

Foglight® for Apache 6.1.0  
**User and Reference Guide**



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## Legend

- **WARNING:** A WARNING icon indicates a potential for property damage, personal injury, or death.
- ! **CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.
- i **IMPORTANT NOTE, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

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# Monitoring Apache web servers

Foglight for Apache enables you to quickly determine the status of each of your monitored Apache web servers by providing a visual overview of key access and traffic metrics. The Apache Web Server, also known as the Apache Httpd Server, is an open-source project hosted by the Apache Foundation. Through its server status (`mod_status`) and server information (`mod_info`) pages, the Apache web server provides a wealth of performance statistics, which Foglight for Apache displays in easy to use dashboards.

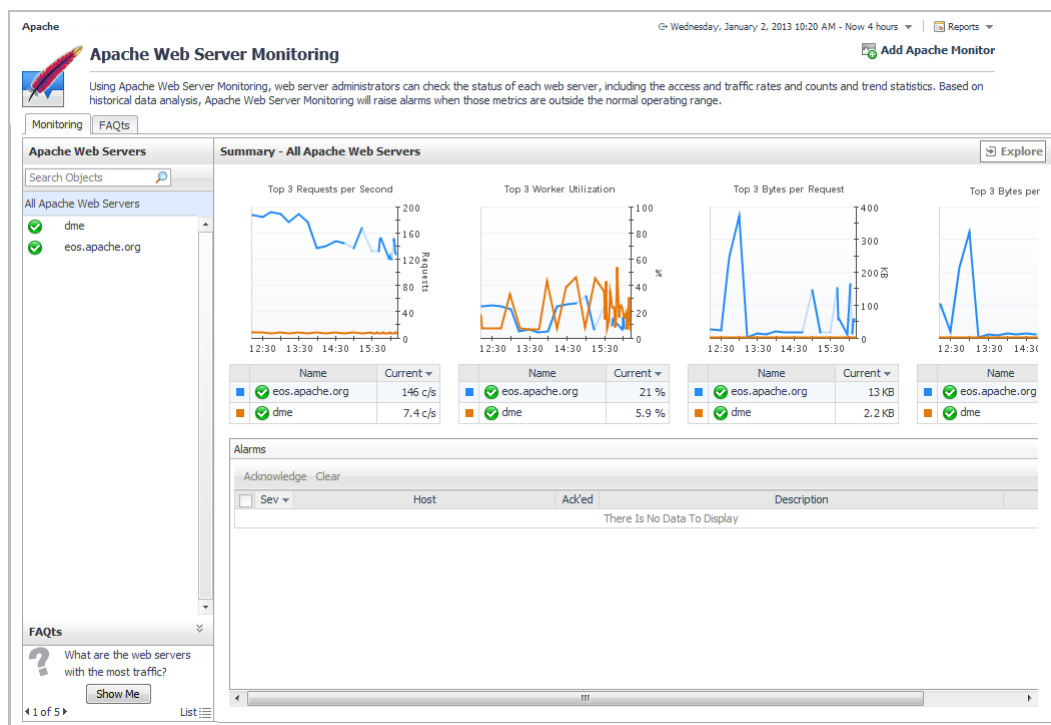
The Apache Web Server Monitoring dashboard provides summary views of all monitored web servers and individual web server views. These views help you quickly compare web server performance, determine worker utilization and traffic levels, and view any alarms that have occurred.

**NOTE:** In order for the Apache agent to monitor your web server, the server must have `mod_info` and `mod_status` enabled. For more information, see [Configuring Apache web servers for monitoring](#) on page 10.

## To open the Apache Web Server Monitoring dashboard:

- On the navigation panel, under **Dashboards**, click **Apache**.

Figure 1. Apache Web Server Monitoring dashboard



The **Summary — All Apache Web Servers** view provides charts and lists that identify the top three web servers for four key metrics (from left to right):

- Requests per second
- Worker utilization
- Bytes per request

- Bytes per second

If any alarms have been generated on the web servers, a summary of the alarms appears in the Alarms table.

Use this view to determine if any web servers have experienced a recent, unexpected spike or drop in activity, or a dramatic change in worker availability.

