



This manual provides an overview of MatrixStats plus a comprehensive guide to its unique features.

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MatrixStats overview

MatrixStats is a unique, real-time website visitor statistics tool. It provides easy-to-understand, graphical information about the visitors to your website, including:

- Number of unique visitors.
- Where your visitors have come from.
- The search terms your visitors have used.
- Other websites that are using your files.
- Which browsers your visitors use.

Once MatrixStats has been activated for your website, you access it using the a website address in this format: `http://matrixstats.yourdomain.tld` (where `yourdomain.tld` is your website's domain name).

When you log in, you'll see a usage summary for the previous day:

The screenshot shows a web interface with a dark blue header bar containing the text "Statistical Report for:" and two small icons (a mail icon and a question mark icon). Below the header is a section titled "Usage Analysis: Report for Single Day" with a light gray background. This section contains a table with two columns: "Information" and "Description". The "Information" column lists "Starts 23 December 2002:", "End: 23 December 2002.", and "Units:". The "Description" column contains the text: "Usage Analysis shows an overview of the activity on the site over the selected time range. For more information about any of the tables in this report, select the 'Usage' menu items in the left hand menu." Below this section is a dark blue header bar with the text "Server Activity Totals". Underneath is a list of statistics: "Total Sessions Served 5430", "Total Hits 119920", "Total Page Hits 7190", "Total Non Page Hits 112730", "Total Session Duration 594750s", and "Total Transferred 686.71 MB". At the bottom is another dark blue header bar with the text "Server Activity Averages", followed by a list of statistics: "Total Sessions Served 5430", "Average Hits Per Session 22", "Average Page Hits Per Session 1", "Average Session Duration 109s", and "Average Transfer/Session 129.50 kB".

Statistical Report for:  

Usage Analysis: Report for Single Day

Information	Description
Starts 23 December 2002: End: 23 December 2002. Units:	Usage Analysis shows an overview of the activity on the site over the selected time range. For more information about any of the tables in this report, select the 'Usage' menu items in the left hand menu.

Server Activity Totals

Total Sessions Served 5430
Total Hits 119920
Total Page Hits 7190
Total Non Page Hits 112730
Total Session Duration 594750s
Total Transferred 686.71 MB

Server Activity Averages

Total Sessions Served 5430
Average Hits Per Session 22
Average Page Hits Per Session 1
Average Session Duration 109s
Average Transfer/Session 129.50 kB

Server Activity Totals

- **Total Sessions Served:** The total number of unique visits to the site.
- **Total Hits:** The total number of requests made to the site.
- **Total Page Hits:** The total number of requests for pages.
- **Total Non-Page Hits:** The number of requests for files other than pages (e.g. downloads, images etc.).
- **Total Session Duration:** The sum of the amount of time between the first and last hits of all sessions in the time range.

Server Activity Averages

- **Total Sessions Served:** This provides an average of the total sessions from the time period which is selected.
- **Average Hits Per Session:** Page views per session breakdown.
- **Average Page Hits Per Session:** The number of page requests made during each session. A session may have made no page requests if the visitor only requested an image, or downloaded a file from the site. Check the 'spongers' report for other sites that may be using images if there are a large number of 0-page-requested sessions.
- **Average Session Duration:** Time spent per session breakdown.
- **Average Transfer/Session:** A categorised count of the amount of time spent during each visit to the site. The duration of a session is the amount of time between the first and last request made. The date range of reports can be altered by using the calendar in the left hand menu bar.

