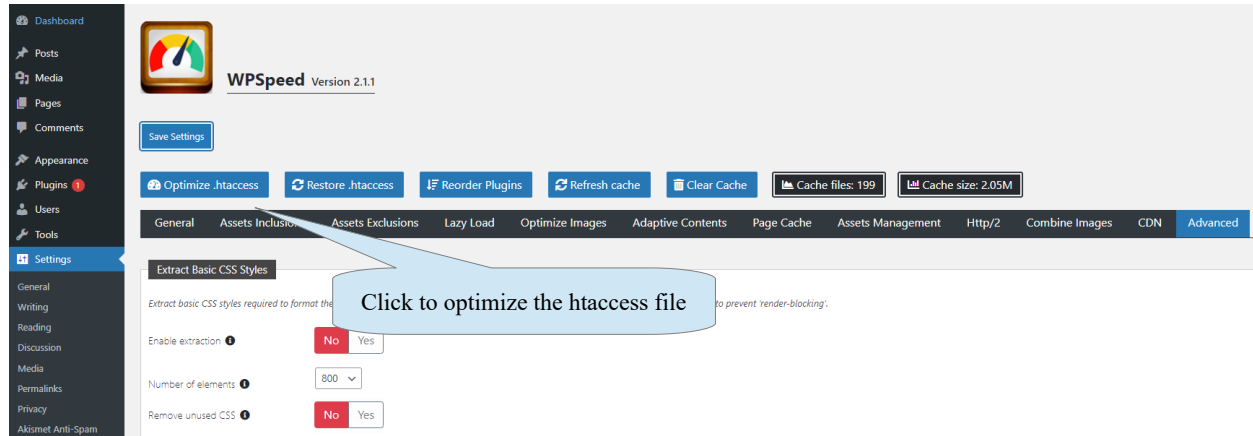
Htaccess optimization

WPSpeed is capable to optimize your htaccess in order to leverage browser caching for loaded assets such as images, CSS, scripts, etc

This is accomplished adding special directives to leverage browser caching and gzip

compression, keep in mind that the Apache modules *mod_expires*, *mod_headers* and *mod_deflate* must be enabled on the server in order to have these optimizations working. If you have doubts about the activation of these modules on your server, it's recommended to contact your hosting provider to get the list of installed and enabled Apache modules. It also adds htaccess rules for the new Brotli compression that can be used if your server supports it.

To optimize your htaccess file it's enough to click once on the toolbar button:



WPSpeed cache

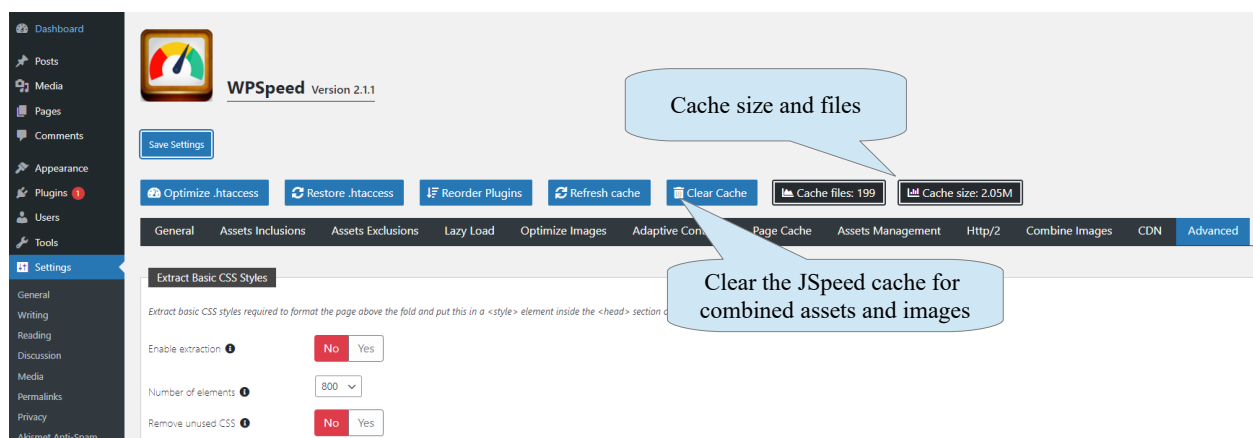
The plugin uses a cache for all combined assets in order to process them only once and keep them valid until the cache becomes stale.

If you apply changes to the website you may need to clear the WPSpeed cache in order to get modifications applied immediately, without waiting that the cache lifetime expires.

To do this, it's enough to click on the toolbar button 'Clear cache'. By clicking the 'Clear cache' button, also the page cache will be deleted if it has been enabled.

As an alternative you can just refresh the cache by clicking on the button 'Refresh cache' so that browsers will fetch updated contents.

There are also labels that show the amount of cache generated on your server by WPSpeed so that it's possible to have its size and the number of files under control.



Auto updates

To update the WPSpeed PRO plugin using the Wordpress updates system you must enter the exact email address used to register on our site <https://storejextensions.org>.

The email address is used to identify your account and the validity of the updates license for the PRO paid version.

Free updates are included for 1 year from the date of the latest purchase.

More info about licensing and updates at our FAQ page <https://storejextensions.org/faq.html>"

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Cache size: 2.05M

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Registration email address for updates

youremail@email.com

Combine Assets

Manage the combining of CSS and Javascript files.

Enable combining of CSS and Javascript files

No Yes

Combine CSS files

No Yes

Combine Javascript files

No Yes

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