Web statistics — Measuring user activity

An analysis of
Bureau of Justice Statistics (BJS)
website usage statistics

by Marianne W. Zawitz
Statistician

May 1998

U.S. Department of Justice·
Office of Justice Programs
Bureau of Justice Statistics

Contents

Summary

With the advent of the World Wide Web, statistics about activity on websites have proliferated. Webmasters commonly throw out numbers about the number of hits their site receives. But there is little understanding about what is being measured and the meaning of the measurement. Most of the existing measures resulted from the need to manage web servers and not to manage their content. Simple counts of measures that we do not fully understand provide no real information. To further compound our misunderstanding, these statistics are used to compare sites when they may not be measuring the same thing.

Most web activity reports are snapshots of what is happening at a single point in time. Because of changes in technology and analysis, each snapshot can be taken with a different lens, changing the way we look at the data with each view. Unfortunately, the only way we can draw any meaning from the data is through long term trend analysis. In other words, we need to be able to know that we are measuring the same thing in the same way each time in order to be able to compare activity from one time period to the next.

Measurement of website activity and the technology to support that measurement are in the earliest stages of development. New approaches are being developed which should provide answers to some of our questions on the use and utility of our sites. With an overlay of analysis, web statistics can become the useful tools needed to discover underlying patterns of use so that we can improve our sites to meet our clients' needs. However, web activity statistics cannot answer all of our questions about website use. Additional sources of information in combination with web statistics are needed to provide a more comprehensive portrait of the effectiveness of our websites and our overall dissemination strategies.

This report provides an overview to web activity statistics and suggests several ways of measuring user activity and interest. To demonstrate the utility of the information, it includes an analysis of the outside use of the Bureau of Justice Statistics (BJS) website for a 16-week period from August 24, 1997 through December 13, 1997.

BJS website activity

During the 16 week period:
• a total of 155,216 outside user sessions were logged
• the site averaged 1,424 user sessions per day
• the length of the average user session on the site was very consistent, ranging from 7½ minutes to slightly over 8 minutes
• Over 100,000 downloadable files were requested including over 57,000 specific publications, over 33,000 spreadsheets and text tables suitable for spreadsheet use, and over 19,000 press releases.

General observations

• Users appear to be using every part of the site and are most interested in those parts of the site that are topical or contain data they can reuse. Compared to the topical or data sections of the site, few users visited the *What's New* page and fewer visited the *About BJS* page.

• Many users are coming into the site on pages other than the home page.

• Users do not appear to be deterred from using files that require additional software or plug-ins to their browser. They are requesting pdf and text formatted publications in equal numbers and are frequently requesting spreadsheets as well.

Topics of interest

Based on the number of web pages and related publications requested, there appears to be a lot of interest in:
• violence
• crime involving juveniles
• drugs and crime.

Data to download

The use of the spreadsheet and text files intended for further analysis exceeded our expectations. Clearly, our users are interested in data presented in this way.

Website activity statistics

Website activity is measured by analyzing the log files that record every transaction on the web server both going to and from the server. The sample log file contents table below shows the type of information recorded for transactions including the Internet Protocol (IP) address of the requester, the time of the request, the action requested, and the Uniform Resource Locator (URL) of the destination for the request. This information is what is used to develop web activity statistics.

Several software vendors have created software to analyze these log files and many organizations have created their own programs to extract information from the log files. Various measures have emerged from these programs. How well they

measure website activity and exactly what they measure is widely debated. The existing measures also provide widely varying results. Currently, no standard set of measures exists, making comparisons between sites difficult.

Commonly used measures

Hits

The measure most frequently used to report web activity is hits, which refers to either the number of specific requests (as represented by one line in the sample log file) logged by the server or the number of files downloaded to the user by the server. In either event, this measure counts all of the files needed to present one web page, including images or scripts. For example, a request for a web page in Hypertext Markup Language (HTML)

Sample log file contents - IP addresses have been altered to ensure privacy of users