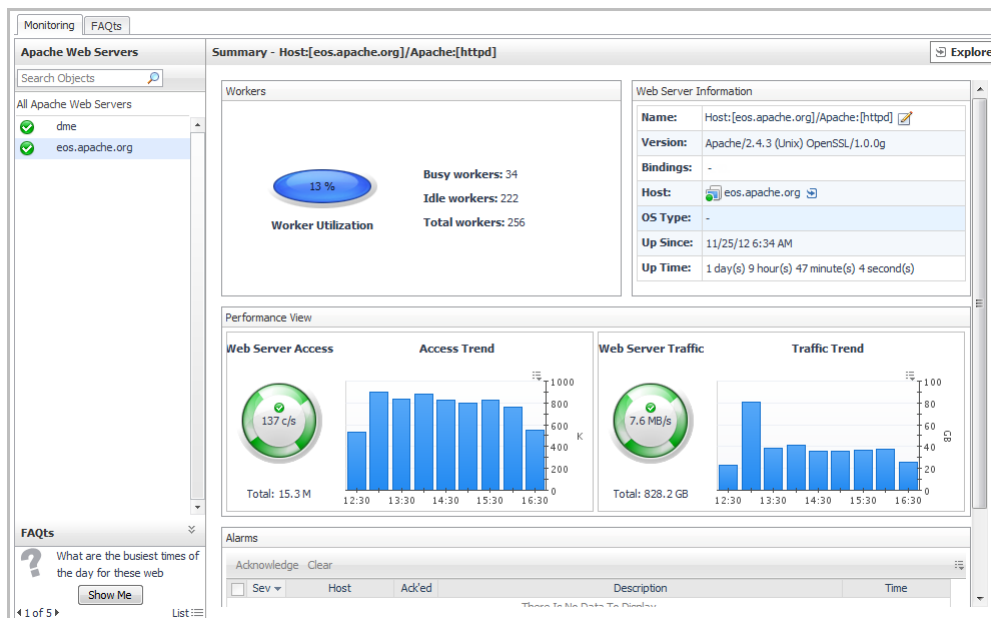
## Investigating worker utilization

The Summary — All Apache Web Servers view displays a comparison of the three servers that are experiencing the highest worker load in the Top 3 Worker Utilization chart. Use this view to compare web server worker performance and track trends over time. If you identify a server that is of particular interest, you can drill down for more information.

### To investigate worker utilization for an individual web server:

- 1 On the Apache Web Server Monitoring dashboard, click the name of the web server in the All Apache Web Servers list on the left side.

The **Summary** — **<WebServerName>** view displays.

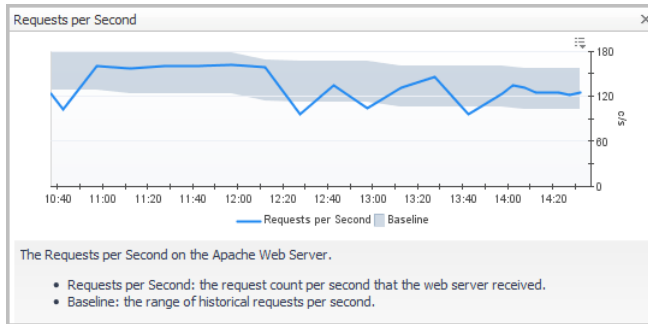


This view is divided into three sections: Workers, Web Server Information, and Performance.

- 2 Review the worker utilization information. For best performance, there should be enough idle workers to handle peak web site traffic. This information can help web server administrators tune the server's performance.

