

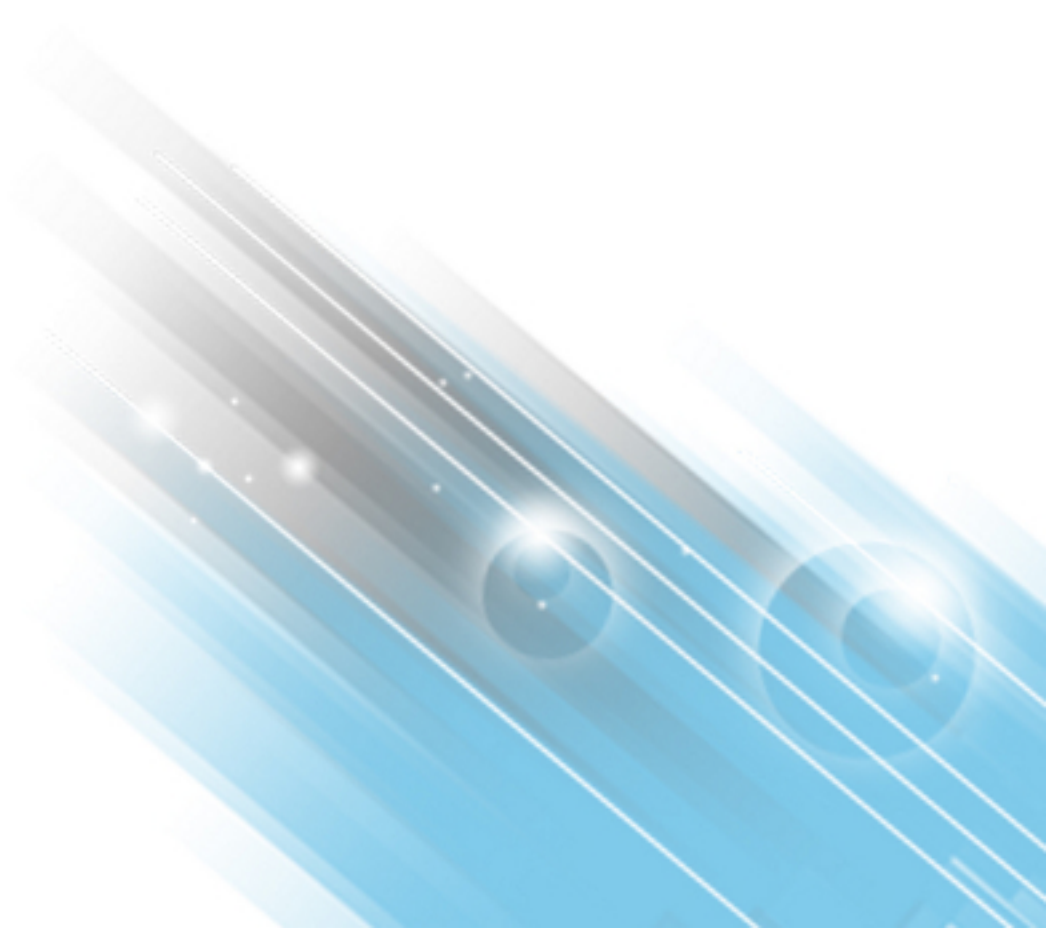


HP ArcSight ESM Command Center

Software Version: 6.9.0c

User's Guide

July, 2015



Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

The network information used in the examples in this document (including IP addresses and hostnames) is for illustration purposes only.

HP ArcSight products are highly flexible and function as you configure them. The accessibility, integrity, and confidentiality of your data is your responsibility. Implement a comprehensive security strategy and follow good security practices.

This document is confidential.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notice

© Copyright 2015 Hewlett-Packard Development Company, L.P.

Follow this link to see a complete statement of copyrights and acknowledgements:

<http://www.hpenterprisesecurity.com/copyright>

Support

Contact Information

Phone	A list of phone numbers is available on the HP ArcSight Technical Support Page: https://softwaresupport.hp.com/documents/10180/14684/esp-support-contact-list
Support Web Site	https://softwaresupport.hp.com
Protect 724 Community	https://protect724.hp.com

Contents

Chapter 1: Introduction	11
Starting the ESM Command Center	11
Configuring Your Browser	11
Launching ESM Command Center	11
Logging in to ESM Command Center	11
Basic Navigation	12
Using the Site Map	13
Monitoring Traffic Volume [BETA Feature]	13
Chapter 2: Viewing System Information	15
Managing Dashlets in the Dashboard Page	15
Adding a Data Monitor Dashlet to the Dashboards Page	15
Adding the My Cases Dashlet to the Dashboard Page	16
Adding My Dashboards to the Dashboard Page	17
Adding My Notifications to the Dashboards Page	18
Adding a Query Viewer to the Dashboards Page	19
Changing the Dashboards Layout	20
Managing Dashlets in the Dashboard Navigator Page	20
Changing the Location of a Dashlet	21
Changing the Background of a Dashlet	22
Showing and Hiding a Dashlet in a Dashboard	24
Specifying a Dashlet Chart Type	24
Specifying Animation and Auto-Refresh Rate for a Dashlet	26
Disabling a Data Monitor Dashlet	27
Accessing a Dashboard from a Dashlet	27
Chapter 3: Monitoring Events Through Active Channels	29
Viewing Events On an Active Channel	30
Viewing a Channel Condition Summary	32
Viewing the Event Priority for a Channel	33
Evaluate the Network Route of a Channel Event	34
About the Active Channel Header	38
Using the Active Channel Radar	39

Annotating an Event	40
Viewing Additional Event Information	42
Viewing Event Details	42
Viewing Event Annotation History	43
Viewing Event Payload	44
Managing Channels	45
Creating an Event Channel	45
Specifying Columns For Active Channel Event List	47
Specifying Filter Conditions for an Active Channel	48
Creating a Channel Based on an Event Attribute	53
Editing an Event Channel	55
Deleting an Event Channel	58
Adding an Event to a Case	58
Marking an Event as Reviewed	59
Visualizing an Event Graphically	60
 Chapter 4: About Searching for Events	 62
The Need to Search for Events	62
The Process of Searching for Events	62
Simple Query Example	63
Query Example Using a Chart	63
Elements of a Search Query	64
Query Expressions	64
Search Expressions	65
Keyword Search (Full-text Search)	65
Field-based Search	69
Searching IPv4 Addresses	72
Searching IPv6 Addresses	73
Search Operators	73
Time Range	74
Fieldsets	75
Creating Custom Fieldsets	76
Constraints	79
Using the Advanced Search Tool	88
Accessing Advanced Search	89
Nested Conditions	91
Alternate Views for Query Building in Advanced Search	93
Search Helper	94

Autocomplete	94
Search History	96
Search Operator History	96
Examples	96
Usage	96
Suggested Next Operators	96
Help	97
Searching for Events	97
Granting Access to Search Operations and Event Filters	99
Advanced Search Options	100
Searching Peers (Distributed Search)	100
Fields That Do Not Exist in Logger 5.3 SP1 and Later	101
Tuning Search Performance	103
Understanding the Search Results Display	103
User-defined Fields in Search Results	105
Viewing Search Results Using Fieldsets	106
Using the Histogram	106
Multi-line Data Display	108
Auto Updating Search Results	108
Chart Drill Down	108
Field Summary	110
Understanding Field Summary	110
Refining and Charting a Search from Field Summary	113
Exporting Search Results	114
Example PDF output	117
Scheduling an Export Operation	118
Saved Queries (Search Filters and Saved Searches)	118
Saving a Query	118
Using a Search Filter or a Saved Search	121
Predefined Search Filters	122
Indexing	129
Full-text Indexing (Keyword Indexing)	129
Field-based Indexing	129
Chapter 5: Using Reports	130
Running and Viewing Reports	130
Report Parameters	131
Archived Reports	134

Deleting Archived Reports	135
Chapter 6: Cases	136
Case Navigation and Features	136
Creating or Editing a Case	137
Case Editor Initial Tab	137
Case Editor Follow Up Tab	140
Case Editor Final Tab	141
Case Editor Events Tab	143
Case Editor Attachments Tab	143
Case Editor Notes Tab	144
Granting Permission to Delete Cases	144
Deleting a Case	145
Case Management in the ArcSight Console	145
Using External Case Management Systems	146
HP Service Manager	146
BMC Remedy	146
Exporting Cases	146
Chapter 7: Applications	148
Chapter 8: Administration Configuration	149
Content Management	149
Planning for Content Management	150
Content Management Tabs	150
Packages Tab	150
Subscribers Tab	151
Schedule Tab	151
Pushing Content Packages	152
Pushing a Package Automatically	152
Editing an Automatic Push Schedule	152
Pushing a Package Manually	153
Best Practices for Content Management	153
Users, Connectors, and Configuration	154
User Management	155
Add or Edit a User Group	155
Clone a User Group	156
Delete a User Group	156

Delete a User from a Group	157
Edit Advanced Permissions	157
Add or Edit a User	159
Delete a User	161
Copy a User	161
Search for a User	161
Registered Connectors	161
Connector Editor	162
Connector Commands	163
Configuration Management	170
License Information	170
Server Management	171
Manager Heap Size	171
Enable Notifications	171
External Mail Server Information	171
Enable Acknowledgements	172
Restart	172
Authentication Configuration	172
How External Authentication Works	173
Guidelines for Setting Up External Authentication	173
Password-based Authentication	174
Built-In Authentication	174
Setting up RADIUS Authentication	174
Setting up Active Directory User Authentication	175
Setting up LDAP Authentication	176
Using a Custom Authentication Scheme	177
Password Based and SSL Client Based Authentication	177
Password Based or SSL Client Based Authentication	177
SSL Client Only Authentication	177
Storage and Archive	177
Overview	177
Storage	179
Storage Groups	180
Turning Archiving On and Off	181
Setting the Time to Archive Storage Groups	182
Adding a Storage Group	182
Editing a Storage Group	183
Allocating Storage Volume Size	184
Storage Mapping	186

Adding a Storage Mapping	187
Editing a Storage Mapping	187
Deleting a Storage Mapping	188
Alerts	188
Archive Jobs	189
Archives	189
Statuses and Actions	190
Filtering the List of Archives	192
Creating an Archive Manually	193
Scheduling an Archive	193
Making an Offline Archive Searchable or Unsearchable	194
Canceling an Action in Progress	194
Archive Storage Space	194
Moving Archives to a New Location	195
Backing Up Your Archive Configuration	195
Search Filters	195
Granting Access to Search Filter Operations	195
Managing Search Filters	196
Saved Searches	198
Granting Access to Saved Search Operations	198
Managing Saved Searches	199
Scheduled Searches	200
Granting Access to Scheduled Search Operations	200
Managing Scheduled Searches	201
Currently Running Scheduled Searches	206
Ending Currently Running Searches	206
Finished Searches	206
Saved Search Files	207
Search	207
Tuning Search Options	207
Managing Fieldsets	212
Granting Access to Fieldset Operations	213
Viewing the Default Fields	213
Currently Running Tasks	215
Ending Currently Running Tasks	215
Peers	216
Configuring Peers	216
Guidelines for Configuring Peers	217
Authenticating Peers	217

Selecting a Peer Authentication Method	218
Authenticating a Peer	218
Adding and Deleting Peer Relationships	219
Adding a Peer	219
Deleting a Peer	221
Granting Access to Peer Operations	222
Log Retrieval	222
Appendix A: Search Operators	225
cef (Deprecated)	225
chart	226
Aggregation Functions	228
Multi-Series Charts	228
The Span Function	229
dedup	232
eval	233
extract	234
fields	236
head	236
keys	237
rare	238
regex	239
rename	240
replace	241
rex	242
sort	245
tail	245
top	246
transaction	247
where	249
Appendix B: Using the Rex Operator	250
Syntax of the rex Operator	250
Understanding the rex Operator Syntax	250
Creating a rex Expression Manually	251

Sample rex Expressions 252

Appendix C: Frequently Asked Questions 255

 What happens if I'm investigating a channel that has event fields that are not supported in
 Command Center? 255

 Can I change the default start time and end time for an event channel? 255

 What do I do if a channel is taking long to load? 256

 How many channels can I have open at one time? 256

 What fields are supported in Command Center channels? 256

 Does Command Center support non-ASCII payload data? 256

 How do I get my ArcSight Marketplace credentials? 257

 Why are channels not current in a new ESM session? 257

 Does the change to or from Daylight Savings Time effect an open active channel? 257

Send Documentation Feedback 258

Glossary 259

Chapter 1: Introduction

The ESM Command Center is a web-based user interface that enables you to perform many of the functions found in the ArcSight Console.

- ESM Command Center provides dashboards, several kinds of searches, reports, case management, notifications, and administrative functions for managing content, users, connectors, storage, archives, search filters, saved searches, and peer configuration.
- It replaces the Management Console. If you used that console with a previous ESM release, switch to the ESM Command Center.
- If you licensed the ArcSight Risk Insight integration, it appears on the **Application** tab and has its own online help.

Starting the ESM Command Center

Configuring Your Browser

For best results, specify the same language for the browser as you did for the Manager. If the browser allows you to select a priority language, select the same language defined by Manager.

Launching ESM Command Center

From a supported browser, go to `https://<IP address>:8443/`

Where **<IP address>** is the host name or IP address that you specified when you first configured ESM Command Center.

Note: Host names with underscores do not work on IE, so use the IP address.

Logging in to ESM Command Center

After you have logged in, there is a logout link in the upper right corner of the window, under **<user name>** menu.

General Prerequisites

- If the Manager is using FIPS, then configure your browser to use TLS.
- If you are using FIPS and SSL, use the `runcertutil` command on the Manager to export a client certificate for the browser machine. If you are not using FIPS, export certificates with the `Keytoolgui` command. Refer to the Administrator's Guide for more information.

Logging in with Password Authentication

Log in with your User ID and password. Your user type controls which resources you have access to.

Logging in with SSL Authentication

Make sure you have exported a client certificate from an ArcSight Console. Specify the certificate to use and click OK. When you get to the ArcSightESM Command Center user ID and Password screen, just click Login without specifying anything.

Logging in with Password Authentication or SSL

To log in with an SSL certificate, make sure you have exported a client certificate from an ArcSight Console machine. Specify the certificate to use, and click OK. When you get to the ESM Command Center User ID and Password screen, just click Log in without specifying anything.

To log in with a user ID and password, click Cancel on the certificate dialog, then provide your user ID and password on the User ID and Password screen.

Note: If you are using Microsoft Internet Explorer, and you import a certificate, you must always use SSL (cancelling fails to load the page). If you do not import a certificate, you can only use password authentication.

Logging in with Password Authentication and SSL

Make sure you have exported a client certificate from an ArcSight Console machine. Specify the certificate to use and click OK. When you get to the User ID and Password screen, specify your User ID and password.

Note: While logging into a Manager that has been configured to use Password-based or SSL Client Based authentication, if you try to log in using a certificate and the login fails, all subsequent attempts to use the username/password login will also fail during the same session. To work around this, restart the browser and clear its cache.

Basic Navigation

Use the Dashboards, Events, Reports, Cases, Applications, Administration, Stats, and Notifications links at the top of the display to go to those features. If you hover over most of those links, a menu of included functions appears. The links in the upper right corner provide these special features:

- **User: <Your User ID>**
Use this link to add or update your name, contact information, role, department or notification

groups and change your password.

- **Help**

Click **Help** to get context-sensitive help for the page you are viewing.

The online help for integrated applications such as Risk Insight (if licensed) is separate. The help for those applications is accessible from the **Help** link when you view the integrated application from the **Applications** tab. Such help has its own appearance and navigation.

Hover over the **Help** link to see a list of options.

- **What's New** — displays the online help system open to a list of new features in this release.

- **Documentation** — displays the main online documentation page, with a description of each book and a table of contents in the left panel.

The online documentation navigation and controls are described in the online help itself, under "FAQs About Online Help."

- **Online Support** — takes you to the HP online support web site in a separate window.

- **About** — displays the current ESM product version number.

- **Logout**

Log out of the current session and display the login dialog. You can log in again or browse elsewhere. If you leave the client idle for a period of time, you may need to log in again because of an automatic security time-out.

- **Stats:** Displays Traffic Volume metrics as Events per Second and GB data per day.
- **Site Map:** Provides a mechanism to access ACC primary landing pages using keyboard-navigation only.

To access any ESM document as an Adobe Acrobat PDF document, go to <https://protect724.hp.com>.

Using the Site Map

The Site Map link provides a mechanism to access ACC pages using keyboard-navigation only. The Site Map link opens the Site Map page which displays a list of links to the primary landing pages in the ESM Command Center.

Monitoring Traffic Volume [BETA Feature]

NOTE: The capability provided in this release is a Beta version of the traffic volume metrics feature.

Command Center monitors the flow of traffic and storage, then presents this information as two metrics:

- **Avg EPS (per second):** The average number of Events Per Second (EPS), which is calculated for the past 30 days. Average EPS values are capture daily in a rolling 30 day window.
- **Avg GB (per day):** This is the average size of event data received per day, which is calculated for the past 30 days. The disk usage, in GB, is capture for each day in a rolling 30 day window. The per day GB values are summed and then divided by the number of days for which data is available during that period of time.

A day is a full 24 hour period. Data from partial days are not used in the calculation. If there is less than 30 days of data available, then the values represents the averages for the number of days recorded. There will be less than 30 days of data available when ESM is newly installed. Data older than 30 days are not used in the calculations.

Chapter 2: Viewing System Information

Command Center provides two means of viewing system information: the Dashboard page and Dashboard Navigator page. Information appears in these two pages in the form of *dashlets*.

From the Dashboard page, you can add any available dashlets while from the Dashboard Navigator page you can view dashboards comprised of data monitor and query viewer dashlets. Unlike the Dashboard page, dashboards in the Dashboard Navigator page cannot be modified since they originate in the ArcSight Console.

Command Center opens in the Dashboard page. You can return to this page any time by clicking **Dashboards** in the top menu bar.

Managing Dashlets in the Dashboard Page

The Dashboard page is where you monitor your workflow. By default, the Dashboard page displays the My Cases and My Dashboards dashlets. The following Data Monitors dashlets, which are part of your System Content, may also be displayed:

- Events by Vendor and Product
- Current Connector Status
- Security Alerts
- Top Alert Types

The My Cases, My Dashboards, and My Notifications dashlets provide workflow information while Data Monitor and Query Viewer dashlets provide system information. You can customize the Dashboard page by adding or removing any available system-monitoring and workflow-based dashlets.

Adding a Data Monitor Dashlet to the Dashboards Page

About:

A data monitors dashlet can display information for events, filters, rules, and other types of information.

Note:

You can customize the look of a data monitor and query viewer dashlets in the Dashboard Navigator page (see ["Managing Dashlets in the Dashboard Navigator Page" on page 20](#)).

Prerequisite:

- Create a data monitor in ArcSight Console.

See "Adding a Data Monitor to a Dashboard" in the *ArcSight ESM User's Guide*.

Procedure:

Location: Dashboards > Dashboard page

1. Click **Add Content**.
2. From the Add Content to Home popup, select **Data Monitors** .
3. Navigate to the data monitor folder containing the desired data monitor.
4. Select the desired data monitor in the Name column and then click **Add Content**.
5. Add any additional data monitors and then close the popup.
6. To change a data monitor view, make a selection from the available drop-down in the data monitor title bar.

More:

- Command Center does not support data monitors based on query viewer data.
- Data monitors that are not supported:
 - Event Graph Data Monitor
 - Geographic Event Graph Data Monitor
 - Hierarchy Map Data Monitor
 - Last State Data Monitor
- Available data monitor views vary based on the data monitor type.

See Also:

- *101 Concepts for ArcSight ESM*:
Chapter 7, "Correlation Evaluation" > "Data Monitors"
- *ArcSight Console User's Guide*:
Chapter 3, "Monitoring Events" > "Using Data Monitors"

Adding the My Cases Dashlet to the Dashboard Page

About:

Cases track individual or multiple related events and export event data to third-party products. Cases can standalone or integrated with a third-party case management system, such as HP Service Manager or BMC Remedy.

A case contains information about an incident, usually with one or more events attached. Use cases to track, investigate, and resolve events. Where cases are similar, you can copy events directly from one case to another. You assign cases of interest to analysts, who can investigate and resolve them based on severity and enterprise policies. You can also use rules to automatically open a case when certain conditions are met.

You can assign cases to groups of users who receive a notification with access to the case and its associated data. Those users can take action on the assigned case and specify other actions to be taken, assign it to another user, or resolve the case.

Procedure:

Location: Dashboards > Dashboard page

1. Click **Add Content**.
2. From the Add Content to Home popup, select **My Cases** and then click **Add Content**.

ESM Command Center displays the cases assigned to you.

3. Close the popup.

More:

- The link in the My Cases dashlet title bar opens the Cases page where you can see the list of cases, create new ones, and perform other functions. This is the same as selecting **Cases** from the top menu bar.
- If you would like to add an existing case to your personal folder, go to the ArcSight Console, edit the case, and then add yourself as the owner in the Assign section.

See Also:

- *ESM Command Center User's Guide:*
["Creating or Editing a Case" on page 137](#)
- *101 Concepts for ArcSight ESM:*
Chapter 6, "Workflow" > "Cases"
- *ArcSight Console User's Guide:*
Chapter 17, "Case Management and Queries." - To create and edit cases in the ArcSight Console,

Adding My Dashboards to the Dashboard Page

About:

Dashboards display data gathered from data monitors or query viewers. Dashboards can display data in a number of formats, including pie charts, bar charts, line charts, and tables, and you can rearrange

and save the dashboard element display. You can edit the existing dashboards and create new ones from the ArcSight Console

Procedure:

Location: Dashboards > Dashboard page

1. Click **Add Content**.
2. From the Add Content to Home popup, select **Dashboards** and then click **Add Content**.

ESM Command Center displays the list of dashboards that are in your personal folder.

More:

- You can also see the list of dashboards under **Dashboards > Navigator**, along with all the other dashboards.
- Use the ArcSight Console to create dashboards and drag dashboards into your folder.
- The link in the My Dashboards widget title bar opens the Dashboard Navigator where you can see the list of dashboards created in the ArcSight Console. This is the same as selecting **Dashboards > Navigator** from the top menu bar.
- If you would like to add another dashboard to your personal folder, go to the ArcSight Console and drag it into your folder.

See Also:

- *ArcSight Command Center User's Guide:*
["Viewing System Information" on page 15.](#)
- *ArcSight Console User's Guide:*
To create and edit dashboards, refer to Chapter 3, "Monitoring Events" > "Using Dashboards"

Adding My Notifications to the Dashboards Page

About:

Notifications and their content are created using rules configured with the Send Notification rule action. Notifications come in the form of pending, undelivered, acknowledged, not acknowledged, resolved, and informational.

Procedure:

Location: Dashboards > Dashboard page

1. Click **Add Content**.
2. From the Add Content to Home popup, select **My Notifications** and then click **Add Content**.

ESM Command Center displays the list of notifications that are in your personal folder.

More:

- The link in the My Notifications dashlet title bar opens the Notifications page where all the notifications are listed.
- You can also click the Notifications button in the upper right corner to open the Notifications page.

The number of pending notifications are indicated within a red circle.



- By default, the My Notifications dashlet is filtered by the Pending, Acknowledged and Resolved statuses of the Notifications page.
- From the Notifications page you can:
 - Adjust the filter that controls which notifications appear
 - Acknowledge notifications
 - Mark notifications as resolved
 - Delete notifications
- Notifications are configured in the ArcSight Console. For more information, see the ArcSight Console User's Guide chapter, "Managing Notifications."

Adding a Query Viewer to the Dashboards Page

About

A query viewer is a resource for defining and running SQL queries on other resources, such as trends, assets, cases, connectors, and events. Each query viewer contains an SQL query along with other logic for establishing and comparing baseline results, analyzing historical data to find patterns in network activity, and performing drill-down investigations on a particular aspect of the results.

Procedure:

Location: Dashboards > Dashboard page

1. Click **Add Content**.
2. From the Add Content to Home popup, select **Query Viewers**.
3. Navigate to the query viewer folder containing the desired query viewer.
4. Select the desired query viewer in the Name column and then click **Add Content**.
5. Add any additional query viewers and then close the popup.

More:

Not all types of query viewers can be displayed on the Dashboard page. For an unsupported query viewer, no data appears.

See Also:

- *ArcSight Console User's Guide:*
"Query Viewers"

Changing the Dashboards Layout

About:

Dashlets can appear in either one, two, or three columns.

Procedure:

Location: Dashboards > Dashboard page

- Click **Change Layout** and specify the number of columns to display.

More:

- You can reposition widgets using drag and drop.

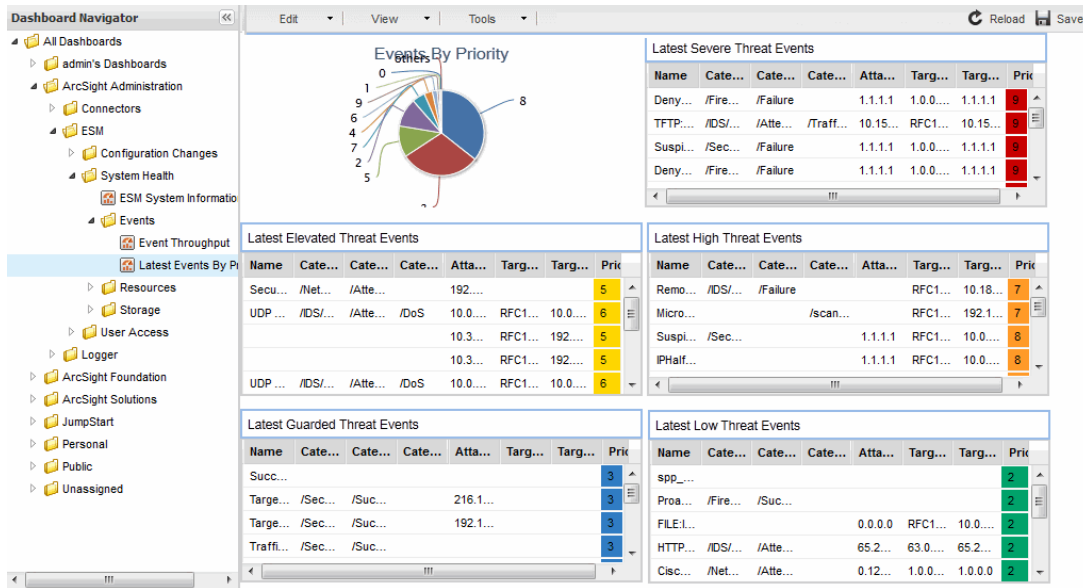
Managing Dashlets in the Dashboard Navigator Page

About:

The Dashboard Navigator page is where you can access ArcSight Console dashboards and view the data monitor and query viewer dashlets for each dashboard. You can also edit where a dashlet appears in a dashboard and what background is used for a dashlet. You can also remove dashlets from a dashboard and specify in what format they presents data, such as pie charts, bar charts, line charts, and tables.

For any dashlets with drilldowns, you can configure drilldowns using the ArcSight Console.

From the left navigation of the Dashboard Navigator page, you can expand a dashboard grouping in order to choose the desired dashboard. The following graphic shows six dashlets from the Latest Events By Priority dashboard.



See Also:

- *ESM Command Center User's Guide*:
 - "Monitoring Events"
 - "Query Viewers"
 - "Web Browsers," in the "Reference Guide" section - Supported browsers and operating systems and the configurations required to display features in a browser.
- *101 Concepts for ArcSight ESM*:
 - Chapter 8, "Monitoring and Investigation" > "Dashboard"
- *ArcSight Console User's Guide*:
 - Chapter 3, "Monitoring Events" > "Managing Dashboards"

Changing the Location of a Dashlet

About:

You can edit where a dashlet appears in the Dashboard Navigator page.

Procedure:

Location: Dashboards > Navigator > Dashboard Navigator page

1. To manually change the dashlet location:
 - a. Choose **Edit > Arrange**.

You can customize the dashboard layout by moving (dragging) and resizing dashlets. You can resize a dashlet by clicking and dragging a corner or side.

- b. Click **Done Arranging** from either the **Edit** menu or top menu bar.
 - c. Click **Save** in the upper right corner.
 2. To automatically change the dashlet location:
 - a. Choose **Edit > Auto Arrange**.

Command Center arranges the dashlets alphabetically (left-to-right and top-to-bottom) in equally-sized tiles.

- b. Click **Save** in the upper right corner.

More:

You can also right click any dashlet and select **Auto Arrange**.

You can also right click any dashlet and select **Save**.

Changing the Background of a Dashlet

About:

You can replace a dashlet background with a new or existing one. You can also change the background color or delete it.

Note:

Background edits that you apply to dashlets in the Dashboard Navigator page also appear for these dashlets in the Home Dashboard page.

Procedure:

Location: Dashboards > Navigator > Dashboard Navigator page

1. To use a new background image for a dashlet:
 - a. Choose **Edit > Upload New Background Image...**

This option enables you to locate any JPG, GIF, PNG, or BMP file and select it as a background image. It copies the file into the user's folder.

The background image cannot be seen behind tables unless you select **Transparent table**, under **Choose Colors**, in the next section.

- b. Click **Save** in the upper right corner.

2. To use an existing background image for a dashlet:
 - a. Choose **Edit > Choose an Existing Background Image...**

This option enables you to select any JPG, GIF, PNG, or BMP file that is already in the system. For example, images in the user's folder.

Click in the data entry field to see the ArcSight Resources folders.

The background image scales to fill the available space in the dashboard panel. That means the image may appear stretched horizontally or vertically if the aspect ratio of the dashboard is not the same as the image. Change the size of the window until the image looks correct.

- b. Click **Save** in the upper right corner.
3. To color the dashlet background:
 - a. Choose **Edit > Choose a Background Color...**

- b. Click **Save** in the upper right corner.

4. To remove the dashlet background:
 - a. Choose **Edit > Clear Background...**

Removes any image or color and restores the background to white.

- b. Click **Save** in the upper right corner.

More:

You can also right click a dashlet in table format and then select **Choose Colors**. From the Choose Colors popup, you can do the following:

- **Foreground Color:** Select a color from the palette to change the color of all the text in the table unconditionally.
- **Transparent table:** Check this box if you have a background image selected for this dashboard and you want it to show through this table. This affects the entire table's background, regardless of any conditional background color control settings.
- Conditional background color controls:
 - **Conditions for:** Clear the field and select the pull-down menu. You can set the part of the table for which the background color is set when the conditions are met. *Table* means any cell in the table.
 - **Color entire row:** If the conditions are met, set the background color to the row on which you right-clicked to get the Choose Colors dialog.
 - **Value:** Clear the field and select the pull-down menu. Select the logical operator to use for comparing the part of the table specified in Conditions For to the Value field to the right of the operator. Then fill in the text to match.
 - **Background:** Select a color from the pull-down menu to change the background color of the

matching part of the table. For the parts of the table that match the conditions, a background color overrides the transparent table option.

- **+ Add another condition:** Click this to add another set of conditions for which you can select a different background color.

Showing and Hiding a Dashlet in a Dashboard

About:

Command Center enables you to show and hide dashlets in a dashboard .

Procedure:

Location: Dashboards > Navigator > Dashboard Navigator page

1. From the **View** menu, click the check box for the desired dashlet.
2. Click **Save** in the top menu bar.

More:

Dashlets were defined when the dashboard was created in the ArcSight Console.

Unchecking a dashlet removes it from the current view, but does not delete it. You can check the box again to include it in the view.

Save in the top menu bar is enabled when you change the dashboard, including simply resizing the window. You can also save the dashboard by right clicking on any dashlet and then selecting **Save**.

Reload on the top menu bar reloads the last saved version of the dashboard.

See Also:

- *ArcSight Console User's Guide:*
Chapter 3, "Monitoring Events" > "Creating a Dashboard"

Specifying a Dashlet Chart Type

About:

Command Center enables you to specify the dashlet chart type.

Procedure:

Location: Dashboards > Navigator > Dashboard Navigator page

1. From the **View** menu, hover over the desired menu item and then select the desired chart type from the extended menu.
2. Click **Save** in the top menu bar.

More:

The available view options vary based on the dashlet type, and other selections made when it was created in the ArcSight Console. They might show different kinds of charts, if the data monitor can be displayed in those formats. Below are the possible data presentation formats.

Display Format	Description
Composite Chart	Shows a combination of chart types, such as bars and lines on the same chart.
Bar Chart	Shows data as a series of proportional bar elements and may include bar segmentation to subdivide the data. Applies to data monitors and query viewers.
Bar Chart Table	A grid of proportional bar elements. Applies to data monitors.
Horizontal Bar Chart	Shows data as a series of proportional bar elements and may include bar segmentation to subdivide the data. This format forces the bars to run left-to-right rather than up-and-down. Applies to data monitors and query viewers.
Pie Chart	Shows data as a circle with proportional wedges for elements. Applies to data monitors and query viewers.
Statistics Chart	Overlays Moving Average data graphs on a data monitor, when multiple graphs are present. Compare this display format to the Tiles format, which arranges individual-graph monitors into fixed arrays. Applies to data monitors.
Table	Displays data as a grid. Applies to data monitors and query viewers.
Stacking Bar Chart	Shows data from a query viewer as a series of proportional bar elements and may include bar segmentation to subdivide the data.
Priorities Charts	Includes line, area, bar, scatter plot, stacking area, and stacking bar charts.
Tiles	Arranges individual Moving Average data graphs into separate, fixed positions on a data monitor, when multiple graphs are present. Compare this display format to Statistics Chart. Applies to data monitors.

, continued

Display Format	Description
Geographical Event Map	Shows a map of the world with lines connecting the origin and destination of each event. You can zoom in and hover over individual events for details. Applies to geographical event graphs.
Event Graph	Displays the event endpoints like nodes on a spider web. You can hover over individual events endpoints for details. Applies to geographical event graphs.

You can also right click any dashlet and select **View As**.

Dashlets were defined when the dashboard was created in the ArcSight Console.

Save is enabled when you change the dashboard, including simply resizing the window. You can also save the dashboard by right clicking on any dashlet and then selecting **Save**.

Reload on the top menu bar reloads the last saved version of the dashboard.

See Also:

ArcSight Console *User's Guide*:
Chapter 3, "Monitoring Events" > "Creating a Dashboard"

Specifying Animation and Auto-Refresh Rate for a Dashlet

About:

With animation enabled, pie and bar charts appear to quickly grow from zero to the current values as the dashlet refreshes.

Procedure:

Location: Dashboards > Navigator > Dashboard Navigator page > Tools > Preferences

1. To enable animation for a dashlet, enable automatic refresh and set the refresh interval.
2. To auto-refresh dashlet data, enable automatic refresh and set the refresh interval.
3. Click **Apply**.

More:

- You can auto-refresh a dashlet from every second up to every 300 seconds.
- The actual refresh rate might be slower than the refresh rate setting, depending on system performance, high events per second, and the number of data monitors on the dashboard.
- The dashboard refresh rate is how often the dashboard reloads the underlying resources. Resources may have their own rate at which they refresh their data cache, but the ArcSight Command Center does not trigger each resource to refresh itself, it just reloads the dashboard resources, picking up the resources' current data caches. If a resource has not refreshed its data when the dashboard asks for more, the dashboard gets the same data it got for the last refresh.

Disabling a Data Monitor Dashlet

About:

<< Why would a user want to disable a data monitor? >>

Procedure:

Location: Dashboards > Navigator > Dashboard Navigator page

- Right click a data monitor dashlet and then select **Data Monitor > Disable Data Monitor**.

The dashlet remains, but there is no data or chart in the view.

To enable the dashlet, right click the data monitor and then select **Data Monitor > Enable**.

More:

You cannot disable a query viewer dashlet.

See Also:

- *ESM Command Center 101 Concepts for ArcSight ESM Command Center*.

"Data Monitors" and "Dashboards"

- *ArcSight Console User's Guide*:

"Reference Guide" for a detailed description of data monitors

- *ESM Command Center User's Guide*:

"Using Data Monitors" to learn how to create data monitors

Accessing a Dashboard from a Dashlet

About:

From a dashlet, ESM Command Center enables you to drill down to other dashboards.

Note:

If a dashlet has drilldown links to channels, reports, or query viewers, they do not appear in ESM Command Center.

Procedure:

- Right click on a dashlet for which one or more drill downs have been configured and then select **Drilldown**.
To return to the original dashlet, click **Previous** from the menu bar.

More:

If a dashlet has a drilldown configured, you can also double-click anywhere on that dashlet .

If there is more than one drilldown destination configured, double clicking displays the default. If the default is not a dashboard and is not on the list, double clicking displays the first dashboard on the list. (If you are on a geographical event graph, double clicking zooms in, so use the right click option and then select **Drilldown**.

See Also:

- *ArcSight Console User's Guide:*
Chapter 3, "Monitoring Events" > "Adding a Drilldown"

Chapter 3: Monitoring Events Through Active Channels

ESM Command Center recognizes Event channels. You can create, edit, or delete active channels (Event Channels). Command Center provides the following channel and event functionality:

- To Channels:

Channel creation, editing, deleting: Event channels can be newly created with empty attributes or created from an existing Active Channel. Channel attributes can be edited. You can change the Name, Start Time, End Time, Timestamp displayed, Time Evaluation type, the Configured Filter, and the Configured Field Set. You can also delete Channels.

Channel filtering: Event channels can be filtered using conditions based on fields, filters, assets, and vulnerabilities.

Condition Summary: Performs like a channel filter, where a raw string represents the conditions for the channel. This summary displays the filter conditions defined for a channel.

Header: Each active channel has a header section containing several features you can use to understand the channel and manipulate associated event information.

Radar display: The radar consists of a bar chart overview of events on the active channel. It is divided into time segments sorted by event end time, each segment representing groups of events with the same end time.

- To Channel Events

Priority statistics: Rating events of a channel based on their priority.

Annotation: Annotating an event and viewing event annotation history

Payload summary: An event payload is the information carried in the body of the event's network packet.

Adding an event to a case: While monitoring suspicious events, you can choose an event on an active channel and add this event to an existing, locked case.

Reviewed flag: Mark an event as reviewed, which can be helpful in the investigation process.

Graphical Visualization: Through the use of widgets, you can view field information for events. You can choose the type of field information to display and the range of events for which this information should appear.

Event Search: Searching for events is done from the **Events** menu. See ["About Searching for](#)

[Events" on page 62.](#)

Viewing Events On an Active Channel

About:

Viewing events on an active channel is done from the Active Channel screen. From this screen, you can also view related event information and perform functions using events.

Note:

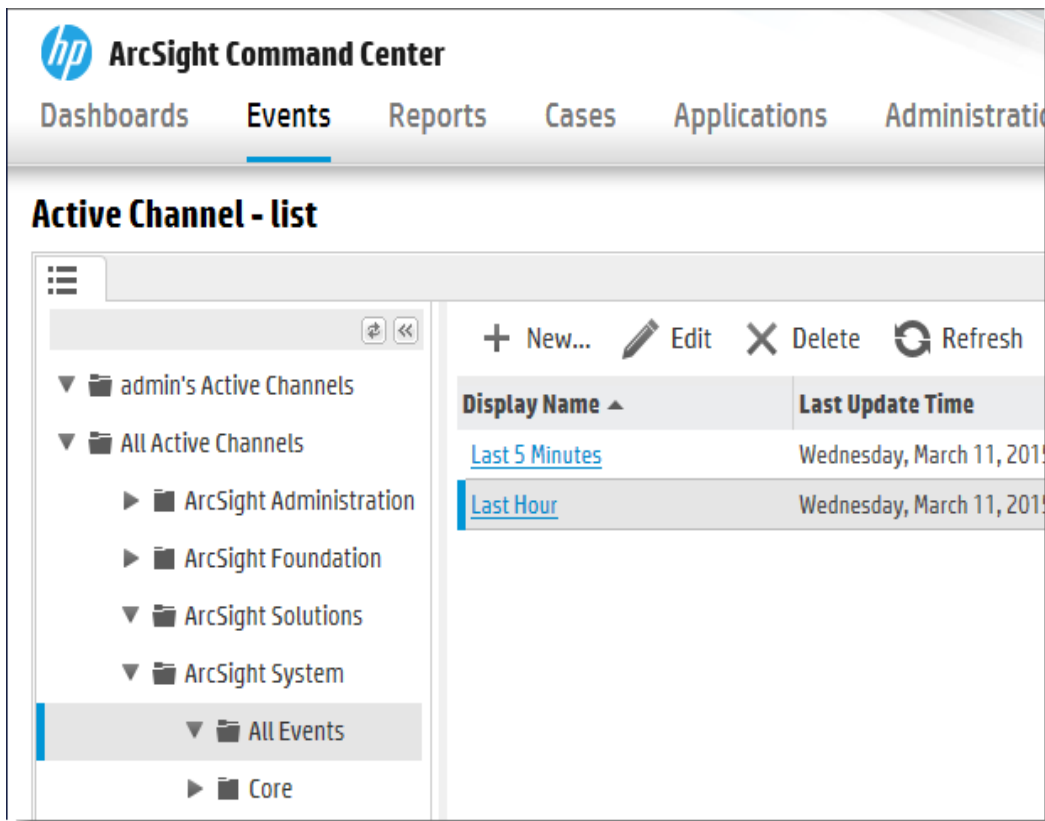
- Some channels in Command Center may not be current when accessed in a new ESM session. To ensure current event information, refresh the channel by clicking the stop and play buttons.
- If an active channel is open when Daylight Savings Time goes into or out of effect, the active channel will not reflect the correct start and end times until the channel is closed and re-opened.

Procedure:

Location: Events menu > Active Channels > Active Channel - list screen > resource tree

1. Click **Events > Active Channels**.
2. Expand the appropriate active channel folder in the resource tree and then click the desired folder.

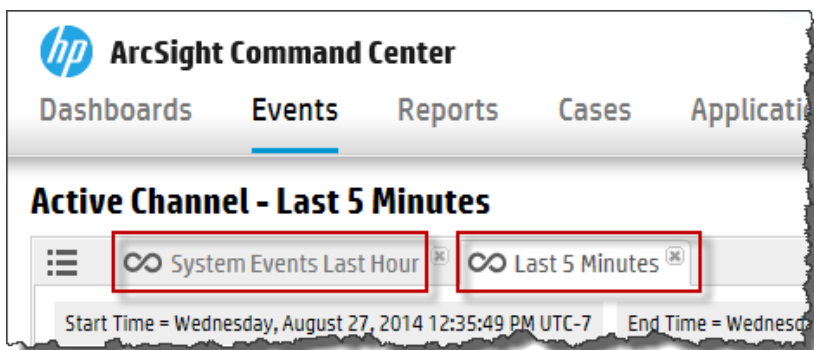
Channels associated with the folder appear in a table in the center of the screen, as seen in the following typical view of active channels.



3. Click the **Display Name** link for the desired channel.

The Active Channel screen for the selected channel opens, displaying all the events for the channel in the **Event List** tab. This is commonly known as the channel grid view.

If you have multiple channels open, these will appear in tabs, as seen in the following typical view open channel tabs.



4. To add a specific field to the channel grid view, choose **Customize > Fields**.

- From the Select popup, select the desired field from the appropriate field set.

The Selected Fields list contains the fields that comprise the columns in the channel grid view. You can click the left arrow button (←) to remove any of these fields.

- Click **OK**.

The selected field appears as a column in the channel grid view, after the original columns.

5. To add the fields of a field set to the channel grid view, choose **Customize > Field Set**.

- From the Select popup, select the desired field set.

The Selected Fields list contains the fields that comprise the columns in the channel grid view. You can click the left arrow button (←) to remove any of these fields.

- Click **OK**.

The fields appear as columns in the channel grid view, after the original columns.

Columns for the channel grid view are originally specified during the creation or edit of a channel (see ["Specifying Columns For Active Channel Event List" on page 47](#)).

Note:

- Some channels can be resource intensive, such as those with a time range of an hour or so. If a channel takes long to load in a high-traffic environment, open this channels in the ArcSight Console. To view a resource-intensive channel in ArcSight Command Center, narrow the time range to 5 - 10 minutes to reduce the event volume.
- For optimum performance, limit open channels to 3 per browser, though ArcSight Command Center can support up to 10 moderate-traffic channels or up to 15 light-traffic channels per browser. Between ArcSight Command Center and ArcSight Console, ESM can support up to 25 open channels.
- ArcSight Command Center does not support custom columns in the Event List (Events menu > Active Channels > Active Channel - list). If the Event Channel has Custom Columns configured in Console, these will not appear in ACC.

Viewing a Channel Condition Summary

About:

A channel condition summary displays in a raw string represents the filter conditions for the channel. The syntax is slightly different than that displayed in **Configure Filter > Operations > Summary** when editing a channel or creating a new channel. However, the attributes and logic are the same.

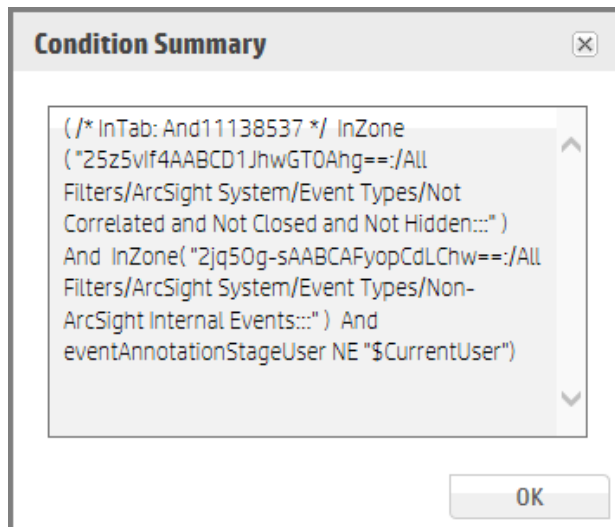
Procedure:

1. Open the desired channel.

See ["Viewing Events On an Active Channel" on page 30](#).

2. From the Active Channel screen, click **Condition Summary**.
3. From the Condition Summary popup, view the condition statements of the active channel.

Typical example of an active channel condition summary



The Condition Summary provides a read-only view of the channel condition so that you can verify the syntax of the operators and their operands. See "Common Conditions Editor" in the *ArcSight Console User's Guide*.

Access ArcSight Console to change any filter conditions.

Viewing the Event Priority for a Channel

During the normalization process, the SmartConnector collects data about the level of danger associated with a particular event, as interpreted by the data source that reported the event to the connector.

ESM normalizes the various event-rating scales into the default scale of *Very Low*, *Low*, *Medium*, *High*, and *Very High*. An event can also be classified as *Unknown* if the data source does not provide a priority rating.

For additional details, see "Event Priority" in the *ESM 101 Guide* and "Setting Special Severity Levels" in the *ArcSight Console User's Guide*.

1. Open the desired channel.

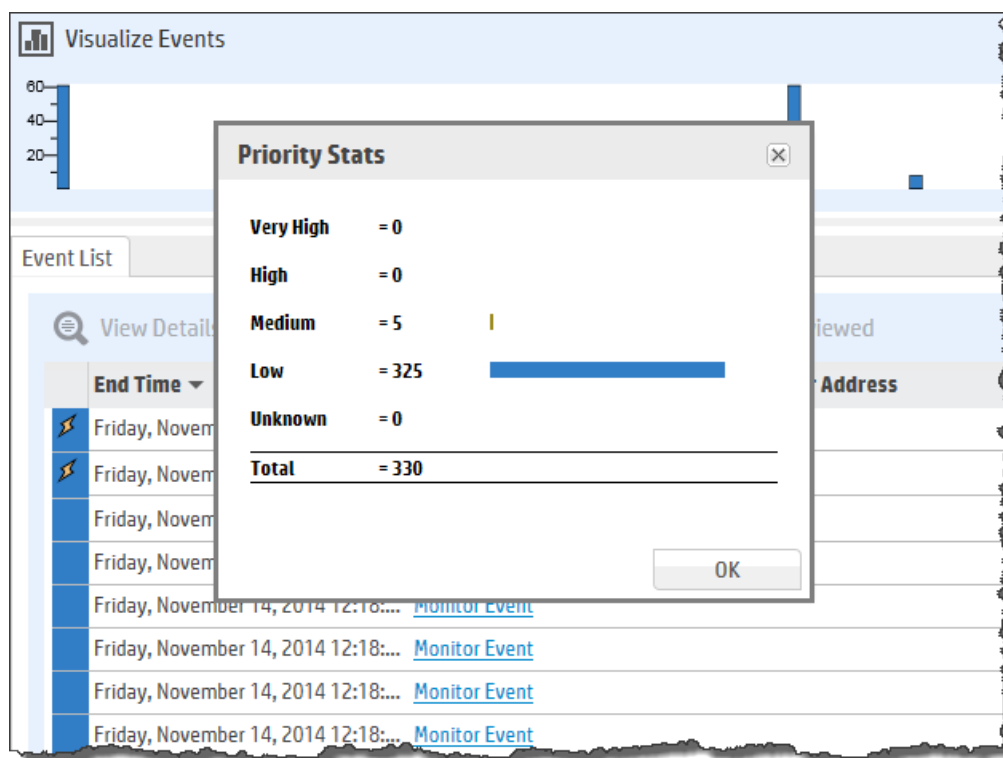
See ["Viewing Events On an Active Channel" on page 30.](#)

2. Click **Priority Stats**.

The Priority Stats popup opens, displaying the total number of events that are in each priority scale.

The bar colors in the popup match the corresponding bars of the event rows and radar display.

Typical view of the Priority Stats popup.



Evaluate the Network Route of a Channel Event

About:

Command Center enables you to evaluate the connections on the network used by a channel event. This is done through the use of Tool Commands.

Tool Commands are found in a zip file within the installation package. Unzip this file in a folder on the product server or some other server. The Tool Commands utilities are supported on the same platforms that ArcSight Console is supported. See the ArcSight ESM Support Matrix for the Console supported platforms.

Traceroute: Shows the path from Command Center to the IP address of the selected channel event, reporting the IP addresses of all routers in between.

Ping: Determines whether the IP address of a channel event is active. Tests and debugs a network by sending a packet and waiting for a response.

Nmap (Network Mapper): This security scanner discovers hosts and services on a network, thus creating a "map" of the network. To accomplish its goal, Nmap sends special packets to the target host and then analyzes the responses.

Prerequisite:

- Check to see that the nmap utility is installed on the client. Open a terminal or command window and type:
`nmap --version.`

If nmap is installed, the version will be returned. If you get an error indicating that the command is not recognized, download and install the nmap binary from <http://nmap.org>.

Procedure:

1. Open the desired channel and view the associated events.

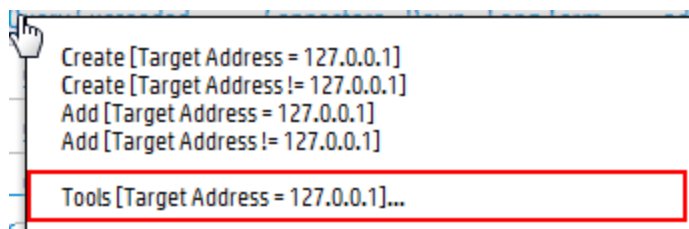
See ["Viewing Events On an Active Channel" on page 30](#).

2. From the Active Channel screen > Event List tab, click the desired event link.

For easier selection, click the pause button to freeze the Event List.



3. Identify an event, click on any field that contains an IP Address (Target Address, Destination Address, etc.), and then select **Tools** from the extended menu. The Tools popup appears.



4. From the Tools popup, click **Download Tools Command Webapp**.

You will be taken to ArcSight Marketplace.

5. Enter your ArcSight Marketplace login credentials.

If you do not have these credentials, contact Support.

6. If you're not taken directly to the download page, locate the HP ArcSight Tools Command Web

App download link for your specific operating system, and download the file to your local system. Unpack the file (either unzip or untar).

7. Change these default properties values in of the self-signed certificate in the `config.properties` file (`ui-tools-command-win > config`):

Host name: `localhost`

Port: `3000`

The authentication certificate is valid for ten years.

8. If you are on a Linux and Mac system, give root user execute permissions on the node directory.

```
chmod +x node
```

9. Start the Web App by running the command:

```
<download directory>/node app.js
```

10. To test the Web App, enter the URL from the `config.properties` file (`https://localhost:3000`) in a web browser.

11. Specify the URL of the Tools Command panel and then click **Set**.

The URL is the one you specified in the `config.properties` file (`https://localhost:3000`).