Who's on

Who's On Now? Currently 8 Active Session(s)			
Breakdown			
IP Address - 80.15.9.144	Duration - 00 sec from 09:24:20 Tue		
Network - PROVIDER Local Registry France Telecom	Hostname - Absencon-102-1-4-144.abo.wanadoo.fr		
Location - FR	Hits/Bandwidth - 1 / 25.51 kB		
IP Address - 151.202.75.160	Duration - 00 sec from 09:24:16 Tue		
Network - Verizon Trademark Services, LLC (VERI...	Hostname - pool-151-202-75-160.ny5030.east.verizon.net		
Location - US	Hits/Bandwidth - 1 / 25.39 kB		
IP Address - 217.39.12.16	Duration - 11 sec from 09:23:39 Tue		
Network - IP Pools (BT Public Internet Service)	Hostname - host217-39-12-16.in-addr.btopenworld.com		
Location - GB	Hits/Bandwidth - 25 / 144.97 kB		
IP Address - 68.7.221.249	Duration - 01 min 35 sec from 09:23:21 Tue		
Network - Cox Communications Inc. Atlanta (NETB...	Hostname - ip68-7-221-249.sd.sd.cox.net		
Location - SD	Hits/Bandwidth - 31 / 156.14 kB		
IP Address - 213.98.174.118	Duration - 28 sec from 09:22:32 Tue		
Network - Telefonica De Espana SAU (NCC#2000108...	Hostname -		
Location - ES	Hits/Bandwidth - 8 / 111.62 kB		
IP Address - 24.165.129.72	Duration - 02 min 28 sec from 09:21:25 Tue		
Network - ServiceCo LLC - Road Runner (NET-ROAD...	Hostname -		
Location - US	Hits/Bandwidth - 67 / 537.61 kB		
IP Address - 193.71.65.33	Duration - 04 min 43 sec from 09:19:41 Tue		
Network - Network Security, Asplem Intercon, Os...	Hostname -		
Location - NO	Hits/Bandwidth - 14 / 269.15 kB		

The Who's On report shows a detailed view of sessions that are currently in progress (i.e. current visitors) including each session's geographic location, IP address, hit count, and bandwidth usage.

Click on the magnifying glass next to each entry for more information such as a complete log of requests for each session.

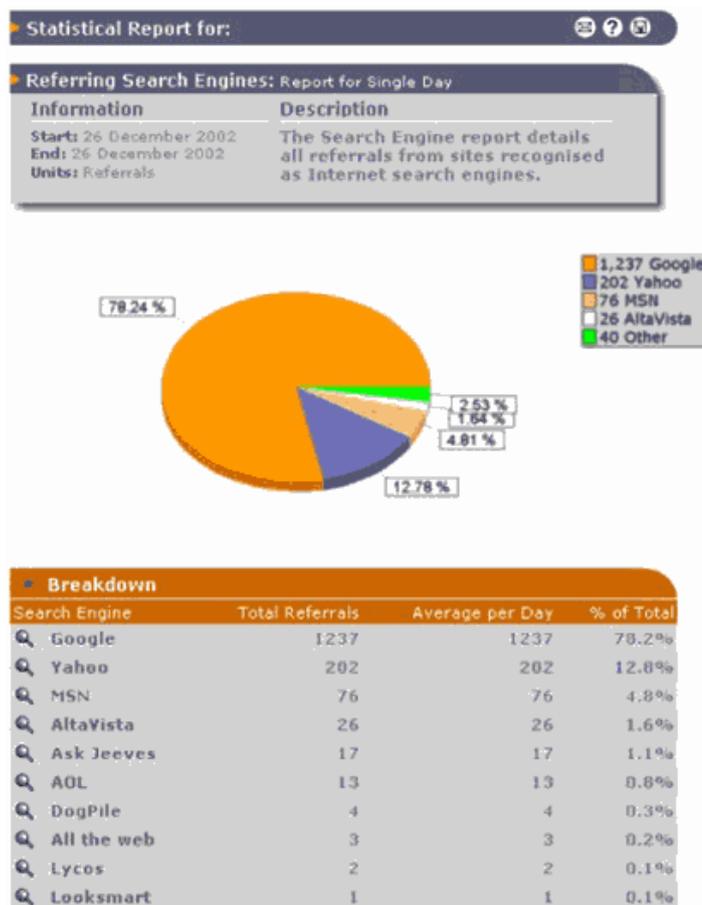


Note: Geographic information may not always be available, as MatrixStats has to retrieve this information from databases across the internet. Sessions are timed-out after 20 minutes of inactivity.

