McAfee™

Together is power.

McAfee Enterprise Security Manager 11.2.x Product Guide

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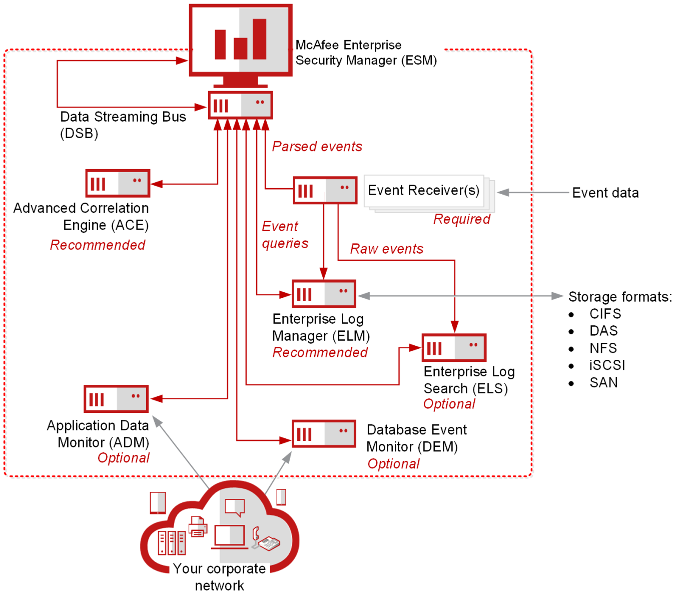
Product overview

Overview

As the foundation of the McAfee Security Information Event Management (SIEM) solution, McAfee® Enterprise Security Manager (McAfee ESM) gives you real-time visibility to all activity on your systems, networks, database, and applications.

Add McAfee devices to increase the power of McAfee ESM:

- McAfee® Event Receiver — Collects, parses, and normalizes large amounts of raw security data (required).
- McAfee Data Streaming Bus — Facilitates device interconnection and provides a streaming data platform for external integrations (required for distributed McAfee ESM and data sharing with 3rd-party applications).
- McAfee® Enterprise Log Manager — Stores raw logs for compliance purposes (recommended).
- McAfee Enterprise Log Search — Searches raw logs quickly for forensic purposes (optional).
- McAfee® Advanced Correlation Engine (McAfee® ACE) — Correlates parsed data to identify trends and suspicious activity (recommended).
- McAfee® Application Data Monitor — Monitors unencrypted Layer 7 session data to identify suspicious activity at the application and protocol level (optional).
- McAfee® Database Event Monitor — Monitors and tracks database transactions to identify suspicious activity happening in the database communication on the network (optional).



Key features

McAfee ESM delivers performance, actionable intelligence, and solution integration at the speed and scale required for security organizations. You can quickly prioritize, investigate, and respond to hidden threats and meet compliance requirements.

Key McAfee ESM features include:

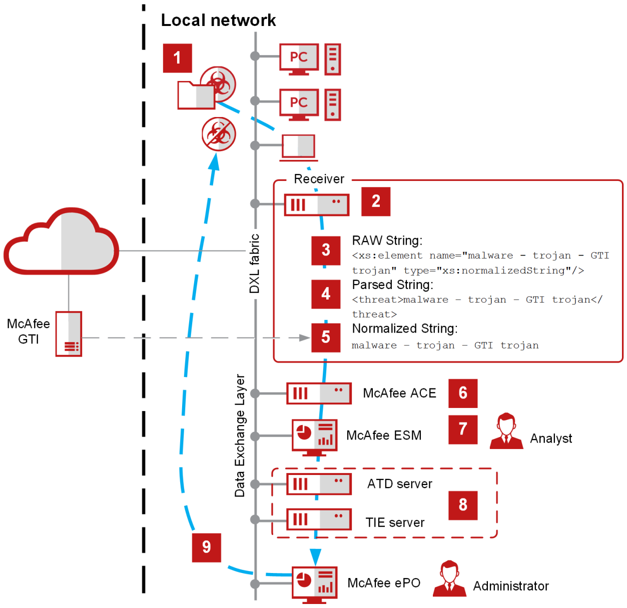
- Analyst-centric dashboards, reports, reviews, rules, and alerts
- Prepackaged configurations (called *content packs*) for common security use cases, such as alarms, views, reports, variables, and watchlists
- Predefined dashboards, audit trails, and reports for global regulations and control frameworks
- Customizable compliance reports, rules, and dashboards.
- Ability to enrich events with contextual information (such as privacy solutions; threat data and reputation feeds; and identity and access management systems)
- Near real-time or historical aggregation and correlation of suspicious or confirmed threat information against event data
- Ability to collect data from third-party security vendor devices and threat intelligence feeds
- Rapid access to long-term storage of event data
- Scalable data architecture that collects and correlates log events from multiple years
- On-demand queries, forensics, rules validation, and compliance

How it works

Evolving security challenges require open, collaborative approaches to detect threats, reduce risk, and ensure compliance. McAfee® Enterprise Security Manager (McAfee ESM) integrates with other McAfee products to resolve threats quickly without overloading resources.

What is the McAfee ESM workflow?

1. Threat enters your organization.
2. The McAfee® Event Receiver collects data and events from security devices, databases, networks, systems, and applications.
3. The McAfee Event Receiver collects raw data.
4. The McAfee Event Receiver parses (or extracts) data into parts and relationships based on your specific syntax rules.
5. The McAfee Event Receiver normalizes (or aligns) collected values to one common scale and uses to identify known threats.
6. The McAfee® Advanced Correlation Engine (McAfee® ACE) correlates (or identifies) patterns in the information to identify potential security threats.
7. Analyst monitors and identifies threats using dashboard, alarms, watchlists, incidents, and reports.
8. Analyst identifies threat using Data Exchange Layer (DXL), McAfee Advanced Threat Defense, and McAfee® Threat Intelligence Exchange (TIE).
9. Analyst uses McAfee ePolicy Orchestrator to respond to threat immediately and automatically.



What to do first

Identify initial settings

The first time you log on to McAfee ESM, you can identify initial settings that affect how McAfee ESM works for you and your organization (such as whether to enable FIPS mode).

Task

1. Open a web browser on your client computer and go to the IP address that you set when you configured the network interface.
2. Type the default user name and password, then select the system language.
   - Default user name: NGCP
   - Default password: security.4u
3. Click Log on and read the End User License Agreement. Then click Accept.
4. Change your user name and password, then click OK.
   Note: When using IPMI, do not use these special characters in your password: `~!@#$%^&*()[]\{}|;':"<>
5. Select whether to enable FIPS mode.
   Important: Enable FIPS mode ONLY when required because once enabled, you CANNOT undo it.

   If FIPS mode is required, enable it the first time you log on to the system so that future operations with McAfee devices are in FIPS mode.
6. Follow the instructions to get your user name and password, which are needed for access to rule updates.
7. Perform initial McAfee ESM configuration:
   a. Select the language to be used for system logs.
   b. Select the time zone where this is and the date format to be used with this account, then click Next.
   c. Define the settings using the ESM Configuration wizard pages.
8. Click OK.
9. When you complete your work session, log off using one of these methods:
   - If no pages are open, click Sign out from the drop-down list in the top-right corner of the page.
   - If pages are open, close the browser.

Check for rule updates

McAfee continuously updates policy, parser, and rule updates used to examine network traffic. You can download rule updates automatically or manually from the McAfee server.

Before you begin

Within 30 days of access, request permanent credentials for rule updates.

To request credentials, email your grant ID, account name, and contact information to Licensing@McAfee.com.

Task

1. Validate your permanent credentials.
   a. From the dashboard, click ≡ then select System Properties | System Information | Rules Update
   b. Click **Credentials**, then type the customer ID and password.
   c. Click Validate.
2. Check for rule updates:
   - **Auto check interval** to set up the system to check for updates automatically with the frequency you select.
   - Check Now to check for updates now.
   - Manual Update to update the rules from a local file.

Personalize your McAfee ESM

Specify how you want to interact with McAfee ESM so you see only what you want to see.

Before you begin

Make sure that a custom display type has been created.

Task

1. From the dashboard, click ≡ and select System Properties → Custom Settings.
   - To add custom text (such as company security policies) to your logon screen, enter text in the box at the top of the page and select the Include text on login screen checkbox.
     Note: Selecting a custom logo has no effect.
   - Select whether to refresh the System Tree automatically (every five minutes) and whether to refresh the System Tree on update.
   - To change URL links for any system devices, click Device Links.
   - To configure Remedy email server settings, click Remedy.
   - To set the starting month for quarterly reports and views, select the month from the drop-down list.
2. From the dashboard, click ≡ and select System Properties | ESM Management. Click System Locale and specify the language for event logs, such as the health monitor log and device log.
3. On the McAfee ESM console, click Options → Views. Change the default view to any predefined or custom McAfee ESM view.
4. From the dashboard, click ≡ and select System Properties | Login Security. Define how long current McAfee ESM sessions remain open without activity. In UI Timeout Value, select the number of minutes that must pass without activity, then click OK.
   Note: If you select zero (0), the console stays open indefinitely.
5. Define how to organize devices on your system navigation tree by using custom display types.
   a. From the McAfee ESM dashboard, click ≡ and select Configuration.
   b. On the system navigation pane, select settings for the custom display type you want to use.
   c. If you want to organize custom types into groups, you can add a group and then drag-and-drop devices on the display into that group.
      Note: If the device is part of a display tree, the system creates a duplicate device node. You can then delete the duplicate on the System Tree.
   d. If you delete an existing group (by clicking 🗀), the system deletes the group and devices from the custom display but not from the system.
6. To hide alarm and system notification pop-ups, click the user ID in the header then click Do not disturb mode.
   Pop-up notifications no longer appear. The item count in the alarms icon changes when alarms or notifications occur.

Apply predefined content packs

When a specific threat situation occurs, respond immediately by importing and installing relevant content packs, which contain use-case driven correlation rules, alarms, views, reports, variables, and watchlists to address specific threat activity. Save time by using content packs instead of developing tools in-house.

Before you begin

Verify that you have the following permissions:

- System Management
- User Administration

Caution: If you have customized content pack elements, the update process might overwrite the customized elements.

Task

1. Go to the McAfee Connect Catalog. Browse the available content packs and download the one you want.
2. From the McAfee ESM dashboard, click ≡ and select Configuration.
3. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
4. Click Content Packs.
5. Click Browse.
6. Browse the list and select the content pack you want.

Note: Clicking a name or description shows the details for that content pack. Clicking the checkbox selects the content pack for installation.

7. Click Install.
8. Complete any post-installation steps listed in the details of the content pack.

Evaluate First Look Beta features

Access new features before they are generally available, and help shape them by giving feedback on usability, by suggesting enhancements, and by identifying issues.

When you enable a First Look version of a previously released feature, the First Look version replaces the released version in the interface. You can toggle between the First Look and released versions of the feature.

Note: McAfee does not offer support for First Look features and can change or remove them without notice.

Task

1. Enable features.
    a. From the navigation menu ☰, click First Look Features.
    b. Click Setup.
    c. Click the on/off toggle for the features you want to enable.
2. Disable features.
    a. From the navigation menu ☰, click First Look Features.
    b. Click Setup.
    c. Click the on/off toggle for the features you want to disable.
3. Send feedback.

    Note: Sending feedback requires a configured email server (System Properties -> Email Settings).

    a. From the navigation menu ☰, click First Look Features.
    b. Click Setup.
    c. Click Send Feedback.
    d. Enter your email address and feedback. Your email might be used to follow up on the feedback or to request additional information.

Setting up secure users

How user security works

Add users and groups to McAfee ESM, its devices, its policies, and their associated permission.

When in FIPS mode, McAfee ESM includes User, Power User, Key & Certificate Admin, and Audit Admin. When not in FIPS mode, McAfee ESM includes System Administrator and General User.

McAfee ESM lists:

- Users — Names of users, the number of sessions that each user has open currently, and the groups to which they belong.
- Groups — Names of groups and the permission assigned to each group.

Note: Sort the tables by clicking Username, Sessions, or Group Name.

Group Permissions

When you set up groups, set permissions that apply to all members of the group.

If you Limit access of this group on the Privileges page of Add Group (System Properties → Add Group), access to these features is limited.

- **Actions toolbar** — Users can't access device management, multi-device management, or Event Streaming Viewer.
- Alarms — The users in the group have no access to alarm management recipients, files, or templates. They can't create, edit, remove, enable, or disable alarms.
- Asset Manager and Policy Editor — Users can't access these features.
- Case Management — Users can access all features except Organization.
- ELM — Users can perform enhanced McAfee Enterprise Log Manager searches but can't save them or access McAfee Enterprise Log Manager device properties.
- Filters — Users can't access String Normalization, Active Directory, Assets, Asset Groups, or Tags filter tabs.
- Reports — Users can only run a report that emails the output to them.
- System Properties — Users can access only Reports and Watchlists.
- Watchlists — Users can't add a dynamic watchlist.
- Zones — Users can view only zones they have access to in their list of zones.

Add users

Add users to the system so that they can access McAfee ESM, its devices, policies, and associated permission. Once added, you can edit or remove user settings.

Before you begin

Verify that you have the User Administration permission.

Task

1. On the system navigation tree, select System Properties → Users and Groups.
2. Enter your password, then click OK.
3. In the Users section, click Add.
4. Enter a user name. If you are using Common Access Card (CAC) credentials, enter the user's 10-digit EDI-PI as a user name.
5. *(Optional)* Enter an alias if you do not want the user name to be visible. If you are using CAC credentials, this can be the user name.
6. Enter a unique password for the account, and confirm it, then click OK.
7. *(FIPS mode only)* Select a role for this user; options include:
    - User — You cannot add users to a group with Power User permission.
    - Power User — These users are system administrators for all Unified Capabilities Approved Products List (UCAPL) purposes, but they might not have all system administration permissions.

      Note: Any users assigned to groups with the following permissions must have the Power User role (required).

      - System Management
      - User Administration
      - Policy Administration
      - Add/Delete Policies
      - Custom Rules and Variables

    - Global Blacklisting
    - Key & Certificate Admin — This role is required to perform any key management functions. A user with this role can't be added to a group with Power User permission.
    - Audit Admin — This role is required to configure the logs. A user with this role can't be added to a group with Power User permission.
8. (not in FIPS mode) Select if you want the user to have administrator permission. The system administrator can grant permission to general users by creating access groups and assigning users to these groups. The system administrator is the only user who has access to all areas of the system, including the users and groups area.
9. Disable users you want to block from accessing their McAfee ESM account.
10. Add the user's text message (SMS) address and email address (optional unless the user receives report or alarm notifications.
11. Identify groups in which the user is a member. The user inherits the group's permission.
12. Click OK, then type your password again.

Results

Icons indicate enabled users. indicates users with administrator permission.

Personalize user settings

Personalize the system for each user so that McAfee ESM reflects user-specific information, such as their time zone, date format, password, and default display.

Before you begin

- Verify that you have the **User Administration** permission.
- To set specific views for the user, verify that the view exists.

Task

1. On the dashboard, click the user ID drop-down then click ⚙ Options.
2. Select User Settings and select settings for the specific user:
    - Select the user's time zone and date format.
    - Change the user's password, following the criteria noted.
    - Select the default display to appear when the system opens.
    - Choose whether to show disabled data sources in the System Tree, the Alarms pane, and the Incidents pane.
3. Select Views and select default views for the specific user:
    - Choose to refresh views automatically and indicate how often to refresh the view.
      Note: Setting the minimum refresh time to less than 10 minutes for multiple users can impact McAfee ESM performance.
    - Select the default system view, Event Summarize view, and Flow Summarize view.

Limit user access

Use groups to limit user access to permissions. alarms, incident management, McAfee Enterprise Log Manager, reports, watchlists, asset management, policy editor, zones, system properties, filters, and the actions toolbar. All other features are disabled. You can also block (disable) or allow (enable) user access temporarily or permanently without deleting them as a McAfee ESM user.

Task

1. On the system navigation tree, select the system, then click the Properties icon ⚙.
2. Click Users and Groups, then type the system password.
3. Limit user access with groups.
    a. Add users to existing groups or create a group.
    b. Click Privileges, then select Limit access of this group.
       Most permissions are disabled.
    c. Specify the group's permissions.
    d. Click each tab and define the rest of the settings for the group.
4. Block (disable) or allow (enable) access for specific users.

a. On the system navigation tree, select System Properties → Users and Groups .
b. Highlight the specific user name and click Edit.
c. Select or deselect Disable account .

The icon next to the user name on Users and Groups reflects the status of the account.

Set up user credentials for McAfee ePO

Set up user credentials to limit access to a McAfee ePO device.

Before you begin

Verify that the McAfee ePO device is set up and does not require global user authentication.

Task

1. On the dashboard, click the user name, then click Options.
2. Select ePO Credentials.
3. View the McAfee ePO devices on McAfee ESM.
   - If the *Not Required* status appears, the device is set up for global user authentication.
   - If the *No Credentials* status appears, the device is set up to require individual user authentication.
   - To change the user authentication setting, go to the McAfee ePO device Properties, click Connect, and change the setting in the Require User Authentication field.
4. Select a device, then click Edit.
5. Type the user name and password, then test the connection.

Configure user groups

Group settings allow you to control user settings and access once for all users who are part of that group.

Before you begin

Verify that you have user administration permission.

Task

1. **Note:** User permissions take precedence over group permissions. For example, if a user has only Read access to resources, but their group has Modify access, the user can only Read selected items.
   On the system navigation tree, click System Properties → Users and Groups, then type your password.
2. Select group permissions. Only the item's creator can change permissions for read-only custom items.
   - (Views only) - Users in the group inherit settings from the parent folder (default).
   - (Reports and watchlists only) - Users in the group inherit change settings (default).
   - Indicate the group's access settings:Read only, Modify, or neither. If you don't select Read only or Modify, the group has deny rights. If you select Modify, the system selects Read only automatically.

     Note: A pseudo group called Default appears for master or administrative users. Groups created in the future get this privilege.
   - Indicate individual user access settings: Read only, Modify, or neither. If you don't select Read only or Modify, the user has deny rights. If you select Modify, the system selects Read only automatically.
     Important: User settings take precedence over group settings. For example, if a user has only Read access to resources, but their group has Modify access, the user can only Read selected items.
     - If a user is not on the group list, the system uses the group settings for that user.
     - If a user is on the group list but doesn't have Read or Modify checked, that user has explicit deny rights to that resource.
3. To the right of the Groups table, click Add.
   - Enter the group name and description.
   - Add users to the group.
   - Set the group's access permissions.
   - Apply IP address filters to the group to limit data users see when executing reports or selecting users as report or alarm recipients.
   - Select the event forwarding destinations this group can access. This option defines the devices a user can forward events from and the filters that specify the types of events that can be forwarded.

Note: If an event forwarding destination does not belong to an access group, it has access to all devices.

- Limit when this group can access McAfee ESM. Users receive visual notification that their session is going to time out 15, 5, and 1 minute before the time expires.
- Select the reports, views, and watchlists this group can view, change, or share with other users and groups. You can also set the filters the group can view and change.

Note: If you select more than one view, watchlist, or report, a checkbox in the Read or Modify column indicates a conflict. You can't save and close the page until you resolve the conflict. To resolve the setting for all selected items, click the checkbox.

4. Click OK, then type your password again.

Configure logon security

Control access to your system by specifying settings for logon attempts, time periods, and inactivity.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click Login Security.
3. On the Standard tab, set the options:

   - Specify how many consecutive unsuccessful logons are allowed in a single session. A zero value (0) allows unlimited logon attempts.

     When the number of allowed failed attempts is reached in a specific period, the system locks the targeted account. The system administrator must unlock the account.

     Attention: You cannot lock the master account.
   - Specify the time period to allow for successive failed logon attempts, between zero (0) and 1440 minutes.

     When the number of allowed failed attempts is reached in a specific period, the system locks the targeted account. The account remains locked for the time you set or until the system administrator unlocks the account.
   - Specify the period to lock an account if it auto-locks due to failed logons. Maximum value is 1440 minutes; 0 means you cannot auto-unlock. After that time elapses, the system unlocks the account automatically. This setting does not affect accounts that have been locked manually. Administrators can unlock the account at any time.

     Note: The system always auto-unlocks the master user logon. If you set this period to zero (0), the system temporarily locks the master user logon for five (5) minutes.
   - Specify the period that must pass without activity before the logon screen appears. A value of zero (0) means there is no limit.
   - Specify how many days of inactivity can pass before the system locks the account, between zero (0) and 365 days. Entering zero disables the feature. The lockout lasts until an administrator unlocks the account.
   - Set the number of active sessions a single user can have open at one time. Maximum is 10; zero (0) disables the restriction.
   - Select whether to populate the user name field with the last successful user logon.
   - Select if you want to set up a list of allowed or blocked IP addresses that can access your system.

4. Click OK or Apply.

Configure password security

Control access to your system by specifying security settings for user passwords.

Before you begin

Verify that you have system administrator privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click Login Security.
3. On the Passwords tab, set the options:

   - Identify password requirements:

     - 15 characters long
     - 2 numbers
     - 2 punctuation marks or symbols
     - 2 lowercase letters

        - 2 uppercase letters
        - Cannot include 4 or more consecutive repeating characters
    - Specify how often users must change their passwords (0–365 days). If you enter zero (0), the password doesn't expire.
    - Select how many days before passwords expire to remind users to change passwords (30-1).
    - Select how long after a user's password expires a user can still log on before the system locks the account. Then, only an administrator can unlock the account.
    - Select how many times a user can log on in the specified grace period before the system locks the account. Then, only an administrator can unlock the account.
    - Designate whether to store password history and how many user passwords to store (between 0–100 passwords). The system checks existing password history when users change passwords.
        - If set to zero (0), the system does not store password history.
        - If the password is not unique, an error appears and the system does not update the password.
        - If the password is unique, the system changes it and adds a history entry.
        - If the storage limit is reached, the system deletes the oldest password.
    - Restrict how often users can change their passwords in a given period. For example, if you select 12, users cannot change their passwords more than once in 12 hours.
4. Click Apply or OK.

Configure RADIUS authentication

Configure McAfee ESM to authenticate users to a RADIUS server.

Note: If you must comply with FIPS regulations, do NOT use this RADIUS authentication. RADIUS is not FIPS-compliant.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click Login Security.
3. Select the RADIUS tab, then specify characteristics for your RADIUS server: IP address, server port, and shared secret (such as password). A secondary server is optional. Then click OK or Apply.

   Note: When you enable the RADIUS server, all users except the system administrator authenticate with the RADIUS server. If you disable authentication, users set up for RADIUS authentication cannot access McAfee ESM.

Configure CAC authentication

Configure your users to access McAfee ESM using Common Access Card (CAC) credentials in the browser rather than by logging on with user names and passwords. CAC settings contain client certificates that identify users, similar to the way server certificates identify websites. Before enabling CAC, identify which browsers support CAC and the Electronic Data Interchange Personal Identifier (EDI-PI) associated with CACs.

ActivClient is the only supported CAC middleware on Windows. To use CAC authentication on McAfee ESM from Windows using Internet Explorer, you must install ActivClient on the client computer. Once installed, the system uses ActivClient to manage CAC credentials instead of the native Smart Card manager in Windows. Work with your system administrator to ensure that ActivClient has been installed in your environment.

When relying on CAC validation for application authenticity, the system security depends on the security of the Certificate Authority (CA). If the CA is compromised, CAC-enabled logons are also compromised. To set up CAC logon, upload the CA root certificates, enable CAC logon, and enable a CAC user by setting the user name to the card holder's Fully Qualified Distinguished Name (FQDN). Card holders can then access McAfee ESM in CAC-enabled browsers without being prompted for a user name or password.

Note: McAfee ESM supports Gem alto and the Oberthur ID One card readers.

Task

1. Upload the CA root certificate.
   a. On your computer's Control Panel, click Internet Options → Content → Certificates → Trusted Root Certification Authorities.
   b. Select your current Root CA, then click Export.
   c. On the Certificate Export Wizard, click Next, then select Base-64 encoded X.509 and click Next.
   d. Enter the location and name for the file you are exporting, click Next, then click Finish.

   e. On the system navigation tree of the McAfee ESM console, access System Properties, click Login Security, then select the CAC tab.
   f. Click Upload, then browse to the file that you exported and upload it to McAfee ESM.
2. From the McAfee ESM dashboard, click ≡ and select Configuration.
3. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
4. Click Login Security, then select the CAC tab.
5. Select the CAC mode:
   - OFF — This is the default setting. CAC logon is disabled so users have to log on using the McAfee ESM logon prompt
   - OPTIONAL — CAC authentication is available, but if the user does not provide a certificate, the McAfee ESM logon prompt appears as if CAC mode were off.
   - REQUIRED — Only CAC-enabled logons can access the system. The logon prompt is never shown. Enter a security PIN in Required Mode Security PIN (IPv4) (PIN entered on LCD panel to switch CAC mode to OPTIONAL if users are locked out of the system). The LCD panel recognizes PIN in IPv4 format (10.0.0.0).

   Note: Certificates and certificate authorities expire, so REQUIRED mode could potentially lock all users out of the McAfee ESM. A fail-safe button is on the LCD panel on the front of the McAfee ESM, which switches CAC mode back to OPTIONAL.
6. Upload the CA root certificates chain. You can view the certificate file or download it to a location you select.
7. Certificate revocation lists (CRL) identify which revoked certificates. Manually upload a .zip file with CRL files. Upload the list of certificates that have been revoked or download them to a location you select.
8. Set up an automatic retrieval schedule by typing the URL address and the frequency with which McAfee ESM polls for revocation file updates.
9. Enable each CAC user.
   a. On System Properties, click Users and Groups, then enter the system password.
   b. In the Users table, highlight the name of the user, then click Edit.
   c. Replace the name in the Username field with the FQDN.
   d. (Optional) Enter the user name in the User Alias field.

Configure Active Directory authentication

Define how McAfee ESM authenticates users (except the system administrator) with Active Directory. If you disable authentication, users set up for Active Directory authentication can't access the system.

Before you begin

- Set up Active Directory for McAfee ESM.
- Create a group with the same name as the Active Directory group that has access to McAfee ESM.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click Login Security.
3. Click the Active Directory tab, then select Enable Active Directory Authentication.
4. Click Add to set up the Active Directory connection. Then, click OK.
5. Select if you want to use this domain as the default. Type the domain name.

   Note: When logging on to the system, use this domain name as the user name. If you log on using your user name, the system uses the domain designated as the default.
6. Add IP addresses used for the Active Directory.
   - Select if this is the address for the administration server. If not, deselect it.

     Note: One of the addresses you enter must identify the host where the administrator server runs.
   - If needed, change the Port and LDAP Port defaults.
   - Select to use TLS encryption protocol for the data.

Configure LDAP authentication

Define how McAfee ESM authenticates users to an LDAP server.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.

2. Click Login Security.
3. Click the LDAP tab.
4. Enable LDAP authentication.

   Note: When enabled, all users, except the system administrator, must authenticate with the LDAP server. If LDAP is disabled, users set up for LDAP authentication can't access the system.

   - Type the IP address for the LDAP server.
   - If needed, change the server port.
   - Choose whether to use encryption protocol (TLS or SSL).
   - Type the domain to check for credentials.
   - Attribute where the user's group information is stored. Usually, this field does not need to be changed.
   - Choose filters to use to collect user or group information. You can include or exclude specific groups or users from the search results.

Give users access to First Look features

Set user and group permissions to use First Look features.

Before you begin

You must be logged on with User Administration permissions.

Task

1. From the navigation menu ≡, select First Look Features.
2. Click Setup.
3. Click Manage Permissions under the feature you want to give access to.
4. Select the Groups or Users tab.
5. Select Allow for the user or group and click Save.

   Note: User permissions override group permissions.

Collecting data

How data collection works

McAfee Event Receivers enable you to collect and normalize event and flow data into a single manageable view across multiple vendors.

Types of collected data include:

- **Events** — Activities recorded by devices as results of your system rules.
- **Flows** — Records of connections made between IP addresses, at least one of which is on your HOME_NET.
- **Logs** — Event records that occur to your devices.

Events and flows have source and destination IP addresses, ports, Media Access Control (MAC) addresses, a protocol, and a first and last time.

But, there are several differences between events and flows:

- Because flows do not indicate anomalous or malicious traffic, they are more common than events.
- Events are associated with rule signature (SigID); flows are not.
- Flows are not associated with event actions, such as alerts, drops, and rejects.
- Flows have unique data, such as source and destination bytes, and source and destination packets.

  Note: Source bytes and packets indicate the number of bytes and packets transmitted by the source of the flow. Destination bytes and packets indicate the number of bytes and packets transmitted by the destination of the flow.
- Flows have direction: Inbound flows originate from outside of the HOME_NET. Outbound flows originate from inside the HOME_NET.

Use dashboard views to see events and flows generated by the system. Logs are listed on the System Log or Device Log accessed from the Properties page for the system or each device.

Define data collection settings

Define how McAfee ESM devices collect event, flow, and log data.

Before you begin

Verify that you have the following permissions:

- Policy Administrator and Device Management or
- Policy Administrator and Custom Rules

You can select to check for events, flows, and logs automatically or you can check for them manually. The rate at which you check for them depends on your system's level of activity and how often you want to receive status updates. You can also specify which devices check for each type of information and set inactivity threshold settings for devices managed by McAfee ESM.

Task

1. From the McAfee ESM dashboard, click ☰ and select Configuration.
2. On the system navigation tree, select the device, then click the Properties icon ⚙.
   - McAfee Application Data Monitor and McAfee Event Receiver devices collect events, flows, and logs.

     Click Events, Flows & Logs.
   - McAfee ACE and McAfee Database Event Monitor devices collect events and logs.

     Click Events & Logs.
   - McAfee Enterprise Log Manager and McAfee Enterprise Log Search devices collect logs.

     Click Logs.
3. Define the data collection settings (which vary by device):
   - If McAfee ESM automatically downloads rules from the rules server, select to roll out downloaded rules automatically to the device.
   - Select to check for events, flows, or logs automatically or check now by clicking Get.

- Schedule a daily time when McAfee ESM pulls data from each device and when each device sends data to the McAfee Enterprise Log Manager. Schedule a time that avoids using the network at peak times, leaving the bandwidth available for other applications.

  Caution: Scheduling event, flow, and log data collection can result in data loss and delay data delivery.
- Choose to add events that match vulnerability assessment source data, become a vulnerability event, and generate an alert on the local McAfee ESM. The Policy Editor properties are the same for each of these events and can't be changed (for example, severity is always 100).
- See the last time the system retrieved the device's events or flows, whether the process was successful, and the number of events or flows retrieved.
- See the date and time of the last event, string, or flow record retrieved. Changing this value allows you to set the date and time from which you want to retrieve events, strings, or flows. For example, if you enter November 13, 20xx at 10:30 a.m. in the Last Downloaded Event Record field, click Apply, then click Get Events, McAfee ESM retrieves events on this device from that time to date.
- Define device inactivity thresholds so that the system notifies you when those devices don't receive events or flows for the specified period. If the threshold you set is reached, a yellow health status flag appears next to the device node on the system navigation tree.
- Define whether to store the geolocation and ASN data for each device. McAfee ESM collects source and destination geolocation and ASN data to identify the physical locations of threats.

  Note: Geolocation provides the geographic location of computers connected to the Internet. Autonomous System Number (ASN) is a number assigned to an autonomous system that uniquely identifies each network on the Internet.

Configure event forwarding

Event forwarding allows you to send events from McAfee ESM to another device or facility via Syslog or SNMP (if enabled). Define the destination, include the packet, and obfuscate the IP address data. You can filter event data before it is forwarded.

Note: The number of event forwarding destinations in use, with the rate and number of events that McAfee ESM retrieves can affect overall McAfee ESM performance.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Event Forwarding and configure the destination to forward event data to a syslog or SNMP server.

   - Choose between the UDP or TCP transport protocols. UDP is the protocol standard syslog is based on. Packets sent via syslog over TCP are formatted exactly like their UDP counterparts including facility, severity, and message. The only exception being a new line character (ASCII character code 10) appended to the end of the message.

     Unlike UDP, which is a connectionless protocol, a TCP connection must be established between McAfee ESM and the server listening for the forwarded events. If a connection can't be established or is dropped, McAfee ESM tracks the last event successfully forwarded. Then tries to re-establish the connection. When re-established, McAfee ESM picks up the forwarding event where it left off.

     If you select UDP, you cannot select SSH or TLS in the Mode field.
   - Select the time format for the header of syslog event forwarding. If you select Legacy, the format is GMT. If you select Standard, you can select a time zone to use when sending event forwarding logs.
   - If your policy copies a packet, select the Send Packet option to forward packet information (if available) at the end of the syslog message in Base 64 encoding.
   - Select the security mode for the message. If you select SSH, fill in the remaining information. If you choose to use syslog over TCP (protocol), select to make the TCP connection using SSH or TLS. As syslog is an unencrypted protocol, using SSH or TLS prevents other parties from examining event forwarding messages. If you are in FIPS mode, you can forward log data using TLS.
   - Type the local relay port to use on the McAfee ESM side of the SSH connection.
   - Type the port that the SSH server listens to on the other side of the SSH connection.
   - Type the SSH user name to establish the SSH connection.
   - Type the public DSA authentication key which is used for SSH authentication and is added to the authorized_keys file or equivalent on the system running the SSH server.

Set up event forwarding filters

Limit the event data forwarded to a syslog or SNMP server on McAfee ESM.

Before you begin

Verify you have permission to access devices in the filter.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Event Forwarding.
4. Click Add, then click Event Filters.
5. Fill in the filter fields:
   - To filter by a specific device, click ▼ and select a device.
   - To filter by destination or source IP address, type a single IP address (161.122.15.13) or a range of IP addresses (192.168.0.0/16).
   - Filter by destination port (one is allowed).
   - Filter by protocol (one is allowed).
   - Filter by device type (maximum of 10).
   - Filter by normalized IDs.
   - To filter by event severity, select Greater than or equal and a severity number between 0 and 100.

Event forwarding formats

These are the event forwarding formats and the information contained in the packets when they are forwarded.

Format	Contents
Syslog (Audit Logs)	time (seconds since the epoch), status flag, user name, log category name (blank for 8.2.0, populated for 8.3.0+), device group name, device name, log message.
Syslog (Common Event Format)	Current date and time, McAfee ESM IP address, CEF version 0, vendor = McAfee, product = McAfee ESM model from /etc/McAfee Nitro/ipsmodel, version = McAfee ESM version from /etc/buildstamp, sig id, sig message, severity (0 to 10), name/value pairs, deviceTranslatedAddress
Syslog (Standard Event Format)	<#>YYYY-MM-DDTHH:MM:SS.S [IP Address] McAfee_SIEM: { "source": { "id": 144120685667549200, "name": "McAfee Email Gateway (ASP)", "subnet": "::ffff:10.75.126.2/128" }, "fields": { "packet": { "encoding": "BASE64" } }, "data": { "unique_id": 1, "alert_id": 1, "thirdpartytype": 49, "sig": { "id": 5000012, "name": "Random String Custom Type" }, "norm_sig": { "id": 1343225856, "name": "Misc Application Event" }, "action": "5", "src_ip": "65.254.48.200", "dst_ip": "0.0.0.0", "src_port": 38129, "dst_port": 0, "protocol": "n/a", "src_mac": "00:00:00:00:00:00", "dst_mac": "00:00:00:00:00:00", "src_asn_geo": 1423146310554370000, "firsttime": "2014-05-09T20:43:30Z", "lasttime": "2014-05-09T20:43:30Z", "writetime": "2014-05-09T20:44:01Z", "src_guid": "", "dst_guid": "", "total_severity": 25, "severity": 25, "eventcount": 1, "flow": "0", "vlan": "0", "sequence": 0, "trusted": 2, "session_id": 0, "compression_level": 10, "reviewed": 0, "a1_ran_string_CF1": "This is data for custom

Format	Contents
	field 1", "packet": "PDE0PjA5MDUyMDE0IDIwOjE4OjQ0fDIxfDY1LjI1NC40OC4yMDAtMzgxMjI BhbSBNZXNzYWdlIHR5cGU6IFRydXN0ZWRTb3VyY2UgU2lnbmF0dXJlIENvb UgPSBISUdILiBDb25uZWN0aW9uOiA2NS4yNTQuNDguMjAwLTM4MTI5KEl RoaXMgaXMgZGF0YSBm b3IgY3VzdG9tIGZpZWxkIDF8W10A"

Forwarding events with Standard Event Format

Standard Event Format (SEF) is a JavaScript Object Notation (JSON)-based event format to represent generic event data. SEF format forwards events from one McAfee ESM to a receiver on a different McAfee ESM, and from the McAfee ESM to a third party. You can also use it to send events from a third party to a receiver by selecting SEF as the data format when creating the data source.

When setting up event forwarding with SEF from one McAfee ESM to another McAfee ESM, complete the following steps:

1. From the McAfee ESM that is forwarding the events, export data sources, custom types, and custom rules.
2. On the McAfee ESM with the receiver you are forwarding events to, import the data sources, custom types, and custom rules that you exported.
3. On the McAfee ESM receiving the events from another McAfee ESM, add an McAfee ESM data source.
4. On the sending McAfee ESM, add the event forwarding destination as follows:
   - From the McAfee ESM dashboard, click ≡ and select Configuration.
   - On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
   - Click Event Forwarding, then click Add.
   - On the Add Event Forwarding Destination page, select syslog (Standard Event Format) in the Format field, then complete the remaining fields with the information for the McAfee ESM you are forwarding to, and click OK.

Get events and flows

Task

1. On the views toolbar, select Refresh → Get Events and Flows.
2. In the top table, select the events and flows to be retrieved, then click Start.
   The status of the retrieval is reflected in the Status column. The bottom table shows details for the devices selected in the top table.
3. When the download is complete, select a view to display these events and flows in, then click Refresh on the views toolbar.

How aggregation works

An event or flow can potentially be generated thousands of times. Instead of sifting through thousands of identical events, you can view them as a single event or flow with a count that indicates the number of times it occurred.

Using aggregation uses disk space on both the device and McAfee ESM more efficiently because it eliminates the need to store each packet. This feature applies only to rules that have aggregation enabled in the Policy Editor.

Source IP address and destination IP address

The source IP address and destination IP address "not-set" values or aggregated values appear as "::" instead of as "0.0.0.0" in all result sets. For example:

- `::ffff:10.0.12.7` is inserted as `0:0:0:0:0:FFFF:A00:C07` (`A00:C07` is `10.0.12.7`).
- `::0000:10.0.12.7` would be `10.0.12.7`.

Aggregated events and flows

Aggregated events and flows use the first, last, and total fields to indicate the duration and amount of aggregation.

For example, if the same event occurred 30 times in the first 10 minutes after noon:

- First time = 12:00 for the time of the event's first instance
- Last time = 12:10 for the time of the event's last instance

- Total = 30

You can change the default event or flow aggregation settings for the device as a whole. For events, you can add exceptions to the device's settings for individual rules.

Aggregation retrieves records based on the events, flows, and logs retrieval setting. If it is set for automatic retrieval, the device compresses a record only until the first time McAfee ESM pulls it. If it is set for manual retrieval, a record compresses up to 24 hours or until a new record is pulled manually, whichever comes first. If the compression time reaches the 24-hour limit, a new record is pulled and compression begins on that new record.

Add exceptions to event aggregation settings

Aggregation settings apply to all events generated by a device. You can create exceptions for individual rules if the general settings don't apply to the events generated by that rule.

Task

1. On the views pane, select an event generated by the rule you want to add an exception for.
2. Click the Menu icon ⋮, then select Modify Aggregation Settings.
3. Select the field types you want to aggregate from the Field 2 and Field 3 drop-down lists.
   Important: The fields you select in Field 2 and Field 3 must be different types or an error results. When you select these field types, the description for each aggregation level changes to reflect the selections you made. The time limits for each level depend on the event aggregation setting you defined for the device.
4. Click OK to save your settings, then click Yes to continue.
5. Deselect devices if you do not want to roll out the changes to them.
6. Click OK to roll out the changes to the devices that are selected.

Results

The Status column shows the status of the update as the changes are rolled out.

Change aggregation settings

Aggregation is set as the default and aggregated events have fields that match. You can choose the type of aggregation for all events generated on a device. Then, you can change the aggregation settings for individual rules.

Before you begin

You must have Policy Administrator and Device Management or Policy Administrator and Custom Rules permissions to change these settings.

Note: Event aggregation and flow aggregation are enabled by default, and set on Medium High.

Event aggregation is only available for McAfee Application Data Monitor devices and McAfee Event Receivers, and flow aggregation is available for McAfee Event Receivers.

Task

1. In the Policy Editor, select the rule for which you want to change aggregation settings
2. Click Operations → Modify Aggregation Settings.
3. From the Field 2 and Field 3 drop-down lists, select the field types you want to aggregate.
   Note: The selected fields must differ or be an error results. Level 1, 2, and 3 aggregation descriptions change based on your selections.
4. Save the settings.
5. The Aggregation Exceptions Rollout lists the status of devices affected by your changes. Out-of-date devices are checked. Deselect the devices you do not want to apply the changes to, then click OK to roll out the changes.

Enriching data

How data enrichment works

Enrich events sent by the upstream data source with context not in the original event, such as an email address, phone number, or host location information. This enriched data becomes part of the parsed event and is stored with the event just like the original fields.

Set up data enrichment sources by defining how to connect to the database and access one or two table columns in that database. Then define which devices receive the data and how to enrich that data, both events and flows.

You can also edit or remove data enrichment sources, and run a query. Events that trigger on McAfee ESM are not enriched. Data acquisition takes place on McAfee ESM, not on the devices.

A connector to the relational data source in Hadoop HBase uses the key-value pairs from the source for enrichment. The identity mapping in HBase can be pulled to a Receiver regularly to enrich events.

Configure data enrichment sources

McAfee ESM devices can receive information from data enrichment sources.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click Data Enrichment → Add.

   Tabs and fields on the Data Enrichment Wizard vary based on the enrichment type you select.
3. On the Main tab, identify the source information.
4. Source tab:
   - CIFS, NFS, FTP, SFTP, and SCP source types can only use external files for enrichment. The other source types require you to write a query for a database or regular expression.
   - Each entry must be on a separate line.
   - The file you pull for data enrichment must be formatted as `LookupValue=EnrichmentValue`. Single-column enrichment needs only lookup value entries. For two-column enrichment, separate lookup values from enrichment values with an equals symbol (=).

     For example, a file that uses IP address to host names:

     ```
     10.5.2.3=New York
     10.5.2.4=Houston
     ```
   - Type the source database driver.
   - Default authentication is None. If you select Basic, enter user name and password for the website if it requires you to log on.
   - For https websites, select Ignore Invalid Certificates to ignore invalid SSL certificates.
   - Type the Apache Hadoop Job Tracker Host address or IP address (not required). If blank, the system uses the Node Name Host.
   - Type the port where the Job Tracker Host listens (not required). If blank, the system uses the Node Name Host.
   - Default Method is GET. If you select POST, the post content or argument that might be required to navigate to the webpage with the content that you want to search on.
   - Select the directory for the files.
   - Type the Apache Hadoop Node Name Host address or IP address. Do not include protocol.
   - Type the port where the Node Name Host listens (not required). If blank, the system uses the Node Name Host.
   - Type the database path. If you select FTP in the Type field, the path is relative to your home directory. To specify an absolute path on the FTP server, insert an extra forward slash (/) at the beginning of the path. For example, `//var/local/path`.
   - Identify who can access the database. For LDAP, enter a fully qualified domain name with no spaces. For example, `uid=bob,ou=Users,dc=example,dc=com` or `administrator@idahoqa.mcafee.com`.
5. Parsing tab:
   - When you select HTTP/HTTPS as the source type, view the first 200 lines of the HTML source code for the URL entered in the URL field on the Source tab. It is only a preview of the website, but is enough for you to write a regular expression to match on.

   A Run Now or scheduled update of the data enrichment source includes all matches from your regular expression search. This feature supports RE2 syntax regular expressions, such as (\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3}).

   - Typically, an Internet site has header code that you are not interested in searching. Specify how many lines from the top of the site you want to skip so that the search doesn't include header data.
   - Type what separates values you are interested in. This field has a default of `\n`, which indicates that a new line is the delimiter. The other most common delimiter is a comma.
   - Type a regular expression that removes any unwanted values from the results of your regular expression search.
   - (Required) Type the logic used to find a match and extract the values from the site. The most common use cases are to create an expression that matches on a list of known malicious IP addresses or MD5 sums listed on a site. If you provided two match groups in your regular expression, you can map the results of each regex match to Lookup Value or Enrichment Value.
   - Use a Lookup Value or Enrichment Value.
     - Use Lookup Value for events collected from McAfee ESM where you want to add more values. It maps to the Lookup Field on the Destination tab.
     - Use Enrichment Value for values that are enriched or inserted into the source events that match on the lookup value. It maps to the Enrichment Field on the Destination tab.

6. On the Query tab, set up the query for Hadoop HBase (REST), Hive, LDAP, MSSQL, MySQL, Oracle, or PIG types.
7. On the Scoring tab, set the score for each value that is returned on a single column query. Select the source and target field you want to score on, then click Run Query. Show the returned values and the numeric stepper that you can use to set the risk score for that value.
8. On the Destination tab, identify the devices and the rule for field mapping for the devices that this data enrichment source populates.
9. Click Finish, then click Write.
10. Select the devices you want to enrich and create the field-mapping rule for those devices. Then click OK.
    Note: If you select **Use Static Value**, you must enter the enrichment value.

Enrich Hadoop HBase events

Pull HBase identity mapping through a McAfee Event Receiver to enrich events with Hadoop HBase.

Task

1. On the system navigation tree, select System Properties, then click Data Enrichment.
2. On the Data Enrichment Wizard, fill in the fields on the Main tab, then click the Source tab.
3. In the Type field, select Hadoop HBase (REST), then type the host name, port, and name of the table.
4. On the Query tab, fill in the lookup column and query information:
   a. Format Lookup Column as `columnFamily:columnName`
   b. Populate the query with a scanner filter, where the values are Base64 encoded. For example:
```
<Scanner batch="1024">
<filter>
{
"type": "SingleColumnValueFilter",
"op": "EQUAL",
"family": " ZW1wbG95ZWVJbmZv",
"qualifier": "dXNlcm5hbWU=",
"latestVersion": true,
"comparator": {
"type": "BinaryComparator",
"value": "c2NhcGVnb2F0"
}
}
</filter>
</Scanner>
```
5. Complete the Scoring and Destination tabs.

Enrich events with Hadoop Pig

Use Apache Pig query results to enrich Hadoop Pig events.

Task

1. On the system navigation tree, select System Properties.
2. Click Data Enrichment, then click Add.

3. On the Main tab, fill in the fields, then click the Source tab. In the Type field, select Hadoop Pig and fill in: Namenode host, Namenode port, Jobtracker host, and Jobtracker port.

   Note: Jobtracker information is not required. If Jobtracker information is blank, NodeName host and port are used as the default.
4. On the Query tab, select the Basic mode and fill in the following information:
   a. In Type, select text file and enter the file path in the Source field (for example, `/user/default/file.csv`). Or, select Hive DB and enter an HCatalog table (for example, `sample_07`).
   b. In Columns, indicate how to enrich the column data.

      For example, if the text file contains employee information with columns for SSN, name, gender, address, and phone number, enter the following text in the Columns field: `emp_Name:2, emp_phone:5`. For Hive DB, use the column names in the HCatalog table.
   c. In Filter, you can use any Apache Pig built-in expression to filter data. See Apache Pig documentation.
   d. If you defined column values above, you can group and aggregate that column data. Source and Column information is required. Other fields can be blank. Using aggregation functions require that you specify groups.
5. On the Query tab, select the Advanced mode and enter an Apache Pig script.
6. On the Scoring tab, set the score for each value returned from the single column query.
7. On the Destination tab, select the devices to which you want to apply enrichment.

Enrich Windows events with Active Directory

Use Microsoft Active Directory to populate Windows events with the full user display names.

Before you begin

Verify that you have the System Management privilege.

Task

1. On the system navigation tree, select System Properties.
2. Click Data Enrichment, then click Add.
3. On the Main tab, enter a descriptive Enrichment Name, in the form `Full_Name_From_User_ID`.
4. Set both the Lookup Type and Enrichment Type to String.
5. Set Pull Frequency to daily, unless Active Directory is updated more frequently.
6. Click Next or the Source tab.
   a. In the Type field, select LDAP.
   b. Fill in the IP address, user name, and password.
7. Click Next or the Query tab.
   a. In the Lookup Attribute field, enter `sAMAccountName`.
   b. In the Enrichment Attribute field, enter `displayName`.
   c. In Query, enter `(objectClass=person)` to return a list of all objects in Active Directory classified as a person.
   d. Test the query, which returns a maximum of five values, regardless of the number of actual entries.
8. Click Next or the Destination tab.
   a. Click Add.
   b. Select your Microsoft Windows data source.
   c. In the Lookup Field, select the Source User field.

      This field is the value that exists in the event, which is used as the index for the lookup.
   d. Select the Enrichment Field, where the enrichment value is written in the form `User_Nickname` or `Contact_Name`.
9. Click Finish to save.
10. After writing the enrichment settings to the devices, click Run Now to retrieve the enrichment values from the data source until the Daily Trigger Time value occurs.

    The Full Name is written into the Contact_name field.

Normalizing data

How normalization works

Rule names can vary by vendors, making it hard to gather event information. McAfee ESM continuously compiles a list of normalized rule IDs that enable you to organize event information. Use normalized event IDs to view query results in pie charts, bar charts, and lists or filter dashboard views.

Normalization IDs

Use normalized IDs to:

- Filter using a single ID
- Filter by multiple folders or IDs at one time (using the **Ctrl** or **Shift keys** to select).
- Filter first-level folders

  A mask (/5 for a first-level folder at the end of the ID) means McAfee ESM filters events by the selected subfolder IDs.
- Filter second- or third-level folders

  A mask (/12 for a second-level folder, /18 for a third-level folder at the end of the ID) means McAfee ESM filters events by the selected subfolder IDs.

  Note: The fourth level doesn't have a mask.

String normalization

Use string normalization to:

- Associate string values with alias values
- Import or export a .csv file of normalized string values
- Filter queries by strings and its aliases

For example, the *John Doe* user name string, define a string normalization file where the primary string is *John Doe* with the following aliases:

- DoeJohn
- JDoe
- john.doe@gmail.com
- JohnD

You can then create a query with *John Doe* as a user nickname and filter by string normalization.

The resulting view displays all events associated with *John Doe* and his aliases, enabling you to check for logon inconsistencies where source IPs match but user names do not.

Manage string normalization files

You can use an imported file of string normalization aliases as a filter in McAfee ESM.

Task

1. Using a text or spreadsheet application, create the aliases file.
   a. Use the following format:
      ```
      command, primary string, alias
      ```
   b. You can include these commands: `add`, `modify`, and `delete`.
   c. Save as a .CSV file.
2. On Filters, click 👤 to start the string normalization manager and import the .CSV file.
3. Perform any of the available actions, then click Close.

Parsing data

How advanced syslog parser works

Advanced Syslog Parser (ASP) parses data from syslog messages based on user-defined rules. Define rules to instruct the ASP how to recognize messages and where event data resides in the messages, such as Signature IDs, IP addresses, ports, user names, and actions.

Use ASP for syslog devices not identified or when the source-specific pParser doesn't correctly interpret messages or fully interpret data points related to received events. You can also use ASP to sort complex log sources, such as Linux and UNIX servers. You must write rules tailored to your Linux or UNIX environment.

Add ASP data sources to the Receiver by selecting Syslog as the vendor. Once you have done this, follow the device manufacturer's directions to configure your syslog device to send syslog data to the IP address for the Receiver.

When you add an ASP source, you must apply a policy before it collects event data. If you enable Generic Syslog Support, you can apply a policy without rules and begin generically collecting event data.

Caution: Some data sources (including Linux and UNIX servers) can produce large amounts of non-uniform data that results in the Receiver not properly grouping the similar event occurrence together. This results in an appearance of a large range of different events when, in actuality, the same event is simply repeating, but with varying syslog data sent to the Receiver.

ASP uses a format similar to Snort.

```
ACTION Protocol Src_ip Src_port -> Dst_ip Dst_port (keyword: option; keyword: option;...;)
```

Note: When concatenating literal values with a PCRE subcapture in versions 9.0.0 and later, put literals in quotes individually if they contain spaces or other characters and leave the PCRE subcapture references unquoted.

Define rules as follows.