**TIP:** For more information, review the Apache documentation about `MaxClients`.

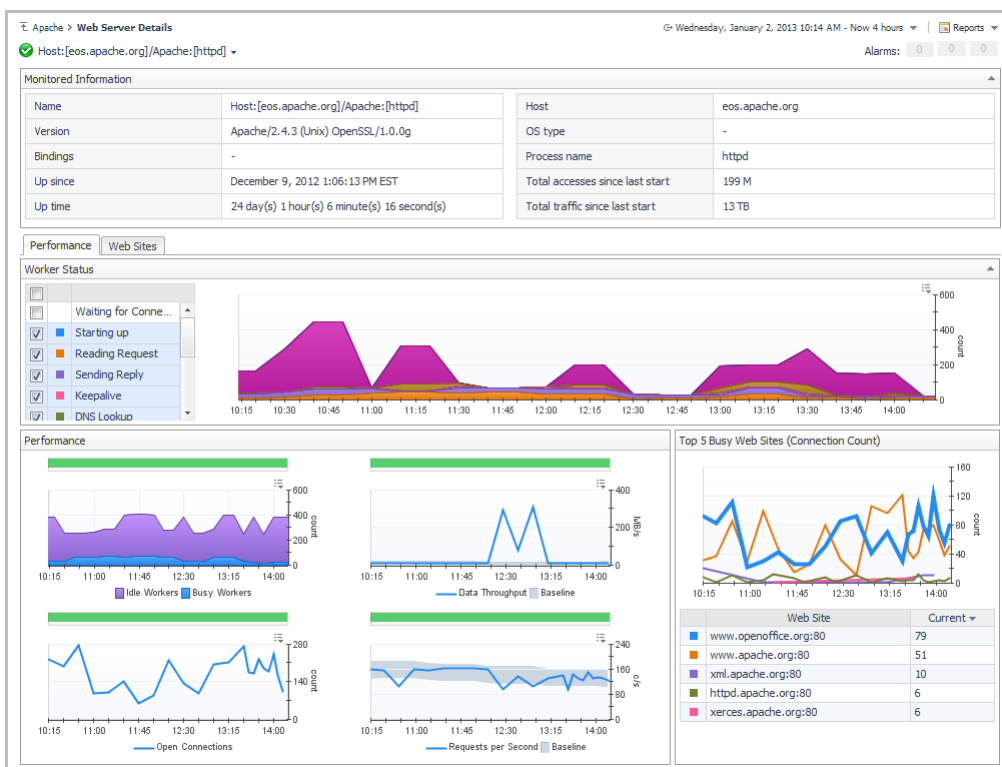
- 3 Review the web server access and traffic trends. The spinners provide color-coded information about the state of the flow of server access (requests per second) and server traffic (bytes per second). When the number of requests or the bytes per second hits a threshold value, the color of the spinner changes to reflect the status (green, yellow, or red).
  - a Click the spinner to open a graph of the metric with the baseline information.



If you detect a problematic pattern, you can take a deeper look at the web server's worker performance and investigate the web sites hosted on that server.

- 4 On the **Summary — WebServerName** view, click **Explore**.

The **Web Server Details** view opens.



Use the two tabs in this view to gain a better understanding of worker utilization, performance, and individual web site characteristics.

**TIP:** For more information, see [Web Server Details view](#) on page 15.

- 5 On the **Performance** tab:
  - a Examine the workers status breakdown. Use the check boxes to the left of the chart to select the worker states to compare over time. By default, all states except *Waiting for connections* and *Open slot with no current process* are included.
  - b Examine the server's performance in the Performance charts and health status bars.
  - c Examine and compare the web sites with the highest connection counts (Top 5 Busy Web Sites).
- 6 Click the **Web Sites** tab.

The Web Sites tab lists key metrics for each web site hosted on the Apache web server that you are examining. It provides the following information: Web Site name and port, Site Bindings, and Connection Count, Client Count, and Traffic as both numeric values and sparklines that show recent trends.

Use this tab to determine if the issues affecting the server are related to a single web site's performance or to all sites.

## Monitoring web server status with rules and alarms

Foglight for Apache includes several rules designed to generate alarms when key metrics enter certain threshold states. Combined with IntelliProfile baseline information, these rules help you to measure performance in degrees of deviation from the baseline.

### **To view the rules and alarm thresholds for Foglight for Apache:**

- 1 On the navigation panel, click **Administration**.
- 2 On the Administration dashboard, under **Rules**, click **All Rules**.
- 3 On the Rule Management dashboard, use the drop-down list to select the rules specific to Foglight for Apache (Apache-UI).

For more information about IntelliProfile baselines and thresholds, see [Explore the IntelliProfile dashboard](#) in the *Foglight Administration and Configuration Help*.

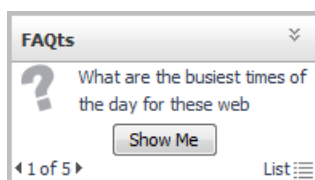
For more information about managing rules in Foglight for Apache, see [Configuring Rules and Metric Calculations to Discover Bottlenecks](#) in the *Foglight Administration and Configuration Help*.

## Finding quick answers with FAQs

You can access instant answers to questions relating to your web servers, such as during which time periods peak traffic occurs, or which web servers have the most traffic. These frequently asked questions appear on the **FAQs** tab, or alternatively in the FAQs mini-viewer, located in the bottom-left corner of the Apache Web Server Monitoring dashboard.

