Qualys App for IBM QRadar

User Guide

Version 1.2.0

February 23, 2020 (Updated April 28, 2021)

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Introduction to Qualys App for QRadar

Use the Qualys App for QRadar to ingest your Qualys VM detections into QRadar and visualize them on a single page. All you need to do is install the app, configure the app and schedule the sync. The Qualys App will continuously pull your detection delta, so you always see updated reports. Want to visualize historical data? Just use date-time pickers given in the Qualys App and see useful reports.

What's New in This Release

Features / Improvements:

- Support for multi-tenant environment
- Updates for Summary Tab Widget and Reports / Search Tab
- QRadar authentication token workflow is improved to upgrade existing version of Qualys App for QRadar and for fresh installations
- Improved the Qualys App Settings interface. Added Advanced tab which shows the success and failure messages for the etls running with process ids. User can download etl logs from Advanced tab

Prerequisites

Make sure you have:

- A valid Qualys subscription
- API access to Qualys VM module
- Knowledgebase API access, if you want to enable Knowledgebase input
- Internet access and your Qualys API server must be reachable from QRadar

Install the App

Note

- Changes made for AQL are not compatible with QRadar 7.2.8 if your Qualys App version is 1.1.0 or later.
- If you're using Qualys App for QRadar with version 1.1.2 or before, you need to uninstall existing app.

1) Log in to QRadar and go to the **Admin** tab.
2) Click **Extensions Management**.
3) Click the **Add** button and upload the extensions .zip file. Don't have it? Click here to download Qualys App for QRadar.
4) Confirm whether you want to replace/skip any existing contents with those coming from the extension and click the **Install** button.

   Note: If you're upgrading Qualys App for QRadar by unchecking "Start default instance for each App" option, it will still create shared instance. In this case, you need to delete the shared instance from QRadar Assistant app and manually create separate instances for desired security profile. For more information, refer Creating an instance.

5) Once installation is completed, refresh your QRadar user interface.
6) You should see the tab **Qualys App for QRadar** in the top menu.
7) Deploy changes once app installation is completed.

Application Dependencies

This application has the following dependencies. These are installed by QRadar's application management while spinning up the application container.

- vixie-cron
- python-crontab-2.1.1.tar.gz
- pycrypto-2.6.1.tar.gz

The vixie-cron is installed by installing the rpm of cronie-anacron-1.4.4-16.el6_8.2.x86_64 & cronie-1.4.4-16.el6_8.2.x86_64, whereas python-crontab-2.1.1 is installed locally using pip command.

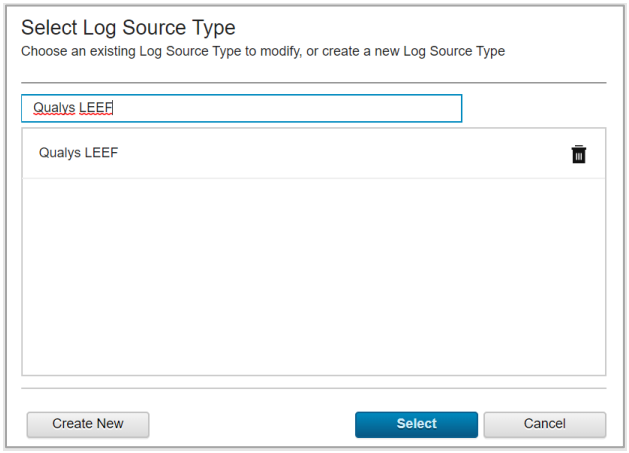
Starting from version 1.1.0, all application dependencies are bundled with the application itself.

Validating Dependencies

Please go through each of the sections listed below. You need to carry out the following steps manually, right after you install the app and before you start using it. Some sections may not be applicable in your case, and you may need to skip them.

Log Source Event Mapping

1) Go to **Admin** > **DSM Editor**.
2) In **Select Log Source Type**, search for "Qualys LEEF" and click **Select** button.



3) From the Qualys LEEF screen, go to **Event Mappings** tab. The requirement is that there should be mapping for QualysMultiline and if you don't see mapping for QualysMultiline, create new (refer below steps).
4) Click **+** icon to add a new mapping. The "Create a new Event Mapping" pop-up opens. Set **Event ID** as "QualysMultiline" (without quotes) and **Category** as "QualysMultiline" (without quotes).
5) Click the **Choose Event** link. In the "Event Categorizations" pop-up that opens, click the **Create New** button. Set the values as follows:
    - Name: QualysMultiline Information
    - Description: QualysMultiline Information
    - Log Source Type: Qualys LEEF
    - High Level Category: System
    - Low Level Category: Information
    - Severity: 2
6) Click **Save**. This will take you back to "Event Categorizations".

7) Click and select the newly created entry, which is shown in the “Search Results” table.
8) Click **Ok**. This takes you back to “Create a new Event Mapping”.
9) Click **Create**. This takes you back to “Qualys LEEF” pop-up - Event Mappings tab.
10) Confirm that you now have 3 entries, including Event ID “QualysMultiline” - Category “QualysMultiline”.
11) Finally, click **Save** and close the window.

Enable Last Scan Datetime Parsing

1) Go to **Admin** > **DSM Editor**.
2) In **Select Log Source Type**, search and select “Qualys LEEF”.
3) In the pop-up that opens, go to **Properties**. In the list of properties, search and open “Last Scan Datetime”.
4) In the **Property Configuration** > **Expression** section, click **Edit**.
5) Notice the **Enabled** field. This field may be in disabled state (grayed out). If disabled, select the **Enabled** field. It changes color.
6) Click **OK** in the Expression section.
7) Click **Save** and close the window.

Log Source

When you install app, it will create a new Log Source named “QualysMultiline”. Please check if it is created. You can also create the custom log source for the Qualys app with following steps. Keep the configuration of custom log source same as that mentioned below.

1) Qualys VM will send the data to QRadar console only. The user will not be able to use the app for distributed setup.
2) On your console UI, go to **Admin** > **Data Sources** > **Log Sources** and click the **Add** button.
3) Add the details shown below to the form to Create QualysMultiline Log Source. All fields marked with an asterisk (*) are mandatory. Make sure your Log Source Name and Log Source Identifier have same value.

Property	Value	
Log Source Name	QualysMultiline (Customizable)	*
Log Source Description	QualysMultiline	
Log Source Type	Qualys LEEF	*
Protocol Configuration	TCP Multiline Syslog	*
Log Source Identifier	QualysMultiline (Customizable, but same as Log Source Name)	*
Listen Port	12468 (Customizable)	
Aggregation Method	Start/End Matching	*
Event Start Pattern	[A-Z][a-z][a-z]\s\d\d\s\d\d:\d\d:\d\d\s	*
Event End Pattern	qualys_event_ends	*
Event Formatter	No Formatting	*
Show Advance Option	Yes	*
Use Custom Source Name	Unchecked	*
Use As A Gateway Log Source	Checked	*
Flatten Multiline Events Into Single Line	Checked	*
Retain Entire Lines During Event Aggregation	Checked	*
Enabled	Checked	*

Credibility	5	
Target Event Collector	<default/your choice>	
Coalescing Events	Unchecked	*
Store Event Payload	Checked	*
Log Source Extension	QualysLEEFCustom_ext	*

4) Click **Save**.

If you need to create this new Log Source manually, you must do a full deployment. For that, please go to **Admin** > **Advance** and click **Deploy Full Configuration**.

Custom Event Properties

1) Go to **Admin** > **Log Sources** and confirm that QualysMultiline Log Source is Enabled. If it is disabled, please enable it.
2) Go to **Admin** > **Custom Event Properties** and confirm that all 25 Qualys related properties are Enabled and are linked to "Qualys LEEF" log source type.

   Qualys related properties are:

   - App Version
   - PCI Flag
   - Qualys QID
   - Severity Level
   - QID Category
   - CVE
   - Last Fixed Datetime
   - Operating System
   - Qualys Host ID
   - Tracking Method
   - First Found Datetime
   - Qualys Severity
   - Last Scan Datetime
   - App ID
   - Last Test Datetime
   - Detection Type
   - Patchable
   - Last Update Datetime
   - Network ID
   - Last Found Datetime
   - QID Title
   - Host IP
   - Status
   - DNS
   - Tags

For the Qualys related properties, complete these checks:

1) If any property is disabled, enable it.
2) If any property does not belong to the Qualys LEEF log source type, please open it to edit and select Qualys LEEF as the log source type.
3) If any property does not belong to QualysMultiline log source, open it to edit and select QualysMultiline as log source.

4) Please check if all Custom Event Properties have Event Name as QualysMultiline Information. If not, select Event Name as QualysMultiline Information.
5) Finally, save the properties.

If you do not see the properties, please refer to the Troubleshooting section in this document to learn how to delete and recreate Log Source Type "Qualys LEEF".

For any change in Custom Event Properties, it is recommended to do Deploy Full Configuration.

Configure the App

For Single User Instance - If you want to use Qualys App for QRadar as single user instance, you just need to configure the steps mentioned in Qualys API Configurations.

Multi-tenant Environment - If you want to use Qualys App for QRadar in multi-tenant environment, you need to configure the steps mentioned in Multi-tenant Environment section and then the steps mentioned in Qualys API Configurations.

Qualys API Configurations

Complete the following steps once you configure the app.

1) Log in to QRadar and go to the **Admin** tab.
2) Scroll to "Apps" section and click **Qualys App Settings**. A pop-up window opens.

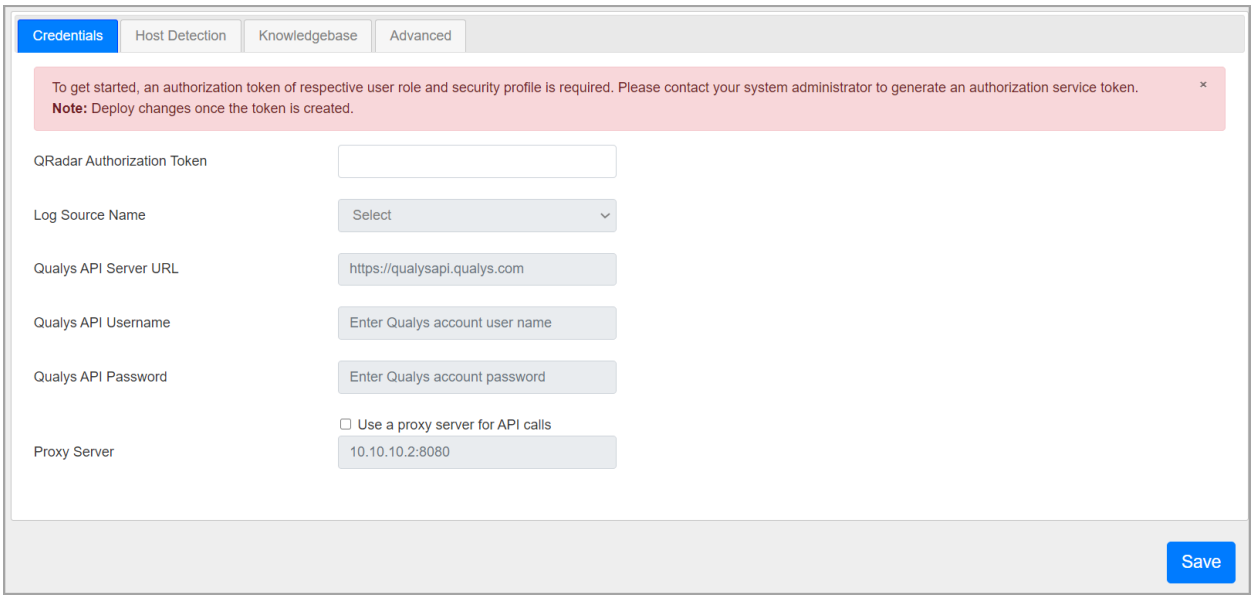
Credentials

QRadar Authorization token is used while interacting securely with QRadar. You can obtain this token from **Admin** > **User Management** > **Authorized Service**.

