IBM Security QRadar Incident Forensics
Version 7.2.6

Administration Guide

IBM

Product information

This document applies to IBM QRadar Security Intelligence Platform V7.2.6 and subsequent releases unless superseded by an updated version of this document.

Contents

Introduction to administrating IBM Security QRadar Incident Forensics

Information about administrating IBM® Security QRadar® Incident Forensics.

Intended audience

Administrators create, maintain, and operate an active forensics capability so that users, called investigators, can focus on investigating security incidents, or cases, and exploring data.

Technical documentation

To find IBM Security QRadar product documentation on the web, including all translated documentation, access the IBM Knowledge Center (http://www.ibm.com/support/knowledgecenter/SS42VS/welcome).

For information about how to access more technical documentation in the QRadar products library, see Accessing IBM Security Documentation Technical Note (www.ibm.com/support/docview.wss?rs=0&uid=swg21614644).

Contacting customer support

For information about contacting customer support, see the Support and Download Technical Note (http://www.ibm.com/support/docview.wss?uid=swg21616144).

Statement of good security practices

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Note

IBM Security QRadar Incident Forensics is designed to help companies improve their security environment and data. More specifically, IBM Security QRadar Incident Forensics is designed to help companies investigate and better understand what happened in network security incidents. The tool allows companies to index and search captured network packet data (PCAPs) and includes a feature that can reconstruct such data back into its original form. This reconstruction feature can reconstruct data and files, including email messages, file and picture attachments, VoIP phone calls and websites. Additional information regarding the Program's features and functions and how they may be configured are contained within the manuals and other documentation accompanying the Program. Use of this Program may implicate various laws or regulations. including those related to privacy, data protection, employment, and electronic communications and storage. IBM Security QRadar Incident Forensics may be used only for lawful purposes and in a lawful manner. Customer agrees to use this Program pursuant to, and assumes all responsibility for complying with, applicable laws, regulations and policies. Licensee represents that it will obtain or has obtained any consents, permissions, or licenses required to enable its lawful use of IBM Security QRadar Incident Forensics.

Chapter 1. What's new for administrators in QRadar Incident Forensics V7.2.6

IBM Security QRadar Incident Forensics V7.2.6 introduces new inspectors that identify more protocols, web domains, and file types. Administrators can also audit user and system usage.

QRadar Incident Forensics can process more protocols, web domains, and file types

More inspectors, which can identify multiple protocols, web domains, and file types in packet capture (PCAP) files and uploaded documents, are now supported

SPDY An open networking protocol that is used to transport web content that was developed to reduce the time that it takes to load web pages and to improve web security.

Samba (SMB)
Server Message Block (SMB) is a protocol for sharing files, printers, serial ports, and communications, such as named pipes and mail slots between computers. Version 1 is supported.

Web app classification (WAC)
QRadar Incident Forensics inspects a URL and can identify the type of web application and operation. It then uses this information to classify the traffic into classes, based on the web app and operation.

QFlow application detection
QFlow application detection is used when no other inspectors can detect an application, session, or protocol. The QFlow application detection inspects the first 64 bytes of a packet for a signature and attempts to identify the application from the signature and port.

Learn more...

Audit logs to track and record user and application activity

Audit logs provide visibility into what security analysts are doing, including what actions they are taking, the data that they are accessing and the information that they are viewing. The documentary evidence records the sequence of activities that took place in an investigation.

The following activities generate audit log events:
- Create case
- Assign Case
- Delete case
- Delete collection
- All user queries
- Document view
- Export document

Learn more...

Chapter 2. Administration workflow and user access to forensics capabilities

After IBM Security QRadar Incident Forensics is installed and configured, an administrator can troubleshoot, maintain, and monitor the system and its operations and manage user access to cases.

You must have administrative privileges to see the administration tools for QRadar Incident Forensics.

Example: Administration workflow

The following diagram shows a sample workflow for QRadar Incident Forensics administration.

