SOLARWINDS
TECH TIPS

How to Monitor and Identify
Website Issues

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What Affects a Website's Performance

Website performance issues can come from anywhere—the page elements or the back-end supporting infrastructure. Back-end infrastructure can consist of:

Back-end infrastructure consists of:

- Network
- Database
- O/S
- Hardware
- Web Server
- Application

Front-end Web app problems that could cause performance issues consists of:

- HTML
- CSS
- JavaScript
- Images
- Third Party Content

In order for your websites to be available to your users, you will need to monitor availability and performance across Web page and infrastructure elements. Let's start looking at the front-end issues to see how each of them impact a website's performance and at some tips on how to monitor them before your users raise trouble tickets.

Front-End Issues

If you already know it's an issue with page performance that is causing issues on your website, but you don't know where to start, read along as we uncover issues in each area followed by tips on how to proactively monitor your website performance.

HTML

There are a few signs you should watch out for when your HTML page loads:

- How quickly your page responds to requests.
- Whether the page elements are loading slowly.
- Whether pages are not loading at all.

Whatever the cause, monitoring HTML is essential before your users are affected. Here are a few reasons why this issue occurs:

- **HTML requests:** HTML requests can take longer than usual to process. This can cause websites to load slowly. It can also happen if there are poorly written queries—or if the server does not have enough physical or virtual memory.

- **Non-compliant HTML tags:** If there are HTML typos or in the case of non-compliant HTML tags, the webpage would display with errors.

- **Missing links to files and images:** In many cases, files and images are uploaded but not linked in HTML. As a result, they do not get displayed in the website.

CSS

Cascading Style Sheet (CSS) gives a clean look to websites which makes it easy on your users' eyes. When your users are specifically visiting your website and it only displays hyperlinks and text, chances are your style sheet has failed to load. Another potential problem with CSS is that it can sometimes take a long time to load for sites with graphic-heavy content.

CSS problems are quickly noticed by end-users so they need to be fixed immediately to reduce abandonment.
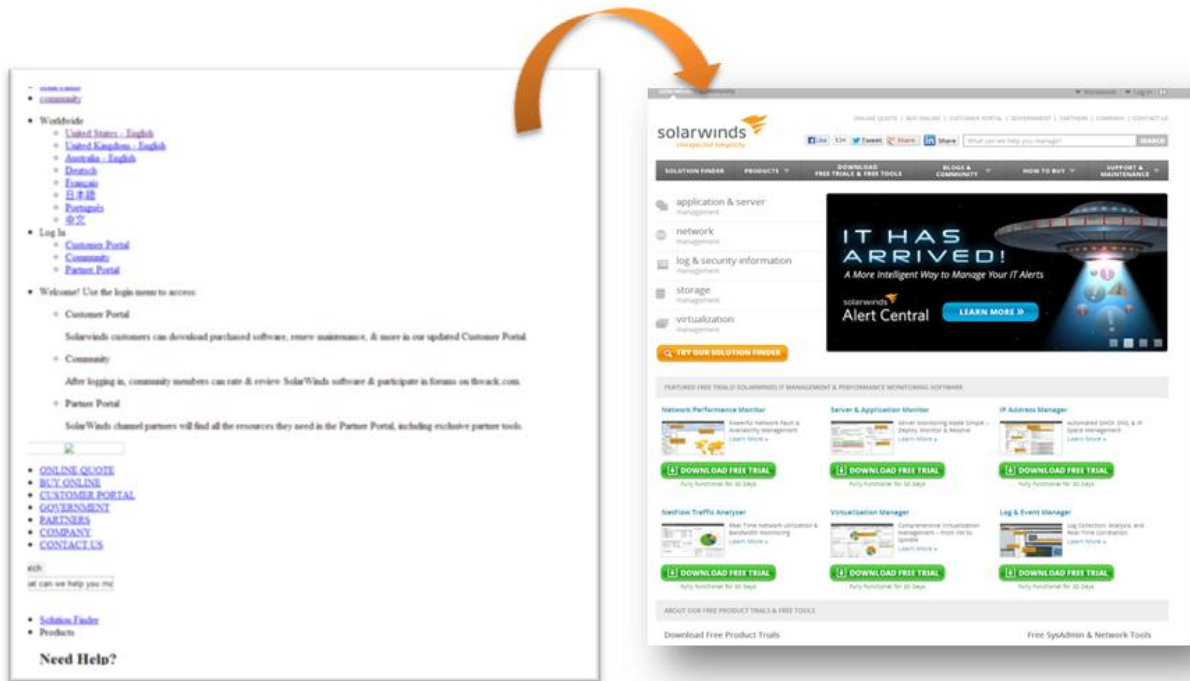
*There is a CSS issue if images and text elements fail to load*