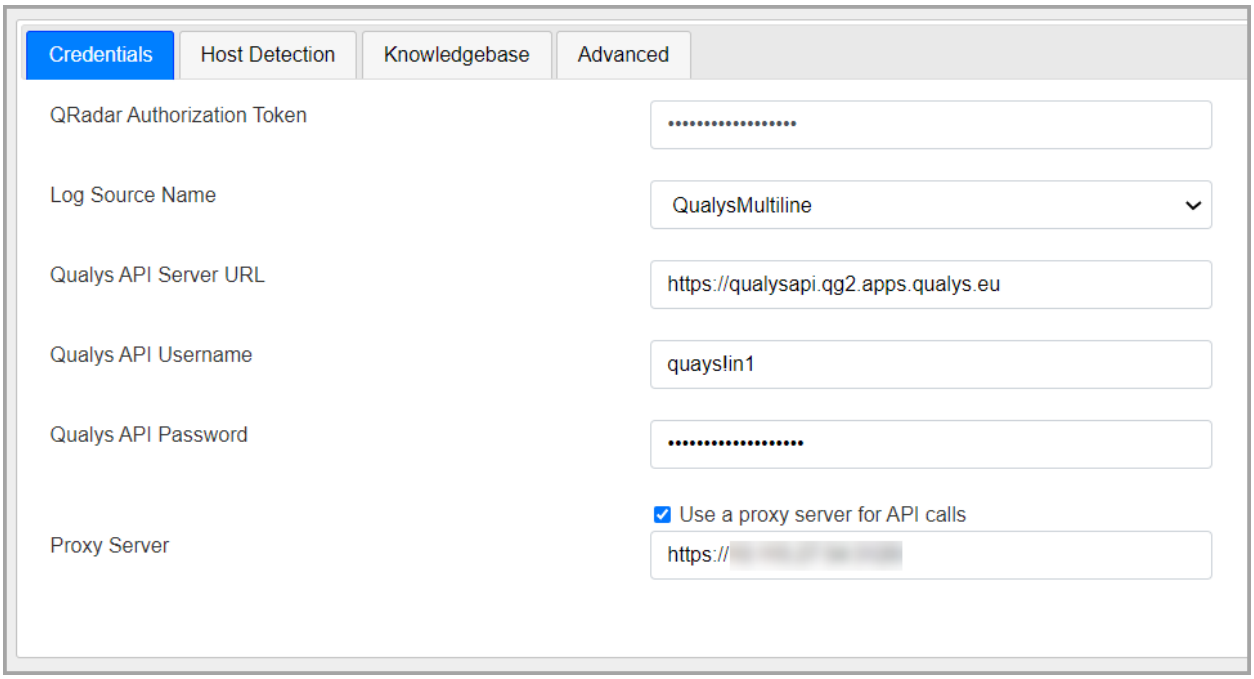
For multi-tenant environment, make sure that you create an authentication token with user role permission specific to the security profile's user and select security profile same as that of the instance is created and configured. For more information, refer Adding an authorized service.

For example, here we've created instance for *Security Profile A* and users that will be using this instance has user role as *User Role A*. Hence, while creating authentication token for the created instance, follow the steps:

a) Go to **Authorized Services** in Admin tab
b) Click **Add Authorized Service.**
c) Enter the desired **Service Name.**
d) Select **User Role** as *User Role A*.
e) Select **Security Profile** as *Security Profile A*.
f) Set the expiry date as required.
g) Click **Create Service** and then click **Deploy changes**.



Use the **Credentials** tab to configure your Qualys credentials. Enter your Qualys API server, username and password in the appropriate fields.



Proxy Configuration

If you want Qualys app to use proxy while calling the API, configure proxy details.

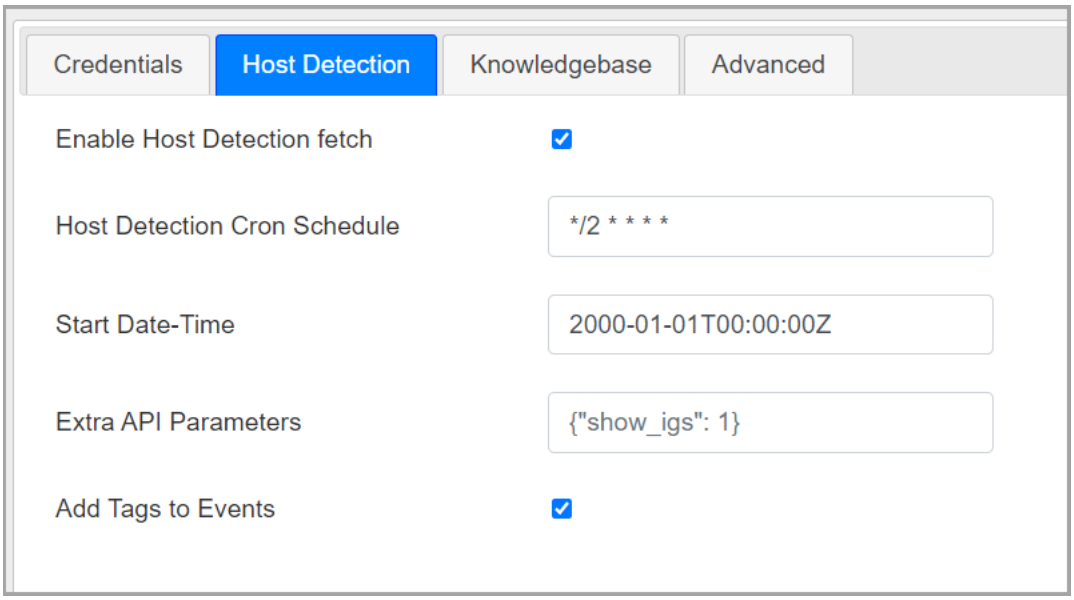
Select the check box to enable proxy.

Add your proxy server and proxy port in `<proxy server>:<proxy port>` format.

If your proxy needs authentication, add proxy user and proxy password along with server and port, in `<proxy user>:<proxy password>@<proxy server>:<proxy port>` format.

Host Detection

Use the **Host Detection** tab to configure and enable Host Detection input.



You must enable this input in order to use this extension. To enable this input, select the checkbox in front of **Enable Host Detection fetch**.

In the **Host Detection Cron Schedule** field, write a valid cron entry (time part only). Your input will run according to this schedule. This is a mandatory field. It's advised that you keep the cron schedule in sync with your scanning schedule. For example, if you run scans once a day, schedule this input to run once a day. Learn about cron expressions…

(Optional) In the "Start Date-Time" field, enter the date from which you wish to fetch the VM detection data. The date/time is specified in YYYY-MM-DD[THH:MM:SSZ] format (UTC/GMT), like "2007-01-25T23:12:00Z". This field is optional and may be left blank. When left blank, it defaults to 1999-01-01T00:00:00Z.

(Optional) If you want to provide any extra parameters for the Host Detection API, set them in the Extra **API Parameters** field, in valid JSON format. Please refer to the Qualys API (VM, PC) User Guide for a list of API input parameters. This field is optional and may be left blank.

(Optional) If you want to get Tags in VM detection data, select the "Add Tags to Events" option.

Knowledgebase

Use Knowledgebase tab to configure and enable Knowledgebase input.

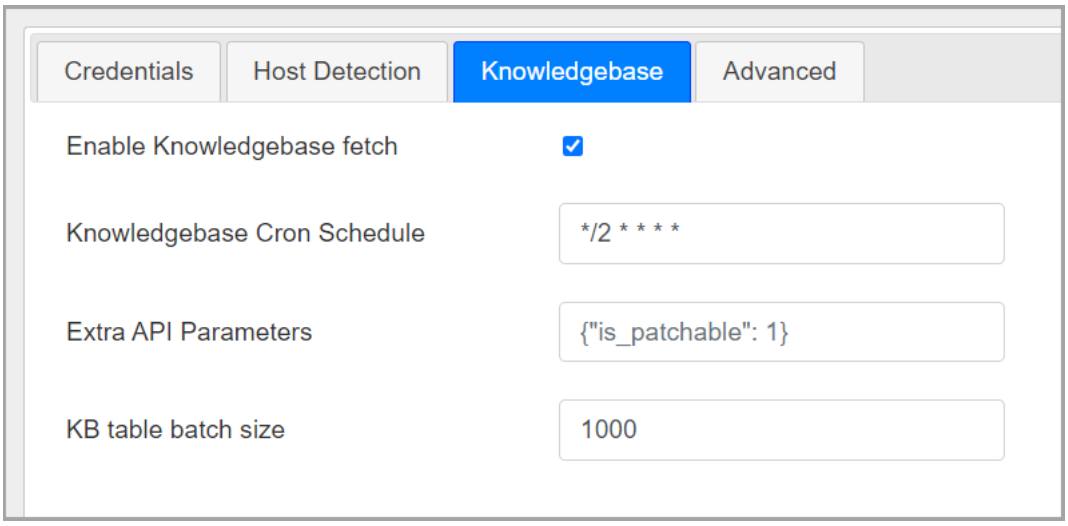
A copy of Qualys knowledgebase is bundled with this extension. To keep it up to date, please enable this input. It is advised that you update your knowledgebase copy at least once a week.

To enable this input, select the checkbox in front of **Enable Knowledgebase fetch**.