User IP address - - [Date and time of transaction] "Action requested and target"   Return code   Size of file returned

```
206.246.245.6X - - [13/Jul/1997:00:05:00 -0400] "GET http://149.101.21.2/bjs/ HTTP/1.0" 200 3889
206.246.245.6X - - [13/Jul/1997:00:05:01 -0400] "GET http://149.101.21.2/bjs/ HTTP/1.0" 200 3889

207.6.168.11X - - [13/Jul/1997:00:08:51 -0400] "GET http://149.101.21.2/bjs/ HTTP/1.0" 200 3889
207.6.168.11X - - [13/Jul/1997:00:08:53 -0400] "GET http://149.101.21.2/bjs/vertln.gif HTTP/1.0" 200 419
207.6.168.11X - - [13/Jul/1997:00:08:53 -0400] "GET http://149.101.21.2/bjs/lettsm.gif HTTP/1.0" 200 1500
207.6.168.11X - - [13/Jul/1997:00:08:53 -0400] "GET http://149.101.21.2/bjs/yelani.gif HTTP/1.0" 200 494
207.6.168.11X - - [13/Jul/1997:00:08:53 -0400] "GET http://149.101.21.2/bjs/yelred4.gif HTTP/1.0" 200 609
207.6.168.11X - - [13/Jul/1997:00:09:06 -0400] "GET http://149.101.21.2/bjs/cvict.htm HTTP/1.0" 200 7910
207.6.168.11X - - [13/Jul/1997:00:09:08 -0400] "GET http://149.101.21.2/bjs/topof.gif HTTP/1.0" 200 326
207.6.168.11X - - [13/Jul/1997:00:09:08 -0400] "GET http://149.101.21.2/bjs/srcbk.gif HTTP/1.0" 200 1619
207.6.168.11X - - [13/Jul/1997:00:09:19 -0400] "GET http://149.101.21.2/bjs/cvictgen.htm HTTP/1.0" 200 7991
207.6.168.11X - - [13/Jul/1997:00:09:52 -0400] "GET http://149.101.21.2/bjs/abstract/canh92.htm HTTP/1.0" 200 1353
207.6.168.11X - - [13/Jul/1997:00:10:08 -0400] "GET http://149.101.21.2/bjs/abstract/cvius94.htm HTTP/1.0" 200 4144
207.6.168.11X - - [13/Jul/1997:00:10:30 -0400] "GET http://149.101.21.2/pub/bjs/pdf/cvius943.pdf HTTP/1.0" 200 26815

206.184.146.9X - - [13/Jul/1997:00:12:16 -0400] "GET http://149.101.21.2/bjs/ HTTP/1.0" 200 3889

205.130.81.6X - - [13/Jul/1997:00:13:08 -0400] "GET http://149.101.21.2/bjs/ HTTP/1.0" 200 3889
205.130.81.6X - - [13/Jul/1997:00:13:10 -0400] "GET http://149.101.21.2/bjs/vertln.gif HTTP/1.0" 200 419
205.130.81.6X - - [13/Jul/1997:00:13:10 -0400] "GET http://149.101.21.2/bjs/yelred4.gif HTTP/1.0" 200 609
205.130.81.6X - - [13/Jul/1997:00:13:10 -0400] "GET http://149.101.21.2/bjs/lettsm.gif HTTP/1.0" 200 1500
205.130.81.6X - - [13/Jul/1997:00:13:10 -0400] "GET http://149.101.21.2/bjs/yelani.gif HTTP/1.0" 200 494
205.130.81.6X - - [13/Jul/1997:00:13:36 -0400] "GET http://149.101.21.2/bjs/whtsnw2.htm HTTP/1.0" 200 16533
205.130.81.6X - - [13/Jul/1997:00:13:38 -0400] "GET http://149.101.21.2/bjs/srcbk.gif HTTP/1.0" 200 1619
205.130.81.6X - - [13/Jul/1997:00:13:39 -0400] "GET http://149.101.21.2/bjs/topof.gif HTTP/1.0" 200 326

166.72.237.6X - - [13/Jul/1997:00:14:28 -0400] "GET http://149.101.21.2/BJA/html/new.htm HTTP/1.0" 200 5927
166.72.237.6X - - [13/Jul/1997:00:14:31 -0400] "GET http://149.101.21.2/BJA/gif/new4.gif HTTP/1.0" 200 347
166.72.237.6X - - [13/Jul/1997:00:14:32 -0400] "GET http://149.101.21.2/BJA/gif/pdficons.gif HTTP/1.0" 200 356

146.74.92.X - - [13/Jul/1997:00:14:32 -0400] "GET http://149.101.21.2/bjs HTTP/1.0" 302 394
146.74.92.X - - [13/Jul/1997:00:14:33 -0400] "GET http://149.101.21.2/bjs/ HTTP/1.0" 200 3889
146.74.92.X - - [13/Jul/1997:00:14:45 -0400] "GET http://149.101.21.2/bjs/crimoff.htm HTTP/1.0" 200 13680

152.172.74.7X - - [13/Jul/1997:00:15:05 -0400] "GET http://149.101.21.2/bjs/ HTTP/1.0" 200 3889
```

that contained a large graphic in jpeg format, five different buttons in gif format, and a JAVA applet would result in 8 hits. Hits can be a very valuable measure for web masters in determining if the web server has the appropriate capacity to respond to the demand placed on it. In assessing the use of the site, the hits measure clearly overstates use.

Page requests, views, or page impressions

Another measure for web activity counts only the HTML page requests and excludes the additional counts for images, etc. This measure is called page requests, views, or page impressions depending on which analysis software is used. It solves the problem of over counting all the files used to create one page, but it still over counts as users move back and forth through pages in order to navigate where they want to go. For example, a user on the BJS website might start at the home page, go to a topical page, return to the home page, go to *Key Facts at a Glance* and return to the home page. Each visit to the home page, although only for navigation, would be counted as another page impression.

User sessions

A user session is defined as all of the activity (all hits) for one user of a Website during a specific time period. A unique user is determined by IP address or Domain Name. A user session is terminated when a user falls inactive for more than a set period of time, commonly 30 minutes. In other words, any requests to a site during the period by one user would be counted as one user session. If the user visited a site and left but returned within the period, one user session would still be counted.

