Alibaba Cloud
Web应用防火墙

Statistics and Analysis

Issue: 20200704

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Document conventions

Style	Description	Example
	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 **Danger:** Resetting will result in the loss of user configuration data.
	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 **Warning:** Restarting will cause business interruption. About 10 minutes are required to restart an instance.
	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 **Notice:** If the weight is set to 0, the server no longer receives new requests.
	A note indicates supplemental instructions, best practices, tips, and other content.	 **Note:** You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click **Settings** > **Network** > **Set network type**.
Bold	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click **OK**.
Courier font	Courier font is used for commands.	Run the `cd /d C:/window` command to enter the Windows system folder.
Italic	Italic formatting is used for parameters and variables.	`bae log list --instanceid` *Instance_ID*
[] or [a|b]	This format is used for an optional value, where only one item can be selected.	`ipconfig [-all|-t]`

Style	Description	Example
{} or {a|b}	This format is used for a required value, where only one item can be selected.	switch {active|stand}

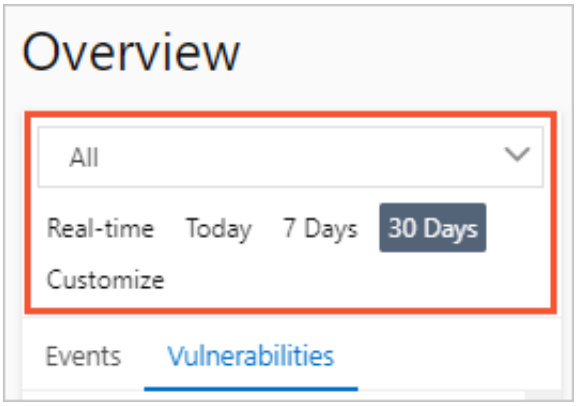
Contents

1 View overall information

This topic describes the Overview page of the Web Application Firewall (WAF) console. The Overview page displays the protection information of websites that are added to WAF, including attack events, emergency vulnerabilities, protection statistics, and request analysis charts. You can obtain the security status of your website and perform security analysis based on the information displayed on this page.

Access the Overview page

1. Log on to the Web Application Firewall console.
2. In the top navigation bar, select the resource group to which the instance belongs and the region, **Mainland China** or , in which the instance is deployed.
3. In the left-side navigation pane, click .
4. In the upper-left corner of the **Overview** page that appears, specify the target domain (all domains or a single domain) and the time period (Real-time, Today, 7 Days, 30 Days, or Customize) to view the overall information.

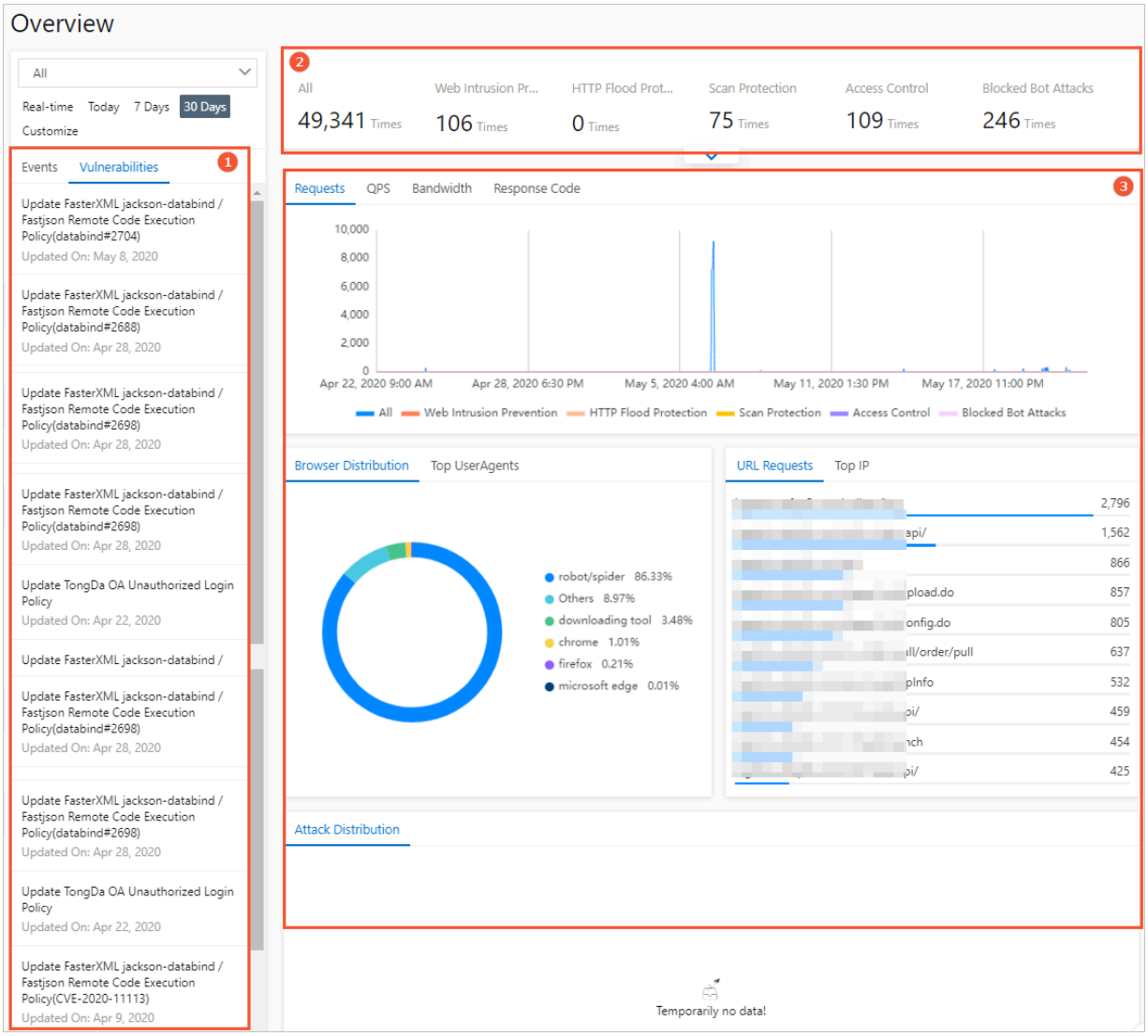


Note:
The overall information for the last 30 days is available. You can customize a time period within the last 30 days.

Overall information

The Overview page includes the following three parts:

- Event list and emergency vulnerability records (area 1 in the figure)
- Protection statistics (area 2 in the figure)
- Request analysis charts (area 3 in the figure)



Event list and emergency vulnerability records

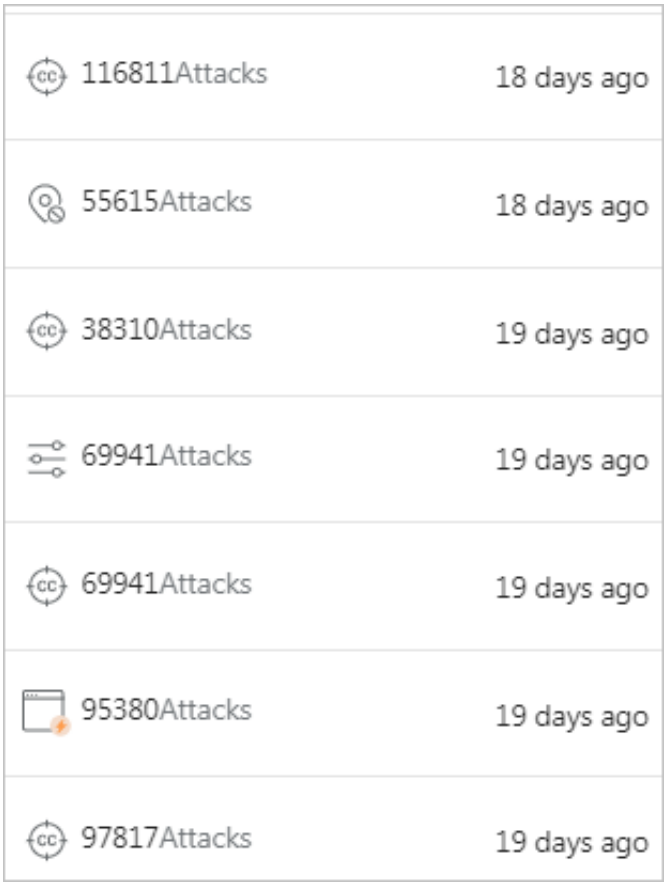
The **Vulnerabilities** tab is displayed by default. You can view the updates to the protection rules for the latest disclosed security vulnerabilities on this tab.

The **Events** tab displays historical security events. WAF aggregates the blocked attacks into events so that you can quickly identify attacks and threats to your website.