Here are some of the root causes of CSS issues:

- **Inappropriate CSS reset:** By not doing a proper CSS reset, Web pages are rendered differently so the layout and format might look different on different computer screens.

- **Color names cause mix-up:** Using color names incorrectly causes a webpage to display text in different or incorrect colors.

- **Long CSS code:** Lengthy CSS code means that your website is going to take longer to load.

- **Failure of page elements:** Images, graphics, and page layouts can sometimes fail to load or take unacceptable amounts of time to load completely.

- **Failure of text and image style elements:** Failure to set correct parameters for text and image elements in Web pages can cause them to display in smaller fonts and shrunken images.

- **Location-specific issues:** CSS files and their elements look different depending on physical or geographic location.

JavaScript

If you're lucky, you can identify the problem and troubleshoot JavaScript issues right away. If you don't know what you're dealing with, you could start looking into the following areas to identify and troubleshoot the problem:

- **Server performance:** Momentary server hiccups may result in incomplete code being sent to the browser.

- **Issues with 3rd-party sites:** If you query a 3rd-party site without having it load asynchronously, you will likely have JavaScript issues on your site.

- **Corrupt cache file:** This can cause unstable application performance and random error messages that pop up in the browser. Sometimes it can even make the application crash.

- **Outdated files:** The browser might be using an outdated version of one or more JavaScript files from its cache.

- **Browser compatibility:** Many times, JavaScript features work differently in different browsers.

- **JavaScript code:** There could be a genuine error in the JavaScript code itself. For example, a missing semicolon or brackets, comments within comments, or code with missing statements such as return, throw, break, etc.

