Web Application Scanning

Getting Started Guide
Version 6.10

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Qualys, Inc.
919 E Hillsdale Blvd
4th Floor
Foster City, CA 94404
1 (650) 801 6100

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Welcome to WAS

Qualys Web Application Scanning (WAS) provides organizations with the ease of use, centralized management and integration capabilities they need to keep the attackers at bay and their web applications secure. Qualys WAS enables organizations to assess, track and remediate web application vulnerabilities.

Key Features

- Crawl web applications (Intranet, Internet) and scan them for vulnerabilities

- Fully interactive UI with flexible workflows and reporting

- Identify web applications' handling of sensitive or secret data

- Customize: black/white lists, robots.txt, sitemap.xml and more

- Supports common authentication schemes

- View reports with recommended security coding practice and configuration

Robust Scalable Scanning Capabilities

- Supports scanning HTML web applications with JavaScript and embedded Flash

- Comprehensive detection of custom web application vulnerabilities including OWASP Top 10 Vulnerabilities

- Differentiates exploitable fault-injection problems from simple information disclosure

- Profiles custom web application behaviors

- Configures scanning performance with customizable performance level

Qualys Cloud Platform - Benefits for Users

New technologies implemented in the Java-based backend offer many benefits for users:

- UI with dynamic and interactive interfaces, wizards and new report templates to present scan data with a wide range of presentation options.

- Customizable template-driven reporting engine outputs reports in a variety of formats (html, pdf, encrypted pdf, ppt, xml, cvs).

- Fast searching of several extensive Qualys data sets, including scan results, asset data, scan profiles, users and vulnerabilities.

- Create and manage tags (static and dynamic) to group and organize web applications.

- Dynamic distribution of scans on multiple scanners based on availability and load to optimize scanning of large networks, drastically reducing the overall scan time required to complete large scan jobs.

REST API Scanning, CI/CD Integration, and More

We support Swagger version 2.0, allowing DevOps teams to streamline assessments of REST APIs and get faster visibility of the security posture of mobile application backends and Internet of Things (IoT) services. Additionally, a new native plugin for Jenkins delivers automated vulnerability scanning of web applications for teams using the popular Continuous Integration/Continuous Delivery (CI/CD) tool. In tandem, customers can now leverage the new Qualys Browser Recorder, a free Google Chrome browser extension, to easily review scripts for navigating through complex authentication and business workflows in web applications.

- Scanning of Swagger-based Representational State Transfer (REST) APIs - In addition to scanning Simple Object Access Protocol (SOAP) web services, Qualys WAS leverages the Swagger specification for testing REST APIs. Users need to only ensure the Swagger version 2.0 file (JSON format) is visible to the scanning service, and the APIs will automatically be tested for common application security flaws.

- Enhanced API Scanning with Postman Support - Postman is a widely-used tool for functional testing of REST APIs. A Postman Collection is a file that can be exported from the tool that clubs together related requests (API endpoints) and share them with other users. These collections are exported in JSON format. With the release of Postman Collection support in Qualys WAS, customers have the option to configure their API scans using the Postman Collection for their API.

- Jenkins plugin - The Qualys WAS Jenkins plugin empowers DevOps teams to build application vulnerability scans into their existing CI/CD processes. By integrating scans in this manner, application security testing is accomplished earlier in the SDLC to catch and eliminate security flaws thereby significantly reducing the cost of remediation compared to doing so later in the SDLC. Download the plugin here.

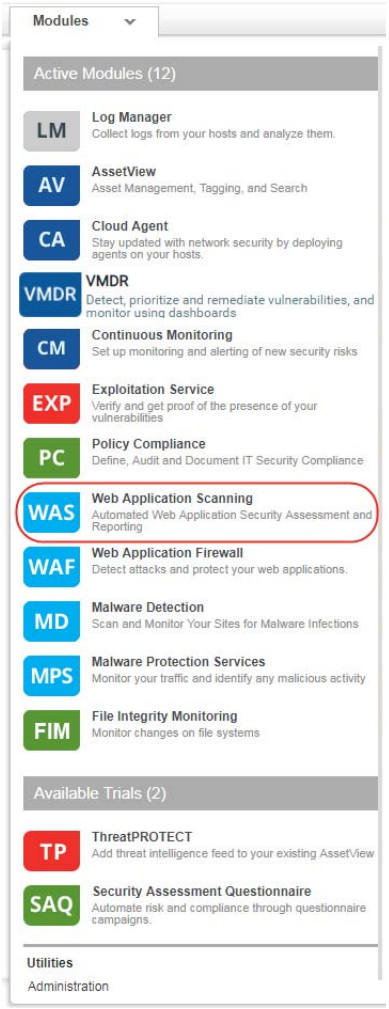
- Qualys Browser Recorder – This new Chrome extension allows users to record web browser activity and save the scripts for repeatable, automated testing. Scripts are played back in Qualys WAS, allowing the scanning engine to successfully navigate through complex authentication and business workflows. The Qualys Browser Recorder extension is free and available to anyone (not just Qualys customers) via the Chrome Web Store.

Get Started

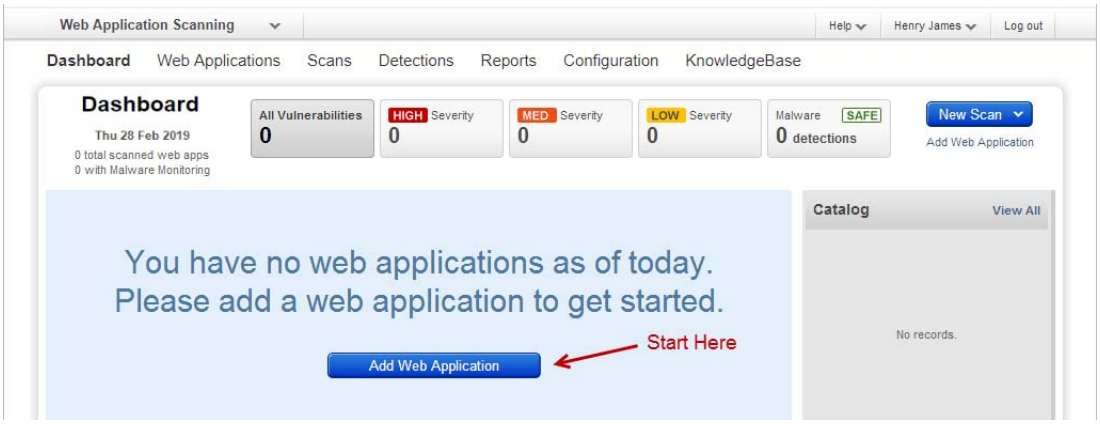
Qualys WAS is the most powerful web application scanner available.

Let's go!

Just log in and select WAS.



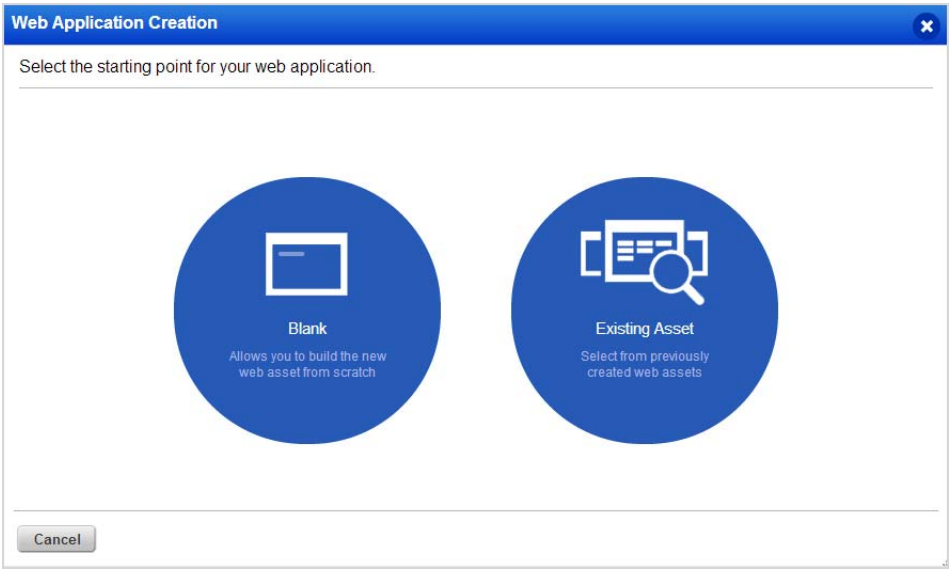
Start by telling us about the web application you want to scan - just click Add Web Application.



Choose the starting point

Select Blank and you'll be able to build the new web asset from scratch.

Already have the web asset in your subscription? You might if you've already defined it for the WAF application. If yes just select Existing Asset and this will save you time! You won't need to re-enter settings like name, URL, tags.

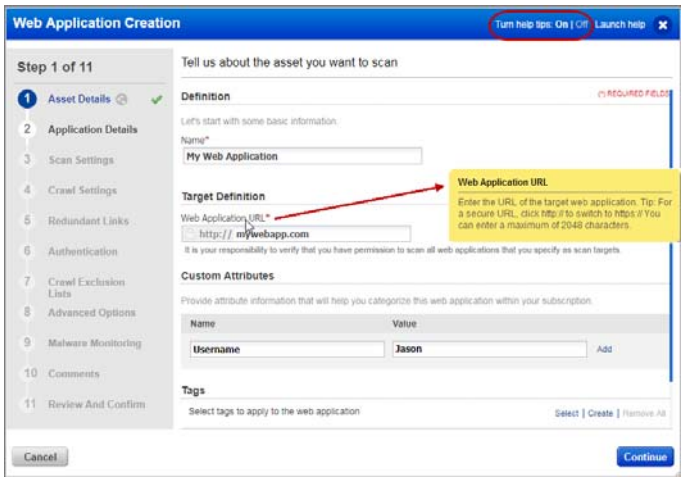


Add your web app settings

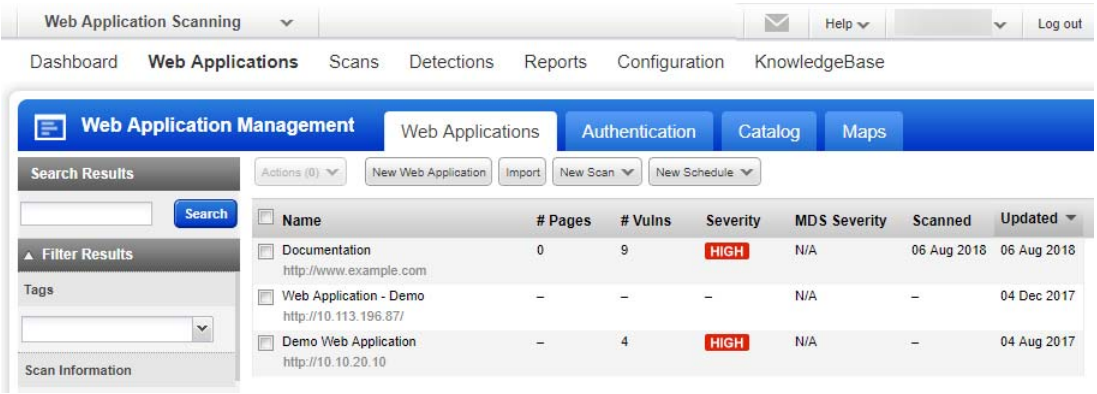
The web application name and URL are required when adding a web app from scratch. If you're adding from an existing asset these will be filled in for you.

Want to scan your external site for malware? Just turn on Malware Monitoring and we'll perform automatic daily malware scans.

Help Tips -Turn this on (in the title bar) and get help for each setting as you hover over fields.



Your web application appears in the Web Applications tab, where you can edit the application settings or launch a scan on it.



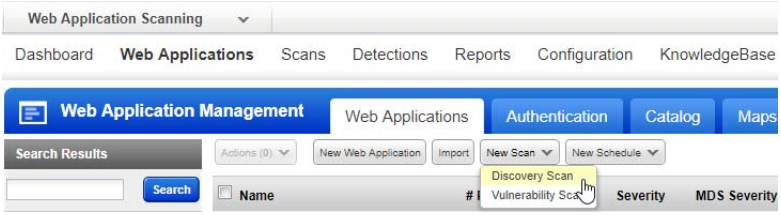
Why use authentication? Using authentication allows our service to access to all parts of your web application during the crawling process. This way we can perform more in-depth assessment of your web application. Some web applications require authenticated access to the majority of their functionality. Authenticated scanning can be configured for HTML forms like login pages and server-based authentication (HTTP Basic, Digest, NTLM, or SSL client certificates). Just go to the Authentication tab, select New Record and configure an authentication record with access credentials. Form and server authentication may be combined as needed - we'll monitor the session state to ensure an authenticated scan remains authenticated throughout the crawl.

Warning about scans and their potential impact Web application scans submit forms with test data. If this is not desired you should add configurations for black lists, POST data black lists, and/or select the GET only method within the option profile. Keep in mind when these configurations are used, testing of certain areas of the web application is not included and any vulnerabilities that exist in these areas may not be detected.

We recommend a discovery scan first

A discovery scan finds information about your web application without performing vulnerability testing. This is a good way to understand where the scan will go and whether there are URIs you should blacklist for vulnerability scans.

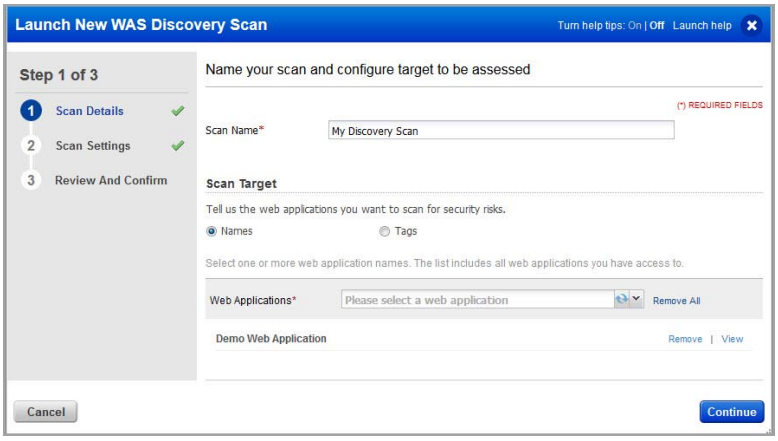
Go to Web Applications (on the top menu) and then select New Scan > Discovery Scan.



The launch scan wizard walks you through the steps.

Tell us the web application you want to scan and select scan settings (* means required).

Ready to start your scan? Click Continue, review the settings, then click Finish.



Tell me about the option profile

An option profile is a set of scan configuration options. We recommend “Initial WAS Options” to get started. Editing options in the profile allows you to customize crawling and scan parameters.

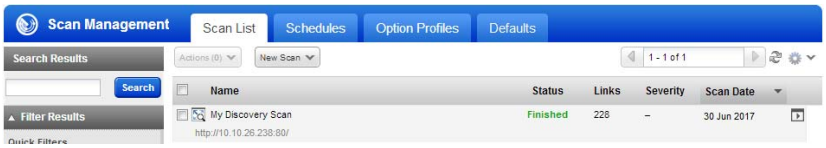
Do I need to provide authentication details?

Is authentication needed to access the functionality of this web application? If yes be sure to select an authentication record.

Do I need a scanner appliance?