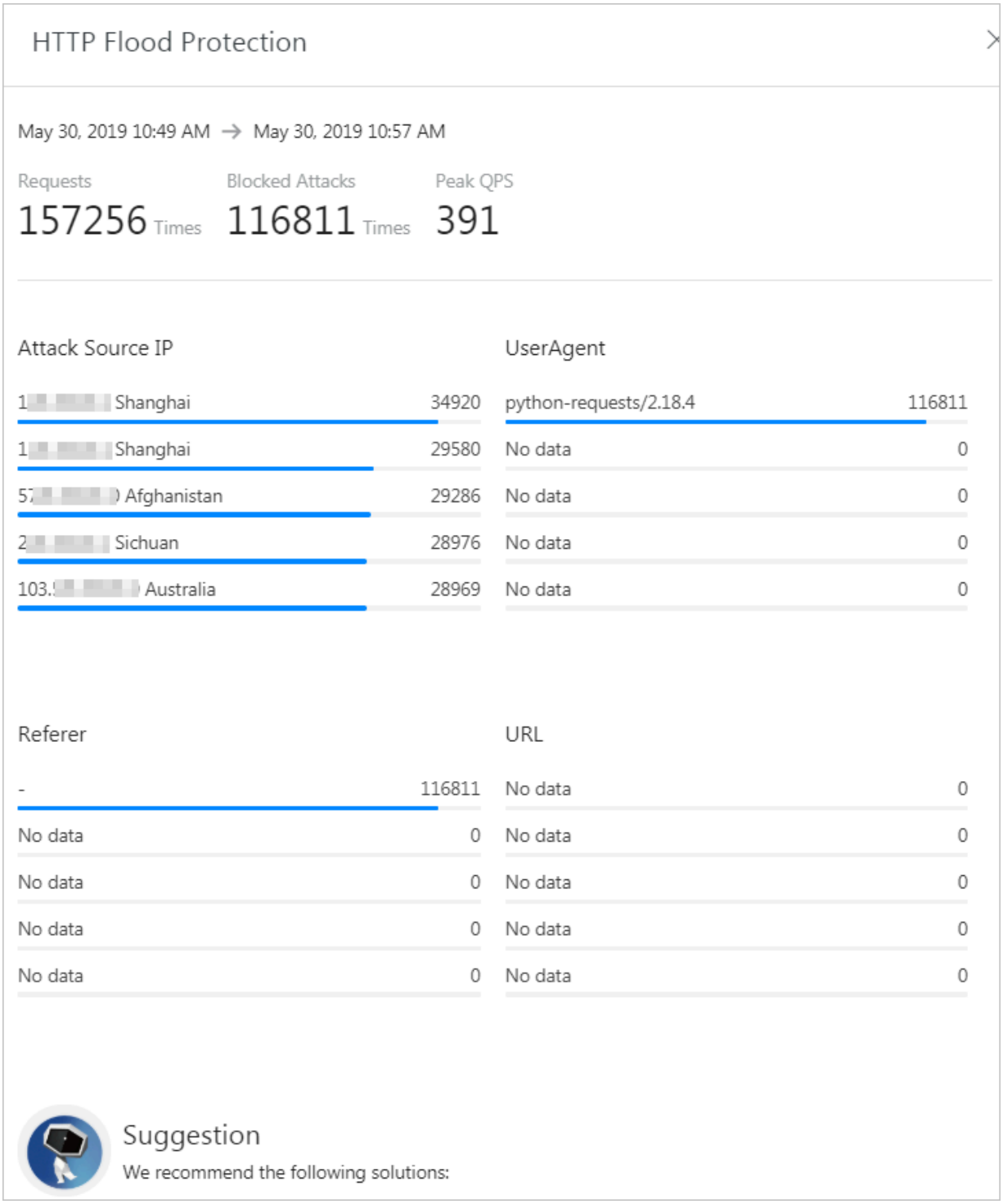
> **Note:**
> If you select all domains, the total numbers of attacks and events on all domains are displayed. You can also select a specific domain to view the relevant events.

Web Application Firewall classifies the attacks into events based on the attack type, severity, frequency, and time. The events are classified into the following types: invalid request blocking, HTTP flood attack blocking, web attack blocking, request blocking based

on precise access control, request blocking based on region blocking policies, and request blocking based on continuous attack protection.



You can click an event to view information of the event and the related data of the event type. For example, in the HTTP Flood Protection area, you can view the top 5 source IP addresses that initiate the most attacks, user agents, referrers, and requested URLs of the attacks. You can also view the number of attacks that are blocked for each of these items. You can also view the protection suggestions provided below the data.

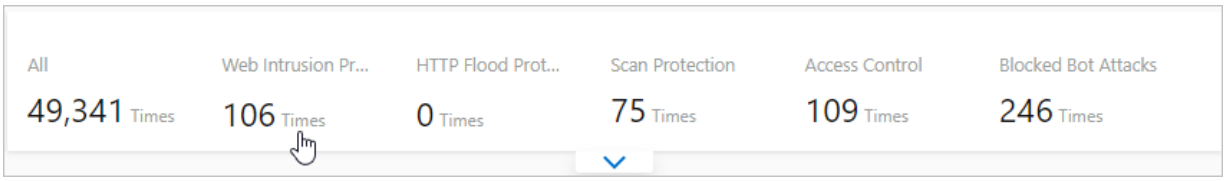


Protection statistics

This area displays the number of **all** received requests and the numbers of the following types of protection requests, including **Web Intrusion Prevention**, **HTTP Flood Protection**, **Scan Protection**, **Access Control**, and **Blocked Bot Attacks**.

Note:

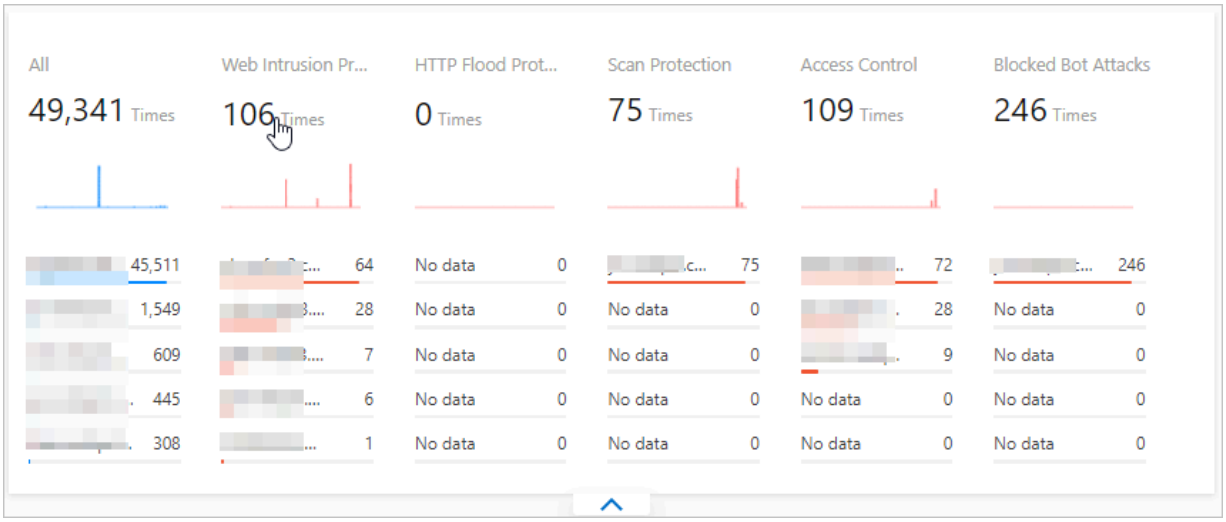
The Blocked Bot Attacks module is available only in the new protection engine. For more information, see #unique_4.



You can click the number of requests under each protection module to go to the corresponding **Security report** page to view data details. For more information, see View security reports.

You can click the drop-down icon in the lower part of this area to display the trend charts of the requests in each module.

Note:
If you select all domains, the top 5 domains with the most data volume and their data are displayed.