- **Other possible issues:** The scripting engine, video card drivers, or DirectX controls could be corrupt or outdated.
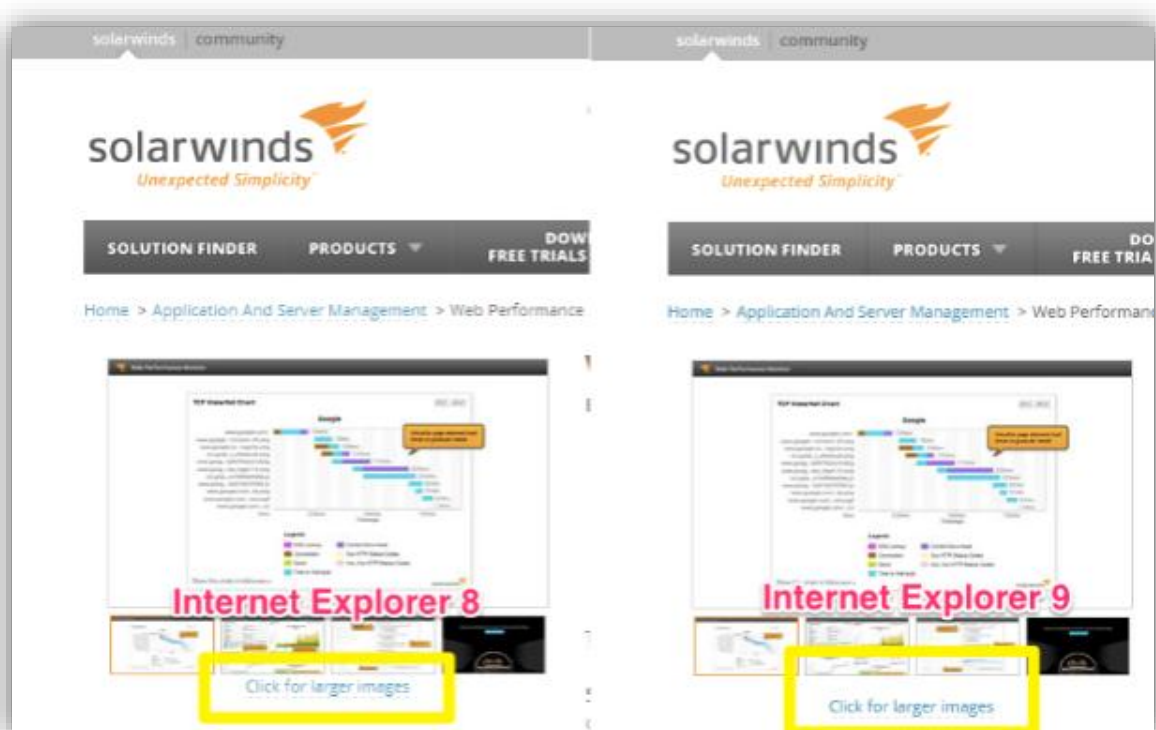
The same website will look different if there is a problem with JavaScript

Third Party Content

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Content from 3rd-party sites can have a negative impact on your website performance and it will eventually affect it in many ways.

- **Website plugins:** If there are embedded Flash movies, audio, or video in your Web application, they sometimes won't run correctly without JavaScript.

- **Content view:** Some webpages use Java applets for interactive content like online games. If the Java plug-in isn't installed, then the browser won't be able to run the applet and interactive content can't load.

- **Ads:** Live ads in a webpage that pull data from a third party site will cause performance issues in websites.

- **Live content:** Live 3rd-party content like, game scores or a stock ticker, will constantly refresh the page with the latest updates. This can affect other page elements and slow their load times.

Images

Images enhance the look and feel of a website, and they significantly contribute to the overall user experience. If images don't load when you visit a website for the very first time, chances are it's going to affect your perception of that site and its content. You might never return to that site. Your users are going to be thinking the same thing when they visit your website. Sometimes images that tell an important story about your product or service won't load. This leaves the page with just text. Let's look at why image issues occur.

- **The image loads, but it looks incorrect:** Sometimes when images load on a website, they don't look the same way they do in other browsers. This could happen if you're using Web accelerator software, which reduces image quality.

- **Plug-in issues:** Some plug-ins installed in the browser allows images to load only on the very first viewing. They may not load during successive visits to the same page—even after refreshing.

- **Cache and cookies:** A corrupt cache file or cookies can sometimes prevent images from loading.

- **Image permissions:** Some browsers prevent certain websites from loading images just to increase load speed.

- **Internet Security:** Antivirus, firewall, and other security programs may block images and prevent them from loading.

- **Pathnames to image files:** Images that contain backslashes in their URL might have issues displaying in the browser. This may vary from browser to browser.

8 Tips to Identify and Monitor Website Issues

#1 Page Element Load Speeds (Use for HTML, 3rd-party, and CSS issues)

Monitor and alert page elements and load times. For example, monitor how long it takes for content within Web pages to load. Establish a baseline for how much time it should ideally take content to load. Then monitor the load times of each step in the page. If a step loads slowly or fails to load, you should receive an alert about the problem.

#2 The time it Takes Images to Load (Use for HTML, 3rd-party, and image issues)

Use image matching to monitor the number of seconds it takes for images to load. You should define the number of seconds it takes for an image to load. Monitoring this will tell you if the image has loaded within the specified time. Then you know if the transaction passed or failed.