Our security service provides cloud scanners for external scanning on the network perimeter. For internal scanning you need to setup a scanner appliance (physical or virtual). Go to VM/VMDR > Scans > Appliances and select an option from the New menu and we'll walk you through the steps. (Do you have Express Lite? Your account may be enabled with External scanning, Internal scanning or both).

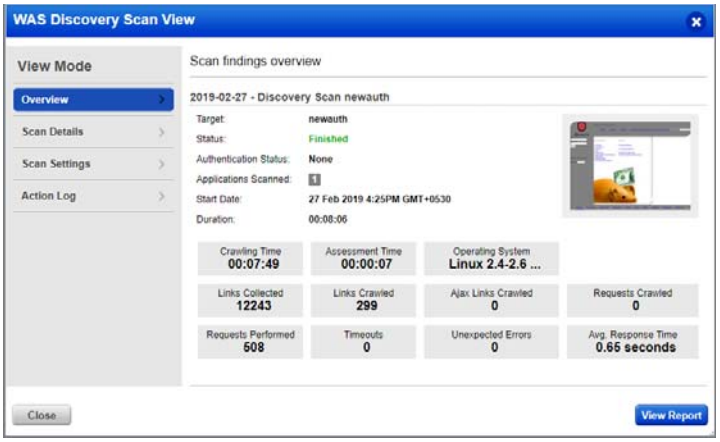
Double click the finished scan to see the scan view.



The scan view

The Overview gives you an overview of the scan findings.

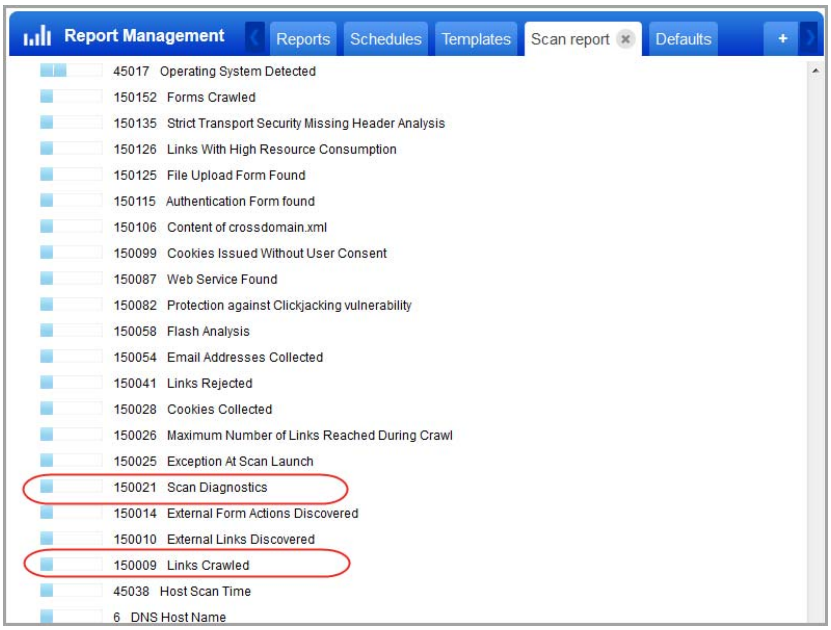
Want to view the full scan report? Just click the View Report button.



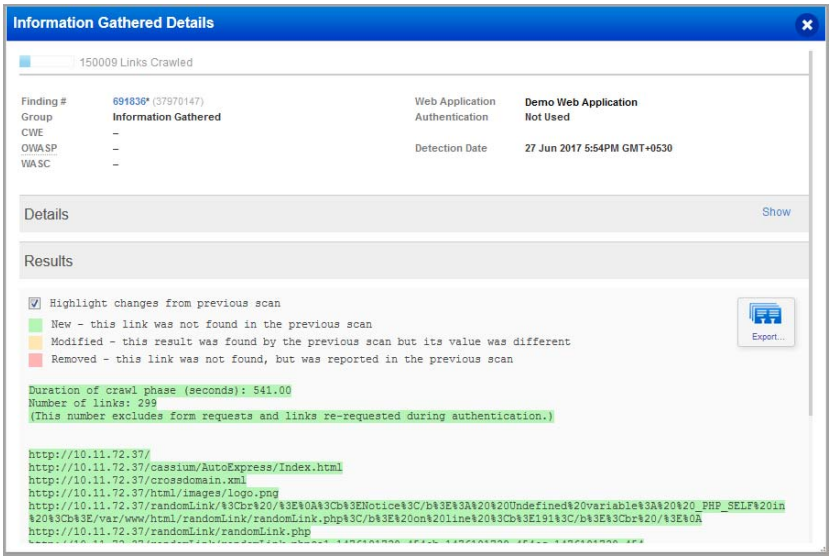
The full scan report

Each QID is a security check we performed and gathered information on. Just click the row to see details.

Be sure to check QID 150009 Links Crawled and QID 150021 Scan Diagnostics to review important data about the scan.



You'll see the results for QID 150009 Links Crawled gives you a listing of the links crawled.



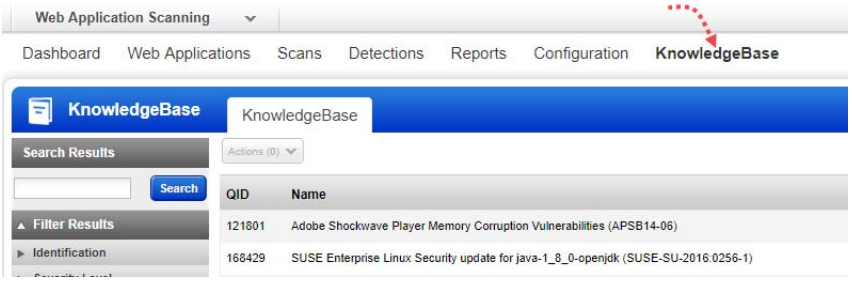
Next scan for vulnerabilities

A vulnerability scan performs vulnerability checks and sensitive content checks to tell you about the security posture of your web application.

Good to Know

What vulnerability checks are tested? We'll scan for all vulnerability checks (QIDs) listed in the KnowledgeBase unless you configure your option profile to do limit the scan to certain vulnerabilities (confirmed, potential and/or information gathered). We constantly update the KnowledgeBase as new security information becomes available.

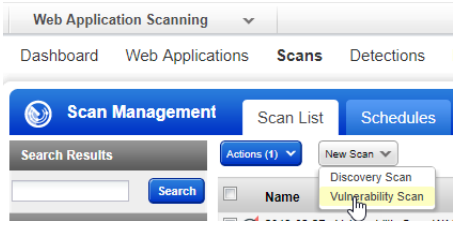
Click KnowledgeBase on the top menu.



What is Severity? Each QID is assigned a severity level by our service: confirmed vulnerability (red), potential vulnerability (yellow) and information gathered (blue).

Start your scan

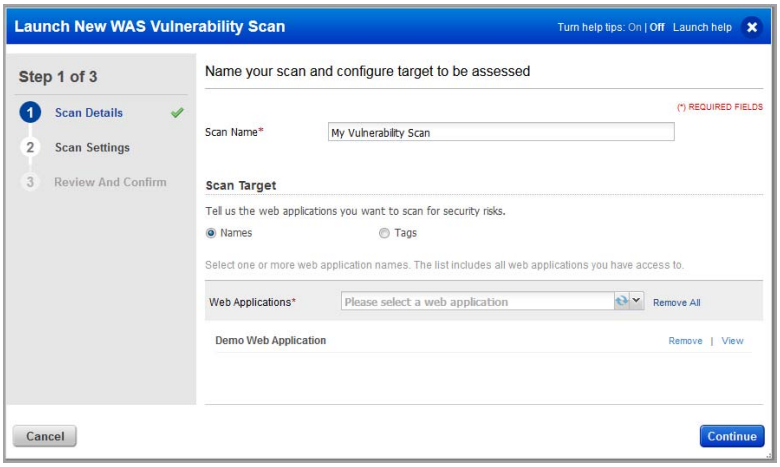
Go to Scans on the top menu and then select New Scan > Vulnerability Scan.



The launch scan wizard walks you through the steps.

Tell us the web application you'd like to scan for vulnerabilities and select scan settings.

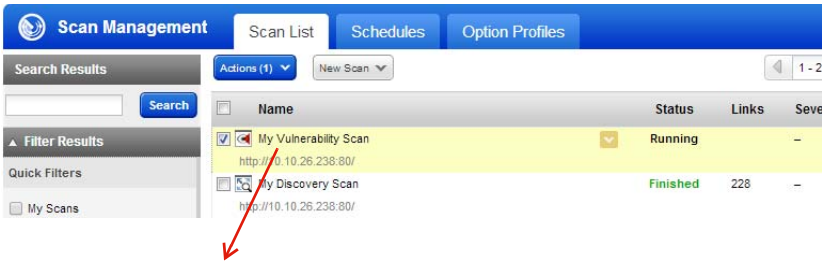
Ready to start your scan? Click Continue, review the settings, then click Finish.



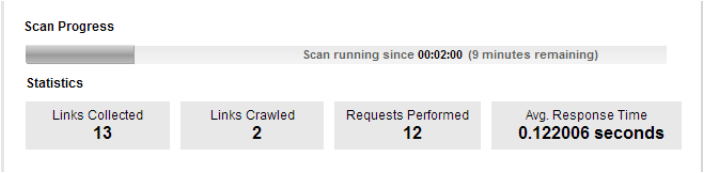
Check scan progress

The status column tells you the status (in this case Running).

Want more info? Double click the scan row.

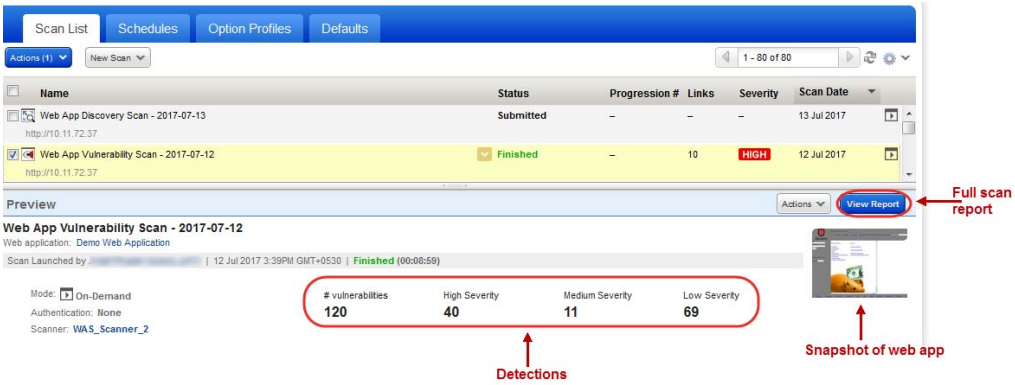


Then you'll see the Scan Progress bar - this gives you an estimate of when the scan will finish.



Your scan results

Select the finished scan to see a preview of the scan (below the list).

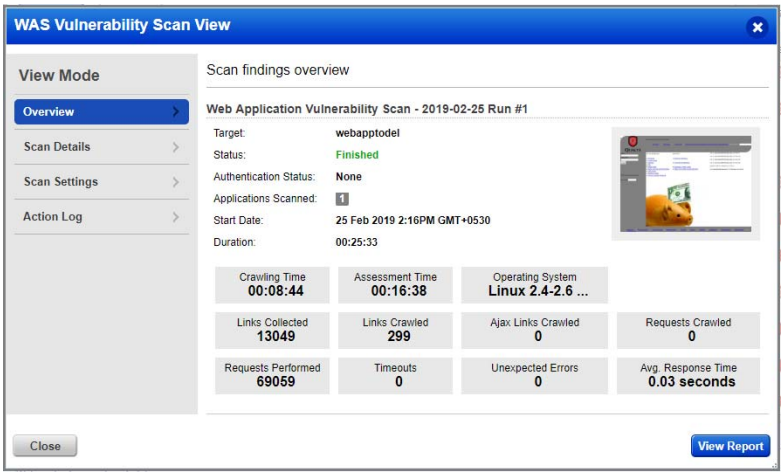


The scan view

How do I see this? Hover over the scan and select View from the Quick Actions menu.

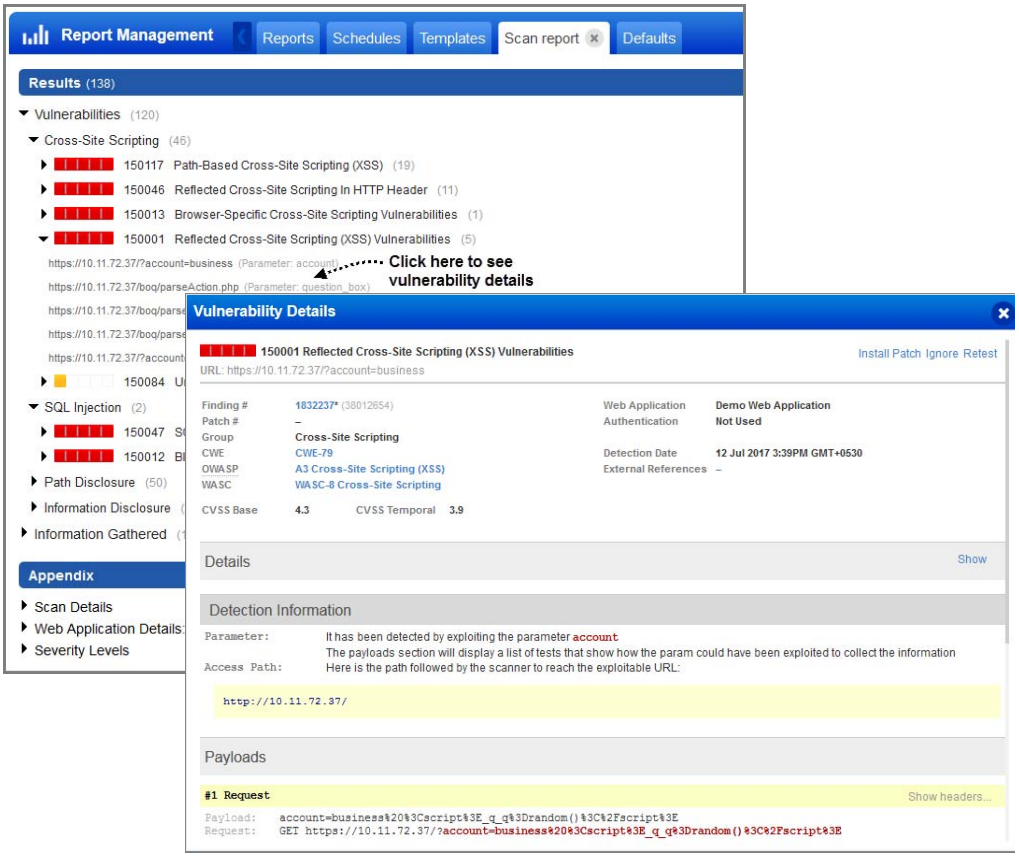
The Overview gives you an overview of the scan findings.

Want to see the full scan report? Just click the View Report button.