Section	Field	Description
Rule Header		The rule header contains the Alert action and the any any any format. The rule is: `ALERT any any any -> any any`
	Action	Option of what to do with the event when a match occurs: • ALERT — Log the event • DROP — Log the event but don't forward • SDROP — Don't log the event or forward • PASS — Forward if defined, but don't log
	Protocol	If the event defines a protocol, filter the effective match based on the protocol.
	Src/Dst IP	If the event defines a source or destination IP address, filter the effective match based on that address.
	Src/Dst Port	If the event defines a source or destination port, filter the effective match based on that port.
Rule Body		The rule body contains most the match criteria and defines how the data must be parsed and logged into the database. Elements of the Rule Body are defined in keyword-option pairs. Some keywords have no following option.
	msg	(Required) The message to associate with this rule. This is the string displayed in the McAfee ESM Thin Client for reporting purposes unless overridden with a pcre/setparm detected message (see below). The first work of the msg is the category name followed by actual message (msg: "category rule message").
	content	*(Optional — one or more)* The content keyword is a non-wildcard text qualifier to pre-filter Events as they pass through the rule set, which can also contain spaces (for example, content: "search 1"; content "something else")

Section	Field	Description
	procname	On many UNIX and Linux systems, the process name (and process ID) is part of a standardized syslog message header. The procname keyword can be used to filter Event matches for the Rule. Used to exclude or filter Event matches where two processes on a Linux or UNIX server might have similar or the same message text.
	adsid	The data source ID to use. This value overrides the Default Rule Assignment in the data source editor.
	sid	Signature ID of the Rule. This is the match ID used in the McAfee ESM Thin Client unless overridden with a pcre/setparm detected sid.
	rev	Rule revision. Used to track changes.
	severity	Value between 1 (least severe) and 100 (most severe) assigned to events matching the rule.
	pcre	The PCRE keyword is a Perl Compatible Regular Expression match against incoming events. The PCRE is quote delimited and all occurrences of "/" is treated as a normal character. Content in parentheses isheld for the use of the setparm keyword. You can change the PCRE keyword by nocase, nomatch, raw and setparm keywords.
	nocase	Causes the PCRE content to be matched whether the case matches or not.
	nomatch	Inverts the PCRE match (equivalent to !~ in Perl).
	raw	Compare the PCRE to the entire syslog message including header data (Facility, daemon, date, host/IP, process name, and process ID). Normally the header is not used in the PCRE match.
	setparm	Can occur more than once. Each set of parentheses in the PCRE is assigned a number in order of occurrence. Those numbers can be assigned to data tags (for example: setparm:username=1). This takes the captured text in the first set of parentheses and assigns it to the user name data tag. Recognized tags are listed in the table below.

Tag	Description
* sid	This captured parameter overrides the matched rule's sid.
* msg	This captured parameter overrides the matched rule's message or name.
* action	This captured parameter indicates what action the third-party device took.
* protocol	
* src_ip	This replaces the syslog source's IP address which is the default source IP address of an event.
* src_port	
* dst_ip	
* dst_port	
* src_mac	
* dst_mac	
* dst_mac	
* genid	This is used to change the sid as stored in the database, used for non-McAfee snort matches in snort preprocessors.

Tag	Description
* url	Reserved, but not used yet.
* src_username	First/source user name.
* username	Alternate name for src_username.
* dst_username	Second/destination user name.
* domain	
* hostname	
* application	
* severity	Must be an integer.
* action map	Allows you to map specific actions of your product to the McAfee actions. The action map is case sensitive. Example: alert any any any -> any any (msg:"OpenSSH Accepted Password"; content:"Accepted password for "; action_map:Accepted=8, Blocked=3; pcre:"(Accepted)\s+password\s+for\s+(\S+)\s+from\s+(\d+\.\d+\.\d+\.\d+)\s+port\s+(\d+)"; setparm:action=1; sid:31; rev:1;)). See *Severity and Action Map* for details.
* severity map	Allows you to map specific severities of your product to the McAfee severity. Like the action map, the severity map is case sensitive. Example: alert any any any -> any any (msg:"OpenSSH Accepted Password"; content:"Accepted password for "; severity_map:High=99, Low=25, 10=99, 1=25; pcre:"(Accepted)\s+password\s+for\s+(\S+)\s+from\s+(\d+\.\d+\.\d+\.\d+)\s+port\s+(\d+)"; setparm:action=1; sid:31; rev: 1;))pri(?:\x3d|\x3a)\s*(?:p\x5f)?([^\x2c]+). See *Severity and Action Map* for details.
* var	This is another way to use setparms. The beneficial use is the use of creating one value from multiple captures of multiple PCREs. You can create more than one PCRE that captures only a small portion of your string rather than one large PCRE with multiple captures. Here's an example of capturing a user name, domain, and creating an email address to store in the objectname field. • Syntax = var:field=${PCRE:Capture} • PCRE = not the actual PCRE but the number of the pcre. If your rule has two PCRE's, you would have a PCRE of 1 or 2. • Capture = not the actual capture but the number (first, second or third capture [1,2,3]) • Sample Message: A man named Jim works for McAfee. • PCRE: (Jim).*?(McAfee) • Rule: alert any any any -> any any (msg:"Var User Jim"; content:"Jim"; pcre:"(Jim)"; pcre:"(McAfee)"; var:src_username=${1:1}; var:domain=${2:1}; var:objectname=${1:1}@${2:1}.com raw; classtype:unknown; adsid:190; sev:25; sid:610061000; rev:1; normID:1209008128; gensys:T;) • Mapped Source User: Jim • Mapped Domain: McAfee • Mapped objectname: Jim@McAfee.com
* sessionid	This is an integer.
* commandname	This is a string value.
* objectname	This is a string value.
* event_action	This tag is used to set a default action. You can't use event_action and action_map in the same rule. For example, if you had an event for a Successful Login you could use the event_action tag and default the action to success (for example, event_action:8;).
* firsttime_fmt	Used to set the first time of the event. See list of formats.

Tag	Description
* lasttime_fmt	Used to set the last time of the event. See list of formats. You can use this with a setparm or a var (var:firsttime="${1:1}" or setparm:lasttime="1"). For example: alert any any any -> any any (msg:"SSH Login Attempt"; content:"content"; firsttime_fmt:"%Y-%m-%dT%H:%M:%S.%f"; lasttime_fmt:"%Y-%m-%dT%H:%M:%S.%f" pcre:"PCRE goes here; raw; setparm:firsttime=1; setparm:lasttime=1; adsid:190; rev:1;) For current formats supported, see http://pubs.opengroup.org/onlinepubs/009695399/functions/strptime.html for more detail. %Y - %d - %m %H : %M : %S %m - %d - %Y %H : %M : %S %b %d %Y %H : %M : %S %b %d %Y %H - %M - %S %b %d %H : %M : %S %Y %b %d %H - %M - %S %Y %b %d %H : %M : %S %b %d %H - %M - %S %Y %H : %M : %S %Y %H - %M - %S %m - %d - %Y %H : %M : %S %H - %M - %S %Y is 4-digit year %m is month number (1–12) %d is date (1–31) %H is hours (1–24) %M is minutes (0–60) %S is seconds (0–60) %b is month abbreviation (jan, feb)

This is an example of a rule that identifies a password based on OpenSSH logon and pulls from the event's source IP address, source port, and user name:

```
alert any any any -> any any (msg:"OpenSSH Accepted Password";content:"Accepted password for ";pcre:"Accepted\s
+password\s+for\s+(\S+)\s+from\s+(\d+\.\d+\.\d+\.\d+)\s+port\s+(\d
+)";setparm:username=1;setparm:src_ip=2;setparm:src_port=3;sid:31;rev:1;)
```

Mapping syslog severity and action

You can map syslog message severity and action values to values that fit into the system's schema.

- severity_map — Severity displays as a value between 1 (least severe) and 100 (most severe) assigned to events matching the rule. The device sending the message might show severity as a number 1–10, or as text (high, medium, low). When this happens, it can't be captured as the severity so a mapping must be created. For example, here is a message coming from McAfee IntruShield that shows severity in text form.

  ```
  <113>Apr 21 07:16:11 SyslogAlertForwarder: Attack NMAP: XMAS Probe (Medium)\000
  ```

  Rule syntax using severity mapping would look like this (severity mapping is in bold for emphasis only):

  ```
  alert any any any -> any any (msg:"McAfee Traffic"; content:"syslogalertforwarder";
  severity_map:High=99,Medium=55,Low=10; pcre:"(SyslogAlertForwarder)\x3a\s+Attack\s+([^\x27]+)\x27([^\x28]+)
  \x28"; raw; setparm:application=1; setparm:msg=2; setparm:severity=3; adsid:190; rev:1;)
  ```

  `severity_map` : High=99,Medium=55,Low=10. This maps the text to a number in the format we can use.

  `setparm` : severity=3. This says to take the third capture and set it equal to the severity. All setparm modifiers work this way.

- action_map — Used just like severity. Action represents the action the third-party device took. The goal with action is to create a mapping that is useful to the end user. For example, here is a failed logon message from OpenSSH.

  ```
  Dec 6 10:27:03 nina sshd[24259]: Failed password for root from 10.0.12.20 port 49547 ssh2
  ```

  ```
  alert any any any -> any any (msg:"SSH Login Attempt"; content:"sshd"; action_map:Failed=9,Accepted=8;
  pcre:"sshd\x5b\d+\x5d\x3a\s+((Failed|Accepted)\s+password)\s+for\s+((invalid|illegal)\s+user\s+)?(\S+)\s+from
  \s+(\S+)(\s+(\S+)\s+port\s+(\d+))?"; raw; setparm:msg=1; setparm:action=2; setparm:username=5;
  setparm:src_ip=6; adsid:190; rev:1;)
  ```

  The action (`Failed`) is mapped to a number. This number represents the different actions we can use in our system. Below is the full list of usable action types.

  - 0 = null
  - 1 = pass
  - 2 = reject
  - 3 = drop
  - 4 = sdrop
  - 5 = alert
  - 6 = default
  - 7 = error
  - 8 = success
  - 9 = failure
  - 10 = emergency
  - 11 = critical
  - 12 = warning
  - 13 = informational
  - 14 = debug
  - 15 = health
  - 16 = add
  - 17 = change
  - 18 = remove
  - 19 = start
  - 20 = stop
  - 21 = noticed
  - 22 = trusted
  - 23 = untrusted
  - 24 = false positive
  - 25 = alert-reject
  - 26 = alert-drop
  - 27 = alert-sdrop
  - 28 = restart

- 29 = block
- 30 = clean
- 31 = clean-fail
- 32 = continue
- 33 = infected
- 34 = move
- 35 = move-fail
- 36 = quarantine
- 37 = quarantine-fail
- 38 = remove-fail
- 39 = denied

In this example, `Failed` is mapped from the syslog message to 9, which the system reports as `Failure`.

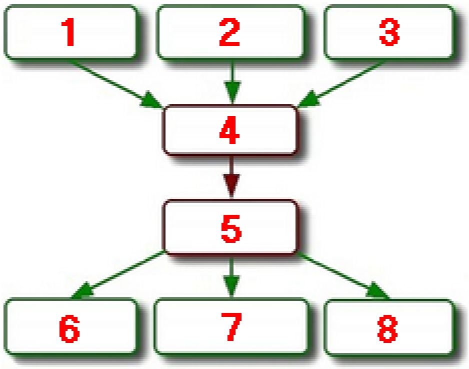
Here is a breakdown of the structure for a rule.

```
Alert any any any -> any any (msg:"Login Attempt"; content:"sshd"; action_map or severity_map (if you need it); pcre:"your regular expression goes here"; raw; setparm:data_tag_goes_here; adsid:190; rev:1;)
```

Syslog relay support

Forwarding events from various devices through a syslog relay server to the Receiver requires additional steps.

You must add a single syslog relay data source to accept the stream of data and additional data sources. This allows the Receiver to split up the stream of data into the originating data sources. Sylog-ng and Splunk are supported. This diagram describes this scenario:



1. Cisco ASA Device
2. SourceFire Snort Device
3. TippingPoint Device
4. Syslog Relay
5. Data Source 1 — Syslog Relay
6. Data Source 2 — Cisco ASA
7. Data Source 3 — SourceFire Snort
8. Data Source 4 — TippingPoint

Using this scenario as an example, you must set up the syslog relay data source (5) to receive the stream of data from the syslog relay (4), selecting syslog in the Syslog relay field. Once the syslog relay data source is set up, add the data sources for the individual devices (6, 7, and 8), selecting None in the Syslog relay field, because this device is not a syslog relay server.

Note: Upload Syslog Messages does not work on a syslog relay setup.

The header on the syslog must be configured to look like the following example: `1 <123> 345 Oct 7 12:12:12 2012 mcafee.com httpd[123]`

where

`1` =	syslog version (optional)
`345` =	syslog length (optional)

`<123> =`	facility (optional)
`Oct 7 12:12:12 2012 =`	date; hundreds of formats are supported (required)
`mcafee.com`	hostname or ip address (ipv4 or ipv6) (required)
`httpd =`	application name (optional)
[123]	application pid (optional)
: =	a colon (optional)

Note: The host name and data fields can appear in either order. An IPv6 address can be enclosed in brackets [ ].

How Advanced Syslog Parser (ASP) rules work

The Advanced Syslog Parser (ASP) extracts (parses) data out of syslog messages, based on user-defined rules.

ASP uses rules to identify where data resides in message-specific events, such as signature IDs, IP addresses, ports, user names, and actions.

When the system receives an ASP log, it compares the time format in the log with the format specified in the ASP rule. If the time format doesn't match, the system doesn't process the log.

To increase the likelihood of matching time formats, add multiple custom time formats.

With Policy Administrator rights, you can define the order for running ASP rules.

Custom ASP rules

You can write rules to sort parse complex log sources.

Note: This functionality requires knowledge of regular expressions.

The first regular expression determines if a message is parsed, so write the first rule to look for a pattern that is present in all message you want the rule to parse. Additional regular expressions can be written to capture values from the messages and map them to custom types in the McAfee ESM. Subsequent regular expressions do not determine the rule match, and are used for parsing only.

While it is possible to test regular expression results on a few log lines in the McAfee ESM console itself, we recommend using a graphical tool. There are many free web-based tools that can be used in addition to standalone installable tools. Optionally, another useful tool would be a text editor that supports regular expression searches. Any tools used to test regular expressions need to support pcre expressions.

Important: Ensure regular expressions are written to maximize efficiency. Poorly written expressions can adversely affect parsing performance.

Optimize your rules by:

- Thoroughly understanding the value that a log can provide to your organization.
- Ensuring that captured values align with the intended use of the specific custom type fields.
- Avoiding indexing fields that contain unique and random or high cardinality data (such as URLs).
- Ensuring that rules mapping event messages directly from the log do not map unique, random, or high cardinality strings as messages. McAfee ESM creates a data source rule for each unique event message, and numerous unique strings can reduce McAfee ESM performance.
- Categorizing events by adding a normalized category to the rule. Data source rules, generated by parsing rules, inherit the normalization assigned to the main parsing rule. If the main parsing rule is left normalized to "Uncategorized," then the parsed events are also normalized as "Uncategorized," making a search for "Uncategorized" events to find unparsed events inaccurate.

Add custom Advanced Syslog Parser rules

Add custom rules to parse ASP log data.

Before you begin

Verify that you have administrator privileges or belong to an access group with user management privileges.

You must have a working knowledge of Perl-Compatible Regular Expressions.

Note: If you have an advanced knowledge of ASP syntax, you can add ASP rule text directly without defining the settings on each tab.

Task

1. In the Policy Editor, select Receiver → Advanced Syslog Parser.
2. Click New, then click Advanced Syslog Parser Rule.
3. General tab:
    - Type a unique, descriptive name for the rule, which appears in the McAfee ESM views when the rule matches a log (unless the message is mapped directly from the log text in the rule).
    - Assign tags to the rule to help find and group rule sets created for a given device or application in the policy editor. Anytime you use tags assigned to other rules, McAfee ESM automatically includes your tags into policies that use the rule set.
    - Select the default normalized ID, which views, correlation rules, and reports can use as a filter.
    - Enter a default severity value that the system can assign to log messages without severity values. The default is 25, valid values are 1–100 (1 is the lowest severity).
    - Group parsing rules by supported products, separating the events from other data sources and allowing the event to be reported for a specific product.
4. Parsing tab:
    - Select a process name (which is similar to the content string filter, but only applies to the process name found in the SYSLOG header). Syslog header formats vary widely, so use content strings when possible.
    - If a fixed string is always found in the log, add it as a content string. The content strings of an ASP rule identify each log. To speed up rule execution, include at least one content string in each ASP rule. This serves as a pre-filter for optimization - only logs that match the given content strings are considered for matching and parsing by the regular expressions. The log must contain all defined content strings.

      Ensure there is at least one value in the content field section. Content strings are at least three characters long and be as unique as possible for the specific event. Include enough content matches to uniquely identify the log. Using one or more content fields in the ASP rule can improve the matching and parsing process on the McAfee Event Receiver.

      For example, if the log entry is in this format:`<180>Jan 1 00:00:00 testhost ftpd[4325]: FTP LOGIN FROM test.org [192.168.1.1], anonymous`, add content fields for `ftpd` and `FTP LOGIN FROM`.
    - The first regular expression determines if the ASP rule matches the log. The system uses additional expressions to capture values from the log.
    - Use named captures to identify capture groups. The label used for the named capture can consist of letters, numbers, and underscore characters but cannot begin with a number or include a space. The regular expression syntax for a named capture is: `(?P<NAME>regular expression capture)`. For example, a named capture where host name is the name assigned to the capture group would be: `Host\x3d(?P<hostname>\S+)`. When using named captures the Policy Editor displays the capture name instead of the capture number, in the right side of the Parsing tab.
    - Paste a sample log entry to be parsed. The system highlights parts of the log that match your regular expressions in blue.
    - ASP can pre-process certain logging formats to simplify the mapping of data. The following formats are available:
        - Generic - (Default) used if the log does not match the other available formats.
        - CEF - (Common Event Format) - eliminates the need to create a regular expression for each capture, and allow the data to be mapped using the CEF key names found in the log.
        - JSON - Similar to CEF, eliminates the need to create a regular expression for each capture, and allow data to be mapped using the JSON key names found in the log
        - XML - Basic, Simple, or Positional - allows ASP to parse logs that are in XML format and assign parsed data. The XML format choice depends on the type of XML that is in the logs.
        - XML — Basic: Expects XML without any repeated elements.
            - XML — Simple: Expects XML with either a single node with attributes, or a single set of non-repeated elements without nesting.
            - XML — Positional: Expects XML that can have multiple nodes with attributes and multiple repeated elements with nesting.
    - Key/Value — display what the regular expressions parse from the log samples. Key displays two numbers, separated by a colon. The first number indicates the used regular expression, and the second number indicates the capture group in that regular expression. If a captured value is the fourth capture in the third regular expression defined, the key would display 3:4.
    - The parser uses the content string (instead of a regular expression) for matching. Regular expressions are used only to parse messages.

    - If the log contains upper- or lowercase letters, write the expression in the same case then use the Case Insensitive option, enabling case insensitivity for all regular expressions defined in the parsing rule.

5. Field Assignment tab:
   a. Drag and drop the values from the right side to the Expression column next to the Field column on the left.
   b. If the field is not displayed that is needed, click + above the Sample Value column, to display all custom type fields.
   c. Select the wanted field, then click OK.
6. Mapping tab:
    - Date/timestamp of a log message can be parsed using the Time Format variables. McAfee ESM recognizes many standard date/timestamps automatically, but there can be unrecognized formats or ones that display differently. This section allows formatting the time to show up in the proper format when parsed.
    - Use Action Mapping option if there is an action found in the log to be mapped to an available McAfee ESM.
    - Severity mapping maps values in the log to a severity from 1–100. For example, a vendor might define their severity as either Low, Medium, or High in their logs. With the Severity Map section, the severity value can map Low as 25, Medium as 50, and High as 75.
7. Click Finish.
8. In the Policy Editor window, select the new rule.
9. Click disabled, then select enabled.
10. Click the Rollout icon in the upper right corner of the window.
11. If you are prompted to save the rule, click Yes.
12. In the Rollout window, click OK.

Define order for ASP and filter rules

Set the order to run filter or Advanced Syslog Parser (AsP) rules so they generate the data you need.

Before you begin

Verify that you have policy administration privileges.

Task

1. On the McAfee ESM console, click the Policy Editor icon .
2. On the Operations menu, select Order ASP Rules or Order Filter Rules, then select a data source in the Data source type field.
   Rules available to put into order appear on the left; ordered rules appear on the right.
3. On the Standard Rules or Custom Rules tab, move a rule from the left to the right (drag and drop or use the arrows), placing them above or below Unordered Rules.

   Note: Unordered Rules represent the rules in the left, which are those that are in default order.
4. Use the arrows to reorder the rules, then click OK to save the changes.

Add time formats to Advanced Syslog Parser (ASP) rules

Add custom time formats to Advanced Syslog Parser (ASP) rules so that they can sync up with the time formats of ASP logs.

Task

1. On the dashboard, click the Policy Editor icon .
2. In the Rule Types pane, select the receiver, then click Advanced Syslog Parser.
3. Select a rule, then click Edit → Modify.
4. Select the Mapping tab, then click the plus icon above the Time Format table.
5. Click in the Time Format field, then select the time format.
6. Select the time fields that you want to use this format.

   Note: First Time and Last Time see the first and last time the event is generated. Added Custom Type time fields also appear.
7. Click OK, then complete the remaining information.

Import log samples

Use a sample log to test a new rule.

Before you begin

At least one sample log, in plain text format, must be available.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. In the navigation tree, select the data source, then click the Properties icon.
3. Click Upload.
4. Navigate to the log sample file and select it.
5. Click Upload.
6. Click Close.
7. Click Get Events and Flows.
8. Select Events then click Start.
9. Find the events in the dashboard and verify the newly created ASP rule is parsing as expected.

Correlating data

How correlation works

McAfee® Advanced Correlation Engine (McAfee® ACE) identifies and scores threat events in real time, using both rule- and risk-based logic.

Identify what you value (users or groups, applications, specific servers, or subnets) and McAfee ACE alerts you if the asset is threatened. Audit trails and historical replays support forensics, compliance, and rule tuning.

Configure McAfee ACE using real-time or historical modes:

- **Real-time mode** — analyzes events as they are collected for immediate threat and risk detection.
- **Historical mode** — replays available data collected through either or both correlation engines for historical threat and risk detection. When McAfee ACE discovers new zero-day attacks, it determines whether your organization was exposed to that attack in the past, for *subzero day* threat detection.

McAfee ACE devices supplement the existing event correlation capabilities for McAfee ESM by providing two dedicated correlation engines. Configure each McAfee ACE device with its own policy, connection, event and log retrieval settings, and risk managers.

- **Risk correlation —** generates a risk score using rule-less correlation. Rule-based correlation only detects known threat patterns, requiring constant signature tuning and updates to be effective. Rule-less correlation replaces detection signatures with a one-time configuration: Identify what is important to your business (such as a particular service or application, a group of users, or specific types of data). Risk correlation then tracks all activity related to those items, building a dynamic risk score that raises or lowers based on real-time activity.

  When a risk score exceeds a certain threshold, McAfee ACE generates an event and alerts you to growing threat conditions. Or, the traditional rule-based correlation engine can use the event as a condition of a larger incident. McAfee ACE maintains a complete audit trail of risk scores for full analysis and investigation of threat conditions over time.

- **Rule-based correlation** — detects threats using traditional rule-based event correlation to analyze collected information in real time. McAfee ACE correlates all logs, events, and network flows with contextual information, such as identity, roles, vulnerabilities, and more—to detect patterns indicative of a larger threat.

  McAfee Event Receivers support network-wide, rule-based correlation. McAfee ACE complements this capability with a dedicated processing resource that correlates larger volumes of data, either supplementing existing correlation reports or off-loading them completely.

Configure each McAfee ACE device with its own policy, connection, event and log retrieval settings, and risk managers.

Add risk correlation score

You must add conditional statements that assign a score to a targeted field.

Task

1. On the system navigation tree, select ACE Properties, then click Risk Correlation Scoring.
2. Click Add to fill in the requested information:
   - Enable the conditional statement.
   - Select the type of data you want visible to the conditional statement. You can select *Event*, *Flow*, or both.
   - Search for the fields to receive the wanted score and to match the source type against.
   - Select the type of source to compare against. If the selected source type contains a score value in addition to the matching value, the system applies that score.
   - Select the comparing value. Available options vary based on the type of source selected in the previous column.
   - Enter a score to apply to the selected Score Field. A blended score can be applied to the Score Field when entering multiple rules in the grid. You can also enter a weight for a blended score of the conditional statement (cannot exceed 100 percent). The range of the score that can be given to the field selected as the score field depending on the outcome of the conditional rows.

Add correlation managers

Add correlation managers to calculate the risk levels for the fields that you designate.

Before you begin

- Verify that McAfee ACE or McAfee Enterprise Log Manager devices exist on McAfee ESM.
- Make sure that storage pools exist on the McAfee Enterprise Log Manager.
- Make sure zones exist.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the McAfee ACE, then click the Properties icon ⚙.
3. Click Risk Correlation Management.
4. Click Add.
5. On the **Main** tab, enter the manager name and enable it.
   - McAfee ESM collects both event and flow data.

     Indicate whether to send event or flow data to the McAfee ACE device (the default is to send event data only).

     To use flow data, go to ACE Properties → ACE Configuration → Data and select Flow Data.
   - Select Logging to save the logs on the McAfee Enterprise Log Manager. Identify the storage pool on the McAfee Enterprise Log Manager where you want the system to save the logs.
   - If you want the data to be assigned to a zone, select it from the drop-down list.
   - (Rule Correlation only) - Select the amount of time that the rule correlation allows for events to be out of order. For example, if you set up 60 minutes, the system can use an event that is 59 minutes late.
6. On the Fields tab, select the fields that this manager uses to correlate events (maximum of 5 per manager).
   - Select the percentage to apply to each field, totaling 100 percent.

     Note: Risk updates, when below 100 percent critical, report their criticality in terms of what you have defined as FYI, Minor, Warning, Major, and Critical (see Thresholds tab). For example, if your concept of FYI = 50% of the critical value when the risk = 50% of critical, the severity = 20 rather than 50.
   - Select if you don't want a field to be used to determine uniqueness. Avoid correlating against multiple high cardinality fields due to high memory requirements.

     Note: The number of risk lines generated depends on the number of unique combinations of all correlated fields.
7. On the Thresholds tab, set the score thresholds for an event to trigger for each criticality level. Set the rate for the score to decay. Default - for every 120 seconds that a score is in a bucket, it decays by 10 percent until it reaches a score of 5. The bucket for the unique field values is then deleted.
8. On the Filters tab, use logic elements and components to set up filters.
9. Click Finish, then click Write to write the managers to the device.

Configure an McAfee ACE to receive events from specific devices

Distribute correlation workload by assigning McAfee ACEs to receive events from a range of device IDs.

Before you begin

Each correlation manager must be configured with a filter that defines a range of Device IDs for that manager. Use only the In operator to define the device range.

Task

1. Select the McAfee ACE and click Properties. ⚙
2. Click Correlation Management.
3. Select Use the Correlation Managers' filter to narrow events sent from the Receiver(s).

How historical correlation works

Use historical correlation to correlate past events.

When the system discovers a new vulnerability, check your historical events and logs to determine whether your organization was exploited in the past. Replay historical events using the Risk Correlation rule-less correlation engine and the standard rule-based event correlation engine.

Examine historical events against today's threat landscape in these situations:

- Correlation was not set up during the time certain events triggered; correlating those events can reveal valuable information.
- Set up new correlation based on past triggered events and test the new correlation to confirm results.

Be aware of the following when using historical correlation:

- Real-time correlation cannot run until you disable historical correlation.
- Event aggravation skews risk distribution.
- When you move the Risk Manager back to real-time risk correlation, tune the thresholds.

To set up and run historical correlation, you must:

1. Add a historical correlation filter.
2. Run a historical correlation.
3. Download and view the correlated historical events.

Enable historical correlation

Enable historical correlation, which reviews the events, applies the filters, and packages the events that apply.

Task

1. On the system navigation tree, select ACE Properties, then click Historical.
2. Click Add, fill in the information requested, then click OK.
3. Select Enable Historical Correlation, then click Apply.
   Real-time correlation is discontinued until you disable historical correlation.
4. Select the filters you want to run, then click Run Now.
5. After running historical correlation, view the generated events downloaded to McAfee ESM.
   a. On the system navigation tree, select the McAfee ACE device on which you just ran historical correlation.
   b. On the time period drop-down list, select the period you specified when setting up the run.

How correlation rules work

Correlation rules interpret pattern results in the data. Correlation analyzes data and detects patterns in the data flow, generates alerts for these patterns, and inserts alerts into the McAfee Event Receiver alert database.

Correlation rules are separate and distinct from firewalls or standard rules with attributes that specify its behavior. Each McAfee Event Receiver gets a set of correlation rules from an McAfee ESM (deployed correlation rule set), which is composed of zero or more correlation rules set with user-defined parameter values. McAfee ESM includes a base set of correlation rules, which the rule update server updates.

Note: The rules on the rule update server include default values. When you update the base correlation engine rule set, customize these default values so they properly represent your network. If you deploy these rules without changing the default values, they can generate false positives or false negatives.

When you configure a data source, you enable correlation. Only one correlation data source can be configured per McAfee Event Receiver, in a fashion similar to configuring syslog or OPSEC. Once you configure the correlation data source, you can edit the base correlation rule set to create the deployed correlation rule set using the Correlation Rule Editor. You can enable or disable each correlation rule and set the value of each rule's user definable parameters. You can also create custom rules and add correlation components to correlation rules.

Set up correlation rules to compare event fields

Set up correlation rules to compare event fields (for example, compare that the source and destination user are the same). You can also set up a rule that ensures that the source IP address and destination IP address are different.

Task

1. On the McAfee ESM console, click the Policy Editor icon .
2. In the Rule Types pane, select Correlation, click the rule you want to compare fields in, then click Edit → Modify
3. Click the menu icon of a logic component ⋮, then click Edit.
4. In the filters area, click Add, or select an existing filter and click Edit.
5. Click the Default Value Editor icon ☆, type the value and click Add, then select the field on the Fields tab and click Add.

Numeric fields support the following operators: greater than (>), less than (<), greater than or equal to (>=), and less than or equal to (<=).

Configure custom correlation rules

Use a custom correlation rule to generate an alert when McAfee ESM detects 5 unsuccessful logon attempts from a single source on a Windows system, followed by a successful logon, all in 10 minutes.

Task

1. In the Rule Types pane of the Policy Editor, click Correlation.
2. Click New, then select Correlation Rule.
3. Type a descriptive name, then select the severity setting.
   Note: Because an event generated by this rule could indicate that an unauthorized person has accessed the system, an appropriate severity setting is 80.
4. Select the normalization ID, which could be Authentication or Authentication → Login, then drag and drop the AND logic element.
   Note: Select AND because there are two types of actions that need to occur (logon tries first, then a successful logon).
5. Click the Menu icon ⋮ , then select Edit.
6. Select Sequence to indicate that the actions (first, five unsuccessful logon attempts, and second, a successful logon) must occur sequentially, then set the number of times this sequence must occur, which is one (1).
7. Set the period the actions need to occur in, then click OK.
   Note: Since there are two actions that require time windows, the 10-minute period must be divided between the two. For this example, five minutes is the period for each action. Once the unsuccessful attempts have occurred in five minutes, the system begins to listen for a successful logon from the same source IP address in the next 5 minutes.
8. In the Group by field, click the icon, move the Source IP option from the left to the right, indicating that all actions must come from the same source IP address, then click OK.
9. Define the logic for this rule or component:
   - Specify a filter to identify events (in this case, multiple failed logon attempts against a Windows system):
     - Drag and drop the Filter icon ▼ and drop it on the AND logic element.
     - On the Filter Fields Component page, click Add.
     - Select Normalization Rule → In, then select:
       - Normalization
       - Authentication
       - Login
       - Host Login
       - Multiple failed login attempts against a Windows host
     - Click OK .
   - Set the number of times the logon failure needs to occur and the period in which they must occur:
     - Drag and drop the AND logic element to the Filter bar.
       Note: The AND element is used because there are 5 separate attempts that must occur. The element allows you to set the number of times and the length of time that they must occur.
     - Click the Menu icon ⋮ for the AND element you just added, then click Edit.
     - In the Threshold field, enter 5 and remove other values that are present.
     - Set the Time Window field to 5.
     - Click OK.
   - Define the second filter type that needs to occur, which is the successful logon:
     - Drag and drop the Filter icon to the bottom prong of the first AND logic element's bracket.
     - On the Match Component page, click Add.
     - In the fields, select Normalization Rule → In, then select:
       - Normalization
       - Authentication
       - Login
       - Host Login
     - Click OK to return to the Match Component page.

  - To define "successful," click Add, select Event Subtype → In, then click the Variables icon and click Event Subtype → success → Add.
  - Click OK to return to the Policy Editor.

Override correlation rule component

If you set a correlation rule to group by a specific field, you can override a component in the rule to match on a different field.

For example, if you set the Group by field in a correlation rule to source IP address, you can override a component of the rule to use the destination IP address. This means that all events have the same source IP address except the events that match the overridden component. Those events have the same destination IP address as the source IP address of the other events. Override rule components to look for a single event going from a particular destination followed by another event that originates from that destination.

Task

1. On the McAfee ESM console, click the Policy Editor icon .
2. Click Correlation in the Rule Types pane, select a rule, then click Edit → Modify.
3. Drag and drop the Match Component logic element ▼ in the Correlation logic area, then click the menu icon ⋮ , or click the menu icon of an existing Match Component element in the Correlation logic area.
4. Select Edit, click Advanced Options, then select Override Group By and click Configure.
5. On the Configure Group By overrides page, select the override field, then click OK.

Conflicts when importing correlation rules

Exporting correlation rules creates a file with the rule data. But, the file does not include referenced items such as variables, zones, watchlists, custom types, and assets, which this rule might use.

You might encounter import errors if you import a file with referenced rule items that don't exist on the importing system. For example, if rule 1 references variable $abc, and no variable is defined on the importing system that is named $abc, this condition flags the rule as in conflict.

To avoid conflicts, create the needed referenced items (manually or through import where applicable) or change the correlation rule and rule references.

Immediately after the import the system lists which rules are in conflict (flagged with an exclamation point !) or which failed. You can view and change the rule conflict details from this list.

Add parameters to a correlation rule or component

Use parameters to control how correlation rules behave when they execute. Parameters are optional.

Task

1. On the Correlation Rule or Correlation Component pages, click Parameters.
2. Click Add, then enter a name for the parameter.
3. Select the type of parameter you want this to be, then select or deselect the values.

   Note: List and Range values can't be used at the same time. A list value cannot include a range (1–6, 8, 10, 13). The correct way to write it is 1, 2, 3, 4, 5, 6, 8, 10, 13.
4. To select the default value for the parameter, click the Default Value Editor icon ☆.
5. If you do not want the parameter to be externally visible, deselect Externally Visible. The parameter is local to the scope of the rule.
6. Type a description of this parameter, which appears in the Description text box on the Rule Parameter page when the parameter is highlighted.
7. Click OK, then click Close.

Identify what triggered correlation rules

Identify what caused the rule to trigger and to tune for false positives.

Before you begin

- Verify that you have administrator rights or belong to an access group with policy administration permission.

- Verify that correlation data sources exist on McAfee ESM.

Details are always gathered at the time of request. But for rules that use dynamic watchlists or other values that might change often, set the rule to get details immediately after triggering. This reduces the chance that details are unavailable.

Task

1. From the dashboard, click ☰ and select Correlation.
2. Set rules to show details immediately.
   a. On the McAfee ESM console, click the Policy editor icon, then click Correlation in the Rule Types pane.
   b. Click the Details column for the rule and select On.
      You can select more than one rule at a time.
3. View the details:
   a. On the system navigation tree, click Rule Correlation under the McAfee ACE device.
   b. From the view list, select Event Views → Event Analysis, then click the event you want to view.
   c. Click the Correlation Details tab to view the details.
   d. On the Event Analysis view, click the plus sign (+) in the first column next to the correlation event.
      Note: A plus sign appears only if the correlation event has source events.

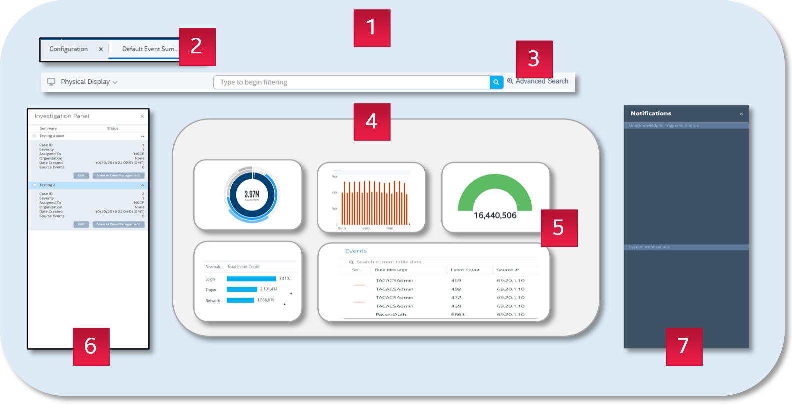
Finding threats

How the dashboard works

The McAfee ESM dashboard is a visual tool that represents data in a form that enables you to find possible threats quickly.

Once you learn what makes up the McAfee ESM dashboard, you can build interactive views to investigate potential threats unique to your organization.

The McAfee ESM dashboard can contain multiple views and interactive tabs that allow you to move between your views quickly. You can use predefined views or build your own unique views with widgets and filters.



Summary	Status
Testing a case	
Case ID	1
Severity	1
Assigned To	NGCP
Organization	None
Date Created	10/30/2016 22:02:51(GMT)
Source Events	0
Testing 2	
Case ID	2
Severity	1
Assigned To	NGCP
Organization	None
Date Created	10/30/2016 22:04:01(GMT)
Source Events	0

Normali...	Total Event Count
Login	3,410,...
Trojan	2,101,414
Network...	1,886,619

Se...	Rule Message	Event Count	Source IP
	TACACSAdmin	459	69.20.1.10
	TACACSAdmin	492	69.20.1.10
	TACACSAdmin	472	69.20.1.10
	TACACSAdmin	439	69.20.1.10
	PassedAuth	6863	69.20.1.10

1. Populate your McAfee ESM dashboard workspace with predefined views or your own custom views.
2. Navigate between views quickly using tabs. Use tabs to explore potential threat across multiple views while still retaining the historical context that has initiated the investigation in a separate tab.
3. Use the filter ribbon to find what you're looking for in query results using real-time functionality. Autocomplete returns results as you build the filter query.
4. Build multiple dashboard views that enable you to pivot, explore, investigate, and respond to potential threats.
5. Represent and drill-down to specific data quickly using interactive, visual widgets.
6. Investigate open incidents without leaving the dashboard, giving you quick access to critical incident details.
7. Respond to unacknowledged, triggered alarms and system notifications.

Description of view components

Custom views enable you to display data using specific view components.

Component	Description
Control Dial	Shows the data at a glance. It is dynamic, and can be linked to other components in the console. It updates as you interact with McAfee ESM. Each dial includes a baseline indicator ( ). Gradients around the outer edge of the dial turn red above the baseline indicator. Optionally, the entire dial can change color to represent anomalous behavior: turning yellow when within a certain threshold of a baseline, or red when that threshold is exceeded. The Rate option allows you to adjust the rate of the data that you are viewing. For example, if you are looking at Current Day and Total Events and change the rate to hour, you see the number of events per hour for the given day. This option is disabled if the query you are viewing is already averaged, such as Average Severity or Average Bytes.

Component	Description
Source and Destination Graph	Displays the overview activity for event or flow IP addresses. The event option allows you to specify IP addresses and view all attacks performed on the specified IP addresses, and view all attacks that the specified IP addresses performed on others. The flow option allows you to specify IP addresses and view the IP addresses that have connected to them, and view the connections the IP addresses made. This graph includes an open field at the bottom of the component that allows you to view the source and destination events or flows for a specific IP address. Type the address in the field or select one that you used previously, then click the Refresh icon ⟳.
Pie Chart	Displays the queried information in a pie graph. It is useful when you have fewer categories to view (for example, a protocol or action query).
Table	Displays the query information in several columns. This component is useful to show event and flow data at its finest granularity.
Bar Chart	Displays the queried information in a bar graph, allowing you to compare the size of each result in a given time range.
List	Displays the selected query data in a list format. This component is useful when you want to view a more detailed list of items in a smaller space.
Distribution	Shows a distribution of events and flows over a period. You can set intervals to look at specific time slices to shape the data.
Note Area	A blank component that is used for text-based notes. It allows you to write notes that are related to the current view.
Count	Displays the total events, assets, vulnerabilities, or flows queried for a specific view.
Title	Allows you to create a title or heading for your view. It can be placed anywhere on your view.
Geolocation Map	Shows the destination and source location of alerts and flows on a geolocation map. Options on this component allow you to switch between selecting city, state, country, and world areas; zoom in and out; and select locations using the **Ctrl** and **Shift** keys.
Filter List	Displays a list of users and groups in your Active Directory. When you add the Filter List component, you can bind other components from the Source User or Destination User filter fields on the Query Wizard and selecting Bind to Active Directory List. You can also view event and flow data associated with the Active Directory by clicking the menu icon.

Open dashboard views

You can open, import, or export more than one dashboard view at a time. You can also copy predefined (default) views or create custom views to suit the needs of your organization.

Before you begin

Verify that you have administrator rights or belong to an access group with view management permission.

Task

1. On the dashboard, click Add View and click the slide-out arrow next to one of the following options.
   - To open an existing view, click Open View.
   - To convert a Flash view into an HTML dashboard view, click Import Flash Views.
   - To create an HTML view, click Create New View. Add widgets and save your view.

2. Save your view.

Toggle dark mode on and off

Setting McAfee ESM to dark mode adjusts the displays to reduce eye strain in dark operating environments.

Task

1. From a data display, click the user name (top right).
2. Set Dark Mode to On or Off.

Configure widgets to show host names or IP addresses

Widgets that list hosts can show either host names or IP addresses.

Before you begin

Host names must be configured for the hosts (System Properties → Hosts).

Task

Toggle the widget between IP addresses and host names by clicking 👤.

Bind dashboard widgets

Binding dashboard widgets links the data between those widgets. Then, when you change data in a parent widget, the data in the bound widget also changes, creating an interactive view. For example, if you bind a widget to a source IP address then choose a specific IP address in the parent widget, the bound widget filters its data by that IP address. Changing the selection in the parent widget refreshes the child widget's data.

Before you begin

Verify that you have administrator rights or belong to an access group with view management permission.

Task

1. Open or create a dashboard view with the widgets that you want to bind.

   Note: You can bind widgets to one data field only.
2. To edit the dashboard view, click ✎ Edit.
3. On the widget you want to bind, click ⋮ . Then, select ⚙ Settings.
4. In the Widget Configuration pane, turn on Binding and select the data you want to filter on (or link to) the widget.
5. Click Save.

   The 🔗 icon appears on bound widgets. Hovering over the icon reveals what data the widget is bound to.
6. Click Save again to save your change to the dashboard view and exit the Edit mode.

Add custom dashboard views

Create unique dashboard views by adding and arranging widgets that enable you to display and interact with specific information.

Before you begin

Verify that you have administrator rights or belong to an access group with view management permission.

Task

1. On the dashboard, clickAdd Tab → Create New View → Add Widget.
2. Configure the widget.
   a. Give your widget a title.
   b. From the available options, select a query source, which pre-populates the query fields, filters, and sorting values. You can use the defaults or change the values.

      Note: The query source you choose determines which visualization options you can choose for the widget.

c. Select the widget's visualization option. Options include: tables, bar charts, pie charts, list charts, gauges, and interactive donut charts.
d. Select whether to bind the widget to data in another widget.

3. Click Create. Once the widget appears on your dashboard, you can change its size and placement.
4. To change the widget once it appears on the dashboard view, click ⋮ . The options on the submenu vary depending on the widget and its corresponding data. Options might include: ⚙ Settings, ◔ Visualization, Details, Actions, Drilldown, Filter On, and Delete.
5. Click Save.

Configure McAfee ESM views

Identify which McAfee ESM views appear for specific users or groups.

Task

1. On the McAfee ESM console, click ⚙ to configure the view.
2. Select views to display on the views list. If the folder is checked, all its subfolders and views are selected. If the folder's checkbox is black, some of its subfolders and views are selected.
3. To organize your views, create custom folders. You can drag and drop views into custom folders and drag and drop copied views into other folders.
4. Rename or delete the selected folders or views.
   Note: You cannot delete read-only views.
5. Select the users or groups who can access and change selected views.
6. Import view files into McAfee ESM. Export custom views to share them with another McAfee ESM or keep the file as backup.
   Note: You cannot export read-only views.
7. Specify the default view for your view pane.

View event time

View the exact time that events are inserted into the receiver's database.

Before you begin

Verify that you have the following permissions:

- View Data to get events and view the event time
- View Management to create a view
- Event Management to change events

Task

1. On the McAfee ESM console, add an events table view that includes the Device Time field.
   a. On the View pane toolbar, click the Create New View icon ⊞.
   b. Click and drag the Table component, then click Next.
   c. Click Fields.
   d. Click Device Time in the list on the left, and move it to the list on the right.
   e. On the Fields page, click OK, then click Finish.
   f. On the View Editing Toolbar, click Save As, type the name for the view, then click OK.
   g. Close the View Editing Toolbar.
   The view is added to the drop-down list of views.
2. View the Device Time in one of these ways.
   Note: If you send an event to remedy, the device time for that event is lost.
   - View the Device Time column in the event table of the view you added.
   - Click the View Data Details icon ☰ at the bottom of the table.
   - Click the Advanced Details tab, then view the Device Time field.

View session details

View event details with a session ID and save them to a csv file on the Session Viewer.

To have a session ID, an event must reside in a session. A session is the result of a connection between a source and destination. Events that are internal to the device or McAfee ESM do not have session IDs.

Task

1. On the view drop-down list, select the view that has the session you need to view.
2. Select the event, click the menu icon on the component title bar, then select Event Drilldown → Events.
3. Click the event, click the Advanced Details tab, then click the View session data icon 🗒 next to the Session ID field.

Results

The Session Viewer opens, displaying the details of the session.

Look around events

From the Event Analysis view, you can look for events that match one or more of the fields in the event in the time frame you select.

Task

1. On McAfee ESM, click the views list, then select Event Views → Event Analysis.
2. Click an event, click the menu icon ⋮, then click Look Around.
3. Select the number of minutes before and after the time of the event that you want the system to search for a match.
4. Click Select filter, select the field that you want the search to match on, then type the value.

   The results are displayed on the Look Around Results view.

   Note: If you leave this view, then want to return to it later, click Event Analysis → Last Look Around.

View IP address event details

If you have a McAfee® Global Threat Intelligence™ (McAfee GTI) license from McAfee, you have access to the new Threat Details tab when you perform an IP Address Details lookup. When you select this option, details about IP addresses are returned, including risk severity and geolocation data.

Before you begin

Verify that you have a current McAfee GTI license.

Task

1. On the McAfee ESM console, select a view that includes a table component such as Event Views → Event Analysis.
2. Click an IP address, click ⋮ on any component that has an IP address, then click IP Address Details.

Flow views

A flow is a record of a connection made through the device. When flow analysis is enabled, data is recorded about each flow, or connection.

Flows have source and destination IP addresses, ports, MAC addresses, a protocol, and a first and last time (indicating duration between the start and finish of the connection).

Because flows are not an indication of anomalous or malicious traffic, there are more flows than events. A flow is not associated with a rule signature (SigID) like an event. Flows are not associated with event actions such as Alert, Drop, and Reject.

Certain data is unique to flows, including source and destination bytes and source and destination packets. Source bytes and packets indicate the number of bytes and packets transmitted by the flow's source. The destination bytes and packets indicate the number of bytes and packets transmitted by the flow's destination.

Flows have a direction, and the source of the flow defines the direction.

- Flows generated by McAfee ESM:
  - An inbound flow originates from outside the HOME_NET.
  - An outbound flow originates from inside the HOME_NET.

- Flows generated by a third party:
    - The third party supplying the data defines the direction of the inbound and outbound flow.

To view flow data, you must enable your system to log flow data. You can then view flows on the Flow Analysis view.

How filters work

In the filters pane, add and delete filter fields, save filter sets, change the default set, manage all filters, and start the string normalization manager. Any filters that are applied to a view are carried forward to the next view that is opened.

When you first log on to McAfee ESM, the default filters pane includes the Source User, Destination User, Source IP, and Destination IP filter fields.

An orange funnel icon appears in the upper-right corner of the view pane indicates that filters are applied to the view. Click the orange icon to clear filters and execute the query again.

Anywhere you have comma-separated filter values such as variables, global filters, local filters, normalized strings, or report filters, you must use quotes if they are not part of a watchlist. If the value is `Smith,John`, you must type `"Smith,John"`. If there are quotes in the value, you must enclose the quotes in quotes. If the value is `Smith,"Boy"John`, you must enter it as `"Smith,""Boy""John"`.

Note: You can use `contains` and `regex` filters.

How string filters work

The contains and regex filters provide you with wildcard capabilities on both index string data and non-indexed string data. These filters have syntax requirements.

Use the contains and regex filters in any text or string field. The case insensitivity icon Aa next to filter field names denotes text fields. Other fields that allow the contains filter do not have that icon.

Syntax Examples

Syntax for contains is `contains(somevalue)` and for regex is `regex(someregularexpression)`.

To make the filters case insensitive, click Aa or include the `/i` regular expression notation, as in `regex(/somevalue/i)`. The search results return values that contain `somevalue`, regardless of case.

The NOT ! and or icons apply to contains and regex values. To show the values in the search results without a value, enter the value and click the ! icon. If you want the results to show one value or another, enter the values and click or.

Example #1 — A simple search

Indexed fields:	`contains(stra),regex(stra)`
Non-indexed fields:	`stra`
Result:	Returns strings with `stra` , such as *administrator, gmestrad,* or *straub*.

Example #2 — An OR search

Indexed fields:	`contains(admin,NGCP),regex((admin|NGCP))`
Non-indexed fields:	`admin,NGCP`
Result:	Returns strings in the field that contain *admin* or *NGCP*. The regex OR requires the extra set of parentheses to function.

Example #3 — A search for special characters, such as in service accounts

A dollar sign:

Indexed fields:	`contains($),regex(\x24)` or `regex(\$)`
Non-indexed fields:	`$`
Result:	Either statement returns strings in the field that contain a `$`.

With regex, if you try to use the `$` without scaling it, the result set returns empty. PCRE escape sequence is a better search method to use.

A percent sign:

Indexed fields:	`contains(%),regex(\x25)`or `regex(\%)`
Non-indexed fields:	`%`

A backslash:

Indexed fields:	`contains(\),regex(\x5c)` or `regex(\\)`
Non-indexed fields:	`\`

Dual back slashes

Indexed fields:	`contains(\\),regex(\x5c\x5c)` or `regex(\\\)`
Non-indexed fields:	`\\`

Note: If you do not use the HEX value or the slash with regex, the *Invalid Regular Expression (ER5-0015)* error can occur.

Example #4 — Search using the `*` wildcard

Indexed fields:	`contains (ad*)`
Non-indexed fields:	`ad*`
Results:	Returns any string that starts with `ad`, such as administrator and address.

Example #5 — Search using Regular Expression

These domains are from Microsoft DNS events.

`regex(nitroguard\x28[3-4]\x29[com|info}+)`
`(3)www(10)nitroguard(3)com(0)`
`(3)www(10)nitroguard(4)info(0)`
`(3)www(10)nitroguard(3)gov(0)`
`(3)www(10)nitroguard(3)edu(0)`
`(3)www(10)nitroguard(7)oddball(0)`

Results:	This regular expression picks out a specific string. In this case, its `nitroguard`, a 3- or 4-digit primary domain, and `com` or `info`. This regex matches the first 2 expressions but not the others. These are examples to show how regex can be used with the feature.

Caveats

- To avoid higher overhead and slower query performance, use `regex` with values with a minimum of three characters.
- This filter can't be used in correlation rules or alarms. The only exception is that it can be used in correlation rules with name/value custom types.
- Using `contains` or `regex` with NOT can cause higher overhead and slower query performance.
- Familiarity with bloom filters is recommended.

Fields that support contains and regex

Learn which text or string fields support contains and regex filters.