### **To check the answer to a question:**

- 1 On the navigation panel, under Dashboards, click Apache.
  - a On the Monitoring tab, click Show Me in the mini-viewer. A pop-up displays the answer so that you can drill down for deeper or related information.



Or

- b On the **FAQs** tab, click a question in the **Questions** column. The answer appears to the right.

**i** | **TIP:** For some of the questions, you can specify the number of results you want returned (for example, *Top # Apache web servers with the highest requests per second*).



Monitoring | FAQs

**Categories**

- All Questions
- Favorites
- My Questions
- Apache Web Server

**Questions**

★ | Search Questions

What are the busiest times of the day for these web servers?

What are the web servers with most requests per second?

What are the web servers with the highest data throughput?

What are the web servers with the most traffic?

What are the web servers with the most web sites?

**What are the busiest times of the day for these web servers?**

What are the busiest times of the day for these web servers?

Search

Health	Server Name ▲	The Busiest Time of Requests	The Busiest Time of Busy Workers
✖	Host:[eos.apache.org]/Apache:[httpd]	10:00	1:00
⚠	Host:[www.distributed-monkey-engine.com]/...	12:00	10:00

|||

**Related Questions**

- ➔ What are the web servers with the highest data throughput?
- ➔ What are the web servers with most requests per second?
- ➔ What are the web servers with the most web sites?

# Configuring Apache monitoring

To view status and performance for an Apache web server in Foglight for Apache, you must deploy an Apache monitor (an agent) to a Foglight Agent Manager. Configure the Apache monitor to detect the server status and server information pages on the Apache web server; the monitor collects data from the web server according to the collection schedule.

## Configuring Apache web servers for monitoring

The following three options are required for monitoring a web server with an Apache agent. These options are set in the `http.conf` configuration file.

Normally, the required Apache modules are installed and enabled by default. In some instances, the web server administrator may have to enable them manually. If so, see the Apache HTTP Server Documentation, available online at: <http://httpd.apache.org/docs/>.

- i** **IMPORTANT:** There may be security implications with enabling the server status and information pages. Your web server administrator may not want to expose this information publicly. Ensure that you read and understand the appropriate Apache documentation, and configure your web server access accordingly. For more information, see the topic “Apache Module `mod_info` — Security Issues” in the Apache HTTP Server documentation: [https://httpd.apache.org/docs/current/mod/mod\\_info.html](https://httpd.apache.org/docs/current/mod/mod_info.html). Also see [Limiting access to server status and information pages](#) on page 11.

### To configure an Apache Web Server for monitoring:

- 1 Open the `http.conf` file in a text editor.
- 2 Verify that `mod_info` is enabled.
- 3 Verify that `mod_status` is enabled, and that the `ExtendedStatus` directive is also enabled (set to `On`).
  - i** **IMPORTANT:** For Apache versions 2.3.6 and later, `ExtendedStatus` is enabled (`On`) when `mod_status` is loaded. For earlier versions, the default for `ExtendedStatus` is `Off`, so manually enable it.
- 4 Verify that the `server-status` and `server-info` handlers are configured. These handlers are built in to a standard Apache distribution and allow the agent to get the server’s status report and configuration information respectively.
- 5 Save the file.

## Monitoring Apache web servers in FIPS-compliant mode

Foglight for Apache agent supports to run in FIPS-compliant mode, depending on the Agent Manager where it’s deployed on. That is to say if the Agent Manager runs in FIPS-compliant mode, the Apache agent will be configured to be FIPS-compliant automatically, and vice versa.

When Foglight for Apache agent runs in FIPS-compliant mode, and tries to access an Apache web server with HTTPs connection, the Apache agent requires to authenticate the Apache web server's certificate. In order to successfully access these web servers and collect metrics, you need to import the web server's certificates to Agent Manager's certificate store.

### **To import the Apache web server's certificate to the Agent Manager certificate store:**

- 1 Launch a command shell on the Agent Manager machine, and navigate to the `<fglam_home>/bin` directory.
- 2 Import the Apache web server's certificate with the following command:

```
fglam --add-certificate <alias=/path/to/certificate>
```

For example:

```
fglam --add-certificate your_alias_name=C:\Certificates\test\ServerSSL.cer
```

## Limiting access to server status and information pages

### **To restrict access to the server status page by requiring a password and a valid user:**

- 1 Add the following authentication settings to your `http.conf` file:

```
<Location /server-status>
    SetHandler server-status
    AuthType basic
    AuthName "Server-Status"
    AuthUserFile c:/.htpasswd
    require valid-user
</Location>
```

The Apache agent includes a credential wizard to enable access to secure pages. For more information, see [Step 5](#) of the procedure in [Adding Apache monitors](#).