The user session measure provides a conservative indicator of activity. First, two users with the same IP address may be logged on at the same time. However, many of the large providers use multiple IP addresses which roll over to new users, reducing the likelihood that more than one user from the same IP address is logged in at the same time.

Second, some users contribute disproportionately to web statistics. When sites are indexed by robots (usually for search engines like Alta Vista), the robot may hit every page, causing an overstatement in activity if measured in hits. A robot visit counts as one user session, which does not inflate the use of the site.

Downloads

Many sites also count downloads. While all file types from a web server must be downloaded to the user, this measure refers to those files which cannot be viewed by common browsers or are executable. The extensions of file types commonly defined as downloadable files include .zip, .pdf, .exe, .com, .arc, .gz, and .tar. This measure is helpful when looking at use of documents or other files that are not in HTML.

What web statistics don't tell us

Analyzing web logs with the purpose of determining user preferences can be very helpful but it cannot answer all of the questions about use of websites. For example, these data will not tell us—
*who our users are and if they are new to our materials or are traditional users
* who might benefit from the information provided, but are unaware of its availability
* whether or not users get the answers to their questions and if they are satisfied with the information provided
* where on the site they usually get the information that they need.

Concerning our users, the most we can expect to gain out of an analysis of the web activity logs is the number of users from various IP addresses or domain names. This information does not tell us anything about individual users or their purposes in visiting our site. In earlier analyses, we found that the most common users were from the large Internet Service Providers such as America Online, Erols, PSINet, and Compuserve. Furthermore, no distinct patterns were detected, since most domain names had no more than a very small proportion of site use.

Other sources of information such as user surveys, feed back forms, and user communications are used to get at these questions. In combination with the web activity analysis, these other sources will give us a more complete picture of how well we are doing.

Comparing web statistics

Comparisons among sites and over time for the same site are difficult because of the use of different measures (as discussed above), different time periods and different data. Comparisons of web

months which range from 28 to 31 days while another uses weeks or days. Even if rates per day are calculated to standardize time across sites, the time period covered by the rates may not be the same.

The logs that result from different server software may include different variables. For example, some of the logs capture referring site information, which tells where the user came from before entering the site being analyzed, while others capture browser information. In addition, a change of server or activity analysis software may result in different methods for recording activity or different counting algorithms.

Sites may also differ in what they are including or excluding in their analyses. For example, servers log internal requests as well as external requests. Statistics for some sites may include internal requests while those for others may not.

Another factor compounding measurement is whether to include requests that the server could not fulfill. Analysis of these requests can be very useful in diagnosing problems with the server or the website. However, they may not provide a good measure of what users are actually accessing. Common log files contain the information about what happened to each request at the server. This information is coded into two primary categories, success and failure. Success includes codes for requests that are redirected or moved but are not necessarily successful on the site. Failure is divided into client errors such as "bad request" or "not found" and server errors such as "internal error" or "overloaded temporarily". Because the common log files only record what happens at the server, statistics from these logs cannot determine whether the user actually received the request.

Analyzing BJS website activity

A continuous set of firewall log files were generated beginning on August 24, 1997. Log files were created for 2-week intervals beginning on Sunday morning and ending on Saturday night. A total of eight 2-week periods ending on December 13, 1997 were analyzed. Due to problems with the creation of the log files and periods when the server was down, two periods cover less than 14 days.

The logs were analyzed using the WebTrends software package. The analysis included activity for BJS directories only, but the logs cover all the activity for the entire Office of Justice Programs (OJP) server.

To more accurately measure user preferences, we excluded: .
• all internal requests, since we were interested in outside use
• transactions that redirected requests or failed, because we did not want to include requests that were impossible to fill
•image files (.gif and .jpeg) and database files (.sf) which are polled automatically by the White House every 30 minutes for the Social Statistics Briefing Room at www.whitehouse.gov.

Recently, we discovered that when users selected documents from the results list of a search, a temporary file was created by the search engine in order to highlight the search words. Therefore, none of these requests were included in our usage statistics. In recent weeks, we changed the search results to provide direct links to documents so that requests for them will be counted in future reports.

BJS website findings

The table below presents a summary of the log file analyses for the 16 weeks beginning August 24, 1997 through December 13, 1997.
• A total of 155,216 outside user sessions were logged during the 16 week period.
• For the entire period, BJS averaged 1,424 user sessions per day. (The average user sessions were adjusted to account for only those days covered by the log files.)
•The average user session duration on the site appears to be very consistent over the period, ranging from 7½ minutes to slightly over 8 minutes.

The chart below displays the tabular data graphically. The differences between the measures are apparent and the trends over time become clearer. The peak of activity for the per day measures occurred during the first two weeks in November. The activity grew for all measures during the first six 2-week periods and leveled off during the last two periods. These trends may be seasonal, but we will need a few years of experience to determine if that is true.