Access_Resource	File_Path	Registry_Value
Application	File_Type	Request_Type
Application_Protocol	Filename	Response_Code
Area	Forwarding_Status	Return_Code
Authoritative_Answer	From	RTMP_Application
Bcc	From_Address	Sensor_Name
Caller_Process	FTP_Command	Sensor_Type
Catalog_Name	Host	Sensor_UUID
Category	HTTP_Req_Cookie	Session_Status
Cc	HTTP_Req_Host	Signature ID
Client_Version	HTTP_Req_Method	Signature_Name
Command	HTTP_Req_Referer	SNMP_Error_Code
Contact_Name	HTTP_Req_URL	SNMP_Item
Contact_Nickname	HTTP_User_Agent	SNMP_Item_Type
Cookie	Incomtin_ID	SNMP_Operation
Creator_Name	Interface	SNMP_Version
Database_ID	Interface_Dest	Source User
Database_Name	Job_Name	Source_Context
Datacenter_ID	Job_Type	Source_Logon_ID
Datacenter_Name	Language	Source_Network
DB2_Plan_Name	Local_User_Name	Source_UserID
Delivery_ID	Logical_Unit_Name	Source_Zone
Description	Logon_Type	SQL_Command

Destination User	LPAR_DB2_Subsystem	SQL_Statement
Destination_Directory	Mail_ID	Step_Count
Destination_Filename	Mailbox	Step_Name
Destination_Hostname	Mainframe_Job_Name	Subject
Destination_Logo_ID	Malware_Insp_Action	SWF_URL
Destination_Network	Malware_Insp_Result	Table_Name
Destination_UserID	Management_Server	Target_Class
Destination_Zone	Message_ID	Target_Context
Detection_Method	Message_Text	Target_Process_Name
Device_Action	Method	TC_URL
Direction	NTP_Client_Mode	Threat_Category
Directory	NTP_Opcode	Threat_Handled
DNS_Class	NTP_Request	Threat_Name
DNS_Name	NTP_Server_Mode	To
DNS_Type	Object	To_Address
Domain	Object_Type	URL
Event_Class	Operating_System	URL_Category
External_Application	Policy_Name	User_Agent
External_DB2_Server	Privileged_User	User_Nickname
External_Hostname	Process_Name	Version
External_SessionID	Query_Response	Virtual_Machine_ID
Facility	Reason	Virtual_Machine_Name
File_Operation	Referrer	
File_Operation_Succeeded	Registry_Key	

Filter dashboard views

Filter your dashboard view so that you can focus on specific details in the view.

Before you begin

Verify that you belong to a group with view management or view data permissions.

Task

1. Open the dashboard view you want to filter.
2. Filter the view using these methods:
    - Click the Filter bar and add the relevant field and values.

      Note: You can only use the AND operator in the Filter bar.
        - Accept the default equals (=) operator in the filter.

    - To change the operator to not equals (!=), click the equals sign (=).
    - To remove a field from the filter, click ⊗ on that field.
  - To build complex filters using both AND and OR operators, click Advanced Search.
  - To specify a time frame for the view, click the clock icon on the filter ribbon then select the time frame. If you want to query archived partitions, use the legacy Flash interface to set a Custom Time.
  - To apply predefined filter sets, click Filter Sets.
  - Select a device from the Physical Display drop-down. The filter icon ▼ appears in the filter ribbon indicating that the view is filtered on the selected device.

3. Click 🔍.

Results

The view refreshes to display only the records matching the values you entered.

Filter views with Filter Sets

Create predefined sets of dashboard filters and apply them to views, reports, and queries. Filter Sets let you quickly apply the dashboard filters you use most often.

Note: Alarm types are not supported in filter sets.

Task

1. From the dashboard, click Filter Sets.
   The Filter Set Management panel opens.
2. Create a filter set using one of these methods:
   a. Enter a filter in the filter bar and click Save New Filter Set.
   b. In the Filter Set Management panel, click ⋮ and click Add.
3. Organize your filter sets by creating folders (New Folder) and moving the filter sets into them.
4. Apply filter sets by selecting them in the Filter Set Management panel and clicking Apply. You can apply multiple filters at the same time.
   Applied filters appear in the filter bar.
5. Edit a filter set by selecting it in the Filter Set Management panel and clicking Edit.
6. Share filter sets with other users by clicking ⋮ and clicking Share.

Filter by normalized IDs

When you create views or add filters to a view, you can filter the data using normalized IDs.

Task

1. On the McAfee ESM console, create a view or add filters to the view.
   - To create a view, click Filters on the second page of the Query Wizard.
   - To add filters to a view, select the view to which you want to add them. The Filters pane is on the right of the screen.
2. Locate the Normalized ID field, then click the Filters icon ▼.
3. Select the IDs, then click OK.

Results

The ID numbers selected are added to the Normalized ID field.

Filter by Compliance ID

Unified Compliance Framework (UCF) is an organization that maps the specifics of each regulation to harmonized control IDs. As regulations change, these IDs are updated and pushed to McAfee ESM.

Task

1. To add UCF filters, click the filter icon next to the Compliance ID field and select compliance values to use as filters. Then, click OK → Run Query ⟳.
2. To add Windows event ID filters, click the filter icon next to the Signature ID and select the Windows tab on Filter Variables. Then, type the Windows Event IDs (comma separated) in the text field, or select the values you want to filter by on the list.

Filter views

Filters help you view details about selected items on a view. If you enter filters and refresh the view, the data in the view reflects the filters you added.

Task

1. On the McAfee ESM console, select the view you want to filter.
2. In the Filter pane, filter your view in one of the following ways:
   - Type the filter information in the appropriate field. For example, to filter the view to see only the data that has a source IP address of 161.122.15.13, type the IP address in the Source IP field.
   - Type a `contains` or `regex` filter.
   - Click the Display filter list icon next to the field and select the variables or watchlists to filter on.
   - On the view, select the data you want to use as the filter, then click the field on the Filter pane. If the field is blank, it is auto-populated with the data you selected.

   Note: For Average Severity, use a colon (:) to enter a range. For example, 60:80 is a severity range of 60–80.
3. Specify how to filter the data in your view.
   - Include or exclude data from the view.
   - Use regular and OR filters.
     Note: At least 2 fields must be selected OR for this filter to work.
   - To filter data by case, click Aa.
   - To replace normalized strings with their aliases, click 👤.
4. To run the query, click ⟳.

Results

McAfee ESM refreshes the view. An orange filter icon appears in the upper-right corner of the view pane, indicating that the data in the view is a result of filters. If you click the icon, the system removes the filters and the view shows all data.

View streaming events

View a stream of the events generated by McAfee ePO, McAfee® Network Security Manager, Receiver, data source, child data source, or client you select. You can filter the list and select an event to display in a view.

Task

1. On the system navigation tree, select the device you need to view, then click the View Streaming Events icon in the actions toolbar.
2. Click Start to begin streaming and Stop to stop it.
3. Select any of the available actions on the viewer.
4. Click Close.

View IP address event details

If you have a McAfee® Global Threat Intelligence™ (McAfee GTI) license from McAfee, you have access to the new Threat Details tab when you perform an IP Address Details lookup. When you select this option, details about IP addresses are returned, including risk severity and geolocation data.

Before you begin

Verify that you have a current McAfee GTI license.

Task

1. On the McAfee ESM console, select a view that includes a table component such as Event Views → Event Analysis.
2. Click an IP address, click ⋮ on any component that has an IP address, then click IP Address Details.

How custom types work

Use custom type fields to filter views and reports, and to create custom rules. You can add, edit, or remove custom types, as well as export and import them.

Export or import custom types

You can export custom types to a specific location. Use caution when importing custom types, as they replace current custom types on the system.

When setting up queries for a view, you can use predefined custom types to filter the queries. If no data exists for a specific custom type, the query returns without results. To avoid results like this, select the user field (Custom Field 1 through 10 in the Event Field column of the table) that returns the results that you need instead of using a custom type.

For example, to include source user data in query results, select Source User as a query field. That field acts as a filter and, if the information contains no source user data, the query returns no results. But, if you select User Field 7 (the user field for source user), that field appears as a column in the table of results and doesn't filter the data. If source user data exists, it appears in this column. If no data exists for this field, the User Field 7 column is blank but other columns are populated.

Custom data types

When you select Custom in the Data Type field, you can define the meaning of each field in a multiple field log.

For example, a log (100300.351) contains three fields (100, 300.35, 1). The custom subtype allows you to specify what each of these fields is (integer, decimal, Boolean). For example:

- Initial log — 100300.351
- 3 Subtypes — Integer|decimal|boolean
- Custom Subtype — 100|300.35|1

Note: Subtypes can include a maximum of 8 bytes (64 bits) of data. Space Usage displays the number of bytes and bits used. When data exceeds the maximum space, this field indicates, in red, that the space has been exceeded, for example: Space Usage: 9 of 8 bytes, 72 of 64 bits.

If you select the Name/Value Group data type, you can add a custom type that includes a specified group of name/value pairs. You can then filter views and queries by these named pairs, and use them in Internal Event Match alarms.

Characteristics include:

- Use a regular expression to filter name/value group fields.
- Pairs can be correlated so they are selectable in the Correlation rule editor.
- The Advanced Syslog Parser (ASP) collects the values part of the pair.
- The maximum size for name/value custom types is 512 characters, which include the names. Values exceeding 512 characters are cut off when collected. Limit the size and number of names.
- Names must consist of more than 2 characters.
- Name/value custom types can have up to 50 names.
- Each name in the name/value group appears in the global filter as `<name of the group> - <name>`

Regular expression format for non-indexed custom types

Follow this formatting for non-indexed and indexed string, random string, and hashed string custom types:

- Use `contains(<regular expression>)` syntax or type a value into the non-indexed random string or hashed string fields, then filter custom types.
- Use `regex()` syntax.
- With `contains(),` if you put a comma-separated filter into a non-indexed custom type field (Tom,John,Steve), the system performs a regular expression. The comma and asterisk or a period and asterisk act as a bar (|) in a contains or non-indexed random string or hashed string field. If you type a character such as an asterisk (*), it is replaced with a period followed by the asterisk (.*).
- An invalid regular expression or a missing closing or opening parenthesis can cause bad regular expression errors.

- You can only use a single `regex()` or `contains()` in non-indexed and indexed string, random string, and hashed string custom type filter fields.
- Signature ID field accepts `contains(<on part or all of a rule message>)` and `regex(<on part of a rule message>)`.
- A common search filter for `contains` is a single value, not a single value with a `.*` before and after.

Search filters include:

- Single values
- Multiple values separated by commas, which are converted into a regular expression
- A `contains` statement with a * that acts like .*
- Advanced regular expressions, where you can use the `regex()` syntax

Create custom types

Add custom types to use as filters.

Before you begin

Verify that you have administrator privileges or belong to an access group with user management privileges.

If you have administrator privileges, you see predefined custom types on System Properties → Custom Types.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Custom Types.
4. Click Add:
   - Select a data type from the drop-down list.
     - Time - Seconds Precision stores time data down to the second.
     - Time - Nanosecond Precision stores time down to the nanosecond. It includes a floating-point number with 9 precision values representing the nanoseconds.
     - If you select Index when adding this custom type, the field shows up as a filter on queries, views, and filters. It doesn't appear in distribution components and isn't available in data enrichment, watchlists, or alarms.
   - Select the custom type's slot for each event or flow.
   - To filter by this custom type, select Index Data, which adds the custom type to the list of filters available for views, reports, and rules. The custom type doesn't appear in distribution components and isn't available in data enrichment, watch lists, or alarms. If you don't select this option, you can only filter this custom type with a regular expression.
   - If you select Long Custom or Short Custom in the Data Type field, you can add custom subtypes.
     - Number of Subtypes — Select the number of subtypes that you want to add to the table.
     - Name column — Click each subtype, then type a name.
     - Data Type column — Click each subtype, then select the data type for each subtype.

       Note: If you select Boolean, validation ensures that they appear in groups of 8 subtypes.
     - Length column — If you selected Integer or Unsigned Integer in the Data Type column, select the data length in bytes. An integer's length must be 1, 2, 4, or 8.
     - Manage Indexing — If you selected Accumulator Value in the Data Type field, click to enable indexes for each accumulator field.
   - If you select the Name/Value Group data type, add the value pairs names in the text field.

How queries work

McAfee ESM contains predefined queries that gather data for reports or views.

When adding or editing a view or report, define the query settings for each component by selecting the query type, the query, the fields to include, and the filters to use. Select the data you want gathered by the component. You can also edit or remove queries, and copy an existing query to use as a template to set up a new query.

Manage queries

McAfee ESM comes with predefined queries that gather data for reports or views. You can edit some of the settings on these queries and you can add and remove custom queries.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click Reports, then add or edit the report to access the Query Wizard.
3. On the Query Wizard, copy an existing query to use it as a template for new queries. You can also edit or delete custom queries.
4. Click Finish.

How comparing values works

Distribution graphs have an option that allows you to overlay another variable on top of the current graph.

In this way, two values can be compared to easily show the relationships, for example, between total events and average severity. This feature provides valuable data comparisons over time, at a glance. This feature is also useful for saving screen real-estate when building large views, by combining results onto a single distribution graph.

The comparison is limited to the same type as the selected query. For example, if an event query is selected, you can compare with the fields from the event table only, not the flow or assets and vulnerabilities table.

When you apply the query parameters to the distribution chart, it runs its query as normal. If the comparison field is enabled, a secondary query is run for the data at the same time. The distribution component displays the data for both data sets on the same graph, but uses two separate vertical axes. If you change the chart type, both sets of data continue to display.

Compare graph values

You can compare the data in a distribution graph with a variable you select.

Task

1. Select the Create new view icon ⊞ or the Edit current view icon ✎ .
2. Click the Distribution icon 📊, then drag and drop it on the view to open the Query Wizard.
3. Select the query type and the query, then click Next.
4. Click Compare, then select the field that you want to compare to the query you selected.
5. Click OK, then click Finish.
6. Move the component to the correct location on the view, then:
   - Click Save if you are adding the component to an existing view.
   - Click Save As and add the name for the view if you are creating a new view.

Set up stacked distribution

To see event distribution related to specific fields, set distribution components on views or reports.

When adding components to views or reports, choose how to stack the distribution. When you access the view, you can change the settings, set the interval, and set the chart type and details.

Note: You can't use Stacking and Compare in the same query.

Task

1. Drag and drop the Distribution component on views or reports, then select the query type.
   Note: Stacking is unavailable for Collection Rate or Average (for example, Avg Severity Per Alert or Avg Duration Per Flow) distribution queries.
2. On the second page of the Query Wizard, click Stacking, then select the options.
3. Click OK on the Stacking Options page and Finish on the Query Wizard.
4. Change settings and set interval and chart type by clicking the Chart Options icon ⚙.

How log search works

Use the log search view to search log data when at least one McAfee Enterprise Log Manager exists on the system. It allows you to perform more detailed searches and provides real-time tracking of search progress and results when you perform a search of logs on one or more McAfee Enterprise Log Manager.

This view provides real-time information about the amount of data that must be searched, allowing you to limit the query to minimize the number of files to be searched.

During the search, the graphs show the estimated results:

- **Results Time Distribution graph** — Displays the estimates and results based on a time distribution. The bottom axis changes depending on what is selected in the time frame drop-down list.
- **Data Source Results graph** — Displays the estimates and results per data source based on the data sources of the devices selected on the system navigation tree.
- **Device Type Results graph** — Displays the estimates and results per device type based on the devices selected on the system navigation tree.

The system populates these graphs before the search begins and updates the graphs as results are found. You can select one or more bars on the Data Source Results or Device Type Results graphs, or highlight a section of the Results Time Distribution graph.

Click Apply Filters to narrow the search once the results have started coming in. This allows you to drill down to the search results, and to limit the amount of data that needs to be searched. When the search is finished, these graphs display the actual results.

Search log data quickly

Search uncompressed log data from the McAfee ESM dashboard using McAfee Enterprise Log Search.

Before you begin

Verify that McAfee Enterprise Log Search is configured.

Task

1. On the dashboard, click ≡ and select ELS Search.
2. In the Filter bar, enter information you want to find, then click 🔍 to begin the search.

   Note: The system ignores the following words:*but, be, with, such, then, for, no, with, not, are, and, their, if, this, on, into, a, or, there, in, that, they, was, is, it, an, the, as, at, these, by, to, of*.
3. Refine your search results:
   - Click Search Settings to create an advanced search.
   - Click Search History to view and rerun previous searches.
   - Click ↻ to refresh your search results.
   - Click the drop-down arrow, to filter your search results by time or days.
   - To narrow your search further, enter information in the search results and click 🔍

Perform an enhanced event log search

Search the logs on McAfee Enterprise Log Manager devices for information that you define.

Task

1. On the view pane, select Enhanced ELM search from the drop-down list.
2. If there is more than one McAfee Enterprise Log Manager device on the system, select the devices to search from the drop-down list next to the text field.
3. Type a normal text search or regular expression in the text field.
4. If you want a time frame other than Current Day, select it on the drop-down list.
5. On the system navigation tree, select the devices that you want to search.
6. If needed, select one or more of these options:
   - Case Insensitive — Makes the search case-insensitive.
   - Regular Expression — Treats the term in the search field as a regular expression.
   - Does NOT Contain Search Term — Returns matches that don't contain the term in the search field.
7. Click Search.
8. Copy, download, or save search results.
9. To view saved searches, click ELM Properties → Data.

Define log search jobs and integrity checks

To search the McAfee Enterprise Log Manager for files that match your criteria, define the parameters for the search job. You can also define integrity checks to determine whether files on the McAfee Enterprise Log Manager have changed since they were originally stored.

Task

1. From the system navigation tree, select the McAfee Enterprise Log Manager, then click ⚙.
2. Select Data.
    - On the Search Logs and Files tab, configure the search parameters.
    - On the Integrity Check tab, configure the check parameters.
3. Click Search.

   Note: Running complex searches over long time spans can cause the search process to stop working. Consider breaking these searches into smaller time spans.

Using regex to query ELM data

The Enterprise Log Manager (ELM) uses bloom indexes to optimize queries. While most Perl Compatible Regular Expressions (PCRE) can be used for ELM searches, not every PCRE can be optimized to use the bloom.

The bloom regex optimizer performs pre-tuning to provide optimal searches, but you can obtain even better performance from your queries by keeping a few things in mind.

- You can only use mandatory parts of the regular expression for bloom filtering. The bloom filter only uses substrings in the regular expression that exist in every matching string. The one exception is that you can use a one-level deep OR grouping such as `(seth|matt|scott|steve).`
- You can't use mandatory parts of a regular expression that are shorter than four characters. For example, `seth.*grover` uses `seth` and `grover` with the bloom, but `tom.*wilson` only uses `wilson` because `tom` is too short.
- OR groupings that contain non-constant substrings or a substring that is too-short can't be used. For example, `(start|\w\d+|ending)` can't be used because the middle item in the OR list is not a constant that can be searched for in the bloom. As another example, `(seth|tom|steve)` can't be used because `tom` is too short; but `(seth|matt|steve)` can be used.

The optimizer process for the database runs the regex-to-bloom query. That optimizer deconstructs the regex and finds the mandatory constant substrings.

As an example, the original regular expression is:

```
\|\|(626|629|4725|4722)\|\|.*\|\|(bbphk)\|\|
```

The only part that the bloom uses from this expression is `bbphk`. This change reduces the search set from over a million files down to 20,000.

The regular expression can be further optimized in the following way:

```
(\|\|626\|\||\|\|629\|\||\|\|4725\|\||\|\|4722\|\|).*\|\|bbphk\|\|
```

In this example, the `\|\|` has been moved from before and after the first group to the front and back of each element in the group, which does two things:

- It allows the pipe characters to be included.
- It makes the elements in the first group, which were ignored because they were only three characters, longer than four characters so they can be used.

In addition, the parentheses around `bbphk` have been removed as they were not needed and indicated to the bloom filter that this is a new subgroup. Performing these types of manual adjustments to the regular expression can effectively reduce the search even further to only about 2,000 files.

Note: Running complex searches over long time spans can cause the search process to stop working. Consider breaking searches for long periods into smaller time spans.

Use SFTP to retrieve logs

Configure the McAfee Enterprise Log Manager to allow SFTP access to retrieve logs.

Before you begin

You must have ELM SFTP Access rights.

Task

1. Open an SFTP client such as WinSCP 5.11, Filezilla, CoreFTP LE, or FireFTP.
2. Connect to the McAfee Enterprise Log Manager using its IP address and the configured SFTP port.

   Note: The date indicates when the system inserted the log to the McAfee Enterprise Log Manager.

   The files are presented in two ways: 1) by data source then data and 2) by date then data source.
3. Select the logs and transfer them. Specific steps to accomplish this vary based on the SFTP client you are using.

   Important: Maximum number of files for SFTP transfers is 20,000.

How McAfee Active Response searches work

McAfee Active Response offers continuous visibility and insights into your endpoints, so you can identify breaches as they happen. It helps security practitioners query the current security posture, improve threat detection, and perform detailed analysis and forensic investigations.

If McAfee Active Response is installed as an extension on McAfee ePO devices added to McAfee ESM, you can use McAfee Active Response to search from the McAfee ESM. The search generates a list of current endpoint data, allowing you to:

- View the list of search results
- Create a watchlist populated with search results
- Append McAfee Active Response search data to an existing watchlist
- Add a data enrichment source populated with search results
- Export search data

Note: Searching with McAfee Active Response uses McAfee® Data Exchange Layer (DXL).

When using McAfee Active Response on McAfee ESM note that:

- High availability (HA) receivers do not support McAfee® Data Exchange Layer (DXL).
- Date formats from a McAfee Active Response search are returned as `2018-11-05T23:10:14.263Z` and not converted to the McAfee ESM date format.
- When you append McAfee Active Response data to a watchlist, the system does not validate the data, which means you might add data to a watchlist that doesn't match its type.

Search using McAfee Active Response

Use McAfee Active Response to search for current endpoint data.

Before you begin

Add a McAfee ePO device with McAfee Active Response to McAfee ESM.

Task

1. Define search settings for the McAfee ePO device.
   a. From the McAfee ESM dashboard, click ≡ and select System Properties.
   b. On the system navigation tree, select the device, then click the Properties icon ⚙.
   c. Click McAfee ePO Properties, then click Connection.
   d. Select Enable DXL and specify an Agent Wake-up Port (default is 8081).
2. On the McAfee ESM dashboard, select a view with a table widget, such as Event Analysis.
3. Click an event, then click ⋮.
4. Select Actions → Execute Active Response Search, then select a predefined search type.

   Note: Search types are grayed out if the table doesn't have the appropriate fields for the search.

   - File details of the source and destination IP address, such as the operating system and name
   - User details
   - Source IP address process details for what established the connection
   - Destination IP address process details for what established the connection
   - Anyone connected to the same source or destination IP address

View McAfee Active Response search results

After running an McAfee Active Response search, there are actions you can take to manage the data that was generated.

Task

1. Run a McAfee Active Response search.
2. Select a row in the results, then click the Menu icon ⋮.
    - Create a new static watchlist or append to an existing watchlist, using the values from the selected column.
      Note: No validation is performed on the data selected from this table.
    - Export the data to a .csv file.
    - Perform another search on the selected row. If there are results, new data replaces the current data.

Add McAfee Active Response data enrichment sources

You can add data enrichment sources to McAfee ESM that are populated with McAfee Active Response search results.

Before you begin

Add a McAfee ePO device with McAfee Active Response to McAfee ESM.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Data Enrichment, then click Add.
4. Complete the requested information on the Main tab.
5. On the Source tab, select McAfee Active Response in the Type field, then fill in the requested information.
6. Complete the information on the remaining tabs, then click Finish.

Results

The source is added and the data you specified is enriched with the McAfee Active Response data.

Note: The McAfee Active Response type is not listed if the McAfee ESM fails to pull the McAfee Active Response collectors over DXL.

How cyber threat works

McAfee ESM allows you to retrieve indicators of compromise (IOC) from remote sources and quickly access related IOC activity in your environment.

Cyber threat management enables you to set up automatic feeds that generate watchlists, alarms, and reports, giving you visibility to actionable data. For example, you can set up a feed that automatically adds suspicious IP addresses to watchlists to monitor future traffic. That feed can generate and send reports indicating past activity. Use Event Workflow views → Cyber Threat Indicators views to drill down quickly to specific events and activity in your environment.

Supported IOC types

When you add a manual upload cyber threat feed, McAfee ESM sends the Structured Threat Information eXpression (STIX) file to the Indicator of Compromise (IOC) engine to be processed. If the file doesn't contain an IOC that is normalized for McAfee ESM, you receive an error message.

Indicator types normalized for McAfee ESM

Indicator type	Watchlist type
Email Address	To, From, Bcc, Cc, Mail_ID, Recipient_ID
File Name, File Path	File_Path, Filename, Destination_Filename, Destination_Directory, Directory
(Flows) IPv4, IPv6	IPAddress, Source IP, Destination IP
(Flows) MAC Address	MacAddress, Source MAC, Destination MAC

Indicator type	Watchlist type
Fully qualified domain name, Host Name, Domain Name	Host, Destination_Hostname, External_Hostname, Domain, Web_Domain
IPv4, IPv6	IPAddress, Source IP, Destination IP, Attacker_IP, Grid_Master_IP, Device_IP, Victim_IP
MAC Address	MacAddress, Source MAC, Destination MAC
MD5 Hash	File_Hash, Parent_File_Hash
SHA1 Hash	SHA1
Subject	Subject
URL	URL
User name	Source User, Destination User, User_Nickname
Windows Registry Key	Registry_Key, Registry.Key (Registry subtype)
Windows Registry Value	Registry_Value, Registry.Value (Registry subtype)

Access threat details

Quickly drill down to threat details, file descriptions, and corresponding events for indicators of compromise (IOC) from external data sources, identified by cyber threat feeds.

Before you begin

Verify that you have the Cyber Threat User permission, which allows you to view the results of your organization's cyber threat feeds.

Task

1. From the dashboard, click ≡ and select Cyber Threat Indicators.
2. On the McAfee ESM console, then select Event Workflow Views → Cyber Threat Indicators.
3. On the time frame list, select the time period for the view.
4. Filter by feed name or supported IOC data types.
5. Perform any standard view action, including:
    - Create or append to a watchlist.
    - Create an alarm.
    - Execute a remote command.
    - Create an incident.
    - Look around or last look around.
    - Export the indicator to a CSV or HTML file.
6. Drill down to threat details using the Description, Details, Source Events, and Source Flows tabs.

Set up cyber threat feed for domain

To enable a domain feed, you must have two watchlists to hold IP address and domain data.

Before you begin

Verify that you have the following permissions:

- Cyber Threat Management - allows you to set up a cyber threat feed
- Cyber Threat User - allows you to view the data generated by the feed

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Select Cyber threat feeds → Add, then create a feed.

3. On the Watchlist tab, click Create New Watchlist, and add two watchlists:
    - Name: CyberThreatIP, Type: IP Address
    - Name: CyberThreatDomain, Type: Web_Domain
4. In the Indicator Type field, select IPv4, then select CyberThreatIP in the Watchlist field.
5. In the next Indicator Type field, select Fully Qualified Domain Name, then select CyberThreatDomain in the Watchlist field.
6. Complete the cyber threat feed setup, then click Finish.

Set up cyber threat management

Set up feeds to retrieve indicators of compromise (IOC), STIX formatted XML, from remote sources. You can then use these feeds to generate watchlists, alarms, and reports that allow users to access related IOC activity in your environment.

Before you begin

Verify that you have the following permissions:

- Cyber Threat Management - allows you to set up a cyber threat feed
- Cyber Threat User - allows you to view the data generated by the feed

Task

1. On the system navigation tree, click System Properties.
2. Click Cyber Threat Feeds, then click Add.
3. On the Main tab, enter the feed name.
4. On the Source tab, select the source data type and its connection credentials. Click Connect to test the connection.
    Note: Supported sources include McAfee Advanced Threat Defense and MITRE Threat Information Exchange (TAXII).
5. On the Frequency tab, identify how often the feed pulls the IOC files (pull frequency). Available pull frequencies include: every x minutes, daily, hourly, weekly, or monthly. Specify the daily trigger time.
6. On the Watchlist tab, select which property or field in an IOC file to append to an existing watchlist. You can add watchlists for any supported property or field.
    If the watchlist you need does not yet exist, click Create New Watchlist.
7. On the Backtrace tab, identify which events (default) and flows to analyze, matching data to analyze, and how far back to analyze data against this feed.
    a. Choose to analyze events, flows, or both.
    b. Indicate how far back (in days) to analyze the events and flows.
    c. Specify actions to take if the backtrace finds a data match.
    d. For alarms, select an assignee and severity.
8. Return to the Main tab, then select Enabled to activate this feed.
9. Click Finish.

Results

You are informed when the process is completed successfully.

IOC STIX XML file upload errors

When you add a manual upload cyber threat feed, McAfee ESM sends the Structured Threat Information eXpression (STIX) file to the Indicator of Compromise (IOC) engine to be processed.

If there is a problem with the upload, you receive one of these errors.

Cyber threat manual upload errors

Error	Description	Troubleshooting
ER328 — Invalid STIX format	The file format is incorrect.	• Make sure that the uploaded file is a STIX file. The engine supports STIX version 1.1. • Read the STIX documentation to verify that the schema is valid.

Error	Description	Troubleshooting
		◦ Open Standards for Information Society (OASIS) — Organization in charge of STIX standards. ◦ STIX Project — Contains the various STIX data models, schemas, and xsd documents.
ER329 — No supported IOCs found	The uploaded STIX file doesn't contain indicators that are normalized for McAfee ESM.	If a specific indicator needs to be processed, contact Support so that it can be normalized.

Responding to threats

How alarms work

Alarms drive actions in response to specific threat events. You can define conditions that trigger alarms and what happens when alarms trigger.

Build alarms

Before you can build and respond to alarms, ensure that your environment contains the following building blocks:

- Alarm message templates
- Message recipient groups
- Mail server connection
- Alarm audio files
- Alarm reports queue
- Visible alarms pane on the dashboard

Building too many or too few alarms that trigger frequently can create distracting noise. The best approach is to build alarms that escalate events that are critical to your organization.

Monitor and respond to alarms

View, acknowledge, and delete triggered alarms using dashboard views, alarm details, filters, and reports.

- **Viewing triggered alarms** — The Alarms pane on the dashboard lists the total number of alarms by severity.

Symbol	Severity	Range
🟥	High	66–100
🟧	Medium	33–65
🟦	Low	1–32

- **Acknowledging triggered alarms** — The system removes acknowledged alarms from the Alarms pane on the dashboard, but acknowledged alarms remain on the Triggered Alarms view.
- **Deleting triggered alarms** — The system removes triggered alarms from the Alarms pane and the Triggered Alarms view.

Note: If you use visual alerts and do not close, acknowledge, delete a triggered alarm, the visual alert closes after 30 seconds. Audio alerts play until you close, acknowledge, or delete the triggered alarm or click the audio icon to stop the alert.

Refine and tune your alarms as you learn what works best for your organization.

Enable or disable alarm monitoring

Toggle alarm monitoring on or off for the entire system or for individual alarms. McAfee ESM alarm monitoring is turned on (enabled) by default.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Alarms.
4. To disable or enable alarm monitoring for the entire system, click the Settings tab, then click Disable or Enable.

   Note: If you disable alarm monitoring, McAfee ESM generates no alarms.
5. To disable or enable individual alarms, click the Alarms tab. The Status column indicates whether alarms are *enabled* or *disabled*.
   - To enable (turn on) a specific alarm, highlight it and select Enabled.

   - To disable (turn off) a specific alarm, highlight it and deselect Enabled. McAfee ESM no longer generates this alarm.

6. Click OK.

Create alarms

Create an alarm so that it triggers when your defined conditions are met.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Alarms, then click Add.
4. Summary tab — define the general alarm settings, such as the name, assignee, severity, and whether the alarm is turned on (enabled) or off.
5. Condition tab — identify which conditions trigger alarms:
   - Check Rate — Select how often the system checks for this condition.
   - Deviation — Specify a percentage threshold to check above baseline and a different percentage below baseline.
     - Query — Select the type of data you are querying.
     - Filters icon — Select the values to filter the data for this alarm.
     - Time Frame — Select whether to query the last or previous time period selected in the number field.
     - Trigger when the value is — Select how far above and below the baseline the deviation is before McAfee ESM triggers the alarm.
   - Event Rate:
     - Event Count — Enter the number of events that must occur before McAfee ESM triggers the alarm.
     - Filters icon — Select the values to filter the data.
     - Time Frame — Select in what interval the number of selected events must occur before McAfee ESM triggers the alarm.
     - Offset — Select how long to offset so the alarm does not include the sharp increase at the end created by aggregation. For example, if McAfee ESM pulls events every five minutes, the last one minute of the events retrieved contain the aggregated events. Offset the time period by that amount so the last one minute is not included in the data measurement. Otherwise, McAfee ESM includes the values in the aggregated data in the event count, causing a false positive.
   - Field Match:
     - Drag and drop the AND or OR icon to set up the logic for the alarm's condition.
     - Drag and drop the Match Component icon onto the logic element, then complete the Add Filter Field page.
     - Limit the number of notifications you receive by setting the Maximum Condition Trigger Frequency. Each trigger only contains the first source event that matches the trigger condition, not the events that occurred in the trigger frequency period. New events that match the trigger condition do not cause the alarm to trigger again until after the maximum trigger frequency period. For example, if you set the frequency to 10 minutes and an alarm triggers five times in a 10-minute period, McAfee ESM sends a single notice with 5 alarms.

       Note: If you set the interval to zero, every event that matches a condition triggers an alarm. For high frequency alarms, a zero interval can produce many alarms.
   - Health Monitor Status — Select the types of device status changes. For example, if you select only Critical, you are not notified if there is a health monitor status change at the Warning level.
   - Internal Event Match:

     Note: Internal events have a time range of four hours. For example, if internal events occur more than four hours in the past, no alarm triggers.

     - Trigger when value does not match — Select to trigger the alarm when the value doesn't match your setting.
     - Use Watchlist — Select if a watchlist contains the values for this alarm.

       Note: Values with commas must be in a watchlist or in quotes.
     - Field — For alarms that trigger when the system generates health monitor events, select the type of data to monitor.
     - Value(s) — Type the specific values of the type selected in Field (limited to 1,000 characters). For example, for Source IP, enter the actual source IP addresses that trigger this alarm.

- Maximum Condition Trigger Frequency — Select the amount of time to allow between each condition to prevent a flood of notifications.
- *Event Delta condition type only* Threshold — Select the maximum allowed delta for the analyzed events before the alarm triggers.
- Type — Select the alarm type, which determines the fields you must fill in.

6. Devices tab — select which devices this alarm monitors.
7. Actions tab — identify what happens when the alarm triggers.

   - Log event — Create an event on the McAfee ESM.
   - Auto-acknowledge Alarm — Acknowledge the alarm automatically, right after it triggers. As a result, the alarm doesn't appear on the Alarms pane but the system adds it to the Triggered Alarms view.
   - Visual alert — Generate an alarm notification on the bottom right of the console. To include an audio notification, click Configure --> Play Sound, then select an audio file.
   - Create incident — Create an incident for the selected person or group. Click Configure to identify the incident owner and to select which fields to include in the incident summary.

     Note: If you plan to escalate alarms, do not create incidents.
   - Update watchlist — Change watchlists by adding or removing values based on the information contained in up to 10 alarm-triggering events. Click Configure and select which field from the triggering event to append to or remove from the selected watchlist. When these settings change a watchlist, the Actions tab on the Triggered Alarm view shows the change.

     Note: This action requires Internal Event Match as the condition type.
   - Send message — Send email or text messages to the selected recipients.

     - Click Add recipient, then select the message recipients.
     - Click Configure to select the template (for email, text message, SNMP, or syslog messages) and the time zone and date format to use for the message.

       Note: Characters in alarm names might cause issues when sending text messages. Avoid using commas (,), quotation marks ("), parenthesis ( ), forward or backward slashes (/ \), semicolons (;), question marks (?), at symbols (@), brackets ([ ]), more than and less than signs (< >), and equal signs (=).

   - Generate reports — Generate a report, view, or query. Click Configure, then select a report on the Report Configuration page or click Add to design a new report.

     Note: If you plan to email a report as an attachment, check with your mail administrator to determine the maximum size for attachments. Large email attachments can prevent a report from being sent.
   - Execute remote command — Execute a remote command on any device that accepts SSH connections, except McAfee devices on the McAfee ESM. Click Configure to select the command type and profile; time zone and date format; and the host, port, user name password, and command string for the SSH connection.

     Note: If the alarm condition is Internal Event Match, use variables to track specific events (☆ Insert variable).
   - Send to Remedy — Send up to 10 events to Remedy per triggered alarm. Click Configure to set up the information required to communicate with Remedy: from and to data, prefix, keyword, and user ID (EUID). When events are sent to Remedy, McAfee ESM adds Sent events to Remedy to the Actions tab on the Triggered Alarm view. This action requires Internal Event Match as the condition type.
   - Assign Tag with ePO — Apply McAfee ePolicy Orchestrator tags to the IP addresses that trigger this alarm. Click Configure and select the following information:

     - Select ePO device — Device to use for tagging
     - Name — Tags you want applied (only tags available on the selected device appear on the list).
     - Select the field — Field to base the tagging on.
     - Wake up client — Apply the tags immediately.

     Note: This action requires Internal Event Match as the condition type.
   - Blacklist — Select which IP addresses to blacklist when an alarm triggers. Click Configure and select the following information:

     - Field — Select the type of IP address to blacklist. IP address blacklists both source and destination IP addresses.
     - Device — Select the device where you want the IP addresses blacklisted. Global adds the device to the Global Blacklist.
     - Duration — Select how long to blacklist the IP addresses.

     Note: This action requires Internal Event Match as the condition type.
   - Custom alarm summary — Customize the fields that are included in the summary of a Field Match or Internal Event Match alarm.

8. Escalation tab — identify how to escalate the alarm when it is unacknowledged in a certain time.

Identify when to escalate, who receives the escalation, how to send the escalation, and whether to log the escalation as an event, generate reports, or execute scripts on devices that accept SSH connections.

Copy alarms

Use existing alarms as templates for new alarms, by copying and saving it with a different name.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Alarms.
4. Select an enabled alarm, then click Copy.
   The Alarm Name page displays the name of the current alarm followed by `_copy`.
   Note: You can not copy disabled alarms.
5. Change the name, then click OK.
6. To change alarm settings, select the copied alarm and click Edit.

Build specific alarms

Create alarm message templates

Create alarm message templates for email, Short Message Services (text message), Simple Network Management Protocol (SNMP), or syslog. You can then associate the templates with specific alarm actions and message recipients.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Alarms.
4. Click the Settings tab, then click Templates. You can add, change, and delete custom templates, and copy existing templates.
   Note: You cannot edit or delete predefined templates.
   - Indicate whether templates are for email or text messages.
     - Text messages - limit to 140 characters. The system sends text messages as email to phones; phone carriers then convert to text messages.
     - Syslog messages - limit the message body to fewer than 950 bytes. McAfee ESM cannot send syslog messages that exceed 950 bytes.
   - Delete default fields you don't want included in the message.
   - Insert data fields in the template. If you select Repeating Block, McAfee ESM adds the syntax required to loop through records. Insert fields that you want to include for each record between the [$REPEAT_START] and [$REPEAT_END] markers. McAfee ESM then includes this information in the message for up to 10 records.
   - To include source events in alarms that use correlation events as a match ( ), click the Insert Field icon and select Source Events Block.
   - When you select Internal Event Match or Field Match as the alarm type, McAfee ESM includes event field data in the email.
     - Select Field Match for data source-driven alarms that run on the McAfee Event Receiver not McAfee ESM.
     - Select Internal Event Match for alarms that run on McAfee ESM and force queries to run every time the alarm frequency expires.

Configure alarm recipients

Configure alarm recipients and how to send their alarm messages, using email, Short Message Services (text message), Simple Network Management Protocol (SNMP), or syslog.

Before you begin

- Verify that you have administrator privileges or belong to an access group with alarm management privileges.
- Verify that the profiles you intend to use exist.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click the Alarms → Settings tab.
4. Configure recipient information.
    - SNMP recipients:
        - The general trap type is always set to 6, Enterprise Specific.
        - Enter the full enterprise object identifier (OID) for the trap to be sent. Include everything from the first 1 through the enterprise number, including any subtrees in the enterprise.
        - Include Informative Data Bindings — contains variable bindings information, including the line number of the processed report, string identifying the trap source, name of the notification generating the trap, and ID of the McAfee ESM sending the trap.
        - Include report data only — the trap does not include extra variable bindings.
        - SNMP traps generated from reports contain one line of data from that report.
            - Send each report line as is — The data from the report line is sent as is in a single variable binding. The system constructs the data binding OIDs by concatenating the Enterprise OID, the specific trap type, and an auto-incrementing number beginning with the number 1.
            - Parse results and use these binding OIDs — The system parses the report line and sends each field in a separate data binding.
        - Specify custom data binding OIDs.
            - If you select this option, click Add and type the binding OID value.
            - If you do not specify variable OIDs for all data fields in the report, McAfee ESM increments from the last OID specified in the list.
    - Syslog recipients: enter each recipient's host IP address, port, facility, and message severity.

Obtain custom audio files for alarms

McAfee ESM includes three preinstalled audio (sound) files. Obtain custom audio files to use with alarm alerts.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click the Alarms → Settings tab.
4. Click Audio to download, upload, delete, or play custom audio files.

Set up correlation alarms to include source events

To include source events information in alarm results, set up an Internal Event Match or Field Match alarm that uses a correlation event as the match.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Alarms.
4. Click the Settings tab, then click Templates.
5. On the Template Management page, click Add, then enter the information requested.
6. In the Message Body section, place your cursor where you want to insert the tags, then click the Insert Field icon ☆, and select Source Event Block.
7. Place your cursor inside the tags, click the Insert Field icon again, then select the information you want to include when the correlation alarm triggers.

Results

The following example shows what an alarm message template looks like when you insert fields for an event's source IP address, destination IP address, and severity:

```
Alarm: [$Alarm Name]
Assignee: [$Alarm Assignee]
Trigger Date: [$Trigger Date]

Summary: [$Alarm Summary]

      [$REPEAT_START]
      Correlation SigID: [$Signature ID]
      Correlated Last Time: [$Last Time]

      [$SOURCE_EVENTS_START]
      Source Event Details:

      Last Time: [$Last Time]
      SigID: [$Signature ID]
      Rule Message: [$Rule Message]
      Severity: [$Average Severity]

      Src User: [$%UserIDSrc]
      Src IP: [$Source IP]
      Src Port: [$Source Port]

      Dst User: [$%UserIDDst]
      Dst IP: [$Destination IP]
      Dst Port: [$Destination Port]

      Host: [$%HostID]
      Command: [$%CommandID]
      Application: [$%AppID]
      Packet: [$Packet Data]

      [$SOURCE_EVENTS_END]
      [$REPEAT_END]
```

Note: If a correlated event does not trigger the alarm, the message does not include the data.

Logic elements

When you add a McAfee Application Data Monitor device, database, and correlation rule or component, use Expression Logic or Correlation Logic to build the rule's framework.

Element	Description
AND	Functions the same as a logical operator in a computer language. Everything that is grouped under this logical element must be true for the condition to be true. Use this option if you want all conditions under this logical element to be met before a rule is triggered.

Element	Description
OR	Functions the same as a logical operator in a computer language. Only one condition grouped under this element has to be true for this condition to be true. Use this element if you want only one condition to be met before the rule is triggered.
SET	For correlation rules or components, SET allows you to define conditions and select how many conditions must be true to trigger the rule. For example, if two conditions out of three in the set must be met before the rule is triggered, the set reads *2 of 3.*

Each of these elements has a menu with at least two of these options:

- Edit — You can edit the default settings.
- Remove logical element — You can delete the selected logical element. If it has any children, they aren't deleted and move up in the hierarchy.

  Note: This doesn't apply to the root element (the first one in the hierarchy). If you remove the root element, all children are also removed.
- Remove logical element and all of its children — You can delete the selected element and all its children from the hierarchy.

When you set up the rule's logic, you must add components to define the conditions for the rule. For correlation rules, you can also add parameters to control the behavior of the rule or component when it executes.

Create UCAPL alarms

Create alarms that meet Unified Capabilities Approved Products List (UCAPL) requirements.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. Create an Internal Event Match alarm matching on Signature ID for specific triggers:
   - When multiple failed logons for the same user reach an adjustable threshold, set the value to `306-36`.
   - When a user account is locked due to reaching the no activity threshold, set the value to `306-35`.
   - If a user tries to log on to the system after reaching the number of allowed concurrent sessions, set the value to `306-37`.
   - When a system file integrity check fails, set the value to `306-50085`.
   - When common access card (CAC) or web server certificates are about to expire set the value to `306-50081`, `306-50082`, `306-50083`, or `306-50084`.

     Note: The alarm triggers 60 days before the certificate expires, then on a weekly basis. You cannot change the number of days.
2. Configure an SNMP trap so that the alarm sends a trap to the NMS when it detects that the system is no longer operating in an approved or secure state.
   a. Create an alarm matching on any condition, then go to Actions tab → Send Message.
   b. Click Add Recipients → SNMP, select the recipient, then click OK.
   c. Click Send Message → Configure → Templates → Add.
   d. In the Type field, select SNMP Template, enter the text for the message, then click OK.
   e. On the Template Management page, select the new template, then click OK.
   f. Complete the remaining alarm settings.
3. Configure a syslog message so that the alarm sends a syslog message to NMS when it detects that the system is no longer operating in an approved or secure state.
   a. Create an alarm matching on any condition, go to the Actions tab → Send Message.
   b. Click Add Recipients → Syslog, select the recipient, then click OK.
   c. In the Send Message field, click Configure → Templates → Add.
   d. In the Type field, select Syslog Template, enter the text for the message, then click OK.
   e. On the Template Management page, select the new template, then click OK.
   f. Complete the remaining alarm settings.
4. Configure an SNMP trap so that the alarm notifies the appropriate Network Operations Center (NOC) in 30 seconds if a security log fails to record required events.

   a. Go to System Properties → SNMP Configuration → SNMP Traps or device Properties → device Configuration → SNMP.
   b. Select the security log failure trap, then configure one or more profiles for the traps to be sent to, then click Apply.

   McAfee ESM sends SNMP traps to the SNMP profile recipient with the message `Failed to write to the security log`.
5. Configure an SNMP trap so that the alarm notifies when the audit functions (such as the database, cpservice, IPSDBServer) start or shut down, access SNMP traps or SNMP Settings, and select Database Up/Down Traps. Configure one or more profiles for the traps to be sent to, and click Apply.
6. Trigger an alarm when an administrative session exists for each of the defined administrative roles.
   a. Create an Internal Event Match alarm matching on Signature ID.
   b. Enter the values `306-38` for Audit Administrator, `306-39` for Crypto-Administrator, and `306-40` for Power User. You can also set up separate alarms.

Add field match alarms

Set up alarms to notify you when multiple event fields match and the device receives and parses the event.

Before you begin

- Verify that you have administrator privileges or belong to an access group with alarm management privileges.
- Review how to use logic elements.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Alarms.
4. Click Add, type the alarm name and select the assignee, then click the Condition tab.
5. In the Type field, select Field Match, then set up the conditions for the alarm.
   a. Drag and drop the AND or OR to set up the logic for the alarm's condition.
   b. Drag and drop the Match Component icon onto the logic element, then complete the Add Filter Field page.
   c. In the Maximum Condition Trigger Frequency field, select the amount of time to allow between each condition to prevent a flood of notifications. Each trigger only contains the first source event that matches the trigger condition, not the events that occurred in the trigger frequency period. New events that match the trigger condition do not cause the alarm to trigger again until after the maximum trigger frequency period.

   Note: If you set the interval to zero, every event that matches a condition triggers an alarm. For high frequency alarms, a zero interval can produce many alarms.
6. Click Next and select the devices to be monitored for this alarm. This alarm type supports Receivers, local Receiver-Enterprise Log Managers (ELMs), Receiver/ELM combos, ACEs, and Application Data Monitors (ADMs).
7. Click the Actions and Escalation tabs to define the settings.
8. Click Finish.

Results

The alarm writes out to the device.

Note: If the alarm fails to write out to the device, an out-of-sync flag appears next to the device in the system navigation tree. Click the flag, then click Sync Alarms.

Add health monitor event alarms

Create alarms based on health monitor events, which can then generate a Health Monitor Event Summary report.

Before you begin

- Verify that you have administrator privileges or belong to an access group with alarm management privileges.
- Review available health monitor signature IDs.

Task

1. To set up an alarm before a health monitor event is generated:
   a. Set up an alarm Condition with the Internal Event Match type.
   b. On the Field line, select Signature ID.

   c. In the Values field, enter the signature ID for the health monitor rules.
   d. Fill out the remaining settings for the alarm.

2. To set up an alarm if a health monitor event exists:
   a. On the system navigation tree, click (Local ESM). Then select a view that displays the health monitor event (Event Analysis or Default Summary).
   b. Click the event, then click ⋮.
   c. Select Actions → Create new alarm from, then click Signature ID.
   d. Fill out the remaining settings for the alarm.

Health monitor signature IDs

Use these rules to create an alarm that notifies when a health monitor rule event is generated. This list describes the health monitor rules and their signature IDs, type, device, and severity.