#3 Validate Image Display (Use for HTML, JavaScript, image issues)

Use image matching to validate if the image is displayed as intended. Sometimes different browsers will display images differently. Image matching will also tell you if the image height, width, placement location, etc. is what you intended it to be.

#4 Monitor from Multiple Locations (Use for HTML, 3rd-party, CSS issues)

Play back Web transactions from multiple locations and see if the page is actually loading content as intended. Playing back recordings from multiple locations will give you insights into the global user experience.

#5 SQL Query Response Time (Use for HTML issues)

Monitoring response times for SQL queries will show if the query is taking a longer time to process. A Web application monitoring pack will monitor SQL and Web server performances. It will show if a Web application is slow and how it impacts the effectiveness of your websites and can suggest possible issues that could lead to application downtimes. The addition of a server monitoring software will proactively monitor SQL query response times. It will measure how long a query takes to complete and how long the database takes to return the result of the pre-defined SQL query. The server monitoring tool will also monitor metrics such as CPU utilization and the memory usage of Web servers.

#6 Physical or Virtual Memory on the Server (Use for HTML, 3rd-party, image issues)

Monitor the server's virtual and physical memory capability so requests can be processed with speed.

#7 Verify Functionality in Development (Use for JavaScript issues)

When you're building the website, you can monitor the logic of the code by recording transactions that involve JavaScript code and verifying their functionality.

#8 Browser Compatibility (Use for HTML, 3rd-party, CSS issues)

Make sure you do QA testing on multiple browsers to ensure the JavaScript has the desired effect on all browsers your application supports.

Learn How SolarWinds® Web Performance Monitor Can Help Monitor Front-End Issues in your Websites

*Easy-to-Use Transaction Recorder*

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SolarWinds® WPM lets you quickly and easily record complex multi-step transactions with no scripting involved. The recorder functions just like a Web browser which allows you to record an unlimited number of steps.
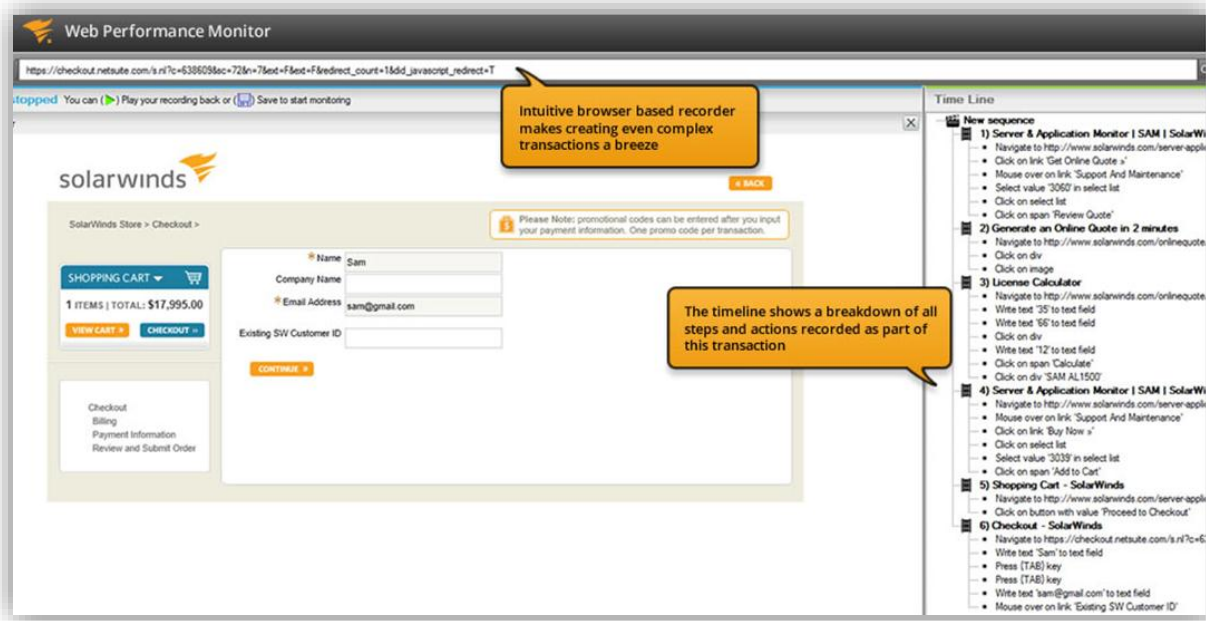
Monitor every step of a Web transaction