BJS Website Summary Statistics

Two week period beginning	Number of			Average number per day -			Average user session length
	Successful hits for entire site	Page impres- sions	User sessions	Hits	Page impres- sions	Users sessions	
08/24/97	47,442	37,953	11,110	3,388	2,710	793	00:07:45
09/07/97	61,299	49,957	15,271	4,378	3,568	1,090	00:07:33
09/21/97 *	47,853	38,937	11,817	4,785	3,893	1,181	00:07:40
10/05/97 **	65,933	53,566	16,017	5,494	4,464	1,335	00:07:47
10/19/97	94,659	76,027	22,560	6,761	5,430	1,611	00:07:48
11/02/97	112,288	89,643	26,699	8,020	6,403	1,907	00:07:58
11/16/97	105,781	85,879	26,402	7,555	6,134	1,885	00:08:05
11/30/97	100,527	80,969	25,340	7,180	5,783	1,810	00:07:54
Totals	635,782	512,931	155,216	5,945	4,798	1,424	

* Covered transactions for 10 days.
** Covered transactions for 12 days.

Average per day measures of BJS website activity, August 24 to December 13, 1997
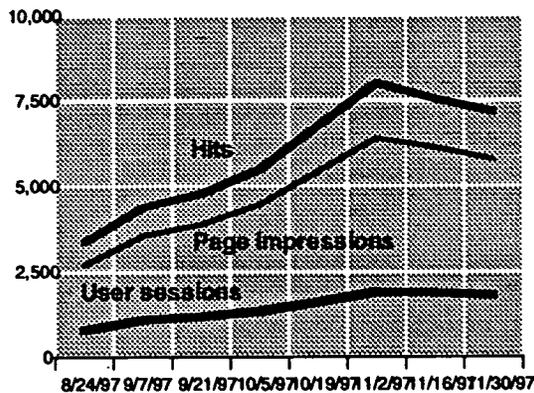
Data on activity level by time of day and day of week are very consistent, showing that most activity occurs during the week, especially on Tuesday and Wednesday in the afternoon. Because there was no change during the 16-week period, a detailed account of these data are not included here. This information was more useful in determining the accuracy of our filters than in identifying use patterns.

Web page activity

The analysis also looked at the number of user sessions where a particular web page was requested. For the analysis of the BJS website, the web pages that were counted included all in Hypertext Markup Language (HTML). The patterns of use by title over time are similar to the overall trends in site use, although requests for some pages fluctuated.

Most of the pages have been on the site since it was revised in April 1997, although they may have been changed. For HTML pages, we currently do not have the ability to include how long a page had been available. Therefore, we ranked the pages according to the total number of user sessions requesting the page during the 16-week period. The full analysis covered all pages on the site, although an abbreviated listing (the twenty-five pages most frequently requested) is presented here.

A total of 298 different HTML pages on the site, almost all of the pages on the site, were requested at least once during the 16 weeks. The least requested pages were either relatively old, like the abstract for the *BJS FY1994 Program Plan*, or very new, like the *BJS Website Tour* pages, which had been available for only a few days during the period.

The most frequently requested page was the *Crime and Victims Statistics* page with 28,769 user sessions requesting the page. The second most frequently requested page was *Key Crime and Justice Facts at a Glance* (19,521 user sessions), followed by the *BJS Home page* (18,584). More requests were made for pages other than the home page, because many external sites link directly to topical pages. For example, FedStats, a website sponsored by the major Federal statistical agencies, provides a topical index to statistics available from the agencies. In the FedStats

topical index, the entry for crime links the user to the *Crime and Victims Statistics* page.

Fifteen of the twenty-five most popular pages are accessible from the home page. However, 10 of the most popular pages are several layers down including *Crime & Justice Electronic Data Abstracts, Characteristics of Crime, Criminal Victimization General, Victim Characteristics, Prison Statistics, How to find BJS products, Four Measures of Serious Violent Crime, State and Local Law Enforcement Statistics, Drugs and Crime Facts 1994*, and *Additional Crime Facts at a Glance.*

The pages most frequently requested appear to be in the topical or data sections of the site. Of the general reference pages, the most frequently requested pages were —
• the *Publications Alphabetical Listing* (11,404 user sessions)
• the *Search* page (7,208)
• *What's New* (5,128).
The press release page was requested in 3,060 user sessions and ranked 32nd in the total number of user sessions.

All of BJS publications have an HTML abstract with links to the electronic versions of the document and ordering information. The abstract for *Drugs and Crime Facts 1994* was the most frequently accessed abstract, with 4,243 user sessions requesting the page. Other frequently requested abstracts include those for —
•*Sex Offenses and Offenders* (3,338 user sessions)
• *World Factbook of Criminal Justice Systems* (2,978)
• *NCVS - Violence Against Women* (2,899).

A new section of the BJS website is *Key Crime and Justice Facts at a Glance* which contains graphics of key criminal justice indicators. Of the pages with graphics under *Key Crime and Justice Facts at a Glance, Four Measures of Serious Violent Crime* had the most requests, with 4,497 user sessions, followed by *Drug Arrests by Age* (2,336 user sessions), *Correctional Population Trends* (2,054), *Homicide Rates by Age* (1,976), *Violent Crime Trends by Sex of Victim* (1,585) and *Property Crime Trends* (1,145). The pages listed above are all linked from the Social Statistics Briefing Room at the White House. Users also requested the remaining 21 indicators in this section, although not with the same frequency.