12. Select the desired tool command or commands and then click **Run**.

The panel contains the results of the tool command. The panel displays within a tab by the same name as the tool command.

Note: If your operating system does not provide Nmap, then download the utility.

13. To change the URL of the tool command panel, click the gear icon, re-enter the URL, and then click **Set**.

14. To copy the contents of the tool command panel, click **Select All** in the tool command tab (or select the text manually), and then copy and paste the content into the destination.

Note:

If you are using the Tool Commands utility with Internet Explorer and get the error "Content was blocked because it was not signed by a valid security certificate", perform these steps to clear the error:

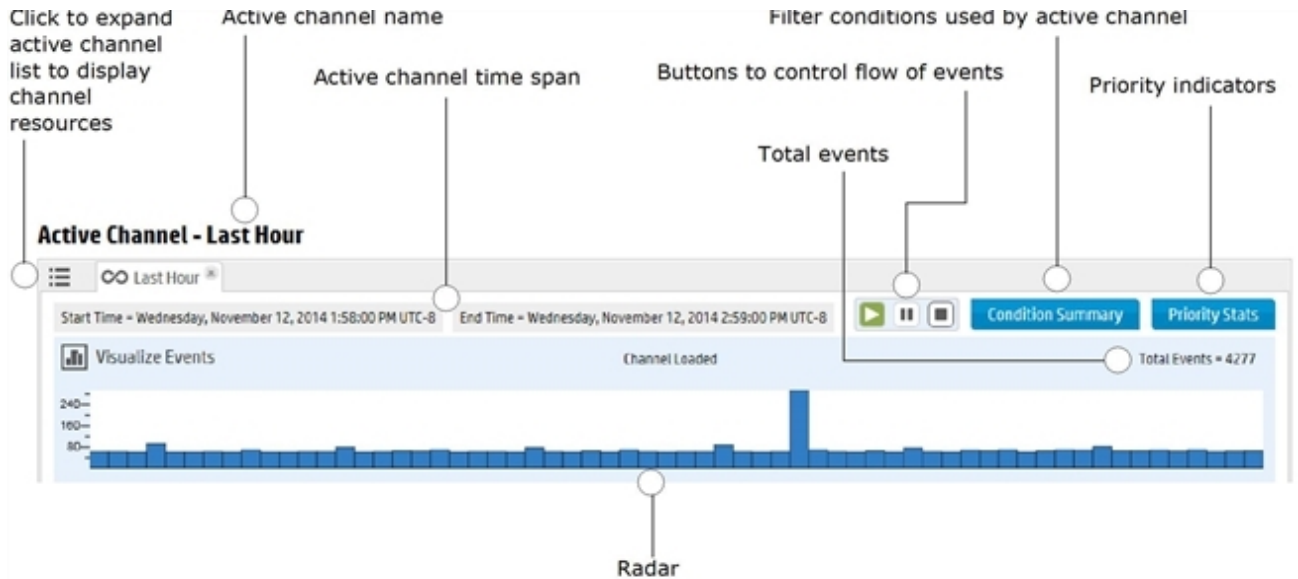
1. In Internet Explorer, go to Internet options > Security Tab > Trusted Sites > Sites button.
2. In the Trusted Sites dialog, add the Tool Commands URL to the list Websites (Add button), then click the Close button.
3. Click the OK button to close the Internet Options dialog.
4. Open the Tool Commands URL in a separate tab. When prompted, click "Continue to this website".
5. Click on the Certificate Error icon in the browser address bar, then select View Certificates.



6. In the Certificate dialog > General tab, click the Install Certificate button.
7. In Certificate Import Wizard, click Next > Place all certificates in the following store > Trusted Root Certification Authorities folder, and then click OK.
8. In the Security Warning dialog, click Yes . Close any open dialogs and return to Internet Explorer by clicking OK.
9. In Internet Explorer, click Tools > Internet options. The Internet Options dialog opens.
10. Go to Advanced Tab and scroll to the end of the Settings list.
11. Uncheck the "Warn about certificate address mismatch*" setting, then click OK.
12. In Internet Explorer, reload the page to check the result. You should see the Tool Commands Utility.

About the Active Channel Header

Elements on the active channel header



Each active channel has a header section with several features you can use to understand and manipulate what the channel displays.

Active Channel Header Features	
Feature	Usage
Name	Indicates the resource type (active channel) and active channel name.
Time Span	The Start Time and End Time show the chronological range of the channel.
Play, pause, and stop buttons	<p>Controls updates to the channel with live events.</p> <p>Play: Events are continuously sent to update the channel.</p> <p>Pause: Temporarily stops updates to the channel. Click the play button to restore the update process.</p> <p>Stop: Stops updating the channel and removes all events from the grid. Click the play button to reload the channel.</p>
Condition Summary	Displays the filter conditions defined for the channel. Filter conditions determine the amount of information to be displayed for events. Filters are either filter resources, in which case the URI to the filter is also supplied; or in-line filter for the exclusive use of the active channel. For details on filter resources, see "Filtering Events" in the <i>ArcSight Console User's Guide</i> .

Active Channel Header Features	
Feature	Usage
Priority Stats	Displays event priority statistic indicators and their corresponding event count. For details about event priority scoring, see the topic, "Priority Calculations and Ratings" in the Reference Guide section of the <i>ArcSight Console User's Guide</i> .
Visualize Events button	Allows selection of up to four event fields (columns) on the channel to display in the graphical format of widgets. The results are displayed in the "Visualize Events tab" below .
Channel status	Indicates status, for example, Channel Loaded.
Total Events	The total number of events received in the timeframe. Note: The event count function on active channels only reports live events, not replay events. If you prefer to see a count of all events coming through during a particular period, you should create a query viewer or report. If you want a count of only replay events, the event count in a replay channel will provide an accurate count of all replay events within a specific time window. Refer to the topics, "Building Reports" and "Query Viewers" in the ArcSight Console User's Guide.
Selected Events	The events within a time segment selected on the radar. If a segment is not selected, the value equals Total Events. See "Using the Active Channel Radar" below for details.
Radar display operation	A bar chart overview of events in the active channel. See "Using the Active Channel Radar" below for details.
Event Grid tab	Displays a grid view of incoming events.
Visualize Events tab	Created after you click Visualize Events and select the event fields (columns) to be rendered in the graphical format of these widgets: <ul style="list-style-type: none"> • Event Count • Top 10 Row Chart for each selected event fields (up to four) • Pie chart for the Priority event field

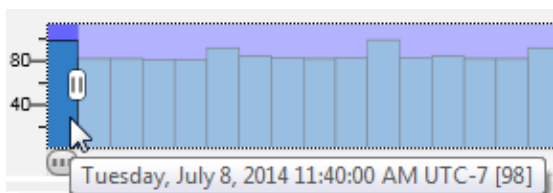
Using the Active Channel Radar

The radar consists of a bar chart overview of events on the active channel. It is divided into time segments sorted by event end time, each segment representing groups of events with the same end time.

The radar indicates the activity taking place in the entire channel, not just the current page. Its graphics represent units of time horizontally, and numbers of events vertically representing Priority attribute-value counts. The time and quantity scales in the graphic automatically adjust to accommodate the scope of the channel. The broader the scope, the smaller the graphical units.

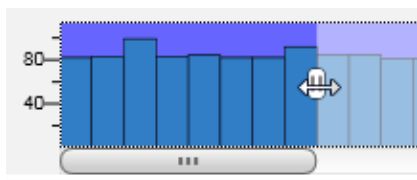
Use the radar to focus events on selected time segments.

- To focus the grid on the event of one segment, click its corresponding bar on the radar as shown:

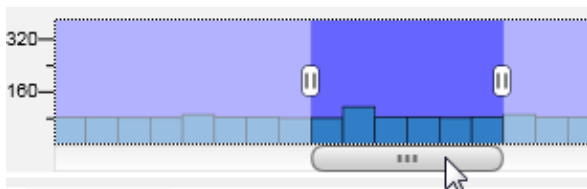


The selected time segment displays a handler widget. Depending on the location of the selected segment, handler widgets for both left and right boundaries are displayed.

- To select multiple segments, contiguous or not, press **Ctrl-click** on the desired segments.
- To focus the grid on multiple contiguous segments, drag the right or left handler as shown:



- To move a block of selected segments to a different area on the radar, drag the slider to the left or right along the radar as shown:



The grid adjusts to display only the events within that segment. The Selected Events total also adjusts to display only the count of events within that same segment.

- To restore the radar to display all events, press **Ctrl-a**.

The grid adjusts to display all events matching the count in Total Events (the default view).

Annotating an Event

About:

When annotating an event, you can change the stage, add comments, specify a user, and mark the event as reviewed (see "[Marking an Event as Reviewed](#)" on page 59).

Procedure:

1. Open the desired channel.

See "[Viewing Events On an Active Channel](#)" on page 30.

2. From the Active Channel screen > Event List tab, select the desired event and then click **Annotate**.

For easier selection, click the pause button to freeze the Event List.



Use the **Ctrl** or **Shift** key to select multiple events.

Note: If you scroll a selected event out of view in the Event List, the event becomes deselected.

3. Add annotation information as necessary.

Annotate popup displayed for a selected event

A screenshot of the 'Annotate' popup window. It has a title bar with 'Annotate' and a close button. Inside, there is a 'Your Comments' section with a text area. Below that is a 'Stage' dropdown menu currently set to 'Queued' with a red warning icon. Underneath is a 'User' dropdown menu set to '<Select Resource>'. At the bottom, there is a yellow warning icon followed by the text 'Please Change The Stage To Continue', and two buttons: 'Cancel' and 'Annotate'.

- a. Change the stage if this event is related to a case.
By default, the event stage is "Queued". Other stages are Initial, Follow-Up, Final, and Closed. Your organization may have customized stages to suite your business requirements.

If a Stage is not available in this list, use the ArcSight Console to move the case to that stage.

Default Collaboration Stages	Description
Queued	The event has not yet been inspected.
Initial	The event has been inspected.
Follow-up	The event is under investigation.
Final	The investigation has concluded.
Closed	The investigation is closed.

- b. Assign the event to a user as required.

Viewing Additional Event Information

Additional information is available for each event in the form of details, annotation history, and payload.

Viewing Event Details

About:

Event information is grouped by Event, Agent, Category, Device, Device Custom, Event Annotation, File, File Device, Original Agent, and Threat.

Procedure:

1. Open the desired channel.

See ["Viewing Events On an Active Channel" on page 30](#).

2. From the Active Channel screen > Event List tab, select the desired event and then click **View Details**.

For easier selection, click the pause button to freeze the Event List.



To select multiple events, use the **Ctrl** or **Shift** key.

Note: If you scroll a selected event out of view in the Event List, the event becomes deselected.

3. View details in the Event Details popup.

From the **Event Tree**, select the desired event if multiple are present.

The **Details** tab of the Event Details popup shows attribute details related to the selected event.

4. To filter event information based on fields, use the **Show Fields Containing** field.
5. To filter event information by field set, specify the desired field-set field.
 - a. Click the **Field Set** drop-down.
 - b. From the Please Select a Field Set popup, select the desired field set and then the desired field.

The field set appears in the Selected Resource list.

You can select only one field set.

- c. Click **OK**.

To clear the field-set filter, open the Please Select a Field Set popup again and click the left arrow button. The selected field returns to the Name list.

6. To hide and show empty attribute rows, click **Hide Empty Rows**.

Viewing Event Annotation History

Event annotation is a workflow style of recording different ESM users' analysis on an event. This is useful when analysts are collaborating on the same event for case management. See ["Annotating an Event" on page 40](#).

1. Open the desired channel.

See ["Viewing Events On an Active Channel" on page 30](#).

2. From the Active Channel screen > Event List tab, select the desired event and then click **View Details**.

For easier selection, click the pause button to freeze the Event List.



To select multiple events, use the **Ctrl** or **Shift** key.

Note: If you scroll a selected event out of view in the Event List, the event becomes deselected.

3. Click the **Annotation History** tab in the Event Details popup.

From the **Event Tree**, select the desired event if multiple are present.

"Hidden" appears in the Flags column if you specified "Flagged as Similar" for the event stage name. This event is hidden from all but the assigned users.

"Is Reviewed" appears under Flags if you marked an event as reviewed (see ["Marking an Event as Reviewed" on page 59](#)).

Viewing Event Payload

An event payload is the information carried in the body of the event's network packet, separate from the packet's header data. See "Payload," in the "Reference Guide" section of the *ArcSight Console User's Guide*.

1. Open the desired channel.

See ["Viewing Events On an Active Channel" on page 30](#).

2. From the Active Channel screen > Event List tab, select the desired event and then click **View Details**.

For easier selection, click the pause button to freeze the Event List.



To select multiple events, use the **Ctrl** or **Shift** key.

Note: If you scroll a selected event out of view in the Event List, the event becomes deselected.

3. Click the **Payload** tab in the Event Details popup.

A preserved payload remains attached to the event.

When you download a payload to a desired location, the payload still remains attached to the event.

Note: Command Center may not display non-ASCII payload data. Therefore, if the **Download Payload** button is enabled, yet no data appears in the Event Details popup, click **Download Payload** to download the data to a simple text editor, such as Notepad.

Managing Channels

You can create two types of event channels: One based on the attributes of an existing channel and one created afresh.

CAUTION: It is possible for multiple users to edit channels and channel dependencies in both Console and ESM Command Center at the same time. If another user changes a channel (or a resource that a channel depends on) at the same time you do, you may see unexpected information or behavior in Command Center. This is caused by information in your browser being out of sync with the most recent change. If this happens, refresh the list (fieldset, channel, etc.) using the refresh icon or close and reopen the popup to update the information.

Creating an Event Channel

About:

Create an event channel to monitor events on a network.

Procedure:

Location: Events menu > Active Channels > Active Channel - list screen > resource tree

1. Select the desired active channel folder.
2. Click **New**.

The New Channel popup opens.

3. Specify the channel name.
4. To specify the channel time attributes, refer to the following information:

Time Attribute	Usage
Start Time	<p>The relative or absolute time reference that begins the period to track events in the channel. To specify the time expression, make a selection from the Start Time drop-down menu.</p> <p>Note: If a channel is open when Daylight Savings Time starts or ends, it does not show the correct start time until you restart it.</p> <p>For a list of possible time values see the Start Time: field pull-down menu.</p>

Time Attribute	Usage
End Time	<p>The relative or absolute time that ends the period to actively track the events in the channel. To specify the time expression, make a selection from the End Time drop-down menu.</p> <p>Notes:</p> <ul style="list-style-type: none"> ■ If a channel is open when Daylight Savings Time starts or ends, the live channel does not show the correct start time until you restart it.
Use as Timestamp	<p>Choose the event-timing phase that best supports your analysis. End Time represents the time the event ended, as reported by the device. Manager Receipt Time is the recorded arrival time of an event at the ArcSight Manager.</p>
Time Evaluation	<p>Choose whether the channel will be Continuously Evaluate (like \$Now) to show events that are qualified by Start and End times which are re-evaluated constantly while the channel is running, or Snapshot to show only the events that qualify when the channel is first run.</p> <p>A channel set to <i>Continuously evaluate</i> is also known as a <i>sliding channel</i>, and typically has its End Time option set to \$Now.</p>

Start Time Period	Description
\$Now - 30m	The current minute minus 30 minutes
\$Now	The current minute
\$Now - 1h	The current minute minus one hour
\$Now - 1d	The current minute minus one day
\$Today	Midnight (the beginning of the first minute) of the current day
\$Today - 1d	Midnight (the beginning of the first minute) of the current day minus one day
\$Today - 1w	Midnight (the beginning of the first minute) of the current day minus one week
Custom	The day and time for the start time.

Start Time Unit	Description
m (lowercase)	Minutes (Do not confuse with 'M', meaning months.)
h	Hours
d	Days
w	Weeks
M (uppercase)	Months (Do not confuse with 'm', meaning minutes.)

5. To specify columns for the active channel grid view, click **Configure Field Set**.

See ["Specifying Columns For Active Channel Event List" below](#).

6. To add a filter to the channel, click **Configure Filter** to add filter conditions in the Common Conditions Editor (CCE).

See [" Specifying Filter Conditions for an Active Channel" on the next page](#).

7. To validate the filter, choose **Operations > Validate**.

Command Center interactively checks condition statements as you add them. The validate option checks the condition statements collectively to ensure operators are used correctly.

The Validate Filter popup appears with the status of the filter. If there is a violation, edit the filter conditions.

8. To edit filter conditions, choose either **Operations > Summary** and make changes directly in the SQL code, or right click the desired condition statement and make a selection from the extended menu.

Specifying **New Condition** from the extension menu creates a condition, at the specified location, that is in agreement with the selected condition.

9. Click **Update Filter Configuration** and then **Save** in the top half of the dialog box.

See Also:

["Creating a Channel Based on an Event Attribute" on page 53](#)

Specifying Columns For Active Channel Event List

About:

The columns in the active channel Event List are based on the fields in a configured field set.

Prerequisite:

Create an event channel.

See ["Creating a Channel Based on an Event Attribute" on page 53](#) or ["Creating an Event Channel" on page 45](#).

Procedure:

Location: Events menu > Active Channels > Active Channel - list screen > resource tree

1. Select the desired active channel folder.

Note: For a channel based on the attribute of an existing channel, Command Center stores the channel in the "admin's Active Channel" folder, by default.

2. Do one of the following:

- Click **New**.

The New Channel popup opens.

- From the channel table, select the desired channel without clicking the **Display Name** link, and then click **Edit**.

The Edit Channel popup opens.

3. Click **Configure Field Set**.
4. From the navigation folders on the bottom left, select the desired field set folder and then select the desired field set from the Display Name column.
5. Click **Update Field Set** and then **Save Channel**.

Specifying Filter Conditions for an Active Channel

About:

You can specify filter conditions at channel creation or during a channel edit.

Prerequisite:

Create an event channel in order to edit filter conditions.

See ["Creating an Event Channel" on page 45](#) or ["Creating a Channel Based on an Event Attribute" on page 53](#).

Procedure:

Location: Events menu > Active Channels > Active Channel - list screen > resource tree

1. Select the desired active channel folder.

Note: For a channel based on the attribute of an existing channel, Command Center stores

the channel in the "[user]'s Active Channel" folder, by default. NOTE: The [user] value is the currently logged in username.

2. Do one of the following:

- Click **New**.

The New Channel popup opens.

- From the channel table, select the desired channel without clicking the **Display Name** link, and then click **Edit**.

The Edit Channel popup opens.

3. Click **Configure Filter**.

The Common Conditions Editor (CCE) opens in the lower half of the popup, where you specify the conditions for the channel filter. You can refine your view of a channel to show only the events you want to see. For instance, suppose you have an active channel that includes both system and non-system events, but you want to see only the non-system events. You can filter out the system events.

From the CCE, Boolean logic is represented in a user-friendly manner, giving you the ability to easily create conditions.

Since the filter is created within the channel, the filter works only for the channel.

To edit a Condition in the filter, double-click on the condition. The statement editor will appear in the popup.

4. From the CCE, add a logical operator from the **Logical Operator** button area.


You must include an Operator if you create two or more condition statements in the filter. An Operator is not required if the filter contains one condition statement only. Use the AND, OR, and NOT operators to define the full condition statement.

Logical Operator	Name	Use
{ }	New Event Definition	Creates a new condition tree.
&	AND	The new condition has to occur in addition to existing conditions.

Logical Operator	Name	Use
	OR	Either the new condition or any existing conditions have to occur.
!=	NOT	All but the new condition has to occur.

- From the toolbar in the Configure Filter area, specify a condition.

Filter Condition	Description
Fields	You can specify fields with particular values as part of conditions statements.
Filters	<p>A filter limits what events a channel displays. If the criteria of the condition are met, the evaluation returns <code>true</code> or <code>false</code>. Events that do not meet the condition or conditions are not evaluated further, but they are preserved in the data store.</p> <p>If there are existing filter conditions, you can tie them to the added filter condition with a logical operator.</p>
Assets	<p>Once assets are added to your network model, you can select them in order to write conditions that help you analyze their role in the event traffic they process. You can select an asset to add to filters as a new condition.</p> <p>Asset conditions state whether your enterprise assets are targets or sources of events. An asset condition states "if an event occurs and the selected asset is the source or target, generate a correlation event."</p> <p>If there are existing filter conditions, you can tie them to the asset condition with a logical operator. If AND is used, all the existing conditions and the asset condition must occur in the event. If OR is used, either the existing conditions or the asset condition must occur. If NOT is used, all but the asset condition must occur.</p>
Vulnerabilities	<p>Specify the conditions of any hardware, firmware, or software state that leaves an asset open for potential exploitation.</p> <p>If there are existing filter conditions, you can tie them to the vulnerability condition with a logical operator. If AND is used, all the existing conditions and the vulnerability condition must occur in the event. If OR is used, either the existing conditions or the vulnerability condition must occur. If NOT is used, all but the vulnerability condition must occur.</p>

- a. To specify a Field Condition, select the Current Filter node or position the cursor in the desired location in the condition statements, click the **Fields** condition button  , and then select the desired field from the area at the bottom right.

You can use the **Show Fields Containing** field to locate a field. Start typing the name of the field, and the list will be actively filtered based on the text entered. Select a field from the list by double-clicking it in the field table.

Note: Field types of BitSet, Enumeration, IPv6Address, and MacAddress are not supported in ACC. In addition, the Customer ID, Domain, Event Annotation Flags, and Generator fields are not supported. None of these appear in the field table. You cannot edit them in the Edit Channel popup. Certain fields, such as Event ID, have a limited set of operators provided. You will see a reduce set of operators in the Operator drop-down, compared to the Console.


- b. Specify the field value in the **Value** field.

To change the field or operator, use the **Field** and **Operator** fields, respectively.


- c. Click **Apply Condition**.

Starting with the addition of a logical operator, use the above steps to add any other field conditions.

- d. Click **Update Filter Configuration**.

- e. To specify a Filter Condition, select a location in the condition statements list, and then click the **Filters** condition button  . Select the desired filter from the area at the bottom right.

- f. Click **Apply Condition** to add the condition to the filter.


- g. To specify an Asset Condition, select a location in the condition statements list, and then click the **Asset** condition button  . Select the desired asset from the area at the bottom right. This list of Assets is larger than in console.

The value selected from the **<xxx> Asset ID** drop-down menu, the checkbox, the value selected in the **NULL/NOT NULL** drop-down menu, and the Selected Resource group (under the Asset Category, Asset, or Zones tab) work together to define the Asset Condition statement. Selecting the checkbox enables the "is NULL" qualifier of the statement. When enabled, it the statement evaluates whether the attribute does not exist in the Selected Resource group. When the checkbox is not selected, the statement evaluates whether the attribute value DOES exist.

Asset Condition filters select Events where the attribute you specified contains a value that is also found in the:

- Asset Category (if you selected an item under the Asset Categories tab)
- Asset Group (if you selected an item under the Assets tab)
- Zone Group (if you selected an item under the Zones tab)

To create a condition that selects an individual Asset by its unique ID or name, use the Field Condition and then specify the value directly.

- h. Select an asset or group and then click **Apply Condition**.
- i. Click **Update Filter Configuration**.
- j. To specify a Vulnerability Condition, select a location in the condition statements list, and then click the **Vulnerability** condition button . Select the desired vulnerability from the area at the bottom right.
- k. To include any assets in the filter that could be impacted by the selected vulnerability, select a value from the **<xxx> Asset ID** drop-down list (for example, *Agent Asset ID*).

Repeat this step for each condition statement you want to include in the channel filter.

6. To validate the filter, choose **More Options: Operations > Validate**.

Command Center interactively checks condition statements as you add them. The validate option checks the condition statements collectively to ensure operators are used correctly.

The Validate Filter popup appears with the status of the filter. If there is a violation, edit the filter conditions.

7. To edit filter conditions, right click the desired condition statement and then choose either **Edit** or **Remove**.

This choice displays the appropriate work area at the bottom right.

8. To view the logic of the filter conditions, choose **Operations > Summary**.
9. Click **Update Filter Configuration** and then **Save Channel** in the top portion of the dialog box.

Note

When creating an Asset Filter, ESM Command Center will not display Assets (under the Assets tab) that have the Asset Disabled flag set. You access this list in the New (or Edit) Channel pop up > Configure Filter > Asset Filter Condition statement options.

You can create a Field condition statement for any field that stores an IP Address and then use the InSubnet operator to evaluate the network (or network and subnet) portion of an IP address, rather than

a full IP address. When providing a value for the statement, use an asterisk (*) as the wild card. For example, the following are valid values.

Pattern	Description
1.1.1.*	Using * as the wildcard to specify all addresses within a block.
1.1.1.1 - 1.1.1.10	Explicitly define a range of IP addresses.
1.1.1.* - 1.1.2.*	Using * as the wildcard to specify a range of IP addresses in one or more blocks.

See Also:

["Editing an Event Channel" on page 55](#)

Creating a Channel Based on an Event Attribute

About:

You can further investigate a channel event attribute by creating a new channel based on that attribute. In addition to all the attributes of the originating channel, the new channel now collects greater detail on the specified attribute.

Because Command Center only supports basic event fields, such as name, attacker address, target address, target port, and priority, channel creation is limited to the attributes provided by these fields.

Note: If the channel that you are investigating originated in the ArcSight Console and contains event fields not supported in Command Center, these unsupported event fields will not be lost and can be viewed in the ArcSight Console.

Procedure:

1. Open the desired channel.

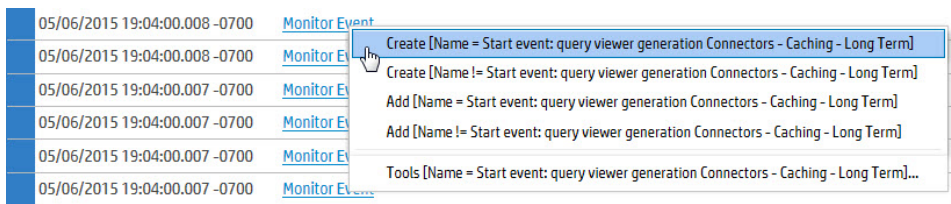
See ["Viewing Events On an Active Channel" on page 30](#).

2. From the Active Channel screen > Event List tab, click the desired event link.

For easier selection, click the pause button to freeze the Event List.



3. Select the desired command from the extended menu.



A new view that is a subset of the main active channel is created. Note that the total events count is less than the parent channel's total.

Option	Use
Create Channel [attribute=value]	Show only those events in which the selected attribute <i>matches</i> the value in the selected event.
Create Channel [attribute!=value]	Show only those events in which the selected attribute <i>does not match</i> the value in the selected event.
Add [attribute=value] to Channel	Show only those events that <i>match</i> both the prior and new filter elements.
Add [attribute!=value] to Channel	Show only those events that <i>do not match</i> both the prior and new filter elements.

4. To save the new channel, click **Save As** and do one the following in the Save Channel As dialog:
 - Accept the default channel location - Specify the channel name and accept "admin's Active Channels" in the **Location** drop-down.
 - Specify an alternate channel location - Specify the channel name, click the **Location** drop-down and then make the appropriate selection from the Select popup.

Note: If you choose a folder that has a parent, you must first select the parent folder from the left folder navigation and then select the child folder from the "Display Name" column. Direct selection of a child folder is not supported. This design helps to simplify the selection of a child folder that is multiple levels deep in a folder structure.

5. Click **OK**.
6. To view the new channel in the default folder, or alternative folder that you may have specified, click the resource tree tab.



See Also:

["Editing an Event Channel" on the next page](#)

["Creating an Event Channel" on page 45](#)

Editing an Event Channel

About:

You can edit an event channel either created from an attribute of an existing channel or one created afresh.

Procedure:

Location: Events menu > Active Channels > Active Channel - list screen > resource tree

Note: For a channel based on the attribute of an existing channel, Command Center stores the channel in the "admin's Active Channel" folder, by default.

1. Select the desired active channel folder.
2. From the channel table, select the desired channel without clicking the **Display Name** link, and then click **Edit**.

The Edit Channel popup opens.

3. To change the channel name and or time attributes, refer to the following information:

Time Attribute	Usage
Start Time	<p>The relative or absolute time reference that begins the period to track events in the channel. To specify the time expression, make a selection from the Start Time drop-down menu.</p> <p>Note: If a channel is open when Daylight Savings Time starts or ends, it does not show the correct start time until you restart it.</p> <p>For a list of possible time values see the Start Time: field pull-down menu.</p>
End Time	<p>The relative or absolute time that ends the period to actively track the events in the channel. To specify the time expression, make a selection from the End Time drop-down menu.</p> <p>Notes:</p> <ul style="list-style-type: none"> ■ If a channel is open when Daylight Savings Time starts or ends, the live channel does not show the correct start time until you restart it. ■ If setting the End Time results in the message "Invalid end date for sliding channel," the channel is set to <i>Continuous evaluation</i> instead of <i>Evaluate once</i>. Either re-set the End Time or change the Time Parameters option for the channel to <i>Continuous evaluation</i>. ■ Avoid creating an active channel that queries more than once per day.
Use as Timestamp	<p>Choose the event-timing phase that best supports your analysis. End Time represents the time the event ended, as reported by the device. Manager Receipt Time is the recorded arrival time of an event at the ArcSight Manager.</p>
Time Evaluation	<p>Choose whether the channel will be Continuously Evaluate (like \$Now) to show events that are qualified by Start and End times which are re-evaluated constantly while the channel is running, or Snapshot to show only the events that qualify when the channel is first run.</p> <p>A channel set to <i>Continuously evaluate</i> is also known as a <i>sliding channel</i>, and typically has its End Time option set to \$Now.</p>

Current Period

Period	Description
\$Now	The current minute

4.

Current Period, continued

Period	Description
\$Today	Midnight (the beginning of the first minute) of the current day
\$CurrentWeek	Midnight of the previous Monday (or same as \$Today if today is Monday)
\$CurrentMonth	Midnight on the first day of the current month
\$CurrentYear	Midnight on the first day of the current year

Units

Unit	Description
m (lowercase)	Minutes (Do not confuse with 'M', meaning months.)
h	Hours
d	Days
w	Weeks
M (uppercase)	Months (Do not confuse with 'm', meaning minutes.)

5. To specify columns for the active channel grid view, click **Configure Field Set**.

See ["Specifying Columns For Active Channel Event List" on page 47](#).

6. To add a filter to the channel, click **Configure Filter** to add filter conditions in the Common Conditions Editor (CCE).

See ["Specifying Filter Conditions for an Active Channel" on page 48](#).

7. To validate the filter, choose **Operations > Validate**.

Command Center interactively checks condition statements as you add them. The validate option checks the condition statements collectively to ensure operators are used correctly.

The Validate Filter popup appears with the status of the filter. If there is a violation, edit the filter conditions.

8. To edit filter conditions, right click the desired condition statement and make a selection from the extended menu.

Selecting a New **Condition** button creates a condition, at the specified location, that is in agreement with the selected condition.

9. Click **Update Filter Configuration** and then **Save Channel** in the top half of the dialog box.

See Also:

- ["Creating an Event Channel" on page 45](#)
- ["Creating a Channel Based on an Event Attribute" on page 53](#)

Deleting an Event Channel

About:

You can delete an event channel either created from an attribute of an existing channel or one created afresh.

Procedure:

Location: Events menu > Active Channels > Active Channel - list screen > resource tree

1. Click **Events > Active Channels**.
2. Expand the appropriate active channel folder in the resource tree and then click the desired folder.

Channels associated with the folder appear in a table in the center of the screen, as seen in the following typical view of active channels.

3. Click in the row of the desired channel, without clicking on the **Display Name** link.
4. With the channel row highlighted, click **Delete**.

Adding an Event to a Case

About:

While monitoring suspicious events, you can choose an event on an active channel and add this event to an existing, locked case.

Note: A case must be locked in order to edit it. This prevents other users from modifying the case while you are adding an event.

On the channel, the events are available based on the retention period of the Default Storage Group (see ["Storage" on page 179](#)).

Caution: Events added to a case are accessible in the context of that case to any user who has permissions to view or edit the case. Even users who do not have permissions on the *events* themselves have permissions to view full events *in the context of a case* to which they have permissions.

Consider this when adding events to a case and setting access control lists (ACLs) on cases (see ["User Management" on page 155](#)).

Procedure:

1. Open the desired channel.

See ["Viewing Events On an Active Channel" on page 30](#).

2. From the Active Channel screen > Event List tab, select the desired event and then click **Add to Case**.

For easier selection, click the pause button to freeze the Event List.



Use the **Ctrl** or **Shift** key to select multiple events.

Note: If you scroll a selected event out of view in the Event List, the event becomes deselected.

3. From the popup, select the desired case from the appropriate case folder and then click **OK**.
4. To verify the events in the case, open the case in the **Cases** tab.

Marking an Event as Reviewed

Procedure:

1. Open the desired channel.

See ["Viewing Events On an Active Channel" on page 30](#).

2. From the Active Channel screen > Event List tab, select the desired event and then click **View Details**.

Click the pause button to freeze the Event List for easier selection.



Use the **Ctrl** or **Shift** key to select multiple events.

Note: If you scroll a selected event out of view in the Event List, the event becomes deselected.

The **"Is Reviewed"** flag appears in the **Annotation History** tab of the Events Details popup.

Visualizing an Event Graphically

About:

Through the use of widgets, you can view field information for events. You can choose the type of field information to display and the range of events for which this information should appear.

Note: Command Center can support only one visualization view per browser window session.

Procedure:

1. Open the desired channel.

See ["Viewing Events On an Active Channel" on page 30](#).

2. From the Active Channel screen, click the pause button.

Pausing the channel event flow helps to ensure the proper selection of time intervals (buckets).



3. To select events over a specific period of time, make a selection from the Active Channel Radar.

See ["Using the Active Channel Radar" on page 39](#).

Note: Command Center can accept a maximum of 100,000 events for visualization. Any events in excess of this limit will cause event visualization to be disabled. In this case, reduce the range of events on the Active Channel Radar. If a channel has too many events, using the correct filter can reduce the amount of events and make visualization possible.

4. Click **Visualize Events**.
5. From the Select Fields to Visualize popup, specify the desired event field(s) and then click **Visualize Events**.

The specified event fields are represented by widgets in the **Visualize Events** tab of the Active Channel screen. A widget is in the form of a "Top 10 Row Chart", or a pie chart for the Priority event field. (The event fields are represented by columns in the **Event List** tab.)

The Event Count widget opens in addition to the other widget(s) you specify. The Event Count widget is used to reduce the range of events for which you want to view information in the specified widgets.

6. To select a range of events, drag the plus cursor (+) across the desired time range in the Event Count widget.

The selected range appears between handles. Use these handles to change the event range.

Note: If the specified time range is very narrow and the number of events in this range is low, the Event Count widget will be empty.

Click **Reset All Filters** to restore all open widgets to reflect the full range of events.

Chapter 4: About Searching for Events

This chapter describes how to search for specific events. It describes the methods available for search, how to query for events, how to save a defined query, and the events that the query finds for future use. This chapter also describes how to set up alerts to be notified when events matching the criteria you specified are received.

The Need to Search for Events

When you want to analyze events matching specific criteria, include them in a report, or forward them to another system, you need to search for them. To search for events, you create queries. The queries you create can vary in complexity based on your needs. Queries can be simple search terms or they can be complex enough to match events that include multiple IP addresses or ports, and that occurred between specific time ranges from a specific storage group.

The Process of Searching for Events

The search process uses an optimized search language that allows you to specify multiple search commands in a pipeline format. In addition, you can customize the display of search results, view search results as charts, and so on.

To run a search, is to enter the keywords or information you are searching for (the query) in the Search text box, select the time range, and click **Go!**

You can enter a simple keyword, such as `hostA.companyxyz.com` or a complex query that includes Boolean expressions, keywords, fields, and regular expressions. The system searches for data that matches the criteria you specified and displays the results on the page where you entered your query.

The search results are displayed in a table and as a histogram as soon as they are returned, even if the query has not finished scanning all data. For an example, see ["Simple Query Example" on the next page](#).

You can also add a chart to your search to display the most important information in a more meaningful fashion. Charts are not displayed until all the data is returned. For an example, see ["Query Example Using a Chart" on the next page](#).

There are several convenient ways to enter a search query—Typing the query in the Search text box, using the Search Builder tool to create a query, or using a previously saved query (referred to as a filter or saved search).

When you type a query, the Search Helper provides suggestions and possible matches to help you build the query expression. (See ["Search Helper" on page 94](#) for more information.)

In addition to typing the query in the Search text box, you can do the following:

- Create queries by using the Advanced Search tool. For more information, see ["Using the Advanced Search Tool" on page 88](#).
- Save queries and use them later. For more information, see ["Saved Queries \(Search Filters and Saved Searches\)" on page 118](#).
- Create new queries from the predefined queries that come with your system. For more information, see ["Predefined Search Filters" on page 122](#)

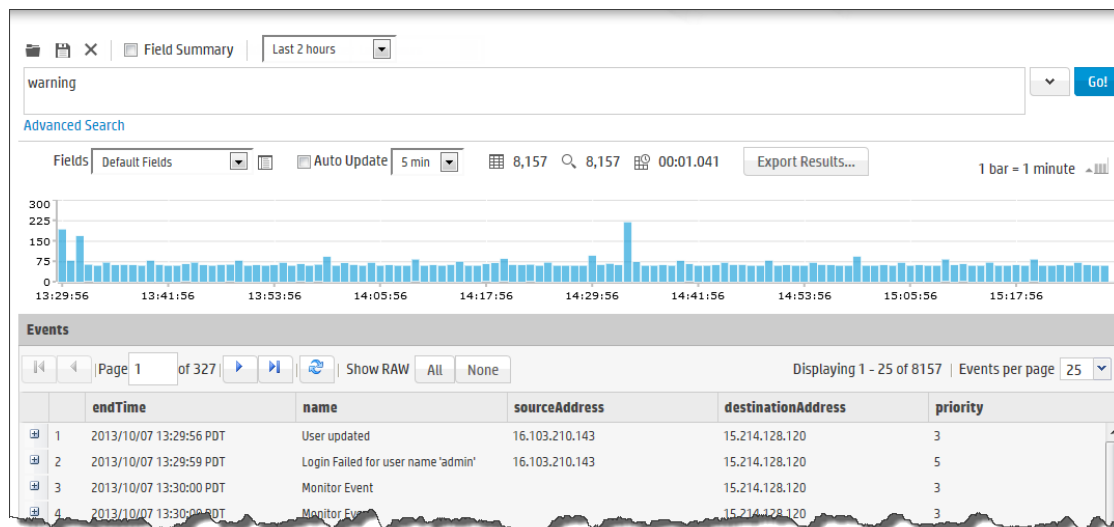
Although a search query can be as simple as a keyword, you will be better able to utilize the full potential of the search operation if you are familiar with all the elements of a query, as described in the next section, ["Elements of a Search Query" on the next page](#).

Simple Query Example

This example query finds events containing the word “warning”.

Type the following query in the search box and then click **Go!**

warning

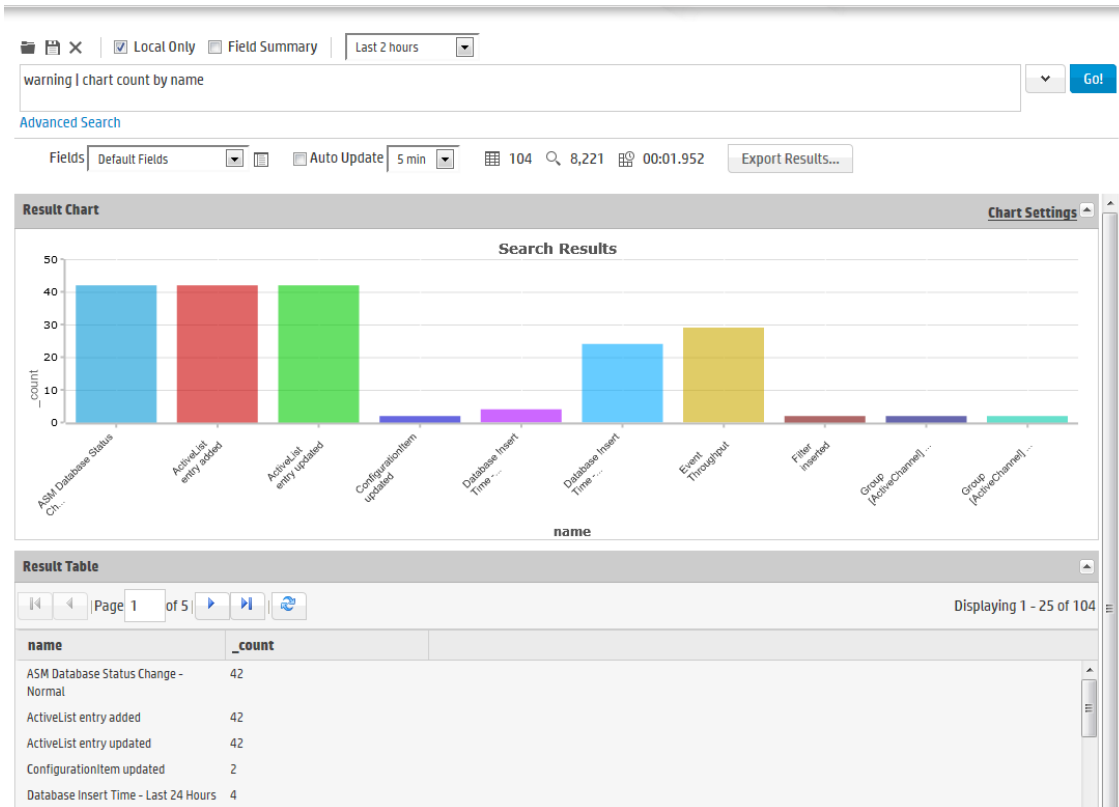


Query Example Using a Chart

Aggregated search operators such as chart, top, and rare generate charts of search results. This example query finds events containing the word “warning” and charts the number of warnings for each name.

Type the following query in the search box and then click **Go!**

warning | chart count by name



For more information on the search operators, see ["Search Operators" on page 225](#). For more information on creating and using charts, see ["Chart Drill Down" on page 108](#) and ["Refining and Charting a Search from Field Summary" on page 113](#).

Elements of a Search Query

A simple search query consists of these elements:

- Query expression
- Time range
- Fieldset

An advanced search query can also include constraints that limit the search to specific storage groups and peers. For information about storage groups and peers, see ["Storage" on page 179](#) and ["Peers" on page 216](#).

Query Expressions

A query expression is a set of conditions that are used to select events when a search is performed. An expression can specify a very simple term to match such as "login" or an IP address; or it can be more

complex enough to match events that include multiple IP addresses or ports, and that occurred between specific time ranges from a specific storage group.

Specify the query in the Search text box by using the following syntax:

<Search Expression> | <Search Operators>

The query expression is evaluated from left to right in a pipeline fashion. First, events matching the specified search expression are found. The search operator after the first pipe (|) character is then applied to the matched events followed by the next search operator, and so on to further refine the search results.

The search results table and the histogram display the events that match the query as they are found. As additional events are matched, the search results table and the histogram are refreshed. Certain search operators such as head and tail, require a query to finish running before search results can be displayed.

- **Search Expressions** are described in ["Search Expressions" below](#).
- **Search Operators** are described in ["Search Operators" on page 73](#).

Search Expressions

The Search Expression section of the query uses fields to search for relevant data quickly and efficiently. You can use a search expression to specify keywords to search for in the event text or to search using field-based expressions in a Boolean format.

- ["Keyword Search \(Full-text Search\)" below](#)
- ["Field-based Search" on page 69](#)

Keyword Search (Full-text Search)

Keywords are simply the words you want to search for, such as failed, login, and so on. You can specify multiple keywords in one query expression by using Boolean operators (AND, OR, or NOT) between them. Boolean expressions can be nested; for example, (John OR Jane) AND Doe*. If you need to search for the literal occurrence of AND, OR, or NOT (in upper-, lower-, or mixed case), enclose them in double quotes (") so the search engine does not interpret them as operators. For example, "and", "Or", and so on.

Note: Although the Boolean operators AND, OR, and NOT can be specified in upper-, lower-, or mixed case when used as an operator, HP recommends that you use uppercase for ease of reading the query.

Keep the following in mind when specifying keyword search expressions:

- Be sure to follow the requirements described in ["Syntax Reference for Query Expressions" on page 80](#).

- Keyword search is not case sensitive.
- You cannot use the EventId field or any of the timestamps in a keyword search, because these are generated fields, and not part of the actual event. To find events with a specific Event Id or a specific timestamp, use a Field-based search instead. For example, instead of searching for "4611686024177419642", search for EventId="4611686024177419642".
- Use Boolean operators (AND, OR, or NOT) to connect multiple keywords. If no Boolean operator is specified between two keywords, the AND operator is applied by default. Also, use the Boolean operators to connect keywords to fields you specify.
- Use double quotes (") to enclose a single word for an exact match. Otherwise, the word is treated as <search string>*. For example, to search for log, type "log". If you type log (without the double quotes), the search will match all words that begin with log; for example, log, logger, logging, and so on.
- When specifying Boolean operators (AND, OR, or NOT) as keywords, enclose them in double quotes ("). For example, "AND".
- Use the backslash (\) as an escape character for \, ", and *. However, backslash will not escape these characters if the keyword is enclosed in double quotes. For example, "log\ger" and log\ger will match the same values—log\ger in both cases. Likewise, log*ger and "log*ger" will match the same values—log*ger, in this case.
- The following table summarizes how special characters are treated in a keyword search.

Character	Usage
Space	You cannot specify keywords that contain the characters in the left column. Therefore, to search for a phrase such as <i>failed login</i> , enter “failed” AND “login”.
Tab	
Newline	Note: * is a valid character for wildcard character searches.
,	
;	
(
)	
[
]	
{	
}	
“	
*	

Character	Usage
=	To specify a keyword that contains any of the characters in the left column, enclose the keyword in double quotes (" ") . You can also specify an asterisk (*) at the end of the keyword for an exact match.
:	
/	Examples:
\	■ "C:\directory"
@	■ "result=failed"
-	
?	
#	
\$	
&	
_	
%	
>	
<	
!	

Character	Usage
*	<p>You can use the wildcard character asterisk (*) to search for keywords, however, the wildcard cannot be the leading character in the keyword. Therefore, the following usage is valid:</p> <ul style="list-style-type: none">■ log*■ "log*"■ log*■ log*■ log*app■ log*app*app <p>However, the following usage is not valid:</p> <ul style="list-style-type: none">■ *log■ *log*app*

Field-based Search

You can search any field defined in the schema. A list of the schema fields, along with their field descriptions is available from the **Administration > Search > Default Fields** tab.

For instructions on how to view the fields, see ["Viewing the Default Fields " on page 213](#).

Note: Not all ESM event information is available for searching. To search for fields not included in the Default Fields list, use the ArcSight Console through a query viewer. Refer to the Query Viewers topic in the ArcSight User's Console Guide.

You can specify multiple field conditions and also connect keywords to field conditions in a query expression; when doing so, connect them with Boolean operators. For example, the following query searches for events with keyword "failed" (without double quotes) or events with "name" fieldset to "failed login" (lowercase only; without double quotes) and the message field not set to "success" (lowercase only; without double quotes):

```
failed OR (name="failed login" AND message!="success")
```

Note: If a query includes the Boolean operator OR and the metadata identifiers (discussed in ["Constraints" on page 79](#)), the expression to be evaluated with OR must be enclosed in parentheses, as shown in this example:

```
(success OR fail) _storageGroup IN ["Default Storage Group"]
```

If the expression is not enclosed in parentheses, an error message is displayed.

The field operators you can use in a query expression are listed in the following table.

Note: In addition to these operators, you can use search operators, as discussed in ["Search Operators" on page 73](#).

Multiple field conditions can be specified in one query expression by using the listed operators between them. The conditions can be nested; for example, (name="John Doe" OR name="Jane Doe") AND message!="success".

Any literal operator in the following list can be specified in upper-, lower-, or mixed case. To search for these words as literals in events, enclose them in double quotes ("). For example, message CONTAINS "Between".

Operators for field based search

Operator	Example	Notes
AND	name="Data List" AND message="Hello" AND 1.2.3.4	Valid for all data types.
OR	(name="TestEvent" OR message="Hello") AND type=2 AND 1.2.4.3	Valid for all data types.
NOT	NOT name="test 123"	Valid for all data types.
!=	destinationPort != 100 message!="failed login" message!=failed*login (* means wildcard) "test" message!=failed*login (* is literal in this case)	Valid for all data types.
=	bytesIn = 32 message="failed login" message="failed*login" (* means wildcard)	Valid for all data types. The size of each field in the schema is predetermined. If the string you are searching for is longer than the field-length, you should use a STARTSWITH rather than an = search, and include no more than the number of characters in the field size. To determine the size of a default field, see "Viewing the Default Fields " on page 213 .

Operators for field based search, continued

Operator	Example	Notes
>*	bytesIn > 100	Valid for all data types.
<*	startTime < "\$Now - 1d"	* These operators evaluate the condition lexicographically. For example, deviceHostName BETWEEN AM AND EU searches for all devices whose names start with AM, AMA, AMB, AN, AO, AP and so on, up to EU. Therefore, any device whose name starts with AK, AL, and so on is ignored. Similarly, devices with names EUA, EUB, FA, GB, and so on will be ignored.
>=*	endTime >="01/13/2009 07:07:21" endTime >="2009/13/01 00:00:00 PDT" endTime >="Sep 10 2009 00:00:00 PDT"	
<=*	startTime <=" \$Now - 1d"	
IN*	priority IN [2,5,4,3] destinationAddress IN ["10.0.20.40", "209.128.98.147"] _deviceGroup IN ["DM1"] _storageGroup NOT IN ["Internal Event Storage Group", "SG1"] _peerLogger IN ["192.0.2.10", "192.0.2.11"]	
BETWEEN*	priority BETWEEN 1 AND 5	
STARTSWITH	message STARTSWITH "failed"	Valid for all String data types only. To determine the data type of a field, see "Viewing the Default Fields " on page 213.
ENDSWITH	message ENDSWITH "login"	Valid for all String data types only.
CONTAINS	message CONTAINS "foobar"	Valid for all String data types only.

Operators for field based search, continued

Operator	Example	Notes
INSUBNET	agentAddress INSUBNET "127.0.0.1-127.0.0.100" agentAddress INSUBNET "127.0.0.*" agentAddress INSUBNET "127.*.*.*" agentAddress INSUBNET "127.0.0.0/24"	IPv4 subnet addresses only. For information on how to search for IPv6 addresses, see "Searching IPv6 Addresses" on the next page . NOTE: INSUBNET does not look at NULL addresses. If you are looking for addresses that are in a subnet, it works correctly. However, If you are looking for addresses that are <i>NOT</i> in the subnet, look for NULL addresses separately. For example, say (NOT sourceAddress INSUBNET "<subnet>" or sourceAddress is NULL) This way, the addresses that might be null are handled specifically.
IS	sessionId IS NULL sessionId IS NOT NULL	Valid for all data types.
IS NULL	sourceUserId IS NULL	Valid for all data types.
IS NOT NULL	sourceUserId IS NOT NULL	Valid for all data types.

Guidelines for Field-based Search Expressions:

- By default, field-based search is case sensitive. You can change the sensitivity from the Field Search Options section of the **Administration > Search > Search Options** tab. For more information, see ["Tuning Search Options" on page 207](#).
- For faster searches, follow the recommendations in ["Tuning Search Performance" on page 103](#).
- A query expression (Field Search | Search Operators) is evaluated from left to right in pipeline fashion.
- Other requirements and guidelines are listed in ["Syntax Reference for Query Expressions" on page 80](#).

Searching IPv4 Addresses

The following fields can contain IPv4 addresses. You can use any operator, **including** the INSUBNET operator, to search these fields.

IPv4 Address Fields

agentAddress	agt_mac_address
agt_trans_address	destinationAddress
destinationMacAddress	destinationTranslatedAddress
deviceAddress	dvc_mac_address
dvc_trans_address	f_dvc_address
f_dvc_trans_address	o_agt_address
o_agt_mac_address	o_agt_trans_address
sourceAddress	sourceTranslatedAddress

Example usage:

```
deviceAddress = 192.0.2.1  
agentAddress INSUBNET "127.0.0.1-127.0.0.100"
```

Searching IPv6 Addresses

The following fields can contain IPv6 addresses. You can use any operator, **except** the INSUBNET operator, to search these fields.