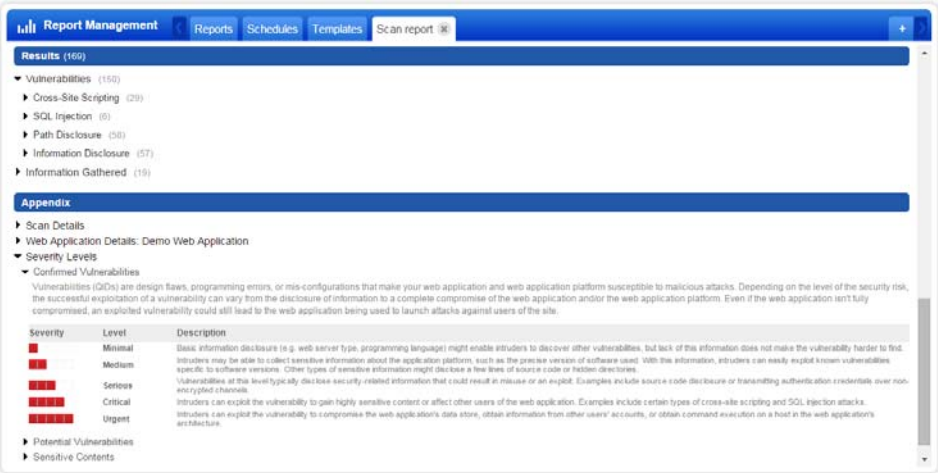


The full scan report

Vulnerabilities are sorted by group.

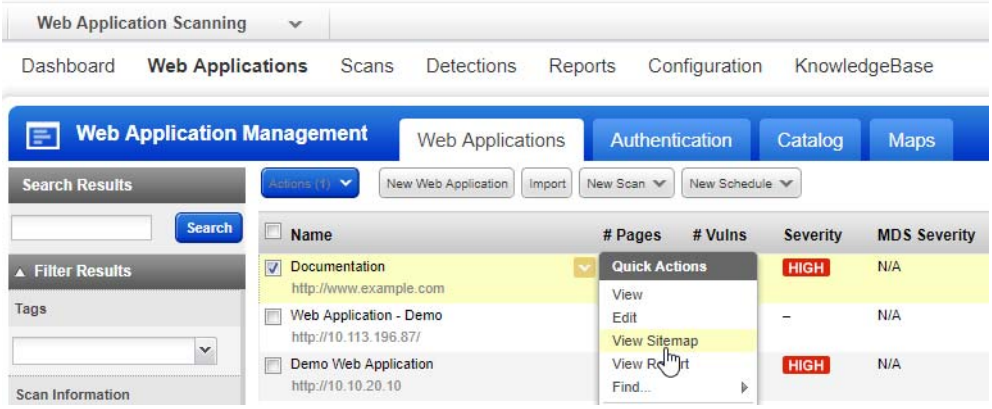


Easily find out what the severity levels mean in the Appendix.

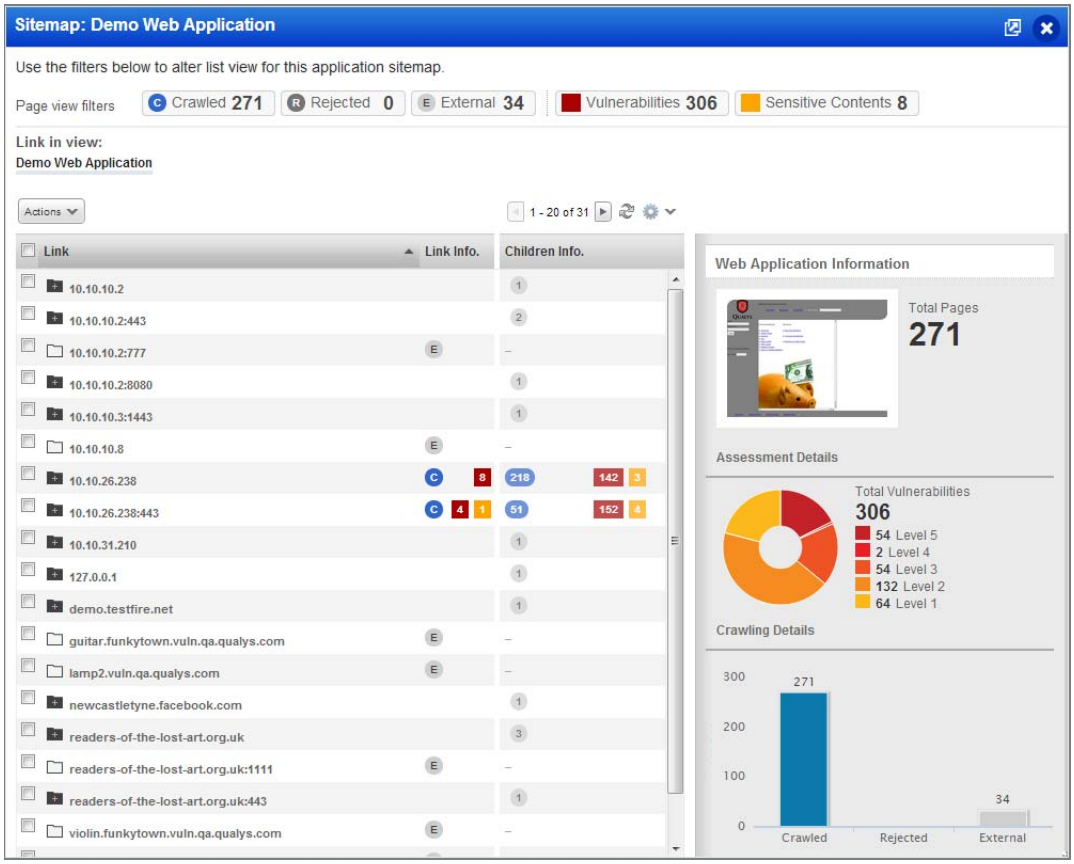


Check out the Sitemap

The Web Application Sitemap gives you a convenient way to get a list of all pages/links scanned with view on the links crawled, vulnerabilities and sensitive content detected (go to Web Applications, select your web app and then View Sitemap from the Quick Actions menu).

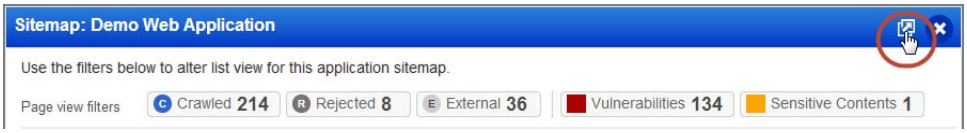


Here's a sample sitemap for a web application that has 271 total pages crawled, 306 total vulnerabilities and 8 sensitive content detections.



Move the Sitemap to a new browser window

Click the icon in the upper right corner to move the sitemap to a new browser window.

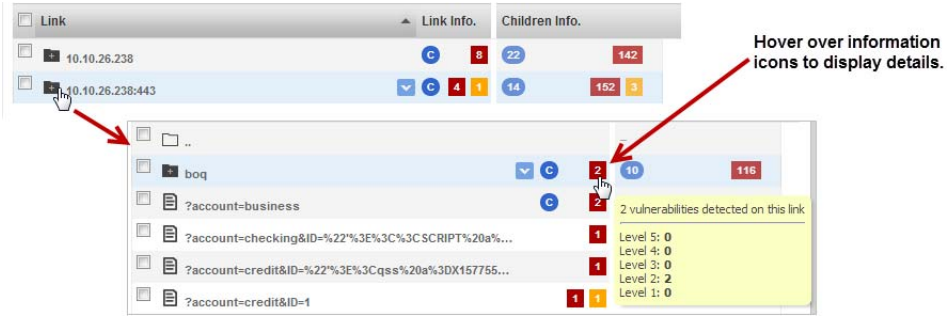


Filter the Sitemap

Click one of the page view filters. For example Vulnerabilities for current vulnerabilities.

Drill down to see nested links

This lets you explore the security of different parts of your applications. Double click a parent folder to display child links.

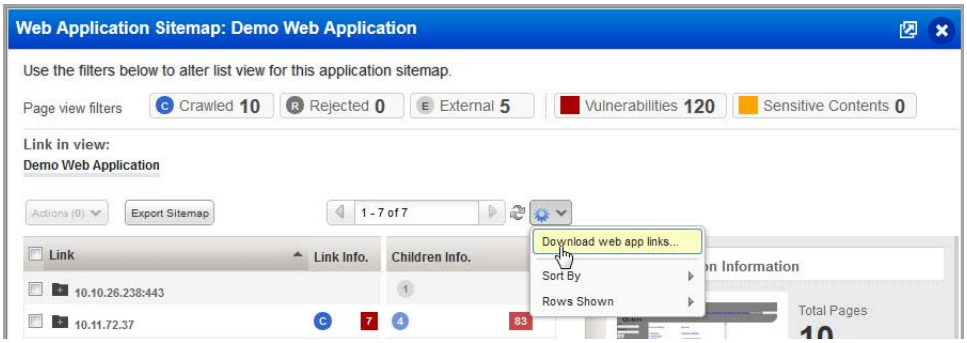


Take actions on web app links

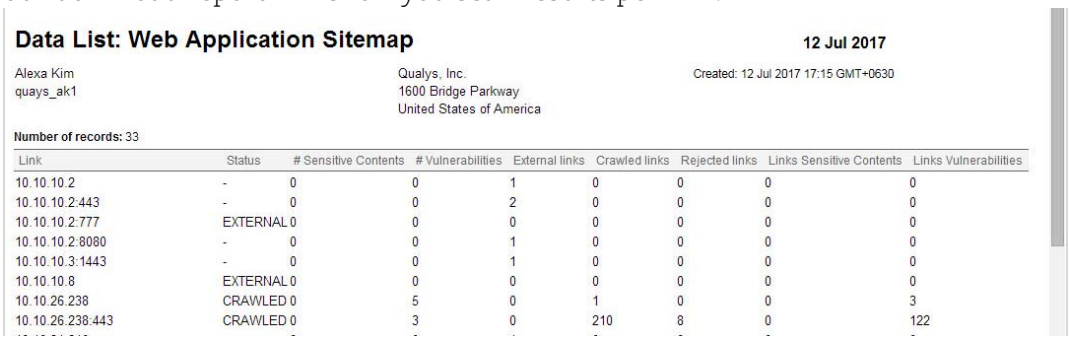
Create a new web application from a link, or add a link to a black list or white list. You can view a link in your browser - just select that row then click the link in the details panel (to the right).

Easily export web app links

Download the links scanned with their detection data in multiple formats.



Your download report will show you scan results per link.



Data List: Web Application Sitemap 12 Jul 2017

Alexa Kim
quays_ak1

Qualys, Inc.
1600 Bridge Parkway
United States of America

Created: 12 Jul 2017 17:15 GMT+0630

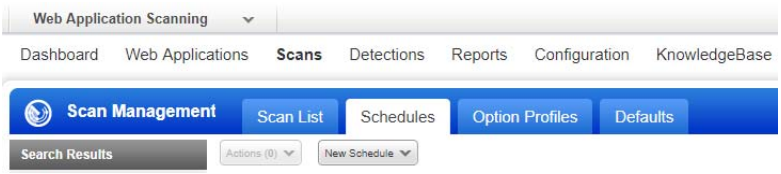
Number of records: 33

Link	Status	# Sensitive Contents	# Vulnerabilities	External links	Crawled links	Rejected links	Links Sensitive Contents	Links Vulnerabilities
10.10.10.2	-	0	0	1	0	0	0	0
10.10.10.2:443	-	0	0	2	0	0	0	0
10.10.10.2:777	EXTERNAL	0	0	0	0	0	0	0
10.10.10.2:8080	-	0	0	1	0	0	0	0
10.10.10.3:1443	-	0	0	1	0	0	0	0
10.10.10.8	EXTERNAL	0	0	0	0	0	0	0
10.10.26.238	CRAWLED	0	5	0	1	0	0	3
10.10.26.238:443	CRAWLED	0	3	0	210	8	0	122

Tip - Schedule your scans to run automatically

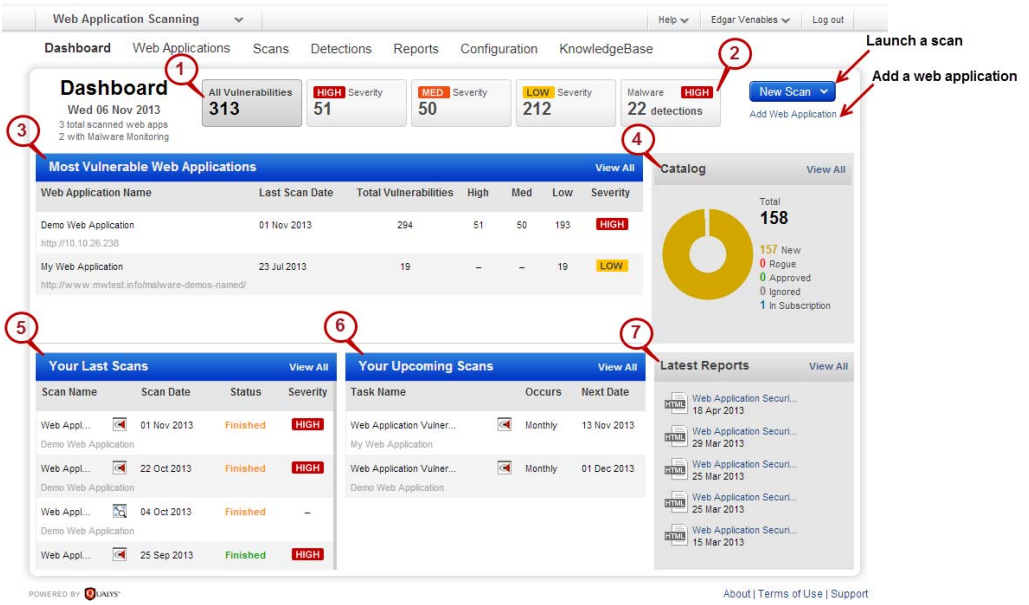
We recommend you set up scan schedules to run repeatedly. This way you'll get results automatically (daily, weekly or monthly) and during a time window convenient for your organization.

Go to Scans > Schedules and select New Schedule.



Get the latest security status from your dashboard

Your dashboard gives you security status at a glance and it's always up to date with the latest scan results. This is very interactive - just click the sections, links and discover further details.



1) Current vulnerability counts: High severity (levels 4 and 5), Med (level 3), Low (levels 1 and 2).

2) Number of malware detections (when you've enabled malware monitoring for web apps).

3) Your most vulnerable web apps.

4) Discovered web apps, now in your Catalog (not available to Express Lite users.)

5) Your latest scans (Tip - hover over the Scan Date to view date/time for each).

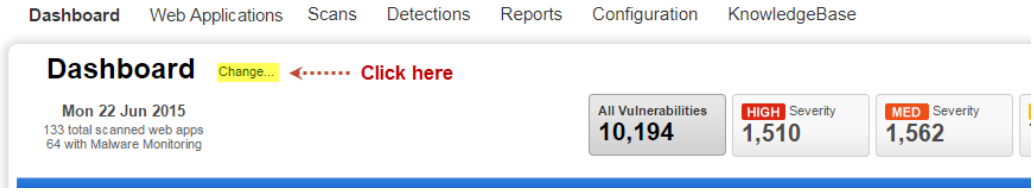
6) Your upcoming scans (your schedules).

7) Easily access your latest reports.