Twenty-five most frequently requested pages	
Rank	Number of user sessions requesting page
1 Crime and Victims Statistics	28,769
2 Key Crime and Justice Facts at a Glance	19,521
3 Home page	18,584
4 Criminal Offenders Statistics	15,281
5 Crime & Justice Electronic Data Abstracts	11,981
6 Publications Alphabetical Listing	11,404
7 Special Topics	11,403
8 Crime & Justice Data from Other Sources	11,112
9 Corrections Statistics	10,713
10 Drugs and Crime	10,338
11 Characteristics of Crime	8,806
12 Courts and Sentencing Statistics	8,287
13 Law Enforcement Statistics	7,794
14 Search	7,208
15 Data to Download	6,293
16 Criminal Victimization General	5,688
17 Victim Characteristics	5,234
18 What's New at BJS	5,128
19 Prison Statistics	5,093
20 Criminal Record Systems Improvement & Policy	4,870
21 How to find BJS products	4,573
22 Four Measures of Serious Violent Crime	4,497
23 State and Local Law Enforcement Statistics	4,479
24 Drugs and Crime Facts 1994	4,243
25 Additional Crime Facts at a Glance	4,077

Downloads

As previously discussed, much of the information on the BJS website is made available in files that must be downloaded for use. To get an accurate measure of downloads, we relied on user sessions where a particular downloadable file was requested. Counting download requests may over count actual use because users may request a download several times during one session when they do not get the file initially or change their mind about what they have requested. The following table summarizes the number of user sessions requesting specific files by the general category of file types.

	User sessions requesting specific files
Publications	57,317
Crime & Justice Electronic Data Abstracts	20,705
Press releases	19,421
Key Facts at a Glance text tables	10,580
Spreadsheets from publications	2,310
Other files	589

The following sections outline the results of the analysis in each of these categories. We calculated the number of days documents were available during the period and produced a measure of the number of user sessions requesting a file per days available. This measure is a proxy for the interest in a document or file, while the total number by file
will enable us to report on total activity during a time period.

Publications

On the website, BJS publications are usually presented in both Adobe Acrobat (.pdf) and plain text (.txt) formats. In order to get a perspective on what titles are of interest to users, the counts for both .pdf and .txt requests were combined. This measure is similar to the number of purchases of a book that includes both hardcover or paperback versions of the same title. The current configuration will not permit us to determine how many users requested the same title in both formats.

Since users need a special reader to view pdf files, we have been concerned that many would not use these files, relying instead on the text files which can be viewed in their web browsers. However, we did not find that to be the case. Users requested almost an equal number of pdf files and text files. The mix of requests between formats changed slightly during the 16 weeks; user sessions requesting text files outnumbered those requesting

Twenty-five most frequently requested publications

Rank	Title	Users sessions where a document was requested	
		Average per day	Total
1	*Drugs and Crime Facts, 1994*	26.28	2,917
2	*Trends in Juvenile Violence: 1997 Update*	23.82	405
3	*Criminal Victimization, 1996: Changes 1995-96 with Trends 1993-96*	18.15	472
4	*Police Use of Force: Collection of National Data*	17.29	363
5	*Sex Offenses and Offenders*	15.20	1,687
6	*National Crime Victimization Survey: Basic Screen Questionnaire*	15.04	1,669
7	*Capital Punishment 1995 (Bulletin)*	13.32	1,478
8	*Drug-Related Crime (Fact Sheet)*	11.91	1,322
9	*Age Patterns of Victims of Serious Violent Crime*	10.90	1,090
10	*Sex Differences in Violent Victimization, 1994*	10.57	1,078
11	*Violence Against Women*	10.24	1,137
12	*Incident Crime Report: National Crime Victimization Survey*	10.21	1,133
13	*Characteristics of Adults on Probation, 1995*	8.00	80
14	*Violence between Intimates: Domestic Violence (Selected Findings)*	7.93	880
15	*Guns Used in Crime: Firearms, Crime, and Criminal Justice (Selected Findings)*	6.86	761
16	*Bureau of Justice Statistics Fiscal Year 1997: At a Glance*	6.81	756
17	*Bureau of Justice Statistics Publications Catalog, 1997*	6.68	742
18	*Violence-Related Injuries Treated in Hospital Emergency Departments*	6.47	718
19	*Violent Crime (Selected Findings)*	6.44	715
20	*Prisoners in 1996*	6.35	705
21	*Women in Prison (Special Report)*	6.33	703
22	*Guns and Crime: Handgun Victimization, Firearm Self-Defense, and Firearm Theft*	5.72	635
23	*Child Victimizers: Violent Offenders and Their Victims: Executive Summary*	5.49	609
24	*The Nation's Two Crime Measures*	5.36	595
25	*Survey of State Prison Inmates, 1991*	5.17	574

pdf files during the first 10 weeks but the opposite was true during the last six weeks. The site has a number of documents in text only so these figures many understate the preference for pdf files.

| 2-week period beginning | User sessions making specific requests for: | | |
	Text documents	PDF documents	Total
Total	28,769	28,645	57,414
08/24/97	2,642	2,134	4,776
09/07/97	2,657	2,565	5,222
09/21/97	2,090	1,884	3,974
10/05/97	2,906	2,722	5,628
10/19/97	4,394	4,326	8,720
11/02/97	5,051	5,641	10,692
11/16/97	4,661	4,834	9,495
11/30/97	4,368	4,539	8,907

Note: These totals may not match other tables since they were developed from data files before anomalies were removed.