1. Use Server Management to filter web categories and traffic that you, do not want monitor.
2. Use Forensics User Permissions to assign cases to investigators.
3. Use Case Management to create and delete cases and import external content into the system.
4. Use Scheduled Actions to schedule maintenance, such as deleting old documents, tuning the database, and resetting the QRadar Incident Forensics server.

User roles

To add user accounts, you must first create security profiles to meet the specific access requirements of your users. For more information about configuring security profiles, see the *IBM Security QRadar SIEM Administration Guide*.

In the User Roles tool on the **Admin** tab of QRadar, you can assign the following user roles:

Admin
> Users can view and access all cases that are assigned to users and all incidents and are automatically given full access QRadar Incident Forensics.

Forensics
> Users can see and access to the **Forensics** tab, but cannot create cases.

Create cases in Incident Forensics
> Users can automatically create forensics cases.

Chapter 3. Server management

Administrators can troubleshoot, maintain, and monitor the IBM Security QRadar Incident Forensics system and its operations.

To monitor or change server settings or to view the users that are logged in to the system, open the Server Management tool:

1. Log on to QRadar as an administrator.
2. Click the **Admin** tab.
3. From the **Forensics** section in the main pane, click **Server Management**.

Server configuration settings

Use server settings in the IBM Security QRadar Incident Forensics Server Management tool to configure system settings that affect all the managed hosts. After you change a setting, you must deploy your changes by using **Deploy Changes** menu on the **Admin** tab.

Clear Search History on Logout
Search history is cleared when users log out. The cleared search applies to the query history list in the Query Helper and the last user in the **Search Criteria Input** field on the Search and Results page.

Default Number of Nodes to Visualize
The maximum number of nodes that the Visualize tool shows. You can configure the number of nodes to render after the nodes are rendered for the first time. Adjusting the rendered node count affects only that instance of the Visualize tool.

Protocol and domain inspector filters

You can exclude certain types of traffic from investigations by deactivating protocol or domain inspectors in the Server Management tool. Use the **Inspector Filter** option.

Protocol and domain inspectors process ingested network traffic data and attempt to identify and index the data in a meaningful way. Identifying and indexing that data provides investigators with more control to find the information.

As network traffic data is ingested and protocols are identified, the data is further inspected by the appropriate protocol inspector. Network traffic data that is identified by the HTTP protocol inspector is inspected and indexed further by domain inspectors.

Protocol Inspectors
Protocol inspectors can identify protocol such as HTTP, POP3, FTP, and telnet. You can exclude protocol inspectors. When the inspectors are excluded, any network traffic data that is associated with the inspector is still ingested, but the traffic is identified and indexed only on a generic level.

Domain Inspectors
Domain inspectors inspect specific websites. You can exclude domain inspectors. When you exclude domain inspectors, any HTTP network

traffic data is associated with the inspector is still ingested, but the traffic is identified and indexed only at the HTTP level. For domain inspectors to be active, the HTTP protocol inspector must also be active.

By default, all filters are turned on and you can see traffic from all protocols. The only exception is SIP (Session Initiation Protocol) traffic. This call setup protocol, which operates at the application layer, is turned off by default.

Remember: When you change the configuration of inspector filters, the new configuration is applied to every new case that is created. The inspectors that are turned on influence the documents that are created for a case and investigators lose the capability of searching for certain inspectors. Users don't know what inspectors are applied to a case.

Any protocol that is not processed by an inspector is categorized as unknown.

Web category filter

You can choose the types of web pages and web servers that are recognized by using web category filters.

For example, you can exclude specific types of HTTP network traffic from investigations. When HTTP network traffic data is ingested, the data is categorized and the resulting documents are grouped.

Administrators can filter HTTP network traffic data to prevent the data from being ingested.

To exclude, or filter traffic, for a category or group, turn off the category or group in the Server Management tool.

Web categorizing, grouping, and filtering affect HTTP network traffic data while it is being ingested and has no effect on data that is already in the system.

When a group filter is set to exclude data, HTTP network traffic data that is associated with categories in that group is filtered out during consumption, regardless of the associated category filters settings.