Rule name	Signature ID	Description	Type	Device	Severity
A physical network interface connection has been made or removed	306-50080	Network interface settings changed, via an SSH session.	Software Monitor	McAfee ESM	Medium
A RAID error has occurred	306-50054	RAID errors encountered.	Hardware Monitor	All	High
Account disabled due to inactivity	306-35	User account disabled, due to inactivity.	Software Monitor	McAfee ESM	Medium
Account disabled due to max logon failures	306-36	User account disabled, due to maximum logon failures.	Software Monitor	McAfee ESM	High
Add/Edit Remote Command	306-60	Alarm remote command added or deleted.	Software Monitor	McAfee ESM	Low
Advanced Syslog Parser collector state change alert	306-50029	ASP parser stopped or started.	Software Monitor	Receiver	Medium
ADM distiller process	306-50066	ADM PDF/DOC text extraction engine stopped or started.	Software Monitor	ADM	Medium
Archive configuration change	306-3	McAfee ESM archival settings changed.	Software Monitor	McAfee ESM	Low
Archive process state change alert	306-50051	Receiver archiving process stopped or started.	Software Monitor	ADM/REC/DBM	Medium
Asset vulnerable to event	146-10, 306-10	Vulnerability event created.	Software Monitor	McAfee ESM	Low

Rule name	Signature ID	Description	Type	Device	Severity
Audit administrator user logon	306-38	UCAPL event, audit administrator logon.	Software Monitor	McAfee ESM	Low
Backup configuration change	306-1	McAfee ESM backup configuration settings changed.	Software Monitor	McAfee ESM	Low
Backup performed	306-2	Backup performed on the system.	Software Monitor	McAfee ESM	Low
Blue Martini parser alert	306-50071	Blue Martini parser stopped or started.	Software Monitor	Receiver	Medium
Bypass NIC state alert	306-50001	NIC entered or exited bypass status.	Software Monitor	IPA/ADM	Medium
CAC cert has expired	306-50082	McAfee ESM CAC certificate expired.	Software Monitor	McAfee ESM	High
CAC cert expires soon	306-50081	McAfee ESM CAC certificate expires soon.	Software Monitor	McAfee ESM	Medium
Case changed	306-70	Case changed.	Software Monitor	McAfee ESM	Low
Case status added/modified/deleted	306-73	Case status changed.	Software Monitor	McAfee ESM	Low
Communication channel state change alert	306-50013	Control channel stopped or started.	Software Monitor	All	Medium
Data allocation configuration change	306-7	McAfee ESM data allocation settings changed.	Software Monitor	McAfee ESM	High
Data partitions free disk space alert	306-50005	Free space on each partition is low (for example, hada_hd has 10% free space).	Software Monitor	All	Medium
Data retention configuration change	306-6	McAfee ESM data retention configuration changed.	Software Monitor	McAfee ESM	High
Database detection services state alert	306-50036	DBM auto detection service stopped or started.	Software Monitor	All	Medium

Rule name	Signature ID	Description	Type	Device	Severity
Deep packet inspector state change alert	306-50008	Deep packet inspection engine on ADM stopped or started.	Software Monitor	All	Medium
Delete remote command	306-61	Alarm remote command removed.	Software Monitor	McAfee ESM	Low
Deleted events	306-74	User deleted McAfee ESM events.	Software Monitor	McAfee ESM	Low
Deleted flows	306-75	User deleted McAfee ESM flows.	Software Monitor	McAfee ESM	Low
Device add	306-18	New device added to the system.	Software Monitor	McAfee ESM	Low
Device delete	306-19	Existing device deleted from the system.	Software Monitor	McAfee ESM	Low
Disk drive failure alert	306-50018	Checks and verifies integrity of all hard disks (internal or DAS).	Hardware Monitor	All	High
ELM archive process state change alert	306-50045	ELM compressing engine stopped or started.	Software Monitor	ADM/REC/DBM	Medium
ELM EDS FTP	306-50074	ELM SFTP program stopped or started.	Software Monitor	ELM	Medium
ELM file process	306-50065	ELM reinsertion engine stopped or started. If a log fails for any reason, it tries the insert again. If the process of reinsertion fails, this rule triggers.	Software Monitor	ELM	Medium
ELM mount point state change alert	306-50053	ELM remote storage (CIFS, NFS, ISCSI, SAN) stopped or started.	Software Monitor	ELM	Medium
ELM query engine state change alert	306-50046	ELM Jobs process – ELM jobs, such as ELM queries and inserts, stopped or started.	Software Monitor	ELM	Medium

Rule name	Signature ID	Description	Type	Device	Severity
ELM redundant storage	306-50063	ELM Mirror stopped or started.	Software Monitor	ELM	Medium
ELM system database error	306-50044	ELM database stopped or started.	Software Monitor	ELM	High
Email collector state change alert	306-50040	Cisco MARS collector stopped or started.	Software Monitor	Receiver	Medium
EPO tags applied	306-28	McAfee ePO tags applied.	Software Monitor	McAfee ESM	Low
Error communicating with ELM	306-50047	Communication with ELM failed.	Software Monitor	ADM/REC/DBM	High
Error in SSH communication	306-50077	Device issues such as version difference, change in key.	Software Monitor	All	High
McAfee ESM reboot	306-32	McAfee ESM rebooted.	Software Monitor	McAfee ESM	Medium
McAfee ESM shutdown	306-33	McAfee ESM shut down.	Software Monitor	McAfee ESM	Medium
eStreamer Collector alert	306-50070	eStreamer Collector stopped or started.	Software Monitor	Receiver	Medium
eStreamer Collector state change alert	306-50041	eStreamer Collector stopped or started.	Software Monitor	Receiver	Medium
Execute remote command	306-62	Alarm remote command executed.	Software Monitor	McAfee ESM	Low
Failed logon due to maximum concurrent sessions reached	306-37	User failed to log on because the maximum concurrent sessions were reached.	Software Monitor	McAfee ESM	High
Failed to format SAN device	306-50057	SAN on ELM failed to format; user must retry.	Hardware Monitor	McAfee ESM	High
Failed user logon	306-31	User failed to log on.	Software Monitor	McAfee ESM	Medium
File collector state change alert	306-50049	Mountcollector program stopped or started.	Software Monitor	Receiver	Medium

Rule name	Signature ID	Description	Type	Device	Severity
File deleted	306-50	Any file that can be added or removed	Software Monitor	McAfee ESM	Low
Filter process state change alert	306-50050	Filter program on the device stopped or started (filter rules).	Software Monitor	Receiver	Medium
Firewall alert aggregator state change alert	306-50009	Firewall aggregator on the ADM stopped or started.	Software Monitor	ADM	Medium
Get VA data failure	306-52	McAfee ESM failed to obtain VA data.	Software Monitor	McAfee ESM	Medium
Get VA data success	306-51	McAfee ESM obtained VA data.	Software Monitor	McAfee ESM	Low
Health monitor internal alert	306-50027	Health monitor process stopped or started.	Software Monitor	All	Medium
HTTP collector state change alert	306-50039	HTTP collector stopped or started.	Software Monitor	Receiver	Medium
Indexing configuration change	306-8	McAfee ESM indexing settings changed.	Software Monitor	McAfee ESM	Medium
Invalid SSH key	306-50075	Device issues communicating with ELM, such as version differences, change in key.	Software Monitor	All	High
IPFIX collector state change alert	306-50055	IPFIX (flow) collector stopped or started.	Software Monitor	Receiver	Medium
Key and certificate administrator user logon	306-39	UCAPL event, Crypto administrator logon.	Software Monitor	McAfee ESM	Low
Log partitions free disk space alert	306-50004	Log partition (/var) is low on free space.	Software Monitor	All	Medium
McAfee EDB database server state change alert	306-50010	Database stopped or started.	Software Monitor	All	Medium
McAfee ePO collector alert	306-50069	McAfee ePO collector stopped or started.	Software Monitor	Receiver	Medium

Rule name	Signature ID	Description	Type	Device	Severity
McAfee Event Format state change alert	306-50031	McAfee Event Format collector stopped or started.	Software Monitor	Receiver	Medium
McAfee SIEM device communication failure	306-26	McAfee ESM cannot communicate with another device.	Software Monitor	McAfee ESM	High
Microsoft Forefront Threat Management Gateway alert	306-50068	Forefront Threat Management Gateway collector stopped or started.	Software Monitor	Receiver	Medium
MS-SQL retriever state change alert	306-50035	Microsoft SQL collector stopped or started (any data source for Microsoft SQL).	Software Monitor	Receiver	Medium
Multi-event log alert	306-50062	jEMAIL collector stopped or started.	Software Monitor	Receiver	Medium
MVM scan initiated	306-27	MVM scan started.	Software Monitor	McAfee ESM	Low
NetFlow collector state change alert	306-50024	NetFlow (flow) collector stopped or started.	Software Monitor	Receiver	Medium
New user account	306-13	New user added to the system.	Software Monitor	McAfee ESM	Low
NFS/CIFS collector state change alert	306-50048	Remote mount for NFS or CIFS stopped or started.	Software Monitor	Receiver	Medium
NitroFlow collector state change alert	306-50026	NitroFlow (flows on device) stopped or started.	Software Monitor	Receiver	Medium
No SSH key found	306-50076	Device issues communicating with the ELM, such as version differences, change in key.	Software Monitor	All	High
NSM add/edit Blacklist	306-29	NSM Blacklist entry added or edited.	Software Monitor	McAfee ESM	Low
NSM delete Blacklist	306-30	NSM Blacklist entry deleted.	Software Monitor	McAfee ESM	Low

Rule name	Signature ID	Description	Type	Device	Severity
OPSEC retriever state change alert	306-50034	OPSEC (Check Point) collector stopped or started.	Software Monitor	Receiver	Medium
Oracle IDM collector alert	306-50072	Oracle IDM collector stopped or started.	Software Monitor	Receiver	Medium
Oversubscription alert	306-50012	ADM entered or exited oversubscription mode.	Software Monitor	ADM	Medium
Plug-in Collector/ Parser alert	306-50073	Plug-in collector/ parser stopped or started.	Software Monitor	Receiver	Medium
Policy add	306-15	Policy added to the system.	Software Monitor	McAfee ESM	Low
Policy delete	306-17	Policy deleted from the system.	Software Monitor	McAfee ESM	Low
Policy change	306-16	Policy changed in the system.	Software Monitor	McAfee ESM	Low
Receiver HA	306-50058	Any HA process stopped or started (Corosync, HA Control script).	Software Monitor	Receiver	Medium
Receiver HA Opsec configuration	306-50059	Not in use.	Software Monitor	Receiver	Low
Remote NFS mount point state change alert	306-50020	NFS ELM mount stopped or started.	Software Monitor	ELM	Medium
Remote share/ mount point free disk space alert	306-50021	Free space on remote mount point is low.	Software Monitor	McAfee ESM	Medium
Remote SMB/CIFS share state change alert	306-50019	Remote SMB/CIFS mount point stopped or started.	Software Monitor	Receiver	Medium
Risk Correlation state change alert	306-50061	Risk Correlation engine stopped or started.	Software Monitor	ACE	Medium
Root partitions free disk space alert	307-50002	Free space on the root partitions is low.	Software Monitor	All	Medium
Rule add	306-20	Rule added to the system, such as	Software Monitor	McAfee ESM	Low

Rule name	Signature ID	Description	Type	Device	Severity
		ASP, filter, or correlation.			
Rule delete	306-22	Rule deleted from the system.	Software Monitor	McAfee ESM	Low
Rule change	306-21	Rule changed in the system.	Software Monitor	McAfee ESM	Low
Rule update failure	306-9	McAfee ESM rule update failed.	Software Monitor	McAfee ESM	Medium
SDEE retriever state change alert	306-50033	SDEE collector stopped or started.	Software Monitor	Receiver	Medium
sFlow collector state change alert	306-50025	sFlow (flow) collector stopped or started.	Software Monitor	Receiver	Medium
SNMP collector state change alert	306-50023	SNMP collector stopped or started.	Software Monitor	Receiver	Medium
SQL collector state change alert	306-50038	SQL collector (old NFX) stopped or started.	Software Monitor	Receiver	Medium
Symantec AV collector state change alert	306-50056	Symantec AV collector stopped or started.	Software Monitor	Receiver	Medium
Syslog Collector state change alert	306-50037	Syslog collector stopped or started.	Software Monitor	Receiver	Medium
System admin user logon	306-40	System administrator logged on to the system.	Software Monitor	McAfee ESM	Low
System integrity check failure	306-50085	Non-ISO foreign program or process running on the system is flagged.	Software Monitor	All	High
System logger state change alert	306-50014	System logging process stopped or started.	Software Monitor	All	Medium
Task (query) closed	306-54	Task manager task closed.	Software Monitor	McAfee ESM	Low
Temporary partitions free disk space alert	306-50003	Temporary (/tmp) partition low on disk space.	Software Monitor	All	Medium
Text log parser state change alert	306-50052	Text parser process stopped or started.	Software Monitor	Receiver	Medium

Rule name	Signature ID	Description	Type	Device	Severity
User account change	306-14	User account changed.	Software Monitor	McAfee ESM	Low
User device failed logon	306-50079	SSH user failed to log on.	Software Monitor	McAfee ESM	Low
User device logon	306-50017	Not used in system.	Software Monitor	McAfee ESM	Low
User device logout	306-50078	SSH user logged out.	Software Monitor	McAfee ESM	Low
User logon	306-11	User logged on to the system.	Software Monitor	McAfee ESM	Low
User logout	306-12	User logged out of the system.	Software Monitor	McAfee ESM	Low
VA Data Engine status alert	306-50043	VA (vaded.pl) engine stopped or started.	Software Monitor	Receiver	Medium
Variable add	306-23	Policy variable added.	Software Monitor	McAfee ESM	Low
Variable delete	306-25	Policy variable deleted.	Software Monitor	McAfee ESM	Low
Variable change	306-24	Policy variable changed.	Software Monitor	McAfee ESM	Low
Web Server cert has expired	306-50084	*ESM* web server certificate expired.	Software Monitor	McAfee ESM	High
Web Server cert will expire soon	306-50083	*ESM* web server certificate expires soon.	Software Monitor	McAfee ESM	Medium
Websense collector alert	306-50067	Websense collector stopped or started.	Software Monitor	Receiver	Medium
WMI Event Log collector state change alert	306-50030	WMI collector stopped or started.	Software Monitor	Receiver	Medium

Add alarms to policy rules

Set up policy rules with alarms that notify you when the rules generate events.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree toolbar, click the Policy Editor icon .
3. Select the type of rule in the Rule Types pane.
4. Select one or more rules in the rules display area.

5. Click 🔔 and create an alarm.

Create SNMP traps as alarm actions

Send SNMP traps as an alarm action.

Before you begin

- Verify that you have administrator privileges or belong to an access group with alarm management privileges.
- Prepare the SNMP trap Receiver (only required if you don't have an SNMP trap Receiver).

Task

1. Create an SNMP profile to tell McAfee ESM where to send the SNMP traps.
   a. From the McAfee ESM dashboard, click ≡ and select Configuration.
   b. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
   c. Click Profile Management, then click Add.
   d. Select SNMP Trap as the Profile Type.
   e. Fill in the remaining fields, then click Apply.
2. Configure SNMP on McAfee ESM.
   a. On System Properties → SNMP Configuration, click the SNMP Traps tab.
   b. Select the port, select the types of traps to send, then select the profile you added in Step 1.
   c. Click Apply.
3. Define an alarm with SNMP Trap as an action.
   a. On System Properties → Alarms, click Add.
   b. Fill in the information requested on the Summary, Condition, and Devices tabs, selecting Internal Event Match as the condition type. Then click the Actions tab.
   c. Select Send Message → Configure to select or create a template for SNMP messages.
   d. Select Basic SNMP Templates in the SNMP field, or click Templates. Then select an existing template or click Add to define a new template.
   e. Return to the Alarm Settings page, then proceed with alarm setup.

Add power failure notification alarms

Alarms can notify you when McAfee ESM power supplies fail.

Before you begin

- Verify that you have administrator privileges or belong to an access group with alarm management privileges.
- Set up SNMP trap for power failure notification.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Alarms.
4. Click Add, enter the requested data on the Summary tab, then click the Condition tab.
5. In the Type field, select Internal Event Match.
6. In the Field field, select Signature ID, then type `306-50086` in the Value(s) field.
7. Enter the remaining information as needed for each tab, then click Finish.

Results

An alarm triggers when a power supply fails.

Add event delta alarms

Out-of-sync data sources can generate events with timing issues. Set up event delta alarms to notify you of possible event timing issues.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Possible event timing issues can occur for several reasons:

- Incorrect time zones are set for McAfee ESM or data sources.
- McAfee ESM has been on for a long time and the timing slips out of sync.
- McAfee ESM isn't connected to the Internet.
- Events are out of sync when it comes into the McAfee Event Receiver.

Note: When out-of-sync data sources generate events, a red flag appears next to its McAfee Event Receiver on the system navigation tree.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Set up alarms when out-of-sync data sources generate events:
   a. Click Alarms → Add, type the information requested on the Summary tab, then click the Condition tab.
   b. Select Event Delta in the Type field.
   c. Select how often McAfee ESM checks for out-of-sync data sources.
   d. Select the time difference that must exist for the alarm to trigger.
   e. Complete the information in the remaining tabs.
4. View, edit, or export the out-of-sync data sources:
   a. On the system navigation tree, click the McAfee Event Receiver, then click the Properties icon.
   b. Click Receiver Management → Time Delta.

Respond to notifications

Respond to triggered alarms from the dashboard. You can also view system notifications.

Before you begin

Verify that you have administrator rights or belong to an access group with alarm management permission.

Task

1. To show triggered alarms and system notifications on the dashboard, click 🔔.
2. Respond to triggered alarms in one of the following ways:
   - Acknowledge triggered alarms by selecting the appropriate alarm and clicking 🔔✓.

     The system removes acknowledged alarms from the Notifications panel. You can still view the alarms on the Triggered Alarms view.
   - Delete alarms by selecting the appropriate alarm and clicking 🔔✗.
   - Filter alarms by using the filter bar. Then, to refresh the view, click ▽.
   - Assign alarms by clicking 🔔. Then, select the appropriate alarm and click Assignee to choose a specific person to respond to the alarm.
   - Create an incident for the alarm by clicking 🔔. Then, select the appropriate alarm and click Create Incident.
   - Edit the triggered alarm settings by clicking the appropriate alarm. Click ✎ to change the settings.
   - View details about triggered alarms by clicking 🔔. Then, do one of the following:
     - To see what event triggered the alarm, click the Triggering Event tab. To view the description, double-click the event.
     - To see what condition triggered the alarm, click the Condition tab.
     - To see what actions occurred as a result of the triggered alarm, click the Action tab.

View and manage triggered alarms

View and respond to triggered alarms not yet deleted.

Before you begin

- Verify that you have administrator rights or belong to an access group with alarm management permission.
- Verify with your administrator whether your console is set up to display the Alarms log pane.

Task

1. Access triggered alarms from one of the following McAfee ESM locations:
    - On the dashboard, click 🔔.
    - To view the Alarms pane on the console, click ≡ and select Alarms.
2. To view alarm details, click 🗒. You can view triggering events, conditions that triggered the events, actions that occurred as a result of the alarm, and McAfee ePO tags assigned to the event.

   Note: If a single event does not meet the alarm conditions, the Triggering Event tab might not appear.
3. Respond to triggered alarms:
    - To acknowledge alarms, highlight and click 🔔✓.

      Note: The system removes acknowledged alarms from the Alarms pane but the alarms remain on the Triggered Alarms view.
    - To delete triggered alarms, highlight and click 🔔✗.
    - To filter alarms, enter information in the Filters pane and click ⟳
    - To assign alarms, click 🗒 and change the assignee.
    - To create incidents for alarms, click 🗒 and click Create Incident.
    - To edit triggered alarm settings, select the alarm and click ⋮.

Manage alarm reports queue

If an alarm's action generates reports, you can view the queue of generated reports and cancel one or more of them.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Alarms.
4. Click the Settings tab.
5. To view the alarm reports waiting to run, click View. McAfee ESM runs a maximum of five reports concurrently.
6. To stop a specific report from running, select it and click Cancel. The remaining reports move up the queue.

   Note: If you are an administrator or master user, this list includes all reports waiting to run on McAfee ESM, allowing you to cancel any of them.
7. Click Files to select whether to download, upload, remove, or refresh any report on the list.
8. Click Close.

Customize summary for triggered alarms and incidents

Select the data to include in the alarm summary and the incident summary of Field Match and Internal Event Match alarms.

Before you begin

Verify that you have administrator privileges or belong to an access group with alarm management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Alarms, then click Add or Edit.

4. On the Condition tab, select the Field Match or Internal Event Match type.
5. Click the Actions tab, Create incident, then Configure. Then select the fields to include in the incident summary.
6. Click Customize triggered alarm summary, click ☆, then select the fields to include in the summary for the triggered alarm.
7. Type the information requested to create alarms, then click Finish.

How incidents work

Use incidents to track the work to investigate potential threats.

In dashboard views, create incidents based on events that you want to investigate.

You can add contextual details and events to the incident notes and track the investigative work. When resolved, close the incident and build alarms that apply the information uncovered in this incident.

Create a case

Track actions taken in response to events.

Task

1. To create a case from a dashboard view, right-click an event and click Incident Management → Create Incident. Create a case in one of these ways:
2. To create a case from the Incidents pane on the Incident Management page:
   a. Click ⋮ then click Incident Management → Create Incident.
   b. Refresh the view. ⟳

Investigate incidents

Create and track cases to help ensure effective responses.

Incident Management appears on the dashboard as two widgets - Cases and Source Events. You can add widgets to the view to make it more useful.

Task

1. On the dashboard, click ≡ and select Incident Management.
   A summary of cases and a list of source events appear.
2. Review and edit the case information.
   - Case ID - a system-generated unique identifier (you cannot change this ID)
   - Case Summary (up to 255 characters)
   - Assignee - the user responsible for the case
   - Case Severity - a number between 1 and 100 indicating the potential harm of the case. A higher number indicates a greater threat.
   - (Optional) Organization to which the case is assigned
   - Status:Open (default), Closed, or a custom status you create (Incident Management → Case Status → add case status)
   - Notes that indicate actions taken. The system automatically records:
     - Old and new values for changes

       ```
       ---- Severity Changed on 04-22-2009 at 09:39
       old: Low
       new: High
       ```

     - Case is opened, closed, or reassigned
     - Changes to summary, severity, organization, or events
     - History of users who accessed the case

Email incidents

Send an email with case details.

Before you begin

Configure an ESM email server (System Properties → Email Settings).

Task

1. Right-click a case and select Incident Management.
2. Click Email Case.

   The Email Case panel appears.
3. Enter email addresses and select options for the email and click Send.

Generate case management reports

McAfee ESM provides 6 standard case management reports.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Reports → Add.
4. Complete sections 1, 2, and 3.
5. In section 4, select Query CSV.
6. In section 5, select the case management report to run:
   - Case Management Summary — Includes case ID numbers, the severity assigned to the cases, their status, the users they are assigned to, the organizations where they are assigned (if any), the date and time that the cases were added, the date and time that the cases were updated (if they have been), and the case summaries.
   - Case Management Details — Includes all information in the Case Management Summary report and the ID numbers of the events linked to the cases and the information included in the notes sections of the cases.
   - Case Time to Resolution — Shows the length of time that it took between status changes (for example, the differential between the Open time stamp and Closed time stamp). By default, it lists the cases with a status of Closed by Case ID number and severity, organization, Created date, last update, summary, and time difference.
   - Cases per Assignee — Includes the number of cases assigned to a user or group.
   - Cases per Organization — Includes the number of cases per organization.
   - Cases per Status — Includes the number of cases per status type.
7. Complete section 6, then click Save.

Results

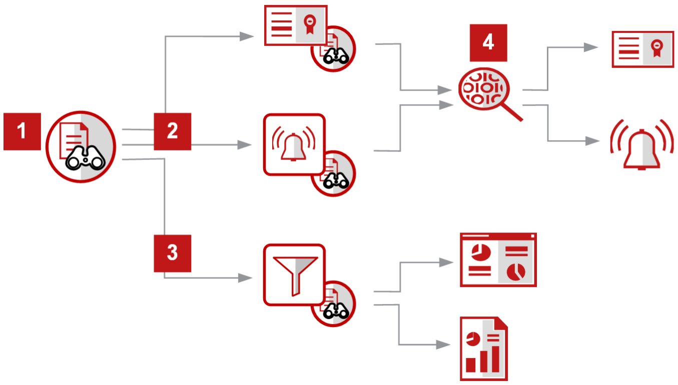
The selected reports appear on the Reports list.

How watchlists work

Watchlists are lists of values that you can then use to filter information in your dashboard views and reports or as a condition that triggers correlation rules or alarms. Watchlists can be global or shared with specific users or groups. Watchlists can contain up to 1,000,000 values.

What is the watchlist workflow?

1. Configure McAfee ESM watchlists.
   - Static watchlists contain values (imported or entered manually) that don't change over time.
   - Dynamic watchlists contain values that change automatically, through queries, regular expressions, or string search criteria.
2. Configure alarms and correlation rules that use watchlists as conditions.
3. Filter dashboard views or reports using watchlists.
4. Trigger alarms or correlation rules using watchlists as conditions.
   - Alarms can trigger any time events match values in the watchlist.
   - Correlation rules can use the watchlist condition to either trigger or prevent the rule from triggering.



Configure watchlists

Create watchlists with static or dynamic values that trigger alarms or correlation rules or filter views or reports.

Before you begin

Using GTI Malicious IPs and GTI Suspicious IPs values in watchlists requires a McAfee GTI license.

Task

1. Select Watchlists from the navigation menu. ≡
2. Click Add or Edit.
3. Expand Main.

   Note: Both static and dynamic watchlists are limited to a maximum number of 1,000,000 values. The system can display up to 1,000 imported values and indicates that not all imported values are displayed.

   - Name the watchlist and indicate whether it is a static or dynamic watchlist. Do not use quote marks, ampersand, or parentheses in watchlist names: ' " & ( ).
   - Static watchlists contain values (imported or entered manually) that don't change over time.

     You can set when static values expire (between 1 hour - 365 days). Each value is time stamped and expires when the specified duration is reached, unless it refreshes. When that duration passes, the system deletes the watchlist value. Watchlist values can refresh if an alarm triggers and adds those values to the watchlist.
   - Dynamic watchlists contain values that change automatically, through queries, regular expressions, or string search criteria.
     - You can specify when to update dynamic values automatically. The system queries the source (using the data given) and refreshes the values at the specified time.
     - Select the source to populate dynamic values. Source fields vary depending on which type you select.
4. Expand Source (watchlist types):
   - Static watchlists:
     - Import a file of values in new-line-separated format.
     - Type the values, one value per line (up to 1000 values).
     - McAfee GTI — You cannot view or edit McAfee GTI watchlists, but the watchlists indicate whether they are active (contain values) or inactive (do not contain values). Use McAfee GTI watchlists to trigger alarms; filter reports, views, or correlation rules; or use as a scoring source for risk correlation managers on your McAfee ACE devices.

       Note: Using McAfee GTI watchlists requires a McAfee GTI license. Downloading lists can take several hours and requires an Internet connection (they cannot be downloaded offline).
   - Dynamic watchlists — fields vary depending on the type of watchlist:
     - Dynamic watchlists are populated with values returned by the regular expression you write. Enter a regular expression or search criteria for strings found in events or rule messages, which contain the rule's short descriptions. Searches are case sensitive by default. To perform a case-insensitive search, surround search strings or regular expression with forward slashes followed by `i`, such as `/Exploit/i`.
       - **Strings** — The watchlist contains a list of string-type-custom-type strings (compiled from Events) that match the regular expression.

    - **Rule names** — The watchlist contains a list of McAfee ESM rule names that match the regular expression.

  - **HTTP/HTTPS** — Use this dynamic watchlist to pull threat or Indicators of Compromise (IOC) feeds from the Internet. You can preview the data through the HTTP request, and filter the data using regular expressions.

    Preview the first 200 lines of the website source code, which you can use to write a regular expression search. A Run Now or scheduled update of the watchlist includes all matches from your regular expression search.

    Note: This option supports RE2 syntax regular expressions, such as (\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3}) to match on an IP address.

    - Authentication — Select Basic if the website requires a user name and password to log on. Default setting is None.
    - Ignore Invalid Certificates — To search a website with an https URL, select this option to ignore invalid SSL certificates.
    - Method — To search a website that requires a post content or argument, select POST. Default setting is GET.
    - Specify how many header lines of code to skip in your website search.
    - Type the character the website uses to separate values. This default is `\n`, which indicates that a new line is the delimiter. The other most common delimiter is a comma (,).
    - Type a regular expression that removes unwanted values from the results of your regular expression search.
    - (Required) Type the logic used to find a match and extract the values from the site. Use this to create an expression that matches on a list of known malicious IP addresses or MD5 sums listed on a site.

  - **McAfee Active Response** — populates dynamic watchlist values with data you specify.

    Note: If McAfee ESM fails to pull McAfee Active Response collectors over DXL, the McAfee Active Response type is not listed.

    - Collector — Select the collector that you want to use to pull data.
    - Value — Select the column of retrieved data that you want to include in the watchlist.
    - Or or And — If you have two or more filters, select whether to apply all filters to the data (using And) or to apply either of the filters (using Or).
    - Filters — Select the filters to apply to the search.
    - Add Filter — You can select a maximum of 5 filters.

  Note: Additional types of watchlists are supported (such as CIFS, FTP).

5. Expand Values.

   - Select a type that assigns the search results to a field type. This choice allows the system to use the watchlist to filter views and reports or to trigger alarms and correlation rules. You can change this setting on existing watchlists.

     If the watchlist has less than 25,000 values, McAfee ESM validates that the old and new types are compatible and returns an error if they aren't.

     If the watchlist has more than 25,000 values, you must validate compatibility.

     Note: If this is a dynamic watchlist and you select String as the source, the application does not filter the search by the type you select. Instead, the search returns all matching strings.
   - For a dynamic watchlist, the values table fills with values every time a search runs. If the watchlist has more than 25,000 values, the Values field states that there are more values than can be displayed.
   - **User name** identifies who can access the database. For LDAP, the user name must be a fully qualified domain name without spaces, such as:

     ```
     uid=bob,ou=Users,dc=example,dc=com
     ```

     or

     ```
     administrator@company.com
     ```

6. Save your changes.

Import/Export watchlists

Share static watchlist values with multiple McAfee ESM devices in your organization by importing and exporting the watchlists.

Before you begin

- Verify that you have administrator privileges or belong to an access group with watchlist privileges.

  Without these privileges, you cannot edit, export, or remove private watchlists or watchlists that contain strings or rules names.
- You must have a McAfee GTI license to export watchlists that contain GTI Malicious IPs and GTI Suspicious IPs values.

Task

1. From the McAfee ESM dashboard, click ≡ and select Watchlists.

2. Click ⋮ to list active and inactive watchlists.
3. Export a watchlist.
   a. Select an existing watchlist and click Export.
   Note: You cannot export McAfee GTI watchlists.
   b. Browse to the location where you want to export the watchlist file.
   c. Click Confirm.
4. Import a watchlist.
   a. Select Import.
   b. Browse to the location of the watchlist file you want to import.
   c. Click Confirm.

Specify which watchlists users can use or change

Control who can use (Read) or change (Modify) specific watchlists.

Before you begin

Verify that watchlists exist.

Verify that you have administrator privileges or belong to an access group with watchlist privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Watchlists.
2. Select the wanted watchlist, click ⋮, then click Share.
3. Deselect the Inherit Modify settings to specify which group or user to share the watchlist.
   Note: If you do not have administrator privileges, you can only assign watchlists to yourself and to groups in which you are a member.
   - To allow the user or group to use the watchlist as a filter or trigger condition, click Read.
   - To allow the user or group to change the watchlist, click Write.

   Note: When you check Write, the system selects Read automatically.
4. Save your changes.

Configure rule watchlists

Use watchlists to group rules that you can use as filters or alarm conditions that notify you when the rule occurs in an event. These watchlists can be global or specific to McAfee ESM users or groups.

Before you begin

Verify that you have administrator privileges or belong to an access group with watchlist privileges.

Task

1. In the Rule Types pane of the Policy Editor, select the rule type, then select the rules that you want to have on this watchlist.
2. Click Operations, then select the Create new watchlist option.
3. Type a name, then make sure the Static option is selected.
4. Select the type of data this watchlist is watching for, then select the assignee.
   Note: A user with administrator privileges can assign a watchlist to anyone or any group on the system. If you do not have administrator privileges, you can only assign watchlists to yourself and groups you are a member of.
5. To add more values to the watchlist, do one the following:
   - To import a file of values in new-line-separated values format, click Import, then select the file.
   - To add individual values, type one value per line in the Values box.
     Note: Maximum number of values is 1000.
6. After configuring watchlists, you can append rule values to specific watchlists.
   a. Select the rules you want to append to the watchlist.
   b. Click Operations → Append to watchlist.
   c. Select the watchlist to append the rules and click OK.

7. To receive an alarm when a generated event contains any of the values on this watchlist, click Create Alarm.
8. Click OK.

Configure alarms to use watchlists

Use watchlists as alarm conditions so that the alarm triggers when the system encounters an event that matches a value in the watchlist.

Before you begin

- Verify that you have administrator privileges or belong to an access group with alarm management privileges.
- Verify that you have administrator privileges or belong to an access group with watchlist privileges.

Task

1. From the McAfee ESM dashboard, click ☰ and select System Properties.
2. Click Alarms, then add an alarm.
3. On the Condition tab, find the Internal Event Match → Use Watchlist option and select if a watchlist contains the values for this alarm.
4. On the Actions tab, identify what happens to the watchlist you set as an alarm condition. You can append (add) or remove values in that watchlist.

   Note: This action requires that you identify a watchlist using the Internal Event Match condition type.

Filter views and reports with watchlists

Apply watchlists to views and reports so you can focus on specific details that match the watchlist values.

Before you begin

- Verify that you belong to an access group with view management or view data permissions.
- Verify that you have administrator privileges or belong to an access group with watchlist privileges.
- Verify that watchlists exist.

Task

1. Open the dashboard view or report you want to filter.
2. Click the Filter bar and select a value and filter operator.

   The appearance of the Watchlist slide-out menu depends on the value you select.
3. Select the watchlist you want and click Apply.
4. Click 🔍 to filter the view or report.

Respond to notifications

Respond to triggered alarms from the dashboard. You can also view system notifications.

Before you begin

Verify that you have administrator rights or belong to an access group with alarm management permission.

Task

1. To show triggered alarms and system notifications on the dashboard, click 🔔.
2. Respond to triggered alarms in one of the following ways:
   - Acknowledge triggered alarms by selecting the appropriate alarm and clicking ✓.

     The system removes acknowledged alarms from the Notifications panel. You can still view the alarms on the Triggered Alarms view.
   - Delete alarms by selecting the appropriate alarm and clicking ✗.
   - Filter alarms by using the filter bar. Then, to refresh the view, click ▽.
   - Assign alarms by clicking 🔍. Then, select the appropriate alarm and click Assignee to choose a specific person to respond to the alarm.
   - Create an incident for the alarm by clicking 🔍. Then, select the appropriate alarm and click Create Incident.

- Edit the triggered alarm settings by clicking the appropriate alarm. Click ✎ to change the settings.
- View details about triggered alarms by clicking 🔔. Then, do one of the following:
  - To see what event triggered the alarm, click the Triggering Event tab. To view the description, double-click the event.
  - To see what condition triggered the alarm, click the Condition tab.
  - To see what actions occurred as a result of the triggered alarm, click the Action tab.

Identify what triggered correlation rules

Identify what caused the rule to trigger and to tune for false positives.

Before you begin

- Verify that you have administrator rights or belong to an access group with policy administration permission.
- Verify that correlation data sources exist on McAfee ESM.

Details are always gathered at the time of request. But for rules that use dynamic watchlists or other values that might change often, set the rule to get details immediately after triggering. This reduces the chance that details are unavailable.

Task

1. From the dashboard, click ≡ and select Correlation.
2. Set rules to show details immediately.
   a. On the McAfee ESM console, click the Policy editor icon, then click Correlation in the Rule Types pane.
   b. Click the Details column for the rule and select On.
      You can select more than one rule at a time.
3. View the details:
   a. On the system navigation tree, click Rule Correlation under the McAfee ACE device.
   b. From the view list, select Event Views → Event Analysis, then click the event you want to view.
   c. Click the Correlation Details tab to view the details.
   d. On the Event Analysis view, click the plus sign (+) in the first column next to the correlation event.
      Note: A plus sign appears only if the correlation event has source events.

How blacklists work

A blacklist blocks traffic as it flows through a network device before the deep packet inspection engine analyzes it. A global blacklist applies to all network devices managed by McAfee ESM.

You can set up a blacklist for individual network devices on McAfee ESM. A global blacklist only allows permanent blacklist entries. To set up temporary entries, use the network device Blacklist option.

Each network device can use the global blacklist. The feature is disabled on all devices until you enable it.

The Global Blacklist Editor allows you to:

- Cconfigure blocked source and destination entries to blacklist on all ports, or a specific port.
- Configure entries with a masked range of IP addresses with the port set to any (0) and the duration must be permanent.
- After typing an IP address or host name, the button next to that control says either Resolve or Lookup based on the value entered. If it says Resolve, clicking it resolves the entered host name, populates the IP Address field with that information, and moves the host name to the Description field. Otherwise, clicking Lookup performs a lookup on the IP address and populates the Description field with the results of that lookup.
  Tip: Some websites use more than one IP address, or have IP addresses that are not always the same. Don't rely on this tool to ensure blocking of websites.

Configure blacklists

Use blacklists to block specific traffic from all network devices that support blacklisting.

Before you begin

You must be a super user to use the blacklist function.

Task

1. Configure global blacklists:

    a. On the system navigation tree, select System Properties, then click Global Blacklist.
    b. Select the Blocked Sources, Blocked Destinations, or Exclusions tab, then manage blacklist entries.
    c. For Exclusions, manage the list of IP addresses that should never be blacklisted automatically, such as DNS and other servers, or the system administrator's workstation.
    d. Default is zero (0), which allows any port. Type a port number if you want to narrow the effect of the blacklist to a specific destination port.
    e. Select the network devices that support the global blacklist.

2. Add blacklist entries for McAfee Network Security Manager through the sensors:
    a. On the system navigation tree, select NSM Properties, click Blacklist, then select a sensor.
    b. To apply the global blacklist entries to this sensor, select Include Global Blacklist. If duplicate IP addresses exist, the global blacklist address overwrites the McAfee Network Security Manager address.

   Note: Once you select this option, you can only delete items manually. The entry appears on the blacklist until its duration expires.

3. Manage removed blacklist entries for McAfee Network Security Manager.
   Entries initiated on McAfee ESM that have not yet expired but that do not return blacklist entries when you query McAfee Network Security Manager, display with a *Removed* status and a flag icon. This condition occurs if you remove the entry, but do not initiate the removal on McAfee ESM. You can add this entry to or delete it from the blacklist.
    a. On the system navigation tree, select NSM Properties, then click Blacklist.
    b. Select the removed entry on the list of blacklist entries, then click Add or Delete.
    c. Click Apply or OK.

Backing up and restoring

How backup and restore works

Back up your McAfee ESM settings and data regularly and before starting any software upgrades. Then, if you encounter a system failure or data loss, you can restore McAfee ESM to its previous state.

You can back up **system settings** for policies, SSH, network, and SNMP files to either a local or remote location.

Note: When you add devices to McAfee ESM, the system automatically enables backups for settings to occur every 7 days. You can change the frequency and timing of automatic backups for settings or complete a manual backup at any time.

You can back up incremental data to a remote location.

Note: You must configure and enable automatic data backup, which includes specifying NFS location details.

For **FIPS mode**, backups ensure that you can re-establish communication between McAfee ESM devices.

Backups are only compatible with the current version of McAfee ESM. You can't restore a previous version on an updated McAfee ESM device.

Note: Do not rename backup files because the system can only restore backups of files that match system-generated names.

Ensure system files are current

Ensure that your backups, software updates, and alarm and report logs are current by maintaining their corresponding files.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click File Maintenance.
3. Select a file type and highlight its corresponding file.
   Note: To ensure that you selected the right file, click Details to review information about the file.
4. Download, upload, remove, or refresh the highlighted file.

Back up and restore in FIPS mode

Back up and restore communication information for McAfee ESM devices in FIPS mode.

Primarily, you can use it if a failure requires McAfee ESM replacement. If the communication information is not exported before the failure, communication with the device can't be re-established. This method exports and imports the .prk file.

The private key for the primary McAfee ESM is used by the secondary McAfee ESM to establish communication with the device initially. Once communication is established, the secondary McAfee ESM copies its public key to the device's authorized keys table. The secondary McAfee ESM then erases the private key for the primary McAfee ESM, and initiates communication with its own public or private key pair.

Task

1. Export the .prk file from the primary McAfee ESM.
   a. On the system navigation tree of the primary McAfee ESM, select the device with communication information you want to back up, then click ⚙.
   b. Select Key Management, then click Export Key.
   c. Select Backup SSH Private key, then click Next.
   d. Type and confirm a password, then set the expiration date.
      Note: After the expiration date passes, the person who imports the key is unable to communicate with the device until another key is exported with a future expiration date. If you select Never Expire, the key never expires if imported into another McAfee ESM.
   e. Click OK, then select the location to save the .prk file created by the McAfee ESM.
   f. Log off from the primary McAfee ESM.
2. Add a device to the secondary McAfee ESM and import the .prk file.
   a. On the system navigation tree of the secondary device, select the system or group level node to which you want to add the device.

b. From the actions toolbar, click Add Device.
c. Select the type of device that you want to add, then click Next.
d. Enter a name for the device that is unique in this group, then click Next.
e. Enter the target IP address of the device. Enter the FIPS communication port, then click Next.
f. Click Import Key, browse to the previously exported .prk file, then click Upload.
g. Type the password specified when this key was initially exported.
h. Log off from the secondary McAfee ESM.

Back up data

Back up your data (event, flow, log, and packet and string map tables) regularly to ensure that you can restore information if you encounter a data loss.

Before you begin

- You cannot restore data from a backup of a previous McAfee ESM version. Backups are only compatible with the current version of McAfee ESM.
- To allow larger backup files, use ext4 as your NFS server file system.

Data backups are incremental.

When you trigger a new backup (either manually or automatically), the system backs up only the data generated since the last backup.

Note: If no previous backup exists, the system performs a full backup.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. To schedule an automatic backup, select Database → Data Backup.
   - Determine how often to back up data. You can also set the time of day for the backup.
     Note: To prevent oversized backup files, configure daily backups.
   - Identify the remote location where you want to save the data.
3. Test the connection by clicking Connect.
4. To complete a manual backup now, click Back up now.

   Note: Do not rename backup files because the system can only restore backups of files that match system-generated names. You cannot back up (automatic or manual) or restore data if another backup or restore is already in progress.

Restore data

If you encounter a data loss, you can restore event, flow, and log data from a previous data backup. You can also restore packet and string table data.

Before you begin

- The system can only restore backups of files that match system-generated names.
- You cannot restore data from a backup of a previous McAfee ESM version. Backups are only compatible with the current version of McAfee ESM.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Select Database → Restore Backup.
3. Specify a date range (start and end date) for the data you want to restore.
4. Identify the remote location where the backup file resides (such as, IP address, remote mount point, path, and logon credentials).
5. Test the connection to ensure that the system can access the remote backup location.
6. Click OK.

   Note: You cannot back up (automatic or manual) or restore data if another backup or restore is already in progress.

Back up settings

Back up configuration settings for policies, SSH, network, and SNMP files regularly to ensure that you can restore McAfee ESM if you encounter a system failure.

Before you begin

Backups are only compatible with the current version of the device. You can't install a backup of a previous version on an updated McAfee ESM device.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click the ESM Management → Maintenance tab.
3. Click Settings Backup.
    - Determine how often to back up settings (frequency and number of days). You can also set the time of day for the backup.
      Note: By default, McAfee ESM automatically backs up your McAfee ESM settings every 7 days. The default backup location resides on the McAfee ESM device. To prevent oversized backup files, configure daily backups.
    - Indicate where to save the backup settings: either the local McAfee ESM or a remote location.
4. Test the connection by clicking Connect.
5. To complete a manual backup now, click Back up now.
6. Define the system backup settings.

Restore settings

If you encounter a system failure, you can restore McAfee ESM from a previous settings backup.

Before you begin

Backups are only compatible with the current version of the device. You can't restore from a backup of a previous version on an updated McAfee ESM device.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click ESM Management → Maintenance → Restore Backup.
3. Select the type of restore you need to perform.
4. Select the file you want to restore or enter the information for the remote location, then click OK.

Results

Restoring a backup can take a long time, based on the size of the backup file. McAfee ESM is offline until the system completes the full restore. During this time, McAfee ESM tries to reconnect every 5 minutes.

Back up ELM settings

Back up current Enterprise Log Manager (ELM) settings so that you can restore them in case of a system failure or data loss. All configuration settings, including the ELM logging database, are saved. The actual logs that are stored on the ELM are not backed up.

Before you begin

Mirror the devices that store the log data on the ELM, and mirror the ELM management database. The mirroring feature provides real-time log data backup.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the ELM, then click the Properties icon ⚙.
3. Select ELM Information, then click Backup & Restore.
4. Indicate the backup frequency and location. Then, test the connection.

Restore device configuration files

Restore SSH, Network, SNMP, and other configuration files backed up on McAfee ESM for each device.

Before you begin

Back up device configuration files onMcAfee ESM.

Task

1. On the system navigation tree, click the device, then click the Properties icon ⚙.
2. Click the Configuration option for the device, click Restore Config, then click Yes.

Tuning your configuration

Configure receivers

The McAfee Event Receiver enables the collection of security events and network flow data from multi-vendor sources including firewalls, virtual private networks (VPNs), routers, NetFlow, sFlow, and others.

Receivers collect and normalize event and flow data into a single manageable solution, providing a single view across multiple vendors.

High availability receivers (Receiver-HA) can be used in primary and secondary mode, acting as backups for each other. The secondary receiver (B) monitors the primary receiver (A) continuously and new configuration or policy information is sent to both devices. When receiver B determines that receiver A has failed, it disconnects receiver A's data source NIC from the network and takes over as the primary. It remains primary until you manually restore receiver A as primary.

Set up receiver data archiving

Configure the receiver to forward a backup of the raw data to your storage device for long-term storage.

Before you begin

Port 445 must be opened on the system with the CIFS share to enable a CIFS share connection.

Port 135 must be opened on the system with the SMB share to enable an SMB connection.

McAfee ESM supports the following types of storage: Server Message Block/Common Internet File System (SMB/CIFS), Network File System (NFS), and Syslog Forwarding.

SMB/CIFS and NFS store, in the form of data files, a backup of all raw data sent to the receiver by data sources that use the email, estream, http, SNMP, SQL, syslog, and remote agent protocols. The system sends these data files to the archive every 5 minutes. Syslog Forwarding sends raw data for syslog protocols as a continuous stream of combined syslogs to the device. Syslog forwarding supports only UDP packets. The receiver can forward to only one type of storage at a time; you can configure all three types, but only one type can be enabled to archive data.

Note: This feature doesn't support NetFlow, sflow, and IPFIX data source types.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the device, then click the Properties icon ⚙.
3. Click Receiver Configuration → Data Archival.
4. Select a share type and enter the connection configuration information.
   - SMB/CIFS
     - Share type - sets the share type to SMB or CIFS.
     - IP address - the IP address of the share.
     - Share Name - The label applied to the share.
     - Path - The subdirectory on the share where the archived data must be stored (for example, TMP/Storage). If storage is in the root directory of the share, no path is required.
     - User Name and Password - The credentials required to connect to the share. Do not use commas in the password when connecting to an SMB/CIFS share.
   - NFS
     - IP address - the IP address of the share.
     - Mount Point - Name of the mount point on the share.
     - Path - The subdirectory on the share where the archived data must be stored (for example, TMP/Storage). If storage is in the root directory of the share, no path is required.
   - Syslog Forwarding
     - IP address - the IP address of the share.
     - Port - the port used to archive data.

Set up high availability receivers

Define the settings for high availability receivers. Add the receiver that serves as the primary device, which must have three or more NICS.

Caution: If you are required to comply with FIPS regulations, do not use this feature. High availability Receivers are not FIPS-compliant.

Task

1. On the system navigation tree, select the receiver that is the primary high availability device, then click the Properties icon ⚙.
2. Click Receiver Configuration, then click Interface.
3. Click the HA Receiver tab, then select Setup High Availability.
4. Fill in the information requested, then click OK.

Results

The process that keys the second receiver updates the database, applies `globals.conf`, and syncs the two receivers.

Set up high availability receivers with IPv6

Set up high availability with IPV6 because you can't set the IPv6 address manually using the LCD.

Before you begin

- Ensure that McAfee ESM uses IPv6, manually or automatically (System Properties → Network settings).
- Make sure you have the shared IP address, which the network administrator creates.

Task

1. On the two receivers in the high availability pair:
   a. Turn on the receiver, then enable IPv6 using the LCD.
   b. Navigate to Mgt IP Configr → Mgt1 → IPv6, and write down the management IP address. This might take some time due to network latency.
2. Add one of these receivers to McAfee ESM.
   - Name — Name of the high availability pair.
   - Target IP Address or URL — Management IPv6 address for this high availability receiver, which you wrote down.
3. Select the newly added device on the system navigation tree, then click Receiver Properties → Receiver Configuration → Interface.
4. In the IPv6 Mode field, select Manual (the only supported mode for high availability).
5. Click Setup next to the number 1 interface, type the shared IP address in the IPv6 field, then click OK.
   This address is assigned to the shared interface during high availability setup. If this isn't done, high availability doesn't fail over properly.
6. On Receiver Properties, click Connection, enter the shared IPv6 address in Target IP Address/Name, then click OK.
7. Continue with the HA setup process.

Add receiver assets

An asset is any device on the network with an IP address. The Asset Manager allows you to create assets, change their tags, create asset groups, add asset sources, and assign assets to groups. An ESM device can have only one asset source.

Receivers can have multiple asset sources. If two asset discovery sources find the same asset, the discovery method with the highest priority adds the asset it discovered to the table. If two discovery sources have the same priority, the last one that discovers the asset takes priority over the first.

Task

1. On the system navigation tree, select Receiver Properties, then click Asset Sources.
2. Click Add, then configure the asset.
   a. Select Enabled to enable the automatic retrieval functionality. If the checkbox is not selected, you can still retrieve data from the asset source manually by clicking Retrieve. If it is selected, the system retrieves the data at the interval specified in the Retrieve Data field.
   b. Select the Type of asset source.

   The remaining fields vary based on the type you select.

   c. Type a Name for this asset source.
   d. (Optional) Select a zone for this asset source.
   e. Select the priority that you want this asset source to have if it discovers an asset at the same time as vulnerability assessment or network discovery. The options are 1–5, 1 being the highest.
   f. Type the IP address and port for your asset source.
   g. Select if you want to use the TLS encryption protocol (for Active Directory) or SSL (for Altiris).
   h. Type the User Name and Password required to access the asset.
   i. Type the proper name for the domain controller (for example, `dc=McAfee,dc=com`).
   j. (Altiris only) If you want to enable the proxy server, select Enable, and enter the proxy IP address, port, and credentials.
   k. If you want to retrieve data automatically, select how often to retrieve.
   l. To test the connection, click Connect.

3. Click OK, then click Write on Asset Sources.

Configure receivers to create data sources automatically

Set up receivers to create data sources automatically, using the standard rules that come with the receiver or rules that you create.

Task

1. Click the Get Events and Flows icon ⟲ on the actions toolbar to pull events or flows.
2. From the McAfee ESM dashboard, click ≡ and select Configuration.
3. On the system navigation tree, select the receiver, then click the Properties icon ⚙.
4. On the Receiver Properties page, click Data Sources → Auto Learn.
5. On the Auto Learn page, click Configure.
6. On the Auto Add Rule Editor page, ensure that Enable auto creation of data sources.
7. Click Add, then select the auto add rules you want the receiver to use to create data sources automatically.
8. To apply selected rules to the existing auto learned data, click Run Now.

Set up data source auto-learning

Set up McAfee ESM Receivers to learn data source IP addresses automatically.

Before you begin

- Define ports for Syslog, MEF, and flows.
- Receiver ports must match the sources that are sending data or auto learning does not happen.

The firewall on the Receiver opens for the time you designate, so the system can learn a set of unknown IP addresses. You can then add to the system as data sources.

Note: Updating McAfee ESM deletes auto-learning results. Run auto-learning after updating to collect auto-learning results again.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the Receiver, then click the Properties icon ⚙.
3. On the Receiver Properties page, click Data Sources → Auto Learn.
4. Configure the auto-learning settings.
   a. Select the length of time you want auto-learning to occur in the appropriate hours field, then click Enable.
      Note: When using auto-learning for MEF, you can't add data sources that are auto-learned using a host ID.
      When the time expires, the system disables auto-learning and populates the table with found IP addresses.
   b. Click Disable to stop auto learning.
5. Add auto-learned IP addresses as data sources.
   a. Select IP addresses of the same type as those you want to add, then click Add.
   b. On the Auto-Learned Sources page, select one of the options.

- If the selected IP addresses do not have an associated name, the system asks whether to add a prefix to the selected addresses.
  - If you click No, the IP addresses are used as the names for these data sources.
  - If you click Yes, enter a prefix name and click OK. The names of these data sources include both the name you added and the IP address.
- If the selected IP addresses have names, the system adds data sources to the list.
  - Client match on type - If an existing data source matches the selected IP address, the system adds items to the data source as match-by-type client data sources. If a data source matching the selected IP address doesn't exist, one is created. The remaining items are added to it as match-by-type client data sources.
  - Client match on IP - Allows you to select the data source to which you want to add this IP address as a client. Matching data sources are listed. If there aren't any, the only option available is None - create new data source. Select the data source you want to add this IP address to as a client, then click OK.

6. To change the name of a data source, click Edit Name. Use a maximum of 50 characters and make sure the name has not already been assigned to a data source on the list.
7. To change the type of the selected IP address, click Change Type. Change the type if the type suggested by the system is wrong. Viewing the packet can help you determine the correct type.

Configure data sources

Data sources control how the McAfee Event Receiver gathers log and event data from multiple sources including firewalls, virtual private networks (VPNs), routers, NetFlow, sFlow, and others. Add data sources and define their settings so they collect the data you need.

Before you begin

- Make sure that the McAfee Event Receiver for this data source is listed on the system navigation tree.
- Make sure that the data source was configured as described in the Data Source Configuration Reference.

If you have issues while configuring a data source, see Troubleshooting section of the Data Source Configuration Reference.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the Receiver, then click the Properties icon ⚙.
3. On the Receiver Properties page, click Data Sources.

   A table lists existing data sources (including child and client data sources) and identifies how the data source processes data.

   Note: If SNMP Trap is selected, the data source accepts standard SNMP traps from any manageable network device with the capability of sending SNMP traps. When McAfee ESM receives these traps, it generates an event for the data source. To send or receive SNMP traps via IPv6, formulate the IPv6 address as an IPv4 conversion address.
4. Do one of the following:
   - To add a new data source, click Add.
   - To add a child data source to an existing data source, click Add Child.
   - To edit an existing data source, select the data source then click Edit.
5. Configure the data source.
   a. To pre-populate SNMP and syslog protocol-based devices, click Use System Profiles

   b. Enter a Data Source Vendor and Data Source Model. These determine what information you enter for the data source. Advanced syslog parser (ASP) data sources that generate data without UTF-8 encoding, select Generic as the vendor and Advanced Syslog Parser as the model.

   c. Select a Data Format to set the parsing method.

   d. Select a Data Retrieval method.
      - For SCP, set the LANG environment variable to lang=C.
      - SCP File Source does not support relative paths. Define the full location.
      - For CIFS File Source or NFS File Source, select a collection method.

   e. Enable the method the McAfee Event Receiver uses to process data.

   f. Complete additional fields based on vendor, device model, data retrieval method, or protocol of the device.

Results

The data sources appear under the McAfee Event Receiver on the navigation tree.

How receivers work with SDEE

The Security Device Event Exchange (SDEE) format describes how to represent events generated by various types of security devices. The SDEE specification indicates that SDEE events are transported using the HTTP or HTTPS protocols. HTTP servers using SDEE to provide event information to clients are called SDEE providers; initiators of the HTTP requests are called SDEE clients.

Cisco has defined some extensions to the SDEE standard, calling it the CIDEE standard. The McAfee Event Receiver can act as an SDEE client requesting CIDEE data generated by Cisco intrusion prevention systems.

SDEE uses the *pull* model, which means the McAfee Event Receiver periodically contacts the SDEE provider and requests events generated since the time of the last event was requested. Each time the McAfee Event Receiver requests events from the SDEE provider, the system processes and stores those events into the McAfee Event Receiver event database, ready McAfee ESM retrieval.

Add SDEE providers to Receivers as data sources by selecting Cisco as the vendor and iOS IPS (SDEE) as the data source model.