Request analysis charts

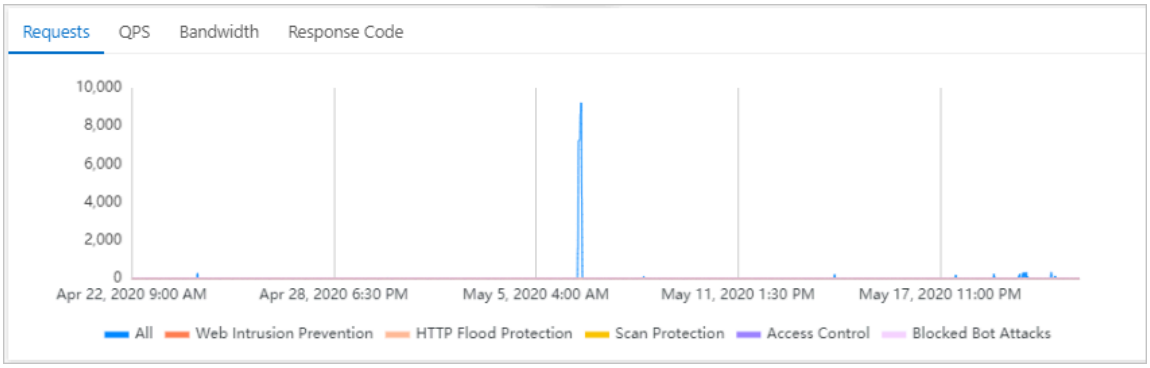
- Trends: displays the trends of **Requests**, **QPS**, **Bandwidth**, and **Response Code** within a specified period. The minimum time granularity is one minute.

  Note:

  - You can click a legend item below the trend chart to hide or show the relevant records.

- The Blocked Bot Attacks module is available only in the new protection engine. For more information, see #unique_4.

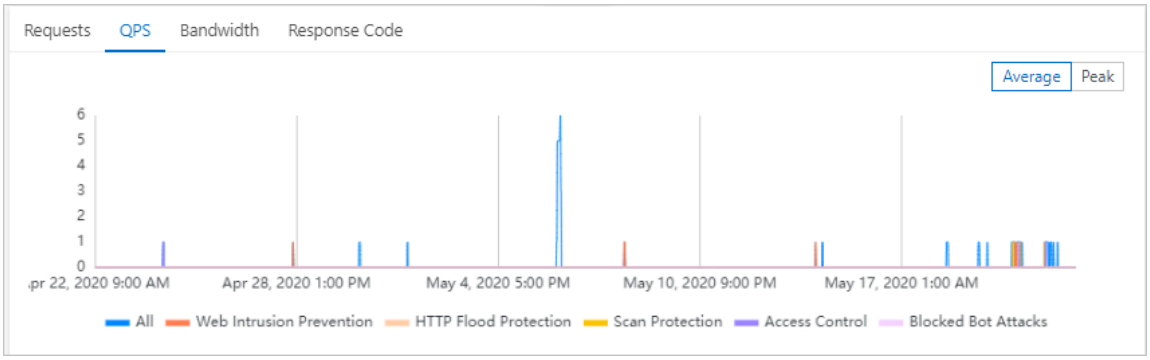
- **Requests**: displays the total number of requests, the number of web intrusion prevention times, the number of HTTP flood protection times, the number of scan protection times, the number of access control hits, and the number of bot protection times.



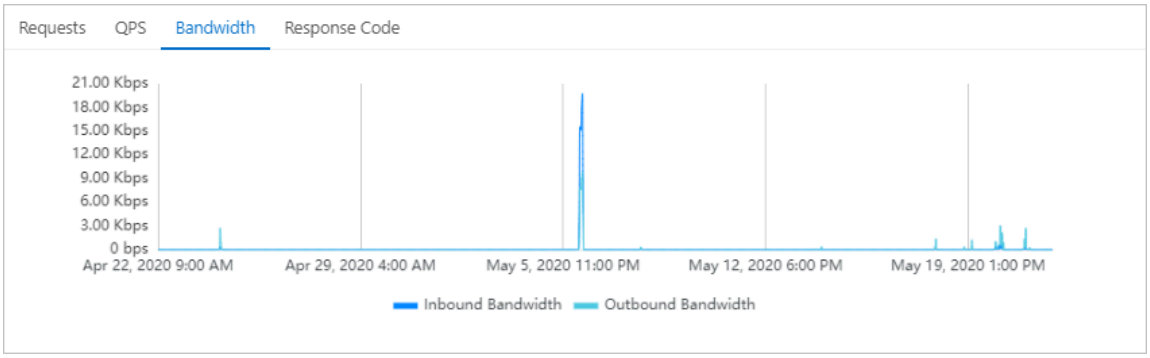
- **QPS**: displays the queries per second (QPS) of all requests, the QPS of web intrusion prevention, the QPS of HTTP flood protection, the QPS of scan protection, the QPS of access control, and the QPS of bot protection.

Note:

You can click **Average** and **Peak** in the upper-right corner of the chart to switch between the average QPS and peak QPS.



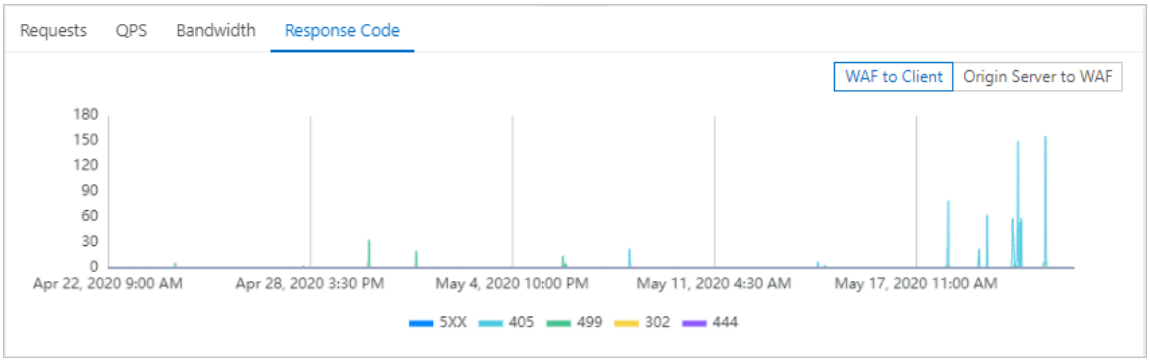
- **Bandwidth**: displays the inbound bandwidth and outbound bandwidth in bit/s.



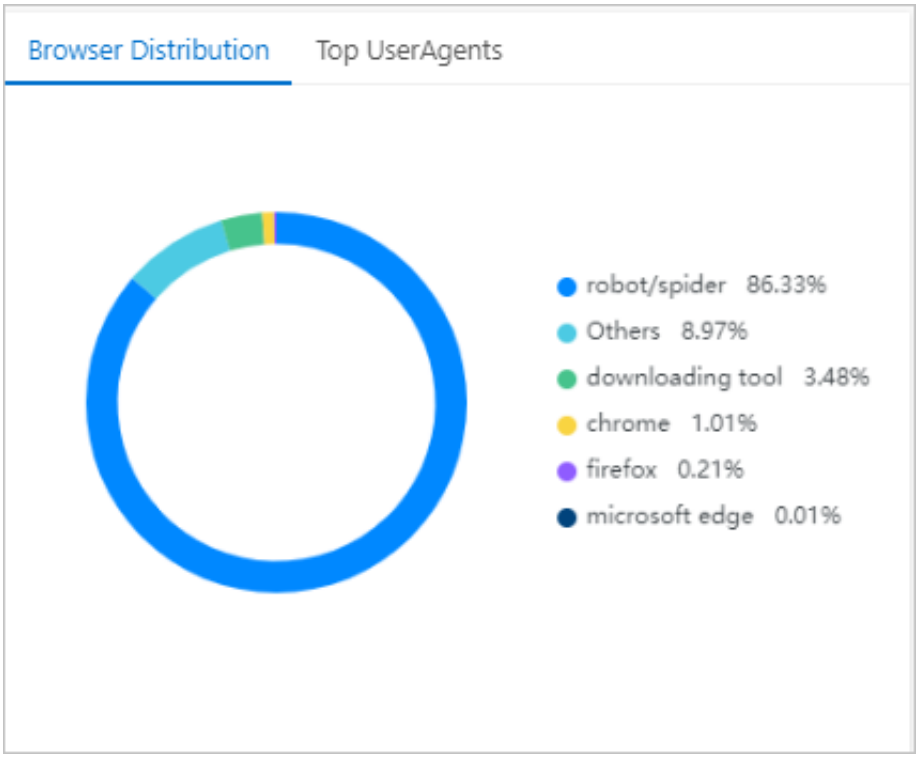
- **Response Code**: displays the trends of the numbers of HTTP error codes, such as 5XX, 405, 499, 302, and 444.