IPv6 Address Fields

dvc_custom_ipv6_address1	dvc_custom_ipv6_address2
dvc_custom_ipv6_address3	dvc_custom_ipv6_address4

Example usage:

```
dvc_custom_ipv6_address1 IS NULL  
dvc_custom_ipv6_address3 IS NOT NULL  
dvc_custom_ipv6_address4 = 2001:0DB8:85A3:0042:1000:8A2E:0370:7334
```

The search results will be simplified to display one zero instead of four zeroes where appropriate. For example, the search results will display "2001:0DB8:AC10:FE01:0:0:0:0", instead of "2001:0DB8:AC10:FE01:0000:0000:0000:0000".

Search Operators

Search Operators enable you to refine the data that matched the Field Search search filter. The rex search operator is useful for syslog events (raw or unstructured data) or if you want to extract information from a specific point in an event, such as the 15th character in an event. The other operators, such as head, tail, top, rare, chart, sort, fields, and eval are applied to the fields you specify or the information you extract using the rex operator. See ["Search Operators" on page 225](#) for a list of search operators and examples of how to use them.

Time Range

The endTime timestamp indicates when the event occurred. A search query uses this time to search for matching events.

A search operation requires you to specify the time range within which events would be searched. You can select from many predefined time ranges or define a custom time range to suit your needs.

Predefined time range: When you select a predefined time range such as “Last 2 Hours” or “Today”, the time range is relative to the current time. For example, if you select “Last 2 Hours” at 2:00:00 p.m. on July 13th, events from 12:00:00 to 2:00:00 p.m. on July 13th will be searched. If you refresh your search results at 5:00:00 p.m. on the same day, the time window is recalculated. Therefore, events that match the specified criteria and occurred between 3:00:00 and 5:00:00 p.m. on July 13th are displayed.

Custom time range: You can specify a time range in a 24-hour format to suit your needs. For example, a custom time range is:

Start: 8/13/2013 13:36:30

End: 8/13/2013 22:36:30

By default, the end time for a custom time range is the current time on your system and the start time is two hours before the current time.

You can also use variables to specify custom time ranges. For example, a dynamic date range might start at \$Now - 2h (two hours ago) and end at \$Now (the current time). The dynamic search is relative to when the query is run. Scheduled search operations use this mechanism to search through newer event data each time they are run.

The “Dynamic” field in the user interface enables you to specify the dynamic time, as shown in the following figure:

The screenshot shows a search interface with several controls. At the top, there are icons for file operations and checkboxes for 'Local Only' and 'Field Summary'. Below these is a dropdown menu set to 'Custom time range'. To the right of this dropdown are two input fields for 'Start' and 'End'. The 'Start' field contains '9/24/2013 16:23:46' and has a 'Dynamic' checkbox checked next to it. The 'End' field contains '9/24/2013 18:23:46' and also has a 'Dynamic' checkbox checked next to it. Below the input fields is a large text input area. To the right of the text input area is a 'Go!' button. At the bottom left, there is a link labeled 'Advanced Search'.

Following is a typical example of a dynamic search that limits results to the last two hours of activity:

Start: \$Now - 2h

End: \$Now

The syntax for dynamic search is:

<current_period> [+/- <units>]

Where <current_period>, such as \$Now, either stands alone or is followed by either a plus (+) or minus (-) and a number of units, such as 2h for two hours. The <current_period> always starts with a '\$' and consists of a word, case-sensitive, with no spaces, as shown in the following table. The <units> portion, if given, consists of an integer and a single, case-sensitive letter, as shown in Units table.

Note: Use the <= and >= operators to narrow down the time range. Do not use = or !=.

Current Period

Period	Description
\$Now	The current minute
\$Today	Midnight (the beginning of the first minute) of the current day
\$CurrentWeek	Midnight of the previous Monday (or same as \$Today if today is Monday)
\$CurrentMonth	Midnight on the first day of the current month
\$CurrentYear	Midnight on the first day of the current year

Units


Unit	Description
m (lowercase)	Minutes (Do not confuse with 'M', meaning months.)
h	Hours
d	Days
w	Weeks
M (uppercase)	Months (Do not confuse with 'm', meaning minutes.)

Fieldsets

By default, all administrators can view, create, and edit custom fieldsets. For other users, access to this feature is controlled by user permissions. If you need access to this feature, ask your administrator.

A fieldset determines the fields that are displayed in the search results for each event that matched a search query. The system provides a number of predefined fieldsets. These fieldsets are for use when searching from ArcSight Command Center. For information about field sets for ArcSight Console, refer to the ArcSight Console User's guide.

Note: The first time you open the search page in a new browser window the fieldsets lists are hidden and you cannot select them. Run a short search to display the hidden options.

- To view the current list of available fieldsets, click the down arrow in the Fields dialog box. The current System Fieldsets list is displayed.
- To see the fields included in each of the predefined fieldsets, click the  (Customize Fieldset) icon.
- To view a list of fields that are included for each fieldset type, select the fieldset from the drop-down

list and mouse over the Field's label.

Note: Only fields available for matched events are displayed in a Search Results display (or the exported file). Therefore, even if you select the All Fields fieldset, you might not see all fields displayed in the search results.

- When you use a search operator that defines a new field, such as `rex`, `rename`, or `eval`, a new column for each field is added to the currently selected display. These newly defined fields are displayed by default. The User Defined Fields fieldset enables you to view only the newly defined fields.
- The Raw Event fieldset displays the complete raw syslog event in a column called `rawEvent`, as shown in the following figure. The event is formatted to fit in the column.

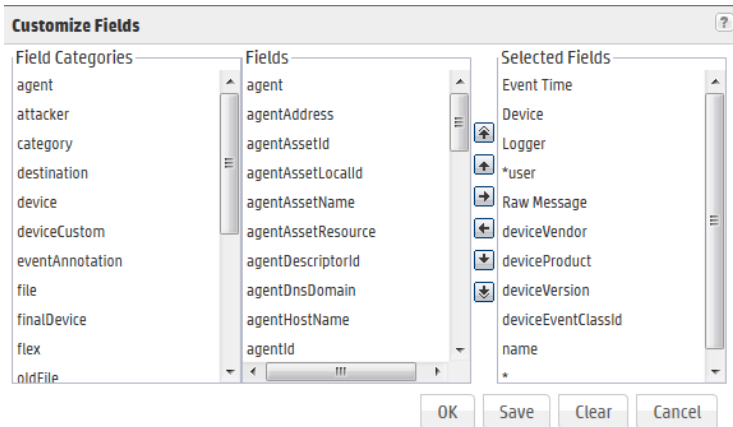
Events			
<div> <div> <div>Page 1 of 149</div> <div> <div></div> <div></div> <div></div> </div> </div> <div>Show RAW: All None</div> </div>			
	Time (Event Time)	Device	rawEvent
1	2011/10/21 11:32:20 PDT	10.4.13.110 [TCP Receiver]	Jan 8, 2003 10:43:47 AM myapp.business.SimpleLogger doSomething SEVERE: Some message java.lang.IllegalArgumentException: Some exception text at myapp.business.SimpleLogger.doSomething(SimpleLogger.java:39) at myapp.business.SimpleLogger.main(SimpleLogger.java:13)
2	2011/10/21 11:32:20 PDT	10.4.13.110 [TCP Receiver]	Jan 8, 2003 10:43:46 AM myapp.business.SimpleLogger doSomething CONFIG: this is config
3	2011/10/21 11:32:20 PDT	10.4.13.110 [TCP Receiver]	Jan 8, 2003 10:43:47 AM myapp.business.SimpleLogger doSomething WARNING: this is a warning
4	2011/10/21 11:32:20 PDT	10.4.13.110 [TCP Receiver]	Jan 8, 2003 10:43:47 AM myapp.business.SimpleLogger doSomething SEVERE: this is severe
5	2011/10/21 11:32:20 PDT	10.4.13.110 [TCP Receiver]	Jan 8, 2003 10:43:47 AM myapp.business.SimpleLogger doSomething SEVERE: Some message java.lang.IllegalArgumentException: Some exception text at myapp.business.SimpleLogger.doSomething(SimpleLogger.java:39) at myapp.business.SimpleLogger.main(SimpleLogger.java:13)

Note: To see the raw events in the `rawEvent` column, enable the Search Option, "Populate `rawEvent` field for syslog events". See ["Tuning Search Options" on page 207](#) for more information.

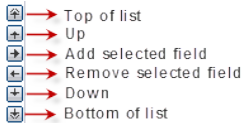
Although the Raw Event field is most applicable for syslog events, you can also display the raw event associated with CEF events in the `rawEvent` column. To do so, make sure the connector that is sending events to the system populates the `rawEvent` field with the raw event.

Creating Custom Fieldsets

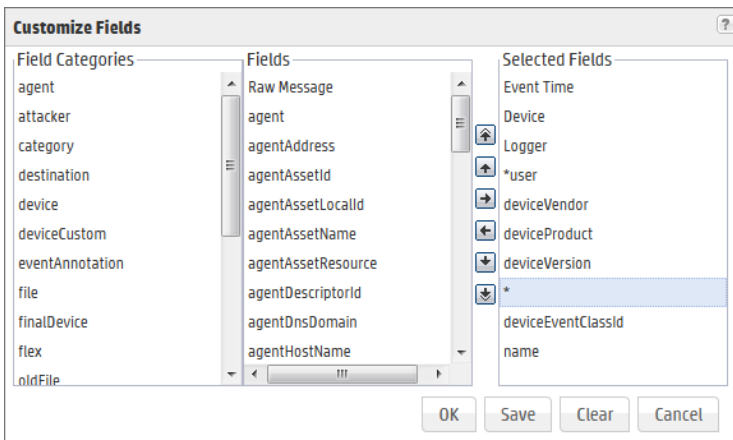
You can also create your own fieldsets by selecting "Customize..." from the "Fields" drop-down menu. The user interface offers a simple and intuitive way to select and move event fields you want to include in a fieldset, as shown in the following figure.



Use these buttons to create and edit a custom fieldset.

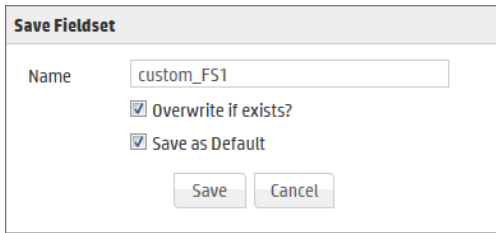


A wildcard field (“*”) is available in the Fields list when you create a custom fieldset. This field includes all fields available in an event that are not individually listed in the custom fieldset definition. For example, for the following custom fieldset definition, the search results will list the fields before the asterisk (“*”) first, followed by any other fields in an event. Lastly, the deviceEventClassId and Name fields will be listed.



Note: Fields beginning with `scr_` are included in the list of fields available in the “Source” field category, but if you include them in a custom fieldset, they will display no data. To view the values in these fields, use the ArcSight Console.

You can save the custom fieldset or use it only for the current session.



The 'Save Fieldset' dialog box contains the following elements:

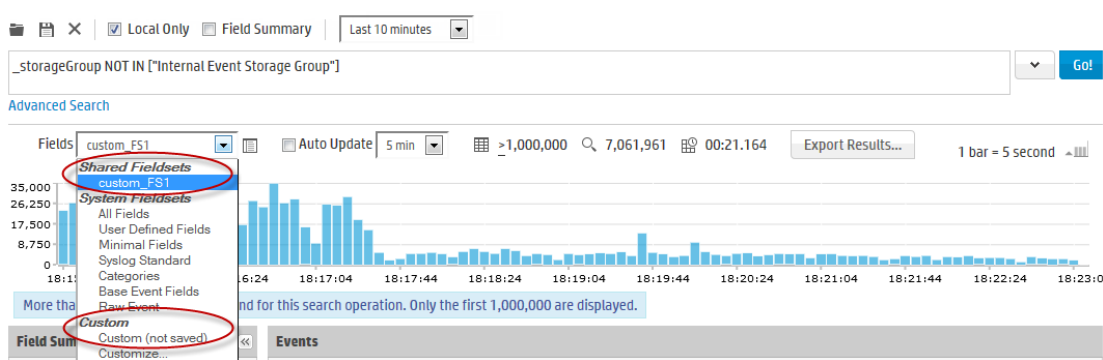
- Name:** A text input field containing 'custom_FS1'.
- Overwrite if exists?:** A checked checkbox.
- Save as Default:** A checked checkbox.
- Buttons:** 'Save' and 'Cancel' buttons at the bottom.

If you click **OK**, the fieldset appears in the Custom category. It is labeled as “Custom (not saved)” and is not visible to other users. It will remain available to you for this session. Once you log out of the current session, the temporary fieldset will be deleted. You can only have one temporary custom fieldset at a time.

If you click **Save**, the fieldset appears under the Shared Fieldsets category and is visible and available to the other users, as shown in the following figure. After a fieldset is saved, you can edit and delete it.

When saving a custom fieldset, you can specify it as the default for this system. If you do so, it is the default fieldset for all users on that system.

Custom fieldsets

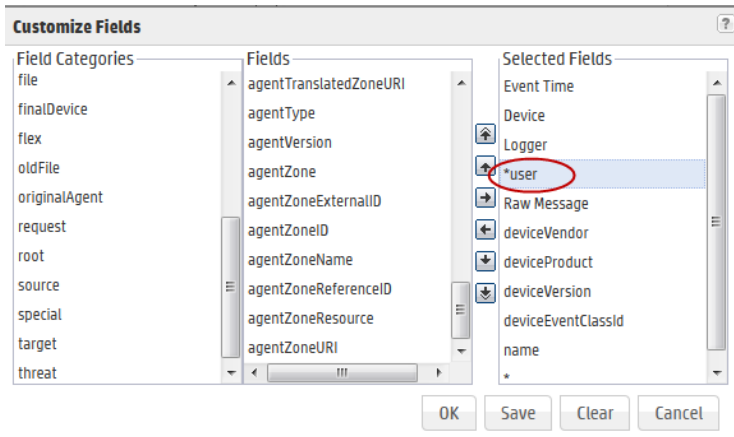


If do not select it as the default, the fieldset is used only for your search results and does not affect other users connecting to the same system.

For information about deleting custom fieldsets, see ["Managing Fieldsets" on page 212](#).

Fieldset selection is specific to a user's interface. For example, UserA and UserB are connected to the same manager and are using the default fieldset for search results display. UserA changes his selection to a custom fieldset. This change will only affect UserA's display; UserB will continue to see the search results in the All Fields format.

The *user field, shown below, controls the display of fields defined by search operators (rex, rename, extract, or eval) as well as the fields created when a parser is applied to an event. When *user is included in the Selected Fields list of a custom fieldset, the created or defined fields are displayed.



Constraints

Using constraints in a query can speed up a search operation as they limit the scope of data that needs to be searched. Constraints enable you to limit a query to events from one or more of the following:

- Stored in particular storage groups
- Stored on specific peers

For example, you might want to search for events in the SG1 and SG2 storage groups on the local system only.

For information about storage groups and peers, see ["Storage" on page 179](#) and ["Peers" on page 216](#).

Follow these guidelines when specifying constraints:

- Use the following operators to specify constraints in a search query expression:

Metadata Identifier	Example
<code>_storageGroup</code>	<code>_storageGroup IN ["Internal Event Storage Group", "SG1"]</code>
<code>_peerLogger</code>	<code>_peerLogger IN ["192.0.2.10", "192.0.2.11"]</code>

- If a query includes the Boolean operator OR and metadata identifiers, the expression to be evaluated with OR must be enclosed in parentheses, as shown in this example:

```
(success OR fail) _storageGroup IN ["Default Storage Group"]
```

If the expression to be evaluated with OR is not enclosed in parentheses, an error message is displayed on the user interface screen.

- When specifying multiple groups in a constraint, ensure that the group names are enclosed in square brackets; for example, `_storageGroup IN ["SGA", "SGB"]`.

- You can apply constraints to a search query by:
 - Typing the constraint in the Search text box.
Once you type “_s” (for storage group) or “_p” (for peer) in the Search text box, Search Helper automatically provides a drop-down list of relevant terms and operators from which you can select.

Caution: If a search query contains constraints and a regular expression, make sure that the constraints are specified before the regular expression. For example, `_peerLogger IN [“192.0.2.10”] name contains abc | REGEX=“:\d31”`

- Selecting Storage Groups or peers from the Advanced Search tool. (To access the Advanced Search tool, click **Advanced Search** beneath the text box where you type the query.) For more information about the Advanced Search, see ["Using the Advanced Search Tool" on page 88](#).
- Syntax Reference for Query Expressions

To create valid and accurate query expressions, follow these requirements.

Query Syntax Requirements

Behavior	Full Text Search	Field Search	Regular Expression
Case sensitivity	Insensitive (Cannot be changed.)	Sensitive (Can be changed using Tuning options. See "Tuning Search Options" on page 207 .)	Insensitive (Can be changed using Tuning options. See "Search Operators" on page 225 .)

Query Syntax Requirements, continued

Behavior	Full Text Search	Field Search	Regular Expression
Escape character	<p>\</p> <p>Use to escape \. You cannot escape any other character.</p>	<p>\</p> <p>Use to escape \, ", and *.</p> <p>Examples:</p> <ul style="list-style-type: none"> name=log\ger (matches log\ger) name=logger* (matches logger*) 	<p>\</p> <p>Use to escape any special character.</p> <p>Example:</p> <p>To search for a term with the character "[":</p> <p> REGEX="logger["</p>
Escaping wildcard character	<p>Cannot search for *</p> <p>Example:</p> <p>log* is invalid</p>	<p>Can search for * by escaping the character</p> <p>name=log* is valid</p>	<p>Can search for * by escaping the character</p>
Exact Match/Search string includes an operator or a special character	<p>Enclose keyword in double quotes; Otherwise, keyword treated as keyword*.</p> <p>Example:</p> <p>log (matches log, logging, logger, and so on)</p> <p>"log" (matches only log)</p> <p>Note: See the list of special characters that cannot be searched even when enclosed in double quotes, later in this table.</p>	<p>Enclose value in double quotes</p> <p>Example:</p> <p>message="failed login"</p>	<p>No special requirement.</p>

Query Syntax Requirements, continued

Behavior	Full Text Search	Field Search	Regular Expression
Nesting (including parenthetical clauses, such as (a OR b) AND c)	<p>Allowed</p> <ul style="list-style-type: none"> Use Boolean operators to connect and nest keywords. Metadata identifiers (<code>_storageGroup</code> and <code>_peerLogger</code>), but can only appear at the top level in a query expression). If the query contains a regular expression, the metadata identifiers need to precede the regular expression. 	<p>Allowed</p> <ul style="list-style-type: none"> Use any operator listed in the "Field-based Search" on page 69 section to connect and nest field search expressions. Metadata identifiers (<code>_storageGroup</code> and <code>_peerLogger</code>), but can only appear at the top level in a query expression 	<p>Multiple regular expressions can be specified in one query using this syntax:</p> <pre> REGEX= "<REGEX 1>" REGEX="< REGEX2>" ...</pre>

Query Syntax Requirements, continued

Behavior	Full Text Search	Field Search	Regular Expression
Operators	<p>Upper-, lower-, or mixed case Boolean operators—AND, OR, NOT. If an operator is not specified, AND is used.</p> <p>To search for literal operator AND, OR, NOT, in an event, enclose them in double quotes.</p> <p>Example: "AND", "or", "Not"</p> <p>Note: If a query includes the Boolean operator OR and the metadata identifiers (_storageGroup and _peerLogger), the expression to be evaluated with OR must be enclosed in parentheses, as shown in this example:</p> <pre>(success OR fail) _storageGroup IN ["Default Storage Group"]</pre>	<p>Use any operator listed in the "Field-based Search" on page 69 section.</p> <ul style="list-style-type: none"> Unless a value is enclosed between double quotes, a space between values is interpreted as an AND. For example, name=John Doe is interpreted as John AND Doe. If an operator is not specified between multiple field expressions, AND is used. To search for literal operator, enclose the operator in double quotes. Examples: <pre>message STARTSWITH="NOT" message="LOGIN DID NOT SUCCEED"</pre> If a query includes the Boolean operator OR and the metadata identifiers (_storageGroup and _peerLogger), the expression to be evaluated with OR must be enclosed in parentheses, as shown in this example: <pre>(success OR fail) _storageGroup IN ["Default Storage Group"]</pre> 	<p> and the operators described in "Search Operators" on page 225.</p> <p>Use this operator to AND multiple regular expressions in one query expression.</p>

Query Syntax Requirements, continued

Behavior	Full Text Search	Field Search	Regular Expression
Primary Delimiters: Space ' , ; () [] { } " * > < !	You can search for keywords containing primary delimiters by enclosing the keywords in double quotes. Example: "John Doe" "Name=John Doe" "www.hp.com"	You can search for these characters. Enclose value in double quotes if value contains any of these characters. Example: name="John*"	<ul style="list-style-type: none"> Cannot contain ^ in the beginning and \$ at the end as a matching character unless the regular expression you specify must look for an event that contains only the pattern you are specifying; for example, REGEX="^test\$" will search for events containing the word "test" (without quotes) only. Special regular expression

Query Syntax Requirements, continued

Beha vior	Full Text Search	Field Search	Regular Expression
			on characte rs such as \ and ? need to be escape d.

Query Syntax Requirements, continued

Behavior	Full Text Search	Field Search	Regular Expression
<p>Secondary Delimiters:</p> <p>=</p> <p>.</p> <p>:</p> <p>/</p> <p>\</p> <p>@</p> <p>-</p> <p>?</p> <p>#</p> <p>\$</p> <p>&</p> <p>—</p> <p>%</p>	<p>You can also search for keywords containing secondary delimiters once you have configured the full-text search options as described in "Tuning Search Options" on page 207.</p> <p>Example: You can search for hp.com in a URL http://www.hp.com/apps by specifying hp.com as the search string.</p>	<p>You can search for these characters. Enclose value in double quotes if value contains any of these characters.</p> <p>Example: name="John."</p>	<ul style="list-style-type: none"> Cannot contain ^ in the beginning and \$ at the end as a matching character unless the regular expression you specify must look for an event that contains only the pattern you are specifying; for example, REGEX="^test\$" will search for events containing the word "test" (without quotes) only. Special regular expressi

Query Syntax Requirements, continued

Behavior	Full Text Search	Field Search	Regular Expression
			on characters such as \ and ? need to be escaped.
Syntax	keyword1 boolean_operator keyword2 boolean_operator keyword3...	field_name operator field_value (For instructions on how to view the fields, see "Viewing the Default Fields" on page 213 section.) (List of operators in the "Field-based Search" on page 69 section.)	REGEX= "<REGEX1>" REGEX= "<REGEX2>" ..
Tab Newline { " *	Cannot search for these characters. Examples: "John{Doe" is invalid	No restrictions. Enclose special character in double quotes. Escape the wildcard character and double quotes. Example: name="John\"*"Doe" (matches John*"Doe)	No restrictions. Special regular expression characters such as (,), [,], {, }, ", , and * need to be escaped.

Query Syntax Requirements, continued

Behavior	Full Text Search	Field Search	Regular Expression
Time format, when searching for events that occurred at a particular time	<p>No specific format. The query needs to contain the exact timestamp string. For example, "10:34:35".</p> <p>Note: The string cannot contain spaces. For example, "Oct 19" is invalid.</p>	<p>Use this format to specify a timestamp in a query (including double quotes):</p> <p>"mm/dd/yyyy hh:mm:ss"</p> <p>OR</p> <p>"yyyy/mm/dd hh:mm:ss timezone"</p> <p>OR</p> <p>"MMM dd yyyy hh:mm:ss timezone"</p> <p>where mm=month dd=day yyyy=year hh=hour mm=minutes ss=seconds timezone=EDT, CDT, MDT, PDT. MMM=First three letters of a month's name; for example, Jan, Feb, Mar, Sep, Oct, and so on.</p> <p>Use the <= and >= operators to narrow down the time range. Do not use = or !=.</p>	No restrictions.
Wildcard	<p>* Cannot be the leading character; only a suffix or in between a keyword.</p> <p>Examples:</p> <ul style="list-style-type: none"> *log is invalid log* is valid lo*g* is valid 	<p>* Can appear anywhere in the value.</p> <p>Examples:</p> <p>name=*log (searches for ablog, blog, and so on.)</p> <p>name="*log"</p> <p>name=*log</p> <p>(both search for *log)</p>	* Can appear anywhere.

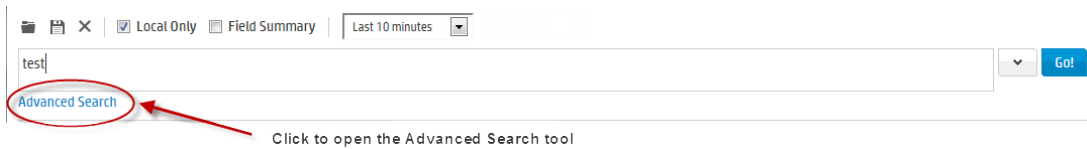
Using the Advanced Search Tool

The Advanced Search tool is a Boolean-logic conditions editor that enables you to build search queries quickly and accurately. The tool provides a visual representation of the conditions you are including in a query. You can specify keywords, field-based conditions, and regular expressions using this tool. You can also specify search constraints such as peers, device groups, and storage groups (see ["Constraints" on page 79](#)). This section describes how to use the tool.

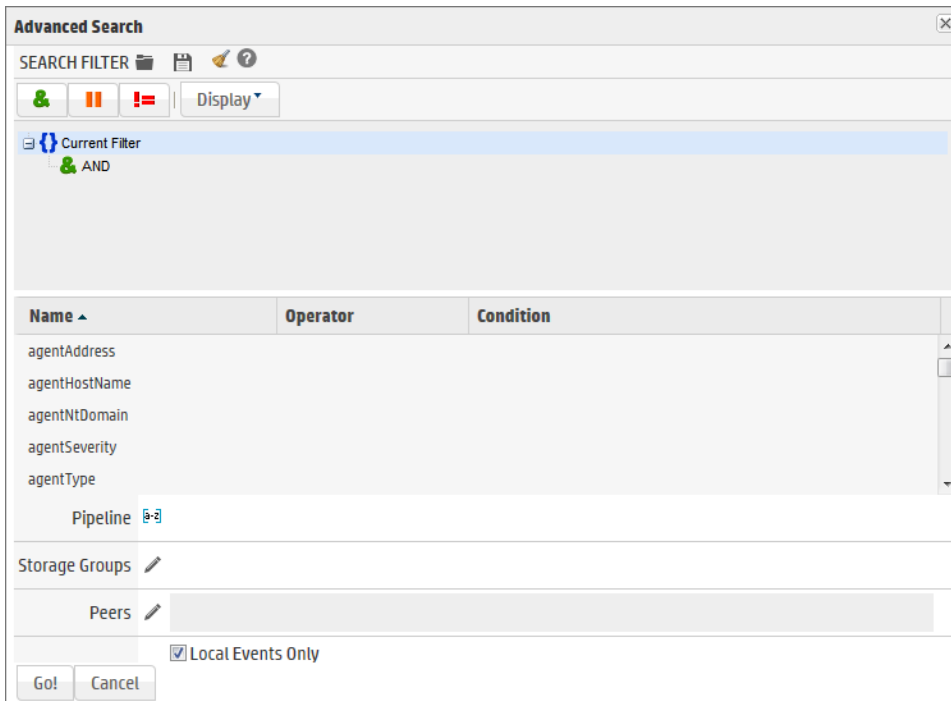
Accessing Advanced Search

To display the Advanced Search tool:

1. Click **Search** to open the search page.
2. Click **Advanced Search**, below the Search text box, as shown in the following figure.







The Advanced Search dialog box is displayed, as follows:

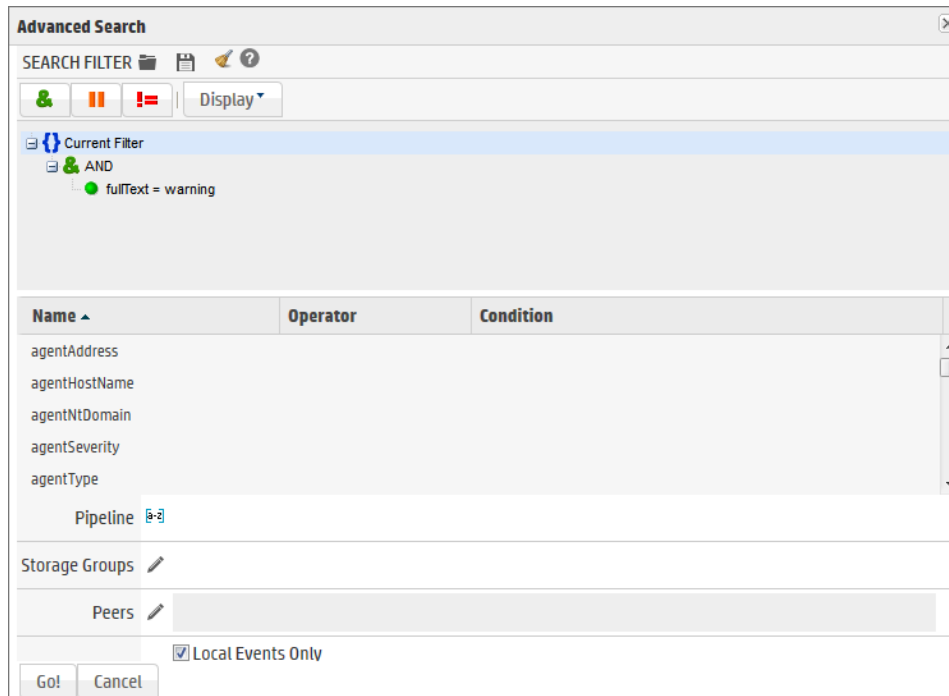


To build a new search query in the Advanced Search tool:




1. Click **Search** to open the search page, and then click **Advanced Search**.
2. Select the Boolean operator that applies to the condition you are adding from the top of Advanced Search dialog box. You can select these operators:




Operator	Meaning
	AND
	OR
	NOT

3. If you want to load a search filter or a saved search, click the  icon. Select the search filter or the saved search from the displayed list and click **Load+Close**.
4. For more information, see ["Saved Queries \(Search Filters and Saved Searches\)" on page 118](#) and ["Predefined Search Filters" on page 122](#).
5. To add a keyword (full-text search) or field condition:
 - a. Locate the field you want to add under the Name column.
To specify a keyword (full-text search), use the *fullText* field under the Name column, as shown in the following figure.






Advanced Search

SEARCH FILTER   

   | Display ▾

Current Filter

- AND
 - fullText = warning


Name ▲	Operator	Condition
agentAddress		
agentHostName		
agentNtDomain		
agentSeverity		
agentType		
Pipeline 		
Storage Groups 		
Peers 		

☒ Local Events Only

Go! Cancel

- b. Click the Operator column associated with the field, select the operator from the displayed list, and press **Enter**.
- c. Only operators applicable to a field are displayed in the list.
- d. In the Condition column associated with the field, enter a value and press **Enter**.

Note: To edit a condition, right-click on the condition for a drop-down menu that enables you to edit, cut, copy, or delete the condition.

6. Repeat step 1 through step 5 until you have added all the conditions.
7. If your search query will also include a regular expression, type it in the Regex field.
8. If you want to constrain your search query to specific storage groups or peers, click the  icon next to the constraint category. Select the relevant groups and peers. (To select multiple groups, hold the Ctrl-key down.)

The Peer constraint category is displayed only if peers are configured on your system.

If multiple values are selected for a constraint, those values are OR'ed together. For example, if you specify peers A, B, C, the query will find events in peers A, B, or C.

For information about storage groups and peers, see ["Storage" on page 179](#) and ["Peers" on page 216](#).

9. Click **Go!** to save and run the query. The query is automatically displayed in the Search text box and run.

To save the query without running it, click the  icon. The Save query dialog box opens. For more information, see ["Saving a Query" on page 118](#).

Nested Conditions

You can create search queries with nested conditions in the Advanced Search dialog box. To do so, click the operator under which you want to nest the next condition and add the condition as described in ["Accessing Advanced Search" on page 89](#).

For example, use the steps below to add the following query:

```
( ( agentAddress != 192.0.2.1 ) OR ( agentHostName STARTSWITH "as" AND  
destinationAddress IS NULL ) )
```

Nested conditions in the Advanced search dialog box

The screenshot shows the 'Advanced Search' dialog box. At the top, there's a 'SEARCH FILTER' section with icons for adding, deleting, and displaying filters. Below this, the 'Current Filter' is shown as a tree structure: an OR clause containing an AND clause. The AND clause contains three conditions: 'agentAddress != 192.0.2.1', 'agentHostName Starts With as', and 'destinationAddress Is Null'. Below the tree is a table with columns 'Name', 'Operator', and 'Condition'. The table lists several fields: 'dest_process_id', 'dest_trans_port', 'dest_trans_zone', 'destinationAddress' (with 'Is Null' operator), and 'destinationAddress'. Below the table are sections for 'Pipeline', 'Storage Groups', and 'Peers'. At the bottom, there's a checkbox for 'Local Events Only' and 'Go!' and 'Cancel' buttons.

Name	Operator	Condition
dest_process_id		
dest_trans_port		
dest_trans_zone		
destinationAddress	Is Null	
destinationAddress		

Adding a nested query:

1. Click **Events > Event Search** to open the search page, and then click **Advanced Search**.
2. Clear any current search. For example if AND (&) is displayed under the current filter, right-click AND (&) and select Delete. Confirm the deletion.
3. Click the Current Filter and then click OR (||) to add an OR clause to the query.
4. Click the OR in the query to define it. For the example, add the following:
 - **Name:** agentAddress,
Operator: !=
Condition: 192.0.2.1
 - Click the OR in your query and then click AND (&) to add a nested AND clause.
 - Click the AND to define it. For the example, add the following:
 - **Name:** agentHostName
Operator: STARTSWITH
Condition: as
 - **Name:** destinationAddress
Operator: STARTSWITH

Condition: as

5. Click **GO!** to run the query.

Alternate Views for Query Building in Advanced Search

By default, the conditions are displayed in a tree view, as shown in the previous figures in this section. You can change the view to a color-block scheme and adjust whether the fields you select are displayed in the lower part of the screen or to the right of where conditions are displayed, as shown in the following figure.

Vertical color block view for the query in as seen in the previous figure

The screenshot shows the 'Advanced Search' window. On the left, the 'Current Filter' tree displays the query structure: 'agentAddress != 192.0.2.1' (green box) OR ('agentHostName Starts With as' (orange box) AND 'destinationAddress Is Null' (orange box)) (green box). On the right, a list of fields is shown with columns for 'Name', 'Operator', and 'Condition'. The fields listed are: agentAddress, agentHostName, agentNtDomain, agentSeverity, agentType, agentZone, agentZoneName, agentZoneResource, agentZoneURI, and agt_asset_id. The 'Display' dropdown menu is set to 'Vertical'. At the bottom, there are buttons for 'Go!' and 'Cancel', and a checkbox for 'Local Events Only' which is checked.

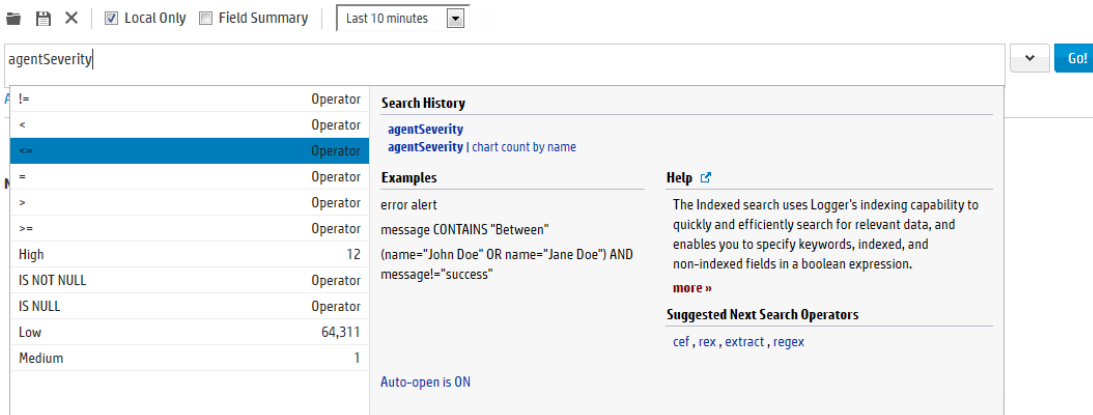
Name	Operator	Condition
agentAddress	!=	192.0.2.1
agentHostName	Starts With	as
agentNtDomain		
agentSeverity		
agentType		
agentZone		
agentZoneName		
agentZoneResource		
agentZoneURI		
agt_asset_id		

To change views:

1. Click **Events > Event Search** to open the search page and select an open Search tab or open a new tab.
2. Click **Advanced Search** to open the Advanced Search tool.
3. Click **Display** and select the view of your choice.

Search Helper

Search Helper is a search-specific utility that automatically displays relevant information based on the query currently entered in the Search text box.



Search Helper is available by default. If you do not want the Search Helper to display information automatically, click the “Auto-open is ON” link (in the Search Helper window). The link toggles to “Auto-open is OFF”. To access Search Helper on demand (once it has been turned off), click the down-arrow button to the right of the Search text box.

Search Helper includes following the types of information:

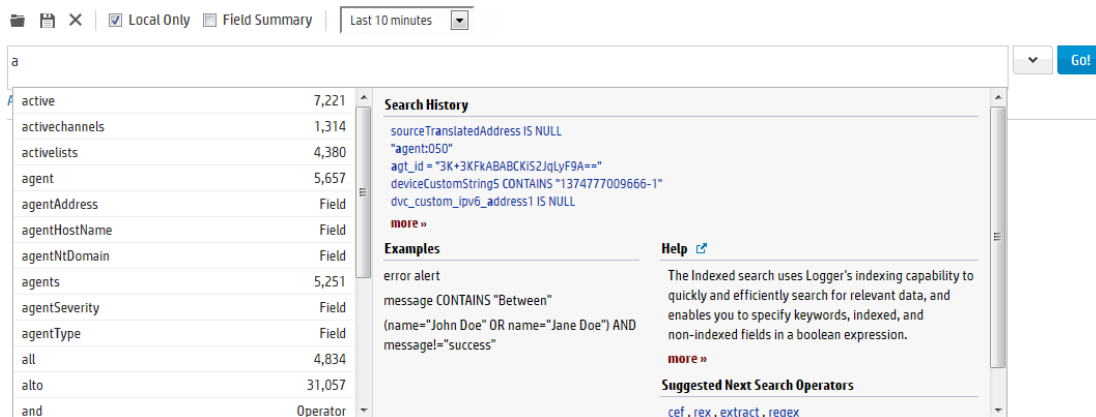
- Autocomplete
- Search history
- Search operator history
- Examples
- Suggested next operators
- Help

Autocomplete

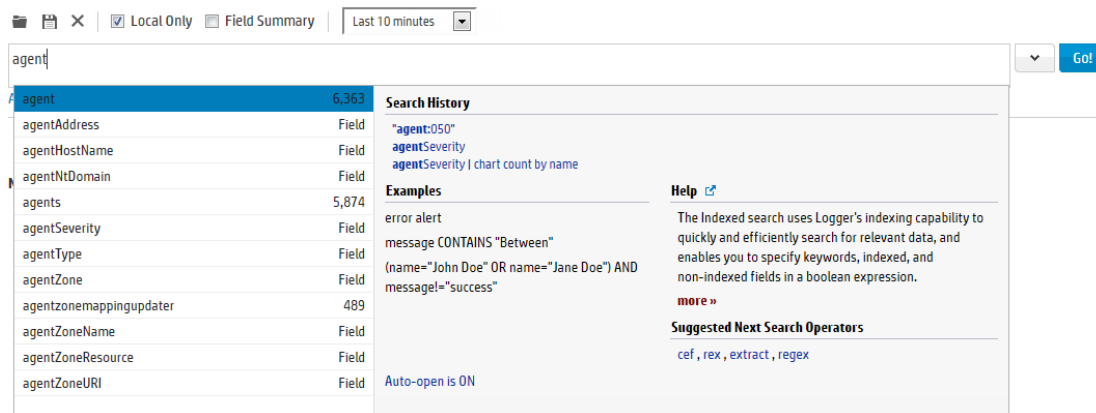
Note: Autocomplete is not available for Managed Security Service Provider (MSSP) users.

The autocomplete functionality provides full-text keywords and field suggestions based on the text currently entered in the Search box. The suggestions enable you to select keywords, fields, field values, search operators, or metadata terms from a list instead of typing them in, thus enabling you to build a query expression more quickly.

When you start typing, the suggestion list displays many types of entries. Event IDs and timestamps are not supported by the autocomplete feature, so the dates, times, and Event IDs will not be included in the suggestion list.



As you continue to type, the suggestions narrow to include only the relevant items.



- If you enter a field name, the suggestion list includes operators and possible field values.
- If you enter a pipe (|), the suggestion list displays operators.
- If you enter an underscore, the suggestion list displays metadata terms, such as `_storageGroup` or `_peerLogger`.
- If you enter a keyword or a field value, the suggestion list displays a count.
- The count represents the number of values stored for a field. The count is dependent on many factors and may not be exact. It does not indicate how many events might match the query. Many factors determine the number of event matches, including the time range, search constraints, and search operators for the query.

Note: Consider the following:

- The autocomplete suggestions and counts are based on data stored on the local system only. Peer data is not included.
- Autocomplete suggestions and counts are reset when the system restarts.

To use an autocomplete suggestion:

Click the suggestion to move it up to the Search box. Then click **Go!** to run that search or continue typing in the search box to narrow your search further.

Search group filters (that restrict privileges on storage groups) are not enforced on the autocomplete list. Therefore, the list includes keywords, fields, field values, and counts of events in storage groups to which a user might not have privileges.

Search History

The search history displays recently run queries that match the currently entered search. Click a recent query to run it again.

Search Operator History

Displays the fields used previously with the search operator that is currently typed in the Search text box. The Search Operator History only displays if you have previously used the operator you have currently typed to perform searches on this system. Click the operator to add it to your search.

Examples

Lists examples relevant to the latest query operator you have typed in the Search text box.


Usage

Provides the syntax for the search operator.

Suggested Next Operators

List of operators that generally follow the currently typed query. For example, if you type `logger |`, the operators that often follow are `rex`, `extract`, or `regex`. Click one of the listed operators to append to the currently typed query in the Search text box. This list saves you from guessing the next possible operators and manually typing them in.

Help

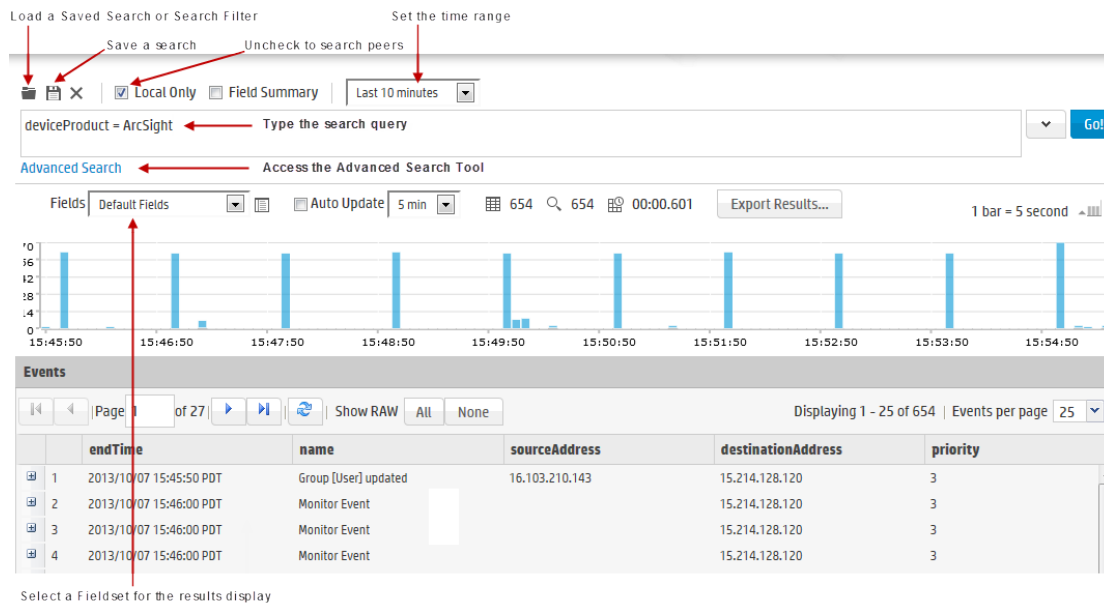
Provides context-sensitive help for the last-listed operator in the query that is currently typed in the Search text box. Additionally, click the  icon to launch the online Help.

Searching for Events

To search for events, you need the search operation permission and permissions to certain event filters. If you cannot search or do not find the events you need, ask your administrator to grant you access. For instructions on how to grant search access, see ["Granting Access to Search Operations and Event Filters" on page 99](#).

Note: Consider the following:

- The fields displayed in the search results vary based on the selected fieldset. The fields you see may differ from the ones displayed in the documentation.
- Command Center Search enables you to search for events that have been stored in the database. However, Active Channels enable you to view events as they come in, before they are stored. During times of high event input, you may be able to view events in Active Channels before they are available for search. Should this occur, wait a few minutes and try the search again.



The screenshot shows the HP ESM Command Center search interface. Red arrows point to various UI elements with labels: "Load a Saved Search or Search Filter" points to the search filter icon; "Save a search" points to the save icon; "Uncheck to search peers" points to the "Local Only" checkbox; "Set the time range" points to the "Last 10 minutes" dropdown; "Type the search query" points to the search text box containing "deviceProduct = ArcSight"; "Access the Advanced Search Tool" points to the "Advanced Search" link; "Select a Fieldset for the results display" points to the "Fields" dropdown menu.

Fields: Default Fields | Auto Update: 5 min | 654 | 654 | 00:00.601 | Export Results... | 1 bar = 5 second

Events

	endTime	name	sourceAddress	destinationAddress	priority
1	2013/10/07 15:45:50 PDT	Group [User] updated	16.103.210.143	15.214.128.120	3
2	2013/10/07 15:46:00 PDT	Monitor Event		15.214.128.120	3
3	2013/10/07 15:46:00 PDT	Monitor Event		15.214.128.120	3
4	2013/10/07 15:46:00 PDT	Monitor Event		15.214.128.120	3

Displaying 1 - 25 of 654 | Events per page: 25

To search for events:

1. Click **Search** to open the search page.
2. Use the following default values or change them to suit your needs:
 - a. **Local Only:** When peers have been configured for your system, the Local Only checkbox will display. Local Only is checked by default. If you want to include peers in your search, uncheck the Local Only checkbox. If you do not see this checkbox, no peers have been configured. For information on adding peers, see ["Configuring Peers" on page 216](#).
 - b. **Time Range:** By default, the query is run on the data received in the last two hours. Click the drop-down list to select another predefined time range or specify a custom time range. For more information about time ranges, see ["Time Range" on page 74](#).
 - c. **Fieldset:** By default, all fields (All Fields) are displayed in the search results. However, you can select another predefined fieldset or specify a customized fieldset. For more information about fieldsets, see ["Fieldsets" on page 75](#).


Note: This option is only displayed after you have run a search in this session.

3. Specify a query expression in the Search text box using one or more of the following methods. Refer to ["Query Expressions" on page 64](#) for information on how to create a valid query expression.
 - a. Type the query expression in the Search text box. For information about building a query expression, including lists of applicable operators, see ["Elements of a Search Query" on page 64](#).
 - b. When you type a query, Search Helper enables you to build the query expression by automatically providing suggestions, possible matches, and applicable operators. See ["Search Helper" on page 94](#) for more information.
 - c. Use these guidelines to include various elements in a search query:
 - To view the fields in the schema, see ["Viewing the Default Fields" on page 213](#).
 - Metadata terms (`_storageGroupz` or `_peerLogger`)

Type `"_s"` (for storage group) or `"_p"` (for peers) in the Search text box to obtain a drop-down list of constraint terms and operators.

For information about storage groups and peers, see ["Storage" on page 179](#) and ["Peers" on page 216](#).
 - **Note:** If your query expression includes multiple storage groups to which search should be constrained, make sure that the group names are enclosed in square brackets; for

```
example, _storageGroup IN ["SGA", "SGB"].
```

- Click **Advanced Search**. (See ["Using the Advanced Search Tool" on page 88](#) for more information.) Use this option to specify storage groups and peers to which the search should be limited.
- d. Click the  icon to load a search filter or a saved search. Select the search filter or the saved search from the displayed list and click **Load+Close**.

For more information, see ["Saved Queries \(Search Filters and Saved Searches\)" on page 118](#) and ["Predefined Search Filters" on page 122](#).

4. Click **Go!**

The search results are displayed in the bottom section of same screen in which you ran the search. For more information about how search results are displayed and the various controls available, see ["Understanding the Search Results Display" on page 103](#).

5. You can save the search as a search filter or saved search. Click the  icon to do so. For more information, see ["Saved Queries \(Search Filters and Saved Searches\)" on page 118](#).

Granting Access to Search Operations and Event Filters

To perform local searches, a user must belong to a Logger Search Group with the "Search for events" user right set to Yes.

To perform searches on peers and view the search results, a user needs to belong to these user groups with the listed permissions:

- Logger Search Group with "Search for events on remote peers" user right set (checked).
- Logger Rights Group with the "View registered peers" user rights set (checked).

Access to the search feature is granted at the user group level. In addition to the search operation permission, a user needs permissions to event filters to enable access to the appropriate events. By default, Administrative users have access to all events, but other users might not have access to any events.

To grant access to search events:

1. In the ArcSight Console, select a system filter or create a filter to provide access to the appropriate events. For more information, refer to the Filtering Events section of the ArcSight Console Guide.

2. In ArcSight Command Center:

- a. Create the user under a group. For more information on user groups and permissions, see ["User Management" on page 155](#).
- b. Edit the Access Control List (ACL) for the group and add the filter you selected or created in Step 1 to the Events tab in the ACL Editor.
- c. Edit the Access Control List (ACL) for the group and add the following permission to the Operations tab in the ACL Editor.

/All Permissions/ArcSight System/Search Operations/Search

For more information on editing access control lists (ACLs), granting or removing permissions for events, and other permissions-related topics, refer to the ArcSight Console User's Guide chapter, "Managing Users and Permissions."

Advanced Search Options

The advanced search options enable you to tune search operations to suit your environment. The options are discussed in ["Tuning Search Options" on page 207](#).

Searching Peers (Distributed Search)

By default, all administrators can view, create, and edit peers; and run searches on remote peers. For other users, access to this feature is controlled by user permissions. If you need access to this feature, ask your administrator. For instructions on how to grant access to peer operations, see ["Granting Access to Peer Operations" on page 222](#).

When you run a search query, by default, only your local system is searched for matching events. However, when specifying a query, you can select an option to run the search on configured peers. You can also select the peers to which the search should be constrained, as described in ["Searching for Events" on page 97](#).

Keep the following in mind when searching across peers:

- ESM 6.5c SP1 can peer with ESM 6.5c and Logger 5.3 SP1. Logger 6.0c can peer with ESM 6.5c, Logger 6.0c, or Logger 5.3 SP1.
- Distributed searches for fields that do not exist in the peer are not supported.
- When searching Logger 5.3 SP1 peers, do not search fields that only exist in ESM 6.5c and later.
- When searching fields that do not exist in Logger 5.3 SP1, exclude 5.3 SP1 peers.
- To find out which fields are not supported when searching 5.3 SP1 peers, see ["Fields That Do Not"](#)

[Exist in Logger 5.3 SP1 and Later" on the next page.](#)

- When searching version 5.3 SP1 (or earlier) peer Loggers, you can search all Logger 5.3 SP1 fields. For a list of those fields, refer to the documentation that came with your Logger, or to the **Configuration** (or **Configuration > Settings**) > **Search > Default Fields** tab in your Logger. When searching ESM 6.5c (and later) peers, you can search all ESM fields. For a list of those fields, refer to the **Administration > Search > Default Fields** tab in ArcSight Command Center.
- Storage groups on peers must have identical names.
- Only storage groups with identical names are searched. If a peer does not have identical storage group names, the search operation skips searching for events for those groups on those peers.
- If a peer becomes unavailable during a search operation, one of the following errors might be displayed:

```
[Logger IP address] Error: Get Query Statistics
```

```
[Logger IP address] Error: Remote exception (does not authorize the request.  
Please check if remote has relationship with your logger)
```

```
[Local Logger] Remote exception (Peer[IP address] is not available at this time)
```

These error messages can occur when the peer cannot be reached. Once the peer is reachable, run the search again. The error messages might still display for a search in progress, even after the relationship is restored. You can ignore the messages if they do not recur when you run a new distributed search.