Example: What happens when you use a web category filter to exclude traffic?

You decide to exclude traffic that contains data from news or magazine sites.
1. On the **Admin** tab in QRadar, you click **Server Management**.
2. You click **Web Category Filter** and click **Off** beside the **News / Magazines** filter.
3. You click the **Webmail / Unified Messaging** filter and click **On**.

Now, when a user investigates ingested traffic on the **Forensics** tab, they see that traffic that contains both **News / Magazines** data and **Webmail / Unified Messaging** is not ingested even though the **Webmail / Unified Messaging** filter is on.

Supported protocols and document types

IBM Security QRadar Incident Forensics captures the content in network flow packets and indexes and processes the payload and the metadata.

The following list describes the supported protocols that QRadar Incident Forensics can process:
- AIM
- DHCP
- DNS
- Exchange
- FTP
- HTTP
- IMAP
- IRC
- Jabber
- Myspace
- NFS
- SIP
- NetBIOS
- Oracle
- POP3
- SMB (Version 1)
  - Lanman 2.1
  - NT 0.12
- SMTP
- SPDY
- TLS (SSL)
- SSH
- Telnet
- Yahoo Messenger
- MySQL

The following list describes the support domains (websites) and the supported languages for the domain that QRadar Incident Forensics can process:
- AOL (Accessible, Basic, Standard) (EN)
- Charter (EN)
- Facebook (Mobile, Desktop) (AR,CN,DE,EN,ES,FR,RU)
- Gmail (Classic, Standard) (AR,CN,DE,EN,ES,FR,RU)
- Hotmail (AR,CN,DE,EN,ES,FR,RU)
- LinkedIn (DE,EN,ES,FR,RU)
- MailCom (CN,EN,ES,FR,RU)
- MailRu (RU)
- Maktoob (AR,EN)
- Myspace (EN)
- QQMail (EN,CN)
- Twitter (EN)

- YAHOO Mail (Standard, Classic) (EN)
- YAHOO Note (EN)
- YouTube (AR,CN,DE,EN,ES,FR,RU)
- Comcast (Zimbra) (EN)

The following list describes the supported document formats that QRadar Incident Forensics can process:
- HyperText Markup Language
- XML and derived formats
- Microsoft Office document formats
- OpenDocument Format
- Portable Document Format
- Electronic Publication Format
- Rich Text Format
- Compression and packaging formats
- Text formats
- Audio formats
- Image formats
- Video formats
- Java™ class files and archives
- mbox format

QFlow application detection

QFlow application detection is used when no other inspectors can detect an application, session, or protocol. The QFlow application detection inspects the first 64 bytes of a packet for a signature and attempts to identify the application from the signature and port. Some examples of applications, sessions, or protocols that the QFlow application detection might be able to identify includes, but is not limited to, the following items.
- BitTorrent
- Blubster
- CitrixICA
- Google Talk
- Gnucleuslan
- Gnutella
- GSS-SPNEGO
- NTLMMSSP
- OpenNap
- PeerEnabler
- Piolet
- UpdateDaemon
- VNC

Chapter 4. Case management

As an administrator, you can manage cases and collections by using Case Management. You can create cases for collections of documents or packet capture (pcap) files and can also import external files in to the IBM Security QRadar Incident Forensics system.

Tuning case management

To help you tune case management, you can use the **Flush** option. For *streaming pcap* data, which is a series of pcap files that are logically related to form one large pcap file, you can force buffered data to be written to disk. The **Flush** option forces the QRadar Incident Forensics hosts to write unterminated flows to disk, which in turn helps searching in these flows at an earlier stage.

Distribution graphs

If you plan to delete a case, you can visually use the graphs to quickly review the content of the case. You can review the type of files, the protocols, and the domains that are in the case.

Uploading pcap files to managed hosts

You can manually upload pcap data from external sources. You can specify which QRadar Incident Forensics managed host to upload the data to for processing. For example, if you have three managed hosts and three pcap files, you can upload each one to a different managed host. For larger pcap files, use FTP.