Note:

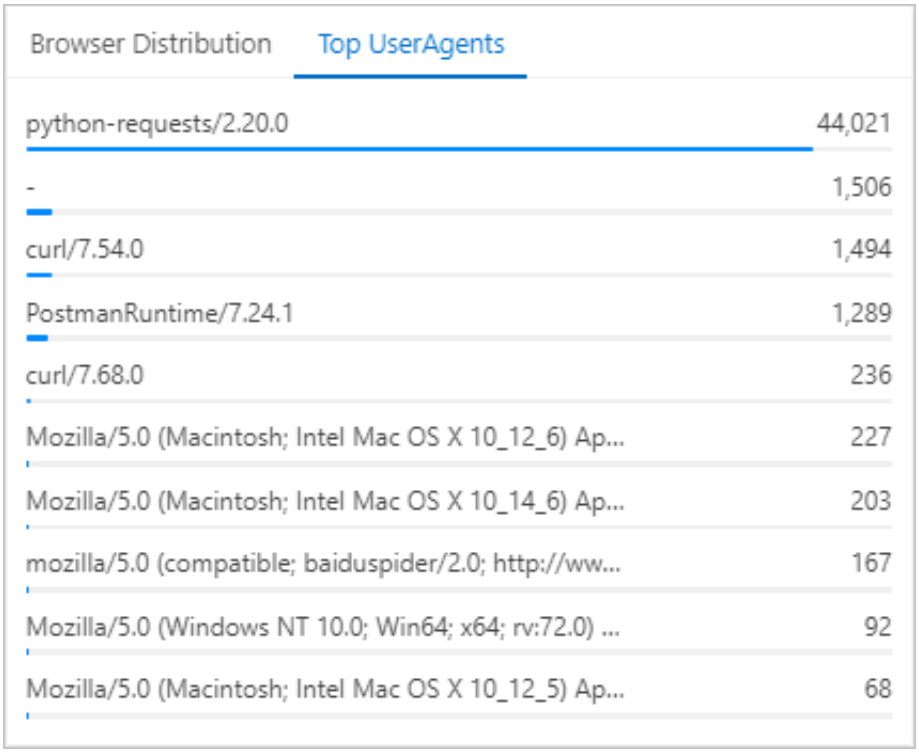
You can click **WAF to Client** and **Origin Server to WAF** in the upper-right corner of the trend chart to view the distributions of response codes from the WAF instance to the client and those from the origin server to the WAF instance.



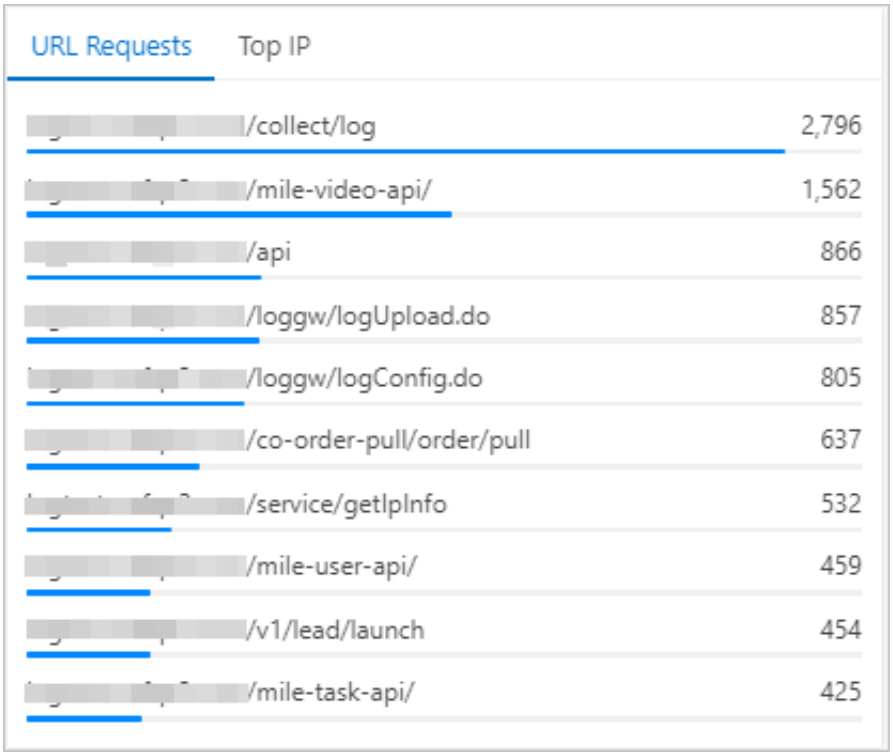
- **Browser Distribution** tab: On this tab, a pie chart shows the distribution of browsers used by the request sources.



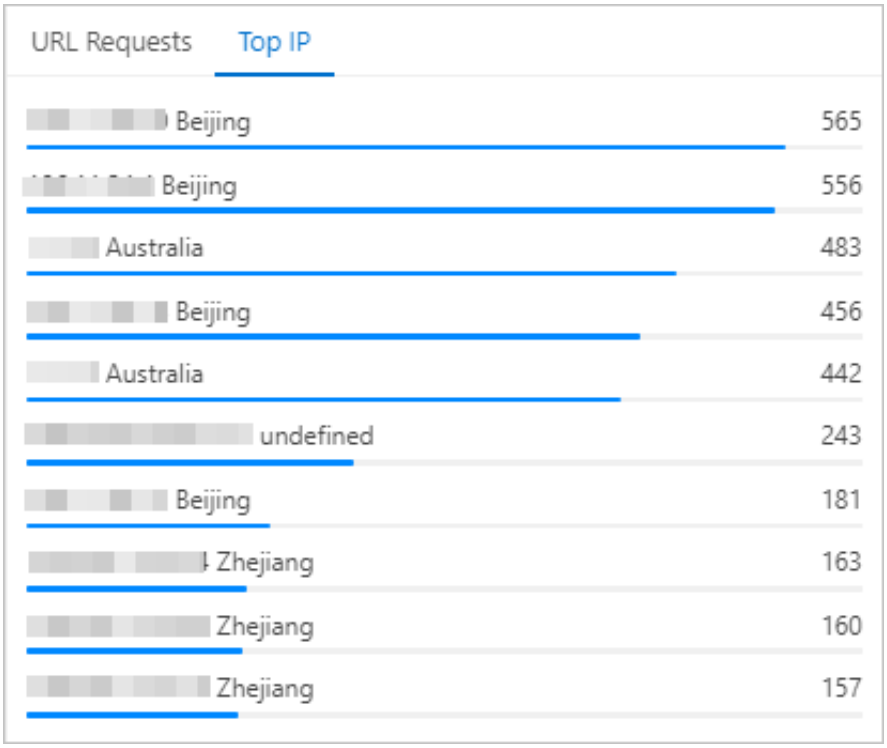
- **Top UserAgents** tab: On this tab, the most often used user agents and corresponding requests are displayed.



- **URL Requests** tab: On this tab, the URLs that are often requested and the number of requests are displayed.



- **Top IP** tab: On this tab, source IP addresses that initiate the most access requests and the number of requests are displayed.



- **Attack Distribution** area: In this area, the distribution of attack events is displayed.

  Note:
  You can click an event to view information of the event and related data of the event type.

2 View security reports

Web Application Firewall (WAF) provides security reports to display the protection records of each protection module. You can view the web security, bot management, and access control and throttling records on domains that are added to WAF. This allows you to analyze business security.

Notice:
This topic describes security reports in the WAF console released in January 2020. If your WAF instance was created before this date, see #unique_6.

Prerequisites

- A Web Application Firewall instance is available. For more information, see #unique_7.
- The website is associated with the Web Application Firewall instance. For more information, see #unique_8.