Referrers

See which other sites have directed visitors to your website in the "Referrers" section.

Choose the "Search Engines" option:



You can also use the features within the Referrers section to determine which key words and phrases visitors are entering into search engines to find your website. This section shows specific web site pages visited and helps you find broken links to your site.

Statistical menu details

Tracking



The **Tracking** section includes the “Who’s On” feature.

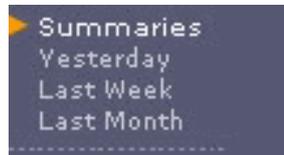
In this section you can also track any **Watches** that you have set up.

Administrators can set up such watches in the **Admin > Watches** section.

- **Watched URL:** MatrixStats can be configured to *watch* for access to specific pages (URLs) within a site. A MatrixStats site administrator can use a “wildcard” to match a specific page (or set of pages), and when such pages are accessed, a log will be made of time and IP address of the visit.
- **Watched IP:** MatrixStats can be configured to *watch* for visitors with specific IPs. When a match is made, information about the visitor is stored in addition to the time and date.
- **Watched Link:** MatrixStats can be configured to *watch* for visitors who follow links both into and out of the site.

Clicking the magnifying glass next to a particular watch will show a chart of hits. If the *log* option is selected at the top of the chart page, then a detailed log of all hits is displayed.

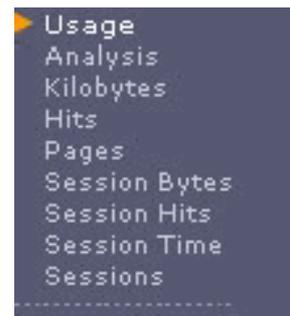
Summaries



The **Summaries** section provides an overview of the statistics for either yesterday, last week or last month. It shows the analysis reports for each section and can be very useful if you just want to check your website stats at a glance.

Usage

Usage has several sub sections, which can be broken down into the following:



- **Analysis:** Usage Analysis shows an overview of the activity on the site over the selected time range.
- **Kilobytes:** The bytes transferred report details the number of bytes sent and received from the site.
- **Hits:** Usage by hits shows the number of files served by the site within the specified time range. The hits report details all files, not just those with a defined type.
- **Pages:** The 'Page hits' report details the number of requests for documents recognised as pages rather than other files such as images or downloads.
- **Session Bytes:** The bytes per session report shows how many bytes were transferred on average per session. This value gives a rough indication as to how much information is gathered from the site per visitor.

- **Session Hits:** The hits per session report shows how many hits were recorded on average per session.
- **Session Time:** The time per session report shows the average amount of time between the first and last requests from a single session. The higher the time per session, the longer visitors are spending on the site.
- **Sessions:** A report showing the number of visitors to the site.

Pages

The Pages section has the following features:

- **Analysis:** Page Analysis shows an overview of the page activity on the site over the selected time range. For more information about any of the tables in this report, select the 'Pages' menu items in the left hand menu.
- **Map:** The usage maps report displays a user-customisable hierarchy of the site. Sessions are filtered into the groups based on page filters.
- **Page Views:** The most popular pages report details the most commonly requested pages on the site.
- **Page Errors:** The Most Common Errors report details the pages which generated an error when requested. The most common reason for this is that the page is not on the site.
- **Downloads:** The Most Popular Downloads report details the requests for files which are recognized as downloads (rather than pages).



- **Download Errors:** The Most Common Download Errors report details the downloads which generated an error when requested. The most common reason for this is that the download is not on the site.
- **Least Viewed:** The Least Viewed report details those pages which were viewed the least. This report does not include those pages which have not been requested during the selected period.
- **Exit Point:** The Session exit points report shows which pages were the last to be requested by visitors to the site.
- **Viewed Once:** The only page viewed report details sessions which only requested one page during their navigation of the site.
- **Directory:** The directory report groups page requests into their web directories. This report can be a very useful way to view the popularity of sections of a site, if a suitable directory structure has been chosen.