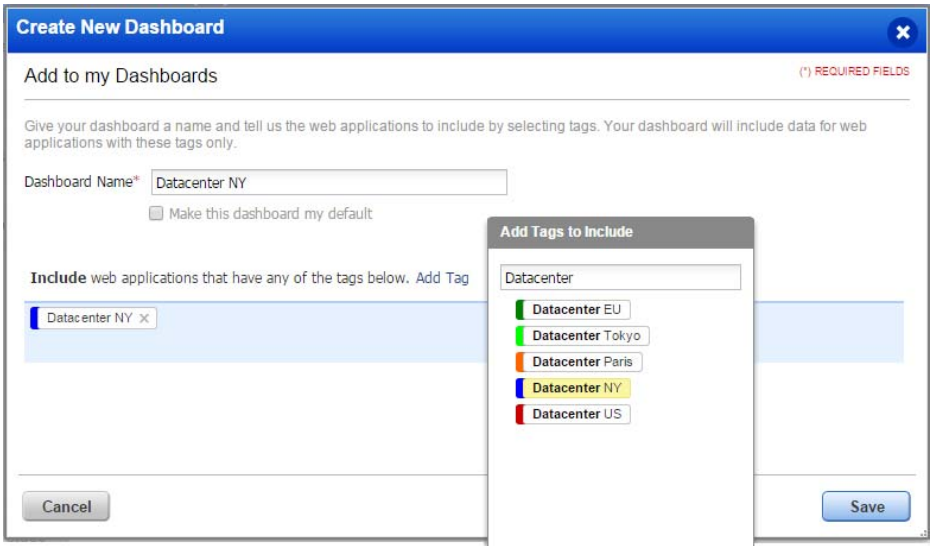
Easily create custom dashboards and switch views

Focus your dashboard on areas of interest, certain web applications and production environments, whenever you want. You can even set a custom dashboard as the default for your account.

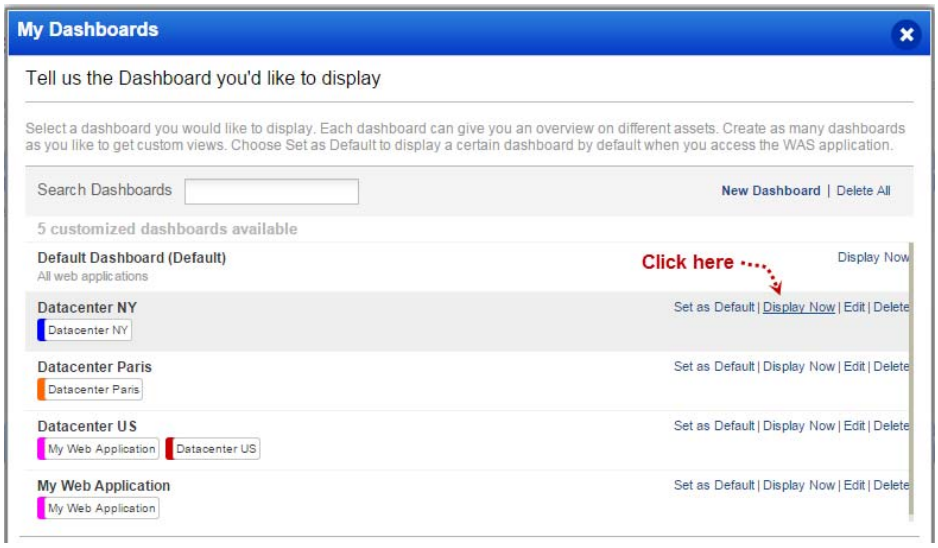
Hover over "Dashboard" and click Change...



Tell us the web apps you'd like to include in each dashboard by selecting tags.



Just click Display Now to change your dashboard view. It's that easy!



Tell me about the catalog

The catalog is the staging area for web applications you can choose to add to your subscription. Catalog entries are processed from completed maps and vulnerability scans in your account. Catalog entries are not necessarily web applications but are simply web servers that responded to an HTTP request on a certain port.
(The catalog feature is not available to Express Lite users.)

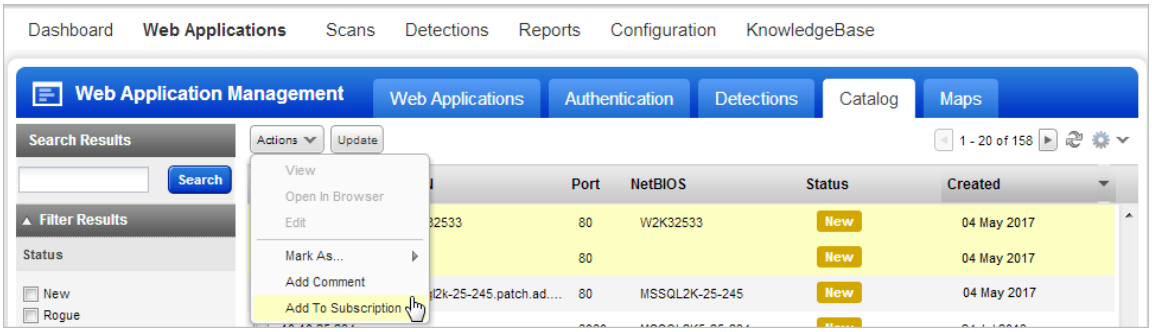
How do I get started?

Your catalog will be empty until you (or another user) launches maps and/or vulnerability scans using the VM application. Once they are complete you are ready to process the results.

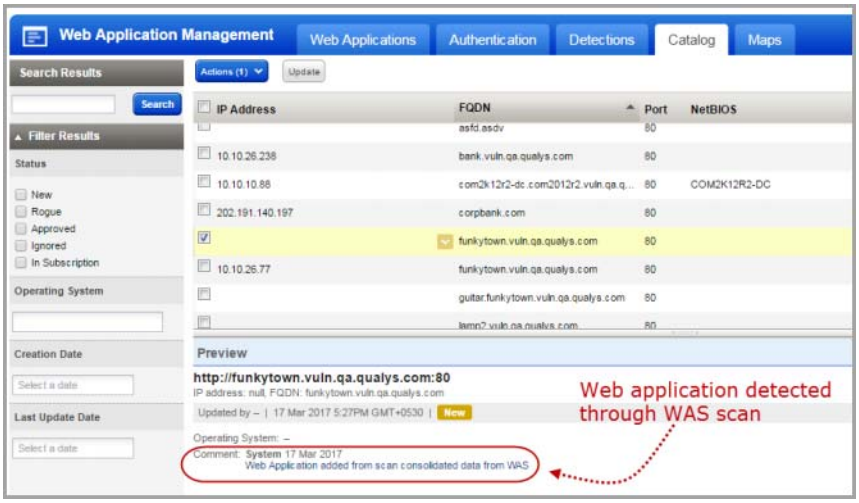
- Process scan results: Go to Web Applications > Catalog and click Update (above the list).

- Process map results: Go to Web Applications > Maps, select one or more maps and then select Process Results.

You'll see new catalog entries for the newly discovered web applications. You can easily choose to add these web applications to your account and scan them for security risks.



You can also locate your web applications even if you don't know where they are. With our enhanced discovery method, if a server is running multiple virtual hosts, we can better identify what applications exist and add them into our WAS Catalog. The WAS Catalog is updated with the web applications that are detected through WAS scans but are not added as web assets.



Manage Detections

Manage all your detections in one place. The detections tab acts as a central area for application security vulnerability detections, management and information. We list all your findings (Qualys, Burp, and Bugcrowd) in the Detections tab.

We have filters to enhance the search and quickly locate the detection type. In addition to the common filters, depending on your finding type, more filters specific to each finding type are displayed. For example, if you choose Finding Type as Burp, then filters that are applicable for Burp related findings are enabled and the other non-applicable filters are disabled.

You can distinguish the finding type with the icon displayed in the list.

- Qualys detections
- Burp issues
- Bugcrowd submissions

Want to import Burp findings?

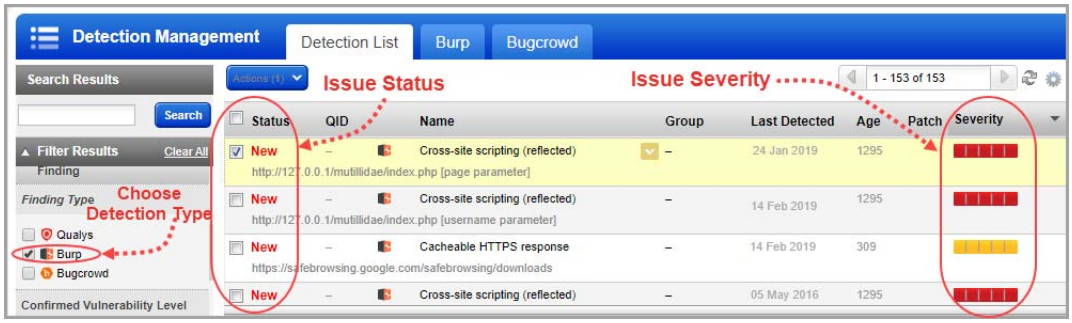
(This feature is not available to Express Lite users.)

We recommend you to try Qualys WAS Burp extension to import a WAS finding directly into Burp Repeater to manually validate the vulnerability. The extension works with both Burp Suite Professional and Burp Suite Community Edition.

The Qualys WAS Burp extension is available at the BApp Store, located under the Extender tab. To learn more about Qualys WAS Burp extension refer to this blog article at the Qualys community.

Alternately, go to Detections > Burp > Import. Choose a Burp file in XML format from your local file system and select the web application that the Burp report applies to.

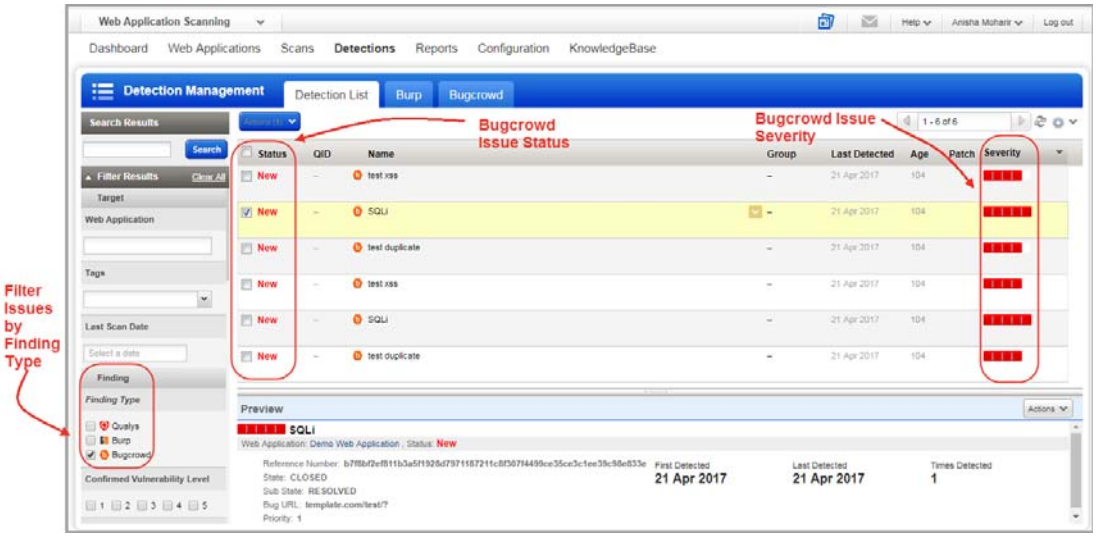
The issues imported with your Burp reports are displayed in the Detections list. Go to Detections > Detections List. Select Burp in the Finding Type of the Search Filter and you can view issues in detail - including detection dates, status and severity.



Integration with Bugcrowd

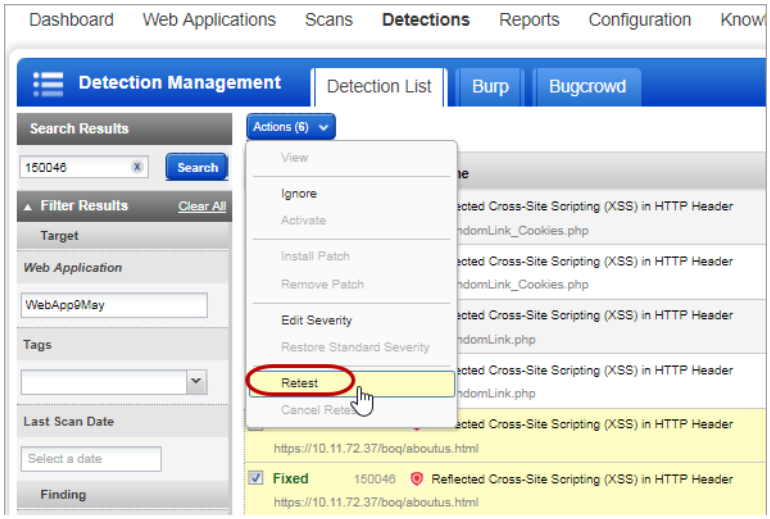
Bugcrowd customers can also import approved Bugcrowd submissions into WAS account. Our Bugcrowd integration gives you a way to view and report on vulnerabilities identified by WAS and vulnerabilities found via bug bounty programs managed by Bugcrowd.

Go to Detections > Bugcrowd > Import and choose a Bugcrowd file in CSV format from your local file system and select the web application that the Bugcrowd file applies to. The issues imported with your Bugcrowd file are displayed in the issues list. Go to Detections > Detections List.



Retest multiple findings without launching a full scan

Yes, you can easily retest the findings for vulnerabilities by launching a scan to test the selected multiple findings. Only potential vulnerabilities, confirmed vulnerabilities and sensitive contents are available for retest. You can club the multiple findings that belong to the same QID and web application and launch a retest in a single batch. The retest scan uses same settings used in the latest scan. If you cancel the retest for any of the findings, the retest scan is cancelled for the entire batch of findings.

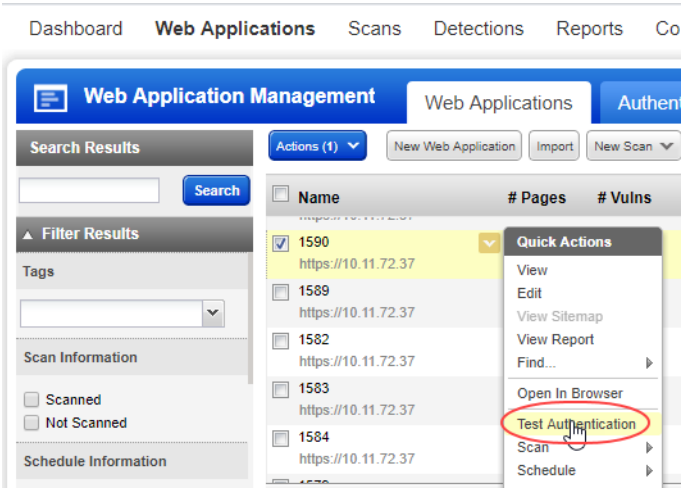


Go to Detections > Detections List. You can use filters in the left-pane to view all findings of same QID and web application. Select the findings to be retested. From the Actions menu, select Retest. Once you confirm, the retest scan would be launched on all the selected findings at one go.

Test Authentication

You can test authentication records for web applications you define without having to run a Discovery scan. You can quickly test authentication for a web application and test the scanner's ability to authenticate to a web application.

Go to Web Applications > Web Applications and select the web application and select Test Authentication from the quick actions menu.