Access the security report page

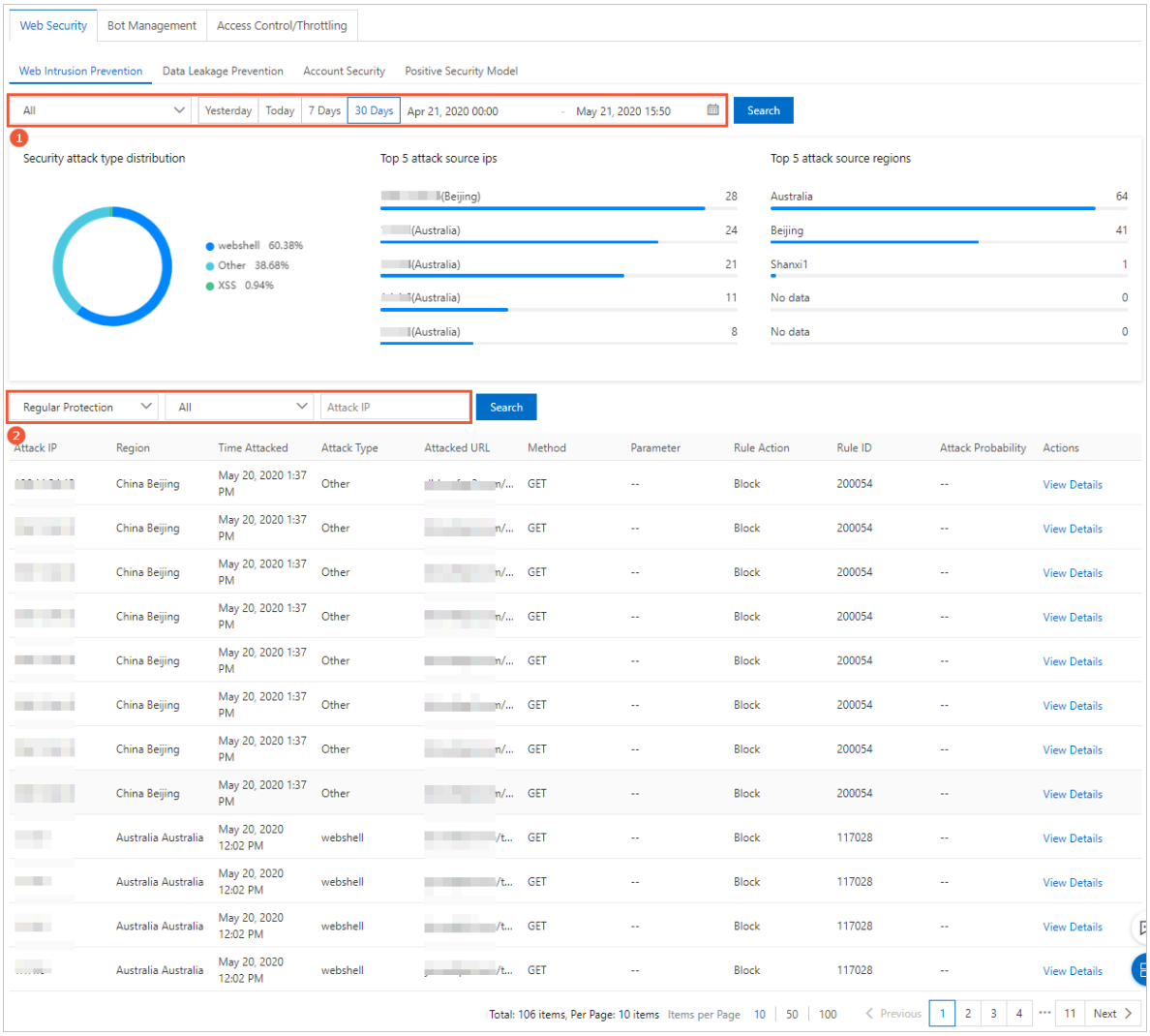
1. Log on to the Web Application Firewall console.
2. In the top navigation bar, select the resource group to which the instance belongs and the region, **Mainland China** or , in which the instance is deployed.
3. In the left-side navigation pane, click .
4. On the **Security report** page that appears, click any of the following tabs to view the reports of required types: **Web Security**, **Bot Management**, and **Access Control/ Throttling**.

Web Security tab

The **Web Security** tab displays protection records of the following modules: **Web Intrusion Prevention**, **Data Leakage Prevention**, **Account Security**, and **Positive Security Model**.

- **Web Intrusion Prevention**: displays all web application attacks blocked by WAF. This tab consists of two areas: attack statistics (area 1 in the figure) and attack details (area 2 in

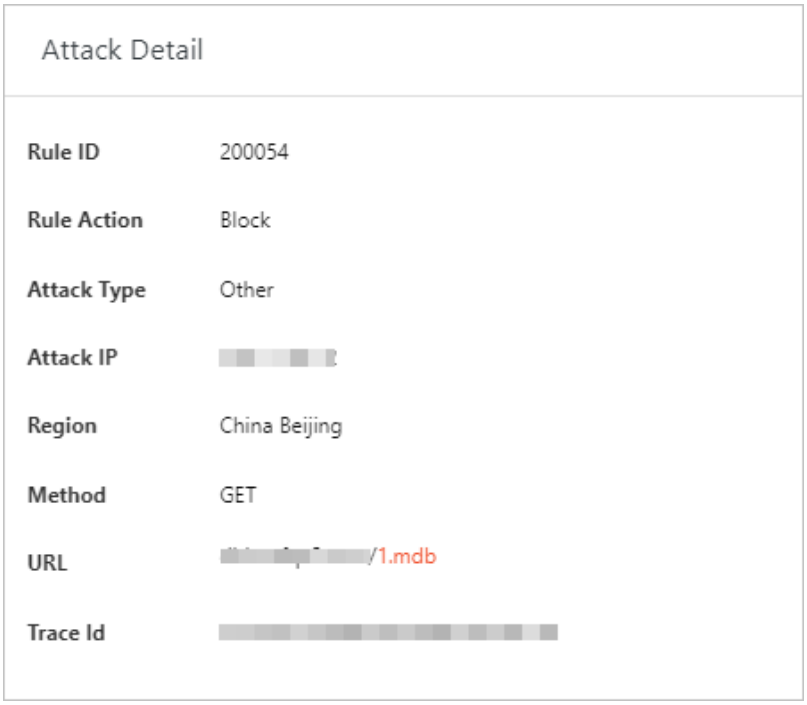
the figure). You can specify a domain and query time period to search for corresponding data.



- The attack statistics area includes **Security attack type distribution**, **Top 5 attack source ips**, and **Top 5 attack source regions**.
- The attack details area displays the following information: **Attack IP**, **Region**, **Time Attacked**, **Attack Type**, **Attacked URL**, **Method**, **Parameter**, **Rule Action**, **Rule ID**, and **Attack Probability**. You can specify the following information to search for the records that you want to view: protection module (valid values: Regular Protection and Deep

learning), attack type (valid values: SQL injection, XSS, Code execution, CRLF, Local file inclusion, Remote file inclusion, webshell, CSRF, and Other), and attack IP address.

You can click **View Details** in the Actions column that corresponds to a record to access the **Attack Detail** pane.

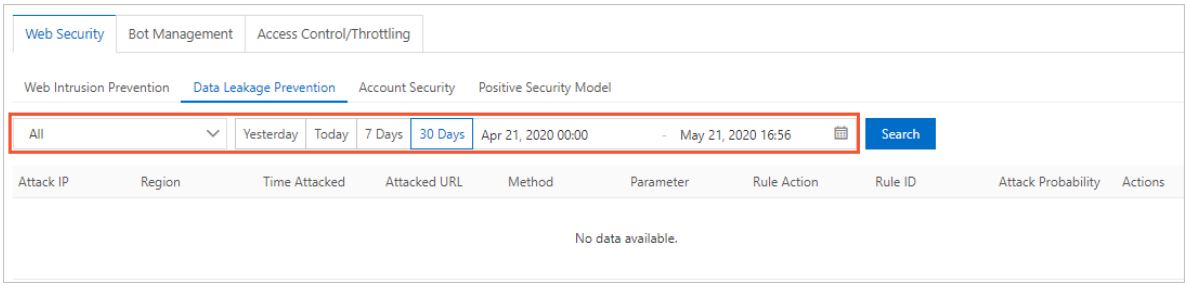


For more information about how to configure web intrusion prevention, see the following topics:

- #unique_9
- #unique_10

- **Data Leakage Prevention**: displays the records of web requests that triggered data leakage prevention rules. The following information is provided: **Attack IP**, **Region**, **Time Attacked**, **Attacked URL**, **Method**, **Parameter**, **Rule Action**, **Rule ID**, and

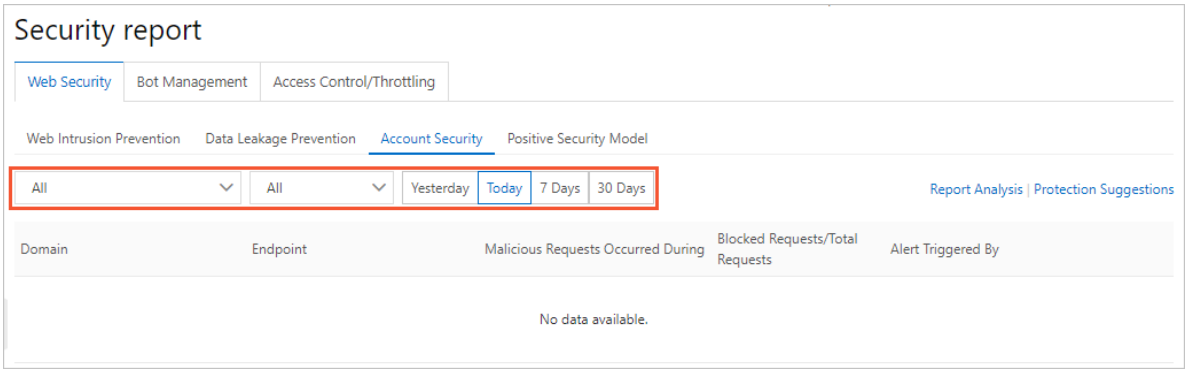
Attack Probability. You can specify a domain and query time period to search for corresponding data.



You can click **View Details** in the Actions column that corresponds to a record to access the **Attack Detail** pane.