In the **Knowledgebase Cron Schedule** field, write a valid cron entry (time part only). Your input will run according to this schedule. This is a mandatory field. You might not want to run this every day. Once a week is also OK. Learn about cron expressions…

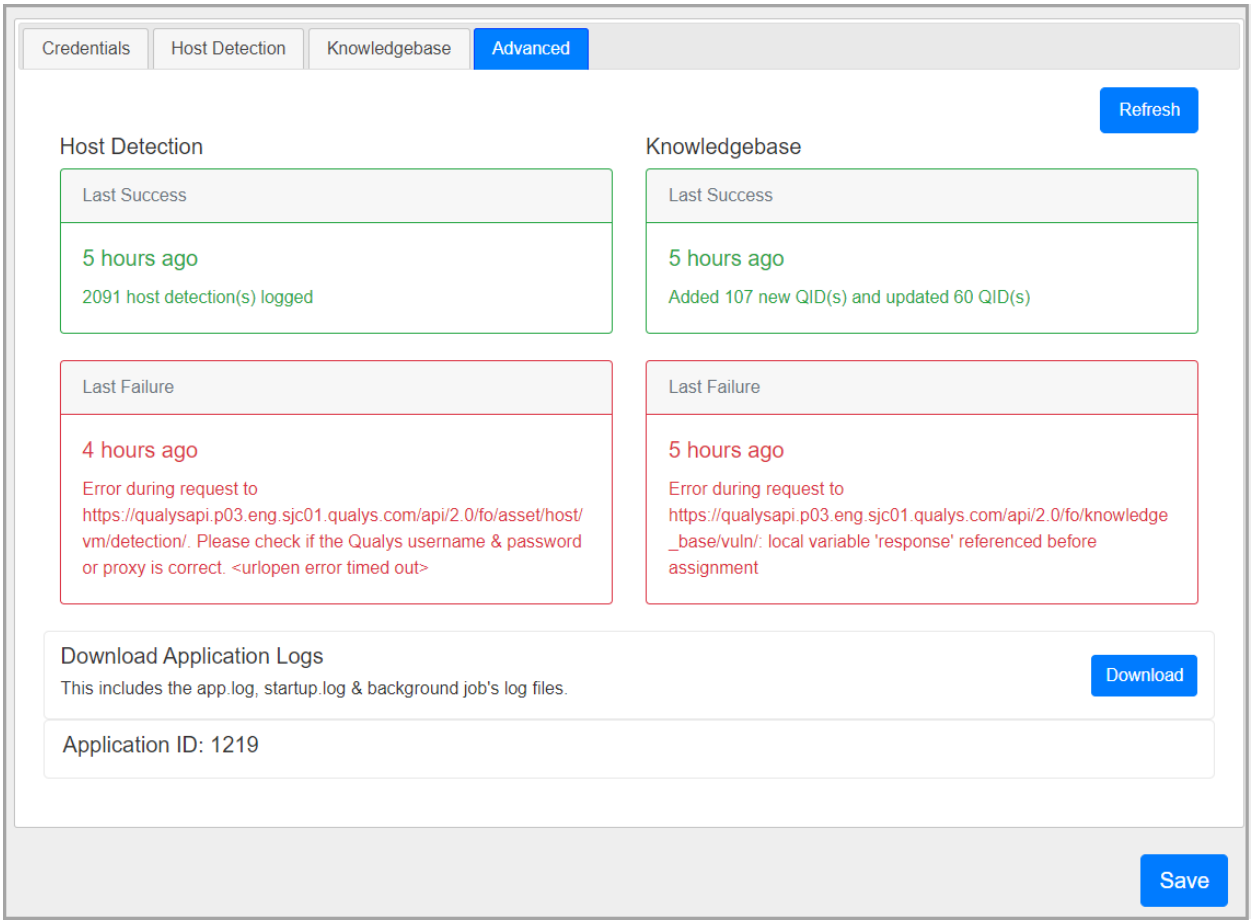
(Optional) If you want to provide any extra parameters for the Knowledgebase API, set them in the **Extra API Parameters** field, in valid JSON format. Please refer to the Qualys API (VM, PC) User Guide for a list of API input parameters. This field is optional and may be left blank.

You can specify **KB table batch size** to define the number of records to be pulled for faster loading.



Advanced

Use Advanced tab to see the last success and last failure for host detection and knowledgebase.



Advanced Configurations

These are the advanced and optional configurations which provides you additional benefits while using Qualys App for QRadar!

Index Management

From the QRadar Console, you can use the Index Management tool to control database indexing on event and flow properties. By adding an indexed field in your search query, it helps to improve the speed of searches in QRadar by narrowing the overall data. Learn how to modify database indexing in the Index Management tool by making use of statistics before and after you enable or disable indexing on multiple properties.

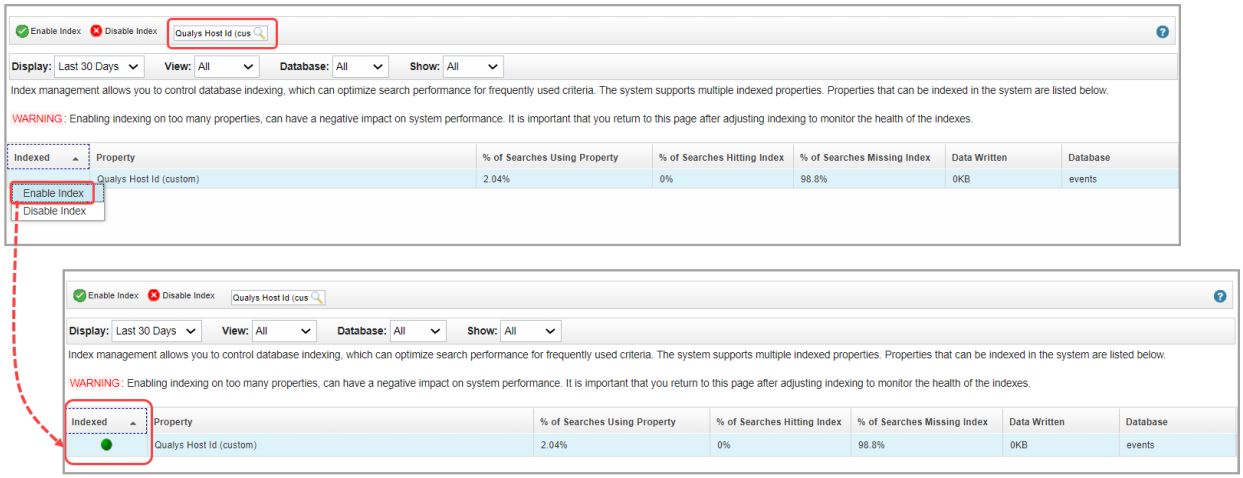
Steps to enable indexing for the specific custom event properties:

1) On the navigation menu, click **Admin** and then click **Index Management** in the **System Configuration** section.

2) Search, select and click **Enable Index** for the below mentioned properties:

- Qualys Host Id (custom)
- Qualys Severity (custom)
- Qualys QID (custom)
- Status (custom)
- Last Scan Date (custom)
- Detection Type (custom)

Once you click **Enable Index**, *Indexed* column shows (green bubble) for the indexed property.



3) Click **Save**.

For more information, refer Index management.

Multi-tenant Environment

Multitenant environments allow Managed Security Service Providers (MSSPs) and multi-divisional organizations to provide security services to multiple client organizations from a single and shared IBM QRadar deployment. You don't have to deploy a unique QRadar instance for each customer.

In a multitenant deployment, you ensure that customers see only their data by creating domains that are based on their QRadar input sources. Then, use security profiles and user roles to manage privileges for large groups of users within the domain. Security profiles and user roles ensure that users have access to only the authorized information.

Achieving Multi-tenancy and Segregating Data into Different Log Sources

Prerequisites for Setup:

- QRadar Version should be 7.4.0 (Fix pack 1) or later
- QRadar Assistant App must be installed with Version 3.0.0 or later
- Qualys App for QRadar Version 1.2.0 (or later) should be installed
- QRadar Log Source Management app should be installed

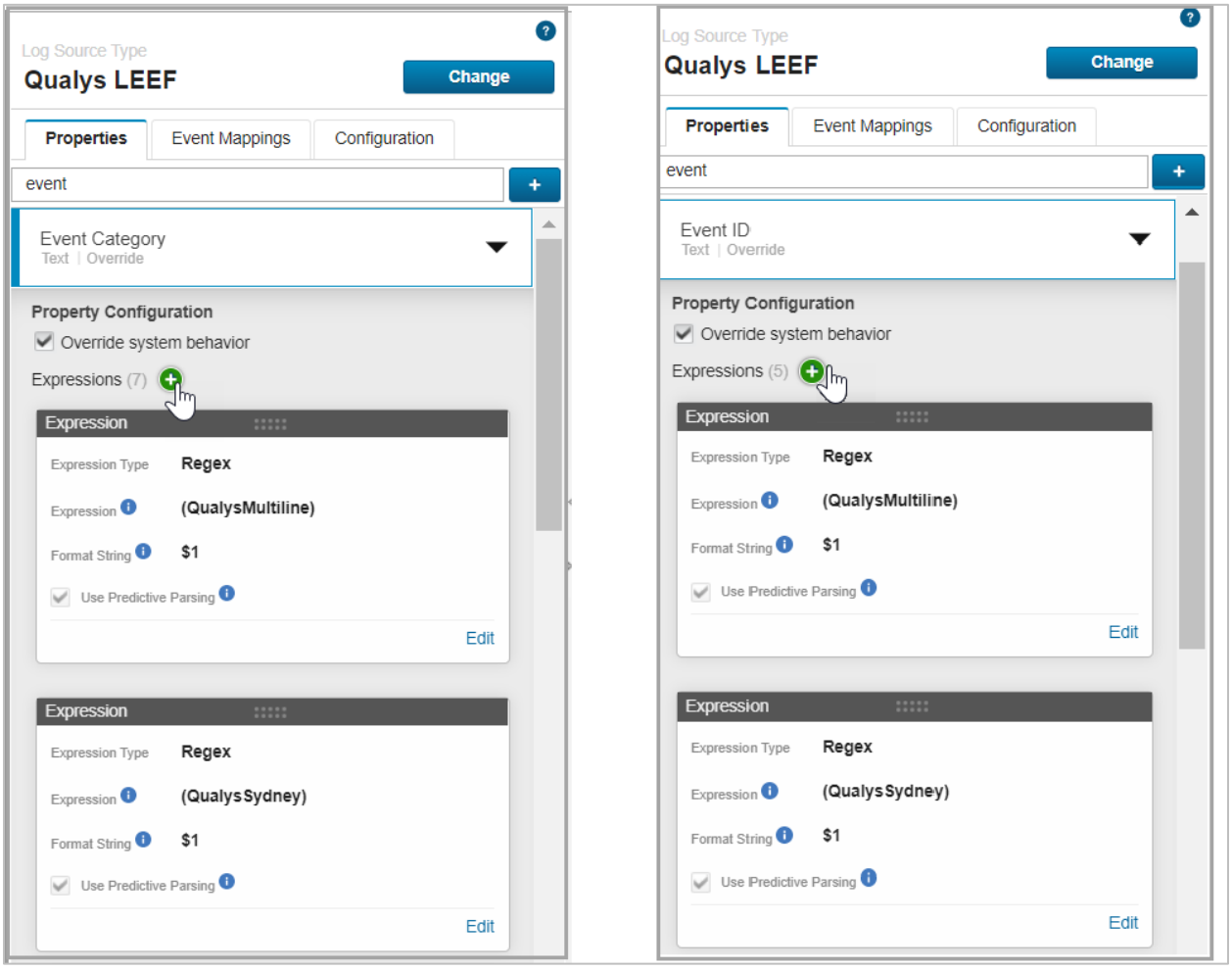
Prerequisites for Configurations:

- Creating Log Sources - Event ID, Event Category and Event Mappings
- Creating Tenant
- Creating and assigning a domain to the tenant
- Creating a Security profile and associating Domains and Log sources to it
- Creating a user role for Tenant users
- Create the tenant users with desired User role and Security profile

Configuring Log Source

User can create custom log sources of "Qualys LEEF" log source type to segregate the data. For more information, see Creating Log Sources.