Creating cases

Cases are logical containers for your collection of imported document and pcap files. You can use a single case for all pcap files or create multiple cases. Cases can be restricted to specific users.

Procedure

1. On the **Admin** tab, select **Case Management**.
2. Click **Add New**.
3. In the **Case Name** field, type a unique name.

   Restriction: Case names cannot contain spaces.
4. Click **Save**.

Results

A new directory that is based on the case name is created: `/case_input/<case_name>`. This directory is used to import your pcap files.

Uploading files to cases

As an administrator, you can upload external packet capture (pcap) files and documents, such as spreadsheets, text files, and image files, to IBM Security QRadar Incident Forensics Case Management.

The following file types are supported:
- HyperText Markup Language
- XML and derived formats
- Microsoft Office document formats
- OpenDocument Format
- Portable Document Format
- Electronic Publication Format
- Rich Text Format
- Compression and packaging formats
- Text formats
- Audio formats
- Image formats
- Video formats
- Java class files and archives
- The mbox format

Case Management restricts both the number of files that you can add to a case and the maximum file size.

Procedure

1. On the **Admin** tab, in the **Forensics** section, click **Case Management**.
2. Select a case.
   - To add external files to an existing case, select the case from the **Cases** list.
   - To add files to a new case, click **Add New**.

     Restriction: Case names cannot contain spaces.
3. From the **Upload to Host** list, select the managed host that you want to process the files.
4. To add pcap files or other document types, choose one of the following methods:
   - Click **Add pcaps**, select the files, and click **Start upload**.
   - Drag the files to the upload box.

   After the upload is complete, the files are listed in the **Collections** list.

Chapter 5. Assigning cases to users

As an administrator, you grant access to forensics data to users, assign cases to users, and configure user permissions such as FTP access. Users cannot see data until they are assigned a case and they can see only the data from the cases to which they are assigned.

Be careful when you assign cases to non-admin users who have restricted access to networks. They can see documents that are from the IP addresses that they don't normally have access to. For example, if you assign a non-admin user a case that contains financial or human resources information, they can see the data when they investigate the case.

About this task

Administrators can do the following tasks:
- Assign multiple users to a case.
- Remove a case from a user.
- View and access all cases that are assigned to a user.

Users can see only the cases that are explicitly assigned to them.

Procedure

1. On the **Admin** tab, click **Forensics User Permissions**.
2. From the **Users** list, select a user.
3. From the list of cases in the **Available** list, select one or more cases and click the arrow (>) to move the cases to the **Assigned** list.

   Tip: By default, a user with administrative privileges is assigned to all cases. The left arrow (<) and right (>) arrow are not displayed.

Manually importing files to a forensics case

Unlike the Case Management tool, there are no restrictions on the file size or the number of files when you manually import files. You can manually create a case and copy files to it or manually copy files to an existing case.

For example, you can use the **scp** command to securely copy files from another host to the `/opt/ibm/forensics/case_input/case_input/` directory on the IBM Security QRadar Incident Forensics host.

Before you begin

Make a back-up copy of the imported files. After the file is imported and processed, the original file is deleted.

Procedure

1. Use SSH to log in to QRadar Incident Forensics as a root user.
2. To create a new case, go to the `/opt/ibm/forensics/case_input` and type the following command:

```
mkdir /opt/ibm/forensics/case_input/<case_name>
```

3. To copy files to a case, use a file the **scp** command or another file transfer program to copy the files to the directory that corresponds to the file type.

   The following table lists the directory structure for the imported files.

Table 1. Directory structure of case files

Directory	Description
/opt/ibm/forensics/case_input/ *<case_name>*	The directory that is used to import a series or connected stream of pcap files.
/opt/ibm/forensics/case_input/ *<case_name>*/singles	The directory that is used to import individual pcap files.
/opt/ibm/forensics/case_input/ case_input/*<case_name>*/import	The directory that is used to import a single file of a type other than pcap, for example, Microsoft Word documents, Adobe Acrobat PDFs, text files, and images.