Users requested 264 different titles during the 16 weeks covered. The most popular publication on our website was *Drugs and Crime Facts, 1994* in terms of both the average number of user sessions requesting it per day (26.28) and in total number of user sessions (2,917). The next most popular reports were more recent, having been released during the period:
• *Trends in Juvenile Violence: 1997 Update*
• *Criminal Victimization, 1996: Changes 1995-96 with Trends 1993-96*
• *Police Use of Force: Collection of National Data*

In terms of the total number of user sessions requesting a report, *Drugs and Crime Facts, 1994* exceeded the next most frequently requested report, *Sex Offenses and Offenders*, by over 1,000 requests.

During the period, only 2 publications available in electronic format were not requested:
• *BJS Publications Catalog 1994-95*
• *Felony Sentences in the United States, 1990*
Both of these reports had been succeeded by newer editions.

During the 6 months prior to the end of the period, BJS released 24 documents. Nine of these documents were made available via press release and several were solicitations which were available for a limited amount of time. Ten of these recently released reports were also in the 25 most frequently requested list. Press releases had little impact on user interest in publications.

Publications released since June 22, 1997	Average user sessions per day
Trends in Juvenile Violence: 1997 Update	23.82
* *Criminal Victimization, 1996: Changes 1995-96 with Trends 1993-96*	18.15
* *Police Use of Force: Collection of National Data*	17.29
Age Patterns of Victims of Serious Violent Crime	10.90
Sex Differences in Violent Victimization, 1994	10.57
* *Characteristics of Adults on Probation, 1995*	8.00
Bureau of Justice Statistics Fiscal Year 1997: At a Glance	6.81
Bureau of Justice Statistics Publications Catalog, 1997	6.68
* *Violence-Related Injuries Treated in Hospital Emergency Departments*	6.47
* *Prisoners in 1996*	6.35
* *Prisoner Petitions in the Federal Courts, 1980-96*	4.78
Felony Sentences in the United States, 1994	4.19
HIV in Prisons and Jails, 1995	3.62
* *Census of State and Federal Correctional Facilities, 1995*	3.59
* *Presale Handgun Checks, 1996*	3.36
Executive Summary: Census of State and Federal Correctional Facilities, 1995	3.10
Survey of State Procedures Related to Firearm Sales, 1996	2.24
* *Probation and Parole Populations, 1996: Press Release*	2.07
Bureau of Justice Statistics; Hate Crime Statistics Improvement Program	2.00
National Criminal History Improvement Program: Fiscal Year 1997 Program Announcement	1.57
BJS Publications Order Form	1.49
Implementing the National Incident-Based Reporting System: A Status Project Report	1.05
Domestic Violence Statistics Solicitation	0.56
BJS Style Guide	0.48

Press releases

There were over 19,000 user sessions where press releases were requested. Links to the press releases are on the report abstracts and the *Press Release* page. The use pattern for publications over the period was consistent with the general activity of the website. From August 24, 1997 to December 13, 1997, BJS issued 5 press releases, but these releases did not appear to greatly affect the requests for these files on the website.

Sixty-eight of the seventy press releases which were available were downloaded during the period.

Ten most frequently requested press releases

	Average user sessions per day
Child Rape Victims, 1992	11.80
Violence Against Women: Estimates from the Redesigned National Crime Victimization Survey	11.09
Sex Offenses and Offenders	10.77
* *Criminal Victimization, 1996: Changes 1995-96 with Trends 1993-96*	10.15
* *Police Use of Force: Collection of National Data*	9.62
Capital Punishment 1995 (Bulletin)	6.70
* *Characteristics of Adults on Probation, 1995*	6.90
* *Prisoners in 1996*	5.47
* *Probation and Parole Populations, 1996: Press release*	5.41
* *Violence-Related Injuries Treated in Hospital Emergency Department*	5.28

*Released during the study period

Data to download

The BJS website offers data tables, usually in spreadsheet format, which can be used in analysis. These files are either summary data in the *Crime & Justice Electronic Data Abstracts* (CJEDA) section, spreadsheets that support the tables in a particular publication, or text tables which present the data used in the graphics in *Key Facts at a Glance*. The text tables are included here because they were designed to be imported into spreadsheets or graphing applications. We cannot tell if users are simply viewing these files or reusing them.

Altogether, over 33,000 user-session requests for these files were made:
• almost 21,000 user sessions requested spreadsheet files from the *Crime & Justice Electronic Data Abstracts*
• over 10,000 users sessions requested the text tables that support the graphics
• more than 2,300 user sessions requested the spreadsheets that support publications.