For more information about how to configure data leakage prevention, see #unique_11.

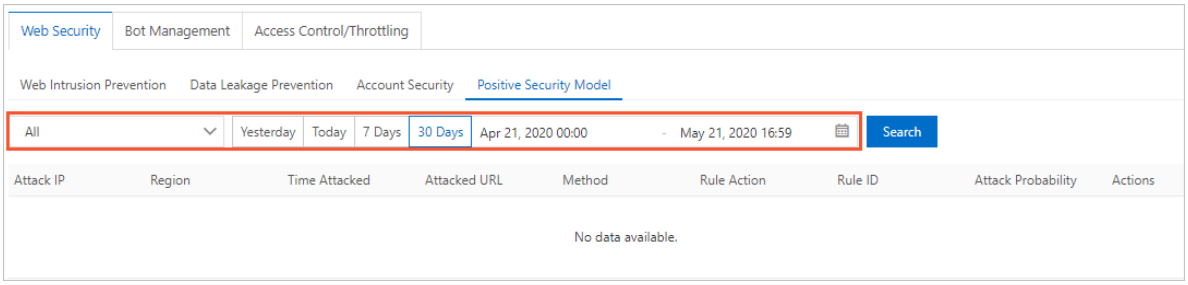
- **Account Security**: displays the records of risk events that occurred at the specified endpoint during the configuration of account security. The following information is provided: **Domain**, **Endpoint**, **Malicious Requests Occurred During**, **Blocked Requests/ Total Requests**, and **Alert Triggered By**. You can specify a domain, endpoint, and query time period to search for corresponding data.



For more information about how to configure account security, see #unique_12.

- **Positive Security Model**: displays the records of web application attacks that triggered automatically-generated positive security model rules. The following information is provided: **Attack IP**, **Region**, **Time Attacked**, **Attacked URL**, **Method**, **Rule Action**, **Rule**

ID, and **Attack Probability**. You can specify a domain and query time period to search for corresponding data.

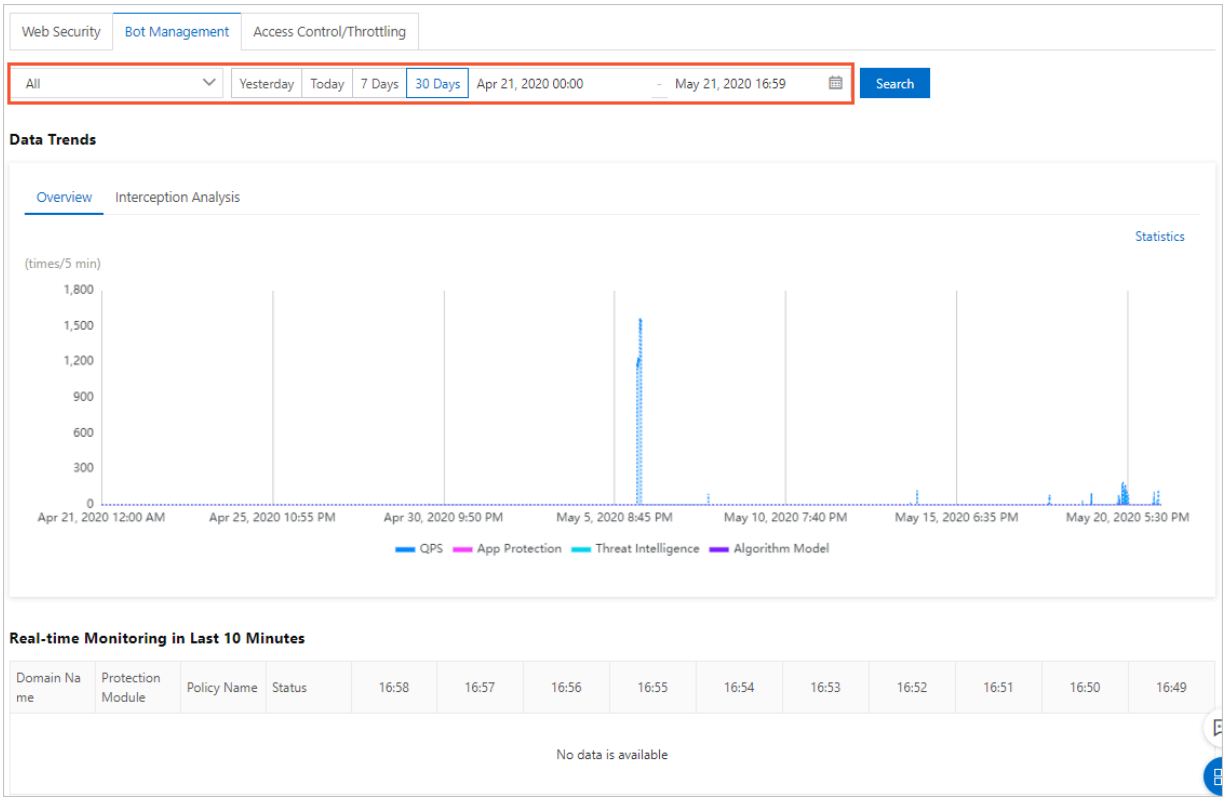


You can click **View Details** in the Actions column that corresponds to a record to access the **Attack Detail** pane.

For more information about how to configure a positive security model, see #unique_13.

Bot Management tab

The **Bot Management** tab displays the monitoring data of access requests of crawlers generated in websites. This tab consists of two sections: **Data Trends** and **Real-time Monitoring in Last 10 Minutes**. You can specify a domain and query time period to search for corresponding data.



- **Data Trends**: includes two tabs: **Overview** and **Interception Analysis**. The **Overview** tab displays the trend chart of total requests and access requests of crawlers that triggered

the protection rules under different protection modules. The **Interception Analysis** tab displays the trend chart of requests and blocked requests.

- **Real-time Monitoring in Last 10 Minutes**: displays the records of access requests of crawlers that triggered the protection rules under different protection modules in the last 10 minutes.

For more information about how to configure bot management, see the following topics:

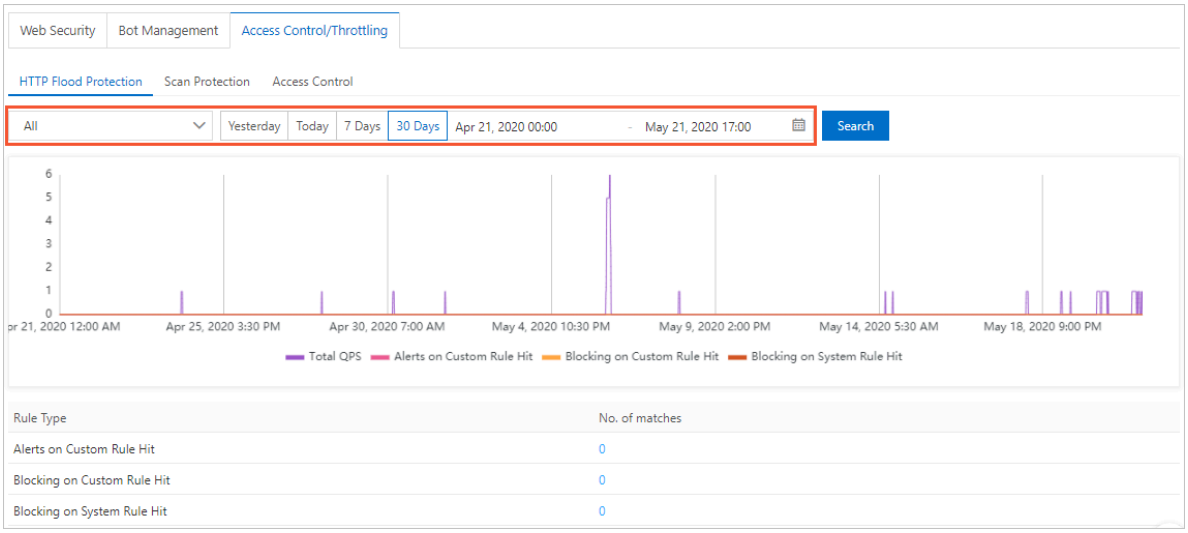
- #unique_14
- #unique_15
- #unique_16

Access Control/Throttling tab

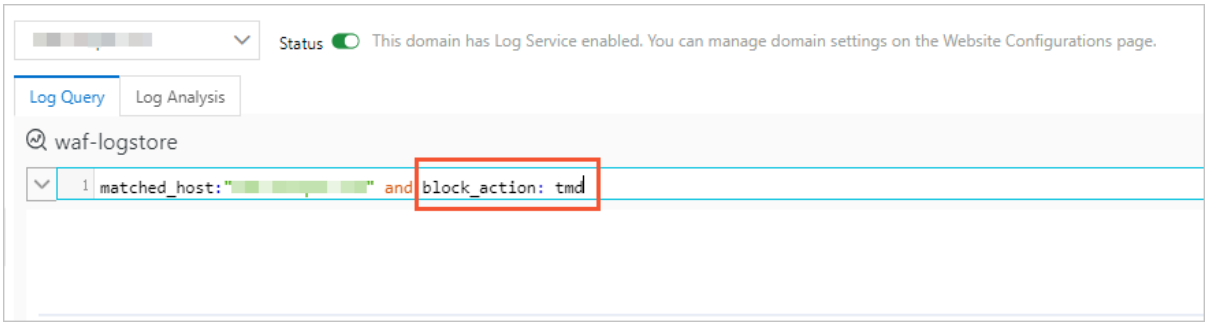
The **Access Control/Throttling** tab displays the records of web requests that triggered the protection rules under the following protection modules: **HTTP Flood Protection**, **Scan Protection**, and **Access Control**. You can specify a domain and query time period to search for corresponding data. You can also query data-related logs with one click.