## Adding Apache monitors

An Apache Monitor, or Apache agent, is a Foglight for Apache agent that monitors Apache web servers.

### **To create an Apache monitoring agent:**

- 1 On the navigation panel, under Dashboards, click **Apache**.
- 2 On the Apache Web Server Monitoring dashboard, in the upper right corner of the display area, click **Add Apache Monitor**.

The **Add an Apache Monitor** wizard opens.

- 3 On the Host Input page:
    - a Select the **Remote Agent Manager** that you want to host the Apache monitor from the list.
    - b In the **Apache Host** box, type the host name or IP address of the Apache web server that you want to monitor.
- i** **IMPORTANT:** Do not attempt to create a single agent to monitor hosts that are part of a load-balanced or cluster configuration. If you want to monitor hosts behind a load balancer or in a cluster, create a separate agent to monitor each host individually.
- c In the **Apache Server Protocol** list, select `http` or `https`.

- d Type the port number for the **Apache Server Port**. The default port number is 80.
  - e **Apache Server Version** — Use only if you have customized the Apache server to hide the server version in the `server-status` and `server-info` pages. Select the Apache server version from the list. If the server version is not selected, the agent may fail to collect data. If the Apache server has not been customized, accept the default value.
  - f Type the **Server Status Path**, or accept the default value.
  - g Type the **Server Info Path**, or accept the default value.
  - h Click **Next**.
- 4 On the Agent Properties page, the Apache agent attempts to auto-detect the required information and auto-populates the properties based on the Apache host name you specified on the previous page. You can change these auto-generated values as necessary.
- **Agent Name** — The name of the agent as it appears on the main Foglight for Apache agent dashboards (for example, the Agent Status dashboard).
  - **Server Status URL** — The full URL of the server status page. By default this is `http://example.com/server-status`, where `example.com` is the host name specified on the previous page.
  - **Server Info URL** — The full URL of the server information page. By default this is `http://example.com/server-info`, where `example.com` is the host name specified on the previous page.
- i** **TIP:** The icons beside the Server Status URL and Server Info URL boxes indicate whether the Apache agent can find the required information at the default URL. If the yellow caution symbol appears, you can click it to access troubleshooting information. For example, if you are using a non-standard port, you may need to specify the port number as part of the URL.
- **Optional** — Proxy information. If you need to specify proxy information, click the arrow beside the word **Proxy** to access additional settings.  
Click the **Enable Proxy** check box to enable the proxy settings.  
Type the host name or IP address for the proxy server and type the proxy port number in the appropriate boxes.  
If the proxy requires authorization, click the **Authorization** check box, and type the user name and password in the appropriate boxes.
- 5 Credential information. If the server status and information pages are secured resources, you can provide credential information (user name and password) to the Apache agent and store the credential in the Management Server lockbox.
- a In the Credentials section at the bottom of the Agent Properties page, select one of the following options:
    - Do not configure a credential. If you select this option, the Summary page opens. Continue with [Step 7](#).
    - Add host to a new credential. This option is selected by default.
    - Add host to an existing credential.
  - b Click **Next**.
  - c On the Credential Type page, select **User Name and Password** and click **Next**.
  - d On the Credential Properties page, type the user name and password in the appropriate boxes. Click **Next**.
  - e On the Credential Name and Lockbox page, specify a unique name to identify the credential you are creating, and select the lockbox that holds the credential. Click **Next**.
  - f The Resource Mapping page is purely informational. Click **Next**.

- g Optional — On the Policies page, configure any policies to restrict the credential. For more information, see [Edit credential policies](#) in the *Foglight Administration and Configuration Help*.

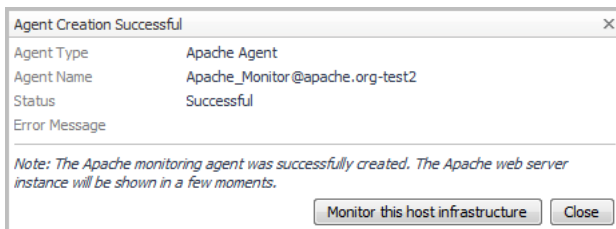
6 Click **Next**.

7 Review the information on the Summary page.

If necessary, click **Previous** to correct any of the required settings.