For several years, on request, we supplied diskettes with spreadsheets that supported certain publications. Our intent was to provide an electronic version of the data that could be reused in other analyses. Usually, we received no more than 5 requests for any one title, however, we did receive about 20 requests for the spreadsheets from the first release from the Civil Justice Series.

When we launched our website, we provided similar files for some titles. During the period, 73 text, spreadsheet, or zip archive files containing 289 tables were available to support 13 publications. Sixty-nine of these files were requested

Publications with supporting spreadsheets

Rank (per day)	Document title	Average per day	User sessions requesting spreadsheets
1	Trends in Juvenile Violence: 1997 Update	11.82	201
2	Law Enforcement Management and Administrative Statistics, 1993	5.50	611
3	Trends in Juvenile Violence	3.14	348
4	Criminal Victimization in the United States, 1993	2.63	292
5	Female Victims of Violent Crime (selected findings)	2.05	227
6	Age Patterns of Victims of Serious Violent Crime	1.01	101
7	Firearm Injury from Crime: Firearms, Crime, and Criminal Justice	0.89	99
8	Compendium of Federal Justice Statistics, 1993	0.88	98
9	Correctional Populations in the United States, 1994	0.84	93
10	Prison and Jail Inmates at Midyear 1996	0.60	67
11	Prison and Jail Inmates, 1995	0.55	61
12	Campus Law Enforcement Agencies, 1995	0.55	61
13	Felony Sentences in State Courts, 1994 (Bulletin)	0.46	51

**Twenty most frequently requested spreadsheets from
Crime & Justice Electronic Data Abstracts (CJEDA)**

Rank	Subject matter	Average per day	Total
1	The number of arrests for violent crimes of juveniles (under age 18) and adults (age 18 or older), 1970-96	25.24	2,802
2	Index offense crimes and arrests, the 90 largest counties, 1990-94	14.14	1,569
3	Homicide victimization and offending rates of juveniles and young adults, by State, 1976-96, based on the FBI's Supplementary Homicide Reports	14.00	126
4	Number of homicides and population for cities with estimated population of 100,000 or more, from 1985-95	11.82	1,312
5	Selected crime data, as well as data on police, prosecutorial, and jail resources, and employment, income, and educational variables, 90 most populous counties	11.23	1,246
6	Prisoners executed under civil authority in the United States, by year, Federal, State-by-State, and region, 1977-96	9.51	1,056
7	Location and demographic data including Federal district for all 3,141 counties and county-like entities in the United States	9.11	1,011
8	Selected crime data, as well as data on police, and criminal justice expenditures, 25 largest cities.	8.28	919
9	All prisoners under State or Federal jurisdiction, Federal and State-by-State, 1977-95	6.99	776
10	Prisoners under State or Federal jurisdiction (Sentenced to more than a year), Federal and State-by-State, 1977-95	6.55	727
11	U.S. Totals -Uniform Crime Reports crimes and rates, 1960-95	5.20	577
12	Female prisoners under State or Federal jurisdiction, Federal and State-by-State, 1977-95	3.77	418
13	Prisoners in custody of State or Federal correctional authorities, Federal and State-by-State, 1987-95	3.24	360
14	California -Uniform Crime Reports crimes and rates, 1960-95	3.10	344
15	Jail inmates in custody, by sex, Federal and State-by-State, 1978, 1983, 1988, 1993	2.53	281
16	Male prisoners under State or Federal jurisdiction, Federal and State-by-State, 1977-95	2.49	276
17	Nevada -Uniform Crime Reports crimes and rates, 1960-95	2.48	275
18	Alabama -Uniform Crime Reports crimes and rates, 1960-95	2.04	226
19	Prisoners in custody of State or Federal correctional authorities, (Sentenced to more than a year), Federal and State-by-State, 1987-95	1.88	209
20	Case processing data, Federal court districts, 1993	1.83	203

during the period, totaling 2,310 user session requests. Of the 13 publications, *Law Enforcement Management and Administrative Statistics, 1993* had more user sessions requesting its supporting files than any other publication. However, *Trends in Juvenile Violence: 1997 Update* had the highest daily average number of user sessions requesting its supporting files. The files supporting *Trends in Juvenile Violence: 1997 Update* and *Trends in Juvenile Violence* (the original report) were the two most frequently requested spreadsheet files.

We expanded the availability of spreadsheets on the website with the *Crime & Justice Electronic Data Abstracts* (CJEDA). Launched last April, CJEDA is for users who need information that could be reused in an analysis, but who did not want to use the case-based datasets available from the National Archive of Criminal Justice Data. Most of these files provide subnational data, frequently at the State or local level, and many of them present trends over time. All 71 files in the CJEDA were downloaded during the period.

Most of the files were available during the entire period, having been released with the revised site last April. The only new addition during the period was "Homicide victimization and offending rates of juveniles and young adults, by State, 1976-96," based on the FBI's Supplementary Homicide Reports and released as a part of *Trends in Juvenile Violence: 1997 Update*.