Fields That Do Not Exist in Logger 5.3 SP1 and Later

The fields in the following table appear in the list of Default Fields provided in Command Center under **Administration > Search > Default Fields**, but they do not exist in Logger 5.3 SP1 and later. Therefore, they are not supported when searching Logger 5.3 SP1 (and later) peers.

agt_asset_id	agt_descriptor_id	agt_dns_domain	agt_id
agt_mac_address	agt_receipt_time	agt_time_zone	agt_trans_address
agt_trans_zone	agt_version	asset_criticality	base_event_ids
cat_custom_format_field	cat_descriptor_id	cat_device_type	cat_tuple_description
cef_others	correlated_event_id	crypto_signature	customer
dest_asset_id	dest_geo_country_code	dest_geo_id	dest_geo_latitude
dest_geo_location_info	dest_geo_longitude	dest_geo_postal_code	dest_geo_region_code
dest_process_id	dest_trans_port	dest_trans_zone	domain

dvc_asset_id	dvc_custom_floating_point1	dvc_custom_floating_point2	dvc_custom_floating_point3
dvc_custom_floating_point4	dvc_custom_ipv6_address1	dvc_custom_ipv6_address2	dvc_custom_ipv6_address3
dvc_custom_ipv6_address4	dvc_descriptor_id	dvc_direction	dvc_dns_domain
dvc_domain	dvc_facility	dvc_mac_address	dvc_nt_domain
dvc_payload_id	dvc_process_id	dvc_process_name	dvc_time_zone
dvc_trans_address	dvc_trans_zone	event_outcome	f_dvc_address
f_dvc_asset_id	f_dvc_descriptor_id	f_dvc_dns_domain	f_dvc_external_id
f_dvc_facility	f_dvc_host_name	f_dvc_inbound_interface	f_dvc_mac_address
f_dvc_nt_domain	f_dvc_outbound_interface	f_dvc_process_name	f_dvc_product
f_dvc_time_zone	f_dvc_trans_address	f_dvc_trans_zone	f_dvc_vendor
f_dvc_version	f_dvc_zone	file_create_time	file_hash
file_id	file_modification_time	file_permission	file_size
file_type	generator	lbl_date1_label	lbl_date2_label
lbl_descriptor_id	lbl_floating_point1_label	lbl_floating_point2_label	lbl_floating_point3_label
lbl_floating_point4_label	lbl_ipv6_address1_label	lbl_ipv6_address2_label	lbl_ipv6_address3_label
lbl_ipv6_address4_label	lbl_number1_label	lbl_number2_label	lbl_number3_label
lbl_string1_label	lbl_string2_label	lbl_string3_label	lbl_string4_label
lbl_string5_label	lbl_string6_label	locality	manager_receipt_time
model_confidence	o_agt_address	o_agt_asset_id	o_agt_descriptor_id
o_agt_dns_domain	o_agt_host_name	o_agt_id	o_agt_mac_address
o_agt_nt_domain	o_agt_time_zone	o_agt_trans_address	o_agt_trans_zone
o_agt_type	o_agt_version	o_agt_zone	old_file_create_time
old_file_hash	old_file_id	old_file_modification_time	old_file_name

old_file_path	old_file_permission	old_file_size	old_file_type
originator	persistence	raw_event	reason
relevance	request_cookies	rule_thread_id	severity
src_asset_id	src_dns_domain	src_geo_country_code	src_geo_id
src_geo_latitude	src_geo_location_info	src_geo_longitude	src_geo_postal_code
src_geo_region_code	src_process_id	src_trans_port	src_trans_zone

Tuning Search Performance

Search performance depends on many factors and will vary from query to query. The amount of time it takes to search depends on the size of the data set to be searched, the complexity of the query, and whether the search is distributed across peers.

To optimize search performance, follow these recommendations:


- Avoid specifying a time range that results in a query that needs to scan multi-millions of events.
- Limit the search to specific storage groups and peers.
- Reduce other load on the system when your query needs to run, such as scheduled jobs, large number of incoming events, and multiple reports being run.
- For more information on improving search performance, refer to the [Logger Configuration and Tuning: Best Practices](#) technical note.

Understanding the Search Results Display





After you have initiated a search, the search results are displayed in the bottom section of the same screen in which you ran the search.

While the search is in progress, the Go! button changes to Cancel—click Cancel to terminate a search in progress. As the query runs, matching events are displayed as they are found. If you are sure the partial search results contain the events you are looking for, you can cancel the search and avoid any additional overhead. You can further process the displayed (partial) results; for example, export the results, use the histogram to drill-down on the results, or click on any text in the Search Results to add it to the query for further drill-down of the search results.

Note: If a query includes chartable operators such as `chart`, `rare`, or `top`, and you cancel the query, a chart of the partial results is not displayed. Additionally, if a query includes the `head`, `tail`, or `sort` operators, partial results are not generated.

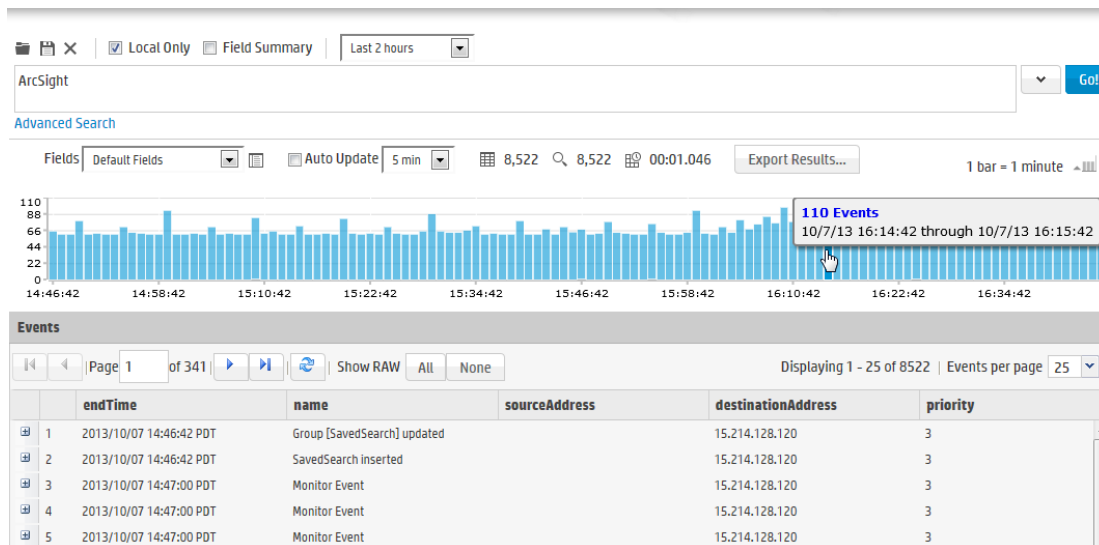
A search operation can take time when millions of events need to be searched. When the first screen of events that match the specified conditions is available, the system automatically pauses the search and displays the matched events. By default, 25 events are displayed on one screen. Event data is categorized by field name with each field displayed as a separate column, as shown in the following figure. For example, time when the event was received on the system (Event Time) is displayed under Time (Event Time). Each event is also available in its raw form and can be viewed by clicking the  icon in the left most column.

To see all raw events, click **All** at the top of the Search Results display. To collapse raw events, click **None**. The column width for each column is adjustable.

To see the next screen of events, click , or  to go to the last page. Once you are past the first screen of events, you can click  to go back to the previous screen; or  to go to the first page.


To change the number of events displayed per screen, open the Events per Page drop down menu and select the number of events to display.

The Search Results page displays a histogram that provides a graphical representation of the events that match a search query. The distribution is based on the time range specified in the query. That is, the X-axis represents event time and Y-axis represents the number of matching events, as shown in the following figure.



You can drill-down to events in a specific time period by clicking the histogram bar representing the time period. If you mouse over a bar in the histogram, the number of events scanned and number of events matching the query and the time it took to run the search is displayed.

Below the histogram, events are shown in table form, one row per event. Terms that match your query are highlighted in blue to make it easy to see why an event matched the query.

To view the raw event of a listed event, click the  icon to the left of the matching event. You can also view the Syslog raw events in a formatted column called rawEvent if you have enabled the "Populate rawEvent field for syslog events" option on the Search Options page, as discussed in ["Tuning Search Options" on page 207](#). Also, see ["Fieldsets" on page 75](#) to learn more about the rawEvent field.

As you roll the mouse over other terms in the events table, they highlight in green. The user interface allows you to drill-down into the displayed search results by clicking a green-highlighted term to add it to the current query. For example, if you search for "login" and roll over the word "fail" in the search results, "fail" will highlight in green. Click the word "fail" to change the query to "login AND fail." You can also highlight and copy text from any displayed column. This feature is handy when you need to copy an IP address or a URL. (Highlight the term by scrolling over it. Then, right-click your mouse to display the Copy option.) You can select any fields from the search results. Search results are sorted by receipt time.

Use these keyboard shortcuts to select terms from the displayed search result columns or the raw events to refine your search query:

- Click the term in search results to add the selected term to the search query, and rerun the search.
- Ctrl+click to replace the entire search query with <field name> + "CONTAINS" + <selected term>, and rerun the search.
- Alt or Shift + click the term in search results to add NOT to the term, and rerun the query, thus eliminating the events that match the term you selected.
- You can add multiple NOT conditions by holding the Alt key and selecting terms in search results. When multiple conditions are added, they are joined by AND operators.
- You can combine Ctrl+Alt, (or Ctrl+Shift) to replace the search query with NOT + <field name> + "CONTAINS" + <selected term>.

A Field Summary panel is displayed on the left side of the matched events. This section lists the fields that occur in matching events and the number of unique values for each in those events. For more information, see ["Field Summary" on page 110](#).

User-defined Fields in Search Results

When a search query matches events that were received from a defined source type and were parsed using a pre-defined or user-defined parser, the search results include a parser field, and may include fields for the source type, and source, depending on the setting in the Search Options tab. For more information, see ["Tuning Search Options" on page 207](#).

The following table describes the purpose of these fields.

Field	Description
parser	Indicates whether an event was parsed or not, and which parser was used. If the event was parsed, this field contains the name of the parser. If the event was not parsed successfully, this field contains "Not parsed". If no parser is defined for the source type or if there is no source type, the field is blank.

Field	Description
source type	The type of file from which the event was received, as defined on the Source Type page (Configuration > Event Input > Source Types). If no source type was applied when the event was received, this field is blank. You can control whether this field is displayed from the Search Options tab.
source	The name of the log file from which the event was received. For example, /opt/mnt/testsoft/web_server.out.log. If no source was applied when the event was received, this field is blank. You can control whether this field is displayed from the Search Options tab.

User-defined fields are also created when a search query includes operators such as `rex`, `extract`, and `rename`. See ["Search Operators" on page 225](#) for information on these operators.

These fields are displayed as additional columns in the All Fields view (of the System Fieldsets). To view only these columns, select **User Defined Fieldsets** from the System Fieldsets list.



Viewing Search Results Using Fieldsets

By default, the Search Results are displayed using the All Fields fieldset, which displays all fields contained in an event. Once you select another fieldset, it becomes your default view until you change it the next time. For a detailed discussion about fieldsets, see ["Fieldsets" on page 75](#).

If you view the Search Results using the Raw Event fieldset, even though the `rawEvent` column displays the raw event, this column is not added to the database and is not indexed. Therefore, you can only run a keyword (full-text) or regular expression to search on the event.

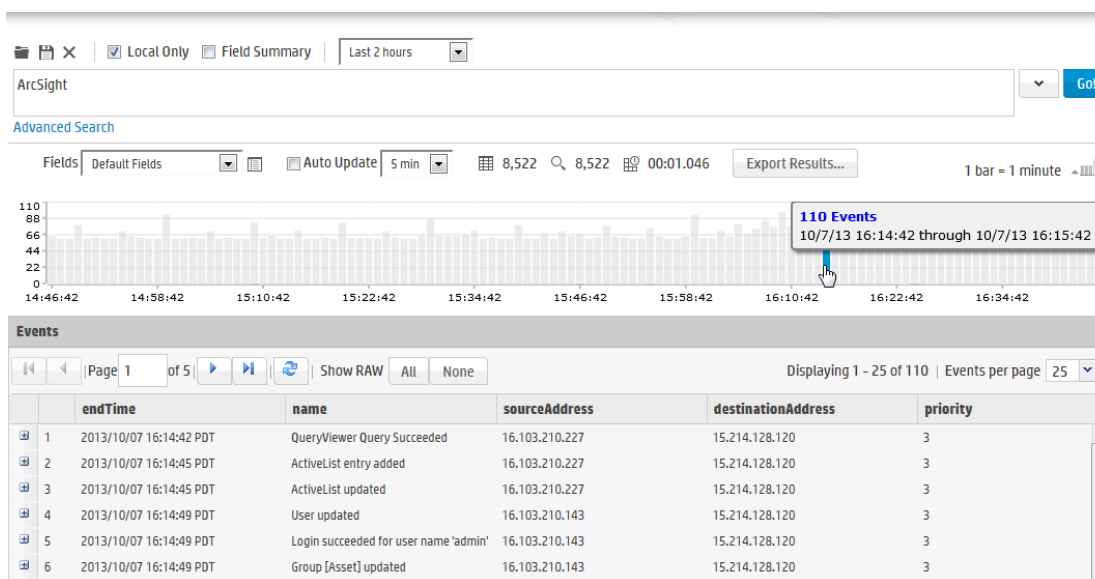
Using the Histogram

Use the following guidelines to effectively and efficiently use histograms:

- Histogram of the matching events is generated automatically. You cannot disable it, however, you can click  to the upper-right corner of the histogram to hide it. To display a hidden histogram, click the  icon.
- Histogram is based on the device receipt time of the events (similar to search queries that also use the device receipt time to search for events).
- The time distribution on the X-axis is determined automatically.
- You can mouse-over any histogram bar to view the number of matching events and the date and time period that the bar represents.
- You can drill-down to events in a specific time period by clicking the bar on the histogram that

represents that time period. The selected section is highlighted and the events matching that time period are listed below the histogram. The histogram continues to display the distribution of all of the matching events, as shown in the following figure. For example, if you select a bar that represents 11,004 events on 2/22/2010 from 12:25:49 a.m. to 12:26:49 a.m. in the following histogram, the details of those events are listed below the histogram; however, the histogram displays all time units and the associated bars. You can also select multiple consecutive bars on the histogram to view matching events in all of the selected time units.

- To deselect a selected bar, click it.



- A histogram is progressively built and displayed as events match a search query. If the search query needs to scan a large amount of data or a large time period, the histogram displayed initially might refresh multiple times while the query is running. To view the complete (and final) histogram of a search query, wait until the query has finished running (that is, the screen does not display the circular “waiting” icon anymore).
- The time range on the X-axis might not match the time range specified in the search query because the start and end times on the X-axis are determined by the event times of the first and last matching events of the search query.
- The first one million matching events are plotted on the histogram. If a search query matches more than one million events, an informational message is displayed on the screen.
- If you need to use the histogram view the results of a search query that matches more than one million events, HP ArcSight suggests that you adjust the time range specified in your search query so that fewer than one million are matched to obtain a complete and meaningful histogram. Alternatively, use a pipeline operator such as top, head, or chart to further refine search results so that the total number of hits is fewer than one million.

Multi-line Data Display

An event message might span multiple lines separated by characters such as newline (\n) or carriage return (\r). For example,

```
0x0000: 0000 0100 0000 0000 0000 0000 0000 0000 .....  
0x0010: 0000 0000 0000 0000 0000 0000 0000 0000 .....  
0x0020: 0000 0000 0000 0000 0000 0000 0000 .....
```

The user interface displays such a message in the expected multi-line format and does not remove the line separators and collapse the message into one line.

Auto Updating Search Results

The Auto Update feature executes the search over specified intervals, updating the search results if new events match the query.

Depending on your needs, you can auto update the search results every:

- 30 seconds
- 60 seconds
- 2 minutes
- 5 minutes (default)
- 15 minutes

You can enable this option for a search operation before or after running it. Once you enable this option, the setting persists for all search operations until you disable it.

To auto update search results:

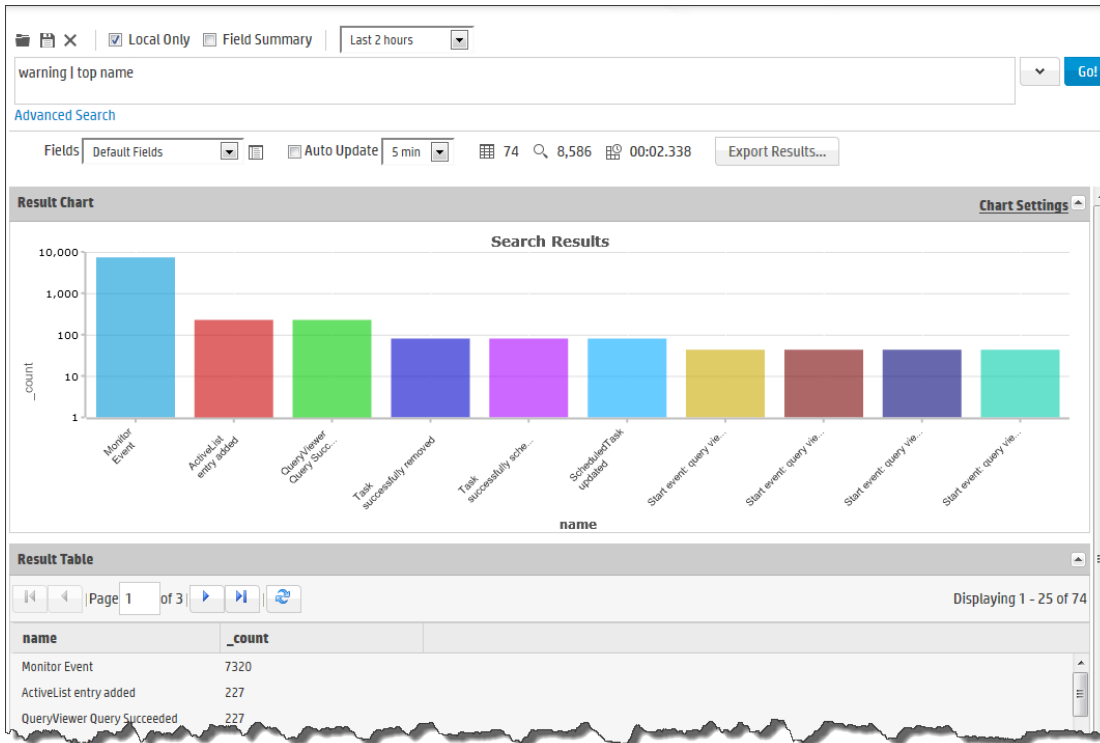
1. Click **Events > Event Search** to open the search page.
2. Check the **Auto Update** box and select the refresh interval if different from the default, 5 minutes.

Note: The Auto Update checkbox is available only when search results are shown. It will be available then, even if there were no hits.

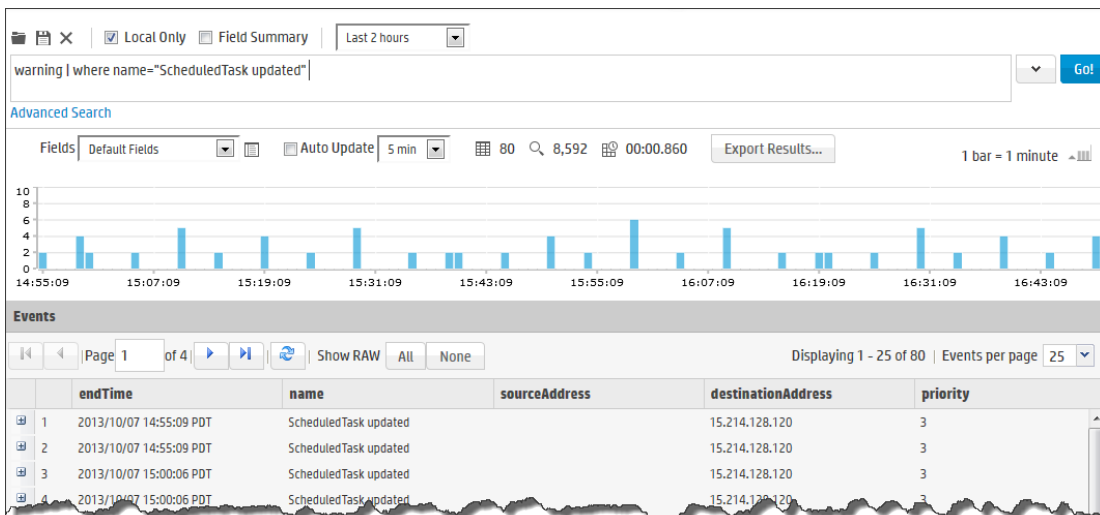
Chart Drill Down

The chart drill down feature enables you to quickly filter down to events with specific field values. Identify a value on a search results chart and click it to drill-down to events that match the value. For

example, the following chart displays the names of fields that contain the word “warning”. One of these fields has the name “ScheduledTask updated”. If you want to see events in “ScheduledTask updated”, click the sixth column.



When you click on a chart value (a column, bar, or pie section), the existing search query is modified to include the WHERE operator with the field name and value, and automatically rerun.



If you need to return to the original query from the drill-down screen, use the Back function of your browser.

Field Summary

If the Field Summary checkbox is marked, when a query is run the Field Summary panel lists the CEF and non-CEF fields that occur in matching events and the number of unique values for each in those events. This panel is only displayed for queries that do not generate charts. If a peer search is performed, the summarized field values include counts from peers.

Granting Access to Field Summary Operations

Access to Summary Operations is granted at the user group level. Edit the Access Control List (ACL) for the group and add the following permission to the Operations tab in the ACL Editor.

View Field Summary:

/All Permissions/ArcSight System/Summary Operations/Field Summary Read

For more information on user groups and permissions, see ["User Management" on page 155](#). For more information on editing access control lists (ACLs), granting or removing permissions for events, and other permissions-related topics, refer to the ArcSight Console User's Guide chapter, "Managing Users and Permissions."

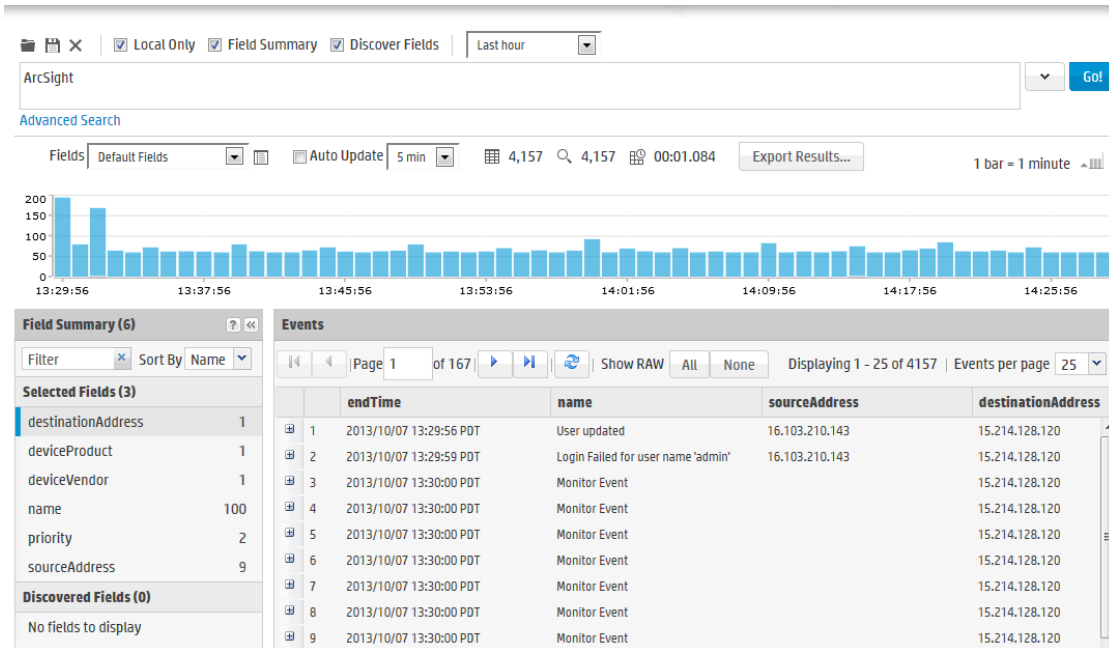
Understanding Field Summary

The Field Summary panel can contain one or two sections depending on whether you mark the Discover Fields checkbox. For both sections, by default, the top 10 values for each field are listed.

The Selected Fields section lists the CEF fields. By default, the Selected Fields list contains these fields: destinationAddress, deviceProduct, deviceVendor, name, priority, and sourceAddress. You can edit this list to suit your needs, as described in ["To change the default Selected Fields list:" on page 112](#).

The Field Summary feature can automatically discover non-CEF fields from a raw event. When this box is checked, the Discovered Fields section lists the non-CEF fields discovered in raw events.

Note: The Discover Fields option is useful for events that have raw, unstructured (non-CEF) data, such as events from a peer Logger.



By default, the Field Summary and its Discover Fields options are disabled. If you need to enable the Field Summary, with or without the Discover Fields option, for all searches on your system, change the default values (“No”) on the Search Options page (**Administration > Search > Search Options**) to the desired values for these options, as shown in the following figure.

Field Summary Options

Use Field Summary

Discover fields

Save

However, if you need to use the Field Summary, with or without the Discover Fields option, occasionally—not for all searches—you can enable the options for one-time use on the user interface page from where you run the Search query. To do so, click the Field Summary and, optionally, the Discover Fields checkbox above the Search text box before clicking Go! to run the query. Selecting these options on the Search page overrides the setting for these options on the Search Options page.

Note: Setting these options to yes can impact search performance.

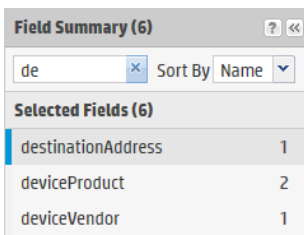
To auto-discover fields, the raw events must contain data in the “key=value” format, and none of these characters can be the first character of the “value”: comma, space, tab, and semicolon. For each “key=value” pair found in a raw event, a new field of the name “key” is created. The Field Summary includes a summary of the values for all the new fields under the Discovered Fields section. The discovered fields are assigned the type “String” by default. The auto-discovery capability works only if at least 2,500 of the first 10,000 matching events contain “key=value” pairs. If this threshold is not met, auto discovery is automatically turned off. However, this threshold does not apply if there are less than 10,000 matching events; in that case, fields are discovered regardless.


You can drill-down on any of the listed fields or a specific value of the listed fields. For example, you might want to view all events containing `destinationAddress` (specific field) or you might want to view events of name "Report updated" (specific value in a field).

When you click one of the fields under Selected the Field Summary, various options become available. The available options vary by field type. When field is the data type String (Text), you can choose the following options Display events containing <field>, view the top 10, or view the values by time. When field is the data type Number (Long, Integer or Double), you can also perform mathematical operations such as average, min, and max. For more information about the available fields and data types, see ["Viewing the Default Fields " on page 213](#).

Every time you run a query or drill-down on a specific field or value, a new query using the newly selected criteria is run and the Field Summary list is updated.

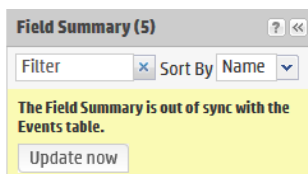
You can limit the search to a specific field or filter the listed fields by specifying a filter criteria in the Search Filter text box located at the top of the Field Summary panel. For example, if you want to see fields that begin with "de", enter "de" in the Search Filter text box.



To go back to the default list, click the  icon. You can sort the field list by Name or Count. To do so, select the sort criteria from the drop-down menu.

To change the default Selected Fields list:

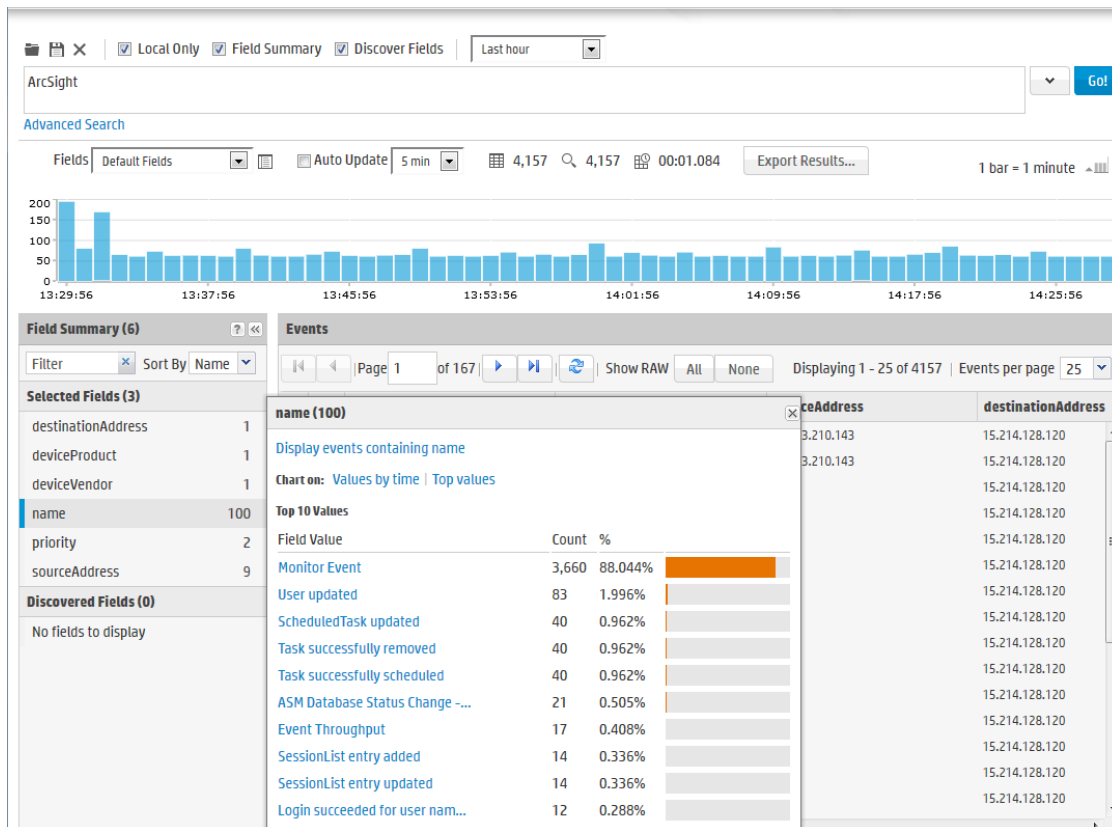
1. Click **Events > Event Search** to open the search page.
2. Define or update an existing custom fieldset to include fields you want the Selected Fields list to contain. See ["Fieldsets" on page 75](#) for information on creating custom fieldsets.
3. Select the custom fieldset you defined to view search results.
4. After running a search query, if you select a different fieldset, the Field Summary panel displays the following message:



This message indicates that the fields listed in the Field Summary panel do not match the ones specified in the newly selected fieldset. To display the fields specified in the new fieldset, click **Update now**.


Refining and Charting a Search from Field Summary

When you click a field in the Field Summary, a dialog box labeled *<fieldname><number of values>* displays information about the field. From here, you can drill down to see more details and create a chart of the search results.



To view field details from field summary:

1. Click **Events > Event Search** to open the search page.
2. Check the Field Summary checkbox and then run a search.
3. Click the field name in the Field Summary.
4. The *<fieldname><number of values>* dialog box displays the top ten field values.
5. Optionally, click a field value to append it to the query and rerun the search.
6. To create a chart of the search results, click one of the Chart on values, such as **Values by time** or **Top values**.
7. The results display in a Result Chart and a Result Table.

8. In the Result Chart, click **Chart Settings** to adjust the chart.
9. Enter a useful **Chart Title**.
 - Select the **Chart Type** best suited to your data.
 - Set the **Display Limit**. The highest valid value is 100.
10. In the Result Table, you can use navigation buttons to move forward and backward through list of results, and refresh the search. 
11. To create a PDF or CSV file containing the search results, click **Export Results**. For more information, see ["Exporting Search Results" below](#).

Exporting Search Results

You can export search results in these formats:

- PDF — Useful in generating printable output of the search results. The report includes a table of search results and any charts generated for the results. Both raw (unstructured data) and CEF (structured data) events, can be included in the exported report.
- CSV file — Useful for further analysis with other software applications. The report includes a table of search results. Charts cannot be included in this format.

Data for the following time fields is exported in human-readable format: deviceReceiptTime, startTime, endTime, agentReceiptTime. For example, 2014/03/21 20:22:09 PDT.

To export search results:

1. Click **Events > Event Search** to open the search page.
2. Run a search query.
3. Click **Export Results** in the top right-hand side of the search results screen.
4. Select from the following export options.

Option	Description
Save to local disk	The file is saved to a local system or it is sent to the browser for viewing or saving.

Option	Description
Save to ArcSight Command Center	The file is written to local storage.
File Format	<p>CSV, for comma-separated values file.</p> <p>PDF, for a report-style file that contains search results as charts and in tables. Charts are only included in the PDF file if the search query contains an operator that creates charts, such as chart, top, and so on.</p>
Export file name	<p>(Available only when the “Export to remote location” option is selected)</p> <p>Specify the name of the file to which events will be exported.</p> <p>If a file of the specified name does not exist, it is created. If a file of the specified name exists and the Overwrite box is not checked, an error is generated. If the Overwrite box is checked, the existing file is overwritten.</p> <p>You do not need to specify an extension. The extension .pdf or .csv is added for you based on the file format you selected.</p>
Title	<p>(Optional, available only when the File Format is “PDF”)</p> <p>A meaningful name that appears on top of the PDF file. If no title is specified, “Untitled” is included.</p>
Fields	<p>A list of event fields that will be included in the exported file.</p> <p>By default, all fields are included.</p> <p>You can enter fields or edit the displayed fields by deselecting All Fields.</p> <p>To export fields created as a result of rex, extract, rename, or eval operators, or field created when a parser is applied to an event, ensure that *user is selected in the Fields list.</p>

Option	Description
Chart Type (for PDF only)	<p>(Available only when a chart is available in search results)</p> <p>Type of chart to include in the PDF file. You can select from:</p> <p>Column, Bar, Pie, Area, Line, Stacked Column, Stacked Bar.</p> <p>Note: If the Chart Type is different from the chart displayed on the Search Results screen, the value selected for this option overrides the one shown in the screen. Therefore, the exported PDF contains the chart you specify for this option and not the one shown on the screen.</p>
Chart Result Limit (for PDF only)	<p>(Available only when a chart is available in search results)</p> <p>Number of unique values to plot. Default: 10</p> <p>If the configured Chart Result Limit is less than the number of unique values for a query, the top values equal to the Chart Result Limit are plotted. That is, if the Chart Result Limit is 5 and 7 unique values are found, the top 5 values will be plotted.</p>
Include Summary	Include an event count in the exported search results.
Include only CEF Events	Only include CEF events in the exported search results.
Include base events (alerts only)	Include base events for Alerts in the exported search results.
Rerun query	<p>Rerun query when exporting the results.</p> <p>It may be significantly faster to leave the "Rerun query" box checked for some types of log data—events for which the receive time is significantly different from the actual time when the event occurred on the device.</p> <p>Note: When the receipt time and end time differ significantly, the export may be faster if you check this option.</p>
Include Base Events	Include base events in the exported search results.

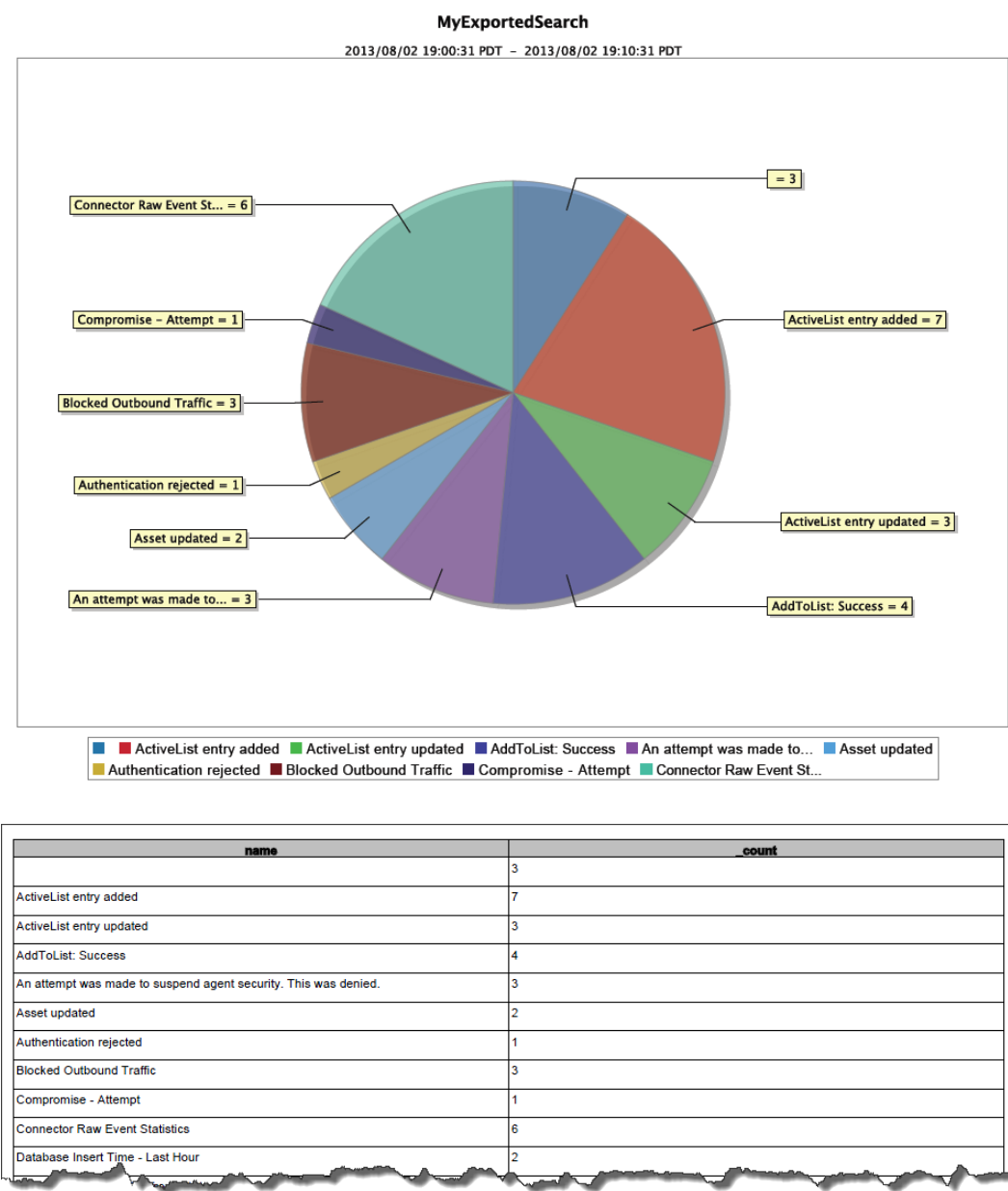
5. Click **Export**.

Example PDF output

The following is an example of a generated in PDF format. The chart is displayed first, followed by a table of matched events. All generated charts (including stacked charts) can be exported.

The example uses the Chart Type **Pie**, and the following query.

ESM | where name is not null | top name



Scheduling an Export Operation

The time it takes to export search results is proportional to the number of events being exported. Therefore, for a large number of events, HP recommends that you schedule the export operation to be performed at a later time by saving the query and time parameters as a saved search, and then scheduling a saved search job. For more information about saved search jobs, see ["Scheduled Searches" on page 200](#).

Saved Queries (Search Filters and Saved Searches)

If you need to run the same search query regularly, you can save it as a search filter or as a saved search. A search filter includes just the query expression. A saved search includes the specified time range as well as the query.

Saved searches and search filters are displayed in the ArcSight Console and can be packaged for distribution to peers.


By default, all administrators can view, create, and edit saved searches and search filters. For other users, access to these features is controlled by user permissions. If you need access to search filters or saved searches, ask your administrator.

For instructions on how to grant access to these features, see ["Granting Access to Search Filter Operations" on page 195](#) and ["Granting Access to Saved Search Operations" on page 198](#).

For information about saved search Alerts, see ["Scheduled Searches" on page 200](#).

Saving a Query

To save a query:

1. Define a query as described in ["Searching for Events" on page 97](#) or ["Using the Advanced Search Tool" on page 88](#).
2. Click the Save icon () and enter a name for the query in the Name field, as shown in the following figure.

The image displays two screenshots of the "Save query" dialog box. The top screenshot shows the "Name" field empty, "Save as" set to "Search Filter", "Schedule it" unchecked, and "Schedule type" set to "Scheduled search". The bottom screenshot shows "Name" as "MyQuery", "Save as" set to "Saved search", "Schedule it" checked, and "Schedule type" set to "Scheduled search".

3. In the **Save as** field, select whether to save this query as a Search Filter, or as a Saved Search, or as a Dashboard panel.
4. Select **Search Filter** to save just the query.
5. Select **Saved Search** to save the time range along with the query.

Optionally, specify when to run the query by selecting **Schedule it**. If you mark schedule it, you can save it as a Scheduled Search or a Scheduled Alert.

If the search query includes an aggregation operator such as chart or top, a third option to save the query for a **Dashboard panel** is also displayed. If you select this option, you need to enter the following parameters.

Parameter	Description
Title	Enter a meaningful name for the panel that will be added to the Dashboard.
Saved search	<p>Select an existing saved search from the drop-down box that will be overwritten with this query.</p> <p>OR</p> <p>Select “New saved search” to create a new saved search query. Enter the new name in the text box.</p>
Dashboard	<p>Select an existing Dashboard from the drop-down box to which the Search Results panel will be added.</p> <p>OR</p> <p>Select “New dashboard” to add the Search Results panel to a new Dashboard. Enter the name of the new Dashboard in the “Dashboard Name” field.</p>

Parameter	Description
Panel type	Select the type of panel: <ul style="list-style-type: none">■ Chart—Displays search results in a chart form■ Table—Displays search results in a table form■ Chart and Table—Adds two panels, one for displaying search results in the chart form and the other for displaying search results in the table form
Chart type	Type of chart to display matching events. You can select from: Column, Bar, Pie, Area, Line, Stacked Column, Stacked Bar. Default: Column
Chart limit	<i>Only applicable to Search Result Chart panels.</i> Number of unique values to plot. Default: 10

6. Click **Save**.
7. If you selected **Schedule it**, a dialog box opens asking if you want to edit the schedule settings.
8. Click **OK** to edit them now or **Cancel** to edit them later.

Note: In some cases, the browser adds a message to this dialog box asking if you want to prevent the page from creating additional dialogs. If you select this option, you might be unable to proceed. In that case, close the browser and restart it.

9. Edit the scheduling options and then click **Save**. For more information about the Scheduled Searches and the Schedule options, see ["Scheduled Searches" on page 200](#).

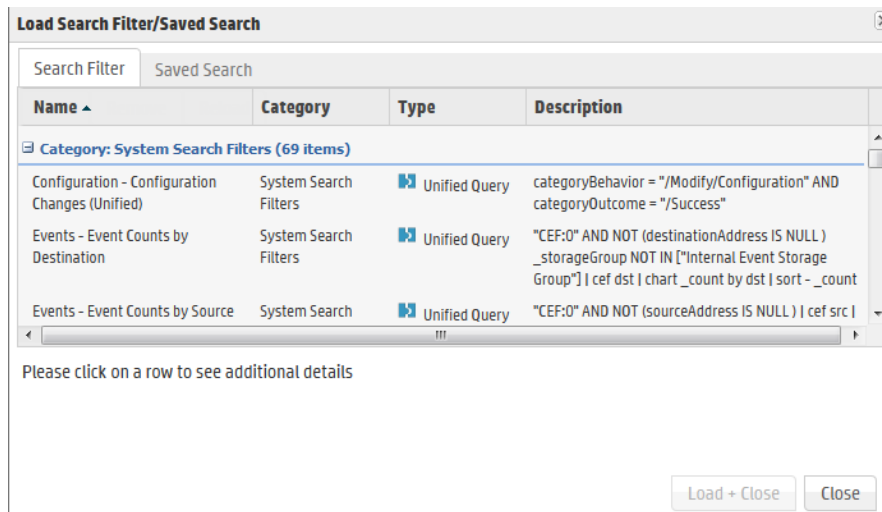
Using a Search Filter or a Saved Search

The Load Search Filter/Saved Search interface enables you to quickly locate system filters, search filters, and saved searches. Your system provides pre-defined search filters that you can select to run. These are explained in ["Predefined Search Filters" on the next page](#).

To use a search filter or a saved search:

1. Click **Search** to open the search page.
2. Click the **Load a saved search filter** icon () to view a list of the available Search Filters and

Saved Searches.



System Filters, continued

Category	Unified Query Search Filters
	Failed Logins
Configuration	Configuration Changes
Events use case	High and Very High Severity Events
	Event Counts by Source
	Event Counts by Destination
Intrusion use case	Malicious Code
Firewall use case	Deny (Firewall Deny)
	Drop (Firewall Drop)
	Permit (Firewall Permit)
Network use case	DHCP Lease Events
	Port Links Up and Down
	Protocol Links Up and Down
Connector System Status use case	CPU Utilization by Connector Host
	Disk Utilization by Connector Host
	Memory Utilization by Connector Host
UNIX Server use case	CRON related events
	IO Errors and Warnings
	PAM and Sudo Messages
	Password Changes
	SAMBA Events
	SSH Authentications
	User and Group Additions
	User and Group Deletions

System Filters, continued

Category	Unified Query Search Filters
Windows Events use case	Account Added to Global Group Account Added to Global Group (CEF)
	Audit Policy Change Audit Policy Change (CEF)
	Change Password Attempt Change Password Attempt (CEF)
	Global Group Created Global Group Created (CEF)
	Logon Bad User Name or Password Logon Bad User Name or Password (CEF)
	Logon Local User Logon Local User (CEF)
	Logon Remote User Logon Remote User (CEF)
	Logon Unexpected Failure Logon Unexpected Failure (CEF)
	New Process Creation New Process Creation (CEF)
	Pre-Authentication Failure Pre-Authentication Failure (CEF)
	Special Privileges Assigned to New Logon Special Privileges Assigned to New Logon (CEF)
	User Account Changed User Account Changed (CEF)
	User Account Password Set User Account Password Set (CEF)
	Windows Events (CEF)

System Filters, continued

Category	Unified Query Search Filters
System Alerts	The following search filters search for specific internal alert events. Note: Although the System Alert search filters are displayed, they do not apply to your system.
	CPU Utilization Above 90 Percent
	CPU Utilization Above 95 Percent
	Disk Failure
	Root Partition Below 10 Percent
	Root Partition Below 5 Percent
	Device Configuration Changes
	Filter Configuration Changes
	High CPU Temperature
	Power Supply Failure
	RAID Controller Issue
	RAID Status Battery Failure
	RAID Status Disk Failure
	Storage Configuration Changes
	Storage Group Usage Above 90 percent
	Storage Group Usage Above 95 percent
	Zero Events Incoming
	Zero Events Outgoing

System Filters

Category	Unified Query Search Filters	Regular Expression Query Search Filters
Login Status use case	All Logins	All Logins (Non-CEF) All Logins (CEF format)
	Unsuccessful Logins	Unsuccessful Logins (Non-CEF) Unsuccessful Logins (CEF format)

System Filters, continued

Category	Unified Query Search Filters	Regular Expression Query Search Filters
	Successful Logins	Successful Logins (Non-CEF) Successful Logins (CEF format)
	Failed Logins	
Configuration	Configuration Changes	System configuration changes (CEF format)
Events use case	High and Very High Severity Events	High and Very High Severity CEF events
	Event Counts by Source	
	Event Counts by Destination	
		All CEF events
Intrusion use case	Malicious Code	Malicious Code (CEF format)
Firewall use case	Deny (Firewall Deny)	
	Drop (Firewall Drop)	
	Permit (Firewall Permit)	
Network use case	DHCP Lease Events	
	Port Links Up and Down	
	Protocol Links Up and Down	
Connector System Status use case	CPU Utilization by Connector Host	
	Disk Utilization by Connector Host	
	Memory Utilization by Connector Host	
UNIX Server use case	CRON related events	
	IO Errors and Warnings	
	PAM and Sudo Messages	

System Filters, continued

Category	Unified Query Search Filters	Regular Expression Query Search Filters
	Password Changes	
	SAMBA Events	
	SSH Authentications	
	User and Group Additions	
	User and Group Deletions	
Windows Events use case	Account Added to Global Group Account Added to Global Group (CEF)	
	Audit Policy Change Audit Policy Change (CEF)	
	Change Password Attempt Change Password Attempt (CEF)	
	Global Group Created Global Group Created (CEF)	
	Logon Bad User Name or Password Logon Bad User Name or Password (CEF)	
	Logon Local User Logon Local User (CEF)	
	Logon Remote User Logon Remote User (CEF)	
	Logon Unexpected Failure Logon Unexpected Failure (CEF)	
	New Process Creation New Process Creation (CEF)	
	Pre-Authentication Failure Pre-Authentication Failure (CEF)	

System Filters, continued

Category	Unified Query Search Filters	Regular Expression Query Search Filters
	Special Privileges Assigned to New Logon Special Privileges Assigned to New Logon (CEF)	
	User Account Changed User Account Changed (CEF)	
	User Account Password Set User Account Password Set (CEF)	
	Windows Events (CEF)	
System Alerts	<p>The following search filters search for specific internal alert events, which are written in CEF format to the Internal Storage Group. These search filters are available in both search methods.</p> <p>Note: Although these search filters are displayed they do not apply to the following:</p>	
	CPU Utilization Above 90 Percent	CPU Utilization Above 90 Percent
	CPU Utilization Above 95 Percent	CPU Utilization Above 95 Percent
	Disk Failure	Disk Failure
	Root Partition Below 10 Percent	Root Partition Below 10 Percent
	Root Partition Below 5 Percent	Root Partition Below 5 Percent
	Device Configuration Changes	Device Configuration Changes
	Filter Configuration Changes	Filter Configuration Changes
	High CPU Temperature	High CPU Temperature
		Bad Fan
	Power Supply Failure	Power Supply Failure
	RAID Controller Issue	RAID Controller Issue
	RAID Status Battery Failure	RAID Status Battery Failure
	RAID Status Disk Failure	RAID Status Disk Failure
	Storage Configuration Changes	Storage Configuration Changes
	Storage Group Usage Above 90 percent	Storage Group Usage Above 90 percent

System Filters, continued

Category	Unified Query Search Filters	Regular Expression Query Search Filters
	Storage Group Usage Above 95 percent	Storage Group Usage Above 95 percent
	Zero Events Incoming	Zero Events Incoming
	Zero Events Outgoing	Zero Events Outgoing

Indexing

Events are indexed for full-text search and for field-based search. For full-text (keyword) search, each event is tokenized and indexed. For field-based search, the event fields are indexed based on a predetermined schema.

Full-text Indexing (Keyword Indexing)

For full-text indexing, each event received on the system is scanned and divided into keywords and stored on the system. The full-text search options control the manner in which an event is tokenized as described in ["Tuning Search Options" on page 207](#).

Note: The eventId field and the DATETIME fields such as deviceReceiptTime and endTime are not indexed and, therefore, are not available for full-text search. To search these fields, use a field-based search.

Field-based Indexing

Field searches utilize the schema fields.

You can search any field defined in the schema. A list of the schema fields, along with their field descriptions is available from the **Administration > Search > Default Fields** tab. For instructions on how to view the fields, see ["Viewing the Default Fields" on page 213](#).

Note: Not all ESM event information is available for searching. To search for fields not included in the Default Fields list, use the ArcSight Console through a query viewer. Refer to the Query Viewers topic in the ArcSight Console Guide.