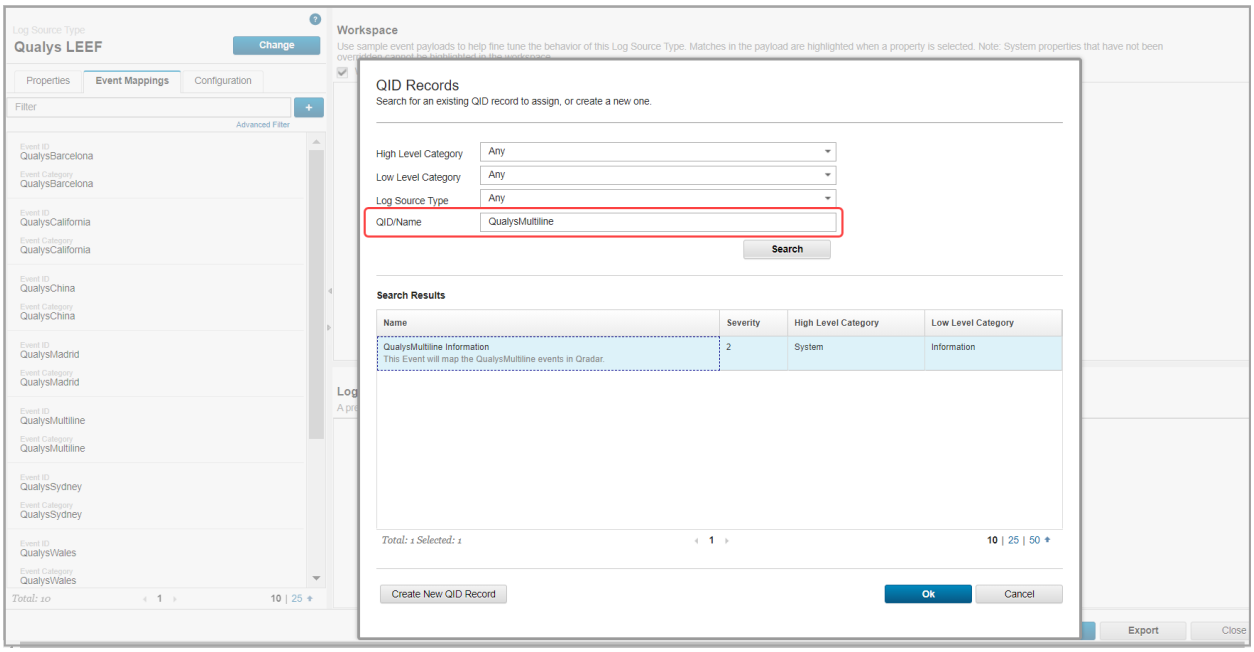
1. After creating Log Sources, go to **DSM Editor** and search for "Qualys LEEF" log source type.
2. Add Event ID and Event Category in Properties tab specific to the log source for which data is to be pulled. In DSM Editor in Qualys LEEF log source 'Properties' tab user will need to create a new Event Id and Event Category like 'QualysMultiline' as per the Log source created, add format string for both Event Id and Event Category then save it.



3. Create the event mapper in the "Event Mappings" tab specific for the created log source-

   - User will need to create event mapper in "Event Mappings" tab and choose the already existing QID i.e. 'QualysMultiline'.
   - Enter the same values in "Event ID" and "Event Category" field as per the log source name and then click **Choose QID** and search for "QualysMultiline Information".

   Note: This way the user created event mapper will inherit the configurations of the "QualysMultiline" event mapper that comes bundled with app installation.



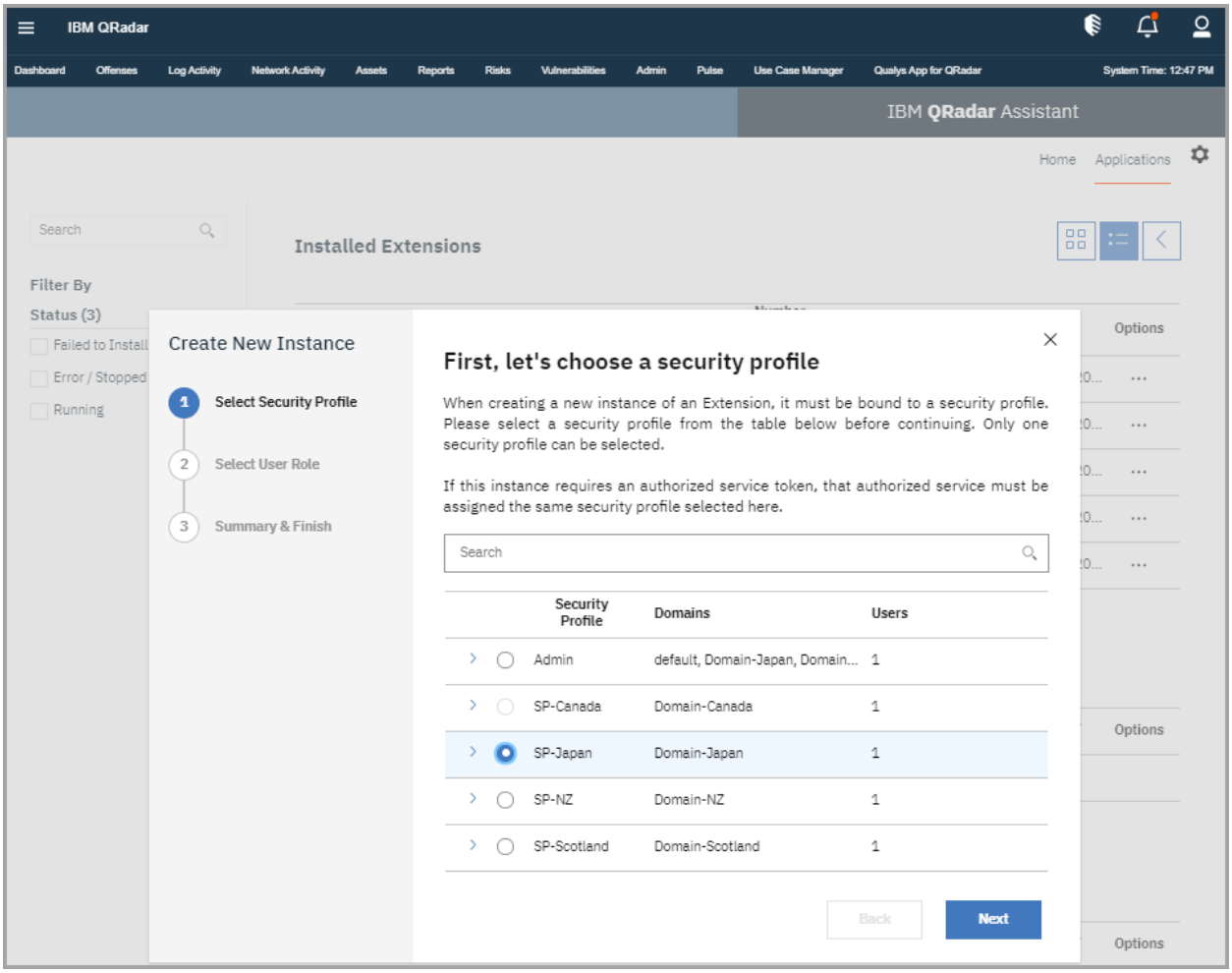
Now, user will be able to pull the data into the desired Log Source by following the above steps and saving the same log source in the Qualys app settings.

Managing Multi-tenant Apps

Qualys App for QRadar can now be used in multi-tenant environment for QRadar V.7.4.0 (Fix pack 1) or later.
When a user installs the app, they are presented with the option to create a default instance. Users can select this option if they only want a single instance of the app, or the app does not need to support multi-tenancy. If a user does not select the Default Instance option, they must create a separate instance and associate each instance with a security profile to keep all your data separate.

Creating an Instance

1. Click the QRadar Assistant app icon (), and then click **Applications**.
2. Ensure you're in the List View (**Manage** > List View option) in Application Manager.
3. In the Installed Extensions section, click the ellipsis icon (⋯) in the **Options** column of the extension and then click **Create New Instance**.

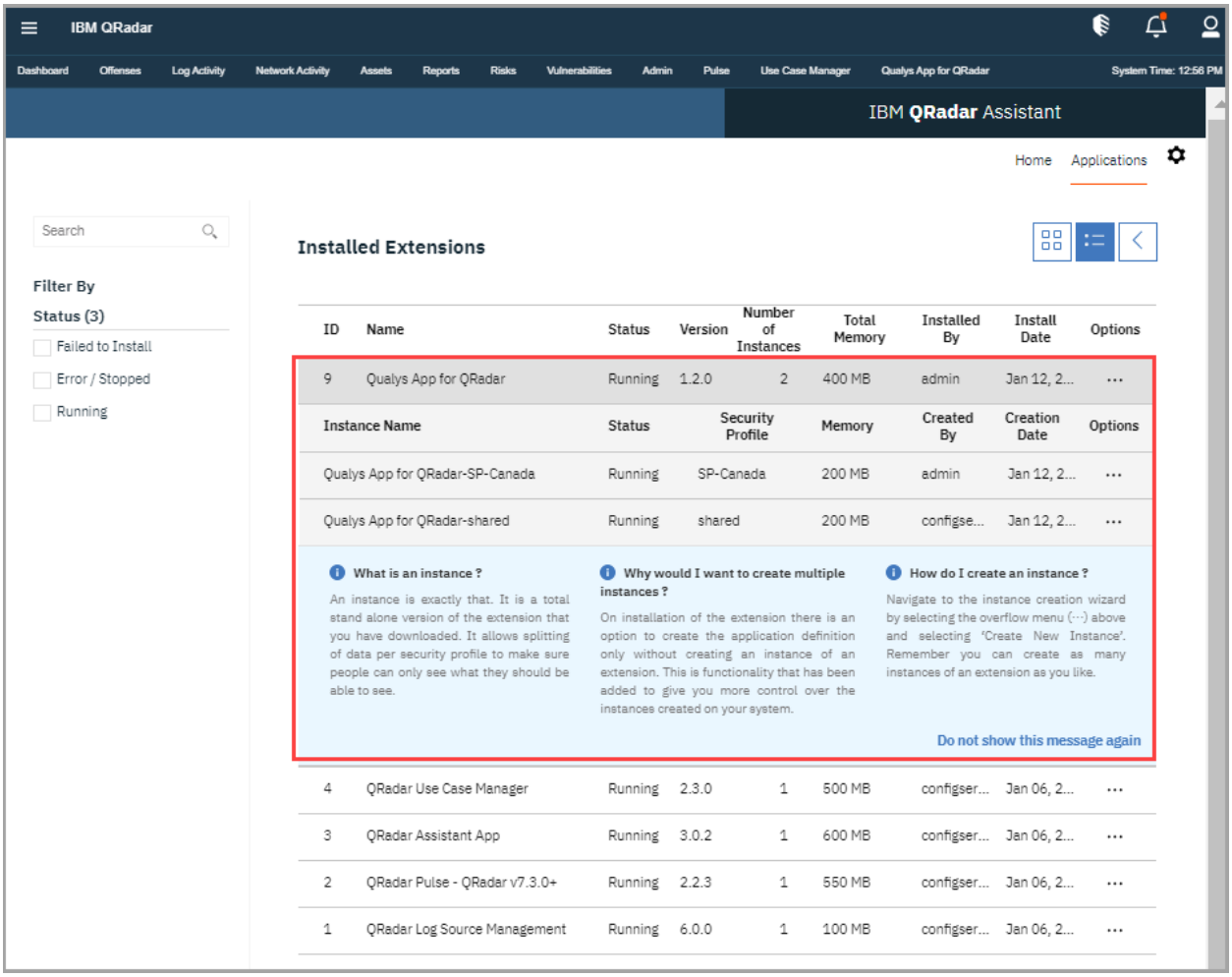


4. Select the security profile for which the app instance is to be created and click **Next**.
5. Select user role shown for the selected security profile and click **Next**.
6. Review the summary and click **Confirm & Create** to create an instance.
7. Once you confirm the changes, the app will be installed for that security profile and app instance will be created.
   Run the following command to check the app ID for the instance:
   `/opt/qradar/support/recon ps`

8. Go to Admin tab and click **Deploy Changes**.

Managing Instances

After creating multiple instances, it will be listed as shown below with the total memory consumed and the memory for each instance.