The McAfee Event Receiver extracts the following from SDEE/CIDEE events:

- Source and destination IP addresses
- Source and destination ports
- Protocol
- Event time
- Event count (CIDEE provides a form of event aggregation, which the McAfee Event Receiver honors)
- Signature ID and sub-ID
- McAfee ESM event ID is calculated from the SDEE signature ID and the CIDEE subsignature ID using the following formula: `ESMI ID = (SDEE ID * 1000) + CIDEE sub-ID`

  If the SDEE signature ID is 2000 and the CIDEE subsignature ID is 123, the McAfee ESM event ID would be 2000123.
- VLan
- Severity
- Event description
- Packet contents (if available).

When the McAfee Event Receiver connects to the SDEE provider for the first time, the system uses the current date and time as a starting point for requesting events. Future connections request all events since the last successful pull.

Reinitialize secondary high availability Receivers

If the secondary Receiver is taken out of service for any reason, reinitialize it once it's reinstalled.

Task

1. On the system navigation tree, select Receiver Properties for the primary Receiver, then click Receiver Configuration → Interface → HA Receiver.
2. Verify that the correct IP address is in the Secondary Management IP field.
3. Click Reinitialize Secondary.

Reset high availability devices

To reset high availability Receivers to the state before being set up as high availability devices, you can do so on the McAfee ESM console or, if communication with the Receivers fails, on the LCD menu.

Task

Do one of the following:

- Reset a Receiver on McAfee ESM

  Note: Both Receivers restart after a timeout of 5 minutes, returning the MAC addresses to their original values.

  1. On the system navigation tree, clickReceiver Properties, then click Receiver Configuration → Interface.
  2. Deselect Setup High Availability, then click OK.
  3. Click Yes on the warning page, then click Close.
- Reset the primary or secondary Receiver on the LCD menu

1. On the Receiver's LCD menu, press X.
2. Press the down arrow until you see Disable HA.
3. Press the right arrow once to display Disable Primary on the LCD screen.
4. To reset the primary Receiver, press the checkmark.
5. To reset the secondary Receiver, press the down arrow once, then press the checkmark.

Switch high availability receiver roles

Switch the roles of the primary and secondary McAfee Event Receiver when upgrading a receiver, preparing to return a receiver to the manufacturer, or moving cables on a receiver. Switching roles minimizes potential data lost.

Note: If a collector (including the McAfee ePO device) is associated with a Receiver-HA and the Receiver-HA fails over, the collector can't communicate with the Receiver-HA until the switches between the two associates the new MAC address of the failed-over Receiver to the shared IP address. This can take a few minutes or a few days, depending on the current network configuration.

Task

1. On the system navigation tree, select the Receiver-HA device, then click the Properties icon ⚙.
2. Select High Availability → Fail-Over.
   - McAfee ESM instructs the secondary Receiver to start using the shared data source IP address and collecting data.
   - The secondary Receiver issues a Cluster Resource Manager (CRM) command to switch the shared IP address and MAC, and starts the collectors.
   - McAfee ESM pulls all alert and flow data from the primary Receiver.
   - McAfee ESM selects the secondary Receiver as the primary and selects the primary Receiver as the secondary.

Replace failed Receivers

If a secondary receiver has an unresolved health problem, you might need to replace it. When you receive the new receiver, install it. When the IP addresses are set and the cables are plugged in, you can restore the receiver into the high availability cluster.

Task

1. On the system navigation tree, select Receiver Properties for the high availability receiver, then click Receiver Configuration → Interface.
2. Click the HA Receiver tab, then verify that Setup High Availability is selected.
3. Verify that the IP addresses are correct, then click Reinitialize Secondary.

   If a high availability receiver goes down for any reason, the writing of data sources, global settings, aggregation settings, and others appears to fail and an SSH error appears. The settings roll out to the receiver that is still functioning, but an error appears because it can't sync with the receiver that is down. Policy, but, does not roll out.
4. Do one of the following:
   - Wait to roll out policy until a secondary receiver is available and synced.
   - Remove the Receiver from HA mode, which causes two to five minutes of down time for the HA cluster during which no events are gathered.

View McAfee Event Receiver throughput statistics

View McAfee Event Receiver usage statistics, which includes the incoming and outgoing (parsed) data source rates for the last 10 minutes, the last hour, and the last 24 hours.

Before you begin

Verify that you have the Device Management privilege.

Task

1. On the system navigation tree, select the Receiver, then click the Properties icon ⚙.
2. Click the Receiver Management → View Statistics → Throughput tab.
3. View the statistics.

   If incoming rates exceed the output rate by 15 percent, the system flags that row as either critical (in the last 24 hours) or as a warning (in the last hour).

4. Filter the data source by selecting the All, Critical, or Warning options.
5. Select the unit of measure to display the metrics: by number of kilobytes (KBs) or number of records.
6. To refresh the data automatically every 10 seconds, select the Auto Refresh checkbox.
7. Sort data by clicking the relevant column title.

   Note: The Records Behind column indicates the number of events collected but not yet parsed.

How log devices work

Set up communication with ELM

If you intent to send data from this device to the ELM, you must identify the ELM IP address and sync the device with the ELM.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the device, then click the Properties icon ⚙.
3. Assign an IP or sync devices.
   - Click <device> Configuration, click ELM IP, and enter a new IP.
   - If the device or the ELM has been replaced, click Sync Device. Syncing the ELM re-establishes the SSH communication between the two devices, using the key for the new device with the previous settings.

Configure default log storage pools

Configure log storage pools to send event data to the McAfee Enterprise Log Manager.

Important: Devices do not send events to the McAfee Enterprise Log Manager until after their aggregation time periods have expired.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Configuration → Logging.
   - Enable logging.
   - Select the storage pool for the log data on the McAfee Enterprise Log Manager.
   - If you haven't selected the McAfee Enterprise Log Manager for the log data, confirm that you want to do this.

     Note: Once you make this association, you cannot change it.
   - If you have more than one McAfee Enterprise Log Manager device, identify which one to use for the log data.
   - Select the IP address to communicate with the McAfee Enterprise Log Manager.

Select log event types

Select the events you want saved in the event log.

Task

1. On the system navigation tree, select System Properties, then click ESM Management.
2. Click Manage logs then select the event types you want to log.

Set up ELM redundancy

If you have a standalone ELM device on your system, you can provide redundancy for logging by adding a standby ELM.

Before you begin

- Install a standalone ELM and add it to McAfee ESM.
- You must have a standby ELM installed but not added to the console.
- Ensure that there is no data on the standby ELM. Contact Support if you need to perform a factory reset.

Task

1. On the system navigation tree, click the ELM, then click the Properties icon ⚙.
2. On the ELM Properties page, click ELM Redundancy, then click Enable.
3. Type the IP address and password for the standby ELM, then click OK.
4. On the ELM Properties page, click Storage Pools, and verify that the Active tab is selected.
5. Add storage devices to the active ELM.
6. Click the Standby tab, then add storage devices that have enough combined space to match the storage on the active ELM.
7. Add one or more storage pools to each ELM.

Results

The configuration on both ELMs is now synchronized and the standby ELM maintains the synchronization of data between both devices.

Option	Definition
Available only when ELM redundancy is not enabled.	
Enable	Click, then add standby ELM data to activate ELM redundancy.
Available only when ELM redundancy is enabled.	
Remove	Click to disable redundancy on the ELM.
Switch ELMs	Click to switch the ELMs so the standby ELM becomes the primary ELM. The system associates all logging devices to it. Logging and configuration actions are locked during the switch-over process.
Suspend	Click to suspend communication with the standby ELM if it is experiencing problems. All communication stops and error notifications for redundancy are masked. When you bring the standby ELM back up, click Return to Service.
Status	Click to view details about the state of data synchronization between the active and standby ELM.
Return to service	Click to return a repaired or replaced standby ELM to service. If the system brings the ELM back up and detects no changes to the configuration files, redundancy continues as before. If the system does detect differences, the redundancy process continues for the storage pools without problems, and you are informed that one or more pools are out of configuration. Fix these pools manually. If you replace or reconfigure the standby ELM, the system detects it and prompts you to rekey it. The active ELM then syncs all configuration files to the standby ELM and the redundancy process continues as before.

Set ELM compression

Select the compression level for the data coming into the ELM to save disk space or process more logs.

Task

1. On the system navigation tree, select ELM Properties, then click ELM Configuration → Compression.
2. Select the ELM compression level, then click OK.

Configure McAfee Risk Advisor

When you enable McAfee Risk Advisor data acquisition on McAfee ePO, the system generates a score list and sends it to any McAfee Advanced Correlation Engine (ACE) used for scoring SrcIP and DstIP fields.

Task

1. On the system navigation tree, select ePO Properties → Device Management, then click Enable.
2. Complete the configuration.
   a. Click Manage ELM Logging to configure the default logging pool for the selected device. This option is only available if you have anMcAfee Enterprise Log Manager (ELM) on McAfee ESM.
   b. Assign the McAfee ePO to a Zone .
   c. Click Manual refresh device to refresh the list of applications from your McAfee ePO device and build a client data source for each application.
   d. To enable McAfee Risk Advisor data acquisition, click Enable MRA.
   e. Assign a Priority to data from this device. When multiple devices report the same data, priority determines which data is kept.
   f. To automatically refresh the list of applications from your McAfee ePO device, select the frequency from the Schedule application refresh drop-down list.
3. Click OK.

View message logs and device statistics

You can view messages generated by the system, view statistics about the performance of the device, or download a .tgz file with device status information.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the device, then click the Properties icon ⚙.
3. Click <device> Management.
4. Select an option.
   - Click View Log to see system messages, then click Download Entire File to download the data.
   - Click View Statistics to see device performance statistics such as Ethernet interface, ifconfig, and iptables filter.
   - Click Device Data to download a .tgz file that contains device status data.

View system or device logs

System and device logs track events on the devices. View the logs to see a detailed list of events.

Task

1. View system logs.
   a. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
   b. On System Properties, click System Log.
   c. Set a time range and select whether to include archived partitions, then click View.
   On the System Log page, you can refine your data selections or export the data to a plain text file.
2. View device logs.
   a. On the system navigation tree, select the device, then click the Properties icon ⚙.
   b. Click Device Log.
   c. Set a time range and select whether to include archived partitions, then click View.
   On the Device Log page, you can refine your data selections or export the data to a plain text file.
3. View Data Streaming Bus (DSB) logs.
   a. From the navigation menu, select Data Streaming Bus.
   b. Right-click the DSB node and click View Device Logs.
   You can set time frames for the results and search the logs.

Configure Enterprise Log Search (ELS)

To search ELS data, add ELS devices to the console, set up ELS storage and retention policies, and associate data sources with specific retention policies.

Before you begin

Set up and install virtual or physical devices.

Task

1. From the dashboard, click ☰, then click Configuration.
2. Add ELS devices to the console.
    a. On the actions toolbar, click ⊞, then select McAfee Enterprise Log Search. Click Next.
    b. Enter a unique Device Name, then click Next.
    c. Enter the target IP address or URL, target SSH port number, and Network Time Protocol (NTP) settings for the device. Click Next.
    d. Enter a password for this device, then click Next.
3. Set up storage.

    Note: Retaining uncompressed data speeds the ELS search capabilities. But, it requires additional storage space, such as hard drives or network storage.

    a. Select ELS, click ⚙, then click Data Storage.
    b. If using iSCSI, DAS, SAN, or virtual local drives, fill in the information in the top grid.
    c. If using SAN, virtual local, NFS, iSCSI, or CIFS, click Add in the lower grid.
    d. Enter the correct parameters and click OK.
4. Add retention policies (limited to no more than six).

    Note: To search ELS log data, you must have at least one retention policy. The system sets the first retention policy created as the default. If only one policy exists, you can change it but you cannot delete it. The ELS cannot accept data older than six months before when you create the first retention policy.

    a. Select ELS, click ⚙, then click Retention Policies.
    b. Click Add.
    c. Specify the name and duration of the retention policy and click OK.

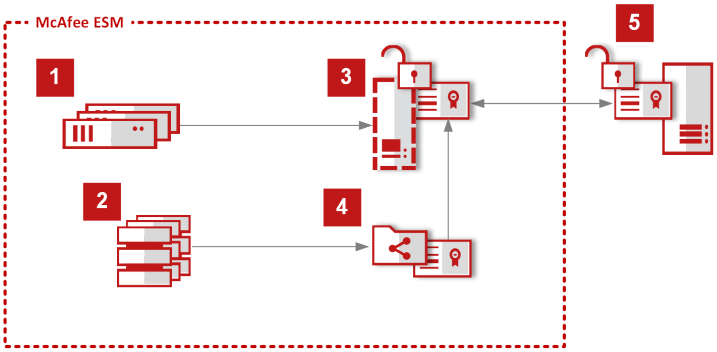
        Note: The system stores duration in days. You can set up a duration in years (365 days), quarters (90 days), or months (30 days).
5. Associate data sources with retention policies.
    a. Select the data source device (such as a McAfee Event Receiver) and click ⚙.
    b. Click Data Sources.
    c. In the Logging column, choose the relevant checkbox to display the Log Data Options screen.
    d. Select the retention policy you want to associate with this data source and click OK.

How data sharing works

Share public (unparsed) data with third-party applications by creating public copies of your raw data on the Data Streaming Bus. Access to the Data Streaming Bus requires knowledge of how to use Apache Kafka® and authentication certificates generated by Message Forwarding rules.

What is the workflow?

1. Configure devices, such as a McAfee Event Receiver.
2. Configure data sources.
3. Configure a Data Streaming Bus and connect receivers to it.
4. Configure Message Forwarding rules for data sources you want to share.
5. Access public data by connecting to the Data Streaming Bus using your own Kafka consumer and authentication certificates generated by the Message Forwarding rules.



Enable data routing

Data routing allows you to use a McAfee Event Receiver to send raw (unparsed) data to the Data Streaming Bus in deployments where the McAfee Event Receiver does not have a McAfee Enterprise Log Search device connected to it. McAfee Event Receivers with connected ELS devices produce raw logs on the Data Streaming Bus, which you configure in Message Forwarding rules. Third-party applications can then access the public data, using authentication certificates and public topic names.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the Receiver, then click the Properties icon ⚙.
3. Select Data Routing.
4. Check the Enable Data Routing option and click OK.
5. On the McAfee Event Receiver Properties page, select Data Sources.
6. Choose Data Routing for the data sources you want to send public, raw data to the Data Streaming Bus.
7. Configure Message Forwarding rules to include the above data sources.

Add and configure a Data Streaming Bus

Set up a virtual device to facilitate communication between devices, to share raw data with third-party applications, and to share parsed data between ESMs in distributed/hierarchical configurations.

Before you begin

Set up the McAfee ESM device and note the IP address and password.

Task

1. From the McAfee ESM dashboard, click ≡ and select Data Streaming Bus.
2. Click +Add.
3. Right-click on the device and select Settings to add or change the device information (such as description, key management, network interface, connection, and management).
4. Connect the Data Streaming Bus to other McAfee ESM devices.
   a. Select the Data Streaming Bus.
   b. Click Connect Device to see available McAfee ESM devices.
   c. Select a device and click Save.
   Note: Filter the device list by typing search terms in the search box.
5. If you are creating a DSB cluster, add more devices as needed.

Configure Message Forwarding rules

Share public (unparsed) data directly with third-party applications. Message Forwarding rules create public copies of raw data onto the Data Streaming Bus. You can then use authentication certificates (generated by the Message Forwarding rules) and your Apache Kafka® code to access the raw data.

Before you begin

- Configure a Data Streaming Bus device (required to share public data with third-party applications).
- Configure a McAfee Enterprise Log Search device or enable data routing for data sources on a McAfee Event Receiver.

  Note: If you do not have an Enterprise Log Search device, you must enable data routing.
- Verify that you have the Event Forwarding privilege.
- You must have a working knowledge of Apache Kafka® to access public data from the Data Streaming Bus.

Task

1. From the McAfee ESM dashboard, click ☰ and select Message Forwarding.
2. Add or change rules.

   Note: You can associate existing certificates with rules.
3. Generate and download a new authentication certificate for the rule (if needed).

   Note: Once generated, you have 10 minutes to download the certificate.
4. Choose the Source Adapter for the rule:
   - ELS Raw Log — indicates the system retrieves raw data from the McAfee Enterprise Log Search device.
   - Data Routing — indicates that data routing is enabled for data sources on the McAfee Event Receiver connected to the Data Streaming Bus.

     Note: If you do not have a McAfee Enterprise Log Search device, you must use this source adapter.
5. Include the authentication certificate and public names in your Apache Kafka® code to access the public data on the Data Streaming Bus or on the McAfee Enterprise Log Search device.

   Note: Certificates limit what data third-party applications can access.

How McAfee Application Data Monitor works

McAfee Application Data Monitor tracks use of sensitive data on the network, analyzing underlying protocols, session integrity, and application contents.

When McAfee Application Data Monitor detects a violation, it preserves all details of that application session for use in incident response and forensics or for compliance audit requirements. At the same time, McAfee Application Data Monitor provides visibility into threats that masquerade as legitimate applications.

McAfee Application Data Monitor can detect when sensitive information is transmitted inside email attachments, instant messages, file transfers, HTTP posts, or other applications. Customize McAfee Application Data Monitor detection capabilities by defining your own dictionaries of sensitive and confidential information. McAfee Application Data Monitor can then detect these sensitive data types, alert appropriate personnel, and log the transgression to maintain an audit trail.

McAfee Application Data Monitor monitors, decodes, and detects anomalies in the following application protocols:

- File transfer: FTP, HTTP, SSL (setup and certificates only)
- Email: SMTP, POP3, NNTP, MAPI
- Chat: MSN, AIM/Oscar, Yahoo, Jabber, IRC
- Webmail: Hotmail, Hotmail DeltaSync, Yahoo mail, AOL Mail, Gmail
- P2P: Gnutella, bitTorrent
- Shell: SSH (detection only), Telnet

McAfee Application Data Monitor accepts rule expressions and tests them against monitored traffic, inserting records into the database event table for each triggered rule. It stores the packet that triggered the rule in the event table's packet field. It also adds application level metadata to the dbsession and the database query tables for every triggered rule. It stores a text representation of the protocol stack in the query table's packet field.

McAfee Application Data Monitor can generate the following types of event:

- **Metadata** - McAfee Application Data Monitor generates one metadata event for each network transaction, with details such as addresses, protocol, file type, file name. McAfee Application Data Monitor places the metadata events in the query table and groups the events through the session table. For example, if one FTP session transfers three files, McAfee Application Data Monitor groups them together.
- **Protocol anomaly** - Protocol anomalies are hard-coded into the protocol modules and include events, such as a Transmission Control Protocol (TCP) packet being too short to contain a valid header and a Simple Mail Transfer Protocol (SMTP) server returning an invalid response code. Protocol anomaly events are rare; McAfee Application Data Monitor places them in the event table.

- **Rule trigger** - Rule expressions generate rule trigger events, detecting anomalies in the metadata generated by the Internet Communications Engine (ICE). These events might include anomalies such as protocols used outside of normal hours or an SMTP server unexpectedly talking FTP. Rule trigger events are rare; McAfee Application Data Monitor places them in the event table.

The event table contains one record for each detected protocol anomaly or rule trigger event. The event records link to the session and query tables through the sessionid, where more detail about the network transfers (metadata events) that triggered the event is available. Each event also links to the packet table where the raw packet data for the packet that triggered the event is available.

The session table contains one record for each group of related network transfers (such as, a group of FTP file transfers on the same session). The session records link to the query table through the sessionid where more details about the individual network transfers (metadata events) are found. In addition, if a transfer in the session causes a protocol anomaly or triggers a rule, there is a link to the event table.

The query table contains one record for each metadata event (content transfers that take place on the network). The query records link to the session table with the sessionid. If the network transfer represented by the record triggers a protocol anomaly or rule, there is a link to the event table. There is also a link to the packet table using the text field where a textual representation of the full protocol or content stack is found.

Set McAfee Application Data Monitor time zone

The system uses the time zone you set for McAfee Application Data Monitor to evaluate rules.

The default time zone is set to GMT but the McAfee Application Data Monitor code expects the device to be set to your time zone. Set the time zone to your time zone so that rules use your time trigger not the GMT time zone.

Task

1. On the system navigation tree, select ADM Properties, then click ADM Configuration.
2. Click Time Zone, then select your time zone.
3. Click OK.

Display password on Session Viewer

The Session Viewer allows you to see the details of the latest 25,000 McAfee Application Data Monitor queries in a session. Some event rules might be password-related. You can select whether you want the passwords to display on the Session Viewer.

Task

1. On the system navigation tree, select ADM Properties, then click ADM Configuration.
   By default, passwords do not display.
2. Click Passwords, select Enable password logging, then click OK.

Manage McAfee Application Data Monitor selection rules

The system uses selection rules as filters to determine which packets a virtual device processes. You can add, edit, and delete selection rules.

Note: Place rules that will match the most packets first in the order. This reduces the average number of times a packet is parsed and therefor reduces CPU usage.

Task

1. From the McAfee ESM dashboard, click ☰ and select Configuration.
2. On the system navigation tree, select the device, then click the Properties icon ⚙.
3. Click Virtual Devices, then click Add.
4. Add, edit, remove, or change the order of the selection rules in the table.

   Note: There can be up to 4 McAfee Application Data Monitor interface filters. Each filter can only be applied to one McAfee Application Data Monitor virtual device at a time.

McAfee Application Data Monitor rules syntax

McAfee Application Data Monitor rules provide a set of literals (numbers, strings, regular expressions, IP addresses, MAC addresses, and Booleans), similar to C expressions.

You can compare string terms with string and Regex literals to test their content but they can also be compared with numbers to test their length. You can only compare numeric, IP address, and MAC address terms with the same type of literal value. The only exception is that everything can be treated as a Boolean to test for its existence. Some terms can have multiple values, for example the following rule would trigger for PDF files inside .zip files: type = = application/zip && type = = application/pdf.

Operators

Operator	Description	Example
&&	Logical AND	protocol = = http && type = = image/gif
| |	Logical OR	time.hour < 8 | | time.hour > 18
^ ^	Logical XOR	email.from = = "a@b.com" ^^email.to = = "a@b.com"
!	Unary NOT	! (protocol = = http | | protocol = = ftp)
= =	Equal	type = = application/pdf
! =	Not equal	srcip ! = 192.168.0.0/16
>	Greater	objectsize > 100M
> =	Greater or equal	time.weekday > = 1
<	Less	objectsize < 10K
< =	Less or equal	time.hour < = 6

Literals

Literal	Example
Number	1234, 0x1234, 0777, 16K, 10M, 2G
String	"a string"
Regex	/[A-Z] [a-z]+/
IPv4	1.2.3.4, 192.168.0.0/16, 192.168.1.0/255.255.255.0
MAC	aa:bb:cc:dd:ee:ff
Bool	true, false

Type operator compatibility

Type	Operators	Notes
Number	= =, ! =, >, > =, <, < =	
String	= =, ! =	Compare content of string with String/Regex
String	>, > =, <, <=	Compare length of string

Type	Operators	Notes
IPv4	= =, ! =	
MAC	= =, ! =	
Bool	= =, ! =	Compare against true/false, also supports implied comparison with true, for example the following tests whether the email.bcc term occurs: email.bcc

Regex grammar

Basic operators	
Alternation (or)	|
Zero or more	*
One or more	+
Zero or one	?
Grouping (a | b)	()
Repeating Range {x} or {,x} or {x,} or {x,y}	{}
Range [0-9a-z] [abc]	[]
Exclusive Range [^abc] [^0–9]	[^]
Any Character	.
Escape Character	\

Escapes	
Digit [0–9]	\d
Non-Digit [^0-9]	\D
Escape (0x1B)	\e
Form Feed (0x0C)	\f
Line Feed (0x0A)	\n
Carriage Return (0x0D)	\r
White Space	\s
Not White Space	\S
Tab (0x09)	\t
Vertical Tab (0x0B)	\v
Word [A-Za-z0-9_]	\w
Not Word	\W
Hex Representation	\x00

Escapes	
\000	Octal Representation
^	Start of line
$	End of line
Note: The start of line and end of line anchors (^ and $) don't work for objcontent.	

POSIX character classes	
[:alunum:]	Digits and letters
[:alpha:]	All letters
[:ascii:]	ASCII Characters
[:blank:]	Space and tab
[:cntrl:]	Control characters
[:digit:]	Digits
[:graph:]	Visible characters
[:lower:]	Lowercase letters
[:print:]	Visible characters and spaces
[:punct:]	Punctuation and Symbols
[:space:]	All whitespace characters
[:upper:]	Uppercase characters
[:word:]	Word characters
[:xdigit:]	Hexadecimal Digit

McAfee Application Data Monitor rule term types

McAfee Application Data Monitor rules contain terms that can be IP addresses, MAC addresses, numbers, strings, or a Boolean.

In addition, there are two extra literal types: regular expressions and lists. A term of a specific type can only be compared against a literal of the same type or a list of literals of the same type (or a list of lists of ...).

Exceptions to this rule are:

- A string term can be compared against a numeric literal to test its length. The following rule triggers if a password is fewer than eight characters long (password is a string term): Password < 8
- A string term can be compared against a regular expression. The following rule triggers if a password only contains lowercase letters: Password == /^[a-z]+$/
- All terms can be tested against Boolean literals to test whether they occur at all. The following rule triggers if an email has a CC address (email.cc is a string term): email.cc == true

Type	Format description
IP addresses	• IP address literals are written in standard dotted-quad notation, they are not enclosed in quotes: 192.168.1.1

Type	Format description
	• IP addresses can have a mask written in standard CIDR notation, there must not be any white space between the address and the mask: 192.168.1.0/24 • IP addresses can also have masks written out in long form: 192.168.1.0/255.255.255.0
MAC addresses	• MAC address literals are written using standard notation, as with IP addresses, they are not enclosed in quotes: aa:bb:cc:dd:ee:ff
Numbers	• All numbers in McAfee Application Data Monitor rules are 32-bit integers. They can be written in decimal: 1234 • They can be written in hexadecimal: 0xabcd • They can be written in octal: 0777 • They can have a multiplier appended to multiply by 1024 (K), 1048576 (M) or 1073741824 (G): 10M
Strings	• Strings are enclosed in double quotes: "this is a string" • Strings can use standard C escape sequences: "\tThis is a \"string\" containing\x20escape sequences\n" • When comparing a term against a string, the whole term must match the string. If an email message has a from address of someone@somewhere.com, the following rule does not trigger: email.from == “@somewhere.com” • To match only a part of a term, use a regular expression literal instead. String literals must be used when possible because they are more efficient. **Note:** All email address and URL terms are normalized before matching so it is not needed to take account of things like comments in email addresses.
Booleans	• The Boolean literals are true and false.
Regular expressions	• Regular expression literals use the same notation as languages like JavaScript and Perl, enclosing the regular expression in forward slashes: /[a-z]+/ • Follow regular expressions with standard modifier flags, though "i" is the only one currently recognized (case-insensitive): /[a-z]+/i • Use the POSIX Extended syntax for regular expression literals. Currently Perl extensions work for all terms except the content term but this might change in future versions. • When comparing a term against a regular expression, the regular expression matches any substring in the term unless anchor operators are applied in the regular expression. The following rule triggers if an email is seen with an address of “someone@somewhere.com”: email.from == /@somewhere.com/
Lists	• List literals consist of one or more literals enclosed in square brackets and separated by commas: [1, 2, 3, 4, 5] • Lists might contain any kind of literal, including other lists: [192.168.1.1, [10.0.0.0/8, 172.16.128.0/24]] • Lists must only contain one literal, it's not valid to mix strings and numbers, strings and regular expressions, IP addresses and MAC addresses. • When a list is used with any relational operator other than not-equal (!=), then the expression is true if the term matches any literal in the list. The following rule triggers if the source IP address matches any of the IP addresses in the list: Srcip == [192.168.1.1, 192.168.1.2, 192.168.1.3] • It is equivalent to: Srcip == 192.168.1.1 || srcip == 192.168.1.2 || srcip == 192.168.1.3 • When used with the not-equal (!=) operator, the expression is true if the term doesn't match all literals in the list. The following rule triggers if the source IP address is not 192.168.1.1 or 192.168.1.2: Srcip != [192.168.1.1, 192.168.1.2] • It is equivalent to: Srcip != 192.168.1.1 && srcip != 192.168.1.2 • Lists might also be used with the other relational operators, though it doesn't make much sense. The following rule triggers if the object size is greater than 100 or if the object size is greater than 200: objectsize > [100, 200] • It is equivalent to: objectsize > 100 || objectsize > 200

McAfee Application Data Monitor rule metric references

Use the following metric references when adding McAfee Application Data Monitor rules.

For Common Properties and Common Anomalies, the parameter-type value you can enter for each one is shown in parentheses after the metric reference.

Common Properties

Property or term	Description
Protocol (Number)	The application protocol (HTTP, FTP, SMTP)
Object Content (String)	The content of an object (text inside a document, email message, chat message). Content matching is not available for binary data. Binary objects can, but, be detected using Object Type (objtype)
Object Type (Number)	Specifies the type of the content as determined by McAfee Application Data Monitor (Office Documents, Messages, Videos, Audio, Images, Archives, Executables)
Object Size (Number)	Size of the object. Numeric multipliers K, M, G can be added after the number (10K, 10M, 10G)
Object Hash (String)	The hash of the content (currently MD5)
Object Source IP address (Number)	The source IP address of the content. IP address can be specified as 192.168.1.1, 192.168.1.0/24, 192.168.1.0/255.255.255.0
Object Destination IP address (Number)	The destination IP address of the content. IP address can be specified as, 192.168.1.1, 192.168.1.0/24, 192.168.1.0/255.255.255.0
Object Source Port (Number)	The source TCP/UDP port of the content
Object Destination Port (Number)	The destination TCP/UDP port of the content
Object Source IP address v6 Address (Number)	The source IPv6 address of the content
Object Destination IPv6 Address (Number)	The destination IPv6 address of the content
Object Source MAC Address (Mac name)	The source MAC address of the content (aa:bb:cc:dd:ee:ff)
Object Destination MAC Address (Mac name)	The destination MAC address of the content (aa:bb:cc:dd:ee:ff)
Flow Source IP address (IPv4)	Source IP address of the flow. IP address can be specified as 192.168.1.1, 192.168.1.0/24, 192.168.1.0/255.255.255.0
Flow Destination IP address (IPv4)	Destination IP address of the flow. IP address can be specified as 192.168.1.1, 192.168.1.0/24, 192.168.1.0/255.255.255.0
Flow Source Port (Number)	Source TCP/UDP port of flow
Flow Destination Port (Number)	Destination TCP/UDP port of flow
Flow Source IPv6 Address (Number)	Source IPv6 address of the flow

Property or term	Description
Flow Destination IPv6 Address (Number)	Destination IPv6 address of the flow
Flow Source MAC Address (Mac name)	Source MAC address of the flow
Flow Destination MAC Address (Mac name)	Destination MAC address of flow
VLAN (Number)	Virtual LAN ID
Day of Week (Number)	The day of the week. Valid values are 1–7; 1 is Monday.
Hour of Day (Number)	The hour of the day set to GMT. Valid values are 0–23.
Declared Content Type (String)	Type of the content as specified by the server. In theory, Object Type (objtype) is always the actual type and Declared Content-type (content-type) is not trustworthy because it can be spoofed by the server/application.
Password (String)	Password used by the application for authentication.
URL (String)	Website URL. Applies only to HTTP protocol.
File Name (String)	Name of the file being transferred.
Display Name (String)	
Host Name (String)	Host name as specified in DNS lookup.

Common Anomalies

- User logged off (Boolean)
- Authorization error (Boolean)
- Authorization successful (Boolean)
- Authorization failed (Boolean)

Protocol-specific properties

In addition to providing properties that are common across most protocols, McAfee Application Data Monitor also provides protocol-specific properties that can be used with McAfee Application Data Monitor rules.

Examples of protocol-specific properties

These properties apply to these tables:

```
*   Detection only
**  No decryption, captures X.509 certificates and encrypted data
*** Via RFC822 module
```

File transfer protocol modules

FTP	HTTP	SMB*	SSL**
Display Name File Name Host Name URL	Display Name File Name Host Name Referrer URL All HTTP headers	Display Name File Name Host Name	Display Name File Name Host Name

Email protocol modules

DeltaSync	MAPI	NNTP	POP3	SMTP
Bcc*** Cc*** Display Name From*** Host Name Subject*** To***	Bcc Cc Display Name From Host Name Subject To User Name	Bcc*** Cc*** Display Name From*** Host Name Subject*** To***	Bcc*** Cc*** Display Name From*** Host Name Subject*** To*** User Name	Bcc*** Cc*** Display Name From*** Host Name To*** Subject***

Webmail protocol modules

AOL	Gmail	Hotmail	Yahoo
Attachment Name Bcc*** Cc*** Display Name File Name Host Name From*** Subject*** To***	Attachment Name Bcc*** Cc*** Display Name File Name Host Name From*** Subject*** To***	Attachment Name Bcc*** Cc*** Display Name File Name Host Name From*** Subject*** To***	Attachment Name Bcc*** Cc*** Display Name File Name Host Name From*** Subject*** To***

Protocol anomalies

Beyond the common properties and protocol-specific properties, McAfee® Application Data Monitor also detects hundreds of anomalies in low-level, transport, and application protocols. All protocol anomaly properties are of type Boolean and are available in the Expression Component page when you are adding a McAfee® Application Data Monitor rule.

IP address

Term	Description
ip.too-small	IP address packet is too small to contain a valid header.
ip.bad-offset	IP address data offset goes past end of packet.
ip.fragmented	IP address packet is fragmented.
ip.bad-checksum	IP address packet checksum doesn't match data.
ip.bad-length	IP address packet totlen field goes past end of packet.

TCP

Term	Description
tcp.too-small	TCP packet is too small to contain a valid header.
tcp.bad-offset	TCP packet's data offset goes past end of packet.
tcp.unexpected-fin	TCP FIN flag set in non-established state.

Term	Description
tcp.unexpected-syn	TCP SYN flag set in established state.
tcp.duplicate-ack	TCP packet ACKs data that is already ACKed.
tcp.segment-outsidewindow	TCP packet is outside the window (TCP module's small window, not real window).
tcp.urgent-nonzero-withouturg- flag	TCP urgent field is non-zero but URG flag isn't set.

DNS

Term	Description
dns.too-small	DNS packet is too small to contain a valid header.
dns.question-name-past-end	DNS question name goes past the end of the packet.
dns.answer-name-past-end	DNS answer name goes past the end of the packet.
dns.ipv4-address-length-wrong	IPv4 address in DNS response is not 4 bytes long.
dns.answer-circular-reference	DNS answer contains circular reference.

How McAfee Application Data Monitor dictionaries work

When writing McAfee Application Data Monitor rules, use dictionaries that translate keys captured from the network into a defined value. Or, list keys without a value that defaults to Boolean true when the keys are present.

McAfee Application Data Monitor dictionaries allow you to specify a file's keys quickly instead of having to write an individual rule for each word. For example, set up a rule to select email with specific words, compile a dictionary with naughty words, and import that dictionary. You can create a rule like the following to check for emails with content that includes a word in the dictionary:

```
protocol == email && naughtyWords[objcontent]
```

When writing rules with the McAfee Application Data Monitor rule editor, you can select the dictionary you want the rule to reference.

Note: Dictionaries support up to millions of entries.

Adding a dictionary to a rule involves the following steps:

1. Setting up and saving a dictionary that lists the keys and, when needed, the values.
2. Managing the dictionary on the McAfee ESM.
3. Assigning the dictionary to a rule.

Setting up McAfee Application Data Monitor dictionaries

A dictionary is a plain text file that consists of one entry per line. There are single column and double column dictionaries. Double columns include a key and a value.

Keys can be IPv4, MAC, number, regular expression, and string. Value types are Boolean, IPv4, IPv6, MAC, number, and string. A value is optional and defaults to Boolean true if not present.

Values in a single or double column dictionary must be one of the supported McAfee Application Data Monitor types: String, Regular Expression, Number, IPv4, IPv6, or MAC. McAfee Application Data Monitor dictionaries must follow these formatting guidelines:

Type	Syntax Rules	Examples	Content Matched
String	• Strings must be enclosed in double quotes	“Bad Content” “He said, \”Bad Content\””	Bad Content He said, “Bad Content”

Type	Syntax Rules	Examples	Content Matched
	• Double quotes found in a String must be escaped using the backslash character before each quotation mark		
Regular Expression	• Regular expressions are enclosed with single forward slashes • Forward slashes and reserved regular expression characters in the regular expression must be escaped with the backslash character	/[Aa]pple/ /apple/i / [0–9]{1,3}\.[0–9]{1,3}\.[0–9]\. [0–9]/ /1\/2 of all/	Apple or apple Apple or apple IP addresses: 1.1.1.1 127.0.0.1 1/2 of all
Numbers	• Decimal Values (0–9) • Hexadecimal Values (0x0-9a-f) • Octal Values (0–7)	Decimal Value Hexadecimal Value Octal Value	123 0x12ab 0127
Booleans	• Can be true or false • All lowercase	Boolean Literals	true false
IPv4	• Can be written in standard dotted-quad notation • Can be written in CIDR notation • Can be written in long format with full masks	192.168.1.1 192.168.1.0/24 192.168.1.0/255.255.255.0	192.168.1.1 192.168.1.[0–255] 192.168.1.[0–255]

The following is true about dictionaries:

- Lists (multiple values separated by commas enclosed in brackets) are not allowed in dictionaries.
- A column can only consist of a single supported McAfee Application Data Monitor type. This means that different types (string, regex, IPv4) cannot be mixed and matched in a single McAfee Application Data Monitor dictionary file.
- They can contain comments. All lines starting with the pound character (#) are considered a comment in an McAfee Application Data Monitor dictionary.
- Names can only consist of alphanumeric characters and underscores, and be of a total length less than or equal to 20 characters.
- Lists are not supported in them.
- They must be edited or created outside of McAfee ESM with a text editor of your choice. They can be imported or exported from McAfee ESM to facilitate changing or creating McAfee Application Data Monitor dictionaries.

Reference McAfee Application Data Monitor dictionaries

When importing McAfee Application Data Monitor dictionaries into McAfee ESM, see them when writing rules.

Before you begin

Import the McAfee Application Data Monitor dictionary to the McAfee ESM.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the McAfee Application Data Monitor device then open the Policy Editor.
3. Under Rule Types, select Policy Editor → ADM.
4. Click New → ADM Rule.
5. Add the requested information and drag and drop a logical element to the Expression Logic area.
6. Drag and drop the Expression Component icon onto the logical element.
7. Configure the expression component, selecting the McAfee Application Data Monitor Dictionary.

McAfee Application Data Monitor dictionary examples

McAfee Application Data Monitor can match object content or other metrics or properties with a single column dictionary for true or false (exists in the dictionary or does not exist in the dictionary).

Single column dictionary examples

Type of dictionary	Example
String dictionary with common spam words	“Cialis” “cialis” “Viagra” “viagra” “adult web” “Adult web” “act now! don’t hesitate!”
Regular expression dictionary for authorization key words	/(password|passwd|pwd)[^a-z0-9]{1,3}(admin|login|password|user)/i /(customer|client)[^a-z0-9]{1,3}account[^a-z0-9]{1,3}number/i /fund[^a-z0-9]{1,3}transaction/i /fund[^a-z0-9]{1,3}transfer[^a-z0-9]{1,3}[0–9,.]+/i
String dictionary with hash values for known bad executables	"fec72ceae15b6f60cbf269f99b9888e9" "fed472c13c1db095c4cb0fc54ed28485" "feddedb607468465f9428a59eb5ee22a" "ff3cb87742f9b56dfdb9a49b31c1743c" "ff45e471aa68c9e2b6d62a82bbb6a82a" "ff669082faf0b5b976cec8027833791c" "ff7025e261bd09250346bc9efdfc6c7c"
IP addresses of critical assets	192.168.1.12 192.168.2.0/24 192.168.3.0/255.255.255.0 192.168.4.32/27 192.168.5.144/255.255.255.240

Double column dictionary examples

Type of dictionary	Example
String dictionary with common spam words and categories	“Cialis” “pharmaceutical” “cialis” “pharmaceutical” “Viagra” “pharmaceutical” “viagra” “pharmaceutical” “adult web” “adult” “Adult web” “adult” “act now! don’t hesitate!” “scam”
Regular expression dictionary for authorization key words and categories	/(password|passwd|pwd)[^a-z0-9]{1,3}(admin|login|password|user)/i “credentials” /(customer|client)[^a-z0-9]{1,3}account[^a-z0-9]{1,3}number/i “pii” /fund[^a-z0-9]{1,3}transaction/i “sox” /fund[^a-z0-9]{1,3}transfer[^a-z0-9]{1,3}[0–9,.]+/i “sox”
String dictionary with hash values for known bad executables and categories	"fec72ceae15b6f60cbf269f99b9888e9" “trojan” "fed472c13c1db095c4cb0fc54ed28485" “Malware” "feddedb607468465f9428a59eb5ee22a" “Virus” "ff3cb87742f9b56dfdb9a49b31c1743c" “Malware” "ff45e471aa68c9e2b6d62a82bbb6a82a" “Adware” "ff669082faf0b5b976cec8027833791c" “trojan”

Type of dictionary	Example
	"ff7025e261bd09250346bc9efdfc6c7c" "Virus"
IP addresses of critical assets and groups	192.168.1.12 "Critical Assets" 192.168.2.0/24 "LAN" 192.168.3.0/255.255.255.0 "LAN" 192.168.4.32/27 "DMZ" 192.168.5.144/255.255.255.240 "Critical Assets"

Manage McAfee Application Data Monitor dictionaries

Once you set up and save a McAfee Application Data Monitor dictionary, you must import it to McAfee ESM. You can also export, edit, and delete it.

Task

1. On the Policy Editor, click Tools, then select ADM Dictionary Manager.
   Manage ADM Dictionaries lists default dictionaries (botnet, foullanguage, icd9_desc, and spamlist) and any dictionaries that were imported to the system.
2. Perform any of the available actions, then click Close.
   Note: When you delete a dictionary, any attempt to roll out a rule set with rules that reference this dictionary fails to compile. If this dictionary is assigned to a rule, either rewrite the rule so it does not see the dictionary, or do not continue with the deletion. If there is a discrepancy between what you selected in the **Key Type** and **Value Type** fields and what the file contains, the system indicates invalid data.

How McAfee Database Event Monitor works

McAfee Database Event Monitor consolidates database activity into a central audit repository and provides normalization, correlation, analysis, and reporting of that activity. If network or database server activity matches known patterns indicating malicious data access, McAfee Database Event Monitor generates an alert. In addition, all transactions are logged for use in compliance.

McAfee Database Event Monitor enables you to manage, edit, and adjust database monitoring rules from the same interface that provides analysis and reporting. You can easily adjust specific database monitoring profiles (which rules are enforced, what transactions are logged), reducing false-positives and improving security overall.

McAfee Database Event Monitor non-intrusively audits the interactions of your users and applications with your databases by monitoring network packets similar to intrusion detection systems. To ensure that you can monitor all database server activity over the network, coordinate your initial McAfee Database Event Monitor deployment with your networking, security, compliance, and database teams.

Your network teams use span ports on switches, network taps, or hubs to replicate database traffic. This process allows you to listen to or monitor the traffic on your database servers and create an Audit Log.

Operating system	Database	Device
Windows (all versions)	Microsoft SQL Server[1]	MSSQL 7, 2000, 2005, 2008, 2012
Windows, UNIX/Linux (all versions)	Oracle[2]	Oracle 8.x, 9.x, 10 g, 11 g (c), 11 g R2[3]
	Sybase	11.x, 12.x, 15.x
	DB2	8.x, 9.x, 10.x
	Informix (available in 8.4.0 and later)	11.5
Windows, UNIX/Linux (all versions)	MySQL	Yes, 4.x, 5.x, 6.x
	PostgreSQL	7.4.x, 8.4.x, 9.0.x, 9.1.x

Operating system	Database	Device
	Teradata	12.x, 13.x, 14.x
	InterSystems Cache	2011.1.x
UNIX/Linux (all versions)	Greenplum	8.2.15
	Vertica	5.1.1-0
Mainframe	DB2/zOS	All versions
AS400	DB2	All versions

1. Packet decryption support for Microsoft SQL Server is available in version 8.3.0 and later.
2. Packet decryption support for Oracle is available in version 8.4.0 and later.
3. Oracle 11 g is available in version 8.3.0 and later.

The following applies to these servers and versions:

- Both 32-bit and 64-bit versions of operating systems and database platforms are supported.
- MySQL is supported on Windows 32-bit platforms only.
- Packet decryption is supported for MSSQL and Oracle.

Update McAfee Database Event Monitor license

The McAfee Database Event Monitor device comes with a default license. If you change the capabilities of the McAfee Database Event Monitor, McAfee sends you a new license in an email message and you must update it.

Task

1. On the system navigation tree, select DEM Properties, then click DEM Configuration.
2. Click License → Update License, then paste the information sent to you by McAfee in the field.
3. Click OK.
   The system updates the license and informs you when it's done.
4. Roll out the policy to the McAfee Database Event Monitor.

Configure McAfee Database Event Monitor

Configure McAfee Database Event Monitor to reduce the load.

Task

1. On the system navigation tree, select DEM Properties, then click DEM Configuration.
2. When the McAfee Database Event Monitor device and its configuration files are out of sync, click Sync Files to write the configuration files to the device.
3. Configure Advanced settings:
   - Set the level of log detail sent from the agent to the manager: Information, Warn, and Debug.
     Important: If you select Debug, the information is detailed and can consume a great deal of disk space.
   - Change default agent registry and service ports used to communicate with the agent.
   - Select whether to encrypt information sent from the agent to the manager. This log decrypts when it's received.
   - Enter the Kerberos server IP address to retrieve user names from Kerberos protocol analysis for database authentication using Windows-Integrated Security.
     Note: You can specify multiple IP addresses, Port, and VLAN settings with the following format: IP;PORT;VLAN;IP;PORT (for example, 10.0.0.1;88;11,10.0.0.2;88;12). IPv6 supports the same format.
   - To provide better performance, increase the buffer size to process database events.
   - Select where the system retrieves events. If you select File, the system reads the file on the local device and parses those events. If you select EDB, the system collects events from the database.
4. To increase speed, deselect these options:
   - McAfee Firewall packet capture — Provides a faster way to parse database data.
   - Transaction tracking — Tracks database transactions and auto reconcile changes.

- User identity tracking — Tracks user's identities when they aren't being propagated to the database because generic user names are being used to access the database.
- Sensitive data masking — Prevents unauthorized viewing of sensitive data by replacing the sensitive information with a generic user-defined string, called the mask.
- Local host auditing — Audits local hosts to track unknown access paths into the database and send events in real time.
- Query parsing — Performs query inspections.
- First result row capture — Allows you to view the first result row of a query when you retrieve a packet for an event and a Select Statement's severity has been set to less than 95.
- Bind variable support — Reuses the Oracle bind variable over and over without incurring the overhead of reparsing the command each time it's executed.

5. Click Apply.

Defining actions for McAfee Database Event Monitor events

Define McAfee® Database Event Monitor actions and operations for events, which the device uses to filter rules and data access policies. Set operations for default and custom actions.

McAfee Database Event Monitor comes with the following default actions and operations:

- none
- ignore
- discard
- scripts
- reset

If you select Script as the operation, an alias name (SCRIPT ALIAS) is required, selecting the actual script (SCRIPT NAME) that must be executed when the criticality event occurs. The script is passed two environment variables, ALERT_EVENT and ALERT_REASON. ALERT_EVENT contains a colon-separated list of metrics. McAfee Database Event Monitor provides a sample bash script /home/auditprobe/conf/sample/process_alerts.bash to show how the criticality action can be captured in a script.

When working with actions and operations, consider the following:

- Actions appear in order of priority.
- No event actions occur (such as sending an SNMP trap or page) unless you specify as alert actions.
- When a rule qualifies for more than one alert level, only the highest alert level is actionable.
- Events are written to an event file regardless of the action. The only exception is a Discard operation.

Add DEM actions

Select Database Event Monitor (DEM) actions for rules in the Policy Editor.

Task

1. On the system navigation tree, click the Policy Editor icon , then click Tools → DEM Action Manager.
   DEM existing actions appear in order of priority.

   Note: You can't change the priority order of default actions. The default operation for a custom action is None.
2. Click Add, then enter a name and description for this action.
   You can't delete a custom action once it's added.
3. Click OK.

Edit DEM custom actions

Once you add actions to the Database Event Monitor (DEM) action management list, can change its name or priority.

Task

1. On the system navigation tree, click the Policy Editor icon , then click Tools → DEM Action Manager.
2. Click the custom action to change and do one of the following:
   - To change the priority order, click the up or down arrows until it is in the correct position.
   - To change the name or description, click Edit.
3. Click OK to save your settings.

Set McAfee Database Event Monitor actions

All rule actions have default operations. When you add a custom McAfee Database Event Monitor action, the default operation is None. You can change the operation of any action to Ignore, Discard, Script, or Reset.

Task

1. On the system navigation tree, select DEM Properties, then click Action Management.
2. Highlight the action, then click Edit.

   Note: You can't delete a custom action or change the priority order of default actions.
3. Select what action to take when the rule triggers an event.
   - None — Do nothing
   - Ignore — Keep the event in the database, but don't display it
   - Discard — Remove the event from the database or do not display
   - Script — Execute a defined script

     Note: If no scripts appear on the drop-down list, click Script Name to select a script file.
   - Reset — Attempt to break the database connection by sending TCP RST packets to the client and server
4. Click OK.

DEM rule metric references

Here is a list of metric references for DEM rule expressions, which are available on the Expression Component page when you are adding a DEM rule.

Name	Definition	Database Types
Application Name	The name that identifies the database type to which the rule applies.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PIServer, InterSystems Cache
Begin Time	Start timestamp of the query.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Begin Time Skew	Captures the server clock time skews.	MSSQL, Oracle, DB2, Sybase, MySQL, PostgreSQL, Teradata, PIServer, InterSystems Cache
Client IP	Client's IP address.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Client Name	Name of the client machine.	MSSQL, Oracle, DB2, Sybase, Informix, PIServer, InterSystems Cache
Client PID	Process ID assigned by the operating system to the client process.	MSSQL, DB2, Sybase, MySQL
Client Port	Port number of the client socket connection.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Command Name	Name of the MySQL command.	MSSQL, Oracle, DB2, Sybase, Informix
Command Type	Type of MySQL command: DDL, DML, Show or Replication.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Data In	Total number of bytes in the inbound query packet.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Data Out	Total number of bytes in the outbound result packets.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache

Name	Definition	Database Types
Database Name	Name of the database being accessed.	MSSQL, DB2, Sybase, MySQL, Informix, PostgreSQL, PIServer, InterSystems Cache
End Time	End of the completion timestamp query.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Error Message	Contains the message text associated with the SQLCODE and SQLSTATE variables in the SQL Communication Area (SQLCA) data structure which provides information about the success or failure of requested SQL statements.	DB2, Informix
Message Number	A unique message number assigned by the database server to each error.	MSSQL, Oracle, Sybase, MySQL, Informix, PostgreSQL, Teradata, InterSystems Cache
Message Severity	Severity level number between 10 and 24, which indicates the type and severity of the problem.	MSSQL, Sybase, Informix
Message Text	Full text of the message.	MSSQL, Oracle, Sybase, MySQL, Informix, PostgreSQL, Teradata, InterSystems Cache
Network Time	Time taken to send the result set back to the client (response_time - server_response_time).	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
NT Client Name	Windows machine name from which the user logged in.	MSSQL
NT Domain Name	Windows domain name from which user logged in.	MSSQL
NT User Name	Windows user login name.	MSSQL
Object Name		MSSQL, Oracle, DB2, Sybase, MySQL, Informix
OSS User Name		Oracle
Package Name	A package contains control structures used to execute SQL statements. Packages are produced during program preparation and created using the DB2 subcommand BIND PACKAGE.	DB2
Packets In	Number of packets comprising the query.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Packets Out	Number of packets comprising the return result set.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Password		MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, InterSystems Cache
Password Length		MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, InterSystems Cache
Query Block Size	Query block is the basic unit of transmission for query and result set data. Specifying the query block size enables the requester, which may have resource constraints, to control the amount of data that is returned at any one time.	DB2, Informix

Name	Definition	Database Types
Query Exit Status	Exit status of a query.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, InterSystems Cache
Query Number	A unique number assigned to each query by the AuditProbe monitoring agent starting with zero for the first query and incrementing by one.	MSSQL, Oracle, DB2, Sybase, MySQL, PostgreSQL, Teradata, PIServer, InterSystems Cache
Query Text	The actual SQL query sent by the client.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Query Type	An integer number assigned to different type of queries.	MSSQL, Oracle, Sybase
Real User Name	Client user login name.	
Response Content		MSSQL, Oracle, DB2, Sybase, MySQL, Informix
Response Time	End-to-end response time of the query (server_response_time + network_time).	MSSQL, Oracle, Sybase, MySQL, Informix, PostgreSQL, Teradata, InterSystems Cache
Return Rows	Number of rows in the return result set.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache.
Security Flag	Security flag metric whose value is set to 1 (TRUSTED) or 2 (UNTRUSTED) when access policy file criteria specified by the administrator is met. Value of 3 indicates that policy file criteria were not met. Value of 0 indicates that security monitoring has not been turned on.	MSSQL, Oracle, DB2, Sybase, MYSQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems
Security Mechanism	The security mechanism that is used to validate the user's identity (for example, User ID and password).	DB2
Server IP	IP address of the database server host.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, InterSystems Cache
Server Name	This is the name of the server. The host name is assigned as the server name by default.	MSSQL, Oracle, DB2, Sybase, Informix, PIServer, InterSystems Cache
Server Port	Port number of the server.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, InterSystems Cache
Server Response Time	Initial response from the database server to the client query.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
Severity Code		DB2
SID	Oracle system identifier.	Oracle, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache
SPID	Database system process ID assigned to each unique connection/session.	MSSQL, Sybase
SQL Code	Whenever an SQL statement executes, the client receives a SQLCODE which is a return code that	

Name	Definition	Database Types
	provides additional DB2-specific information about an SQL error or warning: • SQLCODE EQ 0, indicates execution was successful. • SQLCODE GT 0, indicates execution was successful with a warning. • SQLCODE LT 0, indicates execution was not successful. • SQLCODE EQ 100, indicates that no data was found. The meaning of SQLCODEs other than 0 and 100 varies with the particular product implementing SQL.	
SQL Command	Type of SQL command.	
SQL State	DB2 SQLSTATE is an additional return code that provides application programs with common return codes for common error conditions found among the IBM relational database systems.	DB2
User Name	Database user login name.	MSSQL, Oracle, DB2, Sybase, MySQL, Informix, PostgreSQL, Teradata, PIServer, InterSystems Cache

How McAfee Database Event Monitor rules work

McAfee® Database Event Monitor captures and normalizes network packet information.