> **Important:** If a hyphen is used in a file name, it is changed to an underscore when the file is imported.

Results

After a successful import, your file name automatically appears in the Collections window of the case that you created.

Enabling users to FTP pcap files and documents from external systems to forensics cases

To upload external data to include in specific cases, administrators can grant secure FTP permissions to users and manage the case to which the data is associated. Users can choose which IBM Security QRadar Incident Forensics host processes the FTP request.

To change a password after FTP access is enabled, you must disable FTP access and save the user, and then re-enable FTP access, and enter the new password.

Before you begin

Ensure that you create or assign roles for forensics investigators in the User Roles tool on the **Admin** tab.

By default, the /etc/vsftpd/vsftpd.conf file is configured so that five ports are open: 55100-55104. You can change the port range by editing the /etc/vsftpd/vsftpd.conf file and changing the values of the pasv_min_port and pasv_max_port settings to the range of ports that you want. You must deploy your configuration changes by clicking **Deploy Changes** on the **Admin** tab.

About this task

IBM Security QRadar Incident Forensics can import data from any accessible directory that is on the network. The data can be in a number of formats, including but not limited to the following formats:

- Standard PCAP format files from external sources

- Documents such as text files, PDF files, spreadsheets, and presentations
- Image files
- Streaming data from applications
- Streaming data from external PCAP sources

Users can upload multiple files to a case and an administrator can grant multiple users access to the case.

Restriction: The case name must be unique. A single user is associated with a case, therefore two users cannot create a case that has the same name.

Procedure

1. On the **Admin**, click **Forensics User Permissions**.
2. From the **Users** list, select a user.
3. In the **Edit User** pane, select the **Enable FTP access** check box.
4. Enter and confirm the FTP password for the user.
5. To save changes to the permissions, click **Save User**.
6. In the FTP client, do the following steps:
   a. Ensure that Transport Layer Security (TLS) is selected as the protocol.
   b. Add the IP address of the QRadar Incident Forensics host.
   c. Create a logon that uses the QRadar Incident Forensics user name and password that was created.
7. Connect to the QRadar Incident Forensics server and create a new directory.
8. To FTP and store pcap files, under the directory that you created for the case, create a directory that is named `singles` and drag the pcap files to that directory.
9. To FTP and store other files types that are not pcap files, under the directory that you created for the case, create a directory that is named `import` and drag the files to that directory.
10. To restart the FTP server, type the following command:

    `etc/init.d/vsftpd restart`
11. To restart the server that moves the files from the upload area to the QRadar Incident Forensics directory, type the following command:

    `/etc/init.d/ftpmonitor restart`

Results

An administrator sees the data that is uploaded in Case Management. A user can see their case in one of the tools on the **Forensics** tab.

Decrypting SSL and TLS traffic in QRadar Incident Forensics

To find hidden threats, IBM Security QRadar Incident Forensics can decrypt SSL traffic. If you provide the server's private key and IP address or a browser session key and some other session information, the protocol inspector can decrypt SSL traffic.

If the session key is generated from external sites or generated by another browser, the protocol inspector cannot decrypt SSL traffic from a browser session.

Restriction: The `Diffie Hellman` key exchange mechanism is not supported when encrypted traffic is decrypted through a private key. When you use a private key, other key exchange methods, such as RSA, are supported.

The `Diffie Hellman` restriction does not apply when traffic is decrypted with information that is found in a keylog.

About this task

Decryption is supported for the following protocols:
- SSL v3
- TLS v1.0
- TLS v1.1
- TLS v1.2

Key log files are generated by Chrome, Firefox, and Opera browsers with the SSLKEYLOGFILE environment variable. The following key formats are supported for the SSLKEYLOGFILE session key:
- RSA
- DH

Procedure

1. Use SSH to log in to the QRadar Incident Forensics host as the root user.
2. Review the location of the keys in the `/opt/qradar/conf/forensics_config.xml` file.