Otherwise, click **Finish**.

A message box opens, indicating the status of the agent creation. If any errors occur, an error message appears in this box.



8 Optional — If you have installed Foglight for Infrastructure, and you want to also monitor the host infrastructure, click **Monitor this host infrastructure**. The Add Monitored Host wizard opens. For detailed information about this wizard, see [Adding a monitored host](#) in the *Foglight for Infrastructure User and Reference Guide*.

Otherwise, click **Close**.

The dashboard refreshes. Depending on the collection schedule, it may take a few minutes for data to appear.

## Configuring host monitoring

If the web server host is not monitored, no information is available in the **OS Type** box on the web server summary and detail views.

### **To add host monitoring:**

- 1 On the navigation panel, under Dashboards, click Apache.
- 2 On the Apache Web Server Monitoring dashboard, click the server name in All Apache Web Servers list.
- 3 In the Web Server Information section, click the **Host** box. The Host Monitoring dashboard opens.
- 4 Click **Configure Host Monitoring** and complete the wizard to add a host monitoring agent.

For more information about host monitoring, see [Adding a monitored host](#) in the *Foglight for Infrastructure User and Reference Guide*.

## Configuring how the Apache agent resolves host names

By default, the Apache agent attempts to resolve the host name of the monitored web server. However, sometimes, this is not the preferred host name. In such cases, you can add a mapping to define the host name.

### **To configure a list of predefined host names:**

- 1 On the navigation panel, under **Dashboards**, click **Administration > Agents > Agent Status**.
- 2 On the Agent Status dashboard, select the Apache agent that you want to configure and click **Edit > Edit Properties**.

- 3 Click **Modify the private properties for this agent**.
- 4 In the Predefined Host Names section, click **Edit**.
- 5 In the box that opens, click **Add Row**.
- 6 Type the name or IP address of the host in the first box.
- 7 Press Tab to move to the second box and type the predefined name.
- 8 Click **Save Changes**.

## Configuring the IntelliProfile ready time

IntelliProfile requires a certain amount of time to establish an accurate profile for the Apache agent. The default ready time (24 h) may not be long enough, and may generate excess warnings on the Web Server Throughput rule in particular.

### *To adjust the IntelliProfile ready time for the Apache agent:*

- 1 On the navigation panel, under Dashboards, click **Administration > Data > IntelliProfile**.
- 2 Increase the IntelliProfile ready time to one week (168 h). In the General section of the IntelliProfile dashboard, type the value `168` in the **IntelliProfile is ready after first [ ] hours of work box**.

After changing this setting, IntelliProfile can establish a more accurate profile and therefore trigger fewer false alarms.

- 3 Click **Save Changes**.

## Reference

Foglight for Apache ships with predefined views to help you monitor your application server environment. This topic provides quick reference information about each view. Foglight for Apache displays monitoring data in views that group, format, and display data.

Dashboards are top-level views that do not receive data from other views. Dashboards usually contain several lower-level views. The dashboards supplied with Foglight for Apache, and those created by users, are available in the navigation panel.

Lower-level views in Foglight for Apache can be added to dashboards or can be accessed by drilling down from a dashboard. They receive and display data directly from the Foglight Management Server or from other views. Some views filter or select data that appears in other views in the same dashboard. Some are tree views with expandable nodes for selecting servers, applications, or data.

## Web Server Details view

The Web Server Details view provides information about the monitored web server as well as detailed information about web server performance and web site performance on the [Performance tab](#) and [Web Sites tab](#) respectively.

You can drill down to this view by clicking a web server name on the Summary – All Apache Web Servers view, or by clicking Explore on the Summary – *<WebServerName>* view.

**i** | **TIP:** To view the details for another web server without leaving this view, click the web server name in the upper left corner, and select another server from the list.

**Figure 2. Monitored Information section**

Monitored Information			
Name	Host:[aurora-2012.apache.org]/Apache:[httpd]	Host	aurora-2012.apache.org
Version	Apache/2.4.3 (Unix) OpenSSL/1.0.0g	OS type	-
Bindings	[192.87.106.229, 80, 443] [[2001:610:1:80bc:192:87...	Process name	httpd
Up since	December 10, 2012 2:05:44 AM CST	Total accesses since last start	222 M
Up time	26 day(s) 8 hour(s) 16 minute(s) 22 second(s)	Total traffic since last start	14 TB

This section provides a breakdown of details pulled from the Server Information and Server Status pages of the web server, including the following:

**Table 1. Monitored Information fields and definitions**

<b>Name</b>	The configured display name of the Apache web server.
<b>Version</b>	The version number of the Apache web server.
<b>Bindings</b>	If the Apache web server has been configured using the <code>Listen</code> directive to listen for incoming connections on specific ports or selected addresses (or both), that binding information appears here.
<b>Up since</b>	The date and time the web server was last restarted.
<b>Up time</b>	The length of time since the web server was last restarted.
<b>Host</b>	The name of the machine that hosts the web server.