Monitor Website Performance from Multiple Player Locations

The player component of SolarWinds Web Performance Monitor constantly monitors your Web applications. Using multiple player locations allows you to simulate customers accessing your applications from all over the world. Plus, you can check not only application health, but also network availability, so you can differentiate between an application or network problem.
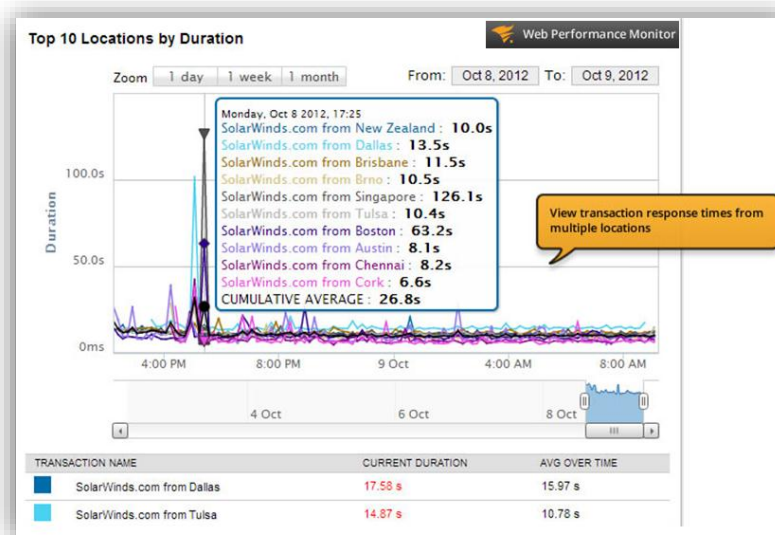
Play back recordings from multiple locations to gain insights into the global user experience

Monitor Individual Steps of Website Transactions

SolarWinds WPM keeps track of each website recording step as a separate event, and it allows you to

- Monitor each step in a transaction.
- See the historical availability for each step in the transaction.
- Quickly identify all steps with problems.

Monitor granular performance of each step in the transaction

Transaction Alerting/Notifications

WPM allows you to set custom thresholds for transactions and discrete steps. You are also automatically notified when a transaction fails, is slow or is incomplete. You have the option to receive notifications in many different ways, including email and text.
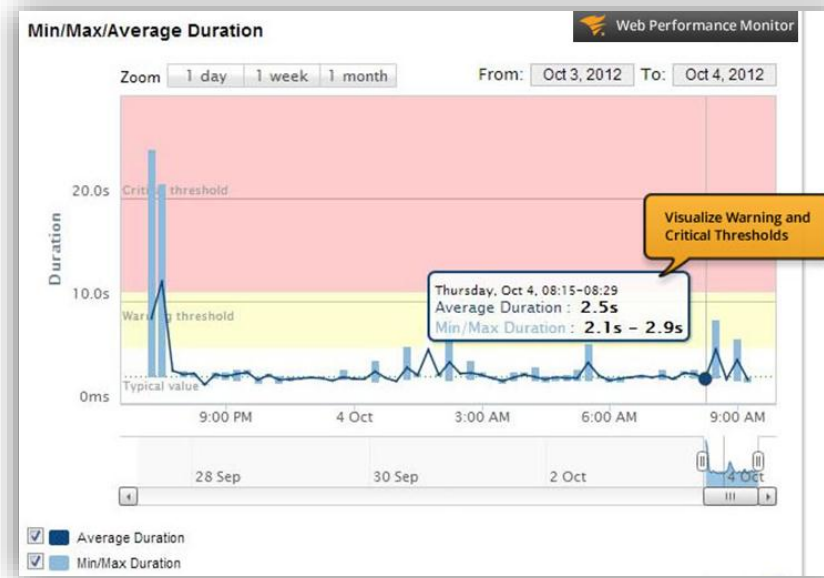
Set warnings and custom timing thresholds for individual steps and entire transactions