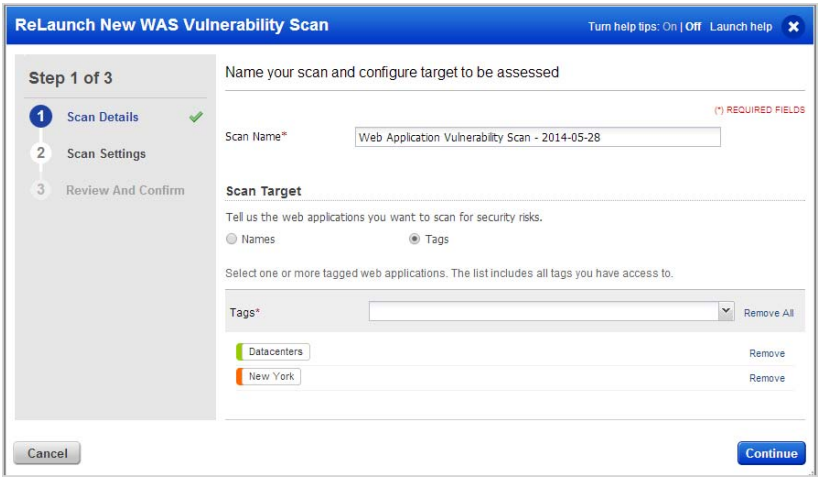
Once the authentication test scan is in Finished state, select View Report from the quick actions menu and view the Authentication Test scan report.

High volume scanning of web applications

Qualys WAS is the most scalable web application scanning solution. We've enhanced the ability to support large web application scanning programs by adding the ability to scan any number of web applications as a Multi-Scan. This feature enables organizations to scan hundreds or even thousands of web applications they may have in their enterprise with granular insight into what scans are running and which ones are complete.

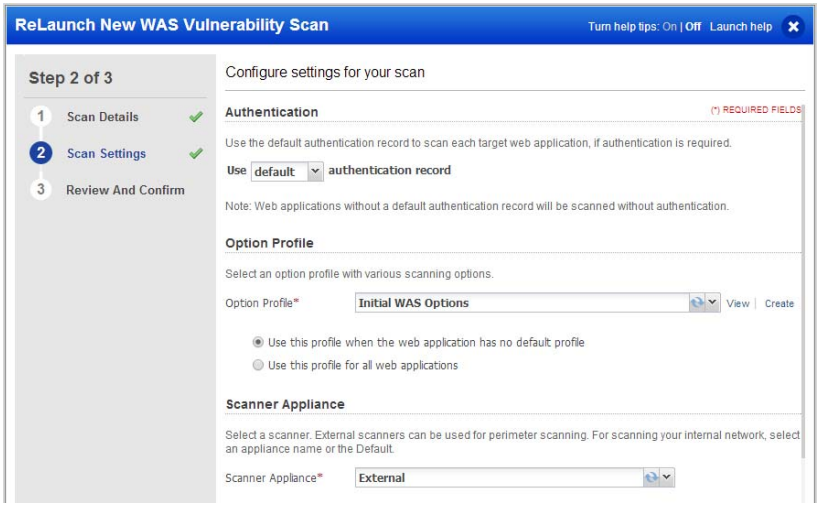
Choose your applications - select individual apps or tags

Take advantage of Qualys asset tagging to categorize applications that may have similar attributes and you can scan them together. Don't have time to tag your applications? No problem - users can pick and choose application names.

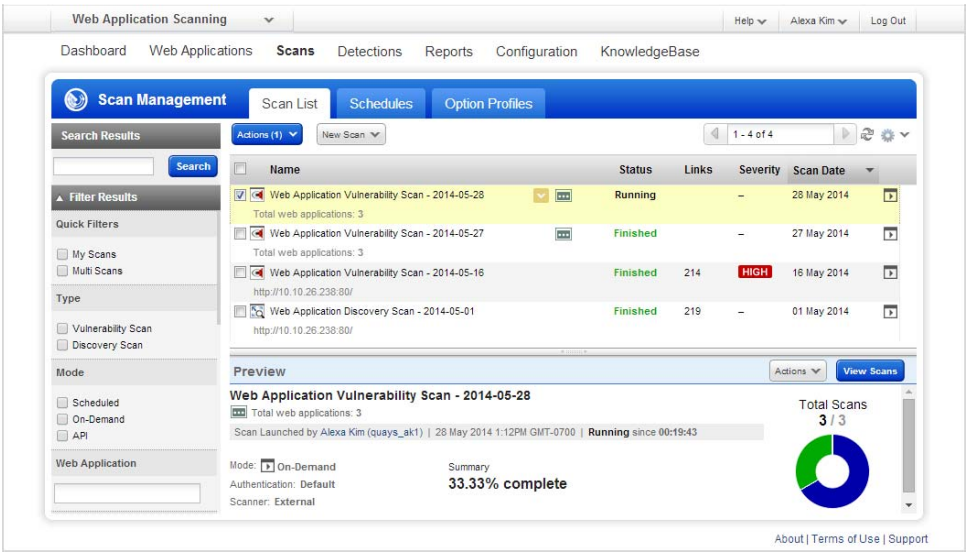


Select scan settings - authentication, option profile, scanner appliance

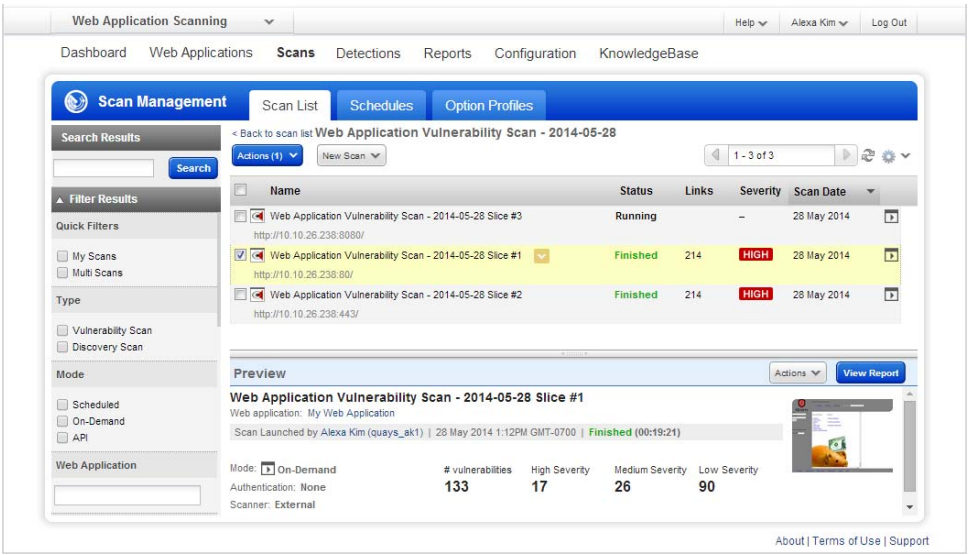
The Multi-Scan feature gives you many options to accept defaults for the web applications or to override the default web application settings.



View the scan status of the Multi-Scan in the preview pane



View the scan status details for all the scans within a Multi-Scan



Scanning using Selenium scripts

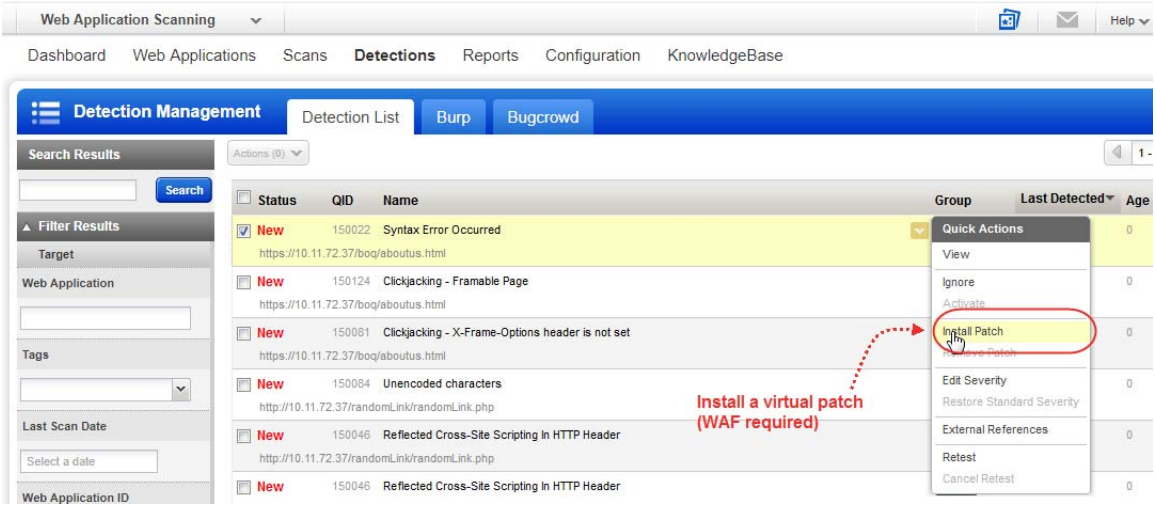
You can use Qualys Browser Recorder (QBR) to create a Selenium script. QBR is a free browser extension (for Google Chrome browser) to record & play back scripts for web application automation testing. QBR allows you to capture web elements and record actions in the browser to let you generate, edit, and play back automated test cases quickly and easily. It also allows you to select a UI element from the browser's currently

displayed page and then select from a list of Selenium commands with parameters. You can use these scripts in WAS to help the scanner navigate through the complex authentication and business workflows in a web application.

A common authentication mechanism used by web applications is single sign-on (SSO). This introduces complexity and can cause some confusion when it comes to authenticating and scanning with Qualys WAS. With use of QBR, you could simplify authentication mechanism for the scanner. For detailed steps, refer to our blog article.

Virtual Patch Support

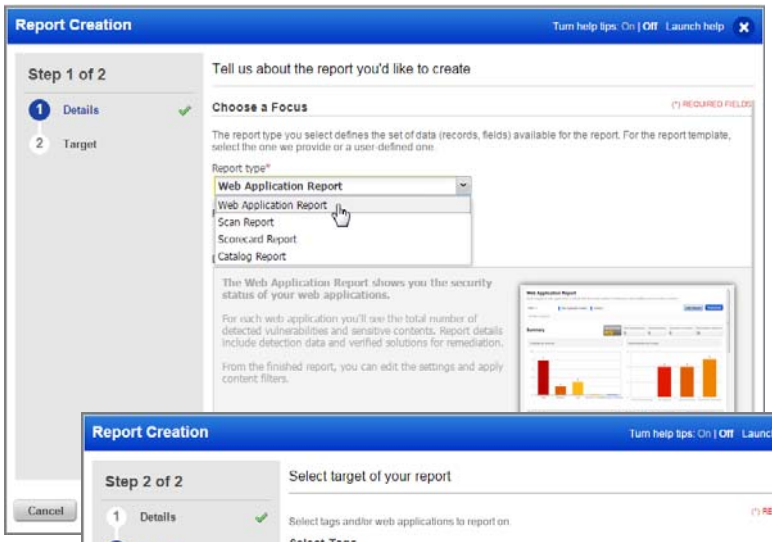
WAS lets you install virtual patches for selected vulnerabilities (detections) when your account has WAS and WAF enabled. Once installed we'll automatically add firewall rules to block exploitation of the selected vulnerabilities. We've added capabilities to the WAF API to help you manage virtual patches.



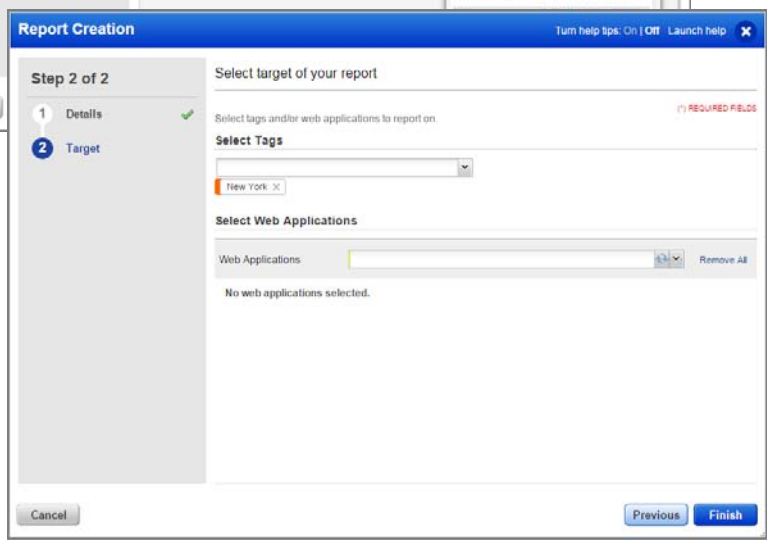
Reporting

Steps to create reports

Select New Report, or click the + button (on the right).

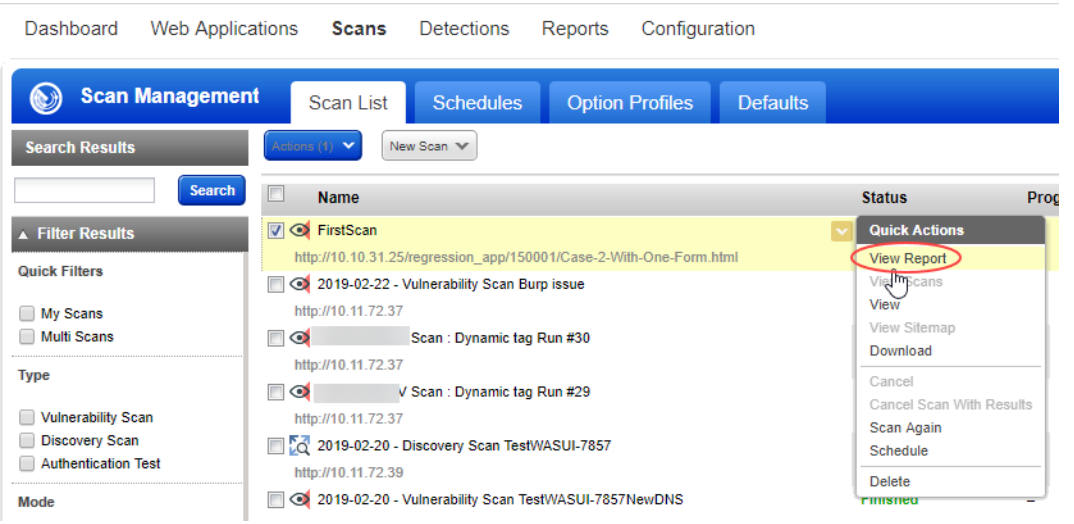


Select a report type, in this case Web Application Report.