Create McAfee® Database Event Monitor rules using logical and regular expressions for pattern matching to monitor database or application messages with virtually no false positives. The normalized data (metrics) vary for each application because some application protocols and messages are richer than others. Craft filter expressions carefully, not only the syntax but also by making sure that the system supports the metric.

McAfee® Database Event Monitor contains the default rules (listed below).

Default compliance rules monitor significant database events such as logon/logoff, DBA-type activity such as DDL changes, suspicious activity, and database attacks typically required to achieve compliance requirements. Enable or disable each default rule and set the value of each rule's user-definable parameters.

Rule types	Description
Database	Default rules for each supported database type and common regulations, such as SOX, PCI, HIPAA, and FISMA. Enable or disable the default rules and set user-definable parameters for each rule. Application protocols and messages vary, which means normalized data (metrics) can vary for each application. Rules can include both Logical and Regular Expression operators. A Rule Expression can be applied against one or more metrics available for the application.
Data access	Rules that rack unknown access paths into the database and send alerts in real time. Create data access rules to track common violations in database environments, such as application developers accessing production systems using application logon IDs.
Discovery	Rules that identify an exception list of database servers, of the types supported by McAfee ESM, that are on the network but are not being monitored. Discovery rules allow security administrators to discover new database servers added to the environment and illegal listener ports opened to access data from databases. Discovery rules are out-of-box rules, which

Rule types	Description
	you cannot add or edit. When you enable the discovery option on database servers, the system uses these rules to search for database servers that are on the network, but are not listed under the McAfee® Database Event Monitor device.
Transaction tracking	Rules that track database transactions and auto-reconcile changes. For example, use these rules to automate tracking and reconciling database changes with authorized work orders in your change ticketing system. For example: The DBA executes the start tag stored procedure (spChangeControlStart in this example) in the database performing the work before actually beginning the authorized work. Transaction tracking allows the DBA to include up to 3 optional string parameters as arguments to the tag in the correct sequence: 1. ID 2. Name or DBA Initials 3. Comment For example, spChangeControlStart '12345', 'mshakir', 'reindexing app' When the system observes the execution of the spChangeControlStart procedure, it logs both the transaction and parameters (ID, Name, Comment) as special information. Once the work completes, the DBA executes the end tag stored procedure (spChangeControlEnd) and optionally includes one ID parameter, which must be the same as the ID in the begin tag. When the system observes the end tag (and ID), it can associate all activity between the start tag (which has the same ID) and end tag as a special transaction. You can report by transactions and search by ID, which could be the change control number. Use transaction tracking to log start and end of a trade execution or begin and commit statements to report by transactions instead of queries.

Set up data access rules

Set up access rules to track unknown access paths into the database and send events in real time. For example, track common violations in database environments, such as application developers accessing production systems using application logon IDs.

Task

1. In the Rule Types pane on the Policy Editor, select DEM → Data Access.
2. Do one of the following:
   - Select New, then click Data Access Rule
   - Select the rule in the rules display pane, then click Edit → Modify.
3. Fill in the information, then click OK.

How sensitive data masks work

Sensitive data masks prevent unauthorized viewing of data by replacing the sensitive information with generic strings, called the mask. When you add a McAfee Database Event Monitor device, the system adds standard sensitive data masks to the McAfee ESM database. You can also add or change masks.

Standard masks include:

- Sensitive mask name: Credit Card Number Mask
  Expression: ((4\d{3})|(5[1–5]\d{2})|(6011))-?\d{4}-?\d{4}-?\d{4}|3[4,7]\d{13}
  Substring Index: \0
  Masking Pattern: ####-####-####-####
- Sensitive mask name: Mask First 5 Chars of SSN
  Expression: (\d\d\d-\d\d)-\d\d\d\d
  Substring Index: \1
  Masking Pattern: ###-##

- Sensitive mask name: Mask User Password in SQL Stmt
  Expression: create\s+user\s+(\w+)\s+identified\s+by\s+(\w+)
  Substring Index: \2
  Masking Pattern: ********

Manage sensitive data masks

To protect sensitive McAfee ESM information, add, change, or remove sensitive data masks.

Task

1. On the system navigation tree, select DEM Properties, then click Sensitive Data Masks.
2. Select an option, then enter the requested information.
   - Name the sensitive data mask.
   - Type a REGEX expression that conforms to Perl-Compatible Regular Expression (PCRE) syntax.
   - Select an option.
     Note: Options are added based on the number of braces ( ) used in the expression. If you have one set of braces, your options are \0 and \1. If you select \0, the whole string is replaced with the mask. If you select \1, only the strings are replaced by the mask.
   - Type the masking pattern that must appear in place of the original value.
3. Click OK, then click Write to add the settings to the DEM.

Managing user identification

Capture the real user name, if it exists anywhere in the query, using REGEX patterns.

When you add a DEM device, the system adds defined identifier rules to the McAfee ESM database.

- Identifier Rule Name: Get User Name from SQL Stmt
  Expression: select\s+username=(\w+)
  Application: Oracle
  Substring Index: \1
- Identifier Rule Name: Get User Name from Stored Procedure
  Expression: sessionStart\s+@appname='(\w+)', @username='(\w+)',
  Application: MSSQL
  Substring Index: \2

Note: Advanced user correlation is possible by correlating the DEM, application, web server, system, and identity and access management logons to McAfee ESM.

Add user identifier rules

To associate database queries with individuals, use existing user identifier rules or add rules.

Task

1. On the system navigation tree, select DEM Properties, then click Identifier Management.
2. Click Add, then enter the information requested:
   - Type a name for the identifier rule.
   - Type a REGEX expression that conforms to PCRE syntax.
     Note: The REGEX operator implements the PCRE library for pattern matching using the same semantics as Perl 5. The general syntax is: `<"metric name"> REGEX <"pattern">`.
   - Select the application (database type) where the information is observed.
   - Select a sub string.
     Note: Options are added based on the number of braces () used in the expression. If you have one set of braces, your options are: \0 and \1.
3. Click OK, then click Write to write the settings to the DEM.

How database servers work

Database servers monitor database activity. If database server activity matches a known pattern for malicious data access, the system generates an alert. Each McAfee Database Event Monitor device can monitor a maximum of 255 database servers.

McAfee Database Event Monitor currently supports the following database servers and versions.

Operating system	Database	McAfee Database Event Monitor device
Windows (all versions)	Microsoft SQL Server[1]	MSSQL 7, 2000, 2005, 2008, 2012
Windows UNIX/ Linux (all versions)	Oracle[2]	Oracle 8.x, 9.x, 10 g, 11g[3], 11 g R2
	Sybase	11.x, 12.x, 15.x
	DB2	8.x, 9.x, 10.x
	Informix (see note 4)	11.5
	MySQL	Yes, 4.x, 5.x, 6.x
	PostgreSQL	7.4.x, 8.4.x, 9.0.x, 9.1.x
	Teradata	12.x, 13.x, 14.x
	InterSystem Cache	2011.1.x
UNIX/Linux (all version)	Greenplum	8.2.15
	Vertica	5.1.1-0
Mainframe	DB2/zOS	All versions
AS 400	DB2	All versions

1. Packet decryption support for Microsoft SQL Server is available in versions 8.3.0 and later.
2. Packet decryption support for Oracle is available in versions 8.4.0 and later.
3. Oracle 11 g is available in version 8.3.0 and later.
4. Informix support is available in versions 8.4.0 and later.

Note:

- Both 32-bit and 64-bit versions of operating system and database platforms are supported.
- MySQL is supported on Windows 32-bit platforms only.
- Packet decryption is supported for MSSQL and Oracle.

Configure database servers

Configure settings for all database servers for your McAfee Database Event Monitor. You can associate a maximum of 255 database servers with each McAfee Database Event Monitor.

Task

1. On the system navigation tree, select DEM Properties, then click Database Servers.
2. Select any of the available options.
   - Select if you want the McAfee Database Event Monitor to process data for this database server. If disabled, the system saves the configuration settings on the McAfee ESM for later use.
   - Select a storage pool if you want the data received sent to the McAfee Enterprise Log Manager.
   - Select the database server's assigned zone.
   - Select the database type. The remaining fields vary, based on what you select in this field.

Note: The McAfee Database Event Monitor implements PI JDBC Driver to connect to the PI System. PI SQL Data Access Server (DAS) serves as a gateway between PI JDBC Driver and PI OLEDB. It provides secure network communication (https) to PI JDBC and executes queries as a PI OLEDB consumer (client).

- Type this database server's name.

  Note: If you selected PIServer in the Database Type field, this field is DAS Datasource Name, which is the name of the PIServer accessed by the Data Access Server (DAS) gateway. It must be exactly as specified in the DAS configuration. It can be the same as the DAS host name if the DAS server is installed on the same host as the PIServer.
- Type the URL address where you can view database server information. If the URL address you entered includes the address of a third-party application, click ☆ to append variables to the URL address.
- Enter a single IP address for this database server or DAS in the IP address field. This field accepts a single IP address in IPv4 dot notation. Masks are not acceptable for these IP addresses.
- Assign the database server to a priority group, which allows you to balance the load of data processed by the McAfee Database Event Monitor. You can view a list of the database servers and the priority groups they belong to on the Database Servers table.
- Type the virtual LAN ID, if needed. If you enter the value "0," it represents all VLANs.
- Select an encoding option: None, UTF8, and BIG5.
- Select one of the following (options vary depending on the database type):
  - Port Redirection must be specified when you are monitoring an Oracle server running on a Windows platform.
  - Server Uses Named Pipes must be selected if the database server uses the Named Pipes SMB protocol. The default pipe name for MSSQL is \\.\pipe\sql\query and the default port is 445.
  - Dynamic Ports must be selected if the database server has TCP Dynamic Ports enabled. Enter a port number for the database server or DAS in the Port field. The port is the service port of the database server where it is listening for connections. Common default port numbers are: 1433 for Microsoft SQL Server (MSSQL), 1521 for Oracle, 3306 for MySQL, 5461 for Data Access Server (DAS), and 50000 for DB2/UDB.
- Select if you want the SQL Server to perform Kerberos authentication.
- Select the RSA encryption type: None or RSA.
- Select the RSA encryption level, based on your choice for Forced Encryption: Decrypt Login Packets if Forced Encryption is No; Decrypt All Packets if Forced Encryption is Yes.
- Identify the RSA Key file.

  Note: McAfee ESM accepts only RSA certificates of .pem file format without a password.
- Type the user name for PI DAS logon. Because PI DAS is installed on Windows, it uses Windows-integrated security. The user name must be specified as domain\login.
- Type the password for the DAS user name.
- Select if you want the PIServer Archives database polled for changes to ALL Point.
- Enter a list of comma-separated points to monitor.

3. Click OK.

Manage database discovery notifications

The Database Event Monitor (DEM) can discover an exception list of unmonitored database servers, allowing you to discover database servers in the environment and illegal listener ports opened to access data from databases. When enabled, you receive notifications and choose whether to add the server to those monitored on your system.

Task

1. On the system navigation tree, select DEM Properties, then click Database Servers → Enable.
2. Click OK to close DEM Properties .
3. To view the notifications, click the DEM device on the system navigation tree, then select Event Views → Event Analysis.
4. To add the server to your system, select the Event Analysis view, then click the Menu icon ⋮ and select Add Server.

How McAfee ePO works as a device

You can add a McAfee ePO device to McAfee ESM, with its applications listed as secondary devices on the system navigation tree. Once authenticated, you can access functions from McAfee ESM, and assign McAfee ePO tags to source or destination IP addresses directly and to events generated by alarms.

You must associate McAfee ePO with the McAfee Event Receiver because the events are pulled from the McAfee Event Receiver, not McAfee ePO.

Note: You must have read permissions on the master database and McAfee ePO database to use McAfee ePO.

If the McAfee ePO device has a McAfee® Threat Intelligence Exchange (TIE) server, the system adds it automatically when you add the McAfee ePO device to McAfee ESM.

Start McAfee ePO from McAfee ESM

If you have an McAfee ePolicy Orchestrator McAfee ePO device or data source on McAfee ESM, and the McAfee ePO IP address is on your Local Network, you can start McAfee ePO from McAfee ESM.

Before you begin

Add a McAfee ePO device or data source to McAfee ESM.

Task

1. From the dashboard, open a view.
2. Select a result that returns source IP address or destination IP address.
3. From the component menu ⋮, click Actions → Launch ePO.
    - If you only have one McAfee ePO device or data source on the system and selected a source IP address or destination IP address, McAfee ePO starts.
    - If you have multiple McAfee ePO devices or data sources on the system, select the one you want to access and McAfee ePO starts.

Assign McAfee ePO tags to IP addresses

Assign McAfee ePO tags to events generated by alarms and views if alarms have McAfee ePO tags. You can also select one or more tags and apply them to IP addresses.

Before you begin

Verify that you have the following McAfee ePO permission: Apply, exclude, and clear tags and Wake up agents; view Agent Activity Log:

Task

1. On the system navigation tree, select ePO Properties, then click Tagging.
2. Complete the requested information, then click Assign.
    - Type a host name or IP address (supports comma-delimited list), then select one or more tags on the **Tags** list.
    - Select to wake up the application to apply the tags immediately.
    - Click Assign to apply the selected tags to the IP address.

McAfee ePO device authentication

Authentication is required before using McAfee ePO tagging or actions.

There are two types of authentication:

- Single global account — If you belong to a group that has access to a McAfee ePO device, you can use these features after entering the global credentials.
- Separate account for each device per user — You need privileges to view the device in the device tree.

When you use actions or tags, use the selected method of authentication. The system prompts you for valid credentials, which you must save for future communication with the device.

Setting up separate account authentication

Global account authentication is the default setting. There are two things you must do to set up separate account authentication.

1. Verify that Require user authentication is selected when adding the McAfee ePO device to McAfee ESM or when you set up its connection settings.
2. Enter your credentials.

McAfee Risk Advisor data acquisition

You can specify multiple McAfee ePO servers from which to acquire McAfee Risk Advisor data. The data is acquired through a database query from the McAfee ePO SQL Server database.

The database query results in an IP versus reputation score list, and constant values for the low reputation and high reputation values are provided. The system merges all McAfee ePO and McAfee Risk Advisor; duplicate IPs receive the highest score. The system sends the merged list, with low and high values, to any McAfee Advanced Correlation Engine (ACE) devices used for scoring SrcIP and DstIP fields.

When you add McAfee ePO, the system prompts whether you want to configure McAfee Risk Advisor data. If you click Yes, the system creates and rolls out a data enrichment source and two ACE scoring rules (if applicable). If you want to use the scoring rules, you must create a risk correlation manager.

McAfee Threat Intelligence Exchange (TIE) integration

McAfee® Threat Intelligence Exchange (TIE) verifies the reputation of executable programs on the endpoints connected to these files.

When you add a McAfee ePO device to McAfee ESM, the system automatically detects if a Threat Intelligence Exchange server is connected to the device. If it is, McAfee ESM starts listening in on the DXL and logging events.

Note: A delay might occur when McAfee ESM connects to the DXL.

When the system detects aThreat Intelligence Exchange server, they system adds Threat Intelligence Exchange watchlists, data enrichment, and correlation rules automatically and enables Threat Intelligence Exchange alarms. You receive a visual notification, which includes a link to a summary of changes. The system also notifies you if the Threat Intelligence Exchange server is added to the McAfee ePO server after the device is added to McAfee ESM.

Once Threat Intelligence Exchange generates events, you can view their execution history and select the actions to take on the malicious data.

Correlation rules

The system optimizes correlation rules for Threat Intelligence Exchange data. They generate events that you can search and sort through.

- Threat Intelligence Exchange — McAfee GTI reputation changed from clean to dirty
- Threat Intelligence Exchange — Malicious file (SHA-1) found on increasing number of hosts
- Threat Intelligence Exchange — Malicious file name found on increasing number of hosts
- Threat Intelligence Exchange — Multiple malicious files found on single host
- Threat Intelligence Exchange — Threat Intelligence Exchange reputation changed from clean to dirty
- Threat Intelligence Exchange — Increase in malicious files found across all hosts

Alarms

McAfee ESM has two alarms that might trigger when the system detects important Threat Intelligence Exchange events.

- TIE bad file threshold exceeded triggers from the correlation rule TIE - Malicious file (SHA-1) found on increasing number of hosts.
- TIE unknown file executed triggers from a specific Threat Intelligence Exchange event and adds information to the TIE data source IPs watchlist.

Watchlist

The TIE data source IPs watchlist maintains a list of systems that have triggered the TIE unknown file executed alarm. It is a static watchlist without expiration.

Threat Intelligence Exchange execution history

You can view the execution history for any Threat Intelligence Exchange event, which includes a list of the IP addresses that have tried to execute the file. Select an item and take any of these actions:

- Create a watchlist.
- Append the information to a watchlist.
- Create an alarm.
- Add the information to a blacklist.
- Export the information to a .csv file.

View Threat Intelligence Exchange execution history and set up actions

McAfee® Threat Intelligence Exchange (TIE) execution history displays systems that have executed the file associated with selected events.

Before you begin

A McAfee ePolicy Orchestrator device with an attached Threat Intelligence Exchange server on McAfee ESM must exist.

Task

1. On the system navigation tree, click the McAfee ePolicy Orchestrator device.
2. On the views drop-down list, select Event Views → Event Analysis, then click the event.
3. Click ⋮, then select Actions → TIE Execution History.
4. View the systems that have executed the Threat Intelligence Exchange file.
5. To add this data to your workflow, click a system, click the Actions drop-down list, then select an option to open the McAfee ESM device.
6. Set up the action you selected.

How virtual devices work

Use virtual devices to monitor traffic, compare traffic patterns, and for reporting.

Purpose and benefits

Use virtual devices to:

- Compare traffic patterns against rule sets. For example, set up virtual devices to look at web traffic ports and set up policoes where you can enable or disable different rules.
- Reporting. Using it in this manner is like having an automatic filter set up.
- Monitor multiple paths of traffic at once. By using a virtual device, you can have separate policies for each path of traffic and sort different traffic into different policies.

The number of virtual devices that you can add to an McAfee Application Data Monitor varies by the model.

How McAfee ESM uses selection rules

McAfee ESM uses selection rules as filters to determine the packets that a virtual device processes.

For a packet to match a selection rule, all filter criteria defined by that rule must be matched. If the packet's information matches all filter criteria for a single selection rule, the virtual device that contains the matching selection rule processes it. Otherwise, it is passed on to the next virtual device in order. The McAfee Application Data Monitor itself then processes it, as a default, if no selection rules are matched on any virtual devices.

Things to note for IPv4 virtual devices:

- The system sorts all packets for a single connection based only on the first packet in the connection. If the first packet in a connection matches a selection rule for the third virtual device in the list, all subsequent packets in that connection go to the third virtual device. This happens even if the packets match a virtual device that is higher in the list.
- The system sorts invalid packets (a packet that is not setting up a connection or part of an established connection) to the base device. For example, you have a virtual device that looks for packets with a source or destination port of 80. When an invalid packet comes through with a port of 80, the system sorts it to the base device instead of the virtual device that looks for port 80 traffic. So, you see events in the base device that look like they should have gone to a virtual device.

The order that the system lists selection rules matters, because the first time a packet matches a rule, the system automatically routes that packet to that virtual device for processing. For example, you add 4 selection rules and the fourth one in order is the filter that triggers most often. This means each packet must pass over the other filters for this virtual device before getting to the most commonly triggered selection rule. To enhance the efficiency of the processing, make the most commonly triggered filter first in order, instead of last.

Order of virtual devices

The system compares packets coming into the McAfee Application Data Monitor to the selection rules for each virtual device in the order that the virtual devices are set up. So, the order in which the system checks virtual devices matters. The packet makes it to the selection rules for the second virtual device only if it doesn't match any selection rules on the first device.

McAfee Application Data Monitor virtual devices

McAfee Application Data Monitor virtual devices monitor traffic on an interface. There can be up to 4 McAfee Application Data Monitor interface filters on your system. Each filter can be applied to only 1 virtual device at a time. If a filter is assigned to a McAfee Application Data Monitor virtual device, it does not appear on the list of available filters until it is removed from that device.

Add virtual devices

You can add virtual devices to your McAfee Application Data Monitor devices, and set rules that determine the packets that each virtual device processes.

Before you begin

Verify that your McAfee Application Data Monitor devices support virtual devices.

Task

1. On the system navigation tree, select a McAfee Application Data Monitor device, then click the Properties icon ⚙.
2. Click Virtual Devices → Add.
3. Enter the information requested, then click OK:
   - Name the virtual device and enter the URL address where you can view this virtual device's information, if you have one set up. Click the Variables icon ☆ if you need to add a variable to the address.
   - Enable the device.
   - If an ELM exists on your system and you want log data received by this virtual device on the ELM, select the storage pool.
   - If zones exist, select the zone for this device.
   - Define and determine the order of selection rules for the device.
4. Click Write to add the settings to the device.

How message settings work

Before you can send messages via email, text message (SNS), SNMP, or syslog, you must first connect McAfee ESM to your mail server. Then you can identify message recipients.

McAfee ESM sends alarm notifications using the SNMP v1 protocol. SNMP uses User Datagram Protocol (UDP) as the transport protocol for passing data between managers and agents.

In an SNMP setup, agents, such as McAfee ESM, forward events to SNMP servers (referred to as Network Management Station [NMS]), using packets of data known as *traps*. Other agents in the network can receive event reports the same way they receive notifications. Due to size limitations of SNMP trap packets, McAfee ESM sends each report line in a separate trap.

Syslog can also send CSV reports generated by McAfee ESM. Syslog sends query CSV reports one line per syslog message, with the data of each line of the query results arranged in comma-separated fields.

Connect email server

Configure the settings to connect McAfee ESM to the email server to deliver alarm and report messages.

Before you begin

Verify that you have administrator privileges or belong to an access group with user management privileges.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Email Settings:
   - Enter the host and port for your mail server.
   - Select whether to use the TLS encryption protocol.
   - Type the user name and password to access your mail server.
   - Type a generic title for all email messages sent from your mail server, such as the McAfee ESM IP address to identify which McAfee ESM device generated the message.

    - Type the sender's name.
    - Identify message recipients.

4. Send a test email to verify the settings.
5. Click Apply or OK to save the settings.

Manage message recipients

You can define recipients for alarm or report messages and group email addresses to send messages to several recipients at once.

Task

1. On the system navigation tree, select System Properties, then click Email Settings.
2. Click Configure Recipients, then select the tab you want to add them to.
3. Click Add, then add the requested information.
4. Click OK.

Manage email groups

Group email recipients so that you can send one message to several recipients at one time.

Before you begin

Verify that recipients and their email addresses exist.

Task

1. On the system navigation tree, click the system, then click the Properties icon ⚙.
2. Click Email Settings, then click Configure Recipients → Email Groups.
3. Click Add, Edit, or Remove to manage the list of recipients groups.
4. Provide the information requested, then click OK.

Configure Remedy server settings

If you have a Remedy system set up, you must configure the Remedy settings so McAfee ESM can communicate with it.

Before you begin

Set up your Remedy system.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Custom Settings → Remedy.
4. Enter Remedy information: host name, port number, whether to use TLS as the encryption protocol, Remedy credentials, and email addresses for Remedy senders and recipients.

Managing network interfaces

Communicating with devices uses the public and private interfaces of the traffic paths. This means that the device is invisible in the network because it doesn't require an IP address.

Management interface

Alternately, network administrators can configure a management interfaces with IP addresses for communication between McAfee ESM and the device. These device features require the use of a management interface:

- Full control of bypass network cards
- Use of NTP time synchronization
- Device-generated syslog
- SNMP notifications

Devices equipped with at least one management interface gives the device an IP address. With an IP address, McAfee ESM can access devices directly without directing communication toward another target IP address or host name.

Important: Do not attach the management network interface to a public network because it's visible to the public network and its security could be compromised.

McAfee ESM interface bonding

McAfee ESM tries to auto-enable bonded NIC mode when it detects two management interfaces that both use the same IP address. When bonded mode is enabled, both interfaces are assigned the same IP address and MAC address. The bonding mode used is mode 0 (round-robin), which provides fault tolerance.

To disable NIC bonding, change the IP address of one of the interfaces so that it no longer matches the other. The system then automatically disables bonded NIC mode.

Configure network interfaces

Define interface settings to determine how McAfee ESM connects to each device.

Task

1. On the system navigation tree, select a device, then click the Properties icon ⚙.
2. Click the device's Configuration → Interface option.
   - Set bypass NIC so that the device passes all traffic, even if it is malicious. Devices in IDS mode do not have bypass capabilities, so their status is Normal Operation.
   - (Optional) Select to collect flows for traffic sent to and from the device.
   - If you have ELM SFTP Access user permission, you can view and download McAfee Enterprise Log Manager log files stored for the devices. If you have Device Management permission, you can change the port to access these files in the ELM EDS SFTP field.
     Note: Use this setting with one of the following FTP clients: WinSCP 5.11, Filezilla, CoreFTP LE, or FireFTP. Do not use these ports: 1, 22, 111, 161, 695, 1333, 1334, 10617, or 13666.
   - Type IP addresses, owned by your organization (HOME_NET), that determine the direction of the flow traffic that the device collects.
   - Select the interfaces to be used and enter the IP addresses for the IPv4 or IPv6 type. If you enter an IPv4 address, add the netmask address as well. If you enter an IPv6 address, include the netmask in the address or you receive an error.
     - To allow the device to be used from multiple networks (limited to MGT 1 <primary interface> and MGT 2 <first drop-down interface> only), add more interfaces.
     - To activate NIC bonding, select Management in the first field, then type the same IP address and netmask as the main NIC (first line on this dialog box).
   - Select whether to enable IPv6 mode.
     - Off — IPv6 mode is not enabled. The IPv6 fields are disabled.
     - Auto — IPv6 mode is enabled. Each host determines its address from the contents of received user advertisements. It uses the IEEE EUI-64 standard to define the network ID part of the address. The IPv6 fields are disabled.
     - Manual — IPv6 mode is enabled. The IPv6 fields are enabled.
   - Select the port through which the system allows access between McAfee ESM and the devices.
3. Enter the data as requested, then click Apply.
   Note: All changes are pushed to the device and take effect immediately. Upon applying changes, the device reinitializes, causing all current sessions to be lost.
4. Define the advanced network settings for the selected device (fields vary based on the selected device).
   - Select the ICMP options.
     - Redirect — If selected, McAfee ESM ignores redirect messages.
     - Dest Unreachable — If selected, McAfee ESM generates a message when a packet can't be delivered to its destination for reasons other than congestion.
     - Enable Ping — If selected, McAfee ESM sends an *Echo Reply* message in response to an *Echo Request* message sent to an IPv6 multicast/anycast address.
   - To manage McAfee ESM devices remotely through an IPMI card when an IPMI NIC is plugged into a switch, add the IPMI settings.
     - Enable IPMI Settings — Select to have access to IPMI commands.

- VLAN, IP address, Netmask, Gateway — Enter the settings to configure the network for the IPMI port.

Configure VLANs and aliases

Add Virtual Local Area Networks (VLANs) and aliases to a McAfee ACE or McAfee Enterprise Log Manager. Aliases are assigned IP address and netmask pairs that you add if you have a network device with more than one IP address.

Task

1. On the system navigation tree, select a device, click the Properties icon ⚙, then click device Configuration.
2. In the Interfaces section of the Network tab, click Setup, then click Advanced.
3. Click Add VLAN, enter the information requested, then click OK.
   - Identify the VLAN number in the system.
   - Enable DHCP services for non-cloud environments. DHCP is useful if you need to reset the IP addresses for your network.

     Caution: If you are using a redundant McAfee Enterprise Log Manager, redundancy stops working if the IP address of the redundant device is changed.
   - IPv4 is selected by default. If you have IPv6, set Network Settings to Manual or Auto. The IPv6 option is enabled.
   - Identify the VLAN IP address.
   - Identify the IPv4 netmask (disabled if the IP address is in IPv6 format).
4. Select the VLAN where you want to add the alias, then click Add Alias.
   - Identify the VLAN this alias is on.

     Note: The system prepopulates VLAN with the number of the VLAN this alias is being added to. If it is the Untagged VLAN, this number is 0.
   - Indicate whether the IP address is an IPv4 or IPv6 format.
   - Indicate the netmask (if the address is in IPv4 format).
5. Click OK.

Add static routes

A static route is a set of instructions about how to reach a host or network that is unavailable through the default gateway.

Task

1. On the system navigation tree, select a device, then click the Properties icon ⚙.
2. Click Configuration → Interfaces.
3. Next to the Static Routes table, click Add.
4. Enter the information, then click OK.

Configure network settings

Configure McAfee ESM connects to your network by adding server gateway and DNS server IP addresses, defining proxy server settings, setting up SSH, and adding static routes.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the device, then click the Properties icon ⚙.
3. Click Clustering.
4. Select a shard and click the Settings tab.
5. Main tab:
   - Define available interfaces. At least one interface must be enabled.
   - Define the local network, including IP addresses or subnets. Values are separated by commas.
   - Enable secure communication over SSH and enter the port used for SSH connections.

     Note: McAfee ESM and devices use a FIPS capable version of SSH. SSH clients OpenSSH, Putty, dropbear, Cygwin ssh, WinSCP, and TeraTerm have been tested and are known to work. For Putty, go to http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html.
   - If you have enabled SSH connections, the systems listed can communicate through the SSH port. Deleting a system ID from the list disables communication.

- IPv6 Settings:
  - Off — IPv6 mode is disabled.
  - Auto — the Primary and Secondary IPv6 fields are disabled. Each host determines its address from the contents of received user advertisements. It uses the IEEE EUI-64 standard to define the network ID part of the address.
  - Manual — the Primary and Secondary IPv6 fields are enabled.

6. On the Advanced tab, set up Internet Control Message Protocol (ICMP) messages and the Intelligent Platform Management Interface (IPMI)
   - ICMP Messages
     - Redirect — McAfee ESM ignores redirect messages.
     - Dest Unreachable — McAfee ESM generates a message when a packet can't be delivered to its destination for reasons other than congestion.
     - Enable PING — McAfee ESM sends an Echo Reply message in response to an Echo Request message sent to an IPv6 multicast/anycast address.
   - IPMI Settings- Set the IPMI card to manage McAfee ESM devices if you have an IPMI NIC plugged into a switch.
     - Enable IPMI Settings — Enables access to IPMI commands.
     - VLAN, IP Address, Netmask, Gateway — Configures the network for the IPMI port.
7. If your network uses a proxy server, set up the connection to your McAfee ESM on the Proxy tab.
   - On devices, if you have an interface that is using an IPv6 address, you can select IPv6. If not, IPv4 is selected.
   - Specify information required to connect to the proxy server: IP address, port, user name, and password.
   - Select basic authentication checking.
8. On the Traffic tab, configure the maximum data output value for a network and mask to control the rate at which outbound traffic is sent.
   - Identify network addresses on which the system controls outbound traffic.
   - (Optional) - Identify the masks for the network addresses.
   - Identify the maximum throughput you defined for each network.
9. On the Static Routes tab, configure static routes: IPv4 or IPv6 traffic, network IP address, network mask, and gateway IP address. A static route specifies how to reach a host or network not available through the default gateway. When you add a static route, the change is pushed to the McAfee ESM and immediately takes effect when you click Apply. Upon applying changes, McAfee ESM reinitializes itself, causing all current sessions to be lost.

Set up network traffic control

Define a maximum data output value for a network and mask to control the rate for sending outbound traffic for each device.

Caution: Limiting traffic can cause data loss.

Task

1. On the system navigation tree, select the system, then click the Properties icon ⚙.
2. Click Network Settings, then click the Traffic tab.
3. To add controls for a device, click Add, enter the network address and mask, set the rate in kilobits (KB), megabits (megabyte), or gigabits (GB), then select the rate per second for sending traffic, then click OK.

   Note: If you set the mask to zero (0), all data sent is controlled.
4. Click Apply.

Network settings for IPMI ports

IPMI ports on McAfee ESM or its devices enable you to perform specific actions.

- Plug the IPMI Network interface controller (NIC) into a switch so that it is available to IPMI software.
- Access an IPMI-based Kernel-based Virtual Machine (KVM).
- Set the IPMI password for the default user.
- Access IPMI commands like turn on and power status.
- Reset the IPMI card.
- Perform a warm and cold reset.

Set up IPMI port on McAfee ESM or devices

Configure the network for the IPMI port to set up IPMI on McAfee ESM or its devices.

Before you begin

The system must include an IPMI NIC.

Task

1. On the system navigation tree, select the system or any of the devices, then click the System Properties icon ⚙.
2. Access the Network Settings Advanced tab.
   - On McAfee ESM, click Network Settings → Advanced.
   - On a device, click the Configuration option for the device, then click Interfaces → Advanced
3. Select Enable IPMI Settings, then type the VLAN, IP address, netmask, and gateway for the IPMI.

   Note: If Enable IPMI Settings is grayed out on device BIOS, you must update the system BIOS. SSH to the device and open the /etc/areca/system_bios_update/Contents-README.txt file.
4. Click Apply or OK.

   Note: When upgrading your device, a message might recommend that you change the password or rekey the device to configure the IPMI.

Set up network traffic control

Define a maximum data output value for a network and mask to control the rate for sending outbound traffic. Options include kilobits (KB), megabits (MB), and gigabits (GB) per second.

Caution: Limiting traffic can result in data loss.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Network Settings, then select the Traffic tab.

   The table lists the existing controls.
4. Add controls for a device.
   a. Click Add.
   b. Set the network address, mask, and throughput rate.

      Note: If you set the mask to zero (0), all data sent is controlled.

How host names work

Associate device host names with their corresponding IP addresses. Add, edit, remove, look up, update, and import host names, and set the time when an auto-learned host name expires.

When you view event data, you can show the host names associated with the IP addresses in the event by clicking the Show host names icon 👤 at the bottom of view components.

If existing events are not tagged with a host name, the system searches the host table on McAfee ESM and tags the IP addresses with their host names. If the IP addresses don't appear on the host table, the system performs a Domain Name System (DNS) lookup to locate the host names. The search results then show up in the view and are added to the host table.

On the host table, this data is selected as Auto Learned and expires after the time designated in the Entries expire after field located below the host table on System Properties → Hosts. If the data has expired, another DNS lookup is performed the next time you select Show host names on a view.

The host table lists auto-learned and added host names and their IP addresses. You can add information to the host table manually by entering an IP address and host name individually or by importing a tab-delimited list of IP addresses and host names. The more data you enter in this manner, the less time is spent on DNS lookups. If you enter a host name manually, it doesn't expire, but you can edit or remove it.

Manage host names

Perform actions needed to manage host names, such as adding, editing, importing, removing, or looking them up. You can also set the expiration time for auto-learned hosts.

Task

1. On the system navigation tree, select System Properties, then click Hosts.
2. Select an option and enter the information requested.
    - When adding a host, you can enter a host name up to 100 characters long and IP addresses in valid IPv4 or IPv6 notation including a mask.
    - Change or delete existing host names.
    - When setting up information for an internal network, you can look up the host name for an IP address.
    - Import a tab-delimited list of IP addresses and host names.
    - Set the amount of time you want auto-learned host names to remain in the table. If you don't want them to expire, select zero (0) in all fields.
3. Click Apply or OK.

Import a list of host names

Import a text file that contains IP addresses and the corresponding host names.

Before you begin

Create a tab-delimited file with IP addresses and host names.

Each record in the file must be listed on a separate line, with the IP address first in IPv4 or IPv6 notation. For example:

```
102.54.94.97 rhino.acme.com
```

```
08c8:e6ff:0100::02ff x.acme.com
```

Task

1. On the system navigation tree, select System Properties, then click Hosts → Import.
2. Browse to the text file, then click Upload. If the file contains IP addresses that are currently on the host table with a different host name, the Duplicates page lists the records that are duplicates.
    - To change the host name on the table to the one in the text file, select it in the Use column, then click OK.
    - To keep the existing host data, don't select the checkbox, then click OK.

    Note: Data that is entered manually does not expire. The system adds the new host data to the host table. The Auto Learned column for this data says No.

Set up Dynamic Host Configuration Protocol (DHCP)

Use Dynamic Host Configuration Protocol (DHCP) on IP networks to distribute network configuration parameters (such as IP addresses for interfaces and services) dynamically.

When you set up McAfee ESM to deploy in the cloud, the system enables DHCP enabled automatically and assigns an IP address.

When not in the cloud, you can enable and disable DHCP services on McAfee ESM, non-HA Receiver, ACE, and ELM if you have Device Management privileges. This helps if you need to reset the IP addresses for your network.

Note: The system disables aliases when DHCP is enabled.

Task

1. On the system navigation tree, select the device, then click the Properties icon ⚙.
2. Do one of the following:
    - For McAfee ESM, click Network Settings, then click the Main tab.
    - For a device, select the device's Configuration option, click Interfaces, then click the Network tab.
3. Click Setup for the Interface 1 field, then select DHCP.

    For devices other than Receivers, you must restart the McAfee ESM server.
4. Click Add VLAN, type the VLAN number, then select DHCP.
5. Click OK then click Apply.

For devices other than Receivers, you must restart the McAfee ESM server.

Level 7 collection on McAfee Network Security Manager

Layer 7 data populates the McAfee Network Security Manager database after the NSM event is written to its database. It doesn't come into the system as part of the event.

To pull Layer 7 information from the NSM, you can delay when the event is pulled so that Layer 7 data is included. This delay applies to all NSM events, not only the ones with associated Layer 7 data.

You can set this delay when performing three different actions related to the NSM:

- Adding a McAfee NSM device to the console
- Configuring an NSM device
- Adding an NSM data source

Adding a McAfee Network Security Manager device

When adding the McAfee Network Security Manager device to McAfee ESM, select Enable Layer 7 Collection and set the delay on the Add Device Wizard.

Configuring a McAfee Network Security Manager device

After adding a McAfee Network Security Manager device to McAfee ESM, configure the connection settings for the device. You can select Enable Layer 7 Collection and set the delay.

Adding a McAfee Network Security Manager data source

To add a McAfee Network Security Manager data source to a Receiver, select McAfee in Data Source Vendor and Network Security Manager - SQL Pull (ASP) in Data Source Model. You can select Enable Layer 7 Collection and set the delay.

How vulnerability assessment works

Vulnerability Assessment (VA) on the DEM and Receiver allows you to integrate data that can be retrieved from many VA vendors.

You can use VA data in several ways.

- Raise an event's severity based on the endpoint's known vulnerability to that event.
- Set the system to automatically learn assets and their attributes (operating system and services detected).
- Create and manipulate the membership of user-defined asset groups.
- Access summary and drill-down information of the network assets.
- Change Policy Editor configuration, such as turn on MySQL signatures if an asset is discovered running MySQL.

Use predefined or custom views to access VA data generated by the system.

Note: If you create a view that includes the total number of vulnerabilities, count, or dial component, you might see an inflated count of vulnerabilities. This is because the McAfee Threat Intelligence Services (MTIS) feed is adding threats based on the original vulnerability that the VA source reported.

McAfee maintains rules that map McAfee sigIDs to VINs to references to a Common Vulnerabilities and Exposure (CVE) ID, BugTraq ID, Open Source Vulnerability Database (OSVDB) ID, or Secunia ID. These vendors report CVE and BugTraq IDs in their vulnerabilities.

Configure McAfee Vulnerability Manager

To pull vulnerability assessment data from McAfee Vulnerability Manager, you must connect it to McAfee ESM as a device. Then associate it with a Receiver so that McAfee ESM can pull McAfee Vulnerability Manager events from the Receiver.

Before you begin

Obtain McAfee Vulnerability Manager logon credentials.

Changing these settings doesn't affect the device itself. It only affects the way the device communicates with McAfee ESM.

Task

1. On the system navigation tree, select MVM Properties, then click Connection.
2. Fill in the information requested, then click OK.

Option	Definition
Associated Receiver	Select the Receiver associated with this McAfee Vulnerability Manager. To view the details about this Receiver, click the link.
Enter the database login parameters below	Type the parameters as requested. Domain is optional.
Connect	Click to test the connection to the database.
Enter the website UI credentials below	Type the web credentials. The firewall on the database and web application must allow ports for McAfee ESM to connect.
Upload MVM server certificate and enter passphrase	Enter the McAfee Vulnerability Manager credentials, then click Upload to navigate to the .zip file.
Connect	Test the connection to the website.

Obtain McAfee Vulnerability Manager credentials

To connect McAfee Vulnerability Manager to McAfee ESM, you must obtain McAfee Vulnerability Manager credentials (such as the certificate and passphrase).

Task

1. On the server that is running Foundstone Certificate Manager, run Foundstone Certificate Manager.exe.
2. Click the Create SSL Certificates tab.
3. In the Host Address field, type the host name or IP address for the system hosting the web interface for McAfee Vulnerability Manager, then click Resolve.
4. Click Create Certificate using Common Name to generate the passphrase and a .zip file.
5. Upload the .zip file and copy the passphrase that was generated.

Run McAfee Vulnerability Manager scans

Set up McAfee ESM to run McAfee Vulnerability Manager vulnerability scans. An API checks for logon credentials, and populates the scan list based on those credentials every 60 seconds.

Task

1. On the system navigation tree, select MVM Properties, then click Scans.
2. Click New Scan.
   - Enter the IP address, range, or URL to be scanned.
   - (Optional) Type a name for the scan. If you don't enter a name, the McAfee Vulnerability Manager uses the default name `QuickScan_nn` (nn = your name).
   - (Optional) Select the scan template, which is the name of an existing scan configuration. If you don't select one, the default is used.
   - (Optional) Select the scan engine. If you don't select one, the default is used.
3. Click OK.

Define VA system profiles for eEye REM

Define vulnerability assessment (VA) profiles to use adding an eEye REM source.

Task

1. On the system navigation tree, select a DEM or Receiver device, then click the Properties icon ⚙.
2. Click Vulnerability Assessment → Add.
3. In the VA source type field, select eEye REM.
4. Click Use System Profile.
5. Click Add, then select Vulnerability Assessment in the Profile Type field.

6. In the Profile Agent field, select the SNMP version for this profile.
   The fields on the page are activated based on the version selected.
7. Fill in the requested information, then click OK.
   Note: Qualys QualysGuard log files are limited to 2 GB.

Configure VA sources

To communicate with vulnerability assessment (VA) sources, add them to the system, add communication parameters for the VA vendor, schedule parameters for how often data is retrieved, and change severity calculations.

Task

1. On the system navigation tree, select a McAfee Event Receiver or McAfee Database Event Monitor, then click the Properties icon ⚙.
2. Click Vulnerability Assessment.
   - Type the Frontline client ID number. Digital Defense Frontline requires Client ID.
   - On FusionVM, the name of the company that must be scanned. If you leave company name blank, the system scans all companies to which the user belongs. Separate multiple company names with commas.
   - (Qualys QualysGuard) Select the method to retrieve the VA data. HTTP/HTTPS is the default. Options include: SCP, FTP, NFS, CIFS, and Manual upload.
     Note: A Qualys QualysGuard log file manual upload has a file size limit of 2 GB.
   - Type the domain of the Windows system (optional, unless your domain controller or server exists in a domain).
   - Identify the directory where exported scan files reside.
   - Identify the exported scan file format (XML, NBE).
   - Identify the location where Saint was installed on the server. The installation directory for a Saint appliance scanner is `/usr/local/sm/`
   - Identify IP addresses:
     - eEye REM — IP address of the eEye server that sends trap information
     - eEye Retina — IP address of the client holding exported scan files (.rtd)
     - Nessus, OpenVAS, LanGuard, and Rapid7 Metasploit Pro — IP address of the client holding exported scan files
     - NGS — IP address of the system storing the Squirrel reports
     - Rapid7, Lumension, nCircle, and Saint — IP address of the respective server
   - Identify the method used to retrieve exported scan files (SCP, FTP, NFS, or CIFS mount). LanGuard always uses CIFS.
   - If you select nfs in the Method field, the system adds Mount Directory fields. Enter the mount directory set when you configured nfs.
   - Identify passwords:
     - Nessus, OpenVAS, LanGuard, and Rapid7 Metasploit Pro — The password of SCP or FTP.
     - NGS — The password for the SCP and FTP methods.
     - Qualys and FusionVM — The password for the Qualys Front Office or FusionVM user name.
     - Rapid7 Nexpose, Lumension, nCircle, and Saint — The password to use when connecting to the web server.
     - Digital Defense Frontline — The web interface password.
   - Identify the port Rapid7 Nexpose, Lumension, nCircle, or Saint web server are listening on. The default for Rapid7 Nexpose is 3780, for Lumension is 205, for nCircle is 443, and for Saint is 22.
   - Identify the name of a particular project or workspace, or leave it blank to grab all projects or work spaces.
   - Identify the proxy IP address, user name, password for the proxy user name, and the port on which the HTTP proxy is listening.
   - Type the URL of the Qualys or FusionVM server to query.
   - Identify the remote path and share name for CIFS method Nessus, OpenVAS, eEye Retina, Metasploit Pro, LanGuard, and NGS.

     You can use back or forward slashes in the path name (for example,

     ```
     Program Files\CIFS\va
     ```

     or

     ```
     /Program Files/CIFS/va)
     ```
   - Indicate the frequency to retrieve VA data from the McAfee Event Receiver or McAfee Database Event Monitor:
     - Daily — Select the time you want the data retrieved each day.

- Weekly — Select the day of the week and the time on that day you want the data retrieved.
- Monthly — Select the day of the month and the time on that day that you want the data retrieved.

If you do not want the data retrieved at a preset time, select Disabled.

Note: eEye REM does not support data retrieval from the source so the data must be retrieved from the McAfee Event Receiver or McAfee Database Event Monitor.

- Indicate the frequency to retrieve VA data from the VA source.
- Saint — Identify the session data is gathered from. To include all sessions, type All.
- If you select authNoPriv or authPriv in the SNMP security level field, SNMP authentication password is active. Enter the password for the authentication protocol selected in the SNMP authentication protocol field.
- If you select authNoPriv or authPriv in the SNMP security level field, SNMP authentication protocol is active. Select the type of protocol for this source: MD5 or SHA1 (SHA1 and SHA see the same protocol type). Make sure that your REM Events Server configuration matches your selection.
- Select the SNMP community that was set when you configured the REM Events Server.
- If you select authPriv in the SNMP security level field, SNMP privacy password SNMP Community are active. Enter the password for the DES or AES privacy protocol. In FIPS mode, AES is the only option available.
- If you select authPriv in the SNMP security level field, SNMP privacy protocol is active and you can select either DES or AES. In FIPS mode, AES is the only option available.
- Select the security level for this source:
  - noAuthNoPriv — No authentication protocol and no privacy protocol
  - authNoPriv — Authentication protocol but no privacy protocol
  - authPriv — Both authentication and privacy protocol.

  Note: SNMP authentication and privacy fields become active based on the security level you select. Make sure that your REM Events Server configuration matches your selection.
- Select the security name in REM Events Server Configuration.
- Select the version of SNMP for the source. The SNMP fields are activated based on the version you select.
- (Optional) The SNMPv3 Engine ID of the trap sender, if you use an SNMPv3 profile.
- (Optional) Type the password that is required to access the Saint installation directory.
- Indicate the default time-out value for a source or provide a specific time-out value. You can increase the time-out value to allow more VA data retrieval time. If you provide a value, it is used for all communications.
- (Optional) Authentication token that can be set in the Metasploit Global Settings.
- URL to the Digital Defense Frontline server.
- If you select to use the HTTP proxy, the Proxy IP Address, Proxy Port, Proxy Username, and Proxy Password fields become active.
- If you select ftp in the Method field, this field becomes active. Then select when to use passive mode.
- Select Use sudo if you have access to the Saint installation directory and want to use this access.
- Select whether to use a previously defined profile. Use System Profile (eEye REM) deactivates all SNMP fields. When you select one of the existing system profiles, the system populates fields with the information in the selected profile.
- If you use Windows authentication mode for the SQL Server, enter the user name of the Windows box. If not, enter the user name of the SQL Server.
  - Nessus, OpenVAS, and Rapid7 Metasploit Pro — User name of SCP or FTP
  - NGS — User name for the SCP and FTP methods
  - Qualys or FusionVM — Front Office or FusionVM user name with which to authenticate
  - Rapid7 Nexpose, Lumension, nCircle, and Saint — User name when connecting to the web server
  - Digital Defense Frontline — Web interface user name
- Identify the VA source name.
- Identify the wildcard expression used to describe the name of exported scan files. The wildcard expression can use an asterisk (*) or question mark (?) with the standard definition of *wildcard* in a file name.

  Note: If you have both NBE and XML files, specify if you want NBE or XML files in this field (for example, *.NBE or *.XML). If you only use an asterisk (*), you get an error.

3. Write any changes to the device.
4. Click Apply or OK.

Retrieve VA data

You can retrieve scheduled or immediate vulnerability assessment (VA) data from a data source. eEye REM data retrieval cannot be immediate; it must be scheduled.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the DEM or the Receiver, then click the Properties icon ⚙.
3. Click Vulnerability Assessment.
4. Select the VA source, then select one of these options:
   - To retrieve immediately, click Retrieve. The job runs in the background and you are informed if the retrieval is successful.
   - To schedule retrieval, click Edit. Select the frequency then choose to write the changes to the device.
5. Click OK.
6. If you cannot retrieve VA data, check the following:

This resource...	Causes...
Nessus, OpenVAS, and Rapid7 Metasploit Pro	◦ Empty directory. ◦ Error in the settings. ◦ Data in the directory was already retrieved, so the data isn't current.
Qualys, FusionVM, and Rapid7 Nexpose	Data in the directory was already retrieved, so the data isn't current.
Nessus	If you wrote over an existing Nessus file when you uploaded a new Nessus file to your FTP site, the date of the file remains the same; so, when you perform a VA retrieval, no data is returned because it's perceived as old data. To avoid this situation, either delete the old Nessus file off the FTP site before uploading the new one, or use a different name for the file you upload.

7. To view the data, click the Asset Manager icon, then select the Vulnerability Assessment tab.

How SNMP and MIB work

Configure settings to send link up and down and cold and warm start traps, from McAfee ESM and each device. Retrieve Management Information Base (MIB)-II system and interface tables, and allow discovery of McAfee ESM through an SNMP walk.

SNMPv3 is supported with NoAuthNoPriv, AuthNoPriv, and AuthPriv options, using MD5 or Secure Hash Algorithm (SHA) for authentication and Data Encryption Standard (DES) or Advanced Encryption Standard (AES) for encryption. MD5 and DES are not available in FIPS compliance mode.

SNMP requests can be made to McAfee ESM for McAfee ESM and McAfee Event Receiver, health information. SNMPv3 traps can be sent to McAfee ESM to add to the blacklist of one or more of its managed devices. You can also configure all devices to send link traps and boot traps to destinations of your choosing.