Browsers

- **Analysis:** Browser Analysis shows an overview of the web browsers used to access the site over the selected time range. For more information about any of the tables in this report, select the 'Browsers' menu items in the left hand menu.



- **Agent Type:** The agent type report details the web browsers used to connect to the site. The browsers are grouped by brand and by version.
- **User OS:** The Browser Operating System report details the operating system which each visitor's browser was running on. The report is grouped by brand and by version.

- **Browser Tags:** The Browser Tags report details the information sent by the web browser to the web site when a request is made. From the browser tag it is often possible to work out which OS and browser the client is using.
- **Robot Tags:** The Robot Tags report details the information sent by the web browser to the web site when a request is made. From the browser tag it is often possible to work out which search engine or web directory the client is supporting.

Referrers

- **Analysis:** Referrer Analysis shows an overview of the other internet locations which have referred clients to the site over the selected time range. For more information about any of the tables in this report, select the 'Referrers' menu items in the left hand menu.



- **URLs:** The Referring URLs report details the referrals to this site from locations not matching the descriptions of any known search engines.
- **Broken Links:** The broken link report details all pages requested which returned a 404 'Not found' error message from the site. Use this report to spot any internal broken links between pages, or to inform 3rd parties of bad links from external sites.
- **Spongers:** The Spongers report details referrals from external pages to non-page files on the site. Entries in this report are likely to be caused by other sites sponging graphics or downloads from the site.
- **Domains:** The Referring Domains report summarises all non-search engine referrals into their domains.

- **Search Eng:** The Search Engine report details all referrals from sites recognised as Internet search engines.
- **Keywords:** The Search Engine Keywords report details individual words used to find the site from a recognised search engine during the selected time period.
- **Phrases:** The Search Engine Keywords report details phrases used, or groups of words used together, to find the site from a recognised search engine during the selected time period.

Sessions

- **Analysis:** Sessions Analysis shows an overview of the origins of recorded sessions over the selected time range. For more information about any of the tables in this report, select the 'Sessions' menu items in the left hand menu.
 
- **Network:** The network report details sessions by the cat-C network of the client request.
- **Host Names:** The Sessions by Hostname report shows the resolved host names for clients to the site.
- **TLDs:** The Sessions by Host Domain report groups all resolved client IP addresses into their top level domains.
- **Location:** The Sessions by Network Location report details sessions by their physical location.

Administration menu details



Users

From the Users admin page, an administrator can:

- Add, remove, and change the passwords and usernames of users with access to the site.
- Use the permissions table to control access to reports by user. The *Anonymous* user represents all visitors who wish to view stats from the site, but do not have a username or password.
- Set an email address and the types of summary that each user wishes to receive in their email.

Watches

The watches administration section defines watch reports. These can be viewed from Tracking > Watches. Totals, graphs and logs can be displayed for all watches.

- **URL Watches:** A URL watch will provide detailed logging for the visitors to pages specified by the Wildcard field in the URL Watches table (* and ? are valid wildcard characters).

For example, if a detailed log of visitors accessing the index page of a web site should be required, a row should be added as such:

▶ URL Watches				
Description	Wildcard	Log	Suspended	Edit
Site Entrance	/index.htm*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Add

Where *index.htm* or *index.html* is the default page in the web site.



Important: Important: URL Watches can only be applied to recognised file types. If a watch is required on a non-recognised file type (i.e. not in either the page or download file extensions) then the file extension must be added to one of these lists (Admin->File Extensions).

- **IP Watches:** An IP watch will provide detailed logging for the visitors to the site with the specified IP address.

For example, if a detailed log of visitors accessing the site from 10.10.10.*** (maybe the corporate cat-C network) should be required, a row should be added as such:

▶ IP Watches				
Description	IP Address	Log	Suspended	Edit
Corp	10.10.10.*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Add

The wildcard *** matches any byte value. Unlike the page wildcards for URL watches, the IP wildcard *** can only be placed at the end of the IP address, or not at all. If /Log/ is unchecked, a record of sessions from the specified IP is kept, but not per-hit information.