Although most of the files in the CJEDA have a jurisdictional component, the most frequently requested file, "The number of arrests for violent crimes of juveniles and adults, 1970-96," did not. This file was requested more than twice as often as the next most frequently requested file.

The CJEDA also includes UCR Index offense data for every State and the U.S. total from 1960-95. Every file in this section was requested during the period studied. Among these files, the U.S.-total file was most frequently requested, followed by the files for California, Nevada, and Alabama.

The CJEDA page also has links to the *Easy Access* packages of easy-to-use software and data which are downloadable from the Office of Juvenile Justice and Delinquency Prevention's website. We do not know how many users of our site link to the *Easy Access* page or how many user sessions download the software from the OJJDP site. We suspect that the same users who are downloading the CJEDA abstracts would also be interested in these packages.

Text tables supporting the graphics in another recent website addition, *Key Crime and Justice Facts at a Glance*, were the third type of data to download. Twenty text tables support the graphics. Most of these tables support only one graphic, except for the tables on violent and property crime rates, which support the graphics of each major crime type. Since all of these tables were available during the period, a daily average was not calculated and the total number of requests was used to rank order them.

These files were requested in 10,580 user sessions. The table supporting the Four measures of serious violent crime chart was the most frequently requested file, followed by the table for the Correctional populations chart. The least requested tables were those concerning trends in Federal cases.

Requests for tables supporting graphics

Rank	Chart title	Total
1	Four Measures of Serious Violent Crime	1,531
2	Correctional Population Trends Chart	1,099
3	Drug Arrests by Age	948
4	Violent Crime Trends	837
5	Homicide Rates by Age Chart	764
6	Execution Trends Chart	728
7	Prisoners Under Sentence of Death Trends Chart	685
8	Property Crime Trends	618
9	Corrections Population Trends by Offense	484
10	Homicide Rate Tends 1900-94	455
11	Violent Crime Trends by Sex of Victim	450
12	Expenditure Trends by Function Chart	337
13	Incarceration Rate Trends Chart	304
14	Expenditure Trends by Government Chart	268
15	Perceived Age of Offenders Chart	260
16	Serious Violent Crime Trends by Age	238
17	Felony Conviction Trends	203
18	Race of Victim Trends	173
19	Trends in Federal Cases	99
20	Trends in Federal Cases by Offense	99

How BJS is using its web statistics

The feedback provided from this analysis has been very useful in confirming many decisions about the content of the site, suggesting changes to it, and planning for new content.

The analysis found that only a fraction of users are going to the *What's New* page where updates and notices are placed. Since our site is changing constantly and we are offering many electronic only products, we cannot rely on the *What's New* page to alert users to changes. Therefore, we have initiated several outreach activities to notify users of changes to our site including —
• announcing major updates and releases in JUSTINFO, the National Criminal Justice Reference Service listserve
• preparing a semiannual catalog in paper announcing updates to electronic only files
• assigning a special NCJRS number for all of our electronic files so they will be included in our catalog.

While we anticipated the interest in most of the pages, publications, and files, interest in several clearly surprised us and caused us to take action. Despite being very out of date, the interest in *Drugs and Crime Facts 1994* was extraordinary, so we are updating it as an HTML document which will be kept current as new information becomes available.

We also noted that many users were downloading publications for which newer versions were available. While some may be specifically interested in the historical data, others may not be aware that newer versions exist. On the BJS website, both the topical pages and the publications listing group series together so that users will know what is the most recent version. But users getting to our publications through search engine results do not have this information. We are considering several options to alert users that certain documents which are part of a series are presented for historical interest and newer editions are available.

Due to the overwhelming response to *Crime & Justice Electronic Data Abstracts*, we plan to add to our collection of spreadsheet files. In addition, we have added a section to CJEDA linking users to additional spreadsheets and text tables with trend data that are available on other sections of the site.

The publications statistics were categorized by major program to facilitate their use by the managers. These detailed listings were provided to the program managers to assist them in planning their publications for the coming year.

Combined with other information about our users like that found in the BJS User Survey and the analysis of the AskBJS files conducted last year, the information in this report is helpful in understanding what our customers want electronically and on paper. To fully assess our dissemination efforts, we will need to get consistent information from the other websites we support as well as from our paper-based efforts. To get answers to some of the questions that website activity analyses cannot answer, we are interested in adding a feedback questionnaire. OMB clearance is required for all such forms and we have talked to OJP about requesting OMB clearance of web feedback forms for all of the components.

Future developments

OJP is replacing the current web server with a more powerful machine to handle some new database applications. When this occurs, the firewall software will also be upgraded. These changes could affect the log files and, therefore, the statistics we are able to generate from them.

Hopefully, new firewall software will improve the log files so that we can get better information about who visits our site and what they do there. For example, the current firewall logs omit information about referring sites. Therefore, we cannot analyze where users are coming from before they enter our site. We know that our home page is included as a link on over 1,900 web pages indexed by Alta Vista. Many other files on our site are also links on other sites. Such information would be very helpful in assessing who we should notify about changes to our site and in providing feedback to groups like FedStats.