**Table 1. Monitored Information fields and definitions**

<b>OS type</b>	The operating system of the monitored host. <b>NOTE:</b> If the host is not monitored, the OS type is blank.
<b>Process name</b>	The process name is either <code>httpd</code> (for Apache versions 2.2 and 2.4) or <code>Apache</code> (for versions 1.3 and 2.0).
<b>Total accesses since last up</b>	The total number of times the web server was accessed since the last time it was restarted.
<b>Total traffic since last up</b>	The total amount of traffic (bandwidth used) by the web server since the last time it was restarted.

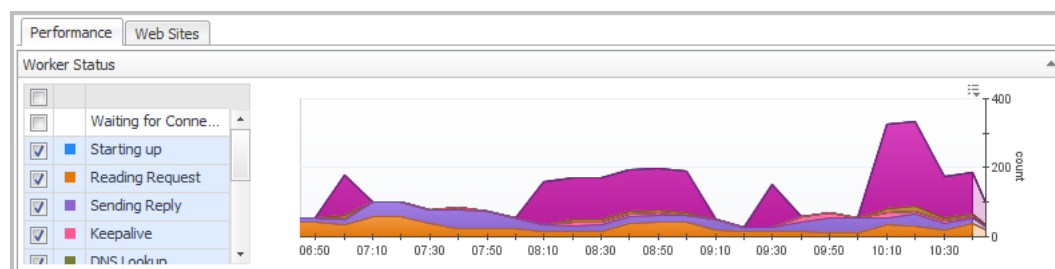
## Performance tab

The Performance tab is divided into three sections: Worker Status, Performance, and Top 5 Busy Web Sites.

### Worker Status

The Worker Status chart on the Performance tab helps you visualize the state of workers on the web server. Use the list of check boxes to show or hide the types of worker status that you want to review from the eleven types available.

**Figure 3. Worker Status Chart**



By default, all status types except *Waiting for Connection* and *Open slot with no current process* are selected and shown.

### Performance

The Performance charts on the Performance tab provide an at-a-glance overview of four key web server metrics and their overall health: idle/busy workers, data throughput, open connections, and requests per second.



**Figure 4. Performance Charts**



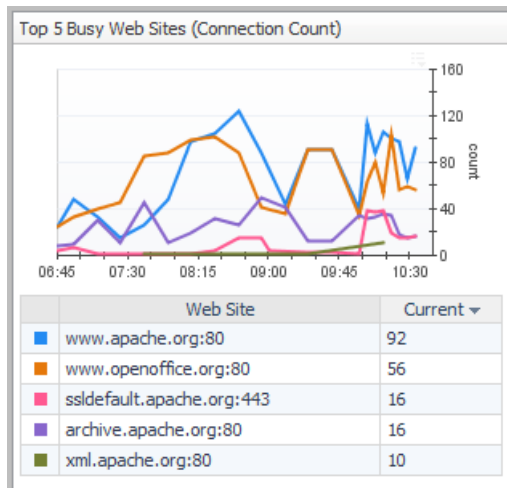
The colored bar above each chart indicates the health of that metric. The color changes when an alarm occurs.

The Data Throughput and Requests per Second charts include a baseline envelope that enables you to quickly see when values are above or below the typical operating range. For more information about baselines, see [Analyzing Activity Levels with IntelliProfile](#) in the *Foglight Administration and Configuration Guide*.

## Top 5 Busy Web Sites (Connection Count)

The Top 5 Busy Web Sites chart on the Performance tab allows you to compare the five web sites with the highest connection count.