- **Link Watches:** MatrixStats can be configured to /watch/ for visitors who follow links both into and out of the site. This can be immensely useful to those who sell advertising, as every click from an advert (a specific link) can be counted both into and out of the site.

In the following example, a link to a shareware page (shareware.html) is given a watch.

▶ Link Watches			
Key	Description	Destination	Suspended Edit
792674-10865	<input type="text" value="Link1"/>	<input type="text" value="http://www.myexam"/>	<input type="checkbox"/> <input type="button" value="Apply"/> <input type="button" value="Delete"/>

The Key (792674-10865) is a unique identifier to indicate to MatrixStats which link is being requested. Links should be constructed as follows:

http://matrixstats/click?key

Where *matrixstats* is substituted for the host and, optionally, the port of the statistics server and *key* is substituted for the value shown in the above table.

Examples:

http://matrixstats.example.com/click?18332-1

http://1.2.3.4:8000/click?18332-1

Any visitor following a click-watch link will be referred automatically to the specified destination URL, and will be logged by MatrixStats.

Page groups

Page groups are used in MatrixStats to define distinct areas of the site. These can be used to build up a site map. Each page group is defined optionally by a set of wildcards to match requests for files. Many separate maps can be made using this mechanism.

The following site map (as shown in Admin->Page Groups) is an example breaking down fictional sales content of a web site. The page group mechanism is best explained with a short example. This example is a fictional site that sells gardening products and spacecraft.

A single page group can be added with the *Add Group* form at the bottom of the Page Groups Administration. The first group added in this example is a group representing gardening products. All pages within the gardening directory of the site are categorised as sales-related gardening product and so the wildcard *gardening** is used. The title and colour chosen are arbitrary, but should be representative of the group. Parent is not applicable yet, so a value of *None* is chosen.

Having clicked *Add*, a single page group should appear above the *Add Group* form with the selected colour and title:

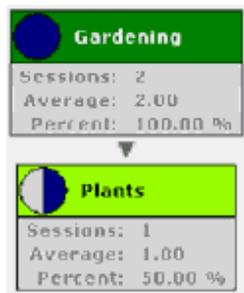
The two icons in the top right of the group are for editing the group or deleting it, respectively. Clicking edit loads a form very similar to the *Add Group* form already used, in order to change a

group's title, colour, parent or filters.

In this fictional example, there are some categories of gardening which exist outside of the */gardening/* directory of the site. One example of this is a *Plants* group, which is, curiously enough, in a */plants/* directory. This is added in the same way as the *Gardening* group, leading to a second page group being displayed separately from the *Gardening* group. Now, as *Plants* are a sub-category of gardening sales, all sessions matching *Plants* should also be included in the totals for *Gardening*. This could be achieved in a couple of ways. The wildcard that matches *Plant* pages (*plants**) could also be included in the *Filters* for *Gardening*. Alternatively, the *Plant* page group could be made a child of *Gardening*. In this way, any sessions which visit pages in the *Plant* page group would automatically be added to the *Gardening* group. In order to make this happen, the *Parent* of *Plants* has to be set to *Gardening*, leaving the site map looking like this:



If this map is now related to how the real site map will look, then the behaviour should become clear. In a short period of time, the site is visited by two sessions. The first session looks at many pages, but none in the /plants directory. It does, however, look at /gardening/gadgets/superweeder.htm and so is placed within the Gardening group, but not Plants. A second session looks only at /plants/potted/geranium.htm but because Plants is a child of Gardening, the session is placed within both. So, after these two sessions have ended (assuming these were the only two in the time frame reported), the site map (Pages->Map) would look as follows:



The rest of the map is built up in the same way, with the map growing more specialized and granular towards to bottom. Page groups need not have any filters of their own, as they can be used solely to group together the sessions of their children (as with the sales group in the completed example below):



In summary: The site map is a session-based statistical tool. Sessions are placed into page groups when they match one of a group's wildcards. When a session is included in a particular group (for example the /Tools/ group), then it is implicitly included in its parent (e.g. the Gardening, and subsequently the Products group).