The MIB defines object groups for:

- **Alerts** — McAfee ESM can generate and send alert traps using Event Forwarding. A McAfee Event Receiver can receive alert traps by configuring a McAfee SNMP data source.
- **Flows** — A McAfee Event Receiver can receive flow traps by configuring an SNMP data source.
- **McAfee ESM Health Requests** —McAfee ESM can receive and respond to health requests for itself and the devices it manages.
- **Blacklist** — McAfee ESM can receive traps defining entries for blacklists and quarantine lists, which it then applies to the devices that it manages.

The McAfee MIB also defines textual conventions (enumerated types) for values including:

- The action performed when an alert was received
- Flow direction and state
- Data source types
- Blacklist actions

McAfee Event Receiver OIDs

McAfee products can be accessed through SNMP. The McAfee MIB defines the object identifiers (OIDs) for each object or characteristic of interest. McAfee ESM responds by populating the OID bindings with the results of the health request.

The following tables show the meaning of McAfee ESM and McAfee Event Receiver OIDs.

McAfee ESM health

Request and response OID	Units	Response value	Meaning
1.3.6.1.4.1.23128.1.3.1.1	Percent	4	Percentage combined instantaneous CPU load
1.3.6.1.4.1.23128.1.3.1.2	MB	3518	Total RAM
1.3.6.1.4.1.23128.1.3.1.3	MB	25	Available RAM
1.3.6.1.4.1.23128.1.3.1.4	MB	1468006	Total HDD space partitioned for McAfee ESM database
1.3.6.1.4.1.23128.1.3.1.5	MB	1363148	Free HDD space available for McAfee ESM database
1.3.6.1.4.1.23128.1.3.1.6	seconds since 1970-1-1 00:00:0.0 (GMT)	1283888714	Current system time on the McAfee ESM
1.3.6.1.4.1.23128.1.3.1.7		8.4.2	McAfee ESM version and build stamp
1.3.6.1.4.1.23128.1.3.1.8		4EEE:6669	Machine ID of the McAfee ESM
1.3.6.1.4.1.23128.1.3.1.9		McAfee ESM	McAfee ESM model number

McAfee Event Receiver health

Request and response OID	Units	Response value	Meaning
1.3.6.1.4.1.23128.1.3.3.1.x		McAfee Event Receiver	McAfee Event Receiver name
1.3.6.1.4.1.23128.1.3.3.2 .x		2689599744	McAfee ESM unique identifier of the Receiver
1.3.6.1.4.1.23128.1.3.3.3.x		1	Indicates that communication with the McAfee Event Receiver is available (1) or not available (0)
1.3.6.1.4.1.23128.1.3.3.4.x		OK	Indicates the status of the McAfee Event Receiver
1.3.6.1.4.1.23128.1.3.3.5.x	percent	2	Percentage combined instantaneous CPU load
1.3.6.1.4.1.23128.1.3.3.6.x	MB	7155	Total RAM
1.3.6.1.4.1.23128.1.3.3.7.x	MB	5619	Available RAM
1.3.6.1.4.1.23128.1.3.3.8.x	MB	498688	Total HDD space partitioned for McAfee Event Receiver database
1.3.6.1.4.1.23128.1.3.3.9.x	MB	472064	Free HDD space available for McAfee Event Receiver database

Request and response OID	Units	Response value	Meaning
1.3.6.1.4.1.23128.1.3.3.10.x	seconds since 1970-1-1 00:00:0.0 (GMT)	1283889234	Current system time on the McAfee Event Receiver
1.3.6.1.4.1.23128.1.3.3.11.x		7.1.3 20070518091421a	Receiver version and build stamp
1.3.6.1.4.1.23128.1.3.3.12.x		5EEE:CCC6	Machine ID of the McAfee Event Receiver
1.3.6.1.4.1.23128.1.3.3.13.x		Receiver	McAfee Event Receiver model number
1.3.6.1.4.1.23128.1.3.3.14.x	alerts per minute	1	Alert rate (per minute) for last 10 minutes
1.3.6.1.4.1.23128.1.3.3.15.x	flows per minute	2	Flow rate (per minute) for last 10 minutes
Note: x = Device ID. To access a list of device IDs, go to System Properties | SNMP Configuration, then click View Device IDs.			

Events, flows, and blacklist entries are sent using SNMP traps or inform requests. An alert trap sent from McAfee ESM configured to do Event Forwarding might look something like this:

OID	Value	Meaning
1.3.6.1.4.1.23128.1.1.1	780	McAfee ESM alert ID
1.3.6.1.4.1.23128.1.1.2	6136598	Device alert ID
1.3.6.1.4.1.23128.1.1.4	2	Device ID
1.3.6.1.4.1.23128.1.1.5	10.0.0.69	Source IP address
1.3.6.1.4.1.23128.1.1.6	27078	Source Port
1.3.6.1.4.1.23128.1.1.7	AB:CD:EF:01:23:45	Source MAC
1.3.6.1.4.1.23128.1.1.8	10.0.0.68	Destination IP address
1.3.6.1.4.1.23128.1.1.9	37258	Destination Port
1.3.6.1.4.1.23128.1.1.10	01:23:45:AB:CD:EF	Destination MAC
1.3.6.1.4.1.23128.1.1.11	17	Protocol
1.3.6.1.4.1.23128.1.1.12	0	VLAN
1.3.6.1.4.1.23128.1.1.13	1	Flow direction
1.3.6.1.4.1.23128.1.1.14	20	Event count
1.3.6.1.4.1.23128.1.1.15	1201791100	First time
1.3.6.1.4.1.23128.1.1.16	1201794638	Last time

OID	Meaning	Value
1.3.6.1.4.1.23128.1.1.17	Last time (in seconds)	288448
1.3.6.1.4.1.23128.1.1.18	Signature ID	2000124
1.3.6.1.4.1.23128.1.1.19	Signature description	ANOMALY Inbound High to High
1.3.6.1.4.1.23128.1.1.20	Action taken	5
1.3.6.1.4.1.23128.1.1.21	Severity	1
1.3.6.1.4.1.23128.1.1.22	Data source type or result	20
1.3.6.1.4.1.23128.1.1.23	Normalized signature ID	0
1.3.6.1.4.1.23128.1.1.24	IPv6 source IP address	0:0:0:0:0:0:0:0
1.3.6.1.4.1.23128.1.1.25	IPv6 destination IP address	0:0:0:0:0:0:0:0
1.3.6.1.4.1.23128.1.1.26	Application	
1.3.6.1.4.1.23128.1.1.27	Domain	
1.3.6.1.4.1.23128.1.1.28	Host	
1.3.6.1.4.1.23128.1.1.29	User (source)	
1.3.6.1.4.1.23128.1.1.30	User (destination)	
1.3.6.1.4.1.23128.1.1.31	Command	
1.3.6.1.4.1.23128.1.1.32	Object	
1.3.6.1.4.1.23128.1.1.33	Sequence Number	
1.3.6.1.4.1.23128.1.1.34	Indicates whether generated in a trusted or untrusted environment	
1.3.6.1.4.1.23128.1.1.35	ID of session that generated the alert	

The numbers mean:

- 1.3.6.1.4.1.23128 — The McAfee IANA-assigned enterprise number
- The final number (1–35) — For reporting the various characteristics of the alert

How SNMP traps work with data sources

SNMP traps allow data sources to accept standard SNMP traps from any manageable network device capable of sending SNMP traps.

Standard SNMP traps include:

- Authentication Failure
- Cold Start
- EGP Neighbor Loss
- Link Down
- Link Up and Warm Start

Note: To send SNMP traps through IPv6, you must formulate the IPv6 address as an IPv4 conversion address. For example, converting 10.0.2.84 to IPv6 looks like:

```
2001:470:B:654:0:0:10.0.2.84 or 2001:470:B:654::A000:0254
```

Configure SNMP settings

Define the settings for inbound and outbound SNMP traffic. Only users without spaces in their user names can perform SNMP queries.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click SNMP Configuration.
4. SNMP Requests tab:
   - Set the requests to be accepted.
   - Indicate whether to allow SNMP traffic:
   -
     - For SNMP version 1 and version 2 traffic, set the community string.
     - For SNMP version 3 traffic, select the security level, authentication protocol, and privacy protocol.
   - Show the IP addresses that the device allows or considers trusted. You can add new addresses and edit or remove existing ones. The IP address can include a mask.

     Note: A trusted IP address must be present.
   - View the McAfee MIB, which defines the object identifiers (OIDs) for each object or characteristic of interest.
5. SNMP Traps tab:
   - Set the port where the cold/warm trap traffic, blacklist entry, and link up/link down traffic passes.
   - Send Link Up and Link Down traps. If you select this feature and are using multiple interfaces, you are notified when an interface goes down and when it comes back up.

     Note: Cold/warm trap traffic is automatically allowed. A cold start trap is generated when there is a hard shut-down or hard reset. A warm start trap is generated when you reboot the system.
   - Send an SNMP trap when the database (cpservice, IPSDBServer) goes up or down.
   - Send an SNMP trap when a log is not written to the log table.
   - Set the system profile names where you want the notifications sent. The table shows all available SNMP trap profiles on the system.

Set up SNMP trap for power failure notification

Select an SNMP trap to notify you about hardware and DAS power failures, to keep the system from shutting down due to a power failure.

Before you begin

- Verify that you have administrator privileges or belong to an access group with alarm management privileges.
- Prepare the SNMP trap Receiver (required if you don't already have an SNMP trap Receiver).

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click SNMP Configuration, then click the SNMP Traps tab.
4. In Trap Port, type `162`, then select General Hardware Failure, and click Edit Profiles.
5. Click Add, then enter the requested information like this:
   - Profile Type — Select SNMP Trap.
   - IP Address — Type the address where you want to send the trap.
   - Port — Type `162`.
   - Community Name — Type `Public`.

   Note: Remember what you type in the Port and Community Name fields.
6. Click OK, then click Close on the Profile Manager page.

   The profile is added to the Destinations table.

7. Select the profile in the Use column, then click OK.

Results

When a power supply fails, an SNMP trap is sent and a health status flag appears next to the device on the system navigation tree.

Configure SNMP notifications

To configure device-generated SNMP notifications, you must define which traps to send and their destinations.

Note: If you set up SNMP on a high availability (HA) McAfee Event Receiver, the traps for the primary McAfee Event Receiver go out through the shared IP address. So, when you set up the listeners, set one up for the shared IP address.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click SNMP Configuration.
4. SNMP Requests tab:
    - Set the requests to be accepted.
    - Indicate whether to allow SNMP traffic:
    -
        - For SNMP version 1 and version 2 traffic, set the community string.
        - For SNMP version 3 traffic, select the security level, authentication protocol, and privacy protocol.
    - Show the IP addresses that the device allows or considers trusted. You can add new addresses and edit or remove existing ones. The IP address can include a mask.
      Note: A trusted IP address must be present.
    - View the McAfee MIB, which defines the object identifiers (OIDs) for each object or characteristic of interest.
5. SNMP Traps tab:
    - Set the port where the cold/warm trap traffic, blacklist entry, and link up/link down traffic passes.
    - Send Link Up and Link Down traps. If you select this feature and are using multiple interfaces, you are notified when an interface goes down and when it comes back up.
      Note: Cold/warm trap traffic is automatically allowed. A cold start trap is generated when there is a hard shut-down or hard reset. A warm start trap is generated when you reboot the system.
    - Send an SNMP trap when the database (cpservice, IPSDBServer) goes up or down.
    - Send an SNMP trap when a log is not written to the log table.
    - Set the system profile names where you want the notifications sent. The table shows all available SNMP trap profiles on the system.

Pull the MIB from McAfee ESM

View the objects and notifications for interfacing with McAfee ESM.

The objects and notifications defined in this MIB are used to send requests:

- To a McAfee ESM requesting health status information for the McAfee ESM itself or for Receiver devices
- To a device to request its health status information.

Task

1. On the system navigation tree, select the device, then click the Properties icon ⚙.
2. Select the SNMP Requests tab, then click View MIB.

Configure devices

Add devices to the device tree

After you set up and install the physical and virtual devices, add them to the McAfee ESM console.

Before you begin

Make sure the devices are installed according to the hardware guide (for hardware) or installation guide (for virtual devices).

Complete the following steps only for a complex McAfee ESM installation with multiple devices. Do not complete this task for a simple McAfee ESM installation using a combination of devices.

Task

1. On the system navigation tree, click Local ESM or a group.
2. Click .
3. Select the type of device you are adding, then click Next.
4. In the Device Name field, enter a unique name in this group. These characters: ! @ # $ % ^ & *) ( ] [} { : ; " ' > < > , / ? ` ~ + = \ and | are invalid in device names.
5. Click Next.
6. Provide the information requested:
   - For McAfee ePO devices — Select a receiver, type the credentials required to log on to the web interface, then click Next. To use for communicating with the database, type the settings.

     Note: Select Require user authentication to limit access to those users who have the user name and password for the device.
   - For all other devices — Type the target IP address or URL for the device.
7. Select whether to use Network Time Protocol (NTP) settings on the device, then click Next.
8. Enter a password for this device, then click Next.

Results

McAfee ESM tests device communication and reports on the status of the connection.

Change device names, links, and descriptions

When you add a device to the System Tree, give it a name that displays on the tree. You can change the device name, system name, URL, and description.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the device, then click the Properties icon ⚙.
3. Click Name and Description to change the name, system name, URL, and description, or view the Device ID number.

Find device-specific details

Use this information when you need to know device characteristics. For example, Technical Support might ask for this information during troubleshooting.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. To refresh device status, click ↻ on the system navigation tree.
3. On the system navigation tree, select the device, then click the Properties icon ⚙.

   Device-specific information appears:
   - Device identification number. To reactivate your system, McAfee Support uses this number to send you the correct file.
   - Device serial and model numbers
   - Software version and build number currently running on the device
   - Date and time the device was last opened or refreshed
   - Sync the clock on this device to the clock on McAfee ESM
   - Assigned device Zones
   - Current policy state on this device
   - Process status on the device and the FIPS status after running a FIPS self-test (if your device is running in FIPS mode)
4. To view device performance statistics, logs, and network interface statistics, click <device> Management → View Statistics.

Install SSL certificate

McAfee ESM ships with a default self-signed security (SSL) certificate for esm.mcafee.local. Most web browsers cannot warn they cannot verify the certificate's authenticity. Once you obtain the SSL key certificate pair for your McAfee ESM, you must install it.

Task

1. On the system navigation tree, select System Properties, then click ESM Management.
2. On the Key Management tab, click Certificate.
    - Install certificate, key, and optional chain files, if you have them. The system prompts you to upload the .crt file, then the .key file, and finally the chain files.
    - Generate and install a self-signed security certificate for McAfee ESM.
        - Click Generate, enter the information in Manage Certificate, then click OK.
        - Click Generate.
    - Generate a certificate request to send to a certificate authority for signature.
        - Click Generate, enter the information in Manage Certificate, then click OK.
        - Download the .zip file that holds a .crt and a .key file.
        - Extract the .crt file, then send it to the certificate authority.
    - Regenerate the original certificate.
3. Click Close.

Regenerate SSH key

Regenerate the private or public SSH key pair to communicate with all devices.

Task

1. On the system navigation tree, select System Properties, then click ESM Management.
2. On the Key Management tab, click Regenerate SSH.
3. Click Yes.

Results

When the system regenerates a new key, it replaces the old key pair on all devices managed by McAfee ESM.

Manage multiple devices

Start, stop, and restart, or update the software on multiple devices at one time.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, use Ctrl+click and Shift+click to select the devices you want to manage.
3. Click the Multi-Device Management icon ▤ on the actions toolbar.
4. Select the operation you want to perform and the devices you want to perform it on, then click Start.

Manage URLs for devices

You can set up a URL to open from links on the Event Analysis and Flow Analysis views of a device.

Before you begin

Make sure the URL is functional.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click Custom Settings → Device Links.
4. On the Custom Device Links page, select the device, then click Edit.
5. Enter a URL (maximum of 512 characters).

6. If the URL includes the address of a third-party application and you need to append variables to the URL, click where you want the variable inserted, then click the variable icon and select the variable.
7. Access the information page by clicking the Launch Device URL icon 🌐 at the bottom of the Event Analysis and Flow Analysis views of a device.

Set up device communication

When you add devices to McAfee ESM, you must establish communication between the device and the McAfee ESM.

Before you begin

If you are keying a distributed McAfee ESM after changing the IP address of the secondary device, ensure that port 443 is open to reconnect with the McAfee ESM.

Note: Changing connection settings affects only the way McAfee ESM communicates with the devices.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the device, then click the Properties icon ⚙.
3. Click Connection.
   a. InTarget IP Address/Name, type the IP address or host name that McAfee ESM uses to communicate with the device.
   b. Set the Target Port used to communicate (default is 22).
   c. To stop SSH communication with the device, select Mark this device as disabled.
      The icon for this device on the system navigation tree indicates it is disabled.
   d. To check communication between the device and McAfee ESM, click Status.

Check device status flags

Click device status alerts (red or yellow flags) to see issues reported by device health monitors.

Each McAfee SIEM device includes a health monitor. When a device is not healthy, a red or yellow flag appears next to the device.

Task

1. To see a list of issues for a Data Streaming Bus, right-click the device on the Data Streaming Bus Configuration page (System Properties → Data Streaming Bus) and select View Health Monitor Data.
2. To see a list of issues for other devices, click the red or yellow flag next to the device on the device tree.

A flag on this type of node...	Opens...
System or group	The Device Status Alerts Summary page, which is a summary of the status alerts for the devices associated with the system or group. It can display these status alerts: ◦ Drive Space — A hard drive is full or running low on space. Could include the hard drive on the McAfee ESM, redundant McAfee ESM, or remote mount point. ◦ Critical — The device is not working properly. ◦ Warning — Something on the device is not functioning properly. ◦ Informational — The device is working properly but the device status level changed. ◦ Out of Sync — The virtual device, data source, or database server settings on the McAfee ESM are out of sync with what is actually on the device. ◦ Rolled over — The log table for this device ran out of space so it has rolled over. This means that the new logs are writing over the old logs. ◦ Inactive — The device has not generated events or flows in the inactivity threshold time period. ◦ Unknown — McAfee ESM could not connect to the device. Drive space, Rolled over, and Informational flags can be resolved by checking the boxes next to the flags and clicking Clear Selected or Clear All.

A flag on this type of node...	Opens...
Device	The Device Status Alerts page, which has buttons that take you to locations for resolving the problem. It might include these buttons: ◦ Log — The System Log (for Local McAfee ESM) or Device Log page shows a summary of all actions that have taken place on the system or device. ◦ Virtual Devices, Data Sources, VA Sources, or Database Servers — Lists the devices of this type on the system, allowing you to check for problems. ◦ Inactive — The Inactivity Threshold page shows the threshold setting for all devices. This flag indicates that the device has not generated an event in the interval specified.

Sync devices with McAfee ESM

If you have to replace McAfee ESM, sync it to restore the settings. If you don't have a current database backup, you must also sync the data source, virtual device, and database server settings with McAfee ESM so they can resume pulling events.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Click <device label> Configuration → Sync Device.
4. When the sync is completed, click OK.

Start, stop, reboot, or refresh a device

These actions can be useful during maintenance or troubleshooting.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select the device, then click the Properties icon ⚙.
3. Select <device> Information.
4. Click Start, Stop, Reboot, or Refresh.

Stop automatic refresh of the McAfee ESM system tree

The McAfee ESM system tree refreshes automatically every 5 minutes. If needed, you can stop that automatic refresh.

Before you begin

Verify that you have System Management privileges to change this setting.

Task

1. On the system tree, select the device, then click the Properties icon ⚙.

   Note: During the refresh, you can't select devices on the tree.
2. Click Custom Settings, then deselect Automatic refresh of the System Tree.

Results

You can refresh the system tree manually by clicking the Refresh Devices icon ↻ on the system tree actions toolbar.

Set up system profiles and remote connections

Share common information for syslog-based traffic, like event forwarding, data source configuration, vulnerability assessment, SNMP traps, and remote share. You can also add remote connection profiles (URL or Script) that automate the connection process to remote servers. Use remote connection settings to execute commands on devices that accept SSH connections, except McAfee ESM devices.

A system profile stores data source information and credentials. If you have multiple servers, a system profile alleviates the need to enter the same data source information and credentials repeatedly. In those cases, you can create a system profile that pre-populates common fields for you.

Task

1. Set up a profile.
   a. From a dashboard, click ≡ and select System Information.
   b. Click System Profile.
      The Edit System Profile panel appears.
   c. Click Add and select Profile.
   d. Select a Profile Type and configure the profile. Fields vary based on which profile type you select.
2. Set up a remote connection.
   a. From a dashboard, click ≡ and select System Information.
   b. Click System Profile.
      The Edit System Profile panel appears.
   c. Click Add and select Remote Connection.
   d. Configure the connection and click Save.
3. To edit a profile or connection, right-click it and select Edit.

Delete duplicate device nodes

Duplicate device nodes can appear on the system navigation tree. To avoid confusion, delete duplicate device nodes.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. In the system navigation pane, click the display type drop-down list.
3. Select the Edit icon next to the display that includes the duplicate devices.
4. Deselect one of the duplicate devices, then click OK.

Mask IP addresses

Mask IP addresses for event data sent out in event forwarding or to a primary McAfee ESM.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click ESM Management → ESM Hierarchy.
3. To mask data, select Obfuscate for McAfee ESM devices.
4. Select the fields that you want to mask.
5. Select settings on your Local Network.
   - To ensure obfuscation occurs the same way each time, enter a seed in the **Seed value** field, or click **Generate** to generate a random seed. This is useful if you obfuscate IP addresses across multiple McAfee ESM devices and want to keep the values synchronized.
   - Select to hide IP addresses inside and outside your local network. This extends to IP address custom types such as IPv4 and IPv6 addresses.
   - Enter a list of the IP addresses or subnets included in your Local Network, separated by commas (maximum of 2,000 characters).

     If your Local Network is longer than 2,000 characters, consolidate multiple subnets into a shorter Local Network using Classless Inter-Domain Routing (CIDR) notation.

Results

Once this is set up, if a primary McAfee ESM requests a packet from a secondary McAfee ESM, the system masks the data you selected.

Upgrade primary or redundant devices

Upgrade primary or redundant devices.

Task

1. Disable the collection of events, flows, and logs.
    a. On the system navigation tree, select System Information, then click Events, Flows, & Logs.
    b. Deselect Auto check every.
2. Update the primary device.
3. Update the redundant device.
4. Enable the collection of events, flows, and logs by selecting Auto check every once again.

Manage task queries

The Task Manager displays a list of the queries that are running on McAfee ESM. You can view their status and delete any that affect system performance.

Task

1. On the system navigation tree, select the device, then click the Properties icon ⚙.
2. Click ESM Management, click the Maintenance tab, then click Task Manager.
3. You can do the following tasks:
    - Close report, view, watchlist, execute and export, alarm, and external API queries on the system. You cannot close system queries.
    - By default, the list refreshes automatically every 5 seconds. If you select a query and the list auto-refreshes, it remains selected but refreshes the details. Completed queries do not appear on the list.
    - Select and copy the data in the Query Details area.
    - Sort the table columns.
    - ✕ identifies queries you can close.

Set system time

Set system time

The system time stamps activities generated by McAfee ESM and its devices. Select a system clock or NTP servers to ensure that the system uses a constant time reference for synchronize the time stamps.

Before you begin

If you intend to synchronize the system's time using NTP servers, verify that the servers exist and that you have their authorization keys and key IDs.

Task

1. On the system navigation tree, select System Properties and ensure System Information is selected.
2. Click System Clock (GMT) to:
    - Set the system clock to Greenwich mean time (GMT) instead of synchronizing to NTP servers.
    - Use NTP servers to synchronize the system's time instead of using the system clock.
    - Add the IP addresses for NTP servers; you can add up to 10 servers.
      Note: NTP server addresses on McAfee Application Data Monitor or DBM devices must be IP addresses.
    - Type the authentication key and key ID for each NTP server.
    - Click to view the status of the NTP servers on the list. If you change the list of servers, click OK to save the changes and close the page. Then reopen the page before clicking Status.

Synchronize device clocks

Synchronize device clocks with the McAfee ESM system time so that data generated by the various systems reflects the same time stamps.

Task

1. On the system navigation tree, select System Properties or device Properties, then click Sync in the Sync Device Clock field.
2. Click Refresh to update the data on System Information or device Information.

Set up Network Time Protocol (NTP)

Manage Network Time Protocol (NTP) servers for the device and indicate if you want to use NTP servers for time synchronization.

Task

1. On the system navigation tree, select a device, then click the Properties icon ⚙.
2. Click Configuration → NTP.
    - Indicate whether to use NTP servers to synchronize the device's time instead of using the system clock.
    - View the default NTP servers and any that have been added to the device.
    - Add IP addresses for NTP servers that you want to add to the device by clicking in this column. You can add up to 10 servers.

      Note: NTP server addresses on IPS class devices must be IP addresses.
    - Type the authentication key and key ID for each NTP server (contact your network administrator if you do not know them).
    - View the NTP servers status. If you change the list of servers, save changes by clicking OK, close the page, then open the page again before clicking Status.
3. Click OK.

View status of Network Time Protocol (NTP) servers

View the status of Network Time Protocol (NTP) servers on McAfee ESM.

Before you begin

Add NTP servers to McAfee ESM or devices.

Note: It can take up to 10 minutes for changes to appear.

Task

1. On the system navigation tree, do one of the following:
    - Select System Properties → System Information, then click System Clock.
    - On the system navigation tree, select a device, click the Properties icon, then select Configuration → NTP.
2. To view the NTP server data, click Status.
    - NTP Server column:
        - * — Server currently being referenced
        - + — Selected, included in the final set
        - # — Selected, distance exceeds maximum value
        - o — Selected, Pulse Per Second (PPS) used
        - x — Source false ticker
        - . — Selected from end of candidate list
        - - — Discarded by cluster algorithm
    - Reachable column:
        - Yes — server can be reached
        - No — server cannot be reached
    - Authentication column:
        - none — no credentials exist
        - bad — incorrect credentials
        - yes — correct credentials
    - Condition column (Condition corresponds to the mark in the NTP Server column):
        - candidate — possible choice
        - sys.peer — current choice
        - reject — cannot be reached. If all servers are selected reject, it's possible that the NTP configuration is restarting.

Common Event Format (CEF)

Common Event Format (CEF) is an interoperability standard for event- or log-generating devices. If your McAfee Event Receiver doesn't support a specific vendor or model, follow this standard to deliver CEF-formatted events to your McAfee Event Receiver.

The message is formatted using a common prefix composed of fields delimited by a bar (|) character. The prefix is mandatory and all specified fields must be present. Additional fields are specified in the extension. The format is:

```
CEF:Version|Device Vendor|Device Product|Device Version|deviceEventClassId|Name|Severity|Extension
```

The extension part of the message is a placeholder for additional fields. Following are definitions for the prefix fields:

- Version— Integer that identifies the version of the CEF format

  Event consumers use this information to determine what the fields represent. Currently only version 0 (zero) is established in the above format.
- Device Vendor, Device Product, and Device Version — Strings that uniquely identify the type of sending device

  No 2 products can use the same device-vendor and device-product pair. Event producers ensure that they assign unique name pairs.
- DeviceEventClassId — Unique identifier per event-type (can be a string or an integer)

  Each signature or rule that detects certain activity has a unique deviceEventClassId assigned. This is a requirement helps correlation engines deal with the events.
- Name — String describing the event, such as *Port scan*
- Severity — Integer (between 0-10, where 10 indicates the most important event) that reflects event importance
- Extension — Collection of key-value pairs, where the keys are part of a predefined set

  Events can contain any number of key-value pairs in any order, separated by spaces. If a field contains a space, such as a file name, this is okay and can be logged on exactly that manner. For example: `fileName=c:\Program Files\ArcSight is a valid token.`

This sample message shows appearance:

```
Sep 19 08:26:10 zurich CEF:0|security|threatmanager|1.0|100|worm successfully stopped|10|src=10.0.0.1
dst=2.1.2.2 spt=1232
```

If you use NetWitness, configure your device to send the CEF to the Receiver. By default, the CEF format when using NetWitness looks as follows:

```
CEF:0|Netwitness|Informer|1.6|{name}|{name}|Medium | externalId={#sessionid} proto={#ip.proto}
categorySignificance=/Normal categoryBehavior=/Authentication/Verify categoryDeviceGroup=/OS categoryOutcome=/
Attempt categoryObject=/Host/Application/Service act={#action} deviceDirection=0 shost={#ip.host} src={#ip.src}
spt={#tcp.srcport} dhost={#ip.host} dst={#ip.dst} dport={#tcp.dstport} duser={#username} dproc=27444
fileType=security cs1={#did} cs2={#password} cs3=4 cs4=5 cn1={#rid} cn2=0 cn3=0
```

The correct format requires you to change *dport* above to *dpt*.

Managing assets

How the Asset Manager works

The Asset Manager provides a centralized location that allows you to discover, manually create, and import assets.

An asset is any device with an IP address added to McAfee ESM. The Asset Manager enables you to manage the assets on your network.

You can create a group to contain one or more assets. You can perform the following operations on the entire group:

- Change the attributes for all assets in a group.
  Note: This change is not persistent. If you add an asset to a changed group, the asset doesn't inherit the previous settings automatically.
- Use drag-and-drop operations.
- Rename groups.

Asset groups allow you to categorize assets in ways that are unavailable with asset tagging. For example, if you want to create an asset group for each building on your campus. The asset consists of an IP address and a collection of tags. The tags describe the operating system the asset is running and a collection of services for which the asset is responsible.

Asset tags are defined in one of two ways:

- When the system retrieves an asset.
- When the user adds or edits an asset.

If the system sets up the tags, they are updated each time the asset is retrieved if they have changed. If the user sets up the tags, the system does not update the tag when the asset is retrieved, even if they have changed. If you add or edit the tags of an asset but you want the system to update them when the asset is retrieved, click Reset. You must complete this action each time you change the tag settings.

Configuration management is part of standard compliance regulations such as PCI, HIPPA, and SOX. It allows you to monitor any changes that might be made to the configuration of your routers and switches, thus preventing system vulnerabilities. On the McAfee ESM, the configuration management feature enables you to:

- Set the frequency with which devices must be polled.
- Select the discovered devices on which to check configuration.
- Identify a retrieved configuration file as the default for the device.
- View the configuration data, download the data to a file, and compare the configuration information of the two devices.

Asset, threat, and risk assessment

McAfee Threat Intelligence Services (MTIS) and the vulnerability assessment sources on your system generate a list of known threats. McAfee ESM uses the threat severity and the criticality of each of your assets to calculate the level of risk to your enterprise.

Asset Manager

When you add an asset to your Asset Manager, you assign a criticality level that represents how critical the asset is to your operation. For example, if you have one computer managing your enterprise setup and it doesn't have a backup, its criticality is high. If you have two computers managing your setup, each with a backup, the criticality level is considerably lower.

You can select whether to use or ignore an asset in risk calculation for your enterprise on the Edit menu of the Asset tab.

Threat Management

The Threat Management tab on the Asset Manager shows a list of known threats, their severity, the vendor, and whether they are used when calculating risk. You can enable or disable specific threats so that they are or are not used to calculate risk. You can also view the details for the threats on the list. These details include recommendations for dealing with the threat and countermeasures you can use.

Predefined views

Predefined views summarize and display asset, threat, and risk data:

- Asset threat summary — Displays the top assets by risk score and threat levels, and threat levels by risk.
- Recent threat summary — Displays recent threats by vendor, risk, asset, and available protection products.

- Vulnerability summary — Displays vulnerabilities by threats and assets.

Custom views

Use the Query Wizard to set up custom views that display the data you need.

- On the Dial Control and Count components, you can display the average enterprise risk score and the total enterprise risk score.
- On the Pie Chart, Bar Chart, and List components, you can display the assets at risk, product threat protection, threat by asset, threat by risk, and threat by vendor.
- On the Table component, you can display assets, most recent threats, top assets by risk score, and top threats by risk score.

Configure assets

Assets are network devices with IP addresses. You can create assets, change their tags, create asset groups, add asset sources, and assign an asset to an asset group. You can also manipulate the assets learned from vulnerability assessment vendors.

Before you begin

Verify that you have administrator rights or belong to an access group with device management permission.

Task

1. From the dashboard, click ☰, then select Asset Manager → Assettab.
2. To sort the list, click the column headings.
3. To view asset details, click 📝.
4. Add an asset or asset filter group.
   - IP address or address/mask
   - Zone — Users must have permission for the zone to access assets in that zone.
   - Criticality — Identify how critical this asset is to your enterprise: 1 = lowest criticality, 100 = highest criticality.

     The system uses criticality and severity of a threat to calculate the overall event severity to your enterprise.

     Note: Always use the assigned asset criticality and greatest criticality value when computing event severity. When you calculate the overall severity, the system adds that severity to the Calculate field.
   - Tags — Define asset attributes or filters.

     You can define a filter group based on the existence of one or more asset tags. The tags that are set do not define the exclusive set of tags an asset must have. The asset can have other tags and still be a member of the filter group.
   - Optional information — MAC address, globally unique identifier (GUID), operating system
5. Import assets in a .CSV file. Each asset must be on a separate line.

   Format the asset data in the .csv file as follows: `Hostname, IPAddress, Mask, ZoneName, UsrSeverity, UseCalcSeverity, TagCount, TagGroupName:TagName`

   Add one `TagGroupName:TagName` for each tag you have (`TagCount`).
6. Identify whether or not to use assets when calculating the overall risk for your enterprise (default = Use in risk calculation).
7. Add assets as a database server to a McAfee Database Event Monitor or to a McAfee Event Receiver.
8. Delete selected groups or assets. If you select a group, the system asks if you want to delete the group and its assets or just the group. If you select only the group, the system reassigns assets to the Unassigned folder.

Define old assets

The Old Assets group on the Asset Manager allows you to store assets that haven't been detected in a specified time.

Task

1. Click the Asset Manager quick launch icon 🖧.
2. On the Asset tab, double-click the Old Assets group from the list of assets.
3. Select the number of days since an asset was last detected before it must be moved to the Old Assets folder, then click OK.

Configure asset sources

Retrieve asset data from Active Directory or an Altiris server to meet compliance requirements like PCI.

Before you begin

To retrieve assets on Altiris, you must have Asset Manager permissions on the Altiris Management Console.

Active Directory doesn't typically store IP address information. The system uses DNS to query for the address once it gets the name from Active Directory. If Active Directory can't find the computer address, the address isn't added to the Assets table. For this reason, the DNS server on the system needs to contain the DNS information for Active Directory computers.

If you add IP addresses to Active Directory, change the `networkAddress` attribute on your computer objects so the system uses those IP addresses instead of querying DNS.

Task

1. Click the Asset Manager icon, then click the Asset Sources tab.

   The Asset Sources tree shows the McAfee ESM devices and Receivers on the system, and their current asset sources.

   Note: McAfee ESM can have one asset source; McAfee Event Receivers can have multiple asset sources.
2. Select a device and identify the asset source information:
   - Select whether to enable automatic retrieval. Identify the automatic retrieval interval. You can still retrieve data manually by clicking Asset Sources → Retrieve.
   - Indicate the asset source type: Active Directory or Altiris.
   - Identify the asset source name, zone, IP address, and port.
   - Select the priority you want this asset source to have if it discovers an asset at the same time as Vulnerability Assessment.
   - Select if you want to use an encryption protocol for the data.

     Active Directory uses TLS; Altiris uses SSL.
   - Type the user name and password required to access the asset source.
   - For Active Directory, type the distinguished name of the object where you want the search for assets to begin (dc=McAfee,dc=com).
   - For Altiris, type the IP address, the port it is listening on, the name of the proxy user, and the password for the proxy server.
   - To retrieve the data automatically, select the frequency.
3. Click Connect to test the connection to the Altiris server.

Manage known threats

Select which known threats to use in risk calculations. Each threat has a severity rating. This rating and the criticality rating for your assets are used to calculate the overall severity of a threat to your system.

Task

1. From the dashboard, click ≡ and select Asset Manager.
2. Select the Threat Management tab.
3. Select a known threat, then do one of the following:
   - Click Threat Details to view the details about the threat.
   - If the Calculate Risk column says Yes and you do not want it to be used in risk calculations, click Disable.
   - If the Calculate Risk column says No, and you want it to be used in risk calculations, click Enable.

Manage vulnerability assessment sources

Vulnerability assessment sources allow you to communicate with and retrieve data from VA vendors.

Task

1. From the dashboard, click ≡ and select Asset Manager.
2. Select the Vulnerability Assessment tab.
3. Add, edit, remove, or retrieve VA sources, then write them to the device.

Option	Definition
Client ID	Type the Frontline client ID number. This field is required for Digital Defense Frontline.

Option	Definition
Company Name	On FusionVM, the name of the company that must be scanned. If this field is left blank, all companies that the user belongs to are scanned. If you enter more than 1 company, separate the names with a comma.
Data Retrieval	(Qualys QualysGuard) Select the method to retrieve the VA data. HTTP/HTTPS is the default. The other options are SCP, FTP, NFS, CIFS, and Manual upload. **Note:** A Qualys QualysGuard log file manual upload has a file size limit of 2 GB.
Domain	Type the domain of the Windows box (optional, unless your domain controller or server exists in a domain).
Exported scan file directory	The directory where exported scan files reside.
Exported scan file format	The exported scan file format (XML, NBE).
Install directory	The location where Saint was installed on the server. The installation directory for a Saint appliance scanner is /usr/local/sm/.
IP Address	◦ eEye REM: The IP address of the eEye server that is sending trap information. ◦ eEye Retina: The IP address of the client holding exported scan files (.rtd). ◦ McAfee® Vulnerability Manager: The IP address of the server on which it is installed. ◦ Nessus, OpenVAS, LanGuard, and Rapid7 Metasploit Pro: The IP address of the client holding exported scan files. ◦ NGS: The IP address of the system that is storing the Squirrel reports. ◦ Rapid7, Lumension, nCircle, and Saint: The IP address of the respective server.
Mount Directory	If you select nfs in the Method field, the Mount Directory fields are added. Enter the mount directory set when you configured nfs.
Method	The method to use to retrieve the exported scan files (SCP, FTP, NFS, or CIFS mount). LanGuard always uses CIFS.
Password	◦ McAfee® Vulnerability Manager: If using Windows authentication mode for SQL Server, the password of the Windows box. If not, the password of the SQL Server. ◦ Nessus, OpenVAS, LanGuard, and Rapid7 Metasploit Pro: The password of SCP or FTP. ◦ NGS: The password for the SCP and FTP methods. ◦ Qualys and FusionVM: The password for the Qualys Front Office or FusionVM user name. ◦ Rapid7 Nexpose, Lumension, nCircle, and Saint: The password to use when connecting to the web server. ◦ Digital Defense Frontline: The web interface password.
Port	Port Rapid7 Nexpose, Lumension, nCircle, McAfee® Vulnerability Manager, or Saint web server are listening on. The default for Rapid7 Nexpose is 3780, for Lumension is 205, for nCircle is 443, for McAfee® Vulnerability Manager is 1433, and for Saint is 22.

Option	Definition
Project/Workspace Name	Name of a particular project or workspace, or leave it blank to grab all projects or work spaces.
Proxy IP Address	IP address of the HTTP proxy.
Proxy Password	Password for the proxy user name.
Proxy Port	Port on which the HTTP proxy is listening.
Proxy Username	User name for the proxy.
Qualys or FusionVM server URL	URL of the Qualys or FusionVM server to query.
Remote path and share name	CIFS method Nessus, OpenVAS, eEye Retina, Metasploit Pro, LanGuard, and NGS. You can use back or forward slashes in the path name (for example, Program Files\CIFS\va or /Program Files/CIFS/va).
Schedule Receiver or DEM data retrieval	Indicate the frequency with which you want the VA data to be retrieved from the Receiver or DEM: ◦ Daily — time to retrieve data each day. ◦ Weekly — Day of the week and the time on that day to retrieve data. ◦ Monthly — Day of the month and the time on that day to retrieve data. If you do not want to retrieve data at a preset time, select Disabled. **Note:** eEye REM does not support data retrieval from the source so the data must be retrieved from the Receiver or DEM.
Schedule VA data retrieval	Indicate the frequency with which you want the VA data to be retrieved from the VA source.
Session	Saint: The session data is gathered from. To include all sessions, type All.
SNMP authentication password	If you select authNoPriv or authPriv in the SNMP security level field, this field is active. Enter the password for the authentication protocol selected in the SNMP authentication protocol field.
SNMP authentication protocol	If you select authNoPriv or authPriv in the SNMP security level field, this field is active. Select the type of protocol for this source: MD5 or SHA1 (SHA1 and SHA see the same protocol type). Make sure that your REM Events Server configuration matches your selection.
SNMP Community	SNMP community set when you configured the REM Events Server.
SNMP privacy password	If you select authPriv in the SNMP security level field, this field is active. Enter the password for the DES or AES privacy protocol. In FIPS mode, AES is the only option available.
SNMP privacy protocol	If you select authPriv in the SNMP security level field, this field is active and you can select either DES or AES. In FIPS mode, AES is the only option available.
SNMP security level	Security level you want to set for this source. ◦ noAuthNoPriv — No authentication protocol and no privacy protocol ◦ authNoPriv — Authentication protocol but no privacy protocol ◦ authPriv — Both authentication and privacy protocol.

Option	Definition
	SNMP authentication and privacy fields become active based on the security level you select. Make sure that your REM Events Server configuration matches your selection.
SNMP user name	Security name in REM Events Server Configuration.
SNMP version	Version of SNMP for the source. The SNMP fields are activated based on the version selected.
SNMPv3 Engine ID	(Optional) SNMPv3 Engine ID of the trap sender, if an SNMPv3 profile is used.
Sudo password	(Optional) Type the password that is required to access the Saint installation directory.
Time out	This field allows you to use the default time-out value for a source or provide a specific time-out value. This is useful if you have much VA data from a vendor and the default time-out setting is not allowing you to return all or any of the data. You can increase the time-out value to allow more VA data retrieval time. If you provide a value, it is used for all communications.
Token	(Optional) Authentication token that can be set in the Metasploit Global Settings.
URL	Type the URL to the Digital Defense Frontline server.
Use HTTP Proxy	If you select to use the HTTP proxy, the Proxy IP Address, Proxy Port, Proxy Username, and Proxy Password fields become active.
Use Passive mode	If you select ftp in the Method field, this field becomes active. Select when to use passive mode.
Use sudo	Select this option if you have access to the Saint installation directory and want to use this access.
Use System Profile (eEye REM)	Select whether to use a previously defined profile. If you select this option, all SNMP fields are deactivated. When you select one of the existing system profiles, the fields are populated with the information in the profile selected.
User name	Type the user name for McAfee® Vulnerability Manager. If you are using Windows authentication mode for the SQL Server, enter the user name of the Windows box. If not, it is the user name of the SQL Server. ◦ Nessus, OpenVAS, and Rapid7 Metasploit Pro: The user name of SCP or FTP. ◦ NGS: The user name for the SCP and FTP methods. ◦ Qualys or FusionVM: The Front Office or FusionVM user name with which to authenticate. ◦ Rapid7 Nexpose, Lumension, nCircle, and Saint: The user name to use when connecting to the web server. ◦ Digital Defense Frontline: The web interface user name.
VA Source Name	Type the name for this source.

Option	Definition
Wildcard expression	A wildcard expression used to describe the name of exported scan files. The wildcard expression can use an asterisk (*) or question mark (?) with the standard definition of "wildcard" in a file name. If you have both NBE and XML files, you must specify if you want NBE or XML files in this field (for example, *.NBE or *.XML). If you only use an asterisk (*), you get an error.

Configure zones

Use zones to organize devices, data sources, and the events they generate into related groupings by geographic location and IP address.

For example, if you have offices on the East Coast and the West Coast and you want the events generated by each office to be grouped, add two zones. Then, assign the devices whose events must be grouped to each of the zones. To group the events from each office by specific IP addresses, add subzones to each of the zones.

Task

1. From the dashboard, click ≡ and select Asset Manager.
2. Select the Zones Management tab.
3. Add a zone or a subzone:
    - Type a name.
    - Select if you want the zone to be the default for events generated by devices assigned to this zone.
    - To use geolocation to define the zone boundaries, click the Filter icon, then select the location you want included in this zone.
    - To use ASN to define the zone boundaries, enter the network identifier on the Internet for this zone.
4. Assign devices to this zone.
5. Roll out changes, then click OK.

Export zone settings

Export zone settings from one McAfee ESM and import them to another McAfee ESM.

Task

1. From the dashboard, click ≡ and select Asset Manager.
2. Select the Zone Management tab.
3. Click Export, then select the type of file you want to export:
    - Export zone definition file - includes settings for zones and their corresponding subzones
    - Export device to zone assignment file - includes devices and zones assigned to those devices
4. Click OK and select the file to download.

Import zone settings

Import zone settings from a file *as is* or edit the data before importing it.

Before you begin

Export a file of zone settings from one McAfee ESM so that it can be imported to another McAfee ESM.

Task

1. Open the zone settings file that you want to import.
    - An import zone definition file contains 8 columns: Command, Zone Name, Parent Name, Geo Location, ASN, Default, IPStart, and IPStop.
    - An import device to zone assignment file contains 3 columns: Command, Device Name, and Zone Name.
2. Enter commands in the Command column to specify the action to be taken for each line when it is imported.
    - `add` — Import the data in the line as it is.

- `edit` — (Zone definition file only) Import the data with changes made to the data.

  Note: To change a subzone range, remove the existing range, then add the range with the changes. You can't edit the subzone range directly.
- `remove` — Delete the zone matching this line from the McAfee ESM.

3. Save your changes and close the file.
4. From the dashboard, click ≡ and select Asset Manager.
5. Select the Zone Management tab.
6. Click Import, then select the import file type.
   - Import zone definition file - includes settings for zones and their corresponding subzones
   - Import device to zone assignment file - includes devices and zones assigned to those devices
7. Click OK, then locate the file to be imported and click Upload.

   The system indicates detected errors in the file.
8. If there are errors, correct the information and try again.
9. Roll out the changes to update the devices.

Configure benchmark groups

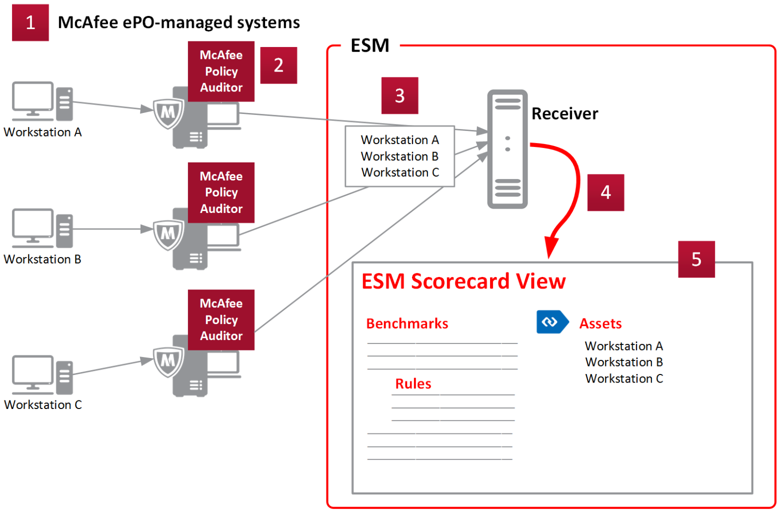
Manage the amount of information displayed on the Scorecard by grouping related benchmarks. Expanding and contracting groups gives you context and helps you manage your view of Scorecard data.

Task

1. From the main menu, select Scorecard.
2. Open the user menu (three vertical dots) on the Benchmark Groups pane.
3. Create, edit, or delete groups as needed.

How the Scorecard works

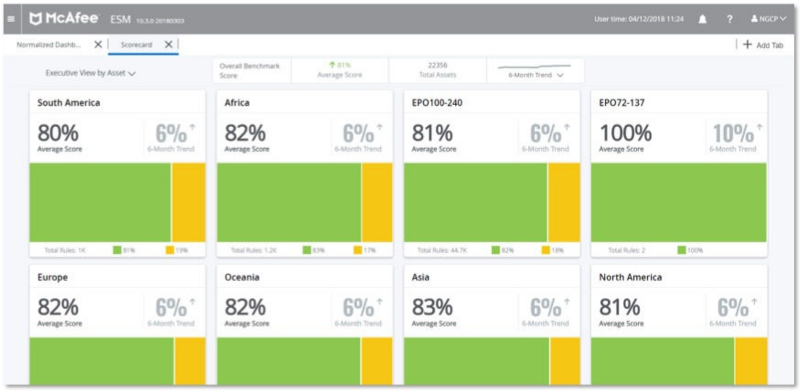
The McAfee ESM Scorecard shows which assets (endpoints) meet your organization's configuration requirements (benchmarks).



1. Configure McAfee ePO with McAfee Policy Auditor to audit your system assets (endpoints).
2. Benchmarks contain rules that determine whether assets meet required configurations. McAfee Policy Auditor defines which benchmarks and frequency to use to audit assets.

   McAfee Policy Auditor feeds audit results to McAfee ePO.
3. The McAfee Event Receiver pulls audit results from McAfee ePO.
4. The McAfee Event Receiver shares audit data with McAfee ESM.
5. The McAfee ESM Scorecard shows:

- Executive summaries of your organization's assets (endpoints) and benchmark results
- Scorecard data filtered by specific assets or benchmark result data
- Percentage of benchmarks that assets passed
- Statistics for the average benchmark score
- How many assets the score represents
- Trends over time

  
  McAfee ESM 10.3.0.20180303
User time: 04/12/2018 11:24
NGCP
Normalized Dashb...
Scorecard
Add Tab
Executive View by Asset
Overall Benchmark Score
81% Average Score
22356 Total Assets
6-Month Trend
South America 80% Average Score 6% 6-Month Trend
Total Rules: 1K 81% 19%
Africa 82% Average Score 6% 6-Month Trend
Total Rules: 1.2K 83% 17%
EPO100-240 81% Average Score 6% 6-Month Trend
Total Rules: 44.7K 82% 18%
EPO72-137 100% Average Score 10% 6-Month Trend
Total Rules: 2 100%
Europe 82% Average Score 6% 6-Month Trend
Oceania 82% Average Score 6% 6-Month Trend
Asia 83% Average Score 6% 6-Month Trend
North America 81% Average Score 6% 6-Month Trend

  Note: Trend lines appear only if at least two data points exist, which is about two weeks of data.
- How assets and benchmarks are bound

Configure the Scorecard

Define what data appears on the Scorecard.

Before you begin

Confirm that McAfee ePO is installed with McAfee Policy Auditor running.

Task

1. From the McAfee ESM dashboard, click ≡ and select Scorecard.
2. Choose the assets and benchmarks you want to appear in the Scorecard.
   a. On the Benchmark Groups or Asset Groups pane, click ⋮.
   b. Click Settings, then select what you want to display.
   Note: When selecting Scorecard data, consider the volume of data and its effect on performance. Benchmarks contain sets of rules and display one data point for multiple rules. Rules can display large amounts of data.
3. Define how data appears on the Scorecard:
   - To calculate trends over time, choose a period between 1 week and 12 months.
   Note: Use short periods to identify highly volatile trends. Use longer periods to identify deviations from standard benchmarks.
   - To toggle the binding direction between assets and benchmarks, click 🔗.
   Note: By default, benchmark data is bound to assets.
   - To toggle between text view and graph view, click either the hash or bar chart icon.
   - To drill down to a specific rule or asset, click the arrow next to the group name.
   - To view data for a particular rule, group, or asset, select it.
   Note: Data for only the selected rule, group, or asset appears in the bound table.

Configure executive Scorecard views

Define what you want to see in a visual summary of your organization's assets or benchmarks.

Before you begin

Confirm that McAfee ePO is installed with McAfee Policy Auditor running.

Task

1. From the McAfee ESM dashboard, click ≡ and select Scorecard.

2. From the Scorecard View drop-down, choose the Executive View by benchmark or by asset.
3. Click ⚙ to choose which groups to display on that view.

   Note: You can display a maximum of 12 groups.
4. Specify severity thresholds to show rule compliance levels in the view.

Filter Scorecard data

Filter Scorecard data to show only the asset or benchmark details that you want to see.

Before you begin

Confirm that McAfee ePO is installed with McAfee Policy Auditor running.

Task

1. From the McAfee ESM dashboard, click ≡ and select Scorecard.
2. Click the filter bar and add fields or values by which you want to filter.

   The filter bar supports the following operators:
   `and, equal, not equal, contains, not contains`
3. Click 🔍.
4. To refresh the view data, click ↻.
5. To remove the filter and refresh the data, select Clear & refresh.

Report on Scorecard data

Export Scorecard data to a CSV file, which you can then use to report on your organization's benchmarks and assets.

Before you begin

Confirm that audit results have been pulled into the Scorecard from McAfee ePO with McAfee Policy Auditor.

Task

1. From the McAfee ESM dashboard, click ≡ and select Scorecard.
2. Filter the Scorecard data, as needed.

   The system generates a CSV file with the data associated with the selected group and applied filters.