- **HTTP Flood Protection**: displays the trend of HTTP flood protection. The following information is provided: **Total QPS**, **Alerts on Custom Rule Hit**, **Blocking on Custom Rule Hit**, and **Blocking on System Rule Hit**. This tab also displays the data of **No. of matches**

for different rule types (valid values: **Alerts on Custom Rule Hit**, **Blocking on Custom Rule Hit**, and **Blocking on System Rule Hit**).



You can click the value of **No. of matches** for a rule type to access the **Log Service** page. The system automatically enters the query statements of the logs related to HTTP flood protection on this page to facilitate log query. For more information, see #unique_17.

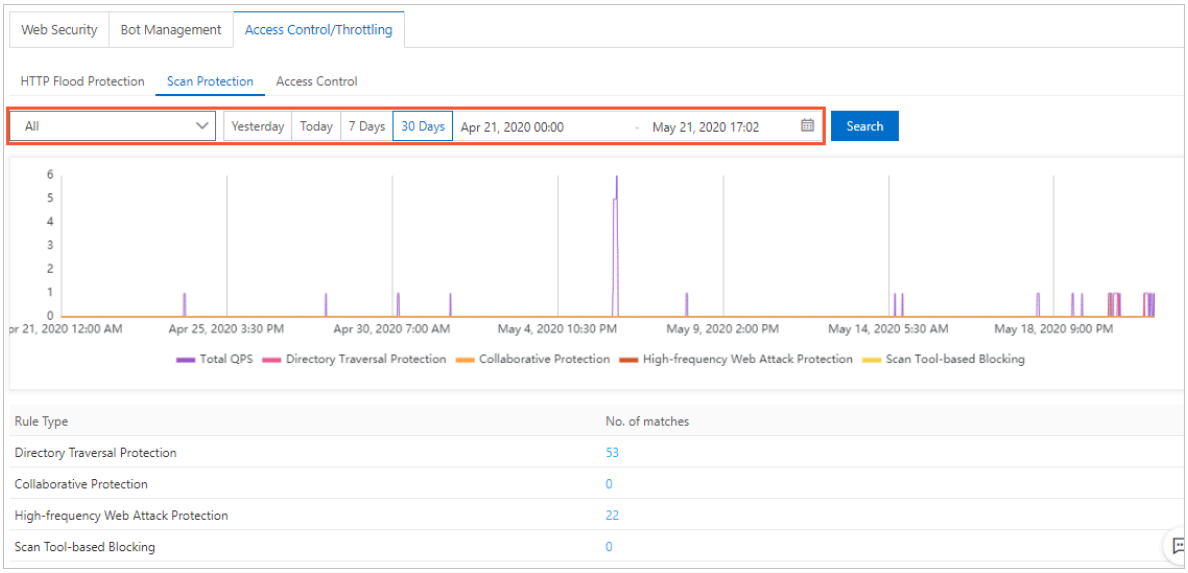


For more information about how to configure HTTP flood protection, see #unique_18.

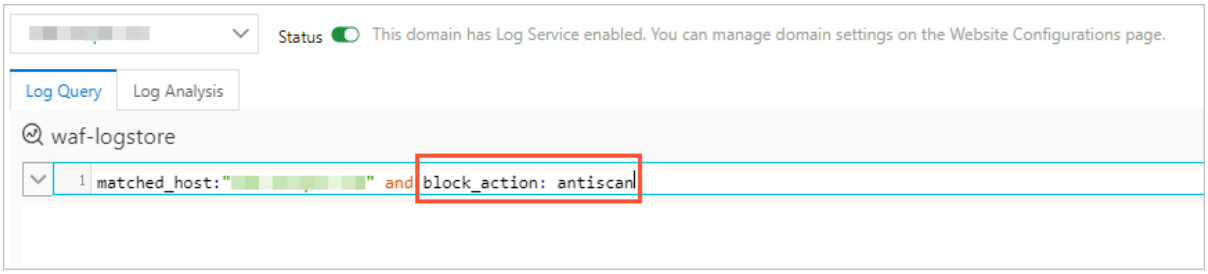
For more information about how to customize HTTP flood protection rules, see #unique_19.

- **Scan Protection**: displays the trend of scan protection. The following information is provided: **Total QPS**, **Directory Traversal Protection**, **Collaborative Protection**, **High-frequency Web Attack Protection**, and **Scan Tool-based Blocking**. This tab also displays the data of **No. of matches** for different rule types (valid values: **Directory Traversal**

Protection, **Collaborative Protection**, **High-frequency Web Attack Protection**, and **Scan Tool-based Blocking**).

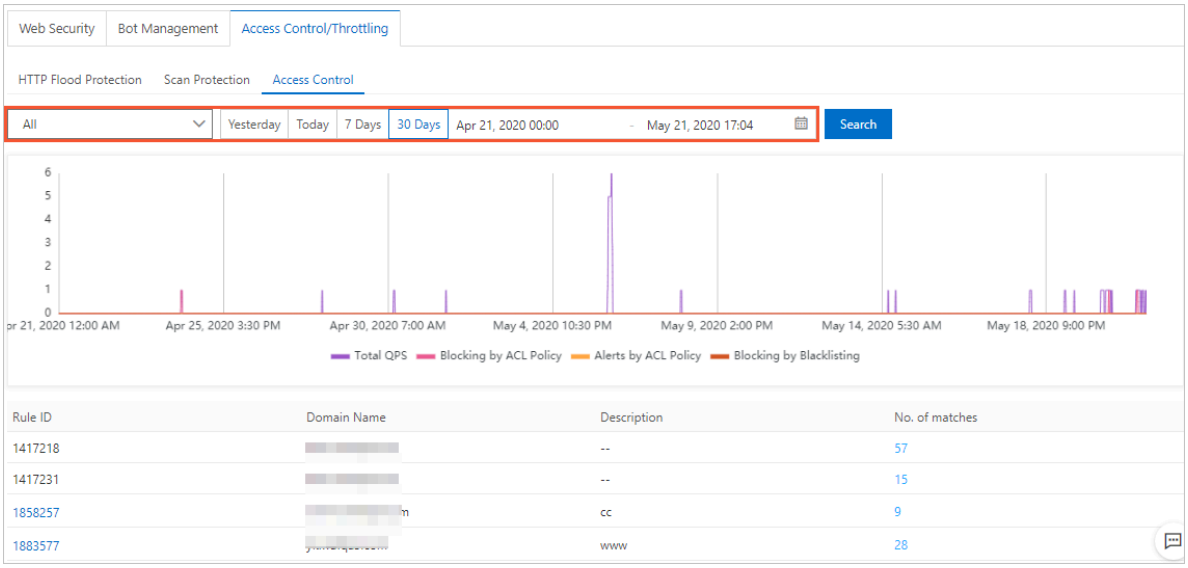


You can click the value of **No. of matches** for a rule type to access the **Log Service** page. The system automatically enters the query statements of the logs related to scan protection on this page to facilitate log query. For more information, see #unique_17.



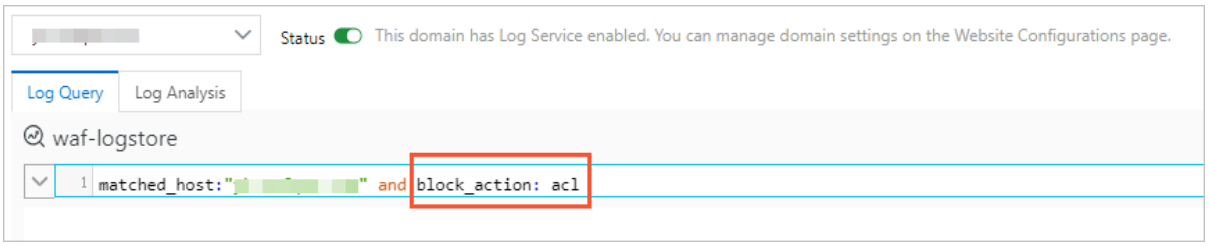
For more information about how to configure scan protection, see #unique_20.