Chapter 5: Using Reports

The ArcSight ESM Command Center interface enables you to view the hierarchy of reports created in the ArcSight Console, run them, and view the results.

To *create* a report to appear on this page, refer to the chapter “Building Reports,” in the ArcSight Console User’s Guide. The reports available to you are organized in the tree in the left panel. Click the group folders in the tree to open or close them. Click a folder to see a list of its reports in the right-hand pane.


Running and Viewing Reports	130
Report Parameters	131
Archived Reports	134


Running and Viewing Reports

The reports that are available were created in the ArcSight Console. Refer to the ArcSight Console User’s Guide for information on creating and managing reports.

To run and view a report:

1. Click **Reports** in the top menu bar.
2. Navigate to a report folder in the resource tree at the left.
3. Click a report folder to show a list of that folder’s reports in the right pane.
4. Select a report and click **Run** to run it with the default parameters and display the results.

For focused reports () , you can also click the report name to run it.

For regular reports () you can click the report name to change the output parameters before you run it. The report parameters dialog is described in "[Report Parameters](#)" on the next page.


If you have run reports recently you can select one from **Reports > Recents**.

Note: In ESM Command Center, if you have a report that is currently in the process of generating and you select and run another report, it cancels the first report.

If you run a report that takes more than approximately 30 minutes to execute, ACC may display a Manager Unresponsive error. The report continues to run on the server. You can view the finished report in the Archives > Archives tab > reports tree > [user]’s Archive

Reports folder > Temporary Reports folder (the [user] string is the currently logged in Username).

Report Parameters

For regular reports () you can change the output parameters by double-clicking the report name. It brings up a dialog that enables you to change selected parameters before running it.


Parameter	Description
Basic Tab	
Start Time	<p>To set a start time that overrides the one set in the query, specify a start time here.</p> <p>For example, if you want all the report elements to report on events for the past 2 hours, you can create a start-time parameter of <i>\$Now-2h</i>, which sets both table and chart start times to <i>\$Now-2h</i>.</p> <p>This setting is saved locally as part of the report definition, not as part of the original query upon which the report is based.</p>
End Time	<p>To set an end time that overrides the one set in the query, specify an end time here.</p> <p>This setting is saved locally as part of the report definition, not as part of the original query or trend upon which the report is based.</p>
Other options	<p>The other options that might appear vary according to the report, for example you might see License Type for licensing reports, or Row Limit, Filter By, or other options with choices appropriate to the report.</p>
Run as User	<p>Run the report as a particular user. From the drop-down menu, select the user name by which you would like to run the report.</p> <p>For example, this option would allow an administrator for an Managed Security Service Provider (MSSP) to run report for a customer. The administrator would need write permissions to the user.</p>
Email Tab	

Parameter	Description
Format	<p>Specify how the report is to be accessed by the recipient.</p> <ul style="list-style-type: none"> Choose Send URL if you want to point users to the report. Use this option if the report is large and is saved (archived) to a network-accessible location <p>You can provide URLs for all report formats: PDF, XLS, RTF, CSV, and HTML.</p> <ul style="list-style-type: none"> Choose Attach Report if you want to send the report directly to the user's e-mail box. <p>You can only attach PDF, XLS, RTF, and CSV report formats.</p> <ul style="list-style-type: none"> Choose Attach Compressed Report if you want the PDF, XLS, RTF, or CSV report to be compressed (zipped) first before mailing. If you want to display the report on the e-mail message body so that the recipient immediately sees the report upon opening the e-mail, select Embed Report. <p>You can only embed CSV and HTML report formats.</p> <p>Note: If you select an email format for an unsupported report format, the notification automatically uses the URL.</p>
Subject	<p>Specify the subject on the notification. Defaults to the report's Name attribute (denoted by \$ReportName). If you want to use a customized subject, type the text either in addition to the default or to replace the default entirely.</p>
Addresses	<p>Send the report to one or more comma-separated or semicolon-separated e-mail addresses. This option does not require the recipient to be an ArcSight Console user.</p> <p>Note: The recipient will only see his or her e-mail address in the To field even if there are multiple recipients for this report.</p>
To	<p>You can have the report sent as email to one or more Console users.</p> <p>From the drop-down menu, select the Console users to whom the report should be e-mailed. The selection list is read from the Users resource.</p> <p>The recipient will only see his or her user name in the To field even if there are multiple recipients for this report.</p> <p>Note: By default, an e-mail is sent even if the report is empty.</p>
Archive Tab	

Parameter	Description
Save Output to Archive	<p>Check this box to elect to save (archive) the report results. This enables you to retrieve it later for viewing without having to re-run it. Reports that are run on demand are saved on the Archives tab just like scheduled reports. If the Save Output option is chosen for an on-demand report, the archived report has an expiration date of 6 months from the time it was run (by default). If the Save Output option is not chosen for an on-demand report, the report is maintained in the archive for one day only.</p> <p>Archived reports can also be sent to a notification group after the scheduled report is run.</p> <p>For information on how to archive and maintain reports, see "Managing Reports" in the ArcSight Console User's Guide.</p>
Folder	Select a resource folder in which to archive this report.
Name	By default the name of the report is \${Today}/\${ReportName}, where Today is today's date/time and ReportName is the name given to the report when it was created. You can type in a different name.
Expiration Time	The report is archived until the date/time selected here, after which the archive is deleted.
Presentation Tab	

Parameter	Description
Format	<p>From the drop-down menu, select one of the following report output formats:</p> <ul style="list-style-type: none">• pdf - Displays the report as an Adobe PDF file. <p>Note: In Internet Explorer, reports displayed in PDF are always on top. If you open the Help > About dialog or another report parameters dialog, it might be partially hidden by the PDF report. However, you can drag these dialogs out from under the PDF report and they work normally.</p> <ul style="list-style-type: none">• xls - Generates a Microsoft Excel file for tables and charts. <p>Note: XLS reports you run with <i>Microsoft Excel 2002</i> might have page break format problems (misalignments, column spillover) due to default page size settings in Excel. To correct this problem, open the resulting XLS report in Excel, choose File > Page Setup from the menus, change the paper size to Letter (instead of Legal), and click OK to save your changes. The report has the appropriate page break formatting. <i>This problem does not occur in newer versions of Microsoft Excel.</i></p> <p>Note: XLS report formats display speedometer charts as pie charts. This is a known limitation in Microsoft Excel.</p> <ul style="list-style-type: none">• rtf - Produces a rich-text format document.• csv - Creates tabular data as a list of comma-separated values. <p>Note: Reports generated in CSV format are not the full equivalent of exports to other formats like PDF or HTML. CSV format is useful for loading report data into a spreadsheet for further manipulation. Since CSV is meant to contain tabular data, only the table data of a report is normally useful. Therefore, ArcSight exports only the table data portion of a report to CSV format, ignoring any other report information such as charts or text, including report titles.</p> <ul style="list-style-type: none">• html - Generates the report in HTML format. <p>Your selection affects your choice for e-mail formats.</p>
Page Size	From the drop-down menu, select a paper size.

Changing any of these defaults is optional.

For focused reports () , you cannot change the output parameters, so clicking on the report name runs it.

Archived Reports

The archived report results that are available were archived in the ArcSight Console. Whenever you run a report it is archived for six months. Refer to the ArcSight Console User's Guide for information on

archiving reports.

To show an archived report result:

1. Click **Reports** in the top menu bar.
2. Click the **Archives** tab.
3. Navigate to an archived-report folder in the resource tree at the left.
4. Click a folder to show a list of that folder's archived reports in the right pane.
5. Click an archived report to highlight it.
6. Click **Show** to show the report results in the bottom pane.

Deleting Archived Reports

1. Click **Reports** in the top menu bar.
2. Click the **Archives** tab.
3. Navigate to an archived-report folder in the resource tree at the left.
4. Click a folder to show a list of that folder's archived reports in the right pane.
5. Click an archived report to highlight it.
6. Click **Delete** to delete the archive.

Chapter 6: Cases

Cases track individual or multiple related events and export event data to third-party products. Cases can stand alone or integrate with a third-party case management system, such as HP Service Manager or BMC Remedy.

A case contains information about an incident, usually with one or more events attached. Use cases to track, investigate, and resolve events. you can assign cases of interest to analysts, who can investigate and resolve them based on severity and enterprise policies. You can also use rules to automatically open a case when certain conditions are met.

You can assign cases to groups of users who receive a notification with access to the case and its associated data. Those users can take action on the assigned case and specify other actions to be taken, assign it to another user, or resolve the case.

Case Navigation and Features	136
Creating or Editing a Case	137
Granting Permission to Delete Cases	144
Deleting a Case	145
Case Management in the ArcSight Console	145
Using External Case Management Systems	146

There are some case-related operations that you can do from the ArcSight Console. For more information on cases, see the topic "Managing Cases" in the ArcSight Console User's Guide chapter, "Case Management and Queries".

Case Navigation and Features

To view lists of cases, click **Cases** in the top menu bar.

View — Navigate the case tree, in the left panel, and click on any group to see a list of cases in that group. A case group can have a maximum of 10,000 cases.

Customize the List — To add or remove the columns or fields displayed in the list, click the **Customize** button in the upper right. corner of the case list.

Create or Edit — To create a new case or edit an existing one. See ["Creating or Editing a Case" on the next page.](#)

Delete — Highlight a case and click the **Delete** button above the list. The case cannot be locked for editing.

Add a note — Highlight a case and click the Add Note button above the list.

Lock for Editing — Highlight a case and click the **Lock** button above the list. Now no other user can edit this case, and it cannot be deleted. Click **Unlock** when you are done.

Sort — You can sort the list by any column. Click on the column heading.

Creating or Editing a Case

1. Click **Cases** in the top menu bar.
2. In the resource tree at the left, navigate to the folder where you want to create a new case and click **New**.

To edit an existing case, navigate to it and click on the case name to open the case editor, described in the next topic. You can click up to three cases in this way to have the case editor display them in three tabs in the lower half of the page. If you want to view another one, you have to close one of the three: click the X in the tab.

The sections below describe the tabs and options available when creating or editing a case.

Case Editor Initial Tab

The fields on the **Attributes** subtab provide basic case information.

Attributes Subtab	
Field	Description
Case:	
Name	Specify a case name (required field).
Display ID	This ID is assigned automatically when you create a case and save it. For imported cases, it is provided by the external tracking system.
Ticket:	
Ticket Type	Select from a drop-down list that includes Internal, Client, and Incident types.
Stage	Select the workflow stage of ticket; default selections include Queued, Initial, Follow-Up, Final, and Closed.
Frequency	Select how often the reported issue occurs. Values assigned are 0 (never or once), 1 (less than 10 times), 2 (10 to 15 times), 3 (15 times), 4 (more than 15)
Operational Impact	Select the impact of the reported issue. Values assigned are 0 (no impact), 1 (no immediate impact), 2 (low priority impact), 3 (high priority impact), 4 (immediate impact)

Attributes Subtab	
Field	Description
Security Classification	Assign a value of 1 (Unclassified), 2 (Confidential), 3 (Secret), 4 (Top Secret)
Consequence Severity	Assign a value of 0 (None), 1 (Insignificant), 2 (Marginal), 3 (Critical), 4 (Catastrophic)
Reporting level	The level number is calculated by the system based on the other Ticket values entered.
Incident Information:	
Detection Time	Automatically assigned based on the first event that is added to a case. Time is based on the Manager's system time. Once assigned, the value does not change even if you add events or remove existing events.
Estimated Start Time	Automatically assigned based on the Manager Receipt Time (MRT) of the oldest event attached to the case, even if more recent events have been added to the case prior to this oldest event. If you remove this oldest event from the case, Estimated Start Time takes the MRT of the next oldest event in the case, and so on. If you remove all events from the case, the field will be blank.
Estimated Restore Time	This is a user-entry field to denote the date when the case is resolved. Select a timestamp from the calendar popup.
Common	
Resource ID	Read-only field that shows the ID that the system assigned to this resource when it was created.
External ID	An identification string suitable for, and which can be referenced by, systems outside ESM Command Center. Common applications of External IDs include appropriate naming for Case and Asset resources that are tracked in common with defect reporting or vulnerability-management systems. If your system interfaces with a third-party incident tracking system, such as Remedy, enter an ID that corresponds to that system. Your administrator can advise you on the correct values for this field, if applicable.
Alias (Display Name)	<p>An optional alternate identification string used for referencing resources. If given, this alias appears in place of the resource's name everywhere it may be seen. Your administrator can advise you on the correct values for this field, if applicable.</p> <p>If you use an alternate event naming scheme in your environment, enter an alias for this resource here.</p>

Attributes Subtab	
Field	Description
Description	<p>Description of the resource.</p> <p>You can use this field to communicate the purpose of this resource to other users. For example, if this is a resource that leverages or depends on another resource (for example, a query viewer or trend that uses an SQL query), this is a good place to make note of that relationship.</p>
Version ID	The globally unique version ID for this resource. Version IDs are assigned when you export a resource as part of a package, if the resource has changed.
Deprecated	Toggle to indicate whether the resource is current or deprecated (obsolete).
Assign	
Owner	A user selected from the Users resource tree who should be notified about this resource.
Notification Groups	The user groups selected from the Users resource tree who should be notified about this resource.
Parent Groups	
Parent Group	Read-only field that shows the name and path to parent group of this resource.
Creation Information	
Created By	Read-only field that shows the user who created this resource.
Creation Time	Read-only field that shows the date/time when this resource was created or imported and installed.
Last Update Information	
Last Updated By	Read-only field that shows the user who last updated the resource.
Last Update Time	Read-only field that shows the date/time when this resource was last updated.

The fields on the **Description** subtab further describe a case.

Description Subtab	
Field	Description
Affected Services	Text field allowing entry of up to 4000 characters.
Affected Elements	Text field allowing entry of up to 4000 characters.

Description Subtab	
Field	Description
Estimated Impact	Text field allowing entry of up to 4000 characters.
Affected Sites	Text field allowing entry of up to 4000 characters.

The fields on the **Security Classification** subtab describe the security classification for a case.

Security Classification	
Field	Description
Security Classification:	
Attack Mechanism	Selections include: P (Physical), O (Operational), I (Information), and U (Unknown).
Attack Agent	Selections include: I (Insider), C (Collaborative), O (Outsider), and U (Unknown).
Incident Source 1	Editable text.
Incident Source 2	Editable text.
Vulnerability	Selections include: D (Design), O (Operational), E (Operational Environment), and U (Unknown).
Sensitivity	Selections include: U (Unclassified), C (Confidential), S (Secret), and T (Top Secret).
Associated Impact	Selections include: A (Availability), C (Confidentiality), I (Integrity), and U (Unknown).
Action	Selections include: B (Block/Shutdown), M (Monitoring), and O (Other).
Security Classification Code:	
Security Classification Code	Value automatically calculated from other Security Classification field entries.

Case Editor Follow Up Tab

The four fields on the **Follow Up** tab are free-form data entry fields that can take up to 4,000 characters. Use them to keep track of follow-up actions taken and planned.

Case Editor Final Tab

The fields on the **Attack Mechanism** subtab provide final ticket resolution and reporting information for the attack mechanism associated with a case.

Attack Mechanism Subtab	
Field	Description
Attack Mechanism	Auto-populated from Security Classification tab. Possible values are P (Physical), O (Operational), I (Informational), and U (Unknown).
Attack Protocol	Text field allowing entry of up to 64 characters.
Attack OS	Text field allowing entry of up to 64 characters.
Attack Program	Text field allowing entry of up to 255 characters.
Attack Time	Date field.
Actions Target	Text field allowing entry of up to 4000 characters.
Attack Service	Text field allowing entry of up to 4000 characters.
Attack Impact	Text field allowing entry of up to 4000 characters.
Final Report Action	Text field allowing entry of up to 4000 characters.

Fields on the **Attack Agent** subtab provide ticket resolution and reporting information related to the attack agent associated with a case.

Attack Agent Tab	
Field	Description
Attack Agent	Auto-populated from Security Classification tab. Possible values are Insider, Collaborative, Outsider, and Unknown.
Attack Location Id	Text field allowing entry of up to 255 characters.
Attack Node	Text field allowing entry of up to 4000 characters.

Attack Agent Tab	
Field	Description
Attack Address	Text field allowing entry of up to 4000 characters.

The fields on the **Incident Information** subtab provide final incident information associated with a case.

Incident Information Tab	
Field	Description
Incident Source 1	Auto-populated from Security Classification tab.
Incident Source 2	Auto-populated from Security Classification tab.
Incident Source Address	Text field allowing entry of up to 4000 characters.

The fields on the **Vulnerability** subtab provide final ticket resolution and reporting information related to the vulnerabilities associated with a case.

Vulnerability Tab	
Field	Description
Vulnerability	Auto-populated from Security Classification tab. Possible values are D (Design), O (Operational), E (Operational Environment), and U (Unknown).
Vulnerability Type 1	Selections include: Accidental or Intentional.
Vulnerability Type 2	Selections include: EMI/RFI, Insertion of Data, Theft of Service, Unauthorized, Probes, Root Compromise, DOS Attack, User Account, Virus, Illegal Worms, Spams, Replay/Reroute, Wiretapping, Hardware/Software, Spoofing, and Unknown/New.
Vulnerability Evidence	Text field allowing entry of up to 4000 characters.
Vulnerability Source	Text field allowing entry of up to 4000 characters.
Vulnerability Data	Text field allowing entry of up to 4000 characters.

The fields on the **Other** subtab provide miscellaneous ticket resolution and final reporting information.

Other Tab	
Field	Description
History	Selections include: Known Occurrence and Unknown.
No Occurrences	Specifies the number of occurrences..
Last Occurrence Time	Enterable time or selector.
Resistance	Selections include: High, Low, or Unknown.
Consequence Severity	Auto-populated from Initial Attributes tab.
Sensitivity	Auto-populated from Initial Attributes tab.
Recorded Data	Text field allowing entry of up to 4000 characters.
Inspection Results	Text field allowing entry of up to 4000 characters.
Conclusions	Text field allowing entry of up to 4000 characters.

Case Editor Events Tab

The fields on the **Events** tab provide a list of the events included in a case.

Events Tab	
Field	Description
Event Tree	Events auto-populated from events included in a case.
Remove Event	Removes the highlighted event from the case.
Details tab	Shows the value for every field in the event.
Show Fields Containing	Filters the list of fields to only those that contain the value that you enter.
Field Set	Select a field set to display. You define Field sets in the ArcSight Console.
Annotations Tab	Shows all the annotations for the selected event. You annotate events from the ArcSight Console.

To view event payloads use the ArcSight Console.

Case Editor Attachments Tab

The **Attachments** tab lists any attachments to the case, and provides options to:

- **Upload** — Browse to and attach new items using a file browser.

Click **Save** in the lower right corner to save the attachment. You cannot view file content unless it is saved. The value "Not Saved" appears in the **Date Created** field until you save it.

- **Download** — Download attached files to another location. You can only download saved attachments.
- **Detach** — Remove the attached file from this list.

Once a file is attached to a case, anyone viewing the case can view details about the file and download it.

If the case attachment was also added as a shared resource, the file is available in the ArcSight Manager Files resource folders.

Case Editor Notes Tab

The **Notes** tab lists all the notes that have been added to this case, with the most recent note at the top of the list. Select a note to highlight it and then you can perform the following actions:

Read a note — Click the Plus icon to read a note.

Add a Note — Click **Add Note** to open the Note dialog.

Delete a Note — Click **Delete Note** to delete a note you created. You cannot delete notes added by the system or other users.

Save Changes — As soon as you add a note the **Save Changes** button activates.

Granting Permission to Delete Cases

By default, new user groups added under Custom User Groups are **not** allowed to delete cases. The ability to delete cases is controlled by the permission, /All Permissions/ArcSight System/Case Operations/Case Delete, set in the group's Advanced Permissions on the Operations tab.

A user can belong to multiple groups. If at least one of those groups have permission to delete cases, then the user will have the ability to do so; the permission to delete cases takes precedence.

User groups created in older releases (prior to ESM Command Center 6.5c SP1) carry over their legacy permission to delete cases.

To grant or remove permission to delete cases:

1. Edit the user group.
2. Follow the instructions in "[User Management](#)" on page 155 to display the group's Advanced Permissions panel.

3. On the Operations tab, grant or remove the /All Permissions/ArcSight System/Case Operations/Case Delete permission as applicable.
4. If you are granting permission to delete cases:
 - a. Go to the Resources tab.
 - b. Locate the /All Cases/All Cases resource and check the **R** and **W** boxes.

Deleting a Case

Caution: Prior to deleting cases, decide if you want to preserve them after deletion. If so, add this property (or ask an administrator to add it) in the `server.properties` file before deleting any cases:

```
case.archive_ondelate.enabled=true
```

The archived deleted cases are stored as read-only snapshots for historical purposes in the Manager's `archive/cases` directory. The filename format of the archived case is

```
YYYY-MM-DD <deleted case name>.xml
```

For important details on changing properties files, refer to the topic, "Managing and Changing Properties File Settings" under the "Configuration" section of the ESM Administrator's Guide.

If you belong to a user group that is authorized to delete cases, you can delete a case. See ["Granting Permission to Delete Cases" on the previous page](#) for related information.

Make sure to unlock the case before deleting it.

Case Management in the ArcSight Console

There are a number of additional features and functions you can perform with cases using the ArcSight Console:

- Managing case groups
- Running case queries
- Copying event details from one existing case to another
- Showing event details for cases in channels
- Creating a channel for a case
- Including base events through a rule

- Edit case by ID
- Running a simple report off of a case

Refer to the “Case Management and Queries” chapter of the ArcSight Console User’s Guide for more information on these features.

Using External Case Management Systems

This topic describes a couple of external case management systems to which you can export cases, and how to export them.

HP Service Manager

If you have the HP Service Manager, you can configure ESM Command Center to integrate with it using the Enterprise System Connector for HP Service Manager. Then you can use HP Service Manager to provide supplemental or alternative ticketing, tracking, and workflow support for security event data.

The Enterprise System Connector for HP Service Manager transfers data from ESM Command Center to HP Service Manager. The ArcSM connector can also be configured to update the ArcSight database with HP Service Manager status. For more about the ArcSM connector, see the ArcSM documentation.

BMC Remedy

If you have the Remedy Action Request System, you can configure ESM Command Center to integrate with it using an application called *ArcRemedyClient*. Then you can use Remedy to provide supplemental or alternative ticketing, tracking, and workflow support for ESM Command Center security event data.

ArcRemedyClient runs in the background as a service, transferring data from ESM Command Center to Remedy. ArcRemedyClient can also be configured to update the ArcSight Database with Remedy status. For more about the ArcRemedyClient, ask your HP Customer Service representative for ArcSight products.

Exporting Cases

If you have an integration to an external case management system such as HP Service Manager, you can export cases from the ESM Command Center as follows.

1. In the Navigation pane on the left, navigate to the case group that contains the cases you want to export.

2. Select the cases to export in the cases panel on the right.
3. Click the **Export** button at the top.

Cases are exported to the Manager as XML files and placed in the Manager's archive/export directory. The Case Editor displays a message informing you of a successful transfer. For information on working with the case files, refer to the appropriate configuration guide for the external case management system connector.

Chapter 7: Applications

If you have licensed another application to integrate with ESM, its user interface appears on the **Applications** tab.

When viewing an application on the **Applications** tab, you can access the application's online help by clicking the help link in the upper right corner of the ArcSight ESM Command Center window. Such documentation is separate from the ESM Command Center online documentation.

For information on licensing an application contact your HP ArcSight representative.

Chapter 8: Administration Configuration

This chapter describes the features available in the Administration module, which enables you to control administrative functions such as users, storage, connectors, and configuration. You can also create and configure storage groups, event archives, search filters, saved searches, peers, and retrieve logs.

This chapter includes information on the following areas of administration configuration:

Content Management	149
Users, Connectors, and Configuration	154
Storage and Archive	177
Search Filters	195
Saved Searches	198
Search	207
Peers	216
Log Retrieval	222

The Administration home page gives a high-level description of the available administrative features and provides links to them. To access the administration home page, click Administration from the menu bar.

Content Management

You must be an administrative user to access this feature.

You may have multiple ArcSight Managers deployed either hierarchically or in parallel across your enterprise, in widely dispersed geographical locations. Using ArcSight ESM Command Center, you can manage and synchronize custom content packages across all of these Managers. For example, you have ArcSight Managers in San Francisco, London, and Tokyo. You update some rules on the Tokyo Manager and can include those rules in a custom content package. Then, using Content Management, you can synchronize the package to the ArcSight Managers in San Francisco and London.

Synchronization of a custom content package can be performed either manually, at an administrator's command, or automatically, at regular scheduled intervals. Synchronizing packages from one ArcSight Manager to another is also referred to as *pushing*. The Manager that is the source of custom packages is called the *publisher*, and the peers receiving packages are called the *subscribers*.

Planning for Content Management

Before you can use Content Management, you must enable *peers* for each ArcSight Manager participating in the content synchronization. Peer Managers are eligible to synchronize content through ESM Command Center packages. See ["Configuring Peers" on page 216](#) for more information.

Use the following guidelines to help you plan content management:

- You have a choice of designating only one Manager where content authoring, packaging, and publishing are done; or you can distribute the responsibility among different peers.
- When creating packages for synchronization, make sure these packages are created in the **contentsync** format.

Refer to the ArcSight Console User's Guide topic on "Managing Packages" for detailed instructions.

Content Management Tabs

To access Content Management, click **Administration > Content Management**.

Tip: Custom content packages are created and managed on the ArcSight Console. For information on creating and managing packages, see the "Managing Resources" chapter of the ArcSight Console Guide, under "Managing Packages".

Packages Tab

The **Packages** tab lists all custom content packages currently available for distribution. Each package listed includes the following descriptors:

- **Package:** Name of the package.
- **URI:** Path indicating the location of the package file.
- **Last Push:** Date of the last package push.
- **Push Status:** Indicates the success or failure of the latest push attempt. (Click the link to view details.)
- **Follow Schedule:** If selected, the package will be automatically pushed to subscribers at the scheduled time.
- **Description:** Brief description of the package.

Click the header of the **Package**, **URI**, or **Last Push** columns to sort the tab contents by that column. Click **Refresh** to show the first package in the table.

Note: Not all custom content packages can be synchronized. For a list of eligible packages, refer to “Managing Packages” in the *ArcSight Console Guide*.

Subscribers Tab

The **Subscribers** tab lists all peers to which packages may be pushed from this ArcSight Manager. By default, subscribers must be of the same ESM Command Center version. Through a property setting, you can configure your publisher to push packages to older subscribers. The oldest supported subscriber is ESM Command Center 6.5c.

Note: The procedure provides the property name and value, however, you must refer to the Configuration section of the ESM Command Center Administrator's Guide for detailed steps on editing the Manager's `server.properties` file.

To configure a hierarchical publishing relationship with subscribers:

Add this property to the `server.properties` file in the publishing Manager:

```
contentsync.enforce.peer.version=false
```

This setting allows the publisher with the latest ESM Command Center version to publish to older subscribers.

The list of subscribers includes the following descriptors:

- **Subscriber:** Host name of the subscriber. (Although Loggers may be enabled as peers, a Content Management subscriber must be an ArcSight Manager.) Click a subscriber name to view the push history of all packages pushed to that subscriber.
- **Active:** During a push, packages are pushed to all Active subscribers.

Tip: To push a package selectively (that is, to only some subscribers instead of all), ensure that the Active checkbox is selected only for the subscribers to which you wish to push.

Click the header of the Subscribers column sort the tab contents by that column. Click **Refresh** to refresh the page view.

Note: To enable peers, click the **Peering** link on the **Subscribers** tab.

Schedule Tab

The **Schedule** tab includes controls for setting automatic push intervals. If **Follow Schedule** for the package is enabled on the **Packages** tab, the package push will be performed automatically at the chosen interval. All packages (with **Follow Schedule** enabled) are pushed on a single schedule.

Select one of the following settings for a push schedule:

- **On/Off:** If **On**, scheduled pushes for packages are enabled. If **Off**, the package will not be pushed automatically, even to Active subscribers.
- **Hourly:** The push is performed on the hour (:00), or, if you specify minutes, at :15, :30, or :45 minutes past the hour.
- **Daily:** The push is performed once every 24 hours at the selected time.
- **Weekly:** The push is performed once every 7 days at the selected day and time.

Pushing Content Packages

You synchronize content across ArcSight Managers by the push process. Packages can be scheduled for automatic pushes, or can be pushed manually. Pushing a package, either automatically or manually, will overwrite the existing package on any Active subscribers.

Note: In order for a package to be pushed from an ArcSight Manager to a subscriber, both Managers must be in the same mode (for example, FIPS to FIPS).

A pushed package will include any dependencies in the package.

Pushing a Package Automatically

Packages can be enabled for automatic pushes to all Active subscribers. All packages are pushed on a single schedule.

To enable an automatic push:

1. Click **Packages**.
2. From the list of packages, select the package or packages to be pushed automatically.
3. Under **Follow Schedule**, ensure that the check box is enabled.
4. Click the **Schedule** tab.
5. Select **On**, and then choose settings for a date or time at which the package will be pushed.

At each scheduled date or time, all packages will be pushed to all Active subscribers.

Note: A package may not be pushed if it includes required features which are not enabled by the license on the subscriber.

Editing an Automatic Push Schedule

You can edit your schedule for automatic package pushes.

To edit the schedule for an automatic push:

1. Click **Packages**.
2. From the list of packages, select the package for which you wish to edit the schedule.
3. Click the **Schedule** tab.
4. Using the drop-down controls, edit the schedule as needed. (To disable a schedule, but keep its settings, select **Off**.)
5. Click **Save** to save changes.

Pushing a Package Manually

Packages can be pushed manually to all Active subscribers. You may manually push only one package at a time.

To push a package manually:

1. Click **Packages**.
2. From the list of packages, select the package to be pushed manually.
3. Click **Push**.
4. On the **Push Package** dialog, click **OK** to confirm the push. The package is pushed to all Active subscribers.

Note: Once successfully pushed, a package is always installed on the subscriber, even if it is not installed on the publishing Manager. To see the status or history updated, click **Refresh**.

Best Practices for Content Management

Content management is a powerful tool for ensuring that content is synchronized across multiple ArcSight Managers. These best practices will help ensure that the tool is used effectively.

- **Configure peers before using Content Management.** Setting up peers is a prerequisite to using the feature. Peering is automatically mutual, so a group of peers may be enabled from a single Manager. Content Management is certified with up to five subscribers, with one additional Manager as a publisher.
- **Use only one Manager as a publisher.** Since subscribers are defined as peers, any Manager may be a publisher to other Managers. To preserve the integrity of packages, as part of your workflow process, use one Manager as the publisher. The publisher would keep the definitive version of each package and would never receive pushes from other Managers. Use all other

ArcSight Managers as secondary sites. Secondary sites would receive the definitive packages from the primary or master.

- **Schedule automatic pushes prudently.** Exercise caution when scheduling frequent automatic package pushes. Package pushes overwrite the pushed packages on subscribers. For example, if an automatic push occurs hourly, subscribers would receive packages (and have their own versions overwritten) every hour.
- **Retry failed pushes.** Occasionally, an automatic or manual package push can fail. If a package push fails, uninstall the package on the subscriber and then retry the push.
- **Reduce network impact.** Package pushing to multiple subscribers is performed in parallel. As a result, heavy, simultaneous package pushing runs the risk of a network impact. Schedule or perform manual pushes only during times when network demand is low.
- **Audit events.** Audit events are logged in several circumstances, which can make troubleshooting easier. These circumstances include when a peer becomes a publisher or subscriber, a package is pushed manually, a package push is scheduled, or after the success or failure of a push. For a complete discussion of audit events, consult the ArcSight Console Guide.
- **Backups.** As with all critical, sensitive systems, run frequent backups on your ArcSight Managers to ensure that their content can be easily restored, if necessary.

Tip: A push that fails may be rectified by setting larger values in `server.properties`.

- Some failed pushes which include Queries can return an error: `Cache size for Queries is insufficient to import this archive`. This issue may be rectified by changing the value in `server.properties` of `resource.broker.cache.size.Query` to 3000.
- A large package push may fail because of the value of `archive.export.max.size`. The default value is 30000, but this value can be increased to accommodate large packages.

For more information on setting values in `server.properties`, see the ESM Administrator's Guide.

Users, Connectors, and Configuration

You must be an administrative user to access these features.

The panel on the left contains expandable bars for each of the Administrative features in this module. When you click each function bar it expands to show the objects in this function that you can administer. For example the User Management function shows the user group hierarchy.

User Management

If it is not already expanded, click the **User Management** bar in the accordion panel to add, edit, or remove users and user groups. The **All Users** list is divided into three groups:

- Administrators
- Custom User Groups
- Default User Groups

You can add and delete users and groups, and perform other user management functions.

Highlighting any group displays its members in the user panel to the right.

In general, when you are first getting started, create groups first. You can only create a new user in an existing group.

Add or Edit a User Group

You can add a sub group to any group below the top level. To create or edit a user group, use the following procedure:

1. To add a group: In the hierarchy tree on the left, right-click on the group to which you want to add a new child group and select **New Group**.

To edit a group, highlight the group you want to edit and either right-click and select **Edit** or select **Edit Group** at the top right of the group member list panel.

2. Enter a **Name** and a **Description**. The **URI** field specifies the hierarchical location of the group. When adding a group, if you want the new group to be the child of a different group, abandon the operation and add to the other group.
3. In the users box, Select **Add** to add users to this group. This is optional; you can add users later. If you have not yet added any users to your system, see ["Add or Edit a User" on page 159](#), and then come back here to add them to groups.
 - Select a user in one of the boxes and use the left or right arrow keys to move the user to the other box. The users in the **Selected Users** box are members of the group.
 - You can start typing in the data entry field above the **Available Users** box to filter the list of available users. Click the X to the right of that field to clear it and restore the list of available users.
 - Use the double arrows (the top-most and bottom-most arrows) to send every user in the box to the other box.
4. Click **Save** to save the group and return to the group page.

Click **Cancel** to clear any field changes you have made and restore them to the way they were. To close the edit/add panel, click anywhere in the tree view on the left.



After you add a user group, select the resources and actions to which this group has access. See ["Edit Advanced Permissions" on the next page](#).

Clone a User Group

You can create a copy of a user group using the Clone Group link. Clones are created within the same parent group as the cloned group. You cannot move a group to another group.

You cannot clone the three main groups at the top level.

Cloning does not include any sub-groups that the cloned group had. It includes all users and other field values.

1. Highlight the group you want to clone and either right-click and select **Edit Group** or select **Edit Group** at the top right of the group member list panel.
2. Click the **Clone Group** link in the upper right corner of the Edit box. This creates a group with "Copy_" prefix.
3. Change the **Name** and add a **Description**. The **URI** field specifies the hierarchical location of the group. When adding a group, if you want the new group to be the child of a different group, abandon this clone operation and clone an existing child of the other group.
4. In the users box, Select **Add** to add users to this group. This is optional; you can add users later. By default a clone contains the same users as the group you are cloning.
 - Select a user in the available Users box use the right arrow key to move the user to the Selected Users box. The users in the **Selected Users** box are members of the group.
 - To filter the list of available users, start typing in the data entry field above the **Available Users** box. Click the X to the right of that field to clear it and restore the list of available users.
 - Use the double arrows ( and ) to send every user in the box to the other box.
5. Click **Save** to save the group and return to the group page.
Click **Cancel** to clear any field changes you have made and restore them to the way they were. Cancel does not cancel the operation.

To abandon a clone operation, click the **Cancel** button to reset all the fields, then click anywhere in the tree view on the left to close the Clone panel.

Delete a User Group

To delete a group, right-click on the group and click **Delete Group**.

- You cannot delete the three main groups at the top level.
- You cannot delete a group of which you are a member, or any of its parent groups.

Delete a User from a Group

There are two ways to delete a user from a group:

- Edit the user:
 - a. Select a user.
 - b. Scroll to the **Groups** box, at the bottom, and click the trash can icon to the right of the group from which you want to remove this user.
 - c. Click **Save** to save the change.
- Edit the group:
 - a. Right-click the group and select **Edit Group**.
 - b. Scroll to the **Users** box and click the trash can icon to the right of the user you want to remove from this group.

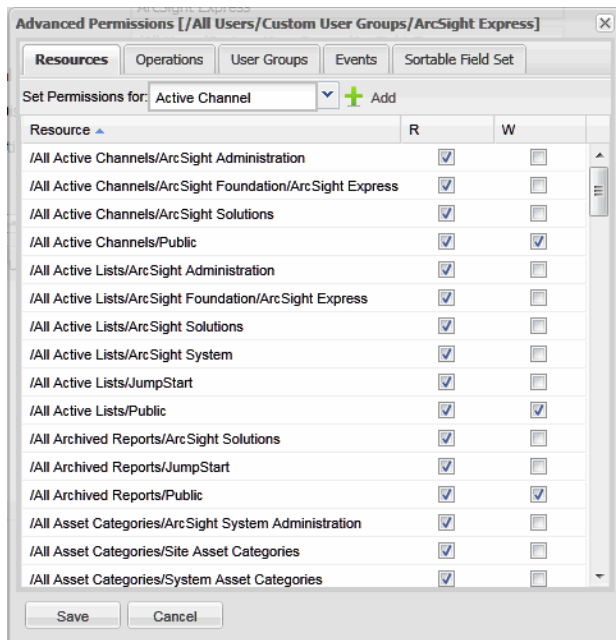
A user has to be a member of at least one group. If the trash-can icon is grayed out, add the user to another group before deleting from this group.

Edit Advanced Permissions

For any user group, you can manage what objects and actions they can access, and who can edit that group's permissions. Right-click the group whose permissions you want to change and select **Edit Group**.

For additional detailed information on editing access control lists (ACLs), granting or removing permissions for resources, and other permissions-related topics, refer to the ArcSight Console User's Guide chapter, "Managing Users and Permissions," and refer to the topic "Managing Resources and Permissions."

Click **Advanced Permissions** at the top right of the Group Edit panel to specify access permissions for this group. You can select the type of data for which you want to assign permissions from the tabs at the top.



The permission tab descriptions are as follows:

- **Resources:** The list in the window shows each resource group to which this user group has Read (**R**) and Write (**W**) permission.
- **Operations:** The list shows each group of operations that this user group can perform.
- **User Groups:** The list shows each user group that has Read (**R**) and Write (**W**) permission on this user group. That is, groups that can see or change this group.
- **Events:** The list shows event filters that control what events members of this user group can see. You can create filters from the ArcSight Console.
- **Sortable Field Set:** The list shows the sets of sortable fields on which members of this user group are allowed to sort when viewing channels.

To add another resource group to any of these tabs:

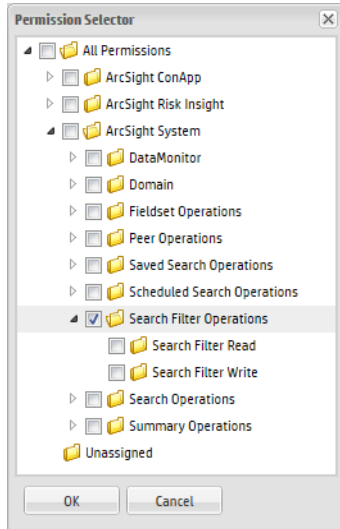
1. Select the resource category from the pull-down menu at the top of the Resources tab.
2. Click **Add** at the top of the tab.
3. Expand the resource group hierarchy to find the resource group to which you want to grant access.
4. Check the box to the left of that group.
5. Click **OK**.
6. Click **Save**.

To remove a resource or user group, uncheck both the Read and Write boxes and click **Save**.

To remove an operation group, event filter, or sortable field set, click the trash can icon to the right of it and click **Save**.

Permissions are recursive. Selecting a permission at the parent level causes its children to also take effect, even though the child nodes selection boxes do not display a checkmark.

To add recursive permissions for a User Group:



1. Navigate to an existing user group and click **Edit**.
The Editing User Group screen displays information about the group.
2. Click **Advanced Permissions**.
The Advanced Permissions screen displays the current permissions for that group.
3. Open the Operations tab and click **Add**.
The Permission Selector displays a list of available permissions.
4. Select **ArcSight System > Search Filter Operations**.
The parent permission, Search Filter Operations, makes its children, Search Filter Read, Search Filter Write, effective.

Add or Edit a User

You create users within a user group below the All Users level. Use the following procedure to create a new user.

1. In the hierarchy tree on the left, click on the group to which you want to add a user.
2. In the user window, click **New User**, at the top of the list.
To edit a user, click anywhere on the user's row in the list.
The user details fields appear in the lower half of the list.
3. Optionally, fill in the Users **Full Name**.

4. Optionally, you can change the user's **Status** from *Login Enabled* to *Login Disabled*. Also see the topic "Deactivating and Reactivating a User," in the ArcSight Console User's Guide.
5. Optionally supply an **Email** address of the proper form (n@n.n).
6. Create a **User ID** and **Password**. These two are the only fields that are required. For information on password restrictions see the Administrator's Guide, chapter 2. "Configuration," "Managing Password Configuration," and "password Character Sets."
7. By default the **External User ID** is the same as the User ID. An external user ID might be relevant if you have user accounts from other applications. If you are using PKCS#11 and CAC, change the external ID to match the CAC Common Name.
8. Optionally, expand the **Extended User Attributes** box and specify the users **Alias**, **Role** (Title and Department), and **Phone** numbers.
9. Choose a user **Type** from the drop-down menu. The user types are:
 - **Normal User**: Has full privileges to use the Command Center and ArcSight Console client, and all tools.
 - **Management Tool**: Has only the privileges needed to run certain management tools used in conjunction with network management products. This user cannot log in to any console. This type it is designed for use by software applications.
 - **Archive Utility**: Has only the privileges needed to run the `archive` command. (See "ArcSight Commands" in the Administrator's Guide.) This command refers to archives of resources, not events. Access to resources is controlled through ACLs. This user type is for programs, not people and cannot log in to a console.
 - **Forwarding Connector**: Has only the privileges needed by the Forwarding Connector.
 - **Connector Installer**: A user who can add SmartConnectors to the system.
 - **Web User**: Has privileges to use the Command Center , but not the ArcSight Console.

The user types confer access permissions that supersede access permissions granted through group membership. For example, If you add a Web User to an Administrative group, whose members can normally log in to the ArcSight Console, The Web User cannot, because a Web User can only access the Command Center.
10. Optionally, expand the **Groups** box and click **Add** to select other groups to which this user should belong. Alternatively, you can edit a group and select users to be members.
11. Click **Save** to save this user and return to the group page.
Click **Cancel** to clear any field changes you have made and restore them to the way they were.
Cancel does not cancel the operation.

To **Edit** a user, click on the user entry in the list. The Edit operations are the same as when adding a new user.

To abandon an add or edit operation, click the **Cancel** button to reset all the fields, then click anywhere in the tree view on the left to close the add/edit panel.

Delete a User

To delete a user:

1. Select the user group at the left in which the user appears, or All Users.
2. Select a user in the list on the right.
3. Click **Delete User** at the top.

Also see ["Delete a User from a Group" on page 157](#).

Copy a User

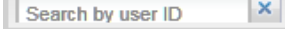
To copy a user, select a user and click **Copy User**, at the top.

Use the copy function to create a new user. The login name is prefixed with "Copy_" but the user name and all other attributes except the password are the same; you must reset the password. Edit the attributes as specified in ["Add or Edit a User" on page 159](#).

When you click **Save**, the system creates the new user.

This feature is useful for creating multiple users who have the same group memberships or other similar attributes, without having to re-enter those attributes.

Search for a User

To search for users in the selected group by their user ID,  begin to type the user ID in the search field at the top left of the user list. As you type, the user list is filtered to only show users whose User ID starts with the characters you have typed so far.

Click the **X** button to the right of the field to clear the search field and restore the user list.

Registered Connectors

Registered Connectors enables you to see a list of connectors on the left with their status. By default it shows a summary chart of how many connectors are up and down.

Refresh the Connector Display

Use the **Auto-Refresh** button in the upper right corner of the page to set how often you want ESM Command Center to refresh the Connector Status page. You can also refresh *now*. The Connector Status page shows how many connectors are up or down. For information about each connector, click on it in the tree at the left and look at the Connector Editor.

For more information on connectors, refer to the documentation for the individual connector.

Connector Editor

Click a connector to see the connector editor. You can use the editor to view connector details, some of which you can change. You can also send connector commands.

The connector editor shows connector details described in the following table. If you change any values you can **Save** or **Cancel** your changes using the buttons at the bottom.

Field	Description
Connector	
Name	The name of this connector is automatically populated with the name assigned during connector Installation.
Status	Possible statuses are Down, Running, Stopped, and Unknown.
Connector Location	The location of this connector in the connector tree in the left panel.
Device Location	Specify where the connected device is located.
Version	The software version of the connector.
Comment	Enter any text as required.
Model Import User	Select a user from the pull-down menu.
Common	(Fields common to all resources)
Resource ID	The ID code for this connector resource.
Alias	Enter an optional alternate identification string used for referencing resources within ESM Command Center. If given, this alias appears in place of the resource's name everywhere it may be seen.
Description	Enter a text description of the configuration or other related information.
External ID	Enter an identification string suitable for, and which can be referenced by, systems outside ESM Command Center. Common applications of External IDs include appropriate naming for Case and Asset resources that are tracked in common with defect reporting or vulnerability-management systems. If your system interfaces with a third-party incident tracking system, such as Remedy, enter an ID that corresponds to that system.
Version ID	You can enter a unique version ID for resources. For example, it is useful when exporting or importing a package, if you do not want a newer resource to be overridden by a older version.

Field	Description
Deprecated	Check this box if you want to flag this connector resource as obsolete.
Create/Update Information	
Created By	The user who created this connector (logged-in user during connector installation).
Created on	The date and time of connector installation.
Last Updated by	The user who last updated this connector.
Last Updated on	The date and time this connector was last updated.
Modification Count	The number of times this connector has been changed since it was created or installed.

Connector Commands

For some connectors you can issue basic event-flow-control commands, get their operational status, or issue control commands to network devices through the connector.

Click the **Send Commands** button at the bottom of the connector Editor to select commands to send. The button is grayed out if sending commands is not allowed or if the connector is down. Commands available on this menu vary depending on which connector you are using.



The standard commands are described below.

Command	Description
Status Category	
Get Status	Provides a full report on the selected connector's current operational state.
Get Device Status	Provides the status of the device that reports to the connector. (Currently only available for the CiscoIDS/IPS SmartConnector.)
Agent Process Category	

Command	Description
Restart	<p>Restarts a running connector.</p> <p>Caution: Once a connector is terminated, connector commands cannot access it. Therefore, a "restart" works only on a connector that is currently running. Sending a restart command to a running connector terminates and restarts the connector.</p>
Terminate	<p>Shuts down the connector and all processes the SmartConnector started.</p> <p>Caution: Once a connector is terminated, connector commands (including connector Process > Restart) cannot access it. The connector must be restarted manually from the machine on which it is installed.</p>
Event Flow Category	
Pause	<p>Stops the connector from sending events to the ArcSight Manager.</p> <p>Note: Events received from the target device are saved in the connector cache (even though the connector is in the Pause state).</p>
Stop	<p>Stops the connector from sending events to the Manager.</p> <p>Caution: A Stop command causes the connector to drop all events, including events stored in the connector cache.</p>
Start	<p>Prompts the connector (previously in Stop or Pause state) to start sending events to the Manager.</p>
Network Category	
Flush Name Resolver Cache	<p>Clears cache for Network name resolver.</p>
Get Name Resolver Cache	<p>Gets cache for the Network name resolver.</p>
Upgrade Category	

Command	Description
Upgrade	<p>Launches a Command Parameters dialog for remote upgrade to newer versions of connectors for managed assets.</p> <p>Provide the version number of the connector to which you want to upgrade and a wait time to verify that the upgrade completed successfully. (If the upgrade is not successful, the system performs an automatic rollback to the previous version of the connector.)</p> <p>Click OK to start the upgrade.</p> <p>See the “Managing SmartConnectors” chapter of the <i>ArcSight Console User's Guide</i> for prerequisites for the upgrade process and detailed information on how to upgrade connectors.</p>
Rollback Upgrade	<p>Launches a Command Parameters dialog for remote rollback of connector version to a specified previous version. See the “Managing SmartConnectors” chapter of the <i>ArcSight Console User's Guide</i> for complete information.</p>
Adjust Category	
Rename Mismatched Override Files	<p>Enables you to remotely rename an connector parser override file whose version stamp no longer matches the parser that it was intended to override. Renaming it appends “.1” (or 2, or 3, if earlier numbers are in use), which stops the file from being used.</p> <p>The first parameter is a regular expression you can specify to match specific override files (or blank, the default, for all). The second parameter is a Boolean where true, the default, means restart the connector if any files are renamed.</p>

Note: Tech Support commands are provided for use primarily by Customer Support. Brief descriptions of these Tech Support commands are provided for informational purposes, but these commands are not intended for use by customers except as instructed by support.

Command	Description
Tech Support Category	
Get Support Info	Gets logs and other feedback on connectors.
Get 'agent.properties'	Shows the list of properties for the selected connector.
Get Upgrade Logs	Get upgrade logs on connectors.
Get 'agent.wrapper.conf'	Shows the wrapper configuration for the selected connector.

Command	Description
Get Configuration XML File	Shows the XML configuration file for the selected connector.
Get Thread Dump	Gets one thread dump for the selected connector.
Get Two Thread Dumps...	Gets two thread dumps for the selected connector spaced by the time interval specified. By comparing both thread dumps, Customer Support can troubleshoot connectors with threads that are hanging for unknown reasons.
Get Heap Dump	This generates a heap dump, if possible, which in some situations can be useful to ArcSight to analyze problems. The destination ID is used as part of the file name, the file is placed in the same directory as the connector's logs, and normally only 10 such files are kept.
Get last N lines of 'agent.log'...	Shows an excerpt from the connector log file based on the number of lines you specify. The default is 500 lines.
Get System Properties	Shows system properties for the selected connector, including details on variables such as Java runtime name, Java virtual machine (VM) version, operating system name, paths for various Java components, paths for ArcSight Home, user directories, user home, and so forth.
Enable Event Flow Tracing...	Allows you to specify a component and fields to log for initiating an event flow trace. The component should be chosen from the components listed in the Get Status results.
Disable Event Flow Tracing...	Disables event flow tracing on the selected component.
Get Event Flow Tracing Log	When tracing is enabled on the selected connector, the connector logs data about events it receives.
DNS Test	This command takes one parameter, which is either a host name to resolve or an IP address to reverse resolve. This is useful to see what results would normally be expected for the name resolver component of the connector, since it uses the same mechanism to do the lookup as the name resolver uses.
Enable Map File Logging	Directs the AgentNATProcessor component, which processes map files for each event, to log what it is doing for each event. By default the last 100 events are logged.
Disable Map File Logging	Directs the AgentNATProcessor to stop logging.
Get Collected Map File Logging	Gets the collected log messages for the most recent events (100, by default), which may help debug problems with why a map file is not operating as expected.

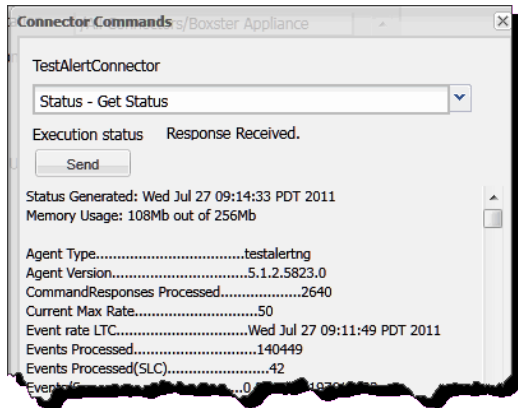
The following commands provide access to connector component mapping and event categorization for advanced users.