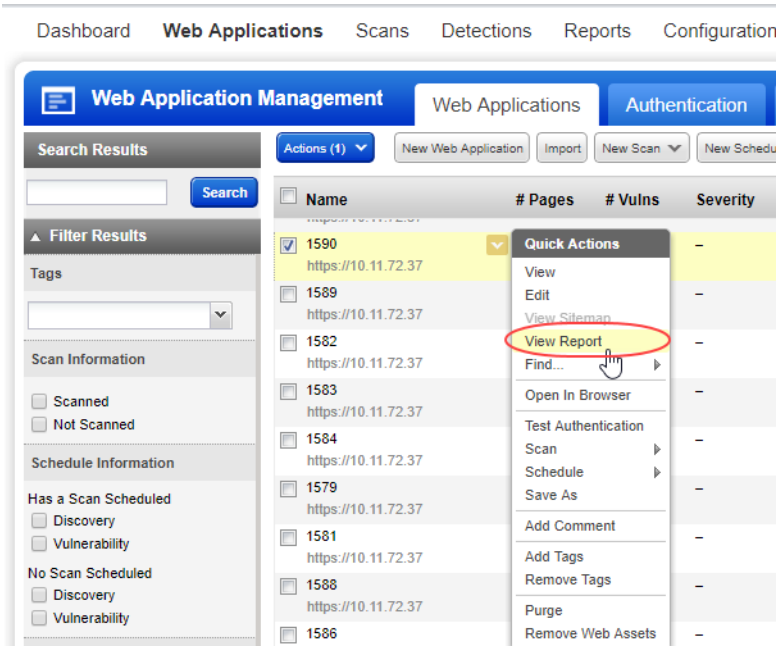


Select web application(s) - by tag and/or name

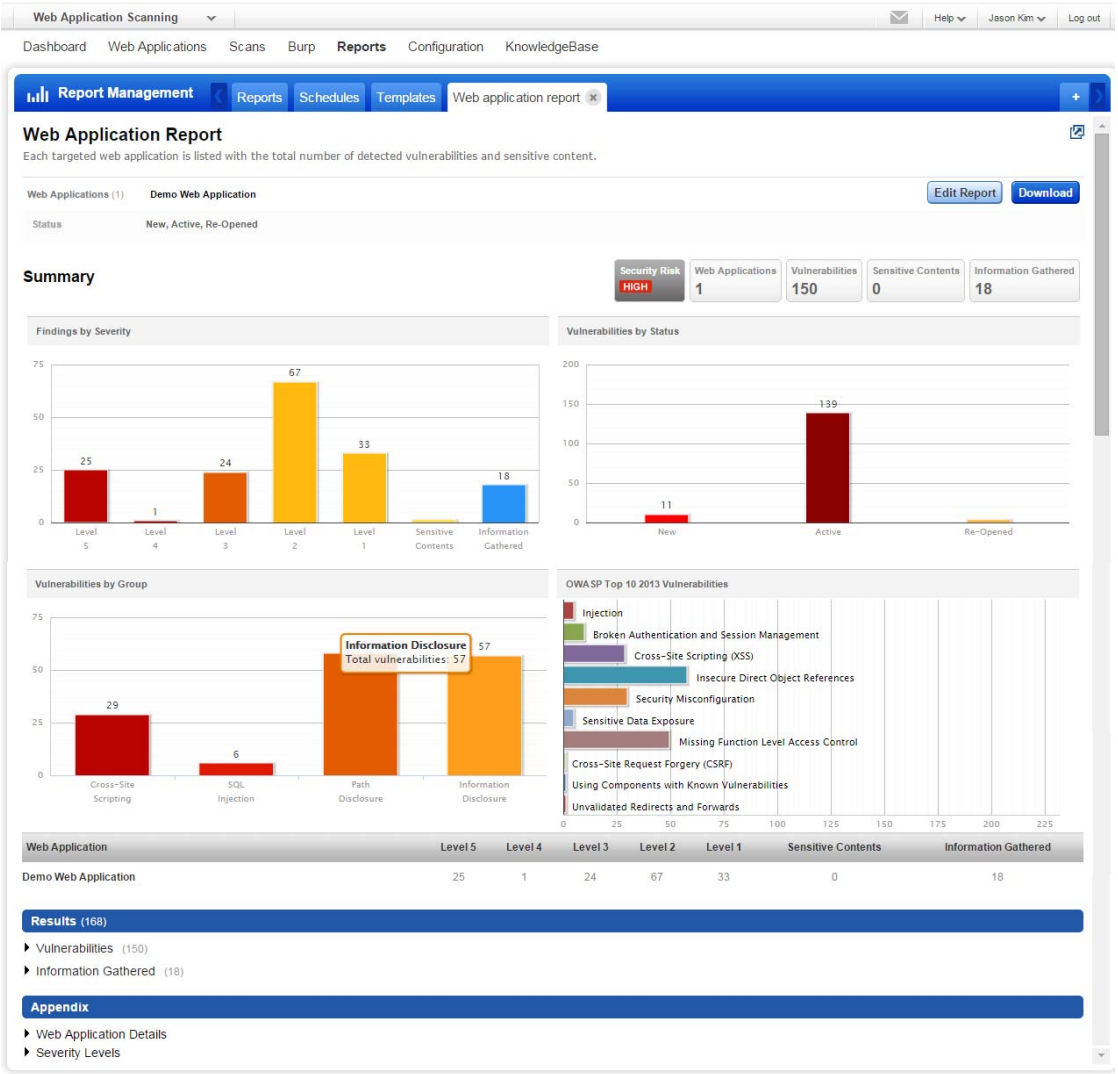
Alternately, you could quick generate a scan report by selecting a scan from the scan list and then select View Report from the quick actions menu.



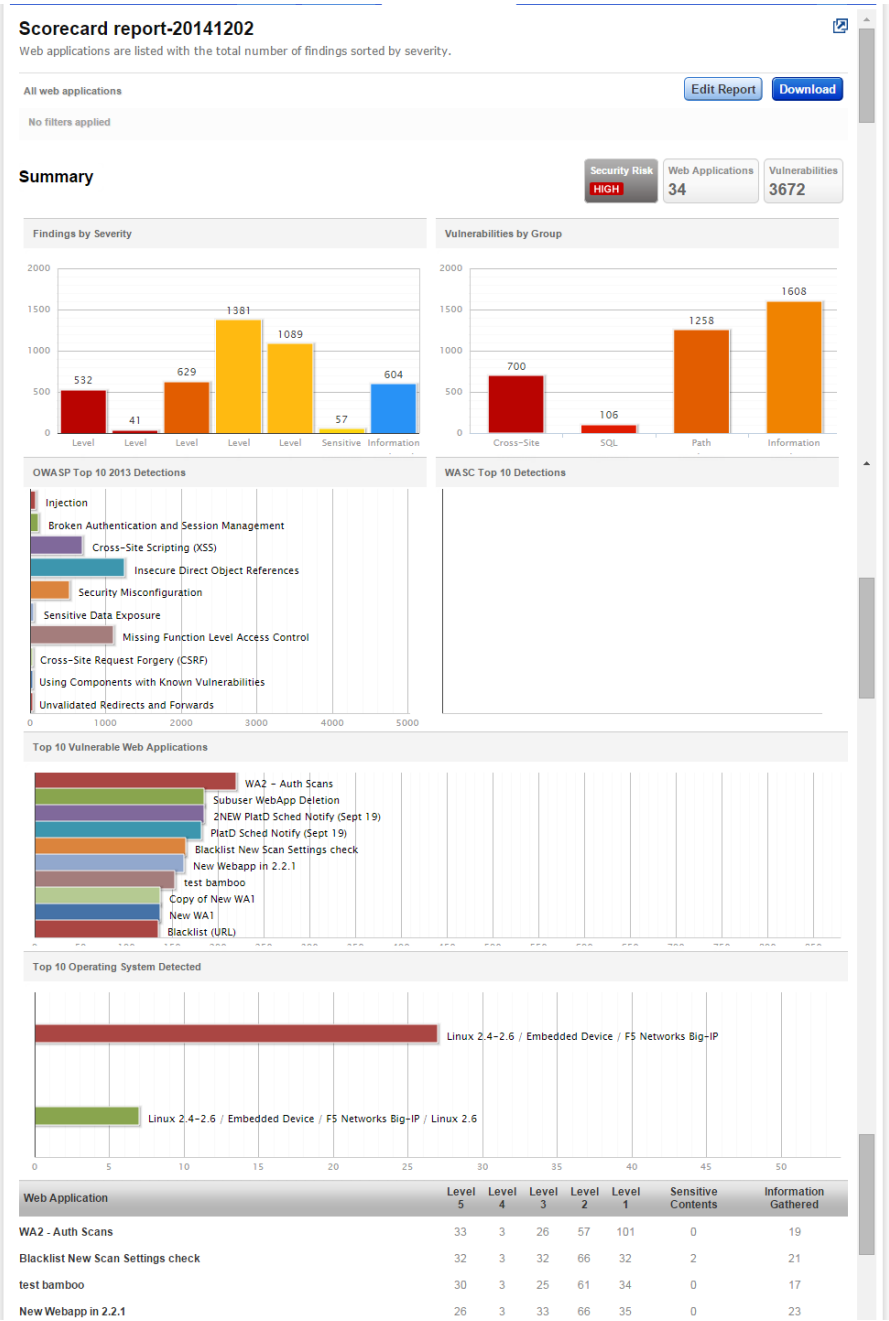
Similarly, you could generate a web application report using View report from the quick actions menu of a web application.



Sample Web Application Report



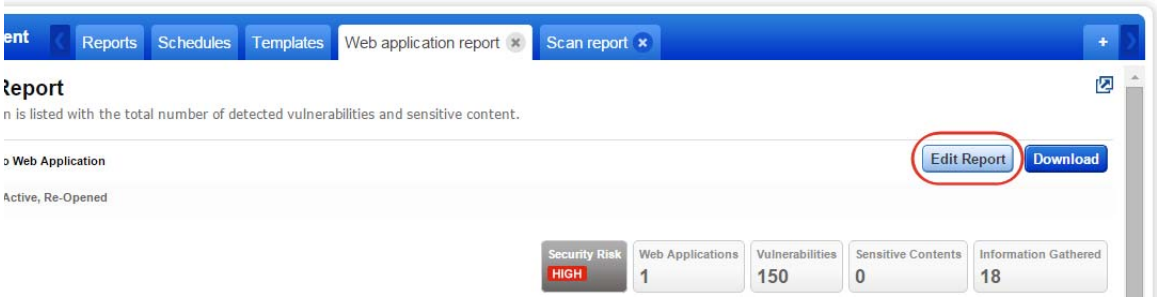
Sample Scorecard Report



Tips & Tricks

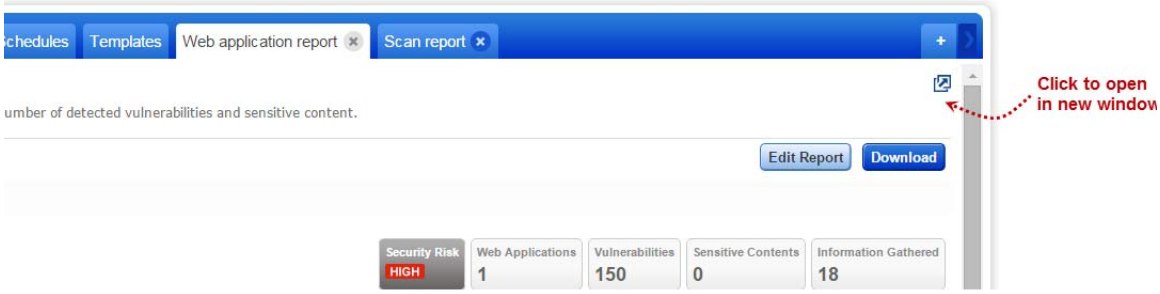
View, edit settings and repeat

Our reports are iterative. Just click the Edit Report button to change report settings and we'll create an updated report with your changes. This way you can quickly apply filters to the report content, like which vulnerabilities and web applications.



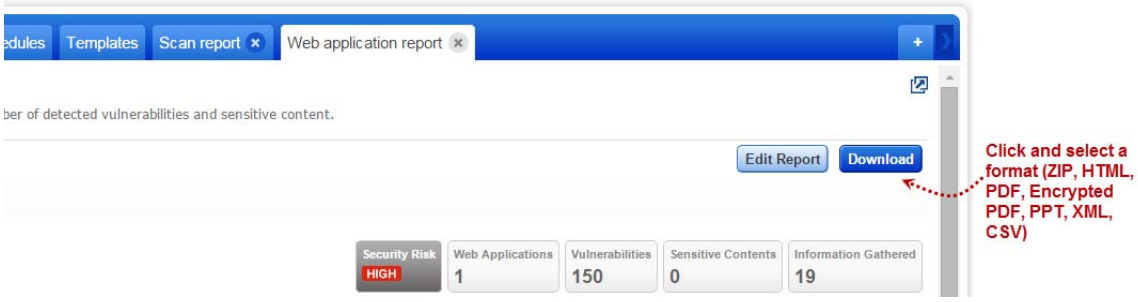
Do side by side comparisons

Just click the icon in the report header and we'll open the report in a new window. This lets you do side by side comparisons, and easily work with multiple reports at a time.

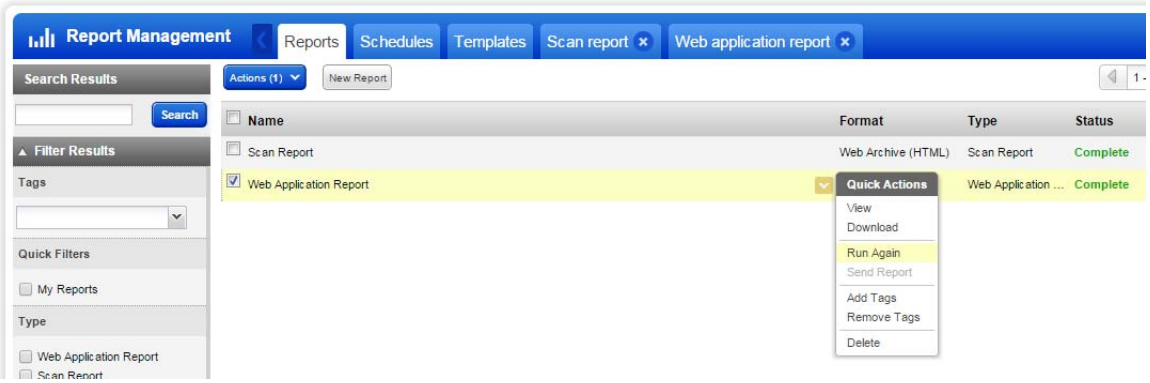


How do I save my reports?

Use the Download option to download the report to your local machine and also save it in your account.

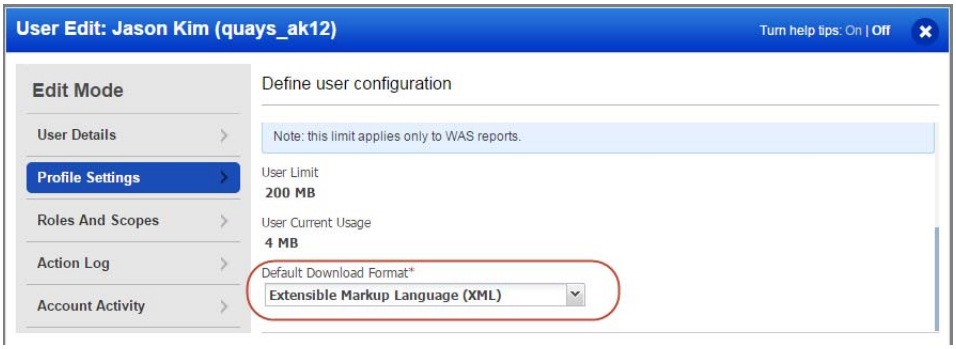


Your reports list is where you can view your saved reports. You can view each report (summary), download it, run it again, and add tags to share the report with other users.