The Map builds up a picture of the site according to areas visited by each session. If the percentage displayed by a group is 100% then every session during the specified time range has visited areas of the site defined by group's wildcards, or one of the groups' children's. The percentage is also represented as a pie chart in the top-left hand corner of each page group. The average shown in each group is the average number of sessions per day that have fallen into that group's criteria.

File Extensions

MatrixStats does not automatically know what a *page* or *download* is, and thus build up statistics on those criteria. Files are defined as page, download or *other* by virtue of their file extension (the portion of a filename after the last ".").

Defined file extensions can be ended with the "*" wildcard, but no other wildcard combinations are recognised.

By default, page file extensions include .htm* to match all HTML documents, and .asp to match active server page documents. Downloads include common video and compressed file formats such as .zip and .avi.

File extensions should be added or altered to cater for all page and download files on the site.

Dynamic Pages

A large number of websites are generated dynamically (i.e. the pages are not simply read from files, they are processed first, to display content from databases for example). Often the entire website is made up through a single cgi application, and, as such, every request to the site appears as the same file.

The function of a cgi application depends on a set of parameters passed to it. The parameters are separated by ampersands ("&") and are begun after a question mark; for example:

http://www.myexample.com/index.pl?page=entry&something=1

In this example, the page is index.pl (a Perl script), and the parameters are *page* and *something* which have values of *entry* and *1* respectively. These parameters can then be read by the script index.pl, and according action can be taken to construct a page to send back to the visitor. In this example, to avoid index.pl appearing as every page hit, the *page* parameter is added to the *dynamic page* list.

Dynamic Pages	
Page Name	Key Query Fields
<input type="text" value="/index.pl"/>	<input type="text" value="page"/> <input type="button" value="Apply"/> <input type="button" value="Delete"/>

Subsequent requests to /index.pl will be recorded alongside the *page* parameter (and it's value). This may lead to the following pages appearing in reports:

Page Name	Hits
/index.pl?page=index	200
/index.pl?page=products	180
/index.pl?page=another	80

Instead of the same set of hits, without the dynamic page entry:

Page Name	Hits
/index.pl	460

If more than one parameter defines which "page" is displayed, then comma-separate the parameter names in the /Key Query Fields/ field. For example:

▶ **Dynamic Pages**

Page Name	Key Query Fields		
<input type="text" value="/index.pl"/>	<input type="text" value="subsection,page"/>	<input type="button" value="Apply"/>	<input type="button" value="Delete"/>

Filters

Filters allow some degree of content management. Filters can be set up for both page requests, and referrers, to either exclude matching statistics, or to rename/group them differently.

An example of a referrer filter may be to group requests from another site excluding the 'dynamic' part of the URL:

Referrer	Total
http://www.x.com/s.asp?product_id=1-112342	22
http://www.x.com/s.asp?product_id=1-12233&date=now	18

With the addition of a referrer filter as such:

Wildcard	Replace
http://www.x.com/s.asp*	http://www.x.com/s.asp [filtered]

The results become:

Referrer	Total
http://www.x.com/s.asp [filtered]	40

Which in turn leaves more room for other referrers in the report, but does not exclude important information.

Site Settings

Site settings allow alteration of the following parameters.



Note: Changes made to the aliases and timezone will NOT be applied historically.

- Every host name that resolves to the web site (must include the main site name). One host name per line e.g.:
mysite.com
www.mysite.com
- **Max.Results:** The maximum number of results to display in tables for reports in all sections.
- **Timezone:** The timezone to display the site's statistics in.
- **Display 2D Charts:** Check this option to display 2-dimensional charts instead of the usual 3D for both pie and bar charts in all report sections.