   - To filter by specific fields or values, use the filter bar.
   - To show data for a specific group, right-click that benchmark or asset group.
   - To show events related to a particular asset, right-click on a specific asset and choose the Summarize by option.
3. Click Export.
4. Format the CSV file to reflect your reporting needs.

Defining policies and rules

How McAfee ESM policies and rules work

Policies enable you to detect malicious or anomalous traffic and variables that act as parameters for rules. To guide the behavior of McAfee ESM devices, use the Policy Editor to create policy templates and customize individual policies.

Policy templates and device policy settings can inherit values from their parents. Inheritance allows device policy settings to be infinitely configurable while maintaining a level of simplicity and ease-of use. Each policy when created adds an entry to the Policy Tree.

Tip: When operating in FIPS mode, do not update rules through the rule server. Instead, update them manually.

Icon	Description
📄	Policy
!	Out-of-sync device
🕒	Staged device
✓	Up-to-date device

The McAfee rule server maintains all rules, variables, and preprocessors with predefined values or usages. The Default Policy inherits its values and settings from these McAfee-maintained settings, and is the ancestor of all other policies. Settings for all other policies and devices inherit their values from the Default Policy by default.

Rule types listed in the Policy Editor vary based by the selected device in the system navigation tree. The system displays the policy hierarchy for the selected device. You can filter rules to view only those rules that meet your criteria. Or tag rules to define their functions.

Manage policies

Manage the policies on the system by taking actions on the Policy Tree.

Before you begin

Verify that you have administrator rights or belong to an access group with policy administration privileges.

Task

1. From the dashboard, click ≡ and select Policy Editor.
2. On the McAfee ESM console, click the Policy Editor icon , then click the Policy Tree icon .
3. Use the Policy Tree to:
   - See rules associated with policies
   - Create a policy hierarchy

     Note: You can only drag and drop devices onto policies.
   - Search for policies or devices using filters or tags
   - Rename, delete, copy, or replace policies

     Note: Copied policy settings are applied to replaced policies, but the name remains the same.
   - Move policies to different devices
   - Import policies

     Note: If importing multiple policies, the first policy overwrites the selected policy and the system inserts subsequent policies as children of the current node, leaving their hierarchical relationship intact. This option doesn't change the name of the selected policy.
   - Export policies

     Note:

- Due to the possible dependency of custom rules on custom variables, you cannot export custom rules without also exporting the custom variables.
- Policy hierarchy is flattened, which means the system compresses settings into one level of policy, with the most immediate policy's settings taking precedence on an item by item basis. For example, if you select a device, the system exports both policies above the selected policy. To export a parent policy, you must select its child. Also, policy settings have precedence over the parent policy settings when the file is compressed down into one level of policy.

Set up database audit trails

Set up an audit trail to track access and changes made to the database or to tables associated with specific database events. The McAfee ESM compliance report lists audit trails associated with each event.

Before you begin

To generate audit trail events, you must add:

- Data Access rules
- Privileged User Audit Trails report

Task

1. From the dashboard, click ☰ and select Policy Editor.
2. In the Rule Types pane, select DEM → Data Access.
3. Highlight DEM - Template Rule - Trusted Use Access From IP Range.
4. Click Edit → Copy, then click Edit → Paste.
5. Change the name and properties of the new rule.
   a. Highlight the rule, then select Edit → Modify.
   b. Name the rule, then type the user name.
   c. Select the Untrusted action type, then click OK.
6. Click the Rollout icon .
7. Set up the report:
   a. On System Properties, click Reports → Add.
   b. Fill in sections 1–3, and 6.
   c. In section 4, select Report PDF or Report HTML
   d. In section 5, select Compliance → SOX → Privileged User Audit Trails (Database).
   e. Click Save.
8. To generate the report, click Run Now.

How variables work

A variable is a global setting or a placeholder for information that is user- or site-specific and used by rules.

Important: Adding or changing variables requires extensive knowledge of Snort format.

Use variables to make rules behave in specific ways, which might vary from device to device. McAfee ESM has many pre-set variables, but also allows you to add custom variables. When adding a rule, these variables appear as options in the drop-down list for the field type selected in the Type field on the New Variable page.

Each variable has a default value; set some values that correspond to the specific environment of each device. Variable names cannot contain spaces; Use an underscore (_) to represent spaces. To maximize device effectiveness, set the HOME_NET variable to the home network being protected by the specific device.

This table shows a list of common variables and their default values.

Variable name	Description	Default	
EXTERNAL_NET	Everyone outside of the protected network	!$HOME_NET	Port 80

Variable Name	Description	Default	
HOME_NET	Local protected network address space: (10.0.0.0/80)	Any	Same as HOME_NET
HTTP_PORTS	Web server ports: 80 or 80:90 for a range between 80 and 90	80	Any port except the HTTP_POR
HTTP_SERVERS	Addresses of web servers: 192.168.15.4 or [192.168.15.4,172.16.61.5]	$HOME_NET	Same as HOME_NET
SHELLCODE_PORTS	Anything but web server ports	!$HTTP_PORTS	Same as HOME_NET
SMTP	Mail server addresses	$HOME_NET	Same as HOME_NET
SMTP_SERVERS	Mail server addresses	$HOME_NET	Same as HOME_NET
SQL_SERVERS	Addresses of SQL DB servers	$HOME_NET	Same as HOME_NET
TELNET_SERVERS	Addresses of telnet servers	$HOME_NET	Same as HOME_NET

You can change system variables and add, change, or delete custom variables.

Assign types to custom variables to filter rules for reporting. Types determine the field in which the variables are available when adding or changing a rule. Variable types are global, and changes appear on all policy levels.

Manage variables

When you select the variable rule type on the Policy Editor, you can take several actions to manage both custom and predefined variables.

Task

1. Click the Policy Editor icon.
2. On the Rule Types pane, select Variable.
3. Do any of the following:
   - Add a category by selecting New → Category.
   - Add custom variables by selecting the category, then click New, then select Variable, then define the requested settings.
   - Change variables by selecting the variable, then select Edit, then click Modify or Delete.

     Note: When the variable type is set to something other than No Type Selected and committed, you can't change the value.
   - Import variables by selecting File, then click Import → Variables. Click Import, then browse and upload the file.

     Note: The import file must be a .txt file with the following information in this format: VariableName;VariableValue; CategoryName (optional); Description (optional). If one field is missing, a semicolon must be in place to act as a place holder.

4. In the rules display pane, select the category, then click New.
5. Select Variable, then define the requested settings.

Detect TCP protocol anomalies and session hijacking

You can detect and alert on TCP protocol anomalies and check to TCP session hijacking using the Stream5 preprocessor variable.

Task

1. On the McAfee ESM console, click the Policy Editor icon ⋰ .
2. In the Rule Types pane, click Variable.
3. In the Variables pane, expand the preprocessor group, then double-click STREAM5_TCP_PARAMS.
4. On the Modify Variable page, add one of the following in the Value field:
   - To detect and alert on TCP protocol anomalies, add `detect_anomalies` after policy first.
   - To check for TCP session hijacking, add `detect_anomalies check_session_hijacking` after policy first.

McAfee ESM rule types

McAfee ESM includes many types of rules that enable you to protect your environment.

- McAfee Application Data Monitor rules -detect malicious traffic patterns by detecting anomalies in application and transport protocols.
- Advanced Syslog Parser (ASP) rules - identify where data resides in message-specific events, such as signature IDs, IP addresses, ports, user names, and actions.
- Correlation rules - interpret patterns in correlated data.
- Data source rules - detect issues with data source information sent to receivers.
- McAfee Database Event Monitor rules - monitor database events, such as logon/logoff, DBA-type activity, suspicious activity, and database attacks that are typically required to achieve compliance requirements.
- McAfee ESM rules - generate compliance or auditing reports related to McAfee ESM events.
- Filter rules - allow you to specify what action to take on McAfee Event Receiver data.
- Transaction tracking rules - track database transactions and auto-reconcile changes, such as log start and end of a trade execution or begin and commit statements to report by transactions instead of queries.
- Windows events rules - generate events that are related to Windows.

Icons indicate where a rule inherits its usage.

Icon	Description
⋮	Indicates default setting inherits parent's use
⠼	Indicates broken inheritance chain at this level. Inheritance turned off at this point. **Note:** The current rule usage is used when the inheritance chain is broken.
⊤	Indicates broken inheritance chain at this level. Items below this point do not inherit any further up the chain.
⋰	Indicates a custom value; set the value to something other than the default.

McAfee Application Data Monitor rules

McAfee Application Data Monitor is a series of network appliances powered by the ICE Deep Packet Inspection (DPI) Engine.

The ICE Engine is a software library and collection of protocol and content plug-in modules that can identify and extract content from raw network traffic in real time. It can fully reassemble and decode application level content, transforming cryptic network packet streams into easily readable content as if it were being read from a local file.

The ICE engine can identify protocols and content types automatically without relying on fixed TCP port numbers or file extensions. ICE engine does not rely on signatures to perform analysis and decoding, instead its modules implement full parsers for each protocol or content type, which results in accurate identification and decoding of content and allows content to be identified and extracted even when that content is compressed or otherwise encoded. So, doesn't pass over the network in clear text.

As a result of this highly accurate identification and decoding, the ICE engine offers a uniquely deep view of network traffic. For example, the ICE engine could receive a PDF document stream that traversed the network inside a .zip file, as a BASE-64 encoded attachment to an SMTP email from a SOCKS proxy server.

This application and document-awareness allow McAfee Application Data Monitor to provide invaluable security context. It can detect threats not easily detected by traditional IDS or IPS, such as:

- Leak of sensitive information and documents or communication policy violations
- Unauthorized application traffic (for example, who is using Gnutella?)
- Applications being used in unexpected ways (for example, HTTPS on non-standard port)
- Potentially malicious documents (for example, document does not match its extension)
- New generation of exploits (for example, PDF document with an embedded executable)

McAfee Application Data Monitor detects malicious traffic patterns by detecting anomalies in application and transport protocols (for example, an RPC connection is malformed or TCP destination port is 0).

Supported applications and protocols

McAfee Application Data Monitor can monitor applications and protocols (such as those listed below) and then decode and detect anomalies.

- Low-level network protocols — TCP/IP, UDP, RTP, RPC, SOCKS, DNS, and others
- Email — MAPI, NNTP, POP3, SMTP, Microsoft Exchange
- Chat — MSN, AIM/Oscar, Yahoo, Jabber, IRC
- Webmail — such as AOL Webmail, Hotmail, Yahoo! Mail, Gmail, Facebook email
- P2P — Gnutella, bitTorrent
- Shell — SSH (detection only), Telnet
- Instant messaging — AOL,ICQ, Jabber, MSN, SIP, and Yahoo
- File transfer protocols — FTP, HTTP, SMB, and SSL
- Compression and extraction protocols — BASE64, GZIP, MIME, TAR, ZIP, and others
- Archive files — RAR Archives, ZIP, BZIP, GZIP, Binhex, and UU-encoded archives
- Installation packages — Linux packages, InstallShield cabinets, Microsoft cabinets
- Image files — GIFs, JPEGs, PNGs, TIFFs, AutoCAD, Photoshop, Bitmaps, Visio, Digital RAW, and Windows icons
- Audio files — WAV, MIDI, RealAudio, Dolby Digital AC-3, MP3, MP4, MOD, RealAudio, SHOUTCast, and more
- Video files — AVI, Flash, QuickTime, Real Media, MPEG-4, Vivo, Digital Video (DV), Motion JPEG, and more
- Other applications and files — Databases, spreadsheets, faxes, web applications, fonts, executable files, Microsoft Office applications, games, and even software development tools
- Other protocols — Network printer, shell access, VoIP, and peer-to-peer

Key concepts

- Object — individual item of content. An email is an object but also an object container since it has a message body (or two) and attachments. An HTML page is an object which might contain additional objects such as images. A .zip file and each file in the .zip file are all objects. McAfee Application Data Monitor unpacks the container and treats each object inside as its own object.
- Transaction — a wrapper around the transfer of an object (content). A transaction contains at least one object; but, if that object is a container, like a .zip file, the single transaction might contain several objects.
- Flow — the TCP or UDP network connection. A flow might contain many transactions.

Configure custom rules

Configure McAfee Application Data Monitor, database, or correlation rules, using logical and regular expressions or predefined rules as templates.

Task

1. From the dashboard, click ≡ and select Policy Editor.
2. View existing custom rules:
   a. Select the Filters/Tagging → Filter tab.

b. Click the Advanced bar at the bottom.
c. In the Origin field, select user-defined.
d. Click Run Query.

3. Click New, then configure database and correlation rules:
   - Identify the rule name, description (that appears in the Policy Editor), a severity setting, and rule type.
   - Select the alert action the rule triggers.
   - Change the default normalized ID.
   - Select tags that define the categories to which the rule belongs.
   - To set rule logic, drag and drop the wanted logical elements and components.
4. Define values that events must match to trigger a correlation rule:
   - Apply filters to event data, flow data, or both.
   - To select if a specific number of values must occur in a specific field before the component triggers, click ☆ .
     - Distinct Values — Select the number of values that must occur.
     - Monitored field — Select the field that the values must occur in.
   - Select to have the component trigger only if matches do not occur in the time specified in the Time Window field at the gate level.
   - Select to customize the grouping of the events in a correlation rule. If you have a rule that groups by a specific field, you can override one of its components to match on a field that you specify on the Configure Group By overrides page. Click Configure to set the override field.
5. Define expression component settings:
   - Select to exclude the values you select.
   - Select the metric reference for this expression.
   - Type a component description.
   - If you want this rule to reference a McAfee Application Data Monitor dictionary on McAfee ESM, select it on the drop-down list.
   - Select the relational operator.

     McAfee Application Data Monitor:

     - Equal to =
     - Not equal to !=
     - Greater than >
     - Greater than equal to >=
     - Less than equal to <=
     - Less than <

     McAfee Database Event Monitor:

     - EQ - Equal to
     - BT - Between
     - GE - Greater than equal to
     - GT - Greater than
     - LE - Less than equal to
     - LT - Less than
     - NB - Not between
     - NE - Not equal to
     - NGT - Not greater than
     - NLE - Not less than
     - REGEXP - Regular expression
   - Select whether the rule triggers when any of the values match the defined pattern, or only if all values match the pattern.
   - Filter by selected variables:
     - If the variables icon is next to the field, click it and select the variables.
     - If there is no icon, type the value following the instructions in the Valid Input field.
   - View hints for the values that you can enter in the Value field.

Edit logical elements

You can change the default settings for the AND, OR, and SET logical elements.

Task

1. On the rule editor, drag and drop a logic element in the Expression Logic or Correlation Logic area.
2. Click the Menu icon ⋮ for the element you want to edit, then click Edit.
3. Change the settings, then click OK.

McAfee Application Data Monitor rules syntax

McAfee Application Data Monitor rules provide a set of literals (numbers, strings, regular expressions, IP addresses, MAC addresses, and Booleans), similar to C expressions.

You can compare string terms with string and Regex literals to test their content but they can also be compared with numbers to test their length. You can only compare numeric, IP address, and MAC address terms with the same type of literal value. The only exception is that everything can be treated as a Boolean to test for its existence. Some terms can have multiple values, for example the following rule would trigger for PDF files inside .zip files: type = = application/zip && type = = application/pdf.

Operators

Operator	Description	Example
&&	Logical AND	protocol = = http && type = = image/gif
| |	Logical OR	time.hour < 8 | | time.hour > 18
^ ^	Logical XOR	email.from = = "a@b.com" ^^email.to = = "a@b.com"
!	Unary NOT	! (protocol = = http | | protocol = = ftp)
= =	Equal	type = = application/pdf
! =	Not equal	srcip ! = 192.168.0.0/16
>	Greater	objectsize > 100M
> =	Greater or equal	time.weekday > = 1
<	Less	objectsize < 10K
< =	Less or equal	time.hour < = 6

Literals

Literal	Example
Number	1234, 0x1234, 0777, 16K, 10M, 2G
String	"a string"
Regex	/[A-Z] [a-z]+/
IPv4	1.2.3.4, 192.168.0.0/16, 192.168.1.0/255.255.255.0
MAC	aa:bb:cc:dd:ee:ff
Bool	true, false

Type operator compatibility

Type	Operators	Notes
Number	= =, ! =, >, > =, <, < =	
String	= =, ! =	Compare content of string with String/Regex
String	>, > =, <, <=	Compare length of string
IPv4	= =, ! =	
MAC	= =, ! =	
Bool	= =, ! =	Compare against true/false, also supports implied comparison with true, for example the following tests whether the email.bcc term occurs: email.bcc

Regex grammar

Basic operators	
|	Alternation (or)
*	Zero or more
+	One or more
?	Zero or one
( )	Grouping (a | b)
{ }	Repeating Range {x} or {,x} or {x,} or {x,y}
[ ]	Range [0-9a-z] [abc]
[^]	Exclusive Range [^abc] [^0–9]
.	Any Character
\	Escape Character

Escapes	
\d	Digit [0–9]
\D	Non-Digit [^0-9]
\e	Escape (0x1B)
\f	Form Feed (0x0C)
\n	Line Feed (0x0A)
\r	Carriage Return (0x0D)
\s	White Space
\S	Not White Space
\t	Tab (0x09)

Escapes	
\v	Vertical Tab (0x0B)
\w	Word [A-Za-z0-9_]
\W	Not Word
\x00	Hex Representation
\0000	Octal Representation
^	Start of line
$	End of line
Note: The start of line and end of line anchors (^ and $) don't work for objcontent.	

POSIX character classes	
[:alunum:]	Digits and letters
[:alpha:]	All letters
[:ascii:]	ASCII Characters
[:blank:]	Space and tab
[:cntrl:]	Control characters
[:digit:]	Digits
[:graph:]	Visible characters
[:lower:]	Lowercase letters
[:print:]	Visible characters and spaces
[:punct:]	Punctuation and Symbols
[:space:]	All whitespace characters
[:upper:]	Uppercase characters
[:word:]	Word characters
[:xdigit:]	Hexadecimal Digit

McAfee Application Data Monitor dictionary examples

McAfee Application Data Monitor can match object content or other metrics or properties with a single column dictionary for true or false (exists in the dictionary or does not exist in the dictionary).

Single column dictionary examples

Type of dictionary	Example
String dictionary with common spam words	“Cialis” “cialis” “Viagra” “viagra”

Type of dictionary	Example
	“adult web” “Adult web” “act now! don’t hesitate!”
Regular expression dictionary for authorization key words	/(password|passwd|pwd)[^a-z0-9]{1,3}(admin|login|password|user)/i /(customer|client)[^a-z0-9]{1,3}account[^a-z0-9]{1,3}number/i /fund[^a-z0-9]{1,3}transaction/i /fund[^a-z0-9]{1,3}transfer[^a-z0-9]{1,3}[0–9,.]+/i
String dictionary with hash values for known bad executables	"fec72ceae15b6f60cbf269f99b9888e9" "fed472c13c1db095c4cb0fc54ed28485" "feddedb607468465f9428a59eb5ee22a" "ff3cb87742f9b56dfdb9a49b31c1743c" "ff45e471aa68c9e2b6d62a82bbb6a82a" "ff669082faf0b5b976cec8027833791c" "ff7025e261bd09250346bc9efdfc6c7c"
IP addresses of critical assets	192.168.1.12 192.168.2.0/24 192.168.3.0/255.255.255.0 192.168.4.32/27 192.168.5.144/255.255.255.240

Double column dictionary examples

Type of dictionary	Example
String dictionary with common spam words and categories	“Cialis” “pharmaceutical” “cialis” “pharmaceutical” “Viagra” “pharmaceutical” “viagra” “pharmaceutical” “adult web” “adult” “Adult web” “adult” “act now! don’t hesitate!” “scam”
Regular expression dictionary for authorization key words and categories	/(password|passwd|pwd)[^a-z0-9]{1,3}(admin|login|password|user)/i “credentials” /(customer|client)[^a-z0-9]{1,3}account[^a-z0-9]{1,3}number/i “pii” /fund[^a-z0-9]{1,3}transaction/i “sox” /fund[^a-z0-9]{1,3}transfer[^a-z0-9]{1,3}[0–9,.]+/i “sox”
String dictionary with hash values for known bad executables and categories	"fec72ceae15b6f60cbf269f99b9888e9" “trojan” "fed472c13c1db095c4cb0fc54ed28485" “Malware” "feddedb607468465f9428a59eb5ee22a" “Virus” "ff3cb87742f9b56dfdb9a49b31c1743c" “Malware” "ff45e471aa68c9e2b6d62a82bbb6a82a" “Adware” "ff669082faf0b5b976cec8027833791c" “trojan” "ff7025e261bd09250346bc9efdfc6c7c" “Virus”
IP addresses of critical assets and groups	192.168.1.12 “Critical Assets” 192.168.2.0/24 “LAN” 192.168.3.0/255.255.255.0 “LAN” 192.168.4.32/27 “DMZ”

Type of dictionary	Example
	192.168.5.144/255.255.255.240 “Critical Assets”

McAfee Application Data Monitor rule term types

McAfee Application Data Monitor rules contain terms that can be IP addresses, MAC addresses, numbers, strings, or a Boolean.

In addition, there are two extra literal types: regular expressions and lists. A term of a specific type can only be compared against a literal of the same type or a list of literals of the same type (or a list of lists of ...).

Exceptions to this rule are:

- A string term can be compared against a numeric literal to test its length. The following rule triggers if a password is fewer than eight characters long (password is a string term): Password < 8
- A string term can be compared against a regular expression. The following rule triggers if a password only contains lowercase letters: Password == /^[a-z]+$/
- All terms can be tested against Boolean literals to test whether they occur at all. The following rule triggers if an email has a CC address (email.cc is a string term): email.cc == true

Type	Format description
IP addresses	• IP address literals are written in standard dotted-quad notation, they are not enclosed in quotes: 192.168.1.1 • IP addresses can have a mask written in standard CIDR notation, there must not be any white space between the address and the mask: 192.168.1.0/24 • IP addresses can also have masks written out in long form: 192.168.1.0/255.255.255.0
MAC addresses	• MAC address literals are written using standard notation, as with IP addresses, they are not enclosed in quotes: aa:bb:cc:dd:ee:ff
Numbers	• All numbers in McAfee Application Data Monitor rules are 32-bit integers. They can be written in decimal: 1234 • They can be written in hexadecimal: 0xabcd • They can be written in octal: 0777 • They can have a multiplier appended to multiply by 1024 (K), 1048576 (M) or 1073741824 (G): 10M
Strings	• Strings are enclosed in double quotes: "this is a string" • Strings can use standard C escape sequences: "\tThis is a \"string\" containing\x20escape sequences\n" • When comparing a term against a string, the whole term must match the string. If an email message has a from address of someone@somewhere.com, the following rule does not trigger: email.from == “@somewhere.com” • To match only a part of a term, use a regular expression literal instead. String literals must be used when possible because they are more efficient. **Note:** All email address and URL terms are normalized before matching so it is not needed to take account of things like comments in email addresses.
Booleans	• The Boolean literals are true and false.
Regular expressions	• Regular expression literals use the same notation as languages like JavaScript and Perl, enclosing the regular expression in forward slashes: /[a-z]+/ • Follow regular expressions with standard modifier flags, though "i" is the only one currently recognized (case-insensitive): /[a-z]+/i • Use the POSIX Extended syntax for regular expression literals. Currently Perl extensions work for all terms except the content term but this might change in future versions.

Type	Format description
	• When comparing a term against a regular expression, the regular expression matches any substring in the term unless anchor operators are applied in the regular expression. The following rule triggers if an email is seen with an address of "someone@somewhere.com": email.from == /@somewhere.com/
Lists	• List literals consist of one or more literals enclosed in square brackets and separated by commas: [1, 2, 3, 4, 5] • Lists might contain any kind of literal, including other lists: [192.168.1.1, [10.0.0.0/8, 172.16.128.0/24]] • Lists must only contain one literal, it's not valid to mix strings and numbers, strings and regular expressions, IP addresses and MAC addresses. • When a list is used with any relational operator other than not-equal (!=), then the expression is true if the term matches any literal in the list. The following rule triggers if the source IP address matches any of the IP addresses in the list: Srcip == [192.168.1.1, 192.168.1.2, 192.168.1.3] • It is equivalent to: Srcip == 192.168.1.1 || srcip == 192.168.1.2 || srcip == 192.168.1.3 • When used with the not-equal (!=) operator, the expression is true if the term doesn't match all literals in the list. The following rule triggers if the source IP address is not 192.168.1.1 or 192.168.1.2: Srcip != [192.168.1.1, 192.168.1.2] • It is equivalent to: Srcip != 192.168.1.1 && srcip != 192.168.1.2 • Lists might also be used with the other relational operators, though it doesn't make much sense. The following rule triggers if the object size is greater than 100 or if the object size is greater than 200: objectsize > [100, 200] • It is equivalent to: objectsize > 100 || objectsize > 200

McAfee Application Data Monitor rule metric references

Use the following metric references when adding McAfee Application Data Monitor rules.

For Common Properties and Common Anomalies, the parameter-type value you can enter for each one is shown in parentheses after the metric reference.

Common Properties

Property or term	Description
Protocol (Number)	The application protocol (HTTP, FTP, SMTP)
Object Content (String)	The content of an object (text inside a document, email message, chat message). Content matching is not available for binary data. Binary objects can, but, be detected using Object Type (objtype)
Object Type (Number)	Specifies the type of the content as determined by McAfee Application Data Monitor (Office Documents, Messages, Videos, Audio, Images, Archives, Executables)
Object Size (Number)	Size of the object. Numeric multipliers K, M, G can be added after the number (10K, 10M, 10G)
Object Hash (String)	The hash of the content (currently MD5)
Object Source IP address (Number)	The source IP address of the content. IP address can be specified as 192.168.1.1, 192.168.1.0/24, 192.168.1.0/255.255.255.0
Object Destination IP address (Number)	The destination IP address of the content. IP address can be specified as, 192.168.1.1, 192.168.1.0/24, 192.168.1.0/255.255.255.0
Object Source Port (Number)	The source TCP/UDP port of the content
Object Destination Port (Number)	The destination TCP/UDP port of the content

Property or term	Description
Object Source IP address v6 Address (Number)	The source IPv6 address of the content
Object Destination IPv6 Address (Number)	The destination IPv6 address of the content
Object Source MAC Address (Mac name)	The source MAC address of the content (aa:bb:cc:dd:ee:ff)
Object Destination MAC Address (Mac name)	The destination MAC address of the content (aa:bb:cc:dd:ee:ff)
Flow Source IP address (IPv4)	Source IP address of the flow. IP address can be specified as 192.168.1.1, 192.168.1.0/24, 192.168.1.0/255.255.255.0
Flow Destination IP address (IPv4)	Destination IP address of the flow. IP address can be specified as 192.168.1.1, 192.168.1.0/24, 192.168.1.0/255.255.255.0
Flow Source Port (Number)	Source TCP/UDP port of flow
Flow Destination Port (Number)	Destination TCP/UDP port of flow
Flow Source IPv6 Address (Number)	Source IPv6 address of the flow
Flow Destination IPv6 Address (Number)	Destination IPv6 address of the flow
Flow Source MAC Address (Mac name)	Source MAC address of the flow
Flow Destination MAC Address (Mac name)	Destination MAC address of flow
VLAN (Number)	Virtual LAN ID
Day of Week (Number)	The day of the week. Valid values are 1–7; 1 is Monday.
Hour of Day (Number)	The hour of the day set to GMT. Valid values are 0–23.
Declared Content Type (String)	Type of the content as specified by the server. In theory, Object Type (objtype) is always the actual type and Declared Content-type (content-type) is not trustworthy because it can be spoofed by the server/application.
Password (String)	Password used by the application for authentication.
URL (String)	Website URL. Applies only to HTTP protocol.
File Name (String)	Name of the file being transferred.
Display Name (String)	
Host Name (String)	Host name as specified in DNS lookup.

Common Anomalies

- User logged off (Boolean)
- Authorization error (Boolean)
- Authorization successful (Boolean)

- Authorization failed (Boolean)

Protocol-specific properties

In addition to providing properties that are common across most protocols, McAfee Application Data Monitor also provides protocol-specific properties that can be used with McAfee Application Data Monitor rules.

Examples of protocol-specific properties

These properties apply to these tables:

```
*   Detection only
**  No decryption, captures X.509 certificates and encrypted data
*** Via RFC822 module
```

File transfer protocol modules

FTP	HTTP	SMB*	SSL**
Display Name	Display Name	Display Name	Display Name
File Name	File Name	File Name	File Name
Host Name	Host Name	Host Name	Host Name
URL	Referrer		
	URL		
	All HTTP headers		

Email protocol modules

DeltaSync	MAPI	NNTP	POP3	SMTP
Bcc***	Bcc	Bcc***	Bcc***	Bcc***
Cc***	Cc	Cc***	Cc***	Cc***
Display	Display Name	Display Name	Display Name	Display Name
Name	From	From***	From***	From***
From***	Host Name	Host Name	Host Name	Host Name
Host Name	Subject	Subject***	Subject***	To***
Subject***	To	To***	To***	Subject***
To***	User Name		User Name	

Webmail protocol modules

AOL	Gmail	Hotmail	Yahoo
Attachment	Attachment Name	Attachment Name	Attachment Name
Name	Bcc***	Bcc***	Bcc***
Bcc***	Cc***	Cc***	Cc***
Cc***	Display Name	Display Name	Display Name
Display Name	File Name	File Name	File Name
File Name	Host Name	Host Name	Host Name
Host Name	From***	From***	From***
From***	Subject***	Subject***	Subject***
Subject***	To***	To***	To***
To***			

Protocol anomalies

Beyond the common properties and protocol-specific properties, McAfee® Application Data Monitor also detects hundreds of anomalies in low-level, transport, and application protocols. All protocol anomaly properties are of type Boolean and are available in the Expression Component page when you are adding a McAfee® Application Data Monitor rule.

IP address

Term	Description
ip.too-small	IP address packet is too small to contain a valid header.
ip.bad-offset	IP address data offset goes past end of packet.
ip.fragmented	IP address packet is fragmented.
ip.bad-checksum	IP address packet checksum doesn't match data.
ip.bad-length	IP address packet totlen field goes past end of packet.

TCP

Term	Description
tcp.too-small	TCP packet is too small to contain a valid header.
tcp.bad-offset	TCP packet's data offset goes past end of packet.
tcp.unexpected-fin	TCP FIN flag set in non-established state.
tcp.unexpected-syn	TCP SYN flag set in established state.
tcp.duplicate-ack	TCP packet ACKs data that is already ACKed.
tcp.segment-outsidewindow	TCP packet is outside the window (TCP module's small window, not real window).
tcp.urgent-nonzero-withouturg- flag	TCP urgent field is non-zero but URG flag isn't set.

DNS

Term	Description
dns.too-small	DNS packet is too small to contain a valid header.
dns.question-name-past-end	DNS question name goes past the end of the packet.
dns.answer-name-past-end	DNS answer name goes past the end of the packet.
dns.ipv4-address-length-wrong	IPv4 address in DNS response is not 4 bytes long.
dns.answer-circular-reference	DNS answer contains circular reference.

Data source rules

Data source rules have defined default actions. The McAfee Event Receiver assigns it to the event subtype associated with the rule. The list of data source rules includes predefined and auto learned rules.

The McAfee Event Receiver auto learns data source rules as it processes the information sent to it by the data sources that are associated with the McAfee Event Receiver.

The Data Source option in the Rule Types pane is only visible when you select a policy, data source, Advanced Syslog Parser, or McAfee Event Receiver in the system navigation tree. The description area at the bottom of the page gives detailed information about the selected rule. All rules have a severity setting that dictates the priority associated with a rule, which impacts how the alerts generated for these rules are shown for reporting purposes.

Set data source rule actions

Set the value of the event subtype per data source rule, which means that you can set default rule actions for dashboards, reports, parsing rules, or alarms with different values, such as the outcome of a selective access rule (permit/deny).

Task

1. On the McAfee ESM console, click the Policy Editor icon, then select Receiver → Data Source in the Rule Types pane.
2. Click in the Subtype column for the rule you want to change, then select the new action.
   - Select enable to populate the event subtype with the default action, alert.
   - Select disable, if you don't want to collect events for the corresponding rule.
   - Select any other action to populate the event subtype with that action.

Manage auto-learned data source rules

View and change auto-learned data source rules.

Task

1. On the Policy Editor, select Receiver → Data Source.
2. On the Filters/Tagging pane, click the Advanced bar at the bottom of the pane.
3. On the Origin drop-down list, select user-defined, then click the Run Query icon ↻.
4. Select the rule you want to change or delete, click Edit, then select Modify or Delete Auto Learned Rules.
   - If you selected Modify, change the name, description, or normalized ID, then click OK.
   - If you selected Delete Auto Learned Rules, select the correct option, then click OK.

Filter rules

Filter rules allow you to specify the action to take when data that you define is received by the Receiver.

Data order

Filter rules are written to the Receiver in this data order:

1 All non "catch-all" rules.
a stop = true and parse = false and log = false
b stop = true and parse = true and log = true
c stop = true and parse = true and log = false
d stop = true and parse = false and log = true
2 All "catch-all" rules

Rule order

If you have Policy Administrator rights, you can define the order that you want the Filter rules to run in. These rules then run in the most effective order to generate the data you need.

Configure filter rules

Configure Policy Editor filter rules.

Before you begin

Verify that you have policy administrator privileges.

Task

1. On the Policy Editor, select Receiver → Filter.

2. Select New, then click Filter Rule.
3. Name the rule type and choose tags to define the categories to which this rule belongs.
4. Choose optional settings:
    - Add normalized IDs.
    - Change the rule's severity setting.
    - Type content strings to filter the received data. When the data received matches these content strings, the system performs the action you specified.
    - Type a single PCRE to filter the received data. When the data received matches this PCRE, the system performs the action you specified.
    - Type a rule description that appears when you select the rule in the Policy Editor.
5. Select if you want the rule to be written without PCRE or content strings. If you select this option, the system performs the specified actions on all received data.
6. Select if you want to add a case insensitive modifier so the system matches PCRE content regardless of the case.
7. Select the actions that are taken when the data received matches the PCRE and content strings, or on all data received if Match All is selected. You can select as many of these actions as needed.
8. Enable rules by selecting them in the Action column, then click enabled.

Configure transaction tracking rules

Track database transactions and auto-reconcile changes, log start and end of a trade execution, or begin and commit statements to report by transactions instead of queries.

Task

1. On the Policy Editor, select DEM → Transaction Tracking.
2. Configure transaction tracking rules:
    - Select the type of transaction tracking rule.
    - Type a unique rule name, using only alphanumeric characters, underscores (_), and spaces.
    - Type the SQL query to be executed before and after changing the database (for example, spChangeControlStart or spChangeControlEnd).
    - Select tags you want to associate with this rule.
    - Click to select the default normalized ID.
    - Select the severity setting.
    - Type a rule description.
3. Click OK.

Windows events rules

Windows events rules are used to generate events that are related to Windows.

They are data source rules for Windows events and are separated from the data source rule type because they are a common use case. McAfee defines these rules; you can't add, change, or delete them, but you can change their property settings.

Define packet oversubscription

Oversubscription defines how McAfee ESM handles packets if the device's capacity is exceeded. In each case, the packet is recorded as an event. You can set up the default policy to operate in alerts only mode or oversubscription mode. You can also view the status of the rule updates and initiate an update.

Task

1. On the Policy Editor, click the Settings icon.
2. In the Oversubscription Mode field, click Update.
3. In the Value field, enter the functionality.
    a. Pass (pass or 1) - allows packets that would be discarded to pass unscanned.
    b. Drop (drop or 0) - drops packets that exceed the device's capacity.
    c. To pass or drop a packet without generating an event, enter spass or sdrop.
4. Click OK.

Note: Changing Oversubscription Mode affects the primary and secondary devices (virtual devices). For this change to take effect, you must change the mode on the primary device.

View policy update status

Determine when to roll out policy updates by reviewing the policy update status for McAfee ESM devices.

Task

1. On the Policy Editor, click the Settings icon .
2. In the Status field, view the number of devices that are up to date, out of date, and scheduled for an auto rollout.
3. Click Close.

Working with rules

Manage rules

ADM, DEM, Deep Packet Inspection, Advanced Syslog Parser, and Correlation rules can be viewed, copied, and pasted. Custom rules of these types can be modified or deleted. Standard rules can be modified, but must be saved as a new custom rule.

Task

1. In the Rule Types pane of the Policy Editor, select the type of rule that you want to work with.
2. To view custom rules:
   a. Select the Filter tab in the Filters/Tagging pane.
   b. At the bottom of the pane, click the Advanced bar.
   c. If you want to view a Generic - Advanced Syslog Parser rule, clear the Device Type ID field.
   d. In the Origin field, select user defined, then click Run Query .
3. To copy and paste a rule:
   a. Select a predefined or custom rule.
   b. Select Edit → Copy, then select Edit → Paste.
   The rule you copied is added to the list of existing rules, with the same name and settings.
   Note: For ASP and Filter Rules, the rule order is copied as part of the copy process.
   c. Check that the ordering of the new rule will not adversely affect data parsing (Operations → Order ASP Rules) or (Operations → Order Filter Rules).
   d. To change the name, select Edit → Modify.
4. To modify a rule:
   a. Highlight the rule you want to view, then select Edit → Modify.
   b. Change the settings, then click OK. If it's a custom rule, it's saved with the changes. If it is a standard rule, you are prompted to save the changes as a new custom rule. Click Yes.
   Note: If you did not change the name of the rule, it is saved with the same name and a different sigID.
   c. You can change the name by selecting the rule, then selecting Edit → Modify.

Import rules

Import a set of rules from one McAfee ESM to another.

Task

1. In the Rule Types pane of the Policy Editor, click the type of policy or rules you are importing.
2. Click File → Import, then select Rules.
   Note: These changes can't be undone.
3. Click Import Rules, then browse to the file you want to import and select Upload.
4. On the Import Rules page, select the action to take if rules being imported have the same ID as existing rules.
5. Click OK to import the rules, resolving the conflicts as indicated.

Import variables

Import a file of variables and change their type. If there are conflicts, the system renames a new variable automatically.

Before you begin

Ensure a variable file is set up.

Task

1. In the Rule Types pane of the Policy Editor, click Variable.
2. Click File → Import → Variables, then browse to the file of variables and click Upload.
   If there are conflicts or errors in the file, the Import - Error Log page opens informing you of each issue.
3. On the Import Variable(s) page, click Edit to change the Type for the selected variables.
4. Click OK.

Export rules

Export custom rules or all rules in a policy so that you can then import them to anotherMcAfee ESM.

Task

1. In the Rule Types pane of the Policy Editor, click the type of rules you are exporting.
2. Access a list of the custom rules of the type you selected:
   a. In the Filter/Tagging pane, select the Filter tab.
   b. Click the Advanced bar at the bottom of the pane.
   c. On the Origin drop-down list, select user defined.
   d. Click the Run Query icon ↻.
3. Select the rules you want to export, then click File → Export → Rules.
4. On the Export Rules page, select the format to use when exporting the rules.
5. On the Download page, click Yes, select the location, then click Save.

   Note: If you open the csv file using Microsoft Excel, some of the UTF-8 characters might be corrupted. To correct this, open the Text Import Wizard in Excel and select Delimited and Comma.

Filter existing rules

Filter existing rules to view only those that meet your criteria. By default, rules of a specific type appear in the Policy Editor in alphabetical order. You can list them by time or use tags to filter the rules.

Task

1. In the Rule Types pane of the Policy Editor, select the type of rule you want to filter.
2. Select the Filter tab in the Filters/Tagging pane.
3. Do any of the following:
   - Filter with multiple tags by selecting categories or tags, then click the Run Query icon ↻.
   - Select more than one category or tag, then click the or icon, then click the Run Query icon.

     Note: You cannot use the or icon to filter fields affected by inheritance (Action, Severity, Blacklist, Aggregation, and Copy Packet).
   - Type the tag's name in the Type here to search for a tag field, then select the one you need from the list of options.
   - List the rules by the time they were created by clicking the Sort on Time icon ▼ on the toolbar, then click the Run Query icon.
   - List the rules in alphabetical order by clicking the Sort on Name icon ▼AZ on the toolbar, then click the Run Query icon.
   - Deselect the filtering by clicking the orange filter icon on the rules display pane title bar ▼.
   - Deselect the filter tags by clicking the Clear All icon ⊗ on the toolbar. The tags are deselected but the list of rules remains filtered.
   - Filter by signature ID by clicking the Advanced bar at the bottom of the Filter pane. Then, type the signature ID, then click the Run Query icon.
   - Filter by name or description. In the Advanced pane, enter the name or description. For the results, regardless of case, click the case-insensitive icon Aa.
   - Filter by device type, normalized ID, or action. In the Advanced pane, click the Filter icon ▼. On the Filter Variables page, select the variable.
   - Compare the differences in the policy-based settings for a rule type and its immediate primary. In the Advanced pane, select View Exceptions, then click the Run Query icon.

- Filter by severity, blacklist, aggregation, copy packet, origin, and rule status by selecting the filter from the drop-down list in each of these fields.
- View only custom rules by selecting user-defined in the Origin field in the Advanced pane, then click the Run Query icon.
- View rules created in a specific time period by clicking the calendar icon next to the Time field on the Advanced pane. On the Custom Time page, select the start and stop time, click OK, then click the Run Query icon.

View rule signatures

If you access the McAfee online signature database, you can view information about the signature for a rule. This option is available for firewall, deep packet inspection, and data source rules.

Task

1. In the Rule Types pane of the Policy Editor, select the type of rule you want to view.
2. Select a rule in the rule display pane.
3. Click Operations, then select Browse Reference.
4. To view the summary of a signature, click the links in the Signatures section of the screen.

Retrieve rule updates

McAfee continuously updates the rule signatures used by a device to examine network traffic and are available for download from the central server. These rule updates can be retrieved automatically or manually.

Before you begin

Set up overrides for the actions taken when the retrieves rules from the server.

Task

1. On the Policy Editor, click .
2. On the Rules Update line, click Update.
3. Set McAfee ESM to retrieve updates automatically or check for updates now.
4. If updates were downloaded manually, click to apply them.
5. To view the manual updates, do the following:
   a. In the Filters/Tagging pane, click the Advanced bar.
   b. In the Rule Status field, select Updated, New, or Update/New to indicate the type of updated rules you want to view.
   c. Click ⟳ to run the query.

Clear updated rule status

When you change or add rules to the system, you can deselect these markings once you have had the opportunity to review the updates.

Task

1. In the Rule Types pane of the Policy Editor, select the type of rule you want to deselect.
2. Do one of the following:
   - Deselect all rule status markings by clicking Operations, then select Clear Updated Rule Status. Click All.
   - To deselect selected rules, click the Advanced bar in the Filters/Tagging pane. In the Rule Status field, select Updated, New, or Updated/New to indicate the type of marking you want to deselect. Click the Run Query icon ⟳. Select the rules to be deselected, then click Operation → Clear Updated Rule Status → Selected.

Compare rule files

Comparing rule files (applied, current, rollback, or staged) for devices (such as receivers, McAfee Application Data Monitor (ADM), and McAfee Database Event Monitor (DEM) helps you see changes if your current policies to devices.

Task

1. On the system navigation tree, select a device (such as a receiver, ADM, or DEM).

2. Click the Policy Editor icon in the actions toolbar, then click Tools → Compare Rule Files.

   Note: If both resulting files are less than about 15.5 MB, they appear in the Compare Rules Files table. If either of the files is larger, the system prompts you to download both files.
3. On the Compare Rules Files page, make the selections, then click Compare.
   - Select the policy states that you want to compare.
     - Applied — Shows the policy that was rolled out to the device.
     - Current — Shows what is real time, but is not rolled out to the device.
     - Rollback — Shows what the policy would be if you were to roll it back to the previous working policy.
     - Staged — Shows the policy that will be applied in the future.
   - View the results of the comparison. Differences between the files are color coded as follows:
     - Blue — Same line exists in both files but the settings have been changed.
     - Red — A line exists in the left file but does not exist in the right file.
     - Green — A line exists in the right file but not the left.

View rule change history

You can view recent rule changes, including summaries of the rules and dates when changes occurred.

Task

1. On the Policy Editor, click Tools → Rule Change History.
2. On the Rule History page, view all changes made to rules, or click the Rule Version tab to see the newest time stamp for each device that rules are categorized under on the system. This view helps you locate the version of each rule for management and compliance regulations. By default, the system sorts device types alphabetically by name. To sort them by time stamp, click the **Version** column header.
3. Click Close.

Assign tags to rules or assets

Assign tags to rules so that you can filter the rules by their tags. McAfee ESM includes predefined tags but you can also create tags unique for your organization.

Note: Variable, preprocessor, or normalization rule types cannot use tags.

Task

1. In the Rule Types pane of the Policy Editor, select the type of rule you want to tag.
2. Click the Tags tab in the Filters/Tagging pane.
3. Do any of the following:
   - To add tag categories, click the New Category Tag icon and naming the category. The system creates a base tag for the new category.
   - To add tags to a category, select it, then click the New Tag icon and name the tag.

     To use this tag in event severity calculations, select Use tag for event severity calculation, then click OK.
   - To change a category or tag, select it, then click the Edit Tag icon .
   - To delete a custom tag, select it, then click the Remove Tag icon .

Configure rule override actions

Rules can complete default actions when downloaded from the McAfee server. You can define an override action for the rule's default settings. If you do not define an override action, the rules take their default action.

Task

1. On the Policy Editor, click Tools → New Rule Configuration.
2. Select the tags assigned to the rule where you want to apply this override. For example, to override the action for all filter rules with the AOL tag, click Current Threats → AOL in the tags list, then select Filter in the Rule Type field.

3. Select the rule type to which you want this override applied.
4. Select to have this rule and tag continue to use the default setting, to enable the override, or to disable this rule and tag.
5. Select the severity for this override. Zero (0) is the default.
6. Select Blacklist, Aggregation, or Copy Packet override settings, or keep the default settings.
7. Click Close.

Severity weights

Event severity is calculated based on the severity weight given to assets, tags, rules, and vulnerabilities.

Each of the four severities is weighted in the final calculation. This final calculation is the sum of each of the four severities multiplied by their respective weights. The sum of the settings must equal 100. When you change one setting, some or all other settings are affected.

Severity types

Severity type	Descriptions
Asset	An asset is an IP address, optionally in a zone. The system determines an event's asset severity as follows: 1. The system compares the event's destination IP address and destination zone against all assets. If it finds a match, the system uses this asset severity for this event. 2. If the system finds no destination IP address and destination zone match, the system compares the event's source IP address and source zone against all assets. If it finds a match, the system uses the asset severity for this event. 3. If the system finds no matches, the asset severity is 0.
Tag	The system calculates tag severity using both McAfee and user-defined tags. For a tag to be used in the severity calculation, it must be set for both the rule and asset of the event. If the rule or asset does not have any tags defined or if there were no asset matches, the tag severity is 0. To calculate the tag severity, the system multiplies the number of matching rule and asset tags by 10. The tag severity is limited to 100.
Rule	The rule severity is the severity set for the event when it was created. It is based on the event's rule severity, as set in the Policy Editor, and any data enrichment configured for the event's collector.
Vulnerability	If VA SVE information is available for an event's asset and rule, the system uses the highest severity of all matching asset and rule VA SVEs for the vulnerability severity. Otherwise, the system uses 0.

Define severity weights

Define the severity weights that the system uses to calculate severities for assets, tags, rules, and vulnerability.

Task

1. On the Policy Editor, click the Severity Weights icon ⚖.
2. Define the settings, then click OK.
    - Drag and drop the markers. The Assets, Tags, Rules, and Vulnerability fields reflect these settings.
    - For VA vendor-provided severity or VA vendor-provided PCI severity, select how the system calculates vulnerability severity on incoming data. If you select both, the system uses the greater of the two values when calculating the severity value.

View policy change history

View or export a log of the changes that were made to the policy. This log can hold a maximum of 1 GB of data. When it reaches this limit, the system deletes the oldest files, as needed.

Task

1. On the Policy Editor, click the View Policy Change History icon .
2. View or export a log, then click Close.

Roll out policy changes

Roll out policy changes to one or more devices. Changes you apply at the default policy level are applied to all policies when you roll out changes to devices.

Note: Do not close the Rollout window before the rollout is complete. Closing the window stops the rollout process.

Task

1. On the Policy Editor, click the Rollout icon .
   The Rollout page appears.
2. Select the devices to update and click OK.
3. To schedule the rollout for later, click Edit.

Results

After each device completes the rollout, the policy status indicates a successful rollout. If the rollout command is unsuccessful, a page lists failed commands.

Enable Copy Packet for rules

When you enable Copy Packet for a rule, the system copies the packet data McAfee ESM. If enabled, packet data is included in the source event data of an Internal Event Match or Field Match alarm.

Task

1. On the console, click the Policy Editor icon .
2. In the Rule Types pane, click the rule type that you want to access, then locate the rule in the rule display pane.
3. Click the current setting in the Copy Packet column, which is off by default, then click on.

Using McAfee ESM reports

How reports work

Reports show data from events and flows managed on the McAfee ESM. You can design your own or run one of the predefined reports and send it in PDF, HTML, or CSV format.

Predefined reports

The predefined reports are divided into these categories:

- Compliance
- Executive
- McAfee® Application Data Monitor
- McAfee® Database Activity Monitoring (McAfee DAM)
- McAfee® Database Event Monitor
- McAfee® Event Reporter

They generate data based on events.

User-defined reports

When creating reports, design the layout by selecting the orientation, size, font, margins, and header and footer. You can also include components, setting them up to display relevant data.

The system saves all layouts, which can be used for multiple reports. When adding reports, you can design new layouts, use existing ones as is, or use existing reports as templates for new reports. You can also remove report layouts.

Configure reports

Determine how you want McAfee ESM reports to work for your organization by configuring report layouts and settings.

Task

1. From the dashboard, click ≡ and select Reports.
2. Identify the following report settings:
    - Report name and description
    - When and how to run the report
    -
        - Conditions
        - Time zone
        - Date format
        - Layouts
        - Views
        - Filters
        - Queries
    - What to do with the report
        - Report output format (PDF, HTML, CSV)
        - Email recipients for the report
        - Where to save the report
3. Save your configuration.

Add report layouts

Design the layout for a report if the predefined layouts do not meet your needs.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. Click Reports.
3. Click Add to open the Add Report page, then complete sections 1, 2, and 3.

4. In section 4, select Report PDF or Report HTML.
5. In section 5, click Add to open the Report Layout editor.
6. Set up the layout to display the data generated by the report.

Results

The layout is saved and can be used as is for other reports or as a template that you can edit.

Add image components to reports

Select an image to add to the body of a report as a component.

Before you begin

Verify image files are accessible.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties.
2. Click Reports → Add and complete sections 1–4.
3. In section 5, design a new report layout or edit an existing layout.
4. Drag and drop the Image icon 🖼 on the body section of the layout.
5. Upload a new image or select an existing image.
6. Click OK to add the image to the report layout.

Include images in PDFs and reports

Set up McAfee ESM so that exported PDFs and printed reports include the image shown on the Login screen.

Before you begin

Add the image to the Custom Settings page.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties. Then click Custom Settings.
2. Select Include image in exported PDF from Views or printed reports.
3. Click OK.

Add report conditions

Add conditions so they are available when setting up a report.

Task

1. On the system navigation tree, select System Properties, then click Reports.
2. Click Conditions, then enter the information requested.
3. Click OK to save the settings.

Display host names in a report

You can configure reports to use DNS resolution for source and destination IP addresses on reports.

Task

1. On the system navigation tree, select the system, then click the Properties icon ⚙.
2. Click Reports, then click Add and fill in the requested information in sections 1 through 4.
3. In section 5, click Add, then drag-and-drop a Table, Bar Chart, or Pie Chart component and complete the Query Wizard.
4. In the Query section of the Properties pane on the Report Layout editor, select Resolve IPs to Hostnames.

Results

In addition to appearing in the report, you can view the results of the DNS lookup on the Hosts table (System Properties → Hosts).

Set start month for quarterly reports

If you are running reports on a quarterly basis, you must define the first month of Quarter 1. Once this is defined and stored in the system table, reports run quarterly based on that start date.

Task

1. From the McAfee ESM dashboard, click ≡ and select System Properties. Then click Custom Settings.
2. In the Specify which month should be used field, select the month.
3. Click Apply to save the setting.

View device summary reports

View device summary reports to see the types and number of devices on McAfee ESM, and when each device received events. You can export the reports in comma-separated value (CSV) format.

Task

1. From the McAfee ESM dashboard, click ≡ and select Configuration.
2. On the system navigation tree, select McAfee ESM, then click the Properties icon ⚙.
3. Select System Information then click View Reports.
4. To view or export a list of devices, select the Device Type Count tab.or Event Time report.
5. To compare the time of day on the device clocks, select the Event Time tab.

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