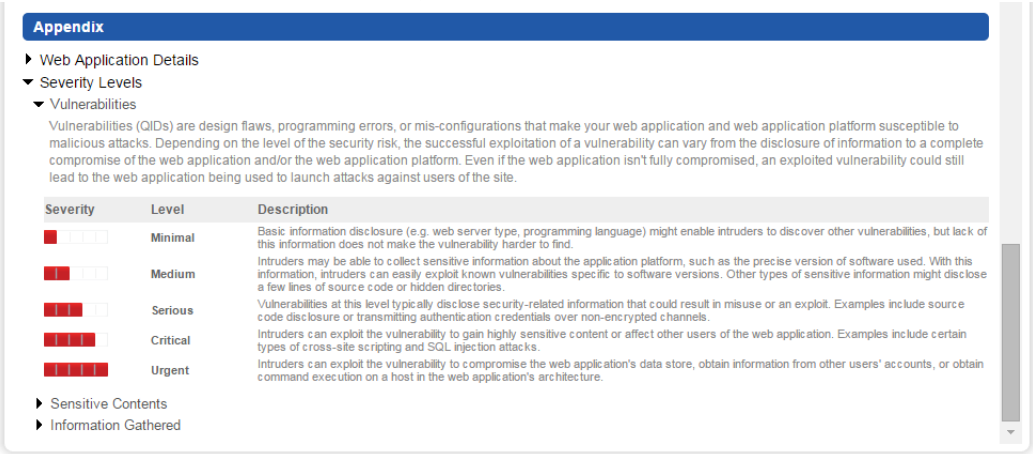
Set a default report format

This saves you time! You won't need to select your favorite report format each time you download your report. Just select My Profile under your user name (in top right corner) and edit your profile settings.



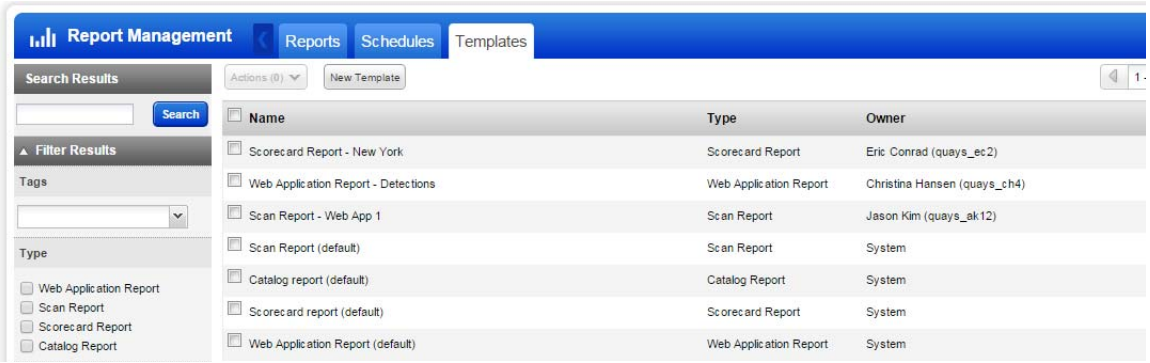
What do the severities and levels mean?

Just go to the Appendix and click Severity Levels. You'll find a description for each severity and level for each detection type (vulnerability, sensitive content, information gathered).

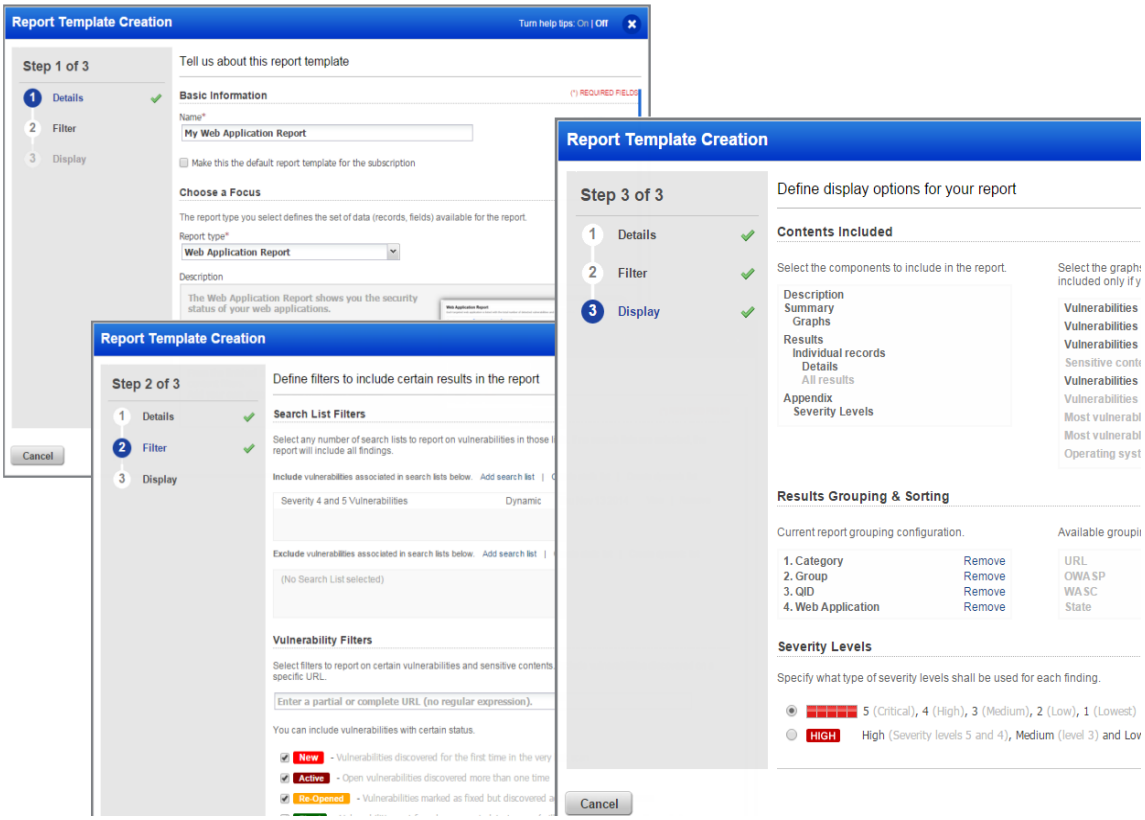


Customizable report templates

Create templates with the specific information you're interested in. This way it's easy to deliver the right information to application stakeholders. All your custom templates are saved in your account for future use. Go to Reports > Templates and select the New Template button to get started.



Numerous report template settings let you configure filters such as search lists, vulnerability detections, vulnerabilities marked as ignored, and display settings such as what content to include, grouping and sorting.

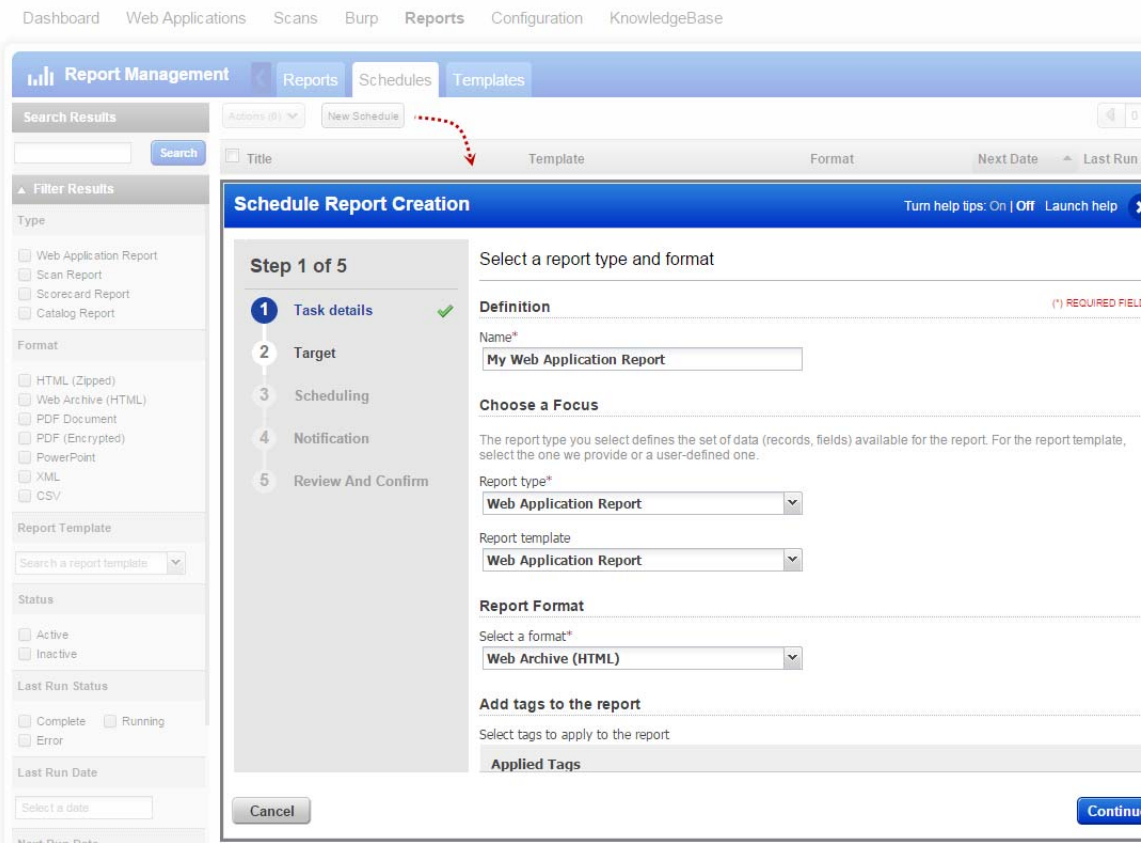


Want to share your templates? No problem - just tag them, just like you do for other objects (web applications, reports, etc) and add the tags to user scopes (use the Administration utility).

Scheduled Reporting

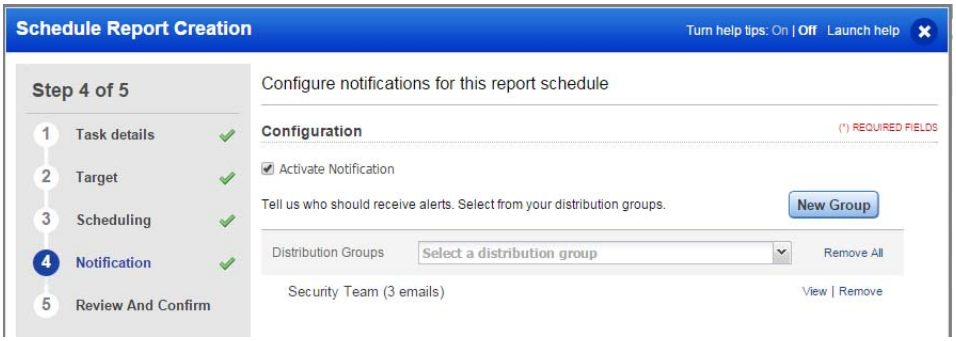
Schedule your report to run automatically, in the same way you schedule scans. You can schedule a report to run daily, weekly, or monthly or just one time only. Scheduling reports is a great way to get security updates based on the latest scan results and share them with other users.

Go to Reports > Schedules and click New Schedule to get started



It's easy to configure report notifications

Just choose Activate notification and tell us the users who should receive email notifications. An alert is set to users each time a report is complete with a link to download it, and whenever report generation fails.



Adding Users

It's easy to add users to your Qualys subscription and grant them access to WAS. You'll need a Manager role to do this.

How do I add new users?

Use the New User work-flow provided in the Vulnerability Management application. Select VM/VMDR from the app picker and go to the Users section to create a new user. We'll walk you through the steps.

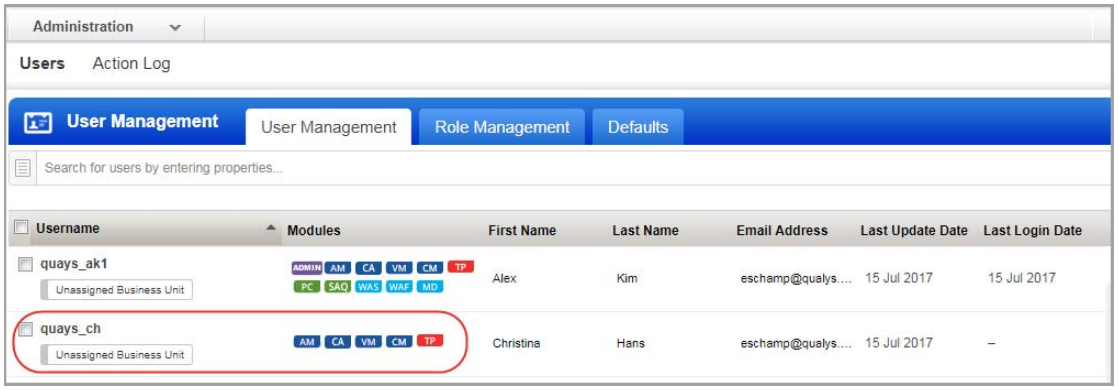
Viewing users, their roles and permissions

The Qualys Cloud Platform UI shows you all the users in your subscription, their assigned roles and permissions to the various applications which are enabled for your account. You'll notice newly added sub-accounts (Scanners, Readers, Unit Managers, etc) are not granted access to WAS automatically.

How to grant a user access to WAS?

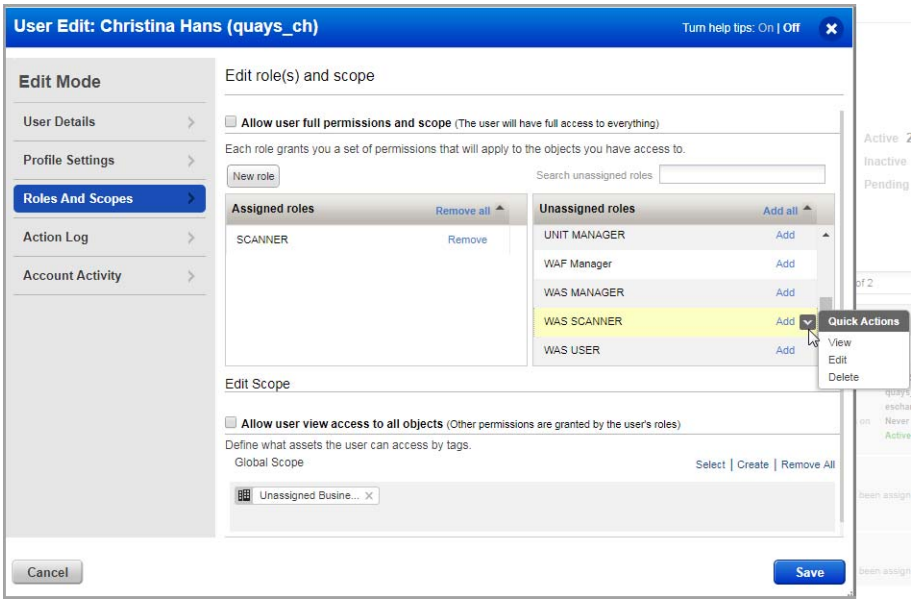
Say you created a new user Christina Hans with the Scanner role and you want Christina to be able to scan web application for security risks using WAS.

View the new user's permissions for applications with Qualys Cloud Platform. Go to the Administration utility. You'll notice for the new user WAS application is not listed.