Command	Description
Mapping Category	
Get Additional Data Names	<p>Returns a list of data names seen for each device vendor/product combination since the connector started. For example:</p> <p>Additional Data Names Seen:</p> <p>Generic (no vendor/product):</p> <pre>test1 [3 times] test11 test13 [2 times]</pre> <p>Vendor/product [vend/prod]:</p> <pre>test1 test10 [6 times]</pre> <p>By default, the command limits the list to show only the most recent 100 device vendor/product combinations and the most recent 100 names for each.</p> <p>Tip: You can change this limit by editing the connector property <code>agent.additionaldata.mapper.track.max.names</code> in the file <code>\$ARCSIGHT_HOME/ArcSightSmartAgents/current/user/agent/agent.properties</code> on the machine where the connector is installed. However, in most cases we recommend keeping the defaults. If you do change a property setting such as this, restart the connector.</p> <p>If a data name is not a string, its data type is displayed in the list. If the connector saw an additional data name more than once, the command output indicates the number of times the name was seen.</p>
Map Additional Data Name...	<p>Brings up a dialog where you can map an additional data name for the selected connector.</p> <p>For a generic mapping, you can leave the Device vendor and Device product fields blank. For a specific mapping, fill in these fields with the appropriate vendor and product names.</p>
	<p>Typically, the Additional data name is one of the names shown in the Get Additional Data Names output (but can be another name not on that list).</p> <p>The ArcSight field must be a valid ArcSight event field.</p> <p>Click OK to create the mapping.</p> <p>Here is an example of the command output for a successful generic mapping:</p> <pre>Successfully mapped additional data name [test11] to event field [message] for vendor/product []</pre>

Command	Description
	<p>A successful device vendor/product-specific mapping returns output similar to this:</p> <p>Successfully mapped additional data name [test10] to event field [message] for vendor/product [vend/prod]</p>
	<p>If the additional data name has not been seen, the name is still mapped, but with a warning like this:</p> <p>Successfully mapped additional data name [foo] to event field [deviceCustomString1] for vendor/product [vend/prod] (note that additional data name [foo] has not been seen for vendor/product [vend/prod])</p> <p>If the ArcSight field is not valid, the error returned is similar to this:</p> <p>Failed to map additional data name [bar] to event field [messages] for vendor/product [vend/prod] (event field [messages] is unknown)</p>
Unmap Additional Data Name...	<p>Brings up a dialog where you can unmap an additional data name for the selected connector.</p> <p>To remove a generic mapping, you can leave the Device vendor and Device product fields blank. To remove a specific mapping, fill in these fields with the appropriate vendor and product names. The additional data name should be one that was previously mapped for the specified device vendor and product combination.</p> <p>Click OK to un-map the data name.</p> <p>Here is an example of the command output for a successful generic unmapping:</p> <p>Successfully unmapped additional data name [test11] for vendor/product []</p> <p>A successful device vendor/product-specific unmapping returns output similar to this:</p> <p>Successfully unmapped additional data name [foo] for vendor/product [vend/prod]</p> <p>If the specified additional data name was not previously mapped, the output looks like this:</p> <p>Failed to unmap additional data name [foo] for vendor/product [vend/prod] (not previously mapped)</p>

Command	Description
	<p>Notes:</p> <ul style="list-style-type: none"> One additional data name can be mapped to more than one ArcSight field for the same device vendor/product combination, and in this case unmapping it unmaps it from all ArcSight fields for that device vendor/product. This is an unlikely scenario, however. The converse case, where multiple additional data names are mapped to the same ArcSight field for the same device vendor/product combination, results in the last mapping taking precedence over any previous mappings to that ArcSight field for that device vendor/product. No warning is generated in this case.
Categorizer/mapper Category	
Reload custom categorizations	<p>There are several ways to set event category information for events. The least common of these is to store custom categorization files (organized by vendor and product) on the connector machine in the <code>user/agent/aup/acp/categorizer/current</code> directory (or the <code>user/agent/acp/categorizer/current</code> directory).</p> <p>If such categorization files exist and have been changed, this command reloads them without restarting the connector.</p>
Reload custom map files	<p>Rescans and reloads map files in <code>user/agent/map</code> directory on the machine where the connector is installed.</p> <p>The map files are named in the form <code>map.n.properties</code>, where <code>n</code> is a number starting with 0. Use this command to immediately apply the latest changes. Not all connector setups include custom map files.</p> <p>Caution: Map files are created on some connector machines to fulfill specific needs. If you are not familiar with the categorizer/mapping setup of an environment, we recommend that you do not use Reload commands.</p>
Reload external map files	<p>Re-scans and reloads external map files in the <code>user/agent/extmap</code> directory on the machine where the connector is installed.</p> <p>The map files are named in the form <code>extmap.n.properties</code>, where <code>n</code> is a number starting with 0. Use this command to immediately apply the latest changes. Not all connector setups include custom external map files.</p> <p>Caution: External map files are created on some connector machines to fulfill specific needs. If you are not familiar with them, we recommend that you do not use Reload commands.</p>

When results are to be returned, the command dialog expands to show progress, and then the results.



Configuration Management

Configuration Management enables you to:

- View license information
- Set manager heap size
- Enable notifications and set your mail server
- Change the Manager authentication method and settings.

License Information

Your current license information appears in the upper part of the page.

To install a new license:

1. In the **License File** field, specify or browse to the `lic` or `zip` file containing the license you want to upload.
2. Click **Upload** to upload a new license.
3. After uploading, the Command Center asks you if you want to Restart, which restarts certain ArcSight server processes.

You can choose to restart later. If so, when you are ready, select **Server Management** in the accordion panel under **Configuration Management**, and click **Restart**, at the bottom. You will have to log in again.

If your license has completely expired and you cannot run Command Center, rerun the `managersetup` command, as documented in the Installation and Configuration guide.

If you get a new license that allows for additional event storage, for example for more than 8 TB of space, the **Maximum Size** value on the **Storage and Archive** page might increase if you have that much disk space available. If so, you can increase the **Allocated Size** to reflect the new maximum.

Server Management

Manager Heap Size

In the **Manager Heap Size** field, select one of the possible heap sizes from the pull-down list.

The Manager heap is a special area of memory, although the Manager uses some additional system memory as well. The recommended heap size for production deployments is at least 8 GB. Smaller amounts affect performance. It is important that the amount of physical memory available on the system be significantly larger than the amount of heap allocated for the Manager, so that there is additional space available for the operating system and for cache use.

After changing the heap, the Command Center asks you if you want to Restart, which restarts certain ArcSight server processes.

You can choose to restart later. If so, when you are ready, select **Server Management** in the left panel and click **Restart**, at the bottom. You will have to log in again.

Enable Notifications

Set up notification and specify notification recipients to receive system warnings. The importance of this step is sometimes overlooked, leading to preventable system failures.

The following table describes parameters you can enter to set up mail server notification.

Parameter	Description
From Address	The e-mail address from where notification messages originate and are sent, appears in the From field of notification messages
Error Notification Recipients	A comma-delimited list of e-mail addresses to notify of Manager errors and storage warnings.
Preferred Mail Server	Select whether the mail server is internal or external. Using the internal SMTP server requires DNS to be set up correctly on the ArcSight Manager System. Using an external SMTP server requires that the ArcSight Manager system be able to connect to the host via port 25.

Choose whether your **Preferred Mail Server** is Internal or External. The internal mail server is built in.

External Mail Server Information

If your preferred mail server is external, you must supply this information.

Enter the name of your **Outgoing Mail Server**.

If you check **Use Internal Server as a Backup**, it uses the mail server that is built in, if the external mail server is not available.

Enable Acknowledgements

Enabling acknowledgements mean that notification recipients can reply to the email, and the reply (an acknowledgement) goes to an email account that the Manager can access.

If you check **Enable Acknowledgements**, fill out the following parameter fields:

Parameter	Description
Incoming Mail Server	The server host name that the Manager uses to receive notification confirmations.
Mail Protocol	Either the Internet Message Access Protocol (IMAP) or Post Office Protocol V3 (POP3), which is used by the Manager to communicate with the Incoming Mail Server.
Account	The user name that the Manager uses to login to the Incoming Mail Server.
Password	The password that the Manager uses to login to the Incoming Mail Server.

Acknowledgements work in conjunction with acknowledgement settings set in the ArcSight Console for wait-time settings and escalation. Depending on the severity of the notification, if the Manager does not receive acknowledgement within the configured wait time, the notification is escalated. That is, a notification is sent to someone else. Refer to “Changing Notification and Acknowledgement Settings” in the “Managing Users and Permissions” chapter of the *ArcSight Console User's Guide*.

Restart

When you make changes that require a restart, a dialog appears that enables you restart immediately. If you choose to wait, you can restart later. Restart does not reboot the computer, it restarts selected ArcSight server processes.

Click **Restart** at the bottom of the **Server Management** panel if you have made changes that require a system restart.

When you click **Restart**, it asks if you are sure you wish to restart. If you click Yes, It issues the restart command and your session loses its connection to the Manager. You can reconnect and log in again after the restart has completed.

Authentication Configuration

In the **Authentication Method** field select the desired authentication method.

The authentication options enable you to select the type of authentication to use when logging into the Manager.

Caution: Consider the following:

- In order to use PKCS#11 authentication, you must select one of the SSL based authentication methods.
- PKCS#11 authentication is not supported with Radius, LDAP and Active Directory authentication methods.

See the appendix "Using the PKCS#11 Token," in the *ESM Command Center Installation and Configuration Guide Configuration Guide*, for details on using a PKCS #11 token such as the Common Access Card (CAC).

By default, the system uses its own, built-in authentication, but you can specify third party, external authentication mechanisms, such as RADIUS Authentication, Microsoft Active Directory, LDAP, or a custom JAAS plug-in configuration.

How External Authentication Works

The Manager uses the external authentication mechanism for authentication only, and not for authorization or access control. That is, the external authenticator only validates the information that users enter when they connect to the Manager by doing these checks:

- The password entered for a user name is valid.
- If groups are applicable to the mechanism in use, the user name is present in the groups that are allowed to access ArcSight Manager.

Users who pass these checks are authenticated.

Once you select an external authentication mechanism, all user accounts, including those with administrator privileges, are authenticated through it.

Guidelines for Setting Up External Authentication

Follow these guidelines when setting up an external authentication mechanism:

- Users connecting to the Manager must exist on the Manager.
- User accounts, including admin, must map to accounts on the external authenticator. If the accounts do not map literally, you must configure internal to external ID mappings in the Manager.
- Users do not need to be configured in groups on the Manager even if they are configured in groups on the external authenticator.
- If user groups are configured on the Manager, they do not need to map to the group structure configured on the external authenticator.

- Information entered to set up external authentication is *not* case sensitive.
- To restrict information users can access, set up Access Control Lists (ACLs) on the Manager.

Password-based Authentication

Password-based authentication requires users to enter their User ID and Password when logging in. You can select the built-in authentication or external authentication.

Built-In Authentication

This is the default authentication when you do not specify a third party external authentication method.

If you selected this option, you are done.

Setting up RADIUS Authentication

To configure ArcSight Manager for RADIUS Authentication, choose **RADIUS Authentication** and supply the following parameter values:

Parameter	Description
Authentication Protocol	Which authentication protocol is configured on your RADIUS server: PAP, CHAP, MSCHAP, or MSCHAP2.
RADIUS Server Host	Host name of the RADIUS server. To specify multiple RADIUS servers for failover, enter comma-separated names of those servers in this field. For example, server1, server2, server3. If server1 is unavailable, server2 is contacted, and if server2 is also unavailable, server3 is contacted.
RADIUS Server Type	Type of RADIUS server: <ul style="list-style-type: none">• RSA Authentication Manager• Generic RADIUS Server• Safeword PremierAccess
RADIUS Server Port	Specify the port on which the RADIUS server is running. The default is 1812.
RADIUS Shared Secret	Specify the RADIUS shared secret string used to verify the authenticity and integrity of the messages exchanged between the Manager and the RADIUS server.

Setting up Active Directory User Authentication

To authenticate users using a Microsoft Active Directory authentication server, choose **Microsoft Active Directory**. Communication with the Active Directory server uses LDAP and optionally SSL.

The next panel prompts you for this information.

Parameter	Description
Active Directory Server	Host name of the Active Directory Server.
Enable SSL	Whether the Active Directory Server is using SSL. The default is True (SSL enabled on the AD server). No further SSL configuration is required for the AD server. Whether you selected SSL earlier for communications with the Console is irrelevant. Certificate type is set on the AD server side, not the manager.
Active Directory Port	Specify the port to use for the Active Directory Server. If the AD server is using SSL (Enable SSL=true), use port 636. If SSL is not enabled on the AD server, use port 389.
Search Base	Search base of the Active Directory domain; for example, DC=company, DC=com.
User DN	Distinguished Name (DN) of an existing, valid user with read access to the Active Directory. For example, CN=John Doe, CN=Users, DC=company, DC=com. The CN of the user is the "Full Name," not the user name.
Password	Domain password of the user specified earlier.
Allowed User Groups	Comma-separated list of Active Directory group names. Only users belonging to the groups listed here will be allowed to log in. You can enter group names with spaces.

Specify any user who exists in AD to test the server connection.

Specify the user name used to log in to the Manager and the External ID name to which it is mapped on the AD server.

Configuring AD SSL

If you are using SSL between the Manager and your authentication server, you must ensure that the server's certificate is trusted in the Manager's trust store <ARCSIGHT_HOME>/jre/lib/security/cacerts, whether the authentication server is using self-signed or CA certificates. For CA certificates, if the Certificate Authority (CA) that signed your server's certificate is already listed in cacerts, you do not need to do anything. Otherwise, obtain a root certificate from the

CA and import it in your Manager's cacerts using the keytoolgui utility. For more information on importing certificates, see Understanding SSL Authentication in the *Administrator's Guide*.

Setting up LDAP Authentication

The ArcSight Manager binds with an LDAP server using a simple bind. To authenticate users using an LDAP authentication server, choose **Simple LDAP Bind** and click **Next**. The next panel prompts you for this information.

Parameter	Description
LDAP Server Host	Specify the host name of the LDAP Server.
Enable SSL	Whether the LDAP Server is using SSL. The default is True (SSL enabled on the LDAP server). No further SSL configuration is required for the LDAP server. Whether you selected SSL earlier for communications with the Console is irrelevant. Certificate type is set on the LDAP server side, not the manager.
LDAP Server Port	Specify the port to use for the LDAP Server. If the LDAP server is using SSL (Enable SSL=true), use port 636. If SSL is not enabled on the LDAP server, use port 389.

Specify any user who exists in LDAP to test the server connection.

Enter a valid Distinguished Name (DN) of a user (and that user's password) that exists on the LDAP server; for example, CN=John Doe, OU= Engineering, O=YourCompany. This information is used to establish a connection to the LDAP server to test the validity of the information you entered in the previous panel.

Note: LDAP groups are not supported. Therefore, you cannot allow or restrict logging into the Manager based on LDAP groups.

If you configure your Manager to use LDAP authentication, ensure that you create users on the Manager with their Distinguished Name (DN) information in the external ID field. For example, CN=John Doe, OU= Engineering, O=YourCompany.

Specify the user name used to log in to the Manager and the External ID name to which it is mapped on the LDAP server.

Configuring LDAP SSL

If you are using SSL between the Manager and your authentication server, you must ensure that the server's certificate is trusted in the Manager's trust store <ARCSIGHT_HOME>/jre/lib/security/cacerts, whether the authentication server is using self-signed or CA certificates. For CA certificates, if the Certificate Authority (CA) that signed your server's certificate is already listed in cacerts, you do not need to do anything. Otherwise, obtain a root certificate from the

CA and import it in your Manager's cacerts using the keytoolgui utility. For more information on importing certificates, see Understanding SSL Authentication in the *Administrator's Guide*.

Using a Custom Authentication Scheme

From the Manager Setup Wizard, you can choose the **Custom JAAS Plug-in Configuration** option if you want to use an authentication scheme that you have built. (Custom Authentication is not supported from the ArcSight Command Center.) You must specify the authentication configuration in a `jaas.config` file stored in the `ArcSight Managerconfig` directory.

Password Based and SSL Client Based Authentication

Your authentication will be based both upon the username and password combination as well as the authentication of the client certificate by the Manager.

Note: Using PKCS#11 provider as your SSL Client Based authentication method within this option is not currently supported.

Password Based or SSL Client Based Authentication

You can either use the username/password combination or the authentication of the client certificate by the Manager (for example PKCS#11 token) to login if you select this option.

SSL Client Only Authentication

You will have to manually set up the authentication of the client certificate by the Manager. See the *Administrator's Guide* for details on how to do this.

You can either use a PKCS#11 Token or a client keystore to authenticate.

Storage and Archive

You must be an administrative user to access these features.

The Correlation Optimized Retention and Retrieval Engine (CORR-Engine) is a proprietary data storage and retrieval framework that receives and processes events at high rates and performs high-speed searches. You can access the CORR-Engine archive functions from the **Administration** menu by clicking **Storage and Archive**.

Overview

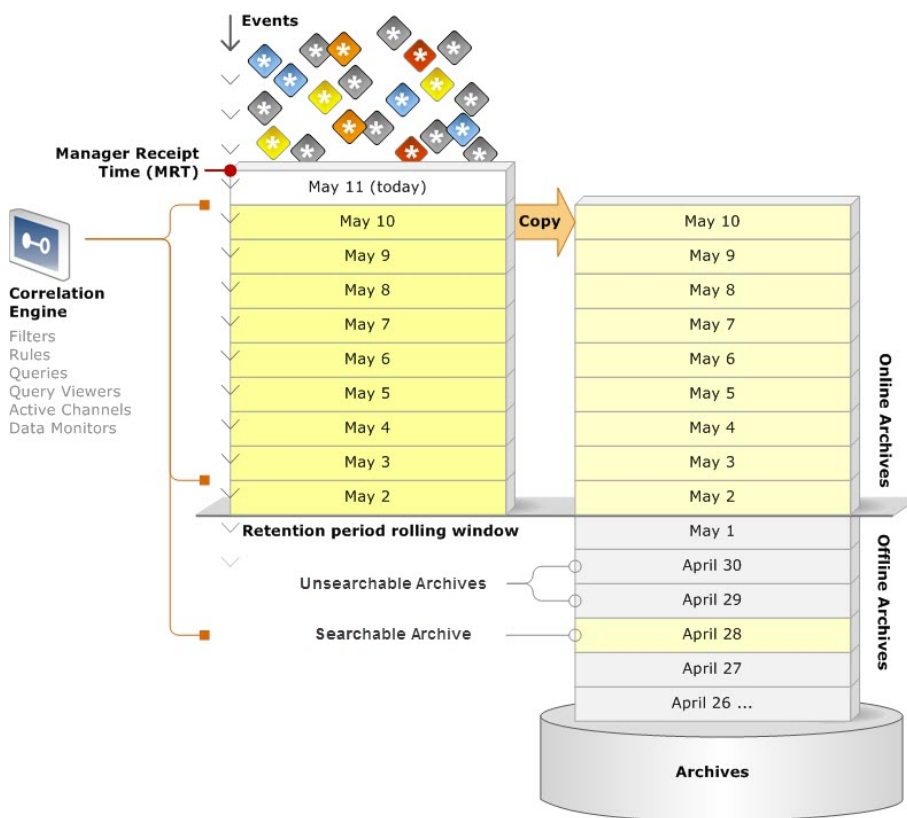
Incoming events are stored in the CORR-Engine database for search and correlation analysis. By default, all events are sent to the Default Storage Group, where they are retained for thirty days, after which they are deleted. You can use the storage and archive functionality to send events from different

connectors to different storage groups and configure the retention period of each storage group. Additionally, you can archive the daily events from each storage group as needed, so that you can retain all necessary events as long as needed. You can create one archive per day per storage group.

Events that are online in the CORR-engine are available for search and correlation analysis. Unless an archive is created for them, events exist online in the CORR-Engine database only. Events remain online in the CORR-Engine database until their retention period expires. Once events have passed their retention period and are removed from CORR-engine database, one of two things might happen.

- If they have been archived, they will no longer be searchable, but will still be backed up in off-line storage. These archives can be made searchable again, if necessary.
- If they have not been archived, they are permanently deleted.

The following figure depicts the flow of daily event archives over time.



In the figure above, events come in to event storage, on the left at the top. They are kept in the online database until the limits of the retention period or space, and then deleted. As you archive daily events, they are copied to the archive storage area, on the right. They remain in both locations online until their retention period expires. After the retention period expires, archived events remain in offline storage.

All the daily events in online event storage, plus any offline archives that have been made searchable are available for search and correlation analysis.

The Storage and Archive page includes four tabs:

- ["Storage" below](#) — The Storage tab allows you to create and edit storage groups, set their retention periods, specify the locations where event archives will be stored, and select the time for daily archive jobs to run. Additionally, you can view and edit the allocated size of the storage volume from here.
- ["Storage Mapping" on page 186](#) — By default, all events are saved in the Default Storage Group. This tab allows you to send events to different storage groups based on where they come from.
- ["Alerts" on page 188](#) — Your system can email notifications to a user when event storage is becoming too low. This tab allows you to configure the thresholds and recipients for these storage alerts.
- ["Archive Jobs" on page 189](#) — This tab provides a list of all events in the system as daily archives for each storage group. From here, you can filter the list to find a particular day's events and create and manage the daily event archives for each storage group.

Note: Events that were not archived before their retention period expired are not displayed, because they are no longer in the system and can not be made available.

Storage

Location: Administration menu > Storage and Archive > Storage tab

On the Storage tab, you can add and edit storage groups, view the current and maximum system storage, increase the allocated size of the event storage volume, and set the time for archive jobs to run.

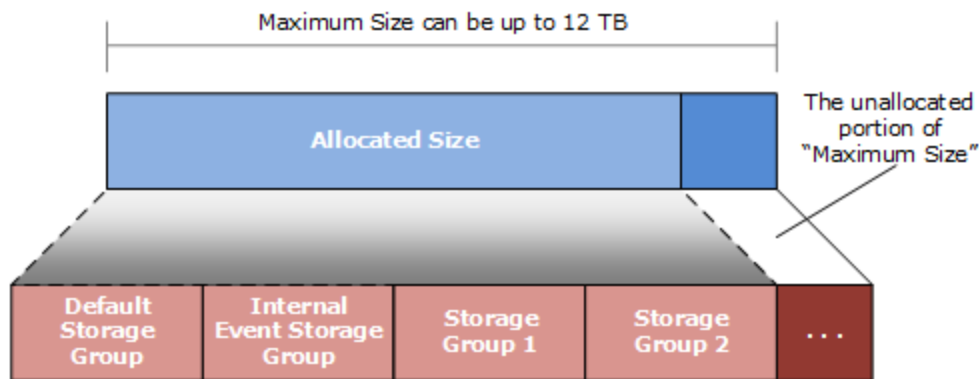
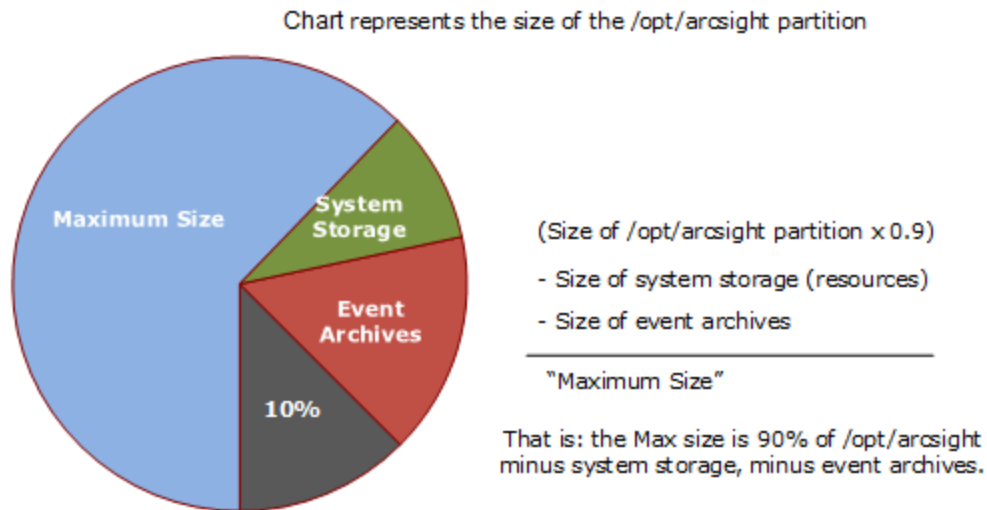
The **Maximum Size** of the event storage volume, shown in the center, below the storage groups, is the *smaller of*:

- The maximum size specified in the ESM license property,
`logger.limit.maximum-capacity`
- The value is calculated based on disk size and the reserved space
(Maximum Size = "Size of /opt/arcsight" x 0.9 – "System Storage" – "Event Archives")
 - The size of the /opt/Archive partition is controlled by the size of the disk drive.
 - You set System Storage Size and Online Event Archive Size when you installed ESM.

Allocated Size refers to the amount of disk space actually set aside for the event storage volume. (The text that appears if you hover over the question mark next to Allocated Size uses the word "memory." It should say "disk space.") This is the value called Event Storage Size that is set on the CORR-Engine Configuration panel of the Configuration Wizard, during installation. You can increase this size, but you cannot make it smaller.

If you get a new license that allows for additional event storage, it increases the **Maximum Size** value, if you have that much disk space available. If so, you can increase the **Allocated Size** to reflect the new maximum. So if you are licensed for 12 TB, and your hard disk is large enough, you can edit the Allocated Size to be that large, and add or enlarge storage groups to take up the 12 TB Allocated Size.

Conversely, if you get a bigger hard drive and allocate that space to the /opt/arcsight partition, it increases the **Maximum Size** value (at the next restart), if your license allows that much storage. If so, you can increase the **Allocated Size** to reflect the new maximum.



You can add a maximum of four storage groups and expand them until they equal the Allocated Size. If you need more space, increase the Allocated Size to equal the Maximum Size. Then increase the size of one or more storage groups until the new Allocated Size is reached.

Storage Groups

You can have a maximum of six storage groups, two that come with your system, and four that you can create.

- **Default Storage Group** — By default, all incoming events are captured in the Default Storage Group. Along with the incoming events, it also includes ESM internal health events and ESM internal events. After installation, the size of this group does not fill available space. That is so that you have room to create other groups. You can change storage group size, but you cannot make them smaller than 5 GB.
- **Internal Storage Group** — The Internal Storage Group captures local system data. This storage group supports the ability to peer with Loggers, which have an Internal Storage Group.
- **User-created storage groups** — You can add up to four storage groups and configure them as needed.

Each storage group takes up part of the total allocated size of the storage volume. Therefore, the combined storage group volume cannot exceed the total allocated storage volume. When determining the size of a storage group, consider the total allocated storage size. For information on changing the storage volume size, see ["Allocating Storage Volume Size" on page 184](#).

Having different storage groups enables you to implement multiple retention policies, because each storage group can have a different retention policy and storage mapping. Storage Mappings send events from selected device groups or connectors to separate storage groups, and are covered in detail in ["Storage Mapping" on page 186](#).

By default, all incoming events are stored in the Default Storage Group. You can add new storage groups and create storage mapping to send events from different device groups or connectors to any storage group, except the Internal Storage Group.

For each storage group, you can define a maximum size and a retention period to retain events. Older event archives are deleted from the storage group when they reach the age set as the retention period or storage runs out of disk space, whichever comes first.

- If a day's events have been archived when this deletion occurs, the daily archive will still be in the Archive Jobs list, with the Offline status. A daily event archive will only be removed from the Archive Jobs list if it has not been archived by the time its retention period expires or the storage group exceeds the maximum size. For more information about archive jobs, see ["Archive Jobs" on page 189](#).
- Once events are older than the specified retention period, the oldest events are deleted at the next retention cycle. The retention process triggers periodically, therefore, events might not be deleted immediately when the retention period expires.
- If storage group space runs out, the oldest day's events are deleted each day, even if they have yet to reach retention age.
- If the number or size of daily events is high or your retention period is sufficiently long, you may run out of disk space allocated for Event Storage before the oldest events reach the end of the retention period. When the Event Storage size exceeds the maximum size limits, the events will be immediately truncated. If that happens, the oldest events are deleted first.

Turning Archiving On and Off

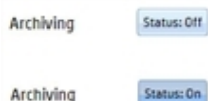
You can enable and disable the archiving functionality from the Storage tab.

Caution: It is not likely that you will ever need to archiving off. When you turn archiving off, no event archives are created, and when the retention period expires, the event data is lost forever. Turning it off turns it off for *all* storage groups regardless of any other settings.

Making copies of event data before the retention period expires is not useful. If ESM Command Center does not create the archive, the necessary metadata is absent and restoring event data backed up by other means does not work.

To turn archiving on or off:

1. Click **Administration > Storage and Archive**, and then open the **Storage** tab. The Storage tab displays the current On/Off status on the **Archiving button**.



2. Click **Status On** to turn archiving off. Click **Status Off** to turn archiving on.

Setting the Time to Archive Storage Groups

You can set the hour of the day that scheduled archive jobs run. You should select a time when the load on the system is lower.

To set the schedule time:

1. Click **Administration > Storage and Archive**, and then open the **Storage** tab. The Storage tab displays the current **Schedule Time**.
2. Select the time that you want the Archive Jobs to run from the drop-down list.

The list of storage groups on the storage tabs includes a check-box for each group under **Follow Schedule**. You can turn archiving off for individual storage groups by unchecking this box.

Caution: If you do not follow the archiving schedule, you are not archiving that group at all. All events in that group older than the retention period are lost forever. The only circumstance under which you would want to turn off archiving for a storage group is when the group is specifically set up to collect event data that you will never need later.

Adding a Storage Group

HP ArcSight recommends that you create all four additional storage groups, so that you have five storage groups available for event storage and one for internal system storage.

If you intend to use an NFS or CIFS mount point, ensure that the external storage point is mounted on the machine on which the system is installed. See your operating system documentation for more information. If you are using an appliance, create a NFS or CIFS mount point.

To add a storage group:

1. Click **Administration > Storage and Archive** and then open the **Storage** tab. The Storage tab displays the current storage groups.
2. Click **New**. The New Storage Group... dialog box opens.
3. Specify a **Name** for the storage group.
4. Specify the desired **Retention Period**.

The **Retention Period** is the number of days that your events are kept in event storage. After that, they are deleted. To save events beyond this retention period, you must archive them.

5. Specify the **Maximum Size** for the storage group.
6. Mark the **Follow Schedule** check box to archive the storage group daily at a regular time. If you decide not to archive daily, you can archive the storage group manually, or change the setting later.

Note: If you do not turn archiving on for a storage group or archive it manually, events are deleted when they reach the end of the retention period.

7. Specify the **Archive Location**. Event archives are saved to the specified directory. This can be a path to a local directory or to a mount point on the machine on which the system is installed.

For appliances, choose the name of an NFS mount, CIFS mount, or SAN mount point for the Mount Location field.

8. Click **Save** to add the storage group, or **Cancel** to exit without saving.

Editing a Storage Group

Once a storage group is created, it cannot be deleted and its name cannot be changed. However, you can change its other attributes at any time.

Note: The combined Maximum Sizes of all storage groups cannot exceed the Allocated Size of the Storage Volume. When increasing the size of storage groups, consider the Allocated Size of the Storage Volume.

To edit (including resizing) a storage group:

1. Click **Administration > Storage and Archive** and then open the **Storage** tab. The Storage tab displays the available storage groups.
2. Click the storage group you want to modify, and then click **Edit**. The Edit Storage Groups dialog

box opens.

3. Change the desired parameters such as the retention period or the maximum size.

Archive locations can be changed anytime. However, if you change the archive location, the archives that were created on the previously configured location cannot be moved to the new location.

If you reduce the size of a storage group, and the new size is smaller than the current size, archived events will be maintained in the archive location, and any events that have not been archived are lost.

4. Click **Save** to store the changes, or **Cancel** to exit without saving.

Allocating Storage Volume Size

The Allocated Size, displayed on Storage and Archive tab, is the Storage Volume space available for creating and extending Storage Groups. It is the current size of the Storage Volume. The Allocated Size cannot exceed the Maximum Size of a Storage Volume. If the Allocated Size is less than the Maximum Size, the difference is available for other data on the hard drive.

You can increase or decrease the Allocated Size. If a storage group reaches its maximum size, the oldest events will be deleted as new events come into the system. To prevent this, first increase the Allocated Size of the volume, and then use that newly allocated space to extend the storage groups' size.

Storage and Archive

Storage Mapping Alerts Archive Jobs

Archiving Status: On

Schedule Time 01:00

Storage Group Name	Retention Perio...	Current Siz...	Maximum Siz...	Follow Sche...	Archive Location
Default Storage Group	30	1.0	12.0	<input checked="" type="checkbox"/>	/opt/arcsight/logger/data/archi...
Internal Event Storage Group	365	1.0	5.0	<input checked="" type="checkbox"/>	/opt/arcsight/logger/data/archi...
MyStorage Group	13	1.0	5.0	<input checked="" type="checkbox"/>	/opt/arcsight/logger/data/archi...
Total		3.0	22.0		

Note: The name cannot be changed.

Allocated Size 42.0 GB Edit ?

Maximum Size 53.2 GB

System Storage ?

Current Size	102.0 MB
Maximum Size	10.0 GB

Storage Volume size Event Storage size

Storage allocations within the total storage volume are described in the following table.

Note: When allocating the total storage volume, the installation reserves about 10% of the total

disk size for the operating system and installed software, by using the following formula:

$\text{MaximumSizeOfStorageVolume} = \text{TotalDiskSize} * 0.9 - \text{SystemStorageSize} - \text{EventArchiveSize}$

Storage Area	Size	Purpose
System Storage	Configured during installation, can range from 3 GB to 500 GB.*	<p>Includes static content and resources. There is no retention period; this data is always retained.</p> <p>You can see the Current size and the Maximum size at the bottom of the "Storage" on page 179 tab.</p> <p>If the current size reaches the configurable warning and error levels, and you have configured "Alerts" on page 188, the system issues an email warning that available space is getting low.</p> <p>* Size is limited by smallest of 500 GB, the license limit, and the disk size.</p>
Event Storage	Configured during installation, can range from 10 GB to 8192 GB.*	<p>Includes collected daily events that accumulate until the end of each day's retention period or until space runs out. At either point, the oldest day's events are deleted. If Event Storage space runs out, the oldest day's events are deleted each day, even if they have yet to reach retention age.</p> <p>These events can be in the Default Storage Group or in user-created storage groups. You can save a copy of these events by archiving the storage group. For more information, see "Creating an Archive Manually" on page 193 and "Scheduling an Archive" on page 193).</p> <p>If the used space reaches the configurable warning and error levels, and you have configured "Alerts" on page 188, the system issues an email warning that available space is getting low.</p> <p>You can view and manage storage groups on the "Storage" on page 179 tab.</p> <p>* Size is limited by smallest of 8 TB, the license limit, and the disk size.</p>

Storage Area	Size	Purpose
Online Event Archives	200 GB*	<p>Includes daily events that have been archived (copied) from Event Storage. By default, the archives are located under /opt/arcsight/logger/data/archives. You can specify the directory for each storage group.</p> <p>You can manage the archives from the "Archive Jobs" on page 189 tab.</p> <p>There is an audit event when it is too full to archive another day's events. Audit events are described in the ArcSight Console User's Guide, in the "Reference Guide" chapter, under "Audit Events."</p> <p>* This limit applies to the local file system only. If you use another file system, there is no limit.</p>

The instructions below describe how to increase the Allocated Size for the entire storage volume. If you want to change the size of an individual storage group, see "[Editing a Storage Group](#)" on [page 183](#).

To increase the Allocated Size:

1. Click **Administration > Storage and Archive** and then open the **Storage** tab.
The Storage tab displays the current Allocated Size.
2. Click the **Edit** link next to the Allocated Size.

Allocated Size GB [Save](#)
Maximum Size 839.4 GB

3. Increase the allocation as necessary up to the Maximum Size. You cannot decrease it.
4. Click the **Save** link.

Storage Mapping

Note: Storage Mappings are equivalent to Storage Rules in Logger 5.3 SP1 and earlier.

Use this tab to create a mapping between connectors and storage groups. Doing so enables you to store events from specific sources to a specific storage group.

Storage and Archive

Storage Storage Mapping Alerts Archive Jobs

New Delete

Connectors	Storage Group
TestAlertConnector	My Storage Group 1

Save Reset

You can configure these storage groups with different retention policies, and thus retain event data based on the source of incoming events. For example, all events from firewall devices can be subject to a short retention period. To accomplish this, manually assign the firewall devices to a connector and then create a storage mapping to map the connector to a storage group with the desired short retention period.

Tip: Events that are not subject to any storage mapping are sent to the Default Storage Group.

Adding a Storage Mapping

The connector whose events you want to store must already exist before you create a storage mapping.

Note: The number of storage mappings you can create is unlimited.

To add a storage mapping:

1. Click **Administration > Storage and Archive** and then open the **Storage Mapping** tab.
2. Click **New** in the Device Group section to add a new device group mapping or, click **New** in the Connectors section to add a new connector mapping.
3. Select a storage group from the drop-down list. The storage groups must already be set up before any storage mappings are added.
4. Select one or more connectors to associate with the specified storage group. You may associate several connectors with a single storage group.
5. Click **Save** to add the new storage mapping.

Editing a Storage Mapping

You can edit an existing Storage Mapping or change its priority order at any time.

To edit a storage mapping:

1. Click **Administration > Storage and Archive** and then open the **Storage Mapping** tab.
2. Find the storage mapping you want to edit and change the information.
3. Click **Save** to keep the changes or **Reset** to undo them.

Deleting a Storage Mapping

You can delete Storage Mappings that you no longer need or want.

To delete a storage mapping:

1. Click **Administration > Storage and Archive** and then open the **Storage Mapping** tab.
2. Find the storage mapping you want to delete and click **Delete**.
3. Click **OK** to confirm the delete.

Alerts

On the Alerts tab, you can add, edit, or remove email addresses of users to notify when any of the data storage thresholds are crossed and when any archive processing operation fails.

Storage and Archive				
Storage Storage Mapping Alerts Archive Jobs				
Storage ^	Warning Threshold...	Error Threshold (%)	Send Warnings To	Send Errors To
Event Storage	90	95	abc@arcsight.com	abc@arcsight.com
System Storage	90	95	abc@arcsight.com	abc@arcsight.com
<div>Save Reset</div>				

You can configure the threshold for warning and error notifications in terms of percentage of used space for both event and system storage.

Archives have a fixed warning threshold that triggers notification when the system attempts to add an archive for which there is insufficient storage space.

To configure Alerts:

1. Click **Administration > Storage and Archive** and then open the **Alerts** tab.
2. Change the following settings as appropriate:
 - **Warning Threshold** — When used space rises above this percentage, the system sends a notification email. This percentage must be lower than the usage Error Threshold.

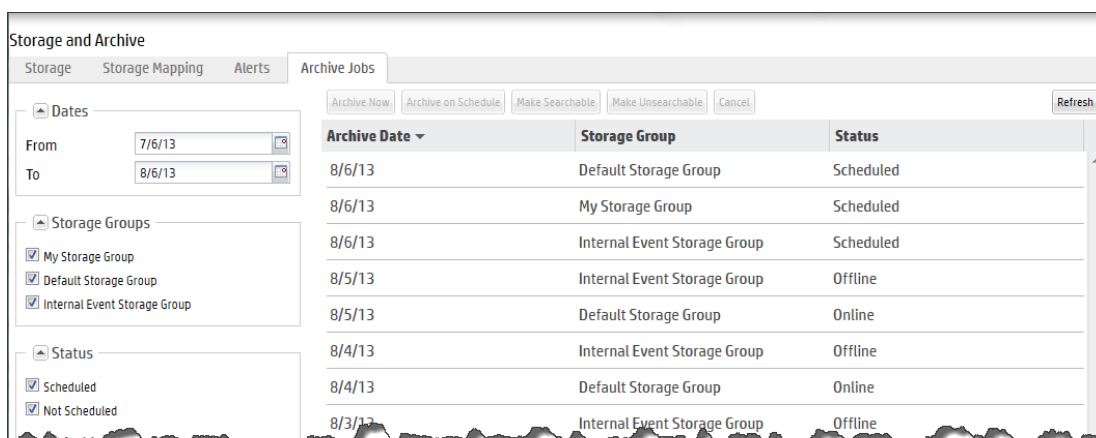
- **Error Threshold** — When usage rises above this percentage, the system sends a notification email.
- **Send Warnings To** — The email addresses to send a notification to when the Warning Threshold is reached. Use a comma-delimited list.
- **Send Errors To** — The email addresses to send a notification to when the Error Threshold is reached. Use a comma-delimited list.

3. Click **Save** at the bottom to save your changes.

Archive Jobs

The Archive Jobs page shows a list of each day's events for each storage group as an archive job, and indicates their status. The list displays the archive jobs still in Event Storage as well as the archives that are only maintained in Archive Storage.

You can filter the list to display only the archive jobs you want to see. For more information about archives, see ["Archives" below](#).



Storage and Archive		
Archive Jobs		
<input type="button" value="Archive Now"/> <input type="button" value="Archive on Schedule"/> <input type="button" value="Make Searchable"/> <input type="button" value="Make Unsearchable"/> <input type="button" value="Cancel"/> <input type="button" value="Refresh"/>		
Archive Date	Storage Group	Status
8/6/13	Default Storage Group	Scheduled
8/6/13	My Storage Group	Scheduled
8/6/13	Internal Event Storage Group	Scheduled
8/5/13	Internal Event Storage Group	Offline
8/5/13	Default Storage Group	Online
8/4/13	Internal Event Storage Group	Offline
8/4/13	Default Storage Group	Online
8/3/13	Internal Event Storage Group	Offline

When you mouse over an Archive Job, a small box appears showing archive details. These include the date of the events collected in this archive, when the archive was last made searchable or unsearchable, the event count, and the disk space.

7/26/13 : Default Storage Group
ID: 0504403158265495552
Location: /opt/arcsight/logger/data/archives/0648518346341351424/20130726
Size: 1.0 GB
Event Count: 57445
Archived: Saturday, July 27, 2013 1:00:49 AM UTC-7

Archives

Archives are directories that contain a copy of one day's events. When the system creates an archive copy of a day's events (and their related indexing information), it creates a subdirectory containing that day's events in the archive storage directory that you configured for each group. The default archive

location is under `/opt/arcsight/logger/data/archives/<Storage Group ID>`. For example, if the Storage Group ID was 666 then the root directory would be `/opt/arcsight/logger/data/archives/666/`.

The events exist both there in Archive Storage and in Event Storage until their retention date has passed or until the storage location runs out of space, whichever comes first.

Events that have been archived remain available in event storage until they age out due to the configured retention policy. Therefore, archived events continue to be searchable until they age out. Archives that are still in Event Storage have the status "Online".

When the retention date has passed for a particular day's events, the archive is removed from Event Storage and is maintained in Archive Storage only, the status of the Archive changes to "Offline". Offline archives have been deleted from their storage group and are not included in search operations. To include such events in search operations, you can make the archives searchable. When an archive is made searchable, the events in it are included in searches, but the archive itself remains in the archive storage.

Archiving daily events is optional. You can allow the daily event archives to be deleted at the end of the retention period or when their storage group runs out of space. If you do not create the archive, events are deleted at those points and cannot be recovered. Alternatively, you can archive daily events manually or automatically at a scheduled time for each storage group.

ESM Command Center uses the manager receipt time of an event to determine its archival day. For example, an event with timestamp of 11:55:00 p.m. on October 19 is received at 12:01:00 a.m. on October 20 on the system. This event is archived in the archive directory created for October 20th and not October 19th.

At the scheduled time, one archive directory per storage group is created at the location specified in the storage group. Each archive directory contains events from 12:00:00 a.m. to 11:59:59 p.m. for a single storage group.

If an archive directory is not created, either because you did not turn archiving on or because the archive job failed, the daily events are deleted when they reach the retention period specified for the storage group or when you run out of event storage space, whichever comes first.

If you need to save older events, consider these three tasks:

- Turn archiving on so that daily events are copied to an archive directory you can back up.
- Regularly back up the Archives Storage directories to another storage device.
- Delete older, offline archives as they are backed up, so that the archive area does not fill up.

For information on managing Archive storage space, see ["Archive Storage Space" on page 194](#). For information on managing Storage Group storage space, see ["Storage" on page 179](#).

Statuses and Actions

Action buttons become available at the top of the list based on the job or jobs that you select.

The following table describes archive statuses and available actions:

Status	Description	Available Actions
Online	This day's events have been archived, that is, a copy of the events has been stored in the Archive directory. The day's events are still available in Event Storage (online). As long as the day's events remain in event storage, they are available for search and analysis.	None.
Not Scheduled	<p>The archiving status is Off or the Follow Schedule check box is not checked.</p> <p>Events that are not archived will be deleted when they reach the retention period age, so make sure to archive any days' events that you want to keep.</p> <p>If you click Archive Now, the status changes to <i>Archiving (In progress)</i>.</p> <p>If you click Archive on Schedule, the status changes to <i>Scheduled</i>. (This button is not enabled unless the archiving status is On and the Follow Schedule check box is checked.)</p>	<p>Archive:</p> <ul style="list-style-type: none"> • Archive Now • Archive on Schedule
Scheduled	<p>This day's events are currently scheduled for automatic daily archival, but have not reached the time when they are to be scheduled archived. This includes today's events, which are still being collected.</p> <p>Cancel is available if scheduled archiving is enabled.</p> <p>If you click Cancel, the status changes to <i>Archiving (Cancelled)</i> but collection of events continues for that day and at midnight the status changes to <i>Not Scheduled</i>.</p> <p>If scheduled archiving is not enabled for the storage group, no action is available.</p>	Cancel
Offline	<p>This day's events have been archived, but the events are only in Archive Storage. These events are not available for analysis. They are preserved until you delete them.</p> <p>Click Make Searchable if you need access to the events. When you no longer need access to the events, click Make Unsearchable.</p> <p>There are about 193 GB of storage set aside for archives.\</p>	Make Searchable/ Make Unsearchable.
In Progress	<p>Any of several actions, including making searchable, making unsearchable, and archiving, may be in progress.</p> <p>If you click Cancel, the status changes as appropriate. For example, if the action in progress is Archiving, and you click Cancel, the status changes to <i>Archiving (Cancelled)</i>.</p>	Cancel
Made Searchable	This archive is offline. The events are in still archive storage, but have made searchable for analysis.	Make Unsearchable.

Filtering the List of Archives

The filters that you use to select the archives to display are to the left side of the screen. You can filter the archives displayed in the list by date, storage group, or status.

To filter the list of archives:

1. Click **Administration > Storage and Archive** and then open the **Archive Jobs** tab.
2. Click the arrow next to the type of filter to hide or display the available filters.
3. Specify the dates of the archives you want to display.
 - **From** — Display archives from this date forward.
 - **To** — Display archives up to this date.
4. Select the storage groups you want to display. The content of this list varies based on the storage groups on your system. Check the boxes to display archives for the desired storage groups. Uncheck the boxes to hide archives you do not want to display.
5. Select the Statuses you want to display. There are several available statuses. Check the boxes to display archives with the desired statuses. Uncheck the boxes to hide archives you do not want to display.
 - **Status** — This set of filter applies to Archived, Canceled, In Progress, and Failed archive jobs.
 - Scheduled
 - Not Scheduled
 - **Archived** — This set of filters applies to daily event archives that have already had been copied to an archive directory.
 - Online
 - Offline
 - Made Searchable
 - **Cancelled** — This set of filters displays actions that have the status “Canceled”.
 - Archiving (cancelled)
 - Make Searchable (cancelled)
 - Make Unsearchable (cancelled)
 - **In Progress** — This set of filters displays actions that have the status “In Progress”.

- Archiving (in progress)
 - Make Searchable (in progress)
 - Make Unsearchable (in progress)
 - **Failed** — This set of filters displays actions that have the status “Failed”.
 - Archiving (failed)
 - Make Searchable (failed)
 - Make Unsearchable (failed)
6. Click **Refresh** to see the updated list.

Creating an Archive Manually

If you do not need a particular storage group to be archived on a daily basis, you can archive it manually, as needed.

To create an archive:

1. Click **Administration > Storage and Archive** and then open the **Archive Jobs** tab.
2. Filter the list to find the date and storage group archive you want to add to archive storage archive.
3. Select the desired archive or archives. The action buttons available for your selection become active.
4. Click **Archive Now** to create the archive.

Scheduling an Archive

If you want particular storage group to be archived on a daily basis, you can set it to run at the scheduled time at any point. This option is only available if archiving is enabled. For information on how to enable archiving, see ["Turning Archiving On and Off" on page 181](#).

To schedule an archive:

1. Click **Administration > Storage and Archive** and then open the **Archive Jobs** tab.
2. Filter the list to find the date and storage group archive you want to archive on schedule.
3. Select the desired archive or archives. The action buttons available for your selection become active.
4. Click **Archive on Schedule** to schedule the archive.

Making an Offline Archive Searchable or Unsearchable

Once an archive is moved Offline, it is no longer available for searches. However, if you need to search it you can make it searchable. When you finish searching, make it unsearchable again.

To make an archive searchable or unsearchable:

1. Click **Administration > Storage and Archive** and then open the **Archive Jobs** tab.
2. Filter the list to find the date and storage group archive you want to make searchable or unsearchable.
3. Select the desired archive or archives. You can use Ctrl+Click or Shift+Click to select multiple archives. The action buttons available for your selection become active.
4. Click **Make Searchable** or **Make Unsearchable**.

Canceling an Action in Progress

You can cancel an archive action in progress at any point.

To cancel an action:

1. Click **Administration > Storage and Archive** and then open the **Archive Jobs** tab.
2. Filter the list to find the archive or archives on which you want to cancel an action.
3. Select the desired archive or archives. The action buttons available for your selection become active.
4. Click **Cancel** to cancel the action.

Archive Storage Space

When archive storage space is too full to allow addition of another day's events, these things happen:

- An email to the notification list warns that there is no longer enough archive space.
- Scheduled archiving fails.
- You are unable to archive any jobs manually.

Since archives are ordinary directories containing a day's events, it is easy to manage them using ordinary file operations. You can keep space available by deleting older archives. Be sure to make them unsearchable before you delete them. You may want to make a copy elsewhere (or redundant copies) before deleting them.

Deleting an archive directory does not remove it from the Archive Jobs list, but if you try to make a deleted archive searchable, you get an error message. Copy the directory back and try again.

Moving Archives to a New Location

Archives are ordinary directories containing a day's events. Use basic operating system file commands to move the `/opt/arcsight/logger/data/archives` directories to another location, and to move them back at a later point.

Backing Up Your Archive Configuration

Use basic operating system file commands to back up your archive files. For information on how to back up your archive configuration data and recover it later, refer to the `configbackup` and `disasterrecovery` sections in the "Administrative Commands" chapter of the ESM Administrator's Guide.

Search Filters

By default, all administrators can view, create, and edit search filters. For other users, access to this feature is controlled by user permissions. If you need access to this feature, ask your administrator.

You can create search filters to save specific queries so that you can easily use them again. Search filters are similar to saved searches. However, filters save the query only, while saved searches save the time range information in addition to the query. The Search Filters page provides a convenient place to manage search filters.

Granting Access to Search Filter Operations

Access to Search Filter Operations is granted at the user group level. Edit the Access Control List (ACL) for the group and add the following permissions, as appropriate, to the Operations tab in the ACL Editor.

To view, add, and edit search filters, a user needs the following permissions:

- View Search Filters:
/All Permissions/ArcSight System/Search Filter Operations/Search Filter Read
- Add or edit Search Filters:
/All Permissions/ArcSight System/Search Filter Operations/Search Filter Write

Note: The Search Filter Write permission requires the Search Filter Read permission. If you want to give a user write permission, be sure to enable read permission as well.

To load search filters from the Search page, a user needs the following permissions:

- View Saved Searches:
/All Permissions/ArcSight System/Saved Search Operations/Saved Search Read

To save a search filter from the Search page, a user needs this additional permission:

- Add or Edit Saved Searches:
/All Permissions/ArcSight System/Saved Search Operations/Saved Search Write

For more information on user groups and permissions, see ["User Management" on page 155](#). For more information on editing access control lists (ACLs), granting or removing permissions for events, and other permissions-related topics, refer to the ArcSight Console User's Guide chapter, "Managing Users and Permissions."

Managing Search Filters

Your system comes with a set of predefined search filters. For more information about these filters, see ["Predefined Search Filters" on page 122](#). You can add new filters and edit the existing ones from the Search Filters page.

Search Filters									
Search Filters									
Add									
Name	Category	Type	Query	Creator	Last Editor				
User1 Search Filter	Shared	Unified Query	deviceProduct contains "Microsoft Windows" top name	admin	admin				
User2 Search Filter	Shared	Unified Query	agent where name is not null top name	accumulate	accumulate				
User3 Search Filter	Shared	Unified Query	(success) and deviceProduct != "ArcSight"	accommodate	accommodate				

You can add a search filter here or directly from the Search tab. For information on how to save a search filter from the Search tab, see ["Saved Queries \(Search Filters and Saved Searches\)" on page 118](#).