To configure the Qualys App Settings from IBM QRadar Assistant for the created instances, follow the steps mentioned below:

1. Click on the ellipsis icon (···) in the **Options** column for the instance and then click **Configure Instance** > **Qualys App Settings** option.
2. Do various configurations on the Configuration Page. For more information, see Qualys App Settings.

For more information related to other options, refer Managing instances.

Configuring Instance

For multi-tenant instance, once you complete above configurations, you need to proceed with Qualys API Configurations.

How Qualys App works?

What happens after configuration?

Once you configure and enable Host Detection input, the application bundled with this extension will start fetching your VM detection data. By default, it will pull detection data for 10 hosts at a time. This value is set to such a small number to make sure the app can process your data without hitting the memory limit governed by QRadar. For first run, it might take some time depending on your scan volume. After that, subsequent pulls are incremental ones - fetching only new/changed data.

How does data get into QRadar?

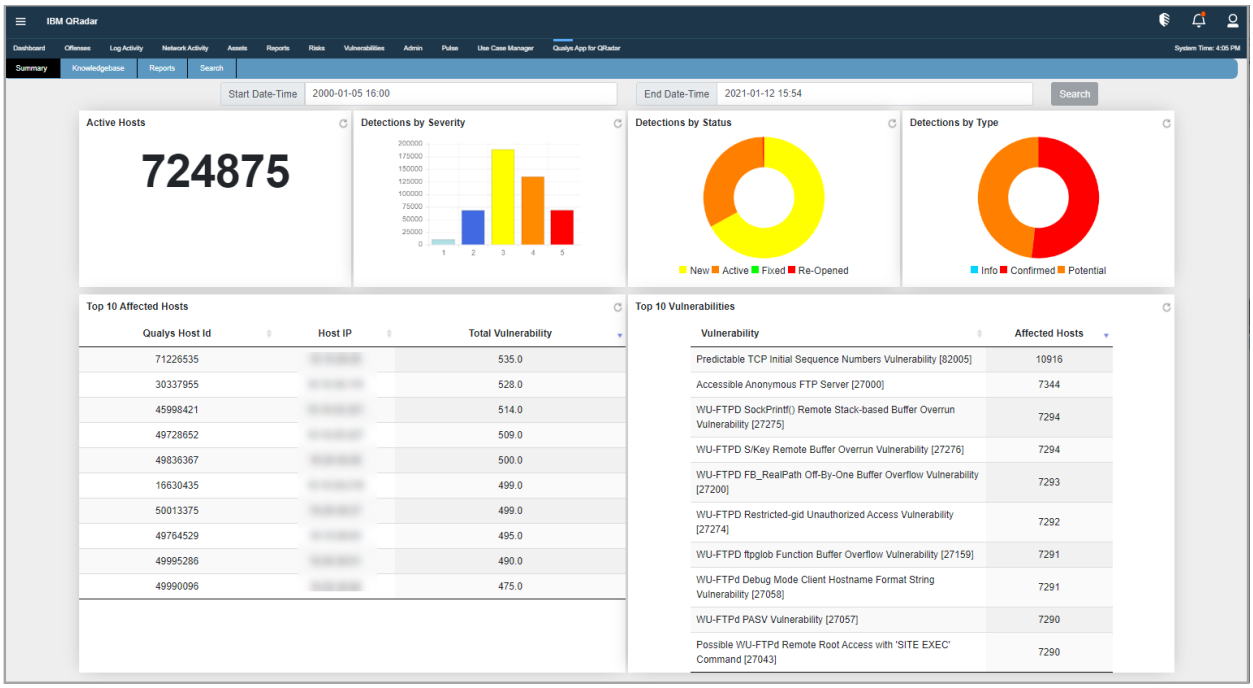
Whenever cron runs any job (based on the cron schedule you defined), it makes outbound API call to Qualys, transforms the XML response it receives into LEEF format and sends it to the QRadar over socket using TCP port configured in "QualysMultiline" Log Source. Using DSM editor and "QualysLEEF" Log Source Type provided with this extension, QRadar then puts this data into the "events" table in Ariel database.

Using the Qualys app

Summary

When you click the **Qualys App for QRadar** tab in the top menu, you'll see a summary dashboard provided by the app. It renders the following reports:

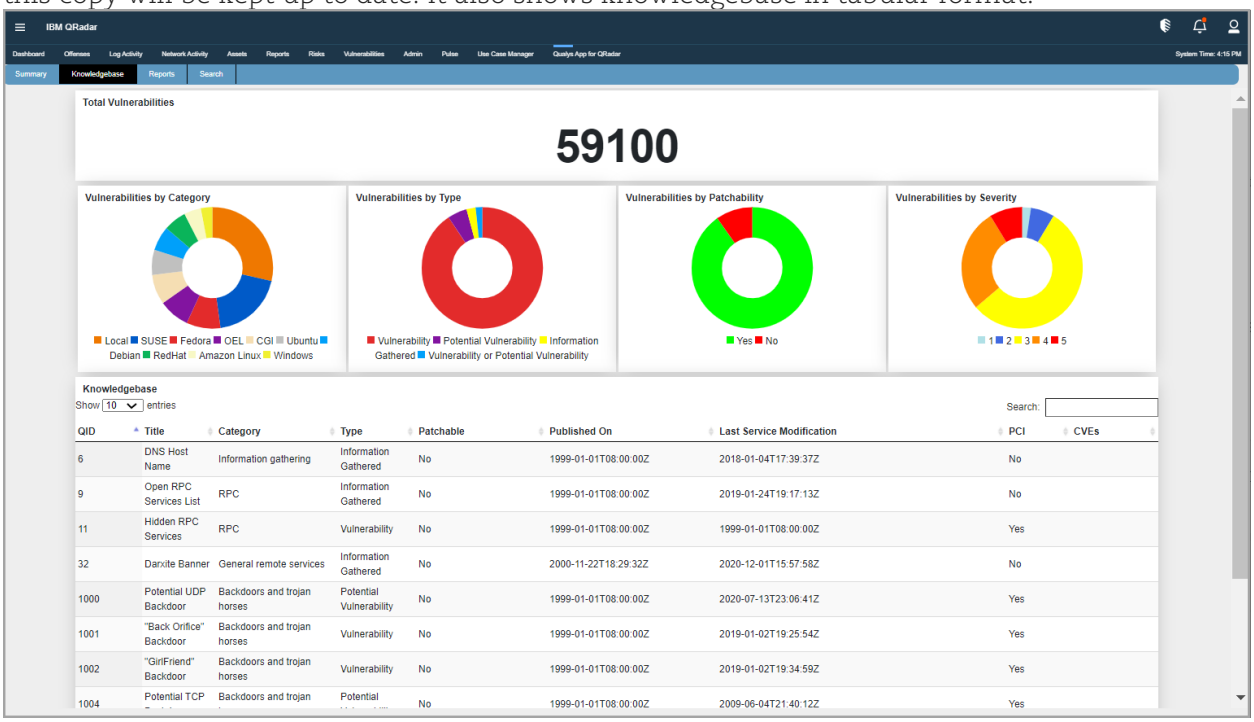
- Count of Active Hosts
- Detections by Severity
- Detections by Status
- Detections by Type
- Hosts Not Scanned in Last 30 Days
- Top 10 Vulnerabilities



By default, these reports are based on detection data in the last 20 days. To change this date-time range, use “Start Date-Time” and “End Date-Time” and click the **Search** button. When you click Search, all the reports are updated according to the new date-time range that you’ve defined.

Knowledgebase

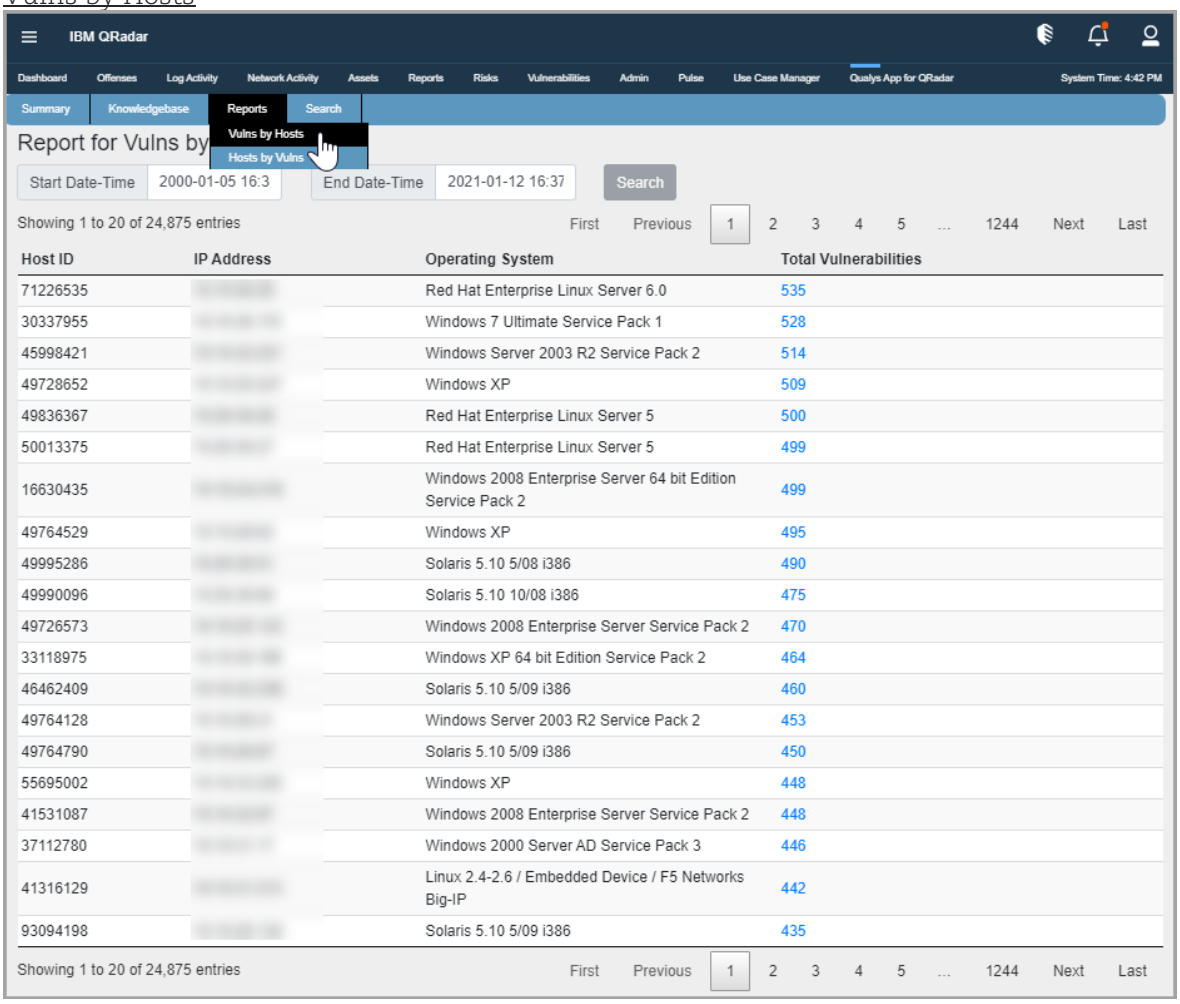
The application has a default copy of knowledgebase bundled with it. This menu shows you some visualizations about current knowledgebase copy. If you enabled knowledgebase input, this copy will be kept up to date. It also shows knowledgebase in tabular format.