Image Matching

Use image matching to monitor the number of seconds it takes for images to load. This will show if the images loaded within the specified time and whether the Web transaction passed or failed. You can use image matching to validate if the image is displayed as intended.
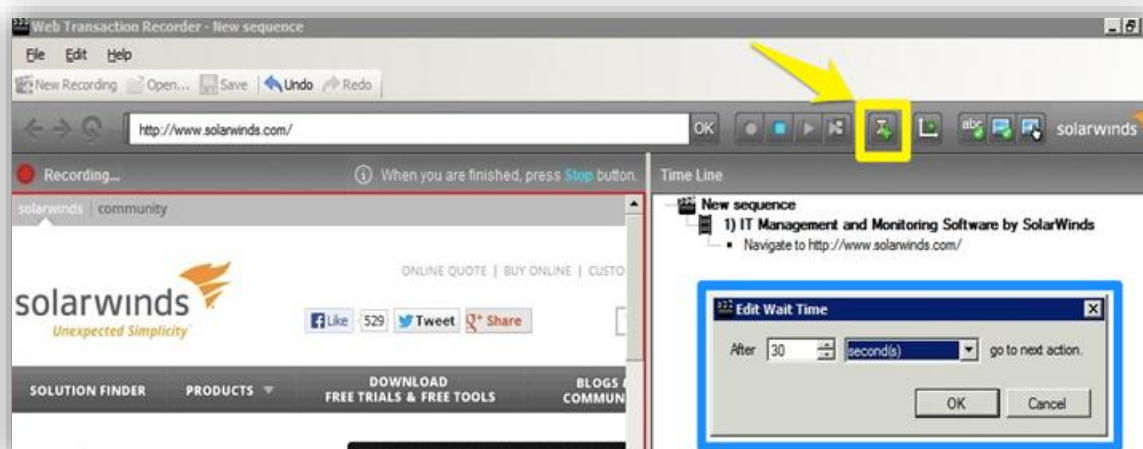

Image match will allow you to edit load times for images in your web pages

Five Reasons to Download Web Performance Monitor (WPM)

- Get visibility into front-end issues that affect website performance.

- Quickly find the root cause of each Web page performance issue.

- Continuously monitor end-user experience for each step of a Web transaction.

- Monitor any Web application whether internal, external, or cloud-based.

- Visualize availability and duration alerts by transaction step, Web page, and location.

SolarWinds (NYSE: SWI) provides powerful and affordable IT management software to customers worldwide - from Fortune 500 enterprises to small businesses. The company works to put its users first and remove the obstacles that have become "status quo" in traditional enterprise software. SolarWinds products are downloadable, easy to use and maintain, and provide the power, scale, and flexibility needed to address users' management priorities. SolarWinds online user community, http://thwack.com, is a gathering-place where tens of thousands of IT pros solve problems, share technology, and participate in product development for all of the company's products. Learn more today at http://www.solarwinds.com.

For additional information, please contact SolarWinds at 866.530.8100 or e-mail sales@solarwinds.com.

To locate an international reseller near you, visit http://www.solarwinds.com/partners/reseller_locator.aspx

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