For information on how to use the search filters created on this tab, see ["Using a Search Filter or a Saved Search" on page 121](#).

To add a search filter:


1. Click **Administration > Search Filters**.
2. Click **Add** to display the Add Search Filter dialog box.
3. Enter a name for the new filter in the **Name** field. Filter names are case sensitive.

Note: Non-administrator users cannot create search group filters.

4. Click **Next**.
5. Enter the query for the new filter.
 - When you type a query, Search Helper enables you to quickly build a query expression by automatically providing suggestions, possible matches, and applicable operators. See "[Search Helper](#)" on page 94 for more information.
 - Click **Advanced Search** to use the Search Builder Tool to create the query. For details about using the Search Builder Tool, see "[Using the Advanced Search Tool](#)" on page 88.
6. Click **Save**.


The filter you created is displayed in the list of search filters.

To create a new search filter by copying an existing one:


1. Click **Administration > Search Filters**.
2. Locate the filter to copy from the list of search filters. Click the Copy icon ().

A new search filter with the name "Copy of <filtername>" is created.
3. Change the name of the search filter and edit the query for the new filter as necessary.
4. Click **Save**.

To edit a search filter:

1. Click **Administration > Search Filters**.
2. Find the search filter you want to edit and click the Edit icon () on that row.
3. Change the information in the form and click **Save**.

To delete a search filter:

1. Click **Administration > Search Filters**.
2. Find the search filter you want to delete and click the Delete icon ()
3. Confirm the delete.

Saved Searches

A saved search, like a search filter, recalls a specific query. However, in addition to the query, a saved search saves the time range and the fieldset to display in the search results. Saving the time range supports scheduled searches and reports that run at a specific interval. For more information, see ["Scheduled Searches" on page 200](#).

Granting Access to Saved Search Operations

Access to Saved Search Operations is granted at the user group level. Edit the Access Control List (ACL) for the group and add the following permissions, as appropriate, to the Operations tab in the ACL Editor.

To view, add, and edit saved searches, a user needs the following permissions:

- View Saved Searches:
/All Permissions/ArcSight System/Saved Search Operations/Saved Search Read
- Add or Edit Saved Searches:
/All Permissions/ArcSight System/Saved Search Operations/Saved Search Write

Note: The Saved Search Write permission requires the Saved Search Read permission. If you want to give a user write permission, be sure to enable read permission as well.

To load saved searches from the Search page, a user needs this additional permission:

- View Search Filters:
/All Permissions/ArcSight System/Search Filter Operations/Search Filter Read

To save a search from the Search page, a user needs this additional permission:

- Add or edit Search Filters:
/All Permissions/ArcSight System/Search Filter Operations/Search Filter Write

To schedule a saved search from the Search page, a user needs these additional permissions:

- View Scheduled Searches:
/All Permissions/ArcSight System/Scheduled Search Operations/Scheduled Search Read
- Add or Edit Scheduled Searches:
/All Permissions/ArcSight System/Scheduled Search Operations/Scheduled Search Write

For more information on user groups and permissions, see ["User Management" on page 155](#). For more information on editing access control lists (ACLs), granting or removing permissions for events, and other permissions-related topics, refer to the ArcSight Console User's Guide chapter, "Managing Users and Permissions."

Managing Saved Searches

The Saved Searches tab displays all saved searches and supports adding, editing, and deleting saved searches.

Saved Searches							
<div>Saved Searches Scheduled Searches Running Searches Finished Searches Saved Search Files</div>							
<div>Add</div>							
Name	Start	End	Type	Query	Creator		
User1 Scheduled Search	\$Now - 2h	\$Now	Unified Query	deviceProduct contains "Server" top name	admin		
User2 Saved Search	\$Now - 2h	\$Now	Unified Query	agent where name is not null chart count by name span=10m	accumulate		
User2 Scheduled Search	\$Now - 2h	\$Now	Unified Query	((agent) and categorySignificance is not null) and categorySignificance != "/Informational"	accumulate		
User3 Saved Search	\$Now - 10m	\$Now	Unified Query	test where deviceEventClassId="1270"	accommodate		
User3 Scheduled Search	\$Now - 12h	\$Now	Unified Query	(warning) and name = "Monitor Event" where deviceEventClassId is not null top deviceEventClassId	accommodate		

You can add a saved search here or directly from the Search tab. For information on how to save a search from the Search tab, see ["Saved Queries \(Search Filters and Saved Searches\)" on page 118](#).

For information on how to use the saved searches created on this tab, see ["Using a Search Filter or a Saved Search" on page 121](#).

To add a saved search:


1. Click **Administration > Saved Searches** and then open the **Saved Searches** tab.
2. Click **Add** and enter the following parameters:

Parameter	Description
Name	A name for this saved search. This name is used for exported output files, with the date and time appended.
Start Time	Absolute date and time of the earliest possible event. Alternatively, check Dynamic to specify the start time relative to the time when the saved search job is run.
End Time	Absolute or dynamic date and time of the latest possible event, as described above.


Parameter	Description
Query	Enter a query in the text field, or select one or more filters from the Search Filter list. When you type a query, the Search Helper enables you to quickly build a query expression by automatically providing suggestions, possible matches, and applicable operators. See "Search Helper" on page 94 for more information.
Search Filters	Select one or more filters from the Search Filter list, or enter a query in the text field. The search filter(s) you select are used in the search.
Local Search	Check this box to limit the saved search to the local system. If the Local Search box is not checked, the saved search includes all peers.

3. Click **Save** to add the new saved search, or **Cancel** to quit.

To edit a saved search:

1. Click **Administration > Saved Searches** and then open the **Saved Searches** tab.
2. The Saved Searches tab displays the existing searches. Find the saved search you want to edit and click the Edit icon () on that row.
3. Change the information in the form and click **Save**.

To delete a saved search:

1. Click **Administration > Saved Searches** and then open the **Saved Searches** tab.
2. The Saved Searches tab displays the existing searches. Find the saved search you want to delete.
3. Click the Delete icon () and then confirm the deletion.

Scheduled Searches

By default, all administrators can view, create, and edit scheduled searches. For other users, access to this feature is controlled by user permissions. If you need access to this feature, ask your administrator.

Granting Access to Scheduled Search Operations

Access to Scheduled Search operations is granted at the user group level. Edit the Access Control List (ACL) for the group and add the following permissions, as appropriate, to the Operations tab in the ACL Editor.

To view, add, and edit scheduled searches, a user needs the following permissions:

- View Scheduled Searches:
/All Permissions/ArcSight System/Scheduled Search Operations/Scheduled Search Read
- Add or Edit Scheduled Searches:
/All Permissions/ArcSight System/Scheduled Search Operations/Scheduled Search Write

Note: The Scheduled Search Write permission requires the Scheduled Search Read permission. If you want to give a user write permission, be sure to enable read permission as well.

For more information on user groups and permissions, see ["User Management" on page 155](#). For more information on editing access control lists (ACLs), granting or removing permissions for events, and other permissions-related topics, refer to the ArcSight Console User's Guide chapter, "Managing Users and Permissions."

Managing Scheduled Searches

You can schedule a saved search to be run at a later time. The Scheduled Searches tab displays the currently scheduled searches. The results of a scheduled search are written to a file, as described in ["Saved Search Files" on page 207](#).

Saved Searches							
Saved Searches Scheduled Searches Running Searches Finished Searches Saved Search Files							
Add							
Task	Type	Schedule	Next Run Time	Destinations			
User1 Scheduled Search job	Scheduled search	Daily at 18:00	Aug 3, 2013 6:00:00 PM PDT	Saved to logger	✎	✕	✓
User2 Scheduled Search job	Scheduled search	M, W, F and Sa every 3 hours	Aug 2, 2013 9:00:00 PM PDT	Saved to logger	✎	✕	✓
User3 Scheduled Search job	Scheduled search	Every 2 hours	Aug 2, 2013 8:00:00 PM PDT	Saved to logger	✎	✕	✓

A scheduled Saved Search can be also configured to generate an alert. You can only schedule Alerts from the ESM Command Center interface. For more information about scheduled Saved Search Alerts, see ["Managing Scheduled Searches" above](#).

Before you schedule a Saved Search, you must have created or saved at least one Saved Search. You can schedule a saved search or an alert to run at any time.

To schedule a saved search:

1. Click **Administration > Saved Searches** and then open the **Scheduled Searches** tab.
2. Click Add. The screen shown below is displayed.

Saved Searches

Saved Searches

Scheduled Searches

Running Searches

Finished Searches

Saved Search Files

Add Scheduled Search

Name

MyScheduledSearch

Schedule

Everyday

Every

2

Hours

Saved Searches

MySavedSearch

Use ctrl-click to select or deselect items

Search Result Export Options

Export Options

☒ Save to ArcSight Command Center

File format

PDF

Export directory name

Title

Fields

Event Time, Receipt Time, Device, Logger, Name, Device Vendor, Device Product, Device Version, Signature ID, Severity

☒ All fields

Chart type

Column

Chart result limit

10

Include summary

☐

Include only CEF events

☐

Save

Cancel



3. Enter the following parameters:

Parameter	Description
Name	A name for this scheduled search job.


Parameter	Description
Schedule	<p>Choose Everyday or Days of Week from the first pulldown menu.</p> <p>If Everyday, select Hour of Day or Every from the second pulldown menu. Enter the hours (1-23) in the text box.</p> <p>If Days of Week, enter the days (day 1 is Sunday) in the text box. Then choose Hour of Day or Every from the second pulldown menu. Enter the hours (1-23) in the second text box.</p> <p>For example, to perform the search every day at 2 a.m., select Everyday in the first pulldown menu, then choose Hour of Day from the second pulldown menu and enter 2 in the text box. To perform the saved search every day at 2 a.m. and 3 p.m., enter 2,15 in the text box.</p> <p>For another example, to perform the search Tuesdays and Thursdays at 10 p.m., select Days of Week from the first pulldown menu and enter 3,5 for days. Then choose Hour of Day from the second pulldown menu and enter 22 in the text box.</p>
Saved Searches	<p>Select from the list of saved searches. If none of the saved searches suit your needs, click the Saved Searches tab (to the left of Scheduled Searches tab) to save a new search. Then come back to this tab to schedule it.</p> <p>For more information about defining a saved search query, see "Managing Saved Searches" on page 199.</p> <p>You can use Ctrl+Click to select and deselect one or more items from the list.</p> <p>Note: When <i>multiple</i> saved searches are specified in one scheduled search job, the resulting file contains the number of hits for each saved search and not the actual events.</p>

Parameter	Description
Export Options	<p>For the ESM Command Center appliance:</p> <p>Select from one of these options:</p> <ul style="list-style-type: none"> ■ Export to remote location—The file is written to an NFS mount, a CIFS mount, or a SAN system. ■ Save to ESM Command Center—The file is saved to the ESM Command Center's onboard disk. If the file is saved locally, use the Saved Search Files ("Saved Search Files" on page 207) feature to access those files. <p>For the software version of ESM Command Center:</p> <p>The option Save to ESM Command Center is preselected for you.</p> <p>The search results are saved on the Saved Search Files tab. For more information, see "Saved Search Files" on page 207.</p>
File Format	<p>Select a format for the exported search results.</p> <p>CSV, for comma-separated values file.</p> <p>PDF, for a report-style file that contains search results as charts and in tables. You must specify a title for the report in the Title field. If the search query contains an operator that creates charts such as chart, top, and so on, charts are included in the PDF file. In that case, you can also set the Chart Type and Chart Result Limit fields. These fields are described later in this table.</p>
Export Directory Name	<p>For the ESM Command Center appliance, select the directory where the search results will be exported from the pulldown menu.</p> <p>By default all saved searches are stored in /opt/arcsight/logger/userdata/logger/user/logger/data/savedsearch. To group your searches in folders, indicate a subdirectory in which to store them.</p> <p>If a directory of that name does not exist, it is created.</p>
Title	<p>(Optional) Enter a title to appear at top of the PDF file. If no title is specified, the default "Untitled" is used.</p> <p>(This field becomes available when you select the PDF output format.)</p>

Parameter	Description
Fields	<p>A list of event fields that will be included in the exported file. By default, all listed fields are included.</p> <p>You can enter fields or edit the displayed fields by deselecting All Fields.</p>
Chart Type (for PDF only)	<p>Type of chart to include in the PDF file. You can select from:</p> <p>Column, Bar, Pie, Area, Line, Stacked Column, Stacked Bar.</p> <p>Note: This option overrides the Chart Type displayed on the Search Results screen.</p> <p>(If the search query includes an operator that creates a chart, this field is meaningful; otherwise, it is ignored.)</p>
Chart Result Limit (for PDF only)	<p>The maximum number of unique values to include on the chart. The default is 10.</p> <p>(If the search query includes an operator that creates a chart, this field is meaningful; otherwise, it is ignored.)</p> <p>If the configured Chart Result Limit is less than the number of unique values for a query, the top values equal to the Chart Result Limit are plotted. That is, if the Chart Result Limit is 5 and 7 unique values are found, the top 5 values will be plotted.</p>
Include Summary	<p>Check this box to include an event count with the saved search, or a total when more than one saved search is specified.</p>
Include only CEF Events	<p>Check this box to include only Common Event Format (CEF) events. Uncheck the box to include all events in the output. Non-CEF events may be found on peers that are Loggers.</p> <p>For more information about CEF, refer to Implementing ArcSight CEF. For a downloadable a copy of this guide, search for "ArcSight Common Event Format (CEF) Guide" on the Protect 724 Community at https://protect724.arcsight.com.</p>


4. Click **Save** to add the new scheduled search, or **Cancel** to quit.
5. Enable the Scheduled Search to run by clicking the Disabled icon () at the end of the row. To disable the search, click the Enabled icon (.

To edit a scheduled search:

1. Click **Administration > Saved Searches** and then open the **Scheduled Searches** tab.
2. Locate the scheduled search job you want to edit and click the Edit icon () on that row.

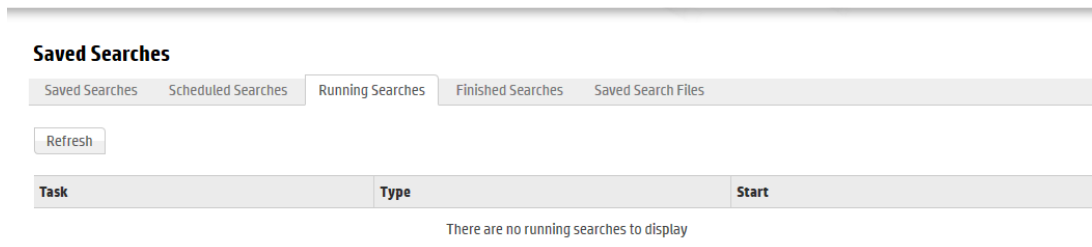
3. Change the parameters of the scheduled search job.
4. Click **Save** to update the scheduled search job, or **Cancel** to abandon your changes.

To delete a scheduled search:

1. Click **Administration > Saved Searches** and then open the **Scheduled Searches** tab.
2. Click **Scheduled Searches** in the right panel.
3. Locate the scheduled search you want to delete and click the Delete icon () on that row.
4. Confirm the deletion by clicking **OK**, or click **Cancel** to retain the scheduled search job.

Currently Running Scheduled Searches

When a scheduled search is initiated, the **Running Searches** tab displays the currently running scheduled search tasks. If no task is running, the list will be empty.



When a task finishes, its entry on the **Running Searches** tab is removed. The task entry is removed upon page refresh, when you click **Refresh** or when you navigate away from this page and come back to it.

To view running scheduled searches:

Click **Administration > Saved Searches**, and then open the **Running Searches** tab. The running tasks are displayed.

Ending Currently Running Searches

If you need to end a Running Search task, follow the instructions in ["Ending Currently Running Tasks" on page 215](#).

Finished Searches









The completion status of searches that were scheduled to run is listed on the Finished Searches tab. The entries are updated upon page refresh, when you click **Refresh**, or when you navigate away from this page and come back to it.

Saved Searches					
Saved Searches Scheduled Searches Running Searches Finished Searches Saved Search Files					
Refresh					
Task	Type	Start	End	Result	Status
There are no finished searches to display					

Saved Search Files

This tab displays links to the saved search results that were saved with the Saved Search Files command. Saved Search Files can be retrieved (streamed to the browser) or deleted.

Saved Search Files

Saved Searches					
Saved Searches Scheduled Searches Running Searches Finished Searches Saved Search Files					
Refresh					
Name	Last Modified	Size	State	Error Message	
User3_Exported_Search.csv	Aug 2, 2013 6:00:19 PM PDT	10.54 MB	Exported		 
User2_Scheduled_Search_job_2013-08-02_18-00-00.pdf	Aug 2, 2013 6:00:13 PM PDT	3.56 MB	Exported		 
User1_Scheduled_Search_job_2013-08-02_18-00-00.pdf	Aug 2, 2013 6:00:05 PM PDT	23.42 KB	Exported		 
User2_Exported_Search.pdf	Aug 2, 2013 5:50:40 PM PDT	705.92 KB	Exported		 

Access the saved search results:

1. Click **Administration > Saved Searches** and then open the **Saved Search Files** tab. The files containing the search results are displayed.
2. To download and open a file, click a link in the Name column or click the **Retrieve** icon in the row.

Search

The Search screen enables you to tune advanced search options, view the schema, and end currently running search tasks, and view and add parsers for specific log types.

For general search information, see ["About Searching for Events" on page 62](#). For information on how to grant search access, see ["Granting Access to Search Operations and Event Filters" on page 99](#).

Tuning Search Options

You must be an administrative user to access this feature.

The Search Options tab displays options that affect the search operation. You can set several different types of search options, including options to support internationalization (i18n). The settings you select apply to all users.

Note: Changing the default search options may affect search performance.

Search

Search Options | Fieldsets | Default Fields | Running Tasks

Edit Search Options

Most users shouldn't need to adjust these settings

Field Search Options

Case sensitive Yes

Full-text Search Options

Use primary delimiters Yes

Use secondary delimiters No

Regular Expression Search Options

Case sensitive No

Unicode case sensitive No

Check for canonical equality No

Search Display Options

Populate rawEvent field for syslog events No

Show source and sourceType fields No

Field Summary Options

Use Field Summary Yes

Discover fields No

Save

To change the search options:

1. Click **Administration > Search**, and then open the **Search Options** tab.
2. The following table lists the search options you can view and configure. Select the necessary options and click **Save**.

Several of the options on this screen will require you to reboot the appliance/restart the system.

Option	Description
Field Search Option	
Case sensitive	<p>Default: Yes</p> <p>Controls whether to differentiate between upper- and lower-case characters during a search. When this option is set to No, searching for "login" will find "login," "Login," and "LOGIN".</p> <p>You must reboot the Logger appliance/restart software Logger the system for this change to take effect.</p> <p>Notes:</p> <ul style="list-style-type: none"> ■ Case-sensitive search only applies to the local system. Peers will continue to use case-insensitive search. ■ Full-text search (keyword search) is case insensitive. You cannot change its case sensitivity. ■ Set this option to Yes to increase local query performance.
Full-text Search Options	
Use primary delimiters	<p>Default: Yes</p> <p>Controls whether primary delimiters are applied to an event when tokenizing it for indexing. For information about Indexing, see "Indexing" on page 129.</p> <p>A primary delimiter tokenizes an event for indexing. For example, an event "john doe the first" is tokenized into "john" "doe" "the" "first" using the "space" primary delimiter.</p> <p>Users can search for keywords containing primary delimiters by enclosing the keywords in double quotes.</p> <p>Supported primary delimiters: space, tab, newline, comma, semi-colon, (,), [,], {, }, ", , *, >, <, !</p>

Option	Description
Use secondary delimiters	<p>Default: No</p> <p>Controls whether secondary delimiters are applied to an event to further tokenize a token created by a primary delimiter. Thus enabling searches that can match a part of a primary token.</p> <p>Users can search for keywords containing secondary delimiters by enclosing the keywords in double quotes.</p> <p>Supported secondary delimiters: =, ., :, /, \, @, -, ?, #, \$, &, _, %</p>
Regular Expression Search Options	
Case sensitive	<p>Default: No</p> <p>You must reboot the Logger appliance/restart software Logger the system for this change to take effect.</p> <p>See Case Sensitive in the Field Search Options, above.</p>
Unicode case sensitive	<p>Default: No</p> <p>Controls whether events in languages other than English are matched in a case-sensitive way.</p> <p>Caution: HP strongly recommends that you do not change this option.</p> <p>You must reboot the Logger appliance/restart software Logger the system for this change to take effect.</p>
Check for canonical equality	<p>Default: No</p> <p>Controls whether events in languages other than English should be compared using locale-specific algorithms.</p> <p>Caution: HP strongly recommends that you do not change this option.</p> <p>You must reboot the Logger appliance/restart software Logger the system for this change to take effect.</p>
Search Display Options	

Option	Description
Populate rawEvent field for syslog events	<p>Default: No</p> <p>For syslog events only, controls whether raw events are displayed in a column called rawEvent, formatted by the Raw Event fieldset.</p> <p>To view the raw events associated with CEF events, you must configure the connector that sends the events to ESM to populate the rawEvent field.</p> <p>Note: Even though the rawEvent column displays the raw event, this column is not added to the database and is not indexed. Therefore, you can only run a keyword (full-text) or regular expression search on the event.</p>
Show Source and SourceType fields	<p>Default: No</p> <p>Controls whether the Source and SourceType fields are included in the Field Summary and query results.</p> <p>You must reboot the Logger appliance/restart software Logger the system for this change to take effect.</p> <p>Note: Setting this option to Yes can impact query performance.</p>
Field Summary Options	
Use Field Summary	<p>Default: No</p> <p>Controls whether the Field Summary panel is included in the search results by default. This option can be overridden by using the Fields Summary check box on the Search screen.</p> <p>When you select this field, the Discover Fields option becomes available.</p>
Discover Fields	<p>Default: No</p> <p>Controls whether the Field Summary feature automatically detects non-CEF fields in raw events. This option can be overridden by using the Discover Fields check box on the Search screen.</p> <p>This field is hidden if Use Field Summary is set to No.</p> <p>The Discover Fields option is only useful for products that have unstructured (non-CEF data), such as Logger 5.3 SP1.</p> <p>Note: Setting this option to Yes can impact query performance.</p>

Managing Fieldsets

By default, all administrators can view, create, edit, and delete custom fieldsets. For other users, access to this feature is controlled by user permissions. If you need access to this feature, ask your administrator.

You can view both user-created and predefined fieldsets on the Fieldsets tab. You can delete the user-created fieldsets from here. For information on how to add a fieldset, see ["Fieldsets" on page 75](#).

Note: These fieldsets are for use when searching from ArcSight Command Center.

For information about field sets for ArcSight Console, refer to the ArcSight Console User's guide

Search		
Search Options	Fieldsets	Default Fields Running Tasks
Name	Type	TableColumns
All Fields	System	Event Time, Device, Logger, *user, Raw Message, deviceVendor, deviceProduct, deviceVersion, deviceEventClassId, name, *
Base Event Fields	System	Event Time, Device, Logger, *user, Raw Message, name, agentSeverity, deviceEventCategory, priority, Receipt Time, deviceVendor, deviceProduct, deviceVersion, deviceEventClassId, Raw Message, sourceAddress, sourcePort, destinationAddress, destinationPort
Categories	System	Event Time, Device, Logger, *user, Raw Message, deviceEventClassId, name, deviceVendor, deviceProduct, categoryBehavior, categoryDeviceGroup, categoryObject, categoryOutcome, categorySignificance, categoryTechnique, cat_tuple_description
Default Fields	System	endTime, name, sourceAddress, destinationAddress, priority, deviceVendor, deviceProduct, Raw Message
Minimal Fields	System	Event Time, Device, Logger, *user, Raw Message, name, deviceEventCategory, priority, correlatedEventCount, aggregatedEventCount, attackerAddress, attackerHostName, attackerPort, targetAddress, targetHostName, targetPort, categoryBehavior, categoryDeviceGroup, categoryObject, categoryOutcome, categorySignificance, categoryTechnique, cat_tuple_description, deviceAction, deviceAddress, deviceHostName, deviceProduct, deviceVendor, transportProtocol, applicationProtocol
Raw Event	System	Event Time, Device, *user, raw_event, Raw Message
Syslog Standard	System	Event Time, Device, Logger, *user, Raw Message
User Defined Fields	System	*user, Raw Message

To delete a custom fieldset:

1. Click **Administration > Search**, and then open the **Fieldsets** tab.
2. Identify the fieldset you want to delete and click the Delete (✕) icon.

Note: You can only delete the fieldsets you create, and not the predefined ones available on your system.

3. Confirm the deletion.

Granting Access to Fieldset Operations

Access to Fieldset Operations is granted at the user group level. Edit the Access Control List (ACL) for the group and add the following permissions, as appropriate, to the Operations tab in the ACL Editor.

To use a fieldset from the Search page, a user needs the following permissions:

- Search for events:
/All Permissions/ArcSight System/Search Operations/Search
- View Fieldsets:
/All Permissions/ArcSight System/Fieldset Operations/Fieldset Read

To create, edit and delete fieldsets, a user needs this additional permission:

- Add or edit Fieldsets:
/All Permissions/ArcSight System/Fieldset Operations/Fieldset Write

Note: The Fieldset Write permission requires the Fieldset Read permission and the Search permission. If you want to give a user write permission, be sure to enable those permissions as well.

For more information on user groups and permissions, see ["User Management" on page 155](#). For more information on editing access control lists (ACLs), granting or removing permissions for events, and other permissions-related topics, refer to the ArcSight Console User's Guide chapter, "Managing Users and Permissions."

Viewing the Default Fields

You must be an administrative user to access this feature.

The schema contains a set of predefined fields. A field-based search can only use fields in the schema. The Default Fields tab displays the predefined fields included in the schema. It includes the Display Name, Type, Length, and Field Name for each default field.

Note: The size of each field in the schema is predetermined. If the string you are searching for is longer than the field length, use a STARTSWITH rather than an = search, and include no more than the number of characters in the field size. For more information, see ["Field-based Search" on page 69](#).

Search

Search Options Fieldsets **Default Fields** Running Tasks

Display Name	Type	Length	Field Name
agentAddress	LONG	16	agt
agentHostName	TEXT	1023	ahost
agentNtDomain	TEXT	255	agentNtDomain
agentSeverity	INTEGER	-	agentSeverity
agentType	TEXT	63	at
agentZone	LONG	-	agentZone
agentZoneName	TEXT	50	agentZoneName
agentZoneResource	TEXT	100	agentZoneResource
agentZoneURI	TEXT	2048	agentZoneURI

The Default fields tab display includes the database data type for each field. These data types map to the ArcSight data types as indicated in the following table..

ArcSight Data type	Type on Default Fields tab	Notes
DATETIME	DATETIME	Includes Date, DateTime, and Timestamp.
NUMBER	DOUBLE	Includes dvc_custom_floating_point1, dvc_custom_floating_point2, dvc_custom_floating_point3, and dvc_custom_floating_point4.
	INTEGER	Includes asset_criticality, dest_trans_port, dest_process_id, and so on.
	LONG	Includes agentSeverity, locality, geo location, and so on.
IP Address	LONG	Includes IPv4 addresses.
MAC Address	LONG	Includes MAC addresses.
STRING	TEXT	Includes deviceVendor, deviceProduct, deviceVersion, and so on.
	VARBINARY	Includes IPv6 addresses.

For more information about ArcSight data types, refer to the reference section of the ArcSight Console User's guide.

To view the default schema fields:

1. Click **Administration > Search**, and then open the **Default Fields** tab.
2. The Default Fields tab displays the default fields. You can sort the fields by clicking the column headers.

Currently Running Tasks

You must be an administrative user to access this feature.

The **Running Tasks** tab displays the search tasks that are currently running. If no task is running, the list will be empty. These tasks include searches initiated by any of the following operations.

- Manual search (**Events > Event Search**)
- **Administration > Saved Searches > Scheduled Searches**
- Search export, with the “Rerun query” option checked (**Events > Event Search > Export Results**)

The table shows the session ID, the user who started the tasks, the date and time that the task started, the number of hits, the number of scanned events, the elapsed time, and the query.

Search

Search Options

Fieldsets

Default Fields

Running Tasks

Refresh

Session ID	User	Start	Hits	Scanned	Elapsed	Query	
104857840	admin	Sep 18, 2013 3:00:44 PM PDT	15,177,550	17,781,172	22:11.442	_peerLogger IN ["127.0.0.1","15.214.129.114","15.214.130.115"] top 5 bytes n	x

When a task finishes, its entry on the **Running Tasks** tab is removed. The task entry is removed upon page refresh, when you click the **Refresh** button shown above or when you navigate away from this page and come back to it.

To view running tasks:

Click **Administration > Search**, and then open the **Running Tasks** tab. Any tasks currently running tasks are displayed.

Ending Currently Running Tasks

You might need to end a currently running task when it is taking too long to run, or appears to be stuck and slowing overall performance.

To end running tasks:

1. Click **Administration > Search**, and then open the **Running Tasks** tab.
2. Select the task you want to end, and click the End (✕) icon.

Peers

By default, all administrators can view, create, and edit peers; and run searches on peers. For other users, access to this feature is controlled by user permissions. If you need access to this feature, ask your administrator.

An ArcSight Manager can establish peer relationships with one or more Managers or Loggers to enable distributed searches and Content Management. ArcSight Managers can send content to, or receive content from, other Managers when they are in a peer relationship. To search other Managers or Loggers or to use the Content Management feature, you must define one or more peers.

Note: Both Peering and Content Management are disabled if ESM is running in FIPS Suite B Mode. The peer relationship feature is not supported in the ESM Express appliance.

When two systems peer with each other, one initiates the relationship. The initiator sends credentials to authenticate itself to the target system. If the authentication succeeds, a peer relationship is established between the two systems. For more information, see ["Authenticating Peers" on the next page](#).

Configuring Peers

The following steps are required to set up peer relationships.

Overview steps for configuring peers:

1. Determine which Manager or Logger will initiate the peer relationship. Manager or Logger A is the initiator in this example, and Logger B is the target.
2. Decide on a peer authentication method, based on the information in ["Selecting a Peer Authentication Method" on page 218](#).
 - To authenticate with a user name and password:
Determine which user name and password Manager or Logger A should to use to authenticate itself when peering with B, or set up a user, as described in ["Add or Edit a User" on page 159](#).
 - To authenticate with an Authorization ID and Code:

On Manager or Logger B, generate an Authorization ID and Code for A to use to authenticate itself when peering with B. For instructions, see ["Authenticating a Peer" on page 218](#).
3. On Manager or Logger A, add the authentication information from B, as described in ["Adding a Peer" on page 219](#).
 - If authenticating with a user name and password, use the user name and password that you determined in the previous step.

- If authenticating with an Authorization ID and Code, use the Authorization ID and Code that you generated in the previous step.

Guidelines for Configuring Peers

Consider these guidelines when configuring peers:

- Refer to the Release Notes for the supported versions in peer relationships.
- The system time and date on each Manager or Logger in the peer relationship must be set correctly for its time zone. HP recommends that you configure your system to synchronize its time with an NTP server regularly.
- Peers cannot be edited, however you can delete and re-add a peer.
- When user name and password are used for authenticating to a remote peer, changes to the user name and password after the peer relationship is established do not affect the relationship. However, if you delete the peer relationship or it breaks for other reasons, you will need to provide the changed credentials to re-establish the relationship.
- Users performing search operations on peers have the same privileges on the peer that they have on the system that they are logged into.
- Peer log information is recorded in the log files in
`/opt/arcsight/logger/current/arcsight/logger/logs`

Authenticating Peers

Authentication happens only once, at the time the peer relationship is created. The authorization to use peer services is implicit each time a remote system receives peer requests from a system that previously authenticated as a peer.

You can authenticate a peer in one of two ways:

- **Peer Authorization ID and Code** — These credentials are generated on one Manager or Logger and used on another to configure peering between the two. When generating the Authorization ID and Code, enter the IP address of the Manager or Logger you will use to initiate peering in the Peer Authorization page of the one you want to peer with. The IP address is used to generate a unique ID and code that can be used only for peering from that address. Therefore, this method is more secure than using a user name and password.

Note: HP ArcSight recommends using Peer Authorization ID and Code for authentication.

- **User name and password** — A user name and password already configured on the target system is used for authentication.

Note: This user must have the following permissions:

View registered peers:

/All Permissions/ArcSight System/Peer Operations/Peer Read/

Edit, save, and remove registered peers:

/All Permissions/ArcSight System/Peer Operations/Peer Write/

Selecting a Peer Authentication Method

- When using a user name and password to configure peering, you must use the user password for local authentication, even if your system is configured to use LDAP or RADIUS authentication.
- If the peer Manager or Logger is configured for SSL Client authentication (CAC), you must configure an Authorization ID and Code on the target Manager or Logger. You cannot use a user name and password.
- FIPS-enabled systems are not limited to a specific authentication method.

Note: FIPS Suite B Mode is not supported for peering.

Authenticating a Peer

Use the following procedure to generate the Authorization ID and Code on the target Manager or Logger with which you want to establish a peer relationship. (Manager or Logger B in the example in ["Configuring Peers" on page 216](#).) After that, use the ID and Code on the initiating Manager or Logger when configuring the peer relationship. (Manager Logger A in that example.)

Peers

Peer Configuration Peer Authorization

Add

Use the Authorization ID and Authorization Code when configuring another node as a peer with this system.

Host Name	Port	Authorization ID	Authorization Code
There are no peer authorizations to display			

To generate the Authorization ID and Code:

1. Click **Administration > Peers** and then open the **Peer Authorization** tab.
2. In the **Peer Authorization** tab, click **Add**.

3. Enter the hostname or IP address and port for the Manager or Logger you want to peer with this system.
4. Click **Save**.

The authorization ID and authorization Code are displayed. Copy this information and use it on the other Manager or Logger when adding this system as a peer.

5. Click **Done** to return to the Peer Authorization list.

Adding and Deleting Peer Relationships

The Peer Configuration tab displays the current peer relationships. From here, you can add and delete peers.

The screenshot shows the 'Peers' section of a web interface. It has two tabs: 'Peer Configuration' (active) and 'Peer Authorization'. Below the tabs is an 'Add' button. A table displays the current peer relationships with columns 'Peer Host Name' and 'Peer Port'. The table contains one entry: 'NNN.NNN.NNN.NNN' with port '9000'. A delete icon (an 'x' in a square) is visible at the end of the row.

Peer Host Name	Peer Port
NNN.NNN.NNN.NNN	9000

Adding a Peer

Adding a peer creates a peer relationship between two Loggers, two ArcSight Managers, or a Logger and a Manager. Once added, you can delete a peer, but you cannot edit it. See ["Configuring Peers" on page 216](#) for more information.

To add a peer:

1. Click **Administration > Peers** and then open the **Peer Configuration** tab.
2. Click **Add** and enter the following parameters.

Parameter	Description
Peer Host Name	Enter the target Manager or Logger's hostname or IP address.
Peer Port	443, by default for Logger appliance. For peering with a Manager, use the default port, 9000. For peering with a Logger, use the configured port.

Parameter	Description
Peer Login Credentials	Select Peer Login Credentials for password-based authentication.
Peer Authorization Credentials	<p>OR</p> <p>Select Peer Authorization Credentials to use an Authorization ID and Code.</p> <ul style="list-style-type: none"> ■ On systems using local or RADIUS authentication, you can use either authentication method, although peer Authorization ID and Code are recommended. ■ On systems using SSL Client Authentication (CAC), Authorization ID and Code is the only way to authenticate a peer. You cannot use a user name and password. ■ FIPS-enabled systems are not limited to a specific authentication method.
If you selected Peer Login Credentials...	
Peer User Name	<p>Enter a user name already configured on the target system to use for authentication.</p> <p>This user must have the following permissions:</p> <p>View registered peers: /All Permissions/ArcSight System/Peer Operations/Peer Read/</p> <p>Edit, save, and remove registered peers: /All Permissions/ArcSight System/Peer Operations/Peer Write/</p>
Peer Password	Enter the password for the user specified in the Peer User Name field.
If you selected Peer Authorization Credentials...	
Peer Authorization ID	Enter the authorization ID generated on the target Manager or Logger. (See "To generate the Authorization ID and Code:" on page 218 for more information.)
Peer Authorization Code	Enter the authorization code generated on the target Manager or Logger. (See "To generate the Authorization ID and Code:" on page 218 for more information.)
These fields need to be updated in rare circumstances.	


Parameter	Description
External IP Address	<p>In most cases, the value in this field matches the IP address in your browser when you logged into this system (the initiating Manager or Logger), and you do not need to do anything.</p> <p>However, if the IP address does not match that address, (for example, when the Manager or Logger is behind a VPN concentrator), change the value to match the IP address in your browser.</p>
Local Port	<p>This should always be 9000.</p> <p>In most cases, the value in this field matches the port in your browser when you logged into this system (the initiating Manager or Logger), and you do not need to do anything.</p> <p>However, if the port here does not match the port in the IP address, (for example, when the Manager or Logger is behind a VPN concentrator), change the value to match the port in the IP address in your browser.</p>

3. Click **Save** to add the new peer relationship, or **Cancel** to quit. The peer relationship is also added on the peer.

Deleting a Peer

Deleting a peer removes the peer relationship between two Loggers or two ArcSight Managers, or a Manager and a Logger. You can perform this process from either peer.

To delete a peer:

1. Click **Administration > Peers** and then open the **Peer Configuration** tab.
2. Locate the peer you want to delete the peer relationship to and click the Delete icon () on that row.
3. Confirm the deletion by clicking **OK**, or click **Cancel** to retain the relationship.

The peer relationship is deleted on both peers.

Note: Deleting the peer relationship will only delete this Manager's knowledge of the relationship if the peer cannot be reached. Once the target system is reachable, you can log into it and delete the peer relationship there.

Granting Access to Peer Operations

Access to Peer Operations is granted at the user group level. Edit the Access Control List (ACL) for the group and add the following permissions, as appropriate, to the Operations tab in the ACL Editor.

Note: Be sure to apply all appropriate permissions. For example:

- The Write permission requires the Read permission. If you want to give a user Peer Write permission, be sure to enable Peer Read permission as well.
- The Search Remote permission requires the Search permission and the Peer Read permission. If you want to give a user Search Remote permission, be sure to enable Search and Peer Read.

To search for peers from the Search page, a user needs these permissions:

- Search for events:
/All Permissions/ArcSight System/Search Operations/Search
- Search for events on remote peers:
/All Permissions/ArcSight System/Peer Operations/Search Remote

To add and remove peers, a user needs these additional permissions:

- View registered peers:
/All Permissions/ArcSight System/Peer Operations/Peer Read
- Edit, save, and remove registered peers:
/All Permissions/ArcSight System/Peer Operations/Peer Write

For more information on user groups and permissions, see ["User Management" on page 155](#). For more information on editing access control lists (ACLs), granting or removing permissions for events, and other permissions-related topics, refer to the ArcSight Console User's Guide chapter, "Managing Users and Permissions."

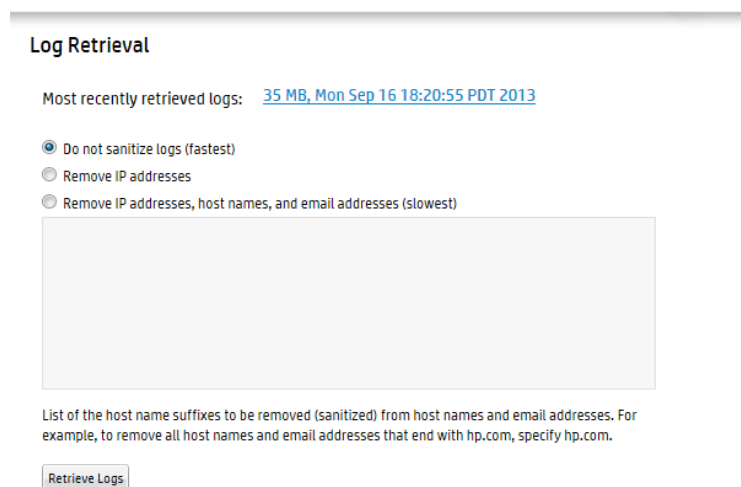
Log Retrieval

You must be an administrative user to access this feature.

ESM records some audit and debug information, including details of any issues that occur. These system logs (not be confused with the event logs), are like the "black box" on an airliner. If something goes wrong, the logs can be helpful. Customer support may ask you to retrieve logs as part of an incident investigation. If so, follow the steps below and provide the resulting .zip file to customer support.

When retrieving logs, you have the option to sanitize the log files by obfuscating the IP addresses, hostnames, and email addresses. However, sanitizing adds extra time to log retrieval. Each sanitized IP address, hostname, and email address is replaced by the symbols xxx.xxx.xxx.xxx (for IP addresses), sanitized@email (for emails) and sanitized.host.name (for hostnames).

Retrieve Logs tab



The screenshot shows the 'Log Retrieval' configuration page. At the top, it says 'Log Retrieval'. Below that, it indicates 'Most recently retrieved logs: 35 MB, Mon Sep 16 18:20:55 PDT 2013'. There are three radio button options: 'Do not sanitize logs (fastest)' (selected), 'Remove IP addresses', and 'Remove IP addresses, host names, and email addresses (slowest)'. Below these options is a large text input box. Under the text box, there is a small text label: 'List of the host name suffixes to be removed (sanitized) from host names and email addresses. For example, to remove all host names and email addresses that end with hp.com, specify hp.com.' At the bottom of the form is a 'Retrieve Logs' button.

To retrieve the system logs:

1. Click **Administration > Log Retrieval**.
2. Select the Log Retrieval options to use when creating the Log file.
 - If you select **Do not sanitize logs (fastest)**, then all IP addresses, hostnames and email addresses will be kept in the log file.
 - If you select **Remove IP addresses**, all IP addresses in the log will be obfuscated. You cannot specify individual IP addresses.
 - If you select **Remove IP addresses, hostnames and email addresses**, you must specify the suffixes of the hostnames and email addresses in the text box.

Separate multiple suffixes with comma, space, or line-break. For example, to obfuscate all hostnames and email addresses that end with hp.com and gmail.com, you could specify the following:

hp.com, gmail.com

All IP addresses, hostnames, and email addresses with the specified suffixes will be obfuscated. Specifying individual email addresses like name@hp.com is not supported. Individual email addresses and their suffixes will be ignored. If a suffix is not provided, the retrieval behavior is the same as selecting "Remove IP address".

3. Click Retrieve Logs. The page will display a progress bar while the logs are being retrieved.

4. When the collection is complete, the system log files have been compressed into a single zip file. A link to this file is displayed on the Log Retrieval page. Click the link to download the file.

Appendix A: Search Operators

This appendix describes the operators you can use in search queries you specify in the Search box (**Events > Event Search**) and gives examples of their use.

This appendix provides information on the following search operators.

cef (Deprecated)	225
chart	226
dedup	232
eval	233
extract	234
fields	236
head	236
keys	237
rare	238
regex	239
rename	240
replace	241
rex	242
sort	245
tail	245
top	246
transaction	247
where	249

cef (Deprecated)

Prior to Logger 5.2, you needed to use the cef operator to extract CEF fields from CEF events that matched the field search filter (the query portion before the first pipeline in the query expression) before you could use other search operators to act upon those fields.

In most cases, you do not need to explicitly extract event fields using the CEF operator and then apply other search operators to those fields. You can simply specify the event fields directly.

Note: If you run a peer search on Loggers, one of which is running v5.1 or earlier (in which CEF was not deprecated), the query that does not contain CEF defined fields will run without any issues in the circumstance when the query is initiated on a Logger running v5.2; however, if the query is initiated on a v5.1 Logger, it will fail.

Extracts values for specified fields from matching CEF events. If an event is non-CEF, the field value is set to NULL.

Usage:

```
...| cef <field1> <field2> <field3> ...
```

Notes:

If multiple fields are specified, separate each field name with a white space or a comma.

To identify the name of a CEF field, use the Search Builder tool (click Advanced Search under the Search text box), which lists the names of all fields alphabetically.

The extracted fields are displayed as additional columns in the All Fields view (of the System FieldSets). To view only the extracted columns, select **User Defined Fieldsets** from the System Fieldsets list.

Example 1:

```
...| cef categorySignificance agentType
```

Example 2:

```
...| cef deviceEventCategory name
```

chart

Displays search results in a chart form of the specified fields.

Usage:

```
...| chart <field>
...| chart count by <field1> <field2> <field3> ...
[span [<time_field>]=<time_bucket>]
...| chart {{sum | avg | min | max | stdev} (<field>))+ by <field1>, <field2>,
<field3> ...[span [<time_field>]= <time_bucket>]
...| chart {<function> (<field>)} as <new_column_name> by <field>
[span [<time_field>]=<time_bucket>]
```

where

<field>, <field1>, <field2> are the names of the field that you want to chart. The fields can be either event fields available in the ESM Command Center schema or a user-defined fields created using the `rex` or `eval` operator prior in the query.

Note: The specified fields must contain numeric values. If a field you specify is of the wrong data type, you will receive an error message like the following: "The search cannot be run, there is an error in your query: Invalid field type for field [field name]."

<time> is the bucket size for grouping events. Use `d` for day, `h` for hour, `m` for minute, `s` for seconds. For example, `2h`, `5d`, `1m`. (See Notes for details.)

<function> is one of these: `count`, `sum`, `avg` (or `mean`), `min`, `max`, `stdev`

<new_column_name> is the name you want to assign to the column in which the function's results are displayed. For example, `Total`.


Deprecated Usage:

The following deprecated usage contains "`_count`". The recommended usage, as shown above, is "`count`".

```
...| chart _count by <field1> <field2> <field3> ...
```

Notes:

By default, a column chart is displayed. Other chart types you can select from: bar chart, line chart, pie chart, area chart, stacked column, or stacked bar.

To change the chart settings (including its type), click  to the upper right corner of the Result Chart frame of the screen. You can change these settings:

- **Title:** Enter a meaningful title for the chart.

- **Type:** Column, Bar, Pie, Area, Line, Stacked column, Stacked Bar. The last two types create stacked charts in which multiple values are plotted in a stack form. These charts are an alternate way of representing multi-series charts, which are described below.

- **Display Limit:** Number of unique values to plot. Default: 10

If the configured Display Limit is less than the number of unique values for a query, the top values equal to the specified Display Limit are plotted. That is, if the Display Limit is 5 and 7 unique values are found, the top 5 values will be plotted.

All chart commands except "`count by`" accept only *one field* in the input. The specified field must contain numeric values.

If multiple fields are specified, separate the field names with a white space or a comma.

The chart `<field>` command does not aggregate field values. It simply lists and charts each occurrence of the values of the specified field. For example, `chart sourcePort`. However, when you

use an **aggregation function** such as `count` by, `sum`, `avg` (or `mean`), and so on, an aggregation of the specified fields is performed and charted, as illustrated in "Example 1: " on page 230.

You can click on a charted value to quickly filter down to events with specific field values. For more information, see "Chart Drill Down" on page 108.

Aggregation Functions

If an aggregation function such as `count`, `sum`, or `avg` is specified, a chart of the aggregated results is displayed along with the tabular results of the aggregation operation in a Results Table. For example, for the aggregation function `sum(deviceCustomNumber1)`, the `sum_deviceCustomNumber1` column in the Results Table displays the sum of unique values of the `deviceCustomNumber1` field. If this field had two unique values 1 and 20, occurring 2 times each, the `sum_deviceCustomNumber1` column displays sum of those two values, as shown in the following figure:

Result Table	
Page 1 of 1	
deviceCustomNumber1	sum_deviceCustomNumber1
1	2
20	40

Aggregation functions can only be used on numeric fields.

The mathematical operators `avg` and `mean` are identical.

You can include multiple functions in the same `chart` command. When doing so, separate each function with a comma, as shown in this example:

```
...| chart count, sum(deviceCustomNumber3) by deviceEventClassId
```

When you include multiple functions, one column per function is displayed in the search Results Table. The Results Chart, however, plots the chart for the field specified in the "by" clause.

You can use the "as new_column_name" clause to name any column resulting from the aggregation functions, as shown in this example:

```
...| chart sum(deviceCustomNumber3) as TotalStorage, avg(deviceCustomNumber3) as AverageStorage by deviceCustomNumber3
```

Once defined, the newly defined column can be used in the pipeline as any other field. For example,

```
...| chart sum(deviceCustomNumber3) as TotalStorage, avg(deviceCustomNumber3) as AverageStorage by deviceCustomNumber3 | eval UpdatedStorage = TotalStorage + 100
```

When you export the search results of a chart operator, the newly defined column name (using the `chart function as new_column_name` command) is preserved.

Multi-Series Charts

A multi-series chart can plot the values of multiple aggregation functions in a single chart.

If you include multiple aggregation functions in a `chart` command, ESM Command Center generates a multi-series chart that plots the values of the specified aggregation functions along the Y-axis, as illustrated in "Example 2: " on page 231. Multi-series charts can be any of the chart types except Pie charts. For example, you can choose to plot a multi-series chart as a stacked chart — Stacked column or Stacked Bar — in which multiple values are plotted in a stack form, as illustrated in "Example 3: " on page 231.


The Span Function

In addition to grouping events by the ESM Command Center schema fields (or the ones defined by the `rex` or `eval` operators), the `span` function provides an additional way to group events by a time field (such as `EventTime` or `deviceReceiptTime`) and a time bucket. In the following example, `deviceReceiptTime` is the time field and `5m` (5 minutes) is the time bucket:

```
...| chart count by deviceEventCategory span (deviceReceiptTime) = 5m
```

If a time field is not specified for the `span` function, `EventTime` is used as the default. For example, the following query uses `EventTime` by default:

```
...| chart count by deviceEventCategory span = 5m
```

By default, the `chart` command displays the first 10 unique values. If the `span` function creates more than 10 unique groups, not all of them will be displayed. If you want to view all of the unique groups, increase the Display Limit value under Chart Settings. (Click  to the upper right corner of the Result Chart frame of the screen.)

Grouping with `span` is useful in situations when you want to find out the number of occurrences in a specific time span.

If you want to find out the total number of incoming bytes every 5 minutes on a device, you can specify a span of `5m`, as shown in this example:

```
...| chart sum(deviceCustomNumber1) span=5m
```

The above example assumes that `deviceCustomNumber1` field provides the incoming bytes information for these events.

The `span` field can be used for grouping in conjunction with or without the event fields that exist in ESM Command Center schema or user-defined fields using the `rex` or `eval` operators. When a `span` field is specified in conjunction with an event field, the unique sets of all those fields is used for grouping. The following example uses `deviceCustomNumber3` and `deviceAddress` in conjunction with `span` to find out the number of events (using `deviceCustomNumber3`) from a specific source (using `deviceAddress`) in one hour:

```
...| chart sum (deviceCustomNumber3) by deviceAddress span=1h
```

When `span` is included in a query, search results are grouped by the specified time bucket. For example, if `span=5m`, the search results will contain one row for each 5-minute span. If there are no events within a specific 5-minute span, that row will be empty.