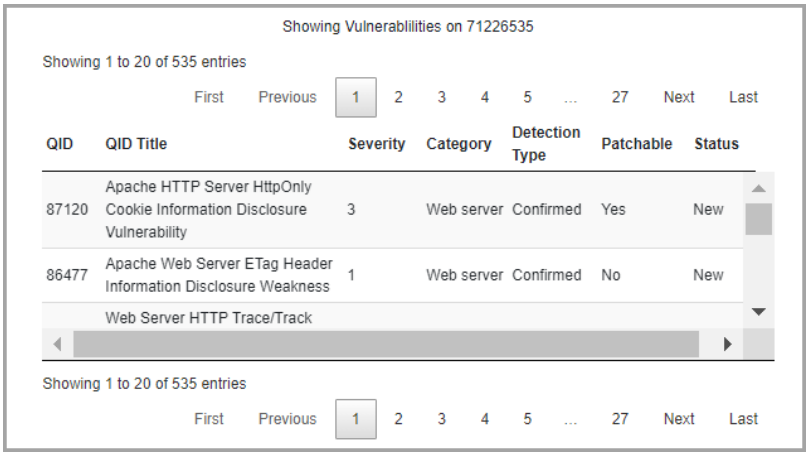
Reports

You can view reports for vulnerabilities by hosts and hosts by vulnerabilities within specific date range.

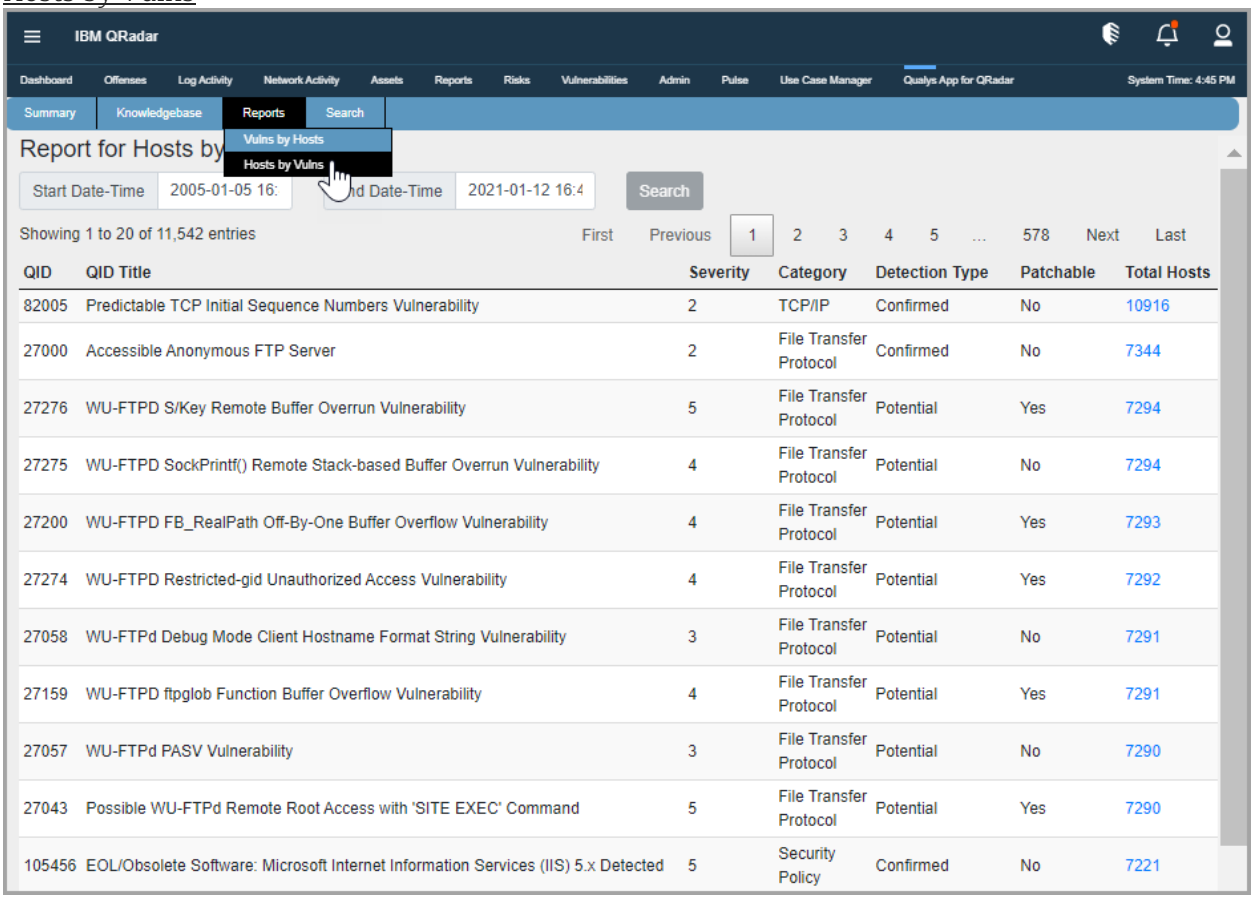
Vulns by Hosts



Click on count of Total Vulnerabilities to view vulnerabilities on the host.

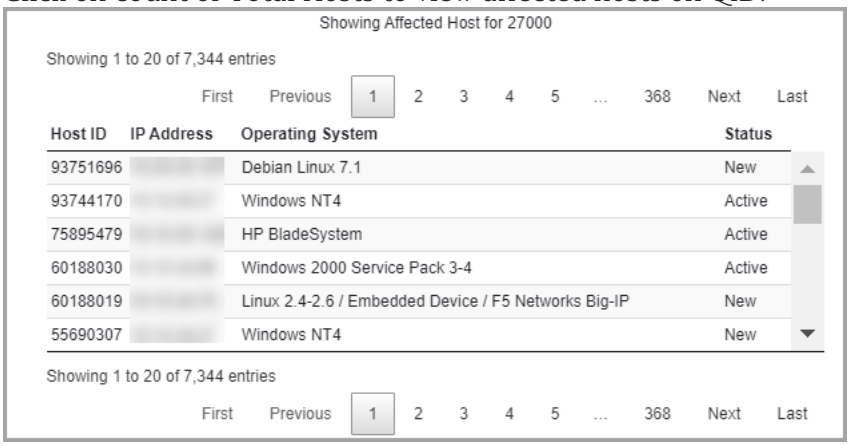


Hosts by Vulns



QID	QID Title	Severity	Category	Detection Type	Patchable	Total Hosts
82005	Predictable TCP Initial Sequence Numbers Vulnerability	2	TCP/IP	Confirmed	No	10916
27000	Accessible Anonymous FTP Server	2	File Transfer Protocol	Confirmed	No	7344
27276	WU-FTPD S/Key Remote Buffer Overrun Vulnerability	5	File Transfer Protocol	Potential	Yes	7294
27275	WU-FTPD SockPrintf() Remote Stack-based Buffer Overrun Vulnerability	4	File Transfer Protocol	Potential	No	7294
27200	WU-FTPD FB_RealPath Off-By-One Buffer Overflow Vulnerability	4	File Transfer Protocol	Potential	Yes	7293
27274	WU-FTPD Restricted-gid Unauthorized Access Vulnerability	4	File Transfer Protocol	Potential	Yes	7292
27058	WU-FTPd Debug Mode Client Hostname Format String Vulnerability	3	File Transfer Protocol	Potential	No	7291
27159	WU-FTPD ftpglob Function Buffer Overflow Vulnerability	4	File Transfer Protocol	Potential	Yes	7291
27057	WU-FTPd PASV Vulnerability	3	File Transfer Protocol	Potential	No	7290
27043	Possible WU-FTPd Remote Root Access with 'SITE EXEC' Command	5	File Transfer Protocol	Potential	Yes	7290
105456	EOL/Obsolete Software: Microsoft Internet Information Services (IIS) 5.x Detected	5	Security Policy	Confirmed	No	7221

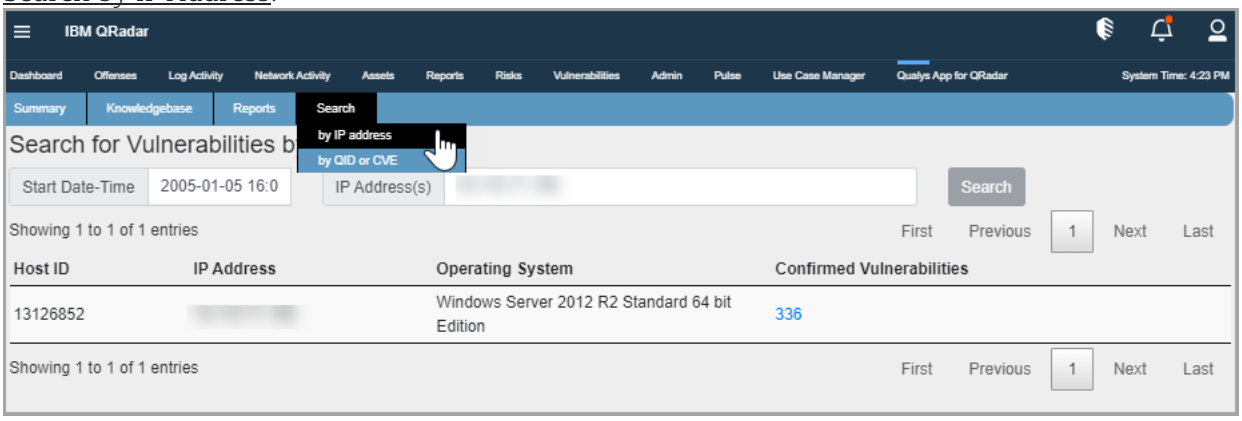
Click on count of Total Hosts to view affected hosts on QID.