   ```
   <keybag
   keydir="/opt/ibm/forensics/decapper/keys"
   keylogs="/opt/ibm/forensics/decapper/keylogs"/>
   ```
3. Copy the keys into the directory that is specified in the `/opt/qradar/conf/forensics_config.xml` file.

   a. For private keys, copy the key into the `/opt/ibm/forensics/decapper/keys` directory.

   b. Modify `/opt/ibm/forensics/decapper/keys/key_config.xml` to specify your key file and the IP, the IP range, or both that it applies to.

      Example:
      ```
      <keys>
       <key file=" /opt/ibm/forensics/decapper/keys/key_name">
          <address> 1.2.3.4</address>
          <range> 1.2.3.0-1.2.3.255</range>
        </key></keys>
      ```
   c. For key log files that are generated by the browser, copy the key log files in to the `/opt/ibm/forensics/decapper/keylogs/default` directory.

   If you change the subdirectories in either the `/opt/ibm/forensics/decapper/keys` or `/opt/ibm/forensics/decapper/keylogs` directories, you must restart the decapper service.

   To restart the decapper service, type the following command: `service decapper restart`

Chapter 6. Scheduled actions in QRadar Incident Forensics

You can schedule maintenance, such as deleting old documents, tuning the database, and resetting the IBM Security QRadar Incident Forensics server.

If there are many documents, scheduled actions, such as deleting old documents, might take a long time to complete. If you want to delete an entire case, use the Case Management tool.

Deleting documents

Administrators can delete outdated documents that are based on the document network time stamps.

You can delete documents, which include pcap and other file types, from a case or the server. Deleting outdated documents helps maintain speed when you search documents.

Flush case

To help you tune case management, you can use the **Flush Case** option. For *streaming pcap* data, which is a series of pcap files that are logically related to form one large pcap file, you can force buffered data to be written to disk. The **Flush Case** option forces the QRadar Incident Forensics hosts to write unterminated flows to disk, which in turn helps searching in these flows at an earlier stage.

Optimizing the database

Administrators can optimize the database to reorganize the search engine index into segments and remove deleted documents.

The **Optimize Database** scheduled action is similar to a `defrag` command.

When you optimize the database, a new index builds. After the index is built, the new index replaces the old index. Because two indexes exist until the old index is replaced, the optimize index command requires double the amount of hard disk space.

Before you optimize your database, you must ensure that the size of your index does not exceed 50 percent of the available space on your hard disk.

Scheduling actions for QRadar Incident Forensics hosts

You can schedule maintenance tasks on the IBM Security QRadar Incident Forensics hosts.

You can schedule these tasks:
- Build a new index for the currently available cases.
- Remove (*age out*) documents that you don't want to retain after a specified time period.
- Force data to be written to disk.

Procedure

1. On the **Admin** tab, in the **Forensics** section, click **Schedule Actions**.
2. Click **Add New Action**.
3. From the **Select Action** list, select an action and specify the settings.
   - To build a new index for current cases, select **Optimize Index**.

     The new index requires about twice as much space as the existing index. Ensure that you have adequate space.
   - To delete documents that have a network time stamp older than a specified age, select **Age Out Documents**.

     Indexes are also removed when you delete the documents.
   - To write unterminated flows to disk, select **Flush Case**.
4. Click **Save**.
5. To run, edit, or delete the action, select the action for the **Actions** list and click **run**, **edit**, or **delete**.

Chapter 7. Auditing user and system usage in QRadar Incident Forensics

Audit logs are chronological records that identify user accounts that are associated with data access. These logs can detect unusual or unauthorized access can and can identify problems such as failed jobs.

The following activities generate audit log events:

- Create case
- Assign Case
- Delete case
- Delete collection
- All user queries
- Document view
- Export document

Restriction: Logging create collection events is not supported.

Procedure

1. Use SSH to log on to the QRadar Console or QRadar Incident Forensics Standalone as an administrator.
2. Go to the `/var/log/audit` directory.
3. Open the `audit.log` file in an editor, such as vi, to review the contents or use the **grep** command to look for a specific entry.

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