- **Access Control**: displays the trend of access control. The following information is provided: **Total QPS**, **Blocking by ACL Policy**, **Alerts by ACL Policy**, and **Blocking by Blacklisting**. This tab also displays the number of matches for custom rules.



You can click the ID of a custom rule to view and modify the configurations of this rule in the **Edit Rule** dialog box that appears. For more information, see Create a custom protection policy.

You can click the value of **No. of matches** for a custom rule to access the **Log Service** page. The system automatically enters the query statements of the logs related to access control on this page to facilitate log query. For more information, see #unique_17.



For more information about how to configure access control, see #unique_19.

For more information about how to configure an IP address blacklist, see #unique_21.

3 Data visualization

Based on the detailed website logs collected by WAF, WAF provides the data visualization service. By converting the data into a visual big screen, you can monitor and understand the real-time attack and defense situations of your website. This provides you with visual and transparent data analysis and decision-making capabilities to keep your website security.

Features

Currently, the WAF data visualization service provides the following two visual screens for your choice:

Note:
More WAF data visualization screens are coming.

Note:
Because of the particularity of visual screens, only Google Chrome browser 56 and a later version is supported.

WAF Real-time Attack and Defense Situation Screen

WAF real-time attack and defense situation screen is updated every second. It displays current day's website visit and overall interception situations for all your websites that protected by WAF. This screen focus on displaying the stability of the website service and the quality of the network service.

Note:
The data range on this screen is from 0:00 to the current time of today.

Display item	Description
Inbound Bandwidth	Inbound bandwidth traffic (Unit: bps).
Outbound Bandwidth	Outbound bandwidth traffic (Unit: bps).
QPS	Current website traffic (Unit: QPS).
Interception Ratio	The percentage of the website requests that are intercepted by WAF.
Today's Interceptions	The number of the website requests that are intercepted by WAF.

Display item	Description
Mobile OS Distribution	OS distribution for the visit requests from mobile clients.
PC Browser Distribution	Browser distribution for the visit requests from PC clients.
Top 10 Source IPs	The top 10 source IPs that have most visits and their visit volumes.
Top 5 Visited URLs	The top 5 URLs that is visited and their visit volumes.
Exception Monitoring	The exception HTTP response status code returned and their occurrences.
Visit Statistics (Mainland China)	The visit statistics heat map shows the source distribution of the visit requests in the last hour.
Request	Shows the visit request trending (Unit: QPS). Additionally, this chart shows the trend in the number of requests intercepted by WAF, including precise access control interception, anti-fraud interception, web attack interception and HTTP flood attack interception.
Bandwidth	Shows the inbound and outbound bandwidth trending (Unit: bps).

The white points on the earth in the middle of the screen show the global WAF server room.

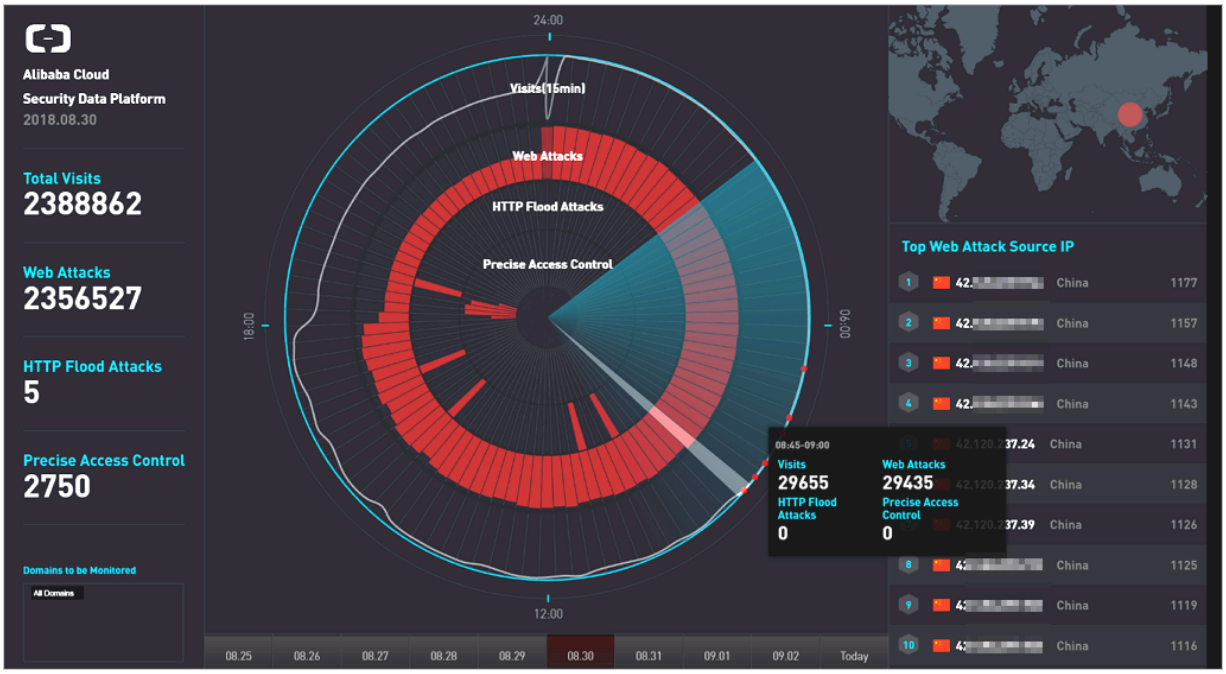
WAF Security Data Platform Screen

WAF security data platform screen displays security information about web attacks, HTTP flood attack, and precise access control interceptions.

Note:

By clicking the Domains to be Monitored area at the lower-left corner of the screen, you can choose the domains that you want to monitor. You can also choose to monitor all the domains.

Display item	Description
Total Visits	The number of total visits of the selected domains on the day.
Web Attacks	The number of web attacks intercepted by WAF for the selected domains on the day.
HTTP Flood Attacks	The number of HTTP flood attacks intercepted by WAF for the selected domains on the day.
Precise Access Control	The number of requests intercepted by the WAF precise access control rules for the selected domains on the day.
Top Web Attack Source IP	Top attack source IPs, the region of the IPs, and their attack volumes. Additionally, hover the mouse over the top attack source IP to view the web attack type distribution and the tags of the source IP.
Regional heat map	The regional heat map on the upper-right corner shows the distribution of the regions that the attack source belongs to.



The radar chart in the middle of the WAF security data platform screen shows the visits, web attack interception, HTTP flood attack interception, and precise access control interceptions every 15 minutes as an interval. Additionally, you can select a time period in the radar chart, and click the floating window, to view detailed security data information for that time period.

Note:
Click the date at the bottom of the large screen to select to display the security data for the specified date.

Display item	Description
Visits	Website visits (Unit: QPS).
Web Attacks	The number of web attacks intercepted by WAF.
HTTP Flood Attacks	The number of HTTP flood attacks intercepted by WAF .
Precise Access Control	The number of requests intercepted by precise access control rules in WAF.
Top Web Attack Source IP	Top attack source IPs, the region of the IPs, and their attack volumes. Additionally, hover the mouse over the top attack source IP to view the web attack type distribution and the tags of the source IP.
Web Attack Types	The distribution of web attack types intercepted.
Top Attack Regions	The top 5 attack source regions.
Top Hit Rules	The top 5 WAF protection rules that were hit.

Enable the Data Visualization service

To enable the Data Visualization service, follow these steps:

1. Log on to the Alibaba Cloud Security WAF management console.
2. Go to **Reports** > **Data Visualization**, select the region of your WAF instance, and click **Purchase Now**。

Note:

If the region of your WAF instance is International, you must upgrade it to the Business or Enterprise version.

3. On the WAF instance upgrade page, select **Single Screen** or **Multiple Screens**.

Options	Description	Pricing
Single Screen	Only one data visualization screen is supported.	USD 300/month
Multiple Screen	All WAF data visualization screens are supported.	USD 600/month

Note:

The Data Visualization service inherits the expiration time of your current WAF instance. According to the service option you selected and the expiration time of the current WAF instance, the system automatically calculates the payment for you. After you enable the Data Visualization service, you have to renew the Data Visualization service when you renew your WAF instance.

4. Click to select the **Web Application Firewall Service of Terms**, and click **Pay**.
5. On the **Data Visualization**page, click one data visualization screen to enjoy the WAF Data Visualization service.

Note:

If you purchased the Single Screen service, select one data visualization screen, and click **Enable Now**.