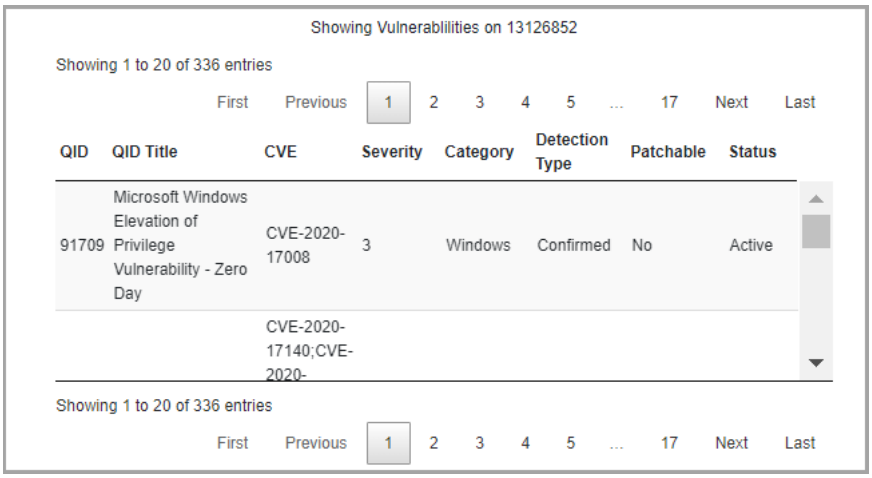
Host ID	IP Address	Operating System	Status
93751696	[redacted]	Debian Linux 7.1	New
93744170	[redacted]	Windows NT4	Active
75895479	[redacted]	HP BladeSystem	Active
60188030	[redacted]	Windows 2000 Service Pack 3-4	Active
60188019	[redacted]	Linux 2.4-2.6 / Embedded Device / F5 Networks Big-IP	New
55690307	[redacted]	Windows NT4	New

Search

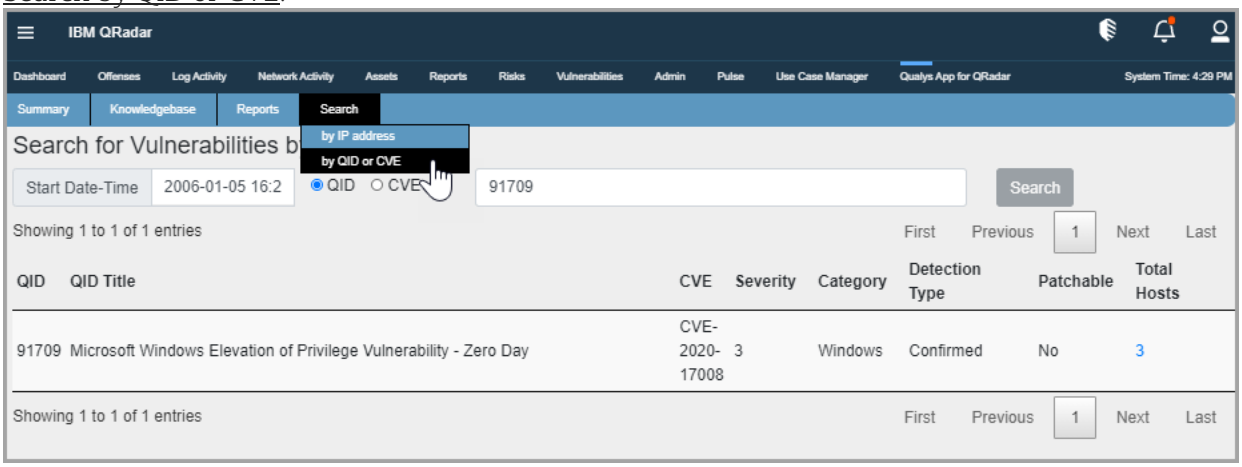
You can search for vulnerabilities in **Search** tab *by QID or CVE* or *by IP address*.
Search by IP Address:



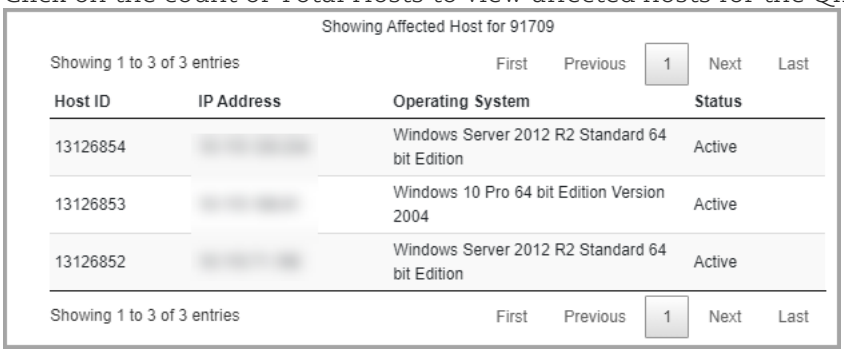
Click on the count of Confirm Vulnerabilities to view vulnerabilities on the host.



Search by QID or CVE:



Click on the count of Total Hosts to view affected hosts for the QID or CVE.



Raw Data

There may be times when you want to see the raw data. Follow these steps:

1) Go to **Log Activity** tab and go to **Advance Search** field.

2) In the **Advance Search** field, post the sample AQL below. (Tip - For more AQLs please check the Troubleshooting section in this guide.)

```
SELECT "Qualys Host Id", "Operating System", "Last Scan Datetime", "Tracking Method", "Qualys QID", "Qualys Severity", "Detection Type", "Status" from events where LOGSOURCENAME(logsourceid) = 'Qualys' OR LOGSOURCENAME(logsourceid) = 'QualysMultiline'
```

3) Select the date range for which you want to see the data.

4) Click **Search**.

Depending on the results, you may want to change the date-time range to widen/shorten your search span. You can also execute your own AQL queries to find more appropriate data. Please refer to fields in “Qualys LEEF” log source to know the Qualys fields.

Input Logs

While running, host detection input sends its log to QRadar over syslog. To see them, you can use the following AQL in **Log Activity** > **Advance Search**. Follow the same steps mentioned above with below AQL.

Host Detection

SELECT UTF8(payload) as utf8_payload from events where utf8_payload ILIKE '%Qualys:HostDetection%' ORDER BY utf8_payload ASC

Knowledgebase

SELECT UTF8(payload) as utf8_payload from events where utf8_payload ILIKE '%Qualys:Knowledgebase%' ORDER BY utf8_payload ASC

Uninstalling the app

1) Uninstall the app from **Admin** > **Extensions Management**.

2) Delete saved searches for this app (in case of Qualys App version 1.0.1 or lower):
   a. Go to **Log Activity** > **Search** > **New Search**.
   b. In Available Saved Searches, find saved searches starting with “Qualys” and delete it.

3) Delete custom events for this app:
   a. Go to **Admin** > **Custom Event Properties**.
   b. Search and delete all entries associated with Qualys LEEF log source type. (How to do? Just search “qualys” and delete all the entries that displayed in search results).

4) Delete Log Source extension:
   a. Go to **Admin** > **Log Source Extensions**.
   b. Delete entries with extension “QualysLEEFCustom_ext”.

5) Delete Log Source:
   a. Go to **Admin** > **Log Sources**.
   b. Delete log source named “Qualys” or “QualysMultiline”.

6) Delete custom event mapping from Qualys LEEF:
   a. Go to **Admin** > **DSM Editor**.
   b. Search and open **Qualys LEEF** and go to **Event Mappings** tab.
   c. Delete the entry with Event ID / Category “Qualys” or “QualysMultiline”.
   d. Click **Save** button and close the tab.

While uninstalling the app in unfortunate cases, it should be done cleanly. Any leftover artifacts can potentially interfere with next installation attempt creating unstable state.
When app gets installed following components will get installed in QRadar, so to uninstall completely following components also need to be removed.

Troubleshooting

If you see no data

If the application isn't bringing in your VM detection data, please go through the list below:

1) Check the data whether data indexing is happening properly with the help of AQL.
2) Check the app configuration.
   - Check host detection ETL is enabled in Qualys App Settings.
   - Check cron jobs scheduled properly. For more information about cron jobs scheduling, refer https://crontab.guru/.
   - Make sure you have the correct API and access permissions.
   - Make sure your credentials are correct.
   - If you set start date-time, make sure it complies with Qualys required format.
   - If you added extra API parameters, make sure the JSON is valid and that all the extra parameters listed are valid.
3) Make sure application dependencies were installed correctly.
4) Make sure you have done Deploy Full Configurations and your TCP port in listening.
5) Make sure QRadar has Internet access and is able to reach your Qualys API server.
6) Check your host detection ETL is running:
   Login to Qualys App container and run below commands :
   `ps aux | grep python`

```
sh-4.1# ps aux | grep python
root       174  0.0  0.0 111408  1984 ?        S    May13   1:42 /usr/bin/python /usr/bin/supervisord -c /etc/supervisord.conf
root       176  0.0  0.2 841516 97044 ?        S    May13   4:24 python /run.py
root     27451  2.4  0.0 157956 30336 pts/13   S+   10:29   0:00 python /app/etl_host_detection.py -d
root     27467  0.0  0.0   6492   608 pts/14   S+   10:29   0:00 grep python
```

If your host detection job is not running

To run the host detection ETL, run the following command:
`python /app/etl_host_detection.py -d`
Once you run above command, make sure you can see screen like –

```
sh-4.1# python /app/etl_host_detection.py -d
2020-05-19T10:29:30Z PID=27451 Qualys:HostDetection etl_host_detection INFO: Will be sending LEEF data to [redacted] over so
cket.
2020-05-19T10:29:30Z PID=27451 Qualys:HostDetection utils INFO: START: vm_detections xml clean-up.
2020-05-19T10:29:30Z PID=27451 Qualys:HostDetection utils INFO: vm_detections does not have any old xml files to clean.
2020-05-19T10:29:30Z PID=27451 Qualys:HostDetection etl_host_detection INFO: Console IP: [redacted]
2020-05-19T10:29:30Z PID=27451 Qualys:HostDetection etl_host_detection INFO: Opened socket connection to DSM Port:12468
```

If you get "[Errno 111] Connection refused" error

Following error messages will be displayed for different cases:

Case 1

```
ERROR: Socket connection on port 12468 configured for 'QualysMultiline' log
source is refused, 'Deploy Full Configuration'. Error while connecting to
socket: [Errno 111] Connection refused
```

This error occurs when the Listen port is not LISTENING. You need to do the Deploy Full Configuration on QRadar box to resolve this issue.

Case 2

```
Making Request - https://qualysapi.qualys.com/msp/about.php with PARAM: {}
2020-01-16T10:19:58Z PID=421 Qualys:HostDetection client ERROR: Error during
```

```
request to https://qualysapi.qualys.com/msp/about.php:<urlopen error [Errno
111] Connection refused>
```
This error occurs if the proxy settings are not configured on Qualys App Settings page. You need to configure proxy setup in Qualys App Settings.