Additionally, the span function assumes a 24-hour day, all year long. If span=1d or 24h, on the day of daylight savings time change, the event time indicated by the span_eventTime field in the search results will be different from the previous day by one hour. On the day when there are 23 hours in a day (in March), the span bucket will still include events from the last 24 hours. Similarly, on the day when there are 25 hours in the day (in November), the span bucket will include events from the last 24 hours. The following example illustrates the span_eventTime field when the span time bucket is 1d and the daylight savings times occurs on

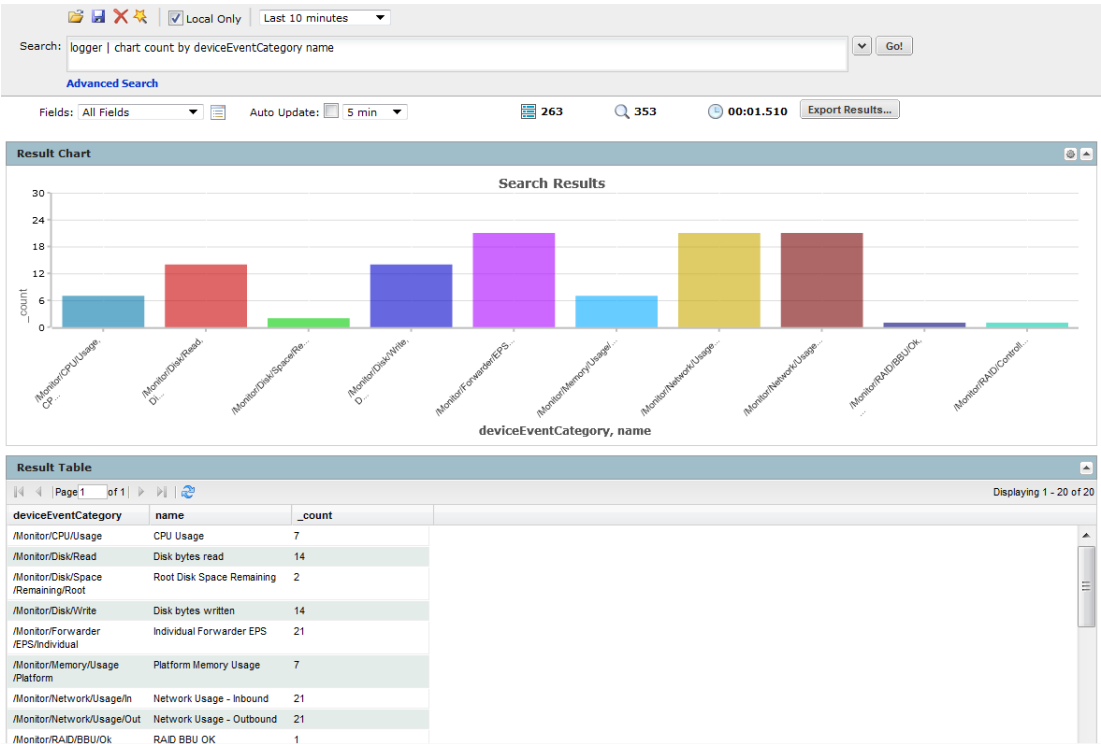
March 9th, 2014 and November 2, 2014:

span_eventTime	avg_logins
3/6/2014 12am	8
3/7/2014 12am	10
3/8/2014 12am	4
3/9/2014 1am	6
3/15/2014 1am	7
...	
10/31/2011 1am	4
11/1/2011 1am	2
11/2/2011 12am	5
11/3/2011 12am	7
...	

Example 1:

Use the default chart setting (Column Chart) to specify multiple fields. In this example, a count of unique groups of deviceEventCategory and name fields is displayed and plotted.

... | chart count by deviceEventCategory name

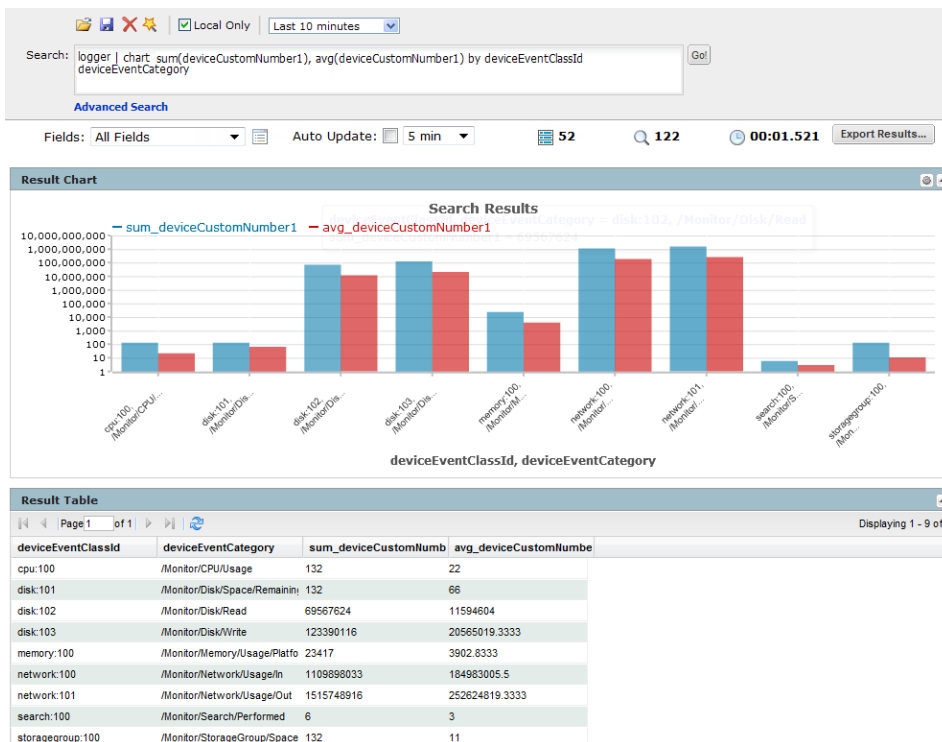


Example 2:

Include average and sum in a chart command, to generate a multi-series chart that plots the values of these functions along the Y-axis in a single chart.

In the following query, unique groups of deviceEventClassId and deviceEventCategory are plotted along the X-axis, and the sum of deviceCustomNumber1 and average of deviceCustomNumber2 is plotted along the Y-axis.

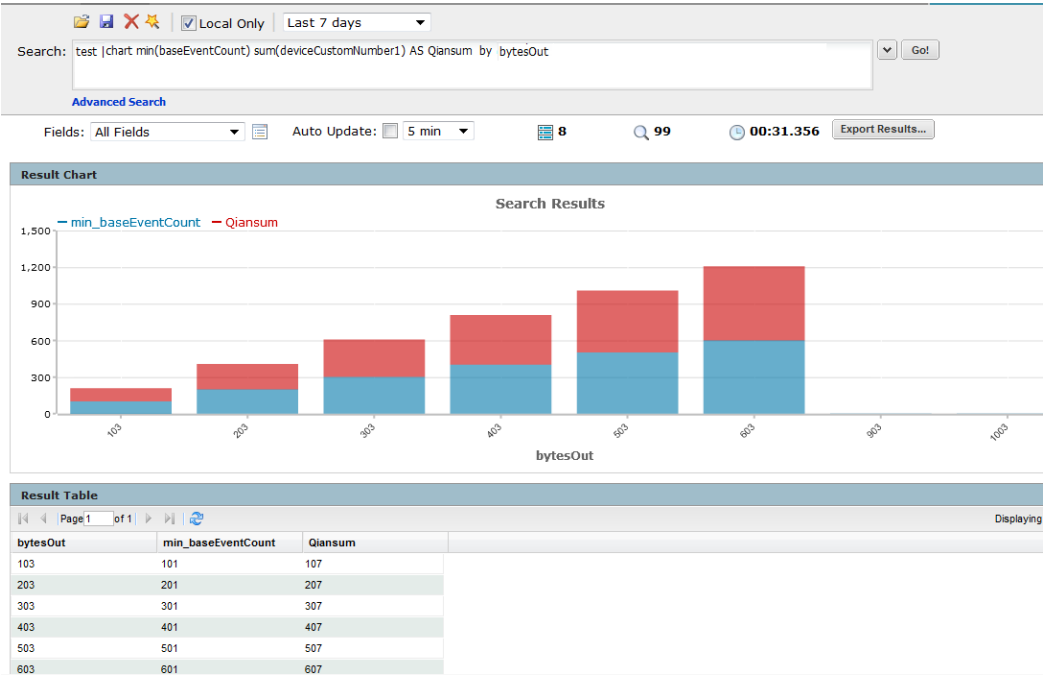
```
... | chart sum(deviceCustomNumber1), avg(deviceCustomNumber1) by deviceEventClassId deviceEventCategory
```



Example 3:

Plot a multi-series chart as a stacked chart — Stacked column or Stacked Bar — in which multiple values are plotted in a stack form, as shown in the following figure.

```
... | chart min(baseEventCount) sum(deviceCustomNumber1) AS Qiansum by bytesOut
```



dedup

Removes duplicate events from search results. That is, events that contain the same value in the specified field. The first matching event is kept, and the subsequent events with the same value in the specified field are removed.

Usage:

```
... | dedup [N] <field1>,<field2>, ... [keepevents=(true|false)] [keepempty=(true|false)]
```

N is an optional number that specifies the number of duplicate events to keep. For example, “dedup 5 deviceEventClassId” will keep the first five events containing the same deviceEventClassId values for each deviceEventClassId, and remove the events that match after the first five have been kept. Default: 1.

field1, field2 is a field or a comma-separated field list whose values are compared to determine duplicate events. If a field list is specified, the values of the unique sets of all those fields are used to remove events. For example, if name and deviceCustomNumber1 are specified, and two events contain “Network Usage - Outbound” and “2347896”, only the first event is kept in the search results.

keepevents specifies whether to set the fields specified in the field list to NULL or not. When this option is set to True, the values are set to NULL and events are not removed from search results. However, when this option is set to False, duplicate events are removed from the search results. Default: False.

`keepempty` specifies whether to keep events in the search results whose specified fields contain NULL values. When this option is set to True, events with NULL values are kept, however if this option is set to False, events with NULL values are removed. Default: False.

Example 1:

To view events from unique devices:

```
... | dedup deviceAddress
```

Example 2:

To view unique `deviceEventClassId` events from unique devices:

```
... | dedup deviceEventClassId deviceAddress
```

Example 3:

To view the `className` in events with Java exceptions in the `message` field:

```
exception | <rex_expression> | dedup 5 className
```

In the above example, rex expression is not shown in detail however this expression extracts the class name in a field called `className`, which the dedup operator acts upon.

eval

Displays events that match the resultant of the specified expression. The expression can be a mathematical, string, or Boolean operation and is evaluated when the query is run. The resulting value of the expression is assigned to a field name (as specified in the expression). Once a new field has been defined by the eval operator in a query, this field can be used in the query for further refining the search results (see Example #3 below, in which a new field "Plus" is defined by the eval operator; this field is then used by the sort operator.)

Usage:

```
... | eval <expression>
```

`<expression>` is a mathematical, string, or Boolean operation; for example, `total_bytes=bytesIn + bytesOut`.

Notes:

Typically, a `cef` or `rex` operator (to extract fields from matching events) precedes the `eval` operator, as shown in the examples below. However, you can use the `eval` operator on a field that has been defined by a previous `eval` operator in a query.

Example 1:

If the Category Behavior is "Communicate", then assign the value "communicate" to a new field "cat"; otherwise, assign the value "notCommunicate" to it.

```
_storageGroup IN ["Default Storage Group"] | cef categoryBehavior | eval cat=if  
(categoryBehavior== "/Communicate", "communicate", "notCommunicate")
```

Example 2:

Append the word, "END", at the end of extracted event name. For example, if event name is "ESM Command Center Internal Event", after the eval operation it is "ESM Command Center Internal EventEND" and is assigned to a new field, "fullname".

```
logger | cef msg name | eval fullname=name + "END"
```

Example 3:

Add 100 to the value of bytesIn and assign it to a new field, "Plus". Then, sort the values assigned to "Plus" in ascending order.

```
_storageGroup IN ["Default Storage Group"] | cef bytesIn bytesOut name | eval  
Plus=bytesIn +100 | sort Plus
```

extract

Extracts key value pairs from raw events.

Usage:

```
...| extract [pairdelim="<delimiters>"] [kvdelim="<delimiters>"] [maxchars=<n>]  
fields="key1,key2,key3..."
```

pairdelim is a delimiter (or a list of delimiters) that separates one key-value pair from another key-value pair in an event. By default, semi colon, pipe, and comma (; | ,) are used.

kvdelim is a delimiter (or a list of delimiters) that separates a key from its value. By default, "=".

maxchars is the maximum number of characters in an event that would be scanned for extracting key value pairs. By default, 10240.

fields is a key (or a list of comma-separated keys) whose values you want to display in the search results. For example, if you want to display the Name Age, and Location values from this event:

Name:Jane | Age:30 | Location:LA

Then, extract the "Name", "Age", and "Location" keys and list them in the **fields** list.

Understanding how the operator works:

The key represents a field in the raw event and its value consists of the characters that appear after the key until the next key in the event. The following raw event is used to illustrate the concept:

```
[Thu Jul 30 01:20:06 2009] [error] [client 69.63.180.245] PHP Warning: memcache_
pconnect() [<a href='function.memcache-pconnect'>function.memcache-pconnect</a>]:
Can't connect to 10.4.31.4:11211
```

To extract the URL from the above event, you can define these key-pair delimiters, which separate the key-value pairs in the event:

Greater than sign (“>”)

Square bracket (“[”)

And, define this key delimiter, which separates the key from its value:

Equal to sign (“=”)

Thus, the following command will extract the URL

```
... | extract pairdelim= ">\" kvdelim= "=" fields="<a href"
```

The key value pairs in the event will be: [

The key in the event will be: <a href

The extracted URL will be: 'function.memcache-pconnect'

Notes:

This operator only works on raw events. That is, you cannot extract key value pairs from structured data in CEF events or from fields defined by the rex operator. For raw CEF events, you can use the CEF name as the fieldname.

You can specify the `pairdelim` and `kvdelim` delimiters in the `extract` operator command to extract keys and their values. However, if you want to determine the key names that these delimiters will generate, use the `keys` operator as described in ["keys" on page 237](#). The `keys` operator can only be used to determine keys; you cannot pipe those keys in the `extract` operator. That is, `...| keys | extract fields=field1` is incorrect.

The keys specified in the fields list can be used further in the pipeline operations. For example, `...| extract pairdelim= "|" kvdelim= ":" fields= "count" | top count`

If none of the specified `pairdelim` characters exist in an event, the event is not parsed into key value pairs. The whole event is skipped. Similarly, if the specified `kvdelim` does not exist, values are not separated from the keys.

To specify double quotes (") as the delimiter, enter it within the pair of double quotes with backslash(\) as the escape character. For example, `"=\"`". Similarly, use two backslashes to treat a backslash character literally. For example, `"\\`".

Example:

```
... | extract pairdelim= "|" kvdelim= ":" fields= "Name, Age, Location"
```

Extracts values from events in this format:

Name:Jane | Age:30 | Location:LA

fields

Includes or excludes specified fields from search results.

Usage:

```
... | fields [(+ | -)] <field>+
```

+ includes only the specified field or fields in the search results. This is the default.

- excludes only the specified field or fields from the search results.

Notes:

Typically, the <field> list contains event fields available in the ESM Command Center schema or user-defined fields created using the `rex` operator prior in the query, as shown in the examples below. However, fields might also be defined by other operators such as the `eval` operator.

The + and - can be used in the same expression when multiple fields are specified. For example, `| fields + name - agentType`

A complete field name must be specified for this operator; wildcard characters in a field name are not supported.

When this operator is included in a query, select **User Defined Fieldsets** from the System Fieldsets list to view the search results.

Example 1:

```
... | fields - agentType + categorySignificance
```

Example 2:

```
... | fields - name
```

head

Displays the first <N> lines of the search results.

Usage:

```
... | head [<N>]
```

<N> is the number of lines to display. Default: 10, if <N> is not specified.

Notes:

When this operator is included in a query, the search results are not previewable. That is, the query must finish running before search results are displayed.

Example:

```
... | head
```

keys

Identifies keys in raw events based on the specified delimiters.

Usage:

```
... | keys [pairdelim= "<delimiters>"] [kvdelim= "<delimiters>"] [limit=<n>]
```

`pairdelim` is a delimiter (or a list of delimiters) that separates one key-value pair from another key-value pair in an event. By default, semi colon, pipe, and comma (; |,) are used.

`kvdelim` is a delimiter (or a list of delimiters) that separates a key from its value. By default, "=".

`limit` is the maximum number of key value pairs to find. There is no default or maximum number for this parameter.

Notes:

When searching across peers using the keys operator, the number of events returned when a search is initiated on a Logger 5.3 SP1 (or earlier version) may not be the same as when the search is initiated on Logger 6.0 or ArcSight Manager 6.5c (or later versions). This happens because of the updated schema. Logger 6.0 and ESM 6.5c use the End Time for searches; Logger 5.3 SP1 and earlier used the Receipt Time.

This operator only works on raw events. That is, you cannot identify key value pairs from CEF events or fields defined by the `rex` operator.

Although this operator is not required to determine keys, it is recommended that you use it to first determine the keys whose values you want to obtain using the `extract` operator. This operator returns aggregated results. Therefore, the search results list the keys found in the matching events and their counts.

The `keys` operator can only be used to determine keys; you cannot pipe those keys in the `extract` operator. That is, `| keys | extract fields=field1` is incorrect.

If a key value is blank (or null), it is ignored and not counted toward the number of hits.

For example, for the following event data:

```
Date=3/24/2014 | Drink=Lemonade
Date=3/23/2014 | Drink=
Date=3/22/2014 | Drink=Coffee
```

Search Query: `keys pairdelim="|" kvdelim="="`

Search Result: Date, 3 hits and Drink, 2 hits

If none of the specified `pairdelim` characters exist in an event, the event is not parsed into key value pairs. The whole event is skipped. Similarly, if the specified `kvdelim` does not exist, values are not separated from the keys.

To specify double quotes (") as the delimiter, enter it within the pair of double quotes with backslash (\) as the escape character. For example, `"=\"`". Similarly, use two backslashes to treat a backslash character literally. For example, `"\"`.

Example 1:

```
...| keys pairdelim="|" kvdelim="="
```

Identifies keys (Date and Drink) in event of this format:

```
Date=3/24/2014 | Drink=Lemonade.
```

Example 2:

```
...| keys pairdelim="," kvdelim=">="
```

Identifies keys (Path and IPAddress) in the event of this format:

```
Path>c:\usr\log, IPAddress=1.1.1.1
```

rare

Lists the search results in a tabular form of the least common values for the specified field. That is, the values are listed from the lowest count value to the highest.

When multiple fields are specified, the count of unique sets of all those fields is listed from the lowest to highest count.

Usage:

```
...| rare <field1> <field2> <field3> ...
```

Notes:

Typically, the <field> list contains event fields available in the ESM Command Center schema or user-defined fields created using the `rex` or `eval` operators prior in the query, as shown in the examples below. However, fields might also be defined by other operators such as the `eval` operator.

A chart of the search results is automatically generated when this operator is included in a query. You can click on a charted value to quickly filter down to events with specific field values. For more information, see ["Chart Drill Down" on page 108](#).

If multiple fields are specified, separate the field names with a white space or a comma.

Example:

```
... | rare deviceEventCategory
```

regex

Selects events that match the specified regular expression.

Usage:

```
...| regex <regular_expression>
```

OR

```
...| regex <field> (=|!=) <regular_expression>
```

Notes:

Regular expression pattern matching is case insensitive.

The first usage (without a field name) is applied to the raw event. While the second usage (with a field name), is applied to a specific field.

If you use the second usage (as shown above and in the Example #2 below), either specify an event field that is available in the ESM Command Center schema or a user-defined field created using the `rex` or `eval` operators.

Example 1:

```
... | regex "failure"
```

Example 2:

```
... | regex deviceEventCategory != "fan"
```

rename

Renames the specified field name.

Usage:

```
...| rename <field> as <new_name>
```

<field> is the name of an event field that is available in the ESM Command Center schema or a user-defined field created using the `regex` or `eval` operator.

<new_name> is the new name you want to assign to the field.

Notes:

An additional column is added to the search results for each renamed field. The field with the original name continues to be displayed in the search results in addition to the renamed field. For example, if you rename `deviceEventCategory` to `Category`, two columns are displayed in the search results: `deviceEventCategory` and `Category`.

You can include the wildcard character, `*`, in a field name. However, you must enclose the field that contains a wildcard character in double quotes (`" "`). For example:

```
...| rename "**IPAddress" as "**Address"
```

- or -

```
...| rename "**IPAddress" as Address
```

If a field name includes a special character (such as `_`, a space, `#`, and so on), it should be included in double quotes (`" "`) in the `rename` operator expression. For example:

```
...| rename src_ip as "Source IP Address"
```

If the resulting field of a `rename` operation includes a special character, it must be enclosed in double quotes (`" "`) whenever you use it in the pipeline operator expression. For example,

```
...| rename src_ip as "Source IP Address" | top "Source IP Address"
```

The internal field names (that start with `"_raw"`) cannot be renamed.

The renamed fields are valid only for the duration of the query.

The resulting field of a rename operation is case sensitive. When using such a field in a search operation, make sure that you use the same case that was used to define the field.

When you export the search results of a search query that contains the rename expression, the resulting file contains the renamed fields.

Example 1:

```
...| rename src_ip as IPAddress
```

Example 2:

```
...| rename src_ip as "Source IP Address"
```

replace

Replaces the specified string in the specified fields with the specified new string.

Usage:

```
<orig_str> with <new_str> [in <field_list>]
```

<orig_str> is the original string you want to replace. (See Notes for more details.)

<new_str> is the new string you want to replace with. (See Notes for more details.)

<field_list> is the optional, however highly recommended. See Notes for details.

Notes:

Even though the field list is optional for this command, HP strongly recommends that you specify the fields on which the replace operator should act in this command.

If you skip the field list, the replace operator acts on the fields that have been either explicitly defined using the cef, rex, and eval operators preceding the replace command, or any fields that were used in other operator commands that preceded the replace operator command. For example, the replace command acts on deviceEventCategory in all of the following cases and replaces all instances of "EPS" with "Events":

```
...| replace *EPS* with *Events* in deviceEventCategory  
...| cef deviceEventCategory | replace *EPS* with *Events*  
...| top deviceEventCategory | replace *EPS* with *Events*
```

An additional column of the same name is added to the search results for each field in which string is replaced. The column with the original value continues to be displayed in the search results in addition to the column with replaced values. For example, if you replace "err" with "Error" in the "message" column, an additional "message" column is added to the search results that contains the modified value.

If you want to replace the entire string, specify it in full (as it appears in the event). For example, "192.168.35.3".

If you want to replace a part of the string, include wildcard character (*) for the part that is not going to change.

For example, if the original string (the string you want to replace) is "192.168*", only the 192.168 part in an event is replaced. The remaining string is preserved. As a result, if an event contains 192.168.35.3, only the first two bytes are replaced. The rest (35.3) will be preserved. Similarly, if the event contains 192.168.DestIP, DestIP will be preserved. However, if the event contains the string 192.168, it will not be replaced.

If both, the original and the new strings contain wildcard characters, the number of wildcard characters in the *original* string must match the number of wildcard characters in the *new* string.

```
...| replace "*.168.*" with "*.XXX.*"
```

If the original or the new string includes a special character such as / or ?, enclose the string in double quotes (" "):

```
...| replace "/Monitor" with Error
```

You can replace multiple values for multiple fields in a single operation by separating each expression with a comma (.). Note that you must specify the field list after specifying the "with" expression for all values you want to replace, as shown in the following example:

```
...| replace "Arc*" with HP, "cpu:100" with EPS in deviceVendor, deviceEventClassId
```

The original string is case-insensitive. Therefore, the string "err" will replace an event that contains "Err".

Example 1:

Replace any occurrence of "a" with "b" but the characters preceding "a" and succeeding it are preserved.

```
...| replace *a* with *b*
```

Example 2:

Replace any occurrence of "a" with "b" without retaining any characters preceding or succeeding "a".

```
...| replace *a* with b in name
```

rex

Extracts (or capture) a value based on the specified regular expression or extract and substitute a value based on the specified "sed" expression. The value can be from a previously specified field in the query

or a raw event message.

Usage:

```
... | rex <regular_expression containing a field name>
```

OR

```
... | rex field = <field> mode=sed "s/<string to be substituted>/<substitution value>"
```

Understanding how extraction works:

When the value is extracted based on a regular expression, the extracted value is assigned to a field name, which is specified as part of the regular expression. The syntax for defining the field name is **?<fieldname>**, where *fieldname* is a string of alphanumeric characters. Using an underscore ("_") is not recommended.

We use the following event to illustrate the power of rex.

```
[Thu Jul 30 01:20:06 2009] [error] [client 69.63.180.245] PHP Warning: Can't connect to 10.4.31.4:11211
```

If you want to extract any IP address from the above event and assign it to a field called "IP_Address", you can simply specify the following rex expression:

```
| rex "(?<IPAddress>\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})"
```

However, if you wanted to extract the IP address after the word "client" from the following event and assign it to a field called "SourceIP", you will need to specify a start and end point for IP address extraction so that the second IP address in the event is not captured. The starting point in this event can be "[client]" and the end point can be "]". Thus, the rex expression will be:

```
| rex "\[client (?<SourceIP>[^\]]*)"
```

In this rex expression **?<SourceIP>** is the field name defined to capture IP address and "client " specifies the text or point in the event AFTER which data will be extracted. The `[^\]]*` expression will match every character that is not a closing right bracket, therefore, for our example event, the expression will match until the end of the first IP address and not the second IP address that appears after the word "to".

Understanding how substitution works:

When the `rex` operator is used in `sed` mode, you can substitute the values of extracted fields with the values you specify. For example, if you are generating a report of events that contain credit card numbers, you might want to substitute the credit card numbers to obfuscate the real numbers.

The substitution only occurs in the search results. The actual event is not changed.

In the following example, the credit card numbers in the CCN field are substituted with "xxxx", thus obfuscating sensitive data:

```
| rex field=CCN mode=sed "s/*/XXXX/g"
```

The "/g" at the end of the command indicates a global replace, that is, all occurrences of the specified pattern will be replaced in all matching events. If "/g" is omitted, only the first occurrence of the specified pattern in each event is replaced.

Multiple substitutions can be performed in a single command, as shown in the following example. In this example, the word "Authentication" is substituted with "xxxx" globally (for all matching events), the first byte of the agent address that start with "192" is substituted with "xxxx" and an IP address that starts with "10" is substituted with "xxxx".

```
| rex field=msg mode=sed "s/Authentication/xxxx/g" | rex field=agentAddress  
mode=sed "s/192/xxxx/g" | rex field=dst mode=sed "s/10./xxxx/g"
```

Notes:

A detailed tutorial on the rex operator is available at ["Using the Rex Operator" on page 250](#).

The extracted values are displayed as additional columns in the All Fields view (of the System FieldSets). To view only the extracted columns, select **User Defined Fieldsets** from the System Fieldsets list. In the above example, an additional column with heading "SourceIP" is added to the All Fields view; IP address values extracted from events are listed in this column.

If you want to use other search operators such as fields, sort, chart, and so on to refine your search results, you must first use this operator to extract those fields.

Example 1:

The following example extracts name and social security number from an event that contains data in name:John ssn:123-45-6789 format and assigns them to Name and SSN fields:

```
... | rex "name: (?<Name>.*) ssn: (?<SSN>.*)"
```

Example 2:

The following example extracts URLs from events and displays the top 10 of the extracted URLs:

```
... | rex "http://(?<URL>[^\ ]*)" | top URL
```

Example 3:

The following example substitutes the last four digits of social security numbers extracted in the first event with XXXX:

```
... | rex field=SSN mode=sed "s/-\d{4}/-XXXX/g"
```

sort

Sorts search results as specified by the sort criteria.

Usage:

```
... | sort [<N>] ((+ | -) field)+
```

+ Sort the results by specified fields in ascending order. This is the default.

- Sort the results by specified fields in descending order.

<N> Keep the top N results, where N can be a number between 1 and 10,000. Default: 10,000.

Notes:

Typically, the <field> list contains event fields available in the ESM Command Center schema or user-defined fields created using the `rex` operator prior in the query, as shown in the examples below. However, fields might also be defined by other operators such as the `eval` operator.

Sorting is based on the data type of the specified field.

When multiple fields are specified for a sort operation, the first field is used to sort the data. If there are multiple same values after the first sort, the second field is used to sort within the same values, followed by third field, and so on. For example, in the example below, first the matching events are sorted by “cat” (device event category). If multiple events have the same “cat”, those events are further sorted by “eventId”.

When multiple fields are specified, you can specify a different sort order for each field. For example, `| sort + deviceEventCategory - eventId`.

If multiple fields are specified, separate the field names with a white space or a comma.

Sorting is case-sensitive. Therefore, “Error:105” will precede “error:105” in the sorted list (when sorted in ascending order).

When a sort operator is included in a query, only the top 10,000 matches are displayed. This is a known limitation and will be addressed in a future ESM Command Center release.

When this operator is included in a query, the search results are not previewable. That is, the query must finish running before search results are displayed.

Example:

```
... | sort deviceEventCategory eventId
```

tail

Displays the last <N> lines of the search results.

Usage:

```
...| tail [<N>]
```

<N> is the number of lines to display. Default: 10, if <N> is not specified.

Notes:

When this operator is included in a query, the search results are not previewable. That is, the query must finish running before search results are displayed.

Example:

```
... | tail 5
```

top

Lists the search results in a tabular form of the most common values for the specified field. That is, the values are listed from the highest count value to the lowest.

Usage:

```
...| top [<n>] <field1> <field2> <field3> ...
```

<n> limits the matches to the top *n* values for the specified fields. Default: 10, if <N> is not specified.

Notes:

The fields can be either event fields available in the ESM Command Center schema or user-defined fields created using the `rex` or `eval` operators prior in the query. If multiple fields are specified, separate the field names with a white space or a comma.

When multiple fields are specified, the count of unique sets of all those fields is listed from the highest to lowest count.

A chart of the search results is automatically generated when this operator is included in a query. You can click on a charted value to quickly filter down to events with specific field values. For more information, see ["Chart Drill Down" on page 108](#).

To limit the matches to the top *n* values for the specified fields, specify a value for *n*. For example,

```
...| top 5 deviceEventCategory
```

Example 1:

```
... | top deviceEventCategory
```

Example 2:

```
... | top 5 categories
```

transaction

Groups events that have the same values in the specified fields.

Usage:

```
... | transaction <field1> <field2>... [maxevents=<number>] [maxspan=<number>  
[s|m|h|d]] [maxpause=<number>[s|m|h|d]] [startswith=<reg_exp>] [endswith=<reg_exp>]
```

`field1`, `field2` is a field or a comma-separated field list whose values are compared to determine events to group. If a field list is specified, the values of the unique sets of all those fields are used to determine events to group. For example, if `host` and `portNum` are specified, and two events contain "hostA" and "8080", the events are grouped in a transaction.

`maxevents` specifies the maximum number of events that can be part of a single transaction. For example, if you specify 5, after 5 matching events have been found, additional events are not included in the transaction. Default: 1000

`maxspan` specifies the limit on the duration of the transaction. That is, the difference in time between the first event and all other events in a transaction will never be more than the specified `maxspan` limit. For example, if you specify `maxspan=30s`, the event time of all events within the transaction will be at most 30 seconds more than the event time of the first event in the transaction. Default: Unlimited

`maxpause` specifies the length of time by which consecutive events in a transaction can be apart. That is, this option ensures that events in a single transaction are never more than the `maxpause` value from the previous event in the transaction. Default: Unlimited

`startswith` specifies a regular expression that is used to recognize the beginning of a transaction. For example, if a transaction operator includes `startswith= "user [L|l]login"`, all events are scanned for this regular expression. When an event matches the regular expression, a transaction is created, and subsequent events with matching fields are added to the transaction.

Note: The regular expression is applied to the raw event, not to a field in an event.

`endswith` specifies a regular expression that is used to recognize the end of an existing transaction. That is, an existing transaction is completed when an event matches the specified "endswith" regular expression. For example, if a transaction operator includes `endswith= "[L|l]logout"`, any event being added to a transaction is checked, and if the regular expression matches the event, the transaction is completed.

Note: The regular expression is applied to the raw event, not to a field in an event.

Notes:

Several of the above options specify “conditions to end” a transaction. Therefore, when multiple “end conditions” are specified in a transaction operator, the first end condition that occurs will end the transaction even if the other conditions have not been satisfied yet. For example, if `maxspan` is reached but `maxevents` has not been reached, or if the `endswith` regular expression is matched but `maxevents` has not been reached.

Understanding how the transaction operator works:

A transaction is a set of events that contain the same values in the specified fields. The events may be further filtered based on the options described above, such as `maxspan`, `maxpause`, and so on. In addition to grouping events, the transaction operator adds these fields to each event: `transactionid`, `duration`, and `eventcount`. These fields are displayed in the Search Results as separate columns.

A `transactionid` is assigned to each transaction when the transaction completes. Transaction IDs are integers, assigned starting from 1 for the transactions (set of events) found in the current query. All events in the same transaction will have the same transaction ID.

If an event does not belong to any transaction found in the current query, it is assigned the transaction ID 0. For example, in a `transaction` operator with a `startswith` regular expression, if the first event in the pipeline does not match the regular expression, that event is not part of the transaction, and is assigned transaction ID 0.

The `duration` is the time in milliseconds of the duration of a transaction, which is the difference between the event time of the last event in the transaction and the first event in the transaction. The `duration` field for all events in a transaction is set to the `duration` value of the transaction.

The `eventcount` displays the number of events in a transaction.

Example 1:

To view source addresses accessed within a 5-minute duration:

```
... | transaction sourceAddress maxspan=5m
```

Example 2:

To group source addresses by source ports and view 5 events per group:

```
...| transaction sourceAddress sourcePort maxevents=5
```

Example 3:

To group users and URLs they accessed within a 10-minute duration:

```
... | transaction username startswith= "http://" maxspan=10m
```

Example 4:

To view login transactions from the same session ID and source address in a 1-hour duration:


```
... | transaction sessionId sourceAddress maxspan=1h startswith= "user [L|l]ogin"
```

where

Displays events that match the criteria specified in the “where” expression.

Usage:

```
... | where <expression>
```

<expression> can be any valid field-based query expression, as described in ["Field-based Search" on page 69](#).

Notes:

<expression> can only be a valid field-based query expression. Arithmetic expressions or functions are not supported.

Example 1:

```
... | where eventId is NULL
```

Example 2:

```
... | where eventId=10006093313 OR deviceVersion CONTAINS "5.3.1.0.0"
```

Example 3:

```
... | where eventId >=10005985569 OR categories= "/Agent/Started"
```

Appendix B: Using the Rex Operator

The `rex` operator is a powerful operator that enables you to extract information that matches a specified regular expression and assigns it to a field, whose field name you specify. You can also specify an optional start point and an end point in the `rex` expression between which the information matching the regular expression is searched.

This appendix describes the `rex` search operator in detail. It includes information on the following topics.

Syntax of the <code>rex</code> Operator	250
Sample <code>rex</code> Expressions	252

When a `rex` expression is included in a search query, it must be preceded by a basic search query that finds events from which the `rex` expression will extract information. For example:

```
failed | rex "(?<srcip>[^\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})"
```

Syntax of the `rex` Operator

| `rex "text1(?<field1>text2regex)"`

text1 — The text or point in the event AFTER which information extraction begins. The default is the beginning of the event.

text2 — The text or point in the event at which information extraction ends.

field1 — The name of the field to which the extracted information is assigned.

regex — The pattern (regular expression) used for matching information to be extracted between *text1* and *text2*.

Note: If you are an experienced regular expression user, see the Note in the next section for a quick understanding of how `rex` enables you to capture named input and reference it for further processing.

Understanding the `rex` Operator Syntax

Extract all information AFTER *text1* and until *text2* that matches the specified *regex* (regular expression) and assign TO *field1*.

- *text1* and [*text2*] can be any points in an event — start and end of an event, specific string in an event (even if the string is in the middle of a word in the event), a specific number of characters from the start or end of an event, or a pattern.

- To specify the next space in the event as **text2**, enter [^].

This is interpreted as “not space.” Therefore, entering a “not” results in the capture to stop at the point where the specified character, in this case, a space, is found in the event.

- To specify [**text2**] to be the end of the line, enter [^\$].

This is interpreted as “not end of line.” Therefore, when an end-of-line in an event is encountered, the capture will stop at that point. The [^\$] usage only captures one character if it is not an end-of-line character. However, by specifying [^\$]* in a rex expression, the usage captures all characters until end-of-line.

You can also specify .* to capture all characters in an event instead of [^\$]. Examples in this document, however, use [^\$].

- Any extra spaces within the double quotes of the rex expression are treated literally.
- The characters that need to be escaped for rex expressions are the same as the ones for regular expressions. Refer to a regular expressions document of your choice to obtain a complete list of such characters.
- Information captured by a rex expression can be used for further processing in a subsequent rex expression as illustrated in the following example in which an IP address is captured by the first rex expression and the network ID (assuming the first three bytes of the IP address represent it) to which the IP address belongs is extracted from the captured IP address:

```
logger | rex "(?<srcip>[^ ]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})" | rex  
field=srcip "(?<netid>\d{1,3}\.\d{1,3}\.\d{1,3})"
```

Note: If you are an experienced regular expression user, you can interpret the rex expression syntax as follows:

```
rex "(?<field1>regex)"
```

where the entire expression in the parentheses specifies a named capture. That is, the captured group is assigned a name, which can be referenced later for further processing. For example, in the following expression “srcip” is the name assigned to the capture.

```
failed | rex "(?<srcip>[^ ]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})"
```

Once named, use “srcip” for further processing as follows:

```
failed | rex "(?<srcip>[^ ]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})" | top srcip
```

Creating a rex Expression Manually

Start with a simple search that finds the events that contains the information in which you are interested. Once the events are displayed, identify a common starting point in those events that

precedes the information.

For example, you are interested in extracting the client IP address, which always appears after the word “client” in the following event.

```
[Thu Jul 30 01:20:06 2009] [error] [client 69.63.180.245] PHP Warning: memcache_
pconnect() [a href='function.memcache-pconnect'>function.memcache-pconnect</a>]:
Can't connect to 10.4.31.4:11211
```

Therefore, “client” is the starting point. A good end point is the “]” after the last byte of the client IP address. Now, we need to define the regular expression that will extract the IP address. Because in this example, only the client IP address appears after the word “client”, we use “*” as the regular expression, which means “extract everything”. (We could be more specific and use `\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3}` for the IP address.) We assign the extracted IP address to a field name “clientIP”. We are almost ready to create a rex expression, except that we need to escape the “[” and “]” characters in the expression. The escape character to use is “\”.

Now, we are ready to create the rex expression to extract the IP address that appears after the word “client” in the event shown above.

```
| rex "[client(?<clientip>[^\]]*)"
```

Sample rex Expressions

This section contains several sample examples for extracting different types of information from an event. The specificity of the information extracted increases with each example. Use these examples as a starting point for creating rex expressions to suit your needs.

This event is used as an example to illustrate the information the following rex expressions will extract:

```
2010/07/01 13:46:00 PDT      unknown      Local      ArcSight      Logger      4.5.0.4836.0      eps:100
CEF:0|ArcSight|Logger|4.5.0.4836.0|eps:100|Logger Internal Event|1| cat=/Monitor/Receiver/A11/EP5 cs2=SinceLastMonitorEvent cnt=1 dvc=192.168.36.3 cs1=Events/sr
2010/07/01 13:46:00 PDT      unknown      Local      ArcSight      Logger      4.5.0.4836.0      eps:100
CEF:0|ArcSight|Logger|4.5.0.4836.0|eps:100|Logger Internal Event|1| cat=/Monitor/Forwarder/A11/EP5 cs2=SinceLastMonitorEvent cnt=1 dvc=192.168.36.3 cs1=Events/sr
```

- Capture matching events from the left of the pipeline and assign them to the field, message. The entire event is assigned to the “message” field.

```
| rex "(?<message>[^\$]*)"
```

This expression extracts the entire event (as shown above), starting at the word “CEF:0”.

- Specifying the starting point as number of characters from the start of an event instead of a specific character or word

```
| rex "[a-zA-Z0-9:\.\s]{16}(?<message>[^\$]*)"
```

This expression starts extracting after 16 **consecutive** occurrences of the characters specified for *text1* — alphanumeric characters, colons, periods, or spaces. Although the first 16 characters of the first event are “CEF:0|ArcSight|L”, the extraction does not begin at “ogger|5.3.0...” because the pipeline character is not part of the characters we are matching, but this character is part of the

beginning of the event. Therefore, the first 16 consecutive occurrences are “Logger Internal “. As a result, information starting at the word “Event”, is extracted from our example event.

- Extract a specified number of characters instead of specifying an end point such as the next space or the end of the line

```
| rex "[a-zA-Z0-9:\.\s]{16}(?<message>[^\$]{5})"
```

This expression only extracts the word “Event”. (See the previous sample rex expression for a detailed explanation of the reason extraction begins at the word “Event”.)

- Extract everything after “CEF:0|” into a field, `message`. Then, pipe events for which the `message` field is not null through another rex expression to extract the IP address contained in the matching events and assign the IP addresses to another field, `msgip`. Only display events where `msgip` is not null.

```
| rex "CEF:0\|(<message>[^$]*)" | where message is not null | rex "dvc=
(<msgip>[^ ]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})" | where msgip is not null
```

Note: The “:” and “=” characters do not need to be escaped; however, “[” must be escaped. The characters that need to be escaped for rex expressions are the same as the ones for regular expressions. Refer to a regular expressions document of your choice to obtain a complete list of such characters.

This expression extracts the device IP address from the event.

The following rex examples use this event for illustration:

Nov 10 03:04:24 192.168.20.114 192.168.20.113 [REDACTED]C007:4D28;EvilPackets;Line 16: "New Group", My IP=192.168.20.150", "11/10/2005 11:02:05.000", "21561", "11/10/2005 11:02:05.000", "3108004", generator", "1", "192.168.20.111", "http:80", "192.168.20.112", "32771", "tcp", "Alert", "47302", "47285", "RPC Incomplete Segment", "0.", "0.", "0.", "0.:00:00:00:00:00:00:00:", "0:00:00:00:00:00:00:00:"

- Extract the first two IP addresses from an event and assign them to two different fields, IP1 and IP2.

| rex "(?<IP1>[^\$]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})" | rex "\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3}(?<IP2>[^\$]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})"

This expression extracts the first and second IP addresses in the above event.

Because the two IP addresses are right after one another in this event, you can also specify the extraction of the two IP addresses in a single rex expression as follows:

```
| rex "(?<IP1>[^\$]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})(?<IP2>[^\$]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})"
```

Note: Do not specify a space in the above expression.

- Building on the previous example, add a new field called Ignore. Assign the value “Y” to this field if

the two IP addresses extracted in the previous example are the same and assign the value “N” if the two IP addresses are different. Then, list the top IP1 and IP2 combinations for events for which Ignore field is “N”.

```
| rex (?<IP1>[^\$]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})" | rex "\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3}" | eval Ignore=if(IP1==IP2,"Y","N") | where Ignore="N" | top IP1 IP2
```

Note: The eval command uses double == to equate the two fields.

- Information captured by a rex expression can be used for further processing in a subsequent rex expression as illustrated in the following example. The first IP address is captured by the first rex expression and the network ID (assuming the first three bytes of the IP address represent it) to which the IP address belongs is extracted from the captured IP address:

```
logger | rex "(?<srcip>[^\$]\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3})" | rex field=srcip "(?<netid>\d{1,3}\.\d{1,3}\.\d{1,3})"
```

The following rex example uses this event for illustration:

```
127.0.0.1 - name [10/Oct/2010:13:55:36 -0700] "GET /apache_pb.gif HTTP/1.0" 200 2326
"http://www.example.com/start.html" "Mozilla/4.08 [en] (Win98; I ;Nav)" ¶
```

- Extract all URLs from events and generate a chart of the URL counts, excluding blank URLs

```
| rex "http://(?<customURL>[^\ ]*)" | where customURL is not null | chart count by customURL | sort - customURL
```

Note: Consider the following:

- The events contain the URL string in “http://” format.
- Meta character / needs to be enclosed in squarebrackets [] to be treated literally.

The following rex example uses this event for illustration:

1	2010/04/06 22:11:46 CDT 10.0.10.222 [Raw_Syslog] Local	root
RAW	Feb 25 14:03:24 beach login(pam_unix)[123]: session closed for user root	
2	2010/04/06 22:11:46 CDT 10.0.10.222 [Raw_Syslog] Local	sysadmin
RAW	Feb 25 14:03:24 beach sshd(pam_unix)[123]: authentication failure; logname=uid=0 euid=0 tty=ssh ruser= rhost=123.123.123.123 user =sysadmin	
3	2010/04/06 22:11:46 CDT 10.0.10.222 [Raw_Syslog] Local	p4admin
RAW	Feb 25 14:03:24 beach sshd(pam_unix)[123]: session closed for user p4admin	
4	2010/04/06 22:11:46 CDT 10.0.10.222 [Raw_Syslog] Local	sysadmin
RAW	Feb 25 14:03:24 beach sshd(pam_unix)[123]: session opened for user sysadmin by (uid=500)	

- Extract the first word after the word “user” (one space after the word) or “user=”. The word “user” is case-insensitive in this case and must be preceded by a space character. That is, words such as “ruser” and “suser” should not be matched.

```
| rex "\s[u|U][s|S][e|E][r|R][\s|=](?<CustomUser>[^\ ]*)"
```

Appendix C: Frequently Asked Questions

What happens if I'm investigating a channel that has event fields that are not supported in Command Center?

If the channel that you are investigating originated in the ArcSight Console and contains event fields not supported in Command Center, these unsupported fields are not lost and can be viewed in the ArcSight Console.

Related Topic:

["Creating an Event Channel" on page 45](#)

Can I change the default start time and end time for an event channel?

The default start and end times cannot be changed in Command Center. These changes have to be made in the ArcSight Console. Command Center recognizes any changes you make to the default times.

To change the default start time for new channels, edit the `console.properties` file in the `<ArcSight_Console_HOME>/current/config` directory. For example, add the this line...

```
console.channel.newChannel.defaultSubtractTime="$Now - 2h"
```

... to change the start time to two hours ago. For a list of possible time values see the **Start Time:** field pull-down menu.

If setting the End Time results in the message "Invalid end date for sliding channel," the channel is set to `Continuously evaluate` instead of `Evaluate once at attach time`. Either re-set the End Time or change the Time Parameters option for the channel to `Continuously evaluate`.

Avoid creating an active channel that queries more than once per day. For active channels that query more than once per day, use `Evaluate time parameters once at attach time` instead of `Continuously evaluate`. Better yet, use trends for these types of active channels.

Related Topic:

["Creating an Event Channel" on page 45](#)

What do I do if a channel is taking long to load?

Some channels can be resource intensive, such as those with a time range of an hour or so. If a channel takes long to load in a high-traffic environment, open this channels in the ArcSight Console. To view a resource-intensive channel in Command Center, narrow the time range to 5 - 10 minutes to reduce the event volume.

Related Topic:

["Viewing Events On an Active Channel" on page 30](#)

How many channels can I have open at one time?

For optimum performance, limit open channels to 3 per browser, though Command Center can support up to 10 moderate-traffic channels or up to 15 light-traffic channels per browser. Between Command Center and ArcSight Console, ESM can support up to 25 open channels.

Related Topic:

["Viewing Events On an Active Channel" on page 30](#)

What fields are supported in Command Center channels?

Command Center channels only support standard event fields, and not variable fields.

Related Topic:

["Viewing Events On an Active Channel" on page 30](#)

Does Command Center support non-ASCII payload data?

Command Center may not display non-ASCII payload data. Therefore, if the **Download Payload** button is enabled, yet no data appears in the Event Details popup, click **Download Payload** to download the data to a simple text editor, such as Notepad.

Related Topic:

["Viewing Event Payload" on page 44](#)

How do I get my ArcSight Marketplace credentials?

Access to ArcSight Marketplace is necessary in order to download an app which enables you use Tool Commands. To receive your ArcSight Marketplace credentials (user name and password), contact ArcSight Support or your reseller.

Related Topic:

["Evaluate the Network Route of a Channel Event" on page 34](#)

Why are channels not current in a new ESM session?

Some channels in Command Center may not be current when accessed in a new ESM session. To ensure current event information, refresh the channel by clicking the stop and play buttons.

Related Topic:

["Viewing Events On an Active Channel" on page 30](#)

Does the change to or from Daylight Savings Time effect an open active channel?

If an active channel is open when Daylight Savings Time goes into or out of effect, the active channel will not reflect the correct start and end times until the channel is closed and reopened.

Related Topic:

["Viewing Events On an Active Channel" on page 30](#)

Send Documentation Feedback

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

Feedback on User's Guide (ESM Command Center 6.9.0c)

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to arc-doc@hp.com.

We appreciate your feedback!

Glossary

A

Access Control List

Permission for viewing events is based on the user group Access Control List (ACL), which is specified for the active channel filter.

Assets

This resource identifies any network endpoint with an IP address, MAC address, host name, or external ID.

C

Channel

Like a channel tuned to a certain frequency on a television set, an active channel displays a stream of information defined by parameters set in the active channel editor. A channel can be further fine-tuned using in-line filters. The three types of channels are Live, Rules, and Resources.

Common Conditions Editor

ESM has a Boolean logic editor, which is also referred to as the Common Conditions Editor (CCE). If the criteria are met, the evaluation returns a Boolean true or false. All conditions constructed by the CCE are expressions that consist of a value or variable on the left, an operator (not, and, or), and a value on the right, for defining the conditions you use to help analyze resources such as filters, rules, and reports.

Content

Resources such as dashboards, data monitors, active channels, cases and reports.

CORR Engine

The Correlation Optimized Retention and Retrieval (CORR) Engine is a proprietary data storage and retrieval framework that receives and processes events at high rates, and performs high-speed searches.

Correlation Engine

Evaluates each event with network model and vulnerability information to develop real-time threat summaries. The Correlation Engine receives events from the CORR Engine.

D

Dashlet

A dashlet is a pane that can appear in the Home and Dashboard Navigator pages. It can present information data monitor, query viewer, My Dashboards, My Cases, and My Notifications.

Data Monitors

Views that can be configured to report on events, filters, rules, and other data or information that is of particular interest to you. You can create and edit data monitors in the ArcSight Console.

E

Event

A logged occurrence or nonoccurrence (something did not happen) in an information system (network, operating system, application, physical security system, or database) that took place at some point in time. This activity is recorded in the ESM database. SmartConnectors parse events into the ESM event schema, enabling ESM to prioritize, analyze, and correlate the events. ESM can generate additional events due to, for example, correlation of multiple incoming events, the non-occurrence of an expected event, and internal monitoring. Analysts use this processed information to measure the security impact on their information system(s).

Event Inspector

Security center operators interpret events with the Event Inspector, and respond to events with preset, automated actions.

F

Field Set

Limits the number of columns displayed for in an active channel grid anywhere event fields can be selected, such as the Common Conditions Editor (CCE) and variables editors. A field set is an index of certain field names that you can create and save so that you do not have to sift through more than 400 event fields to get to the ones you want to use when monitoring and investigating, or building content for a specific use case. Some field sets are sortable. Sortable field sets are like other field sets, except that they are composed only of fields for which sort indexing has been enabled, such as End Time, Name, Target Address, and Source Address.

M

Managed Security Service Provider (MSSP)

A company that manages and hosts the network security services for subscribing organizations. Organizations using the services of an MSSP are known as tenants, since they are serviced within the environment of the MSSP.

R

Resource

The logic used to process events using objects, which ESM manages. A resource defines the properties, values, and relationships used to configure the functions ESM performs. Resources can also be the output of a configuration that has been executed on events (such as archived reports, or Pattern Discovery snapshots and patterns). Resources are used for displaying and analyzing events, and contribute to generating additional events that are used internally by ESM for correlation or administration.

S

Security Operations Center

A Security Operations Center (SOC) is a centralized unit that deals with security issues, on an organizational and technical level. A SOC within a building or facility is a central location from

where staff supervises the site, using data processing technology.

Sortable Field Set

Sortable field sets are like other field sets, except that they are composed only of fields for which sort indexing has been enabled, such as End Time, Name, Target Address, and Source Address. In active channel grid views, the names of sortable fields in column headers are underlined and the Sort Column right-click command is enabled. Unsortable field headers are not underlined, and the Sort Column feature is disabled.

U

Use Cases

Use cases are a way to view, configure, and transport specially developed sets of related resources that address specific security issues and business requirements. Use cases are currently available for ArcSight-created content only.

V

Vulnerability

Any hardware, firmware, or software state that leaves an asset open for potential exploitation. The vulnerability resource is a series of directories that correspond to several popular authorities that publish vulnerability descriptions, such as XS-Force, CVE, and Bugtraq. A vulnerability description usually consists of a set of software and/or hardware that, if present in the targeted system, could be exploited by an outside force. If a system meets all of the requirements described in the vulnerability description, then it is said to expose that vulnerability. In most network environments, vulnerabilities are detected and managed using a vulnerability scanner. Vulnerability scans can also be used to populate the baseline network model, which you can then enhance manually with ESM network modeling tools.