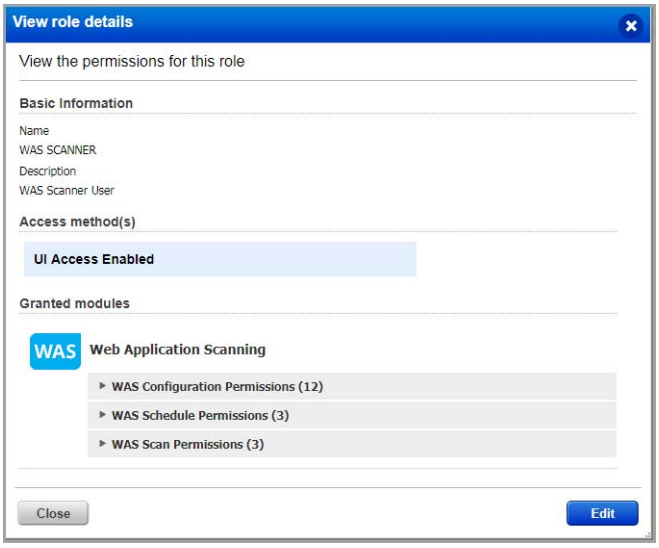


Edit the new user (select the user and pick Edit from the Quick Actions menu). Under Roles and Scopes the user is assigned SCANNER role for VM and/or PC scanning (depending on your subscription settings).

Qualys provides predefined WAS user roles to help you grant users WAS permissions easily. The predefined roles are WAS MANAGER, WAS SCANNER, WAS USER.

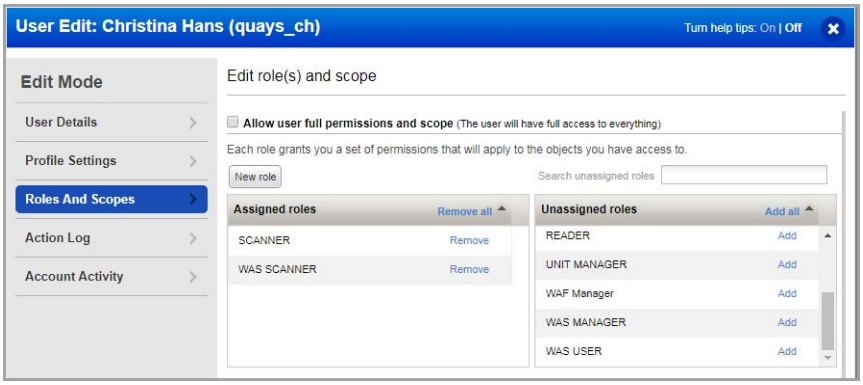


Our user Christina has SCANNER role (for VM/PC) so we'll add WAS SCANNER role to her account. Select WAS SCANNER then pick View from the Quick Actions menu. You'll see WAS SCANNER permission groups and can drill down to see the role details. This role does not grant permissions to add/update/purge web applications for example.



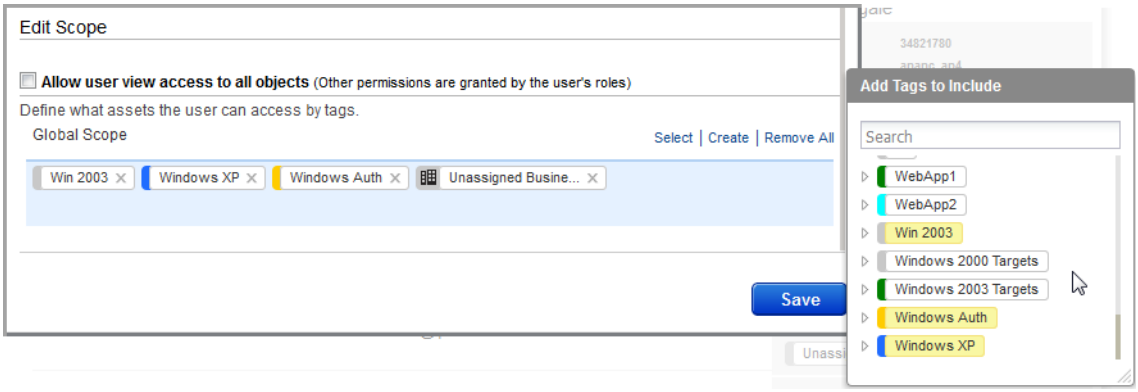
Click Close to edit user settings.

Click the Add link next to WAS SCANNER role to add it to the user's assigned roles. Assigned roles will look like this.

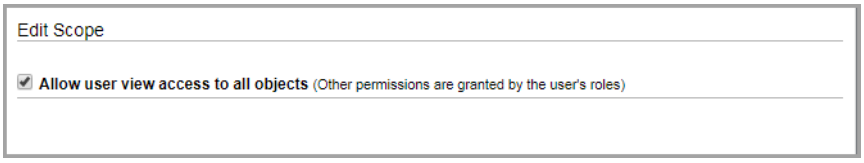


Update the Edit Scope section to grant the user access to web applications in your subscription. By default the user doesn't have access to any web applications or other WAS configurations. Choose one of the options.

Assign specific tags.



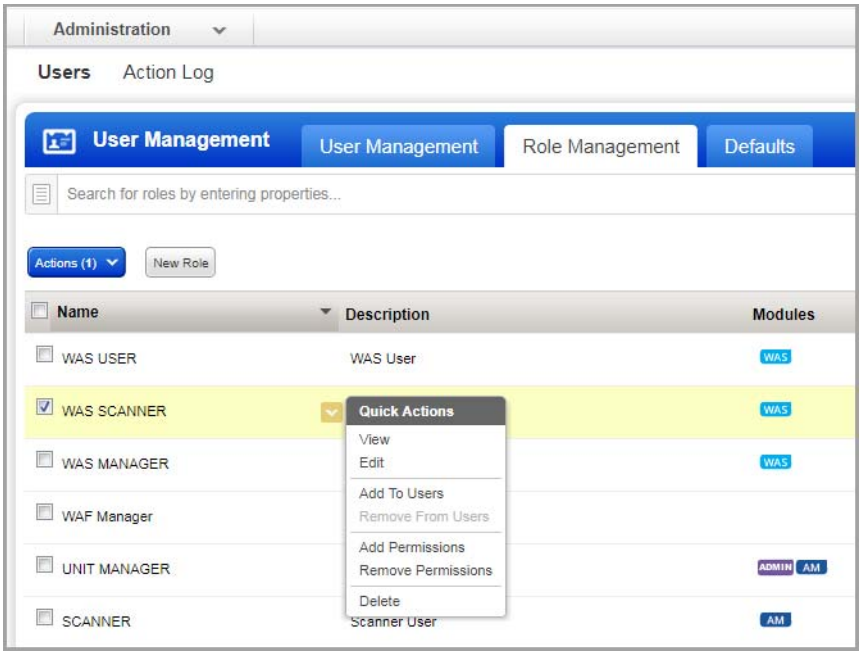
Grant full scope (i.e. all tags)



Click Save to save the user settings.

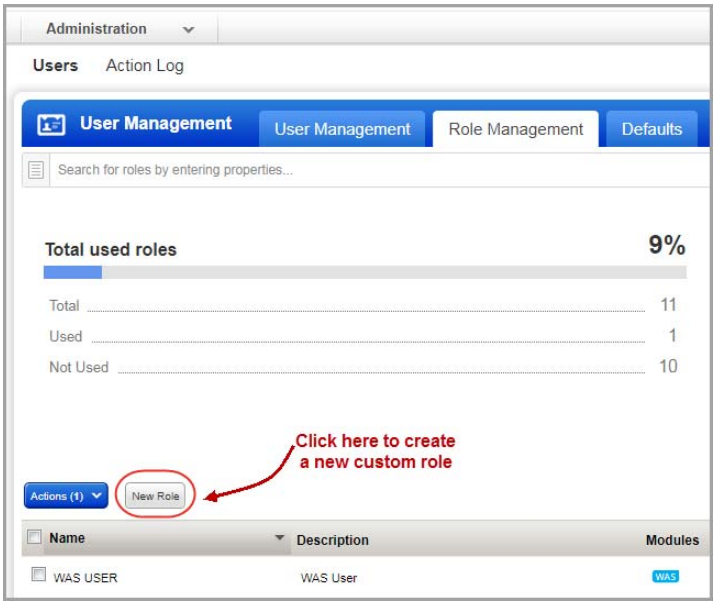
Role Management

The Role Management section shows you all about the roles in your subscription.

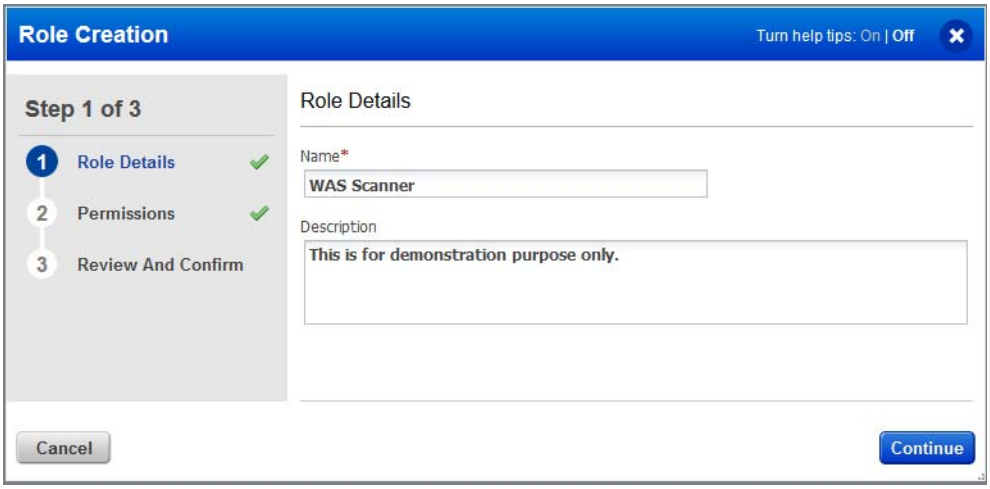


For each role you can view details and take actions to add to users, add permissions, remove permissions etc.

The New Role option lets you create a custom role with the exact permissions you want.

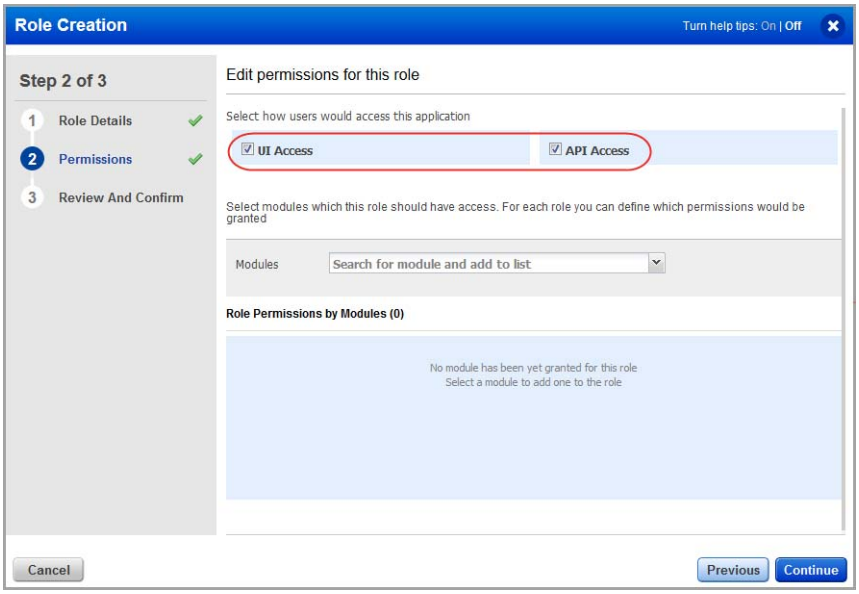


For example you can create role WAS Scanner.

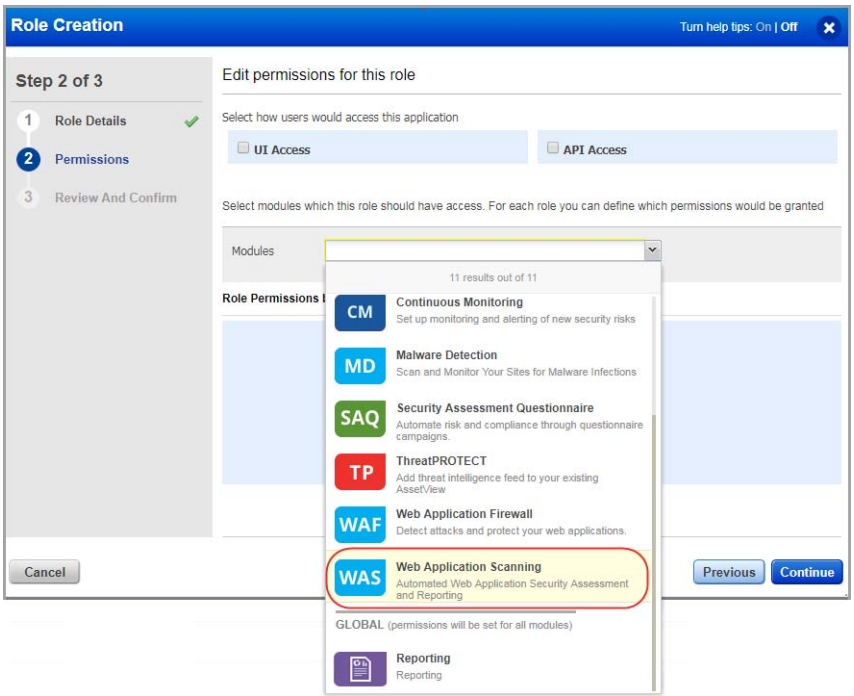


Grant the role access to UI and/or API.

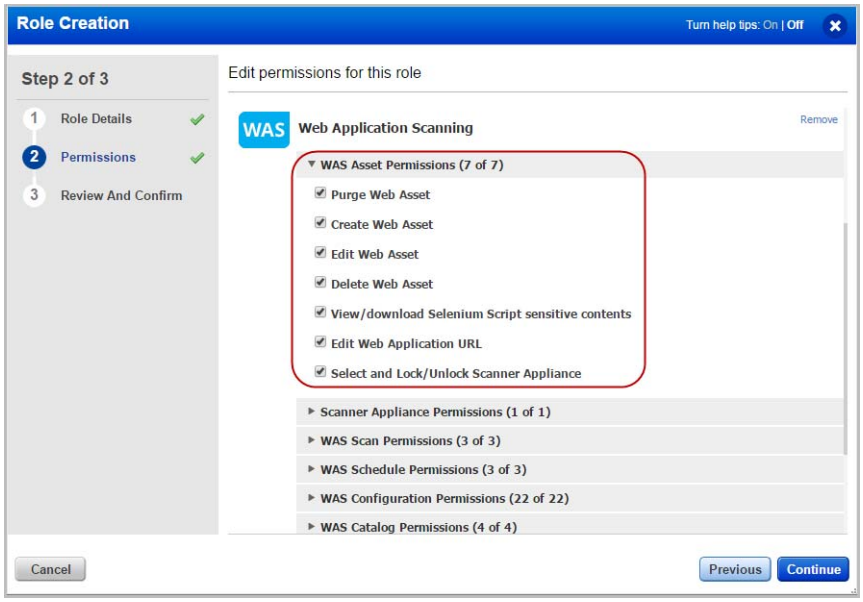
In the role details, choose the access methods for the user.



Grant the role access to the WAS app. In the Permissions section add select the WAS app from the menu provided.



Grant the role permissions within the WAS app.



Edit the user account and assign role.

Getting Help

Qualys is committed to providing you with the most thorough support. Through online documentation, telephone help, and direct email support, Qualys ensures that your questions will be answered in the fastest time possible. We support you 7 days a week, 24 hours a day. Access online support information at www.qualys.com/support/.

WAS Community

To know more about latest features, discussions, documents and videos related to WAS, you can access Qualys WAS Community page.