If you see “HTTP Error 401: Unauthorized” error

This error occurs if you provide invalid credentials. To resolve this issue, check the API server URL and credentials.

If you see the ‘Number of host detections logged = 0’ in host detection

This can be due to following reasons:

- No scan was performed on the POD in the given period of time.
- No vulnerabilities are detected for the scan.
- If the API parameters are incorrect.
  For Example, the 'vm_processed_after': '1999-01-01 00:00' is wrong in following API Request.
  https://qualysapi.qualys.com/api/2.0/fo/asset/host/vm/detection/ with PARAM: {'truncation_limit': 10, 'show_results': 0, 'show_igs': 1, 'output_format': 'XML', 'show_tags': 0, 'action': 'list', 'vm_processed_after': '1999-01-01 00:00'}

If you see “corresponding record not found in KB” message

The following message may appear in Host Detection logs:

```
A record for QID QID-Number found on Host %s, but its corresponding record
not found in KB. May be KB is not updated.
```

This means you have some detections of given QID, but since your knowledgebase is not up to date, the app could not enrich the event data with QID details (like title, category, CVEs, patchable etc.). Maybe you have not enabled the Knowledgebase input in Qualys App Settings. Enable it and schedule it to run at least once a week.

If you see “Internal Server Error” while saving settings

1) This error occurs if Log Source ‘QualysMultiline’ is not configured. You need to complete Log Source configurations.

2) This error occurs if ‘Deploy Full Configuration’ is not done before configuring Qualys App for QRadar.

3) Log source TCP port is not listening. To check, run the following command on QRadar box.

```
netstat -tulpn | grep LISTEN
```

To enable TCP listen port, you need to Deploy Full Configurations. Even after the Deploy Full Configuration, please contact IBM Support.

4) There might be some issue with cron service. Please follow the steps given below to identify the issue.

- Go to QRadar terminal and connect to Qualys app's container. Check if cron service is up and running, if it is not running, start it.

- If you do not find cron service, that means QRadar did not install cron while installing Qualys app. You will have to manually install the cron service and start it. You can confirm the issue from /store/log/startup.log file as well. It should indicate that cron installation failed.

If dashboard widgets are not showing data for multi-tenant environment

When the dashboard widgets are not loading or showing no data even if the data fetch is completed –

- Check whether the "Event ID", "Event Category", and "Event Mapping" is created for the desired log source as suggested.
- If more multiple log sources are created and the "Event ID", "Event Category" and "Event Mapping" are created, make sure all of them are created in same specific order. Suppose, if the user has 3 log sources - "QualysMultiline"(default), "QualysTokyo" and "QualysBerlin", then while creating the event id and event category, order should be similar in both.
  If the order of creating "Event ID" and "Event Category" with respect to the desired log sources mismatches, then the order in "QualysLEEFCustom_ext" may get affected and hence events parsing may get failed. Also, the events may get addressed as "Unknown" and not sent to the selected log source.

DSM editor doesn't show Tags or DNS properties and you can't add them

After installation of Qualys App, if DSM editor does not show TAGS and DNS properties, you can try adding them manually. If you are unable to add them manually, please follow these steps:

1) Check if "QualysMultiline" Log Source has correct Log Source Type. If it is not correct, delete the log source.
2) From DSM editor, delete the "Qualys LEEF" entry and create a new one. Add appropriate event mappings as mentioned in the Check Log Source Event Mapping section of this document.
3) Create a new Log Source using newly created "Qualys LEEF" as Log Source Type.
4) Complete Deploy Full Configurations step.
5) Go through the Check Custom Event Properties section of this document to make sure event mappings are all correct.

If you need to delete and recreate Log Source Type "Qualys LEEF"

Add the following custom event properties to newly created Log Source Type. For each property in the table below, Type should be "Regex".

Property Name	Log Source Type	Log Source	Event Name	Expression
App Version	Qualys LEEF	All	QualysMultiline Information	app_version=([^\t]+)
CVE	Qualys LEEF	All	QualysMultiline Information	cves=([^\t]+)
DNS	Qualys LEEF	All	QualysMultiline Information	dns=([^\t]+)
Detection Type	Qualys LEEF	All	QualysMultiline Information	detection_type=([^\t]+)
First Found Datetime	Qualys LEEF	All	QualysMultiline Information	first_found_datetime=([^\t]+)
Host IP	Qualys LEEF	All	QualysMultiline Information	ip=([^\t]+)

Property Name	Log Source Type	Log Source	Event Name	Expression
Last Fixed Datetime	Qualys LEEF	All	QualysMultiline Information	last_fixed_datetime=([^\t]+)
Last Found Datetime	Qualys LEEF	All	QualysMultiline Information	last_found_datetime=([^\t]+)
Last Scan Datetime	Qualys LEEF	All	QualysMultiline Information	last_scan_datetime=([^\t]+)
App ID	Qualys LEEF	All	QualysMultiline Information	app_id=([^\t]+)
Last Test Datetime	Qualys LEEF	All	QualysMultiline Information	last_test_datetime=([^\t]+)
Last Update Datetime	Qualys LEEF	All	QualysMultiline Information	last_update_datetime=([^\t]+)
Network ID	Qualys LEEF	All	QualysMultiline Information	network_id=([^\t]+)
Operating System	Qualys LEEF	All	QualysMultiline Information	os=([^\t]+)
PCI Flag	Qualys LEEF	All	QualysMultiline Information	pci_flag=([^\t]+)
Patchable	Qualys LEEF	All	QualysMultiline Information	patchable=([^\t]+)
QID Category	Qualys LEEF	All	QualysMultiline Information	category=([^\t]+)
QID Title	Qualys LEEF	All	QualysMultiline Information	title=([^\t]+)
Qualys Host Id	Qualys LEEF	All	QualysMultiline Information	host_id=([^\t]+)
Qualys QID	Qualys LEEF	All	QualysMultiline Information	qid=([^\t]+)
Qualys Severity	Qualys LEEF	All	QualysMultiline Information	severity=([^\t]+)
Severity Level	Qualys LEEF	All	QualysMultiline Information	severity_level=([^\t]+)
Status	Qualys LEEF	All	QualysMultiline Information	status=([^\t]+)
Tags	Qualys LEEF	All	QualysMultiline Information	tags=([^\t]+)
Tracking Method	Qualys LEEF	All	QualysMultiline Information	tracking_method=([^\t]+)

Helpful AQLs to check VM Detection Logs and Events

Use the following AQLs to check VM detection data and perform troubleshooting.

To check the logs

You can download app logs from Qualys App container. Go to **Advanced** tab and click **Download** button next to Download Application Logs. You can also see ETL logs in ETL folder from the downloaded zip file.

Get the PID (process id) of either etl_host_detection or etl_knowledgebase using the below command inside the container:

```
cat app/host_detection.pid
cat app/etl_knowledgebase.pid
```

On the Log Activity search following queries under Advance Search. It will show you the log for the particular PID (*replace the <PID> with the appropriate process id*):

```
SELECT UTF8(payload) as utf8_payload from events where utf8_payload ILIKE
'%PID=<PID>%' ORDER BY utf8_payload ASC

SELECT UTF8(payload) as utf8_payload from events where utf8_payload ILIKE
'%Qualys:HostDetection%' ORDER BY utf8_payload ASC

SELECT UTF8(payload) as utf8_payload from events where utf8_payload ILIKE
'%Qualys:Knowledgebase%' ORDER BY utf8_payload ASC

SELECT UTF8(payload) as utf8_payload from events where utf8_payload ILIKE
'%detections =%' ORDER BY utf8_payload ASC

SELECT UTF8(payload) as utf8_payload from events where
LOGSOURCENAME(logsourceid) = 'Qualys' OR LOGSOURCENAME(logsourceid) =
'QualysMultiline'
```

To check the event data payload

```
SELECT LOGSOURCENAME(logsourceid) as logsourceids, UTF8(payload) as
utf8_payload from events where LOGSOURCENAME(logsourceid) = 'Qualys' OR
LOGSOURCENAME(logsourceid) = 'QualysMultiline'

SELECT "Qualys Host Id", "Operating System", "Last Scan Datetime", "Tracking
Method", "Qualys QID", "Qualys Severity", "Detection Type", "Status" from
events where LOGSOURCENAME(logsourceid) = 'Qualys' OR
LOGSOURCENAME(logsourceid) = 'QualysMultiline'
```

Known Issues

1. Reports and search table rendering happens after all the records for search results are fetched. Sometime is observed that reports rendering breaks for huge data while processing and loading data table.
2. For Active Host widgets on Summary dashboard, the aggregate AQL returns maximum 1000001 hosts.

Previous Releases

Following were the updates from previous releases:

1.1.4

- Improved fetching search results to have it incremental for Reports and Search
- We have improved loading of the knowledgebase data table
- You'll be able to provide QRadar authentication token for better security while interacting with QRadar
- You'll see query progress percentage on dashboard widget, reports, and search
- Only potential and confirmed vulnerabilities will be fetched by default. If user need Information Gathered vulnerabilities, that can be configured from Settings page
- We have fixed widget reloading issue and now loading speed of Summary dashboard AQLs for rendering widgets is improved
- You'll be able to download logs from Qualys App Settings page

1.1.2

- If the KB file is not updated, then NA will be provided for the QIDs in the host information.
- Updated the configuration missing warning on Qualys App dashboard. If any data pull is not enabled, then it will show data pull specific warning.
- Updated the reports and search data tables to show the row details. The outer row will show important information and the inner rows will show associated rows.
- jQuery updated to 3.5.1 version.
- Using ([^\t]+) in all the custom event properties regex.
- If the data feed is running for HD or KB it will update the setting page tabs accordingly with the process ID.
- Non-Admin users can access the Qualys app for QRadar.
- How to manage user roles?

1.1.1

- We have fixed an issue where 'Internal Server Error - 500' message was displayed on Settings page. This was occurring due to the App was not able to fetch DSM Port which is need for TCP Multiline Socket Connection.
- We have fixed and issue where '[Errno 111] Connection refused' message occurs if the DSM port is not listening and when the user tries to fetch Host Detection or Knowledgebase Data. For more details, refer Troubleshooting section.
- From Qualys App for QRadar version 1.1.1, API Password and Proxy Server Password is encrypted.
- From Qualys App for QRadar version 1.1.1, the proxy server password is masked while configuring proxy.
- While using the HTTPS in proxy URL, app uses ca-bundle.crt file. By default, IBM QRadar provides this file. If the user wants to use their CA certificate file, they should follow the steps given in the link: https://www.ibm.com/support/knowledgecenter/en/SS42VS_7.3.2/com.ibm.qradar.doc/t_qradar_adm_updates_proxy.html

Qualys Support

If you tried the troubleshooting steps but still need help, please contact Qualys Support at https://www.qualys.com/support/

Provide the following information to Qualys Support:

- Qualys App version number
- QRadar version number, including the patch number
- Steps to reproduce the issue
- Note any manual changes done to Qualys app's code
- Note any manual changes done to Qualys app's container
- Please download the logs from Admin > Qualys App Settings page and attach them to your support case.