**Figure 5. Top 5 Busy Web Sites Chart**

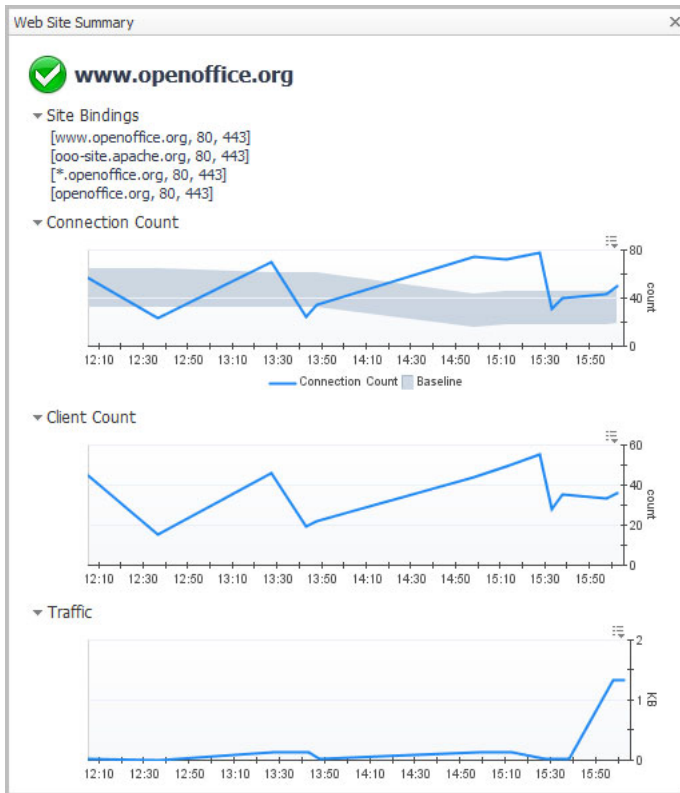


## Web Site Summary

**To view traffic details for a particular web site:**

- Click the name of the web site in the table below the chart.  
Web Site Summary pop-up view opens.

Figure 6. Web Site Summary pop-up view



This view displays the Site Binding information (if available), and three charts: Connection Count, Client Count, and Traffic. You can also access this information on the Web Sites tab.

## Web Sites tab

The Web Sites tab lists all web sites hosted on the selected Apache web server. It also provides site binding information (if applicable), and connection count, client count, and traffic information.

### To access the Web Sites tab:

- On the Web Server Details view, click the **Web Sites** tab.

Figure 7. Web Sites Tab View

Web Site	Site Bindings	Connections	Clients	Traffic
www.apache.org	[www.apache.org, 80, 443] 1 more...	72	42	9 KB
www.openoffice.org	[www.openoffice.org, 80, 443] 3 more...	65	51	167 B
archive.apache.org	[archive.apache.org, 80, 443] 1 more...	23	18	633 KB
wiki-online.apache.org	[wiki-online.apache.org, 80, 443] 2 more...	13	12	6 B
xml.apache.org	[xml.apache.org, 80, 443] 1 more...	12	1	0 B
ssldefault.apache.org	[ssldefault.apache.org, 443]	9	6	0 B
mail-archives.apache.org	[mail-archives.apache.org, 80, 443] 1 more...	8	5	0 B
httpd.apache.org	[httpd.apache.org, 80, 443] 1 more...	7	2	4 B

The Web Sites tab provides the following information for all sites hosted on the selected web server:

**Table 2. Web Sites Tab fields and definitions**

<b>Web Site</b>	Web site name.
<b>Site Bindings</b>	If the Apache web server has been configured using the <code>Listen</code> directive to listen for incoming connections on specific ports or selected addresses (or both), that binding information appears in this box.
<b>Connections</b>	Displays the current number of connections, as a numeric value, as well as a sparkline of the connection count trend over the time range selected in the zonar (for example, 4 hours). Hover the mouse pointer over the sparkline to open a graph of the connection count over time, or click the sparkline or count to open a Web Site Summary view.
<b>Clients</b>	Displays the current number of clients, as a numeric value, as well as a sparkline of the client count trend over the time range selected in the zonar (for example, 4 hours). Hover the mouse pointer over the sparkline to open a bar chart of the client count over time, or click the sparkline or count to open a Web Site Summary view.
<b>Traffic</b>	Displays the current traffic (bandwidth use) for the web site as a numeric value, as well as a sparkline of the traffic trend over the time range selected in the zonar (for example, 4 hours). Hover the mouse pointer over the sparkline to open a bar chart of the traffic over time, or click the sparkline or count to open a Web Site Summary view.

Click any row in the table to open the [Web Site Summary](#) view for the selected web site.

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