Concepts

Events

An event is a set of values associated with a timestamp. It is a single entry of data and can have one or multiple lines. An event can be a text document, a configuration file, an entire stack trace, and so on. This is an example of an event in a web activity log:

```
10.14.0.172 - - [01/
Mar/2015:12:05:27 -0700] "GET /
trade/app?action=logout HTTP/1.1"
200 2953
```

You can also define transactions to search for and group together events that are conceptually related but span a duration of time. Transactions can represent a multistep business-related activity, such as all events related to a single customer session on a retail website.

Host, Source, and Source Type

A *host* is the name of the physical or virtual device where an event originates. The *host* field provides an easy way to find all data originating from a specific device. A *source* is the name of the file, directory, data stream, or other input from which a particular event originates. Sources are classified into *source types*, which can be either well known formats or formats defined by the user. Some common source types are HTTP web server logs and Windows event logs.

Events with the same source types can come from different sources. For example, events from the file `source=/var/log/messages` and from a syslog input port `source=UDP:514` often share the source type, `sourcetype=linux_syslog`

Fields

Fields are searchable name and value pairings that distinguish one event from another. Not all events have the same fields and field values. Using fields, you can write tailored searches to retrieve the specific events that you want. When Splunk software processes events at index-time and search-time, the software extracts fields based on configuration file definitions and user-defined patterns.

Use the Field Extractor tool to automatically generate and validate field extractions at search-time. Regular expressions are automatically generated to extract fields. You can extract fields from events where values are separated by spaces, commas, or other characters.

Tags and Event Types

Tags are aliases for particular field values. You can assign one or more tags to any field name/value combination, including event types, hosts, sources, and source types. Use tags to group related field values together, or to track abstract field values such as IP addresses or ID numbers by giving them more descriptive names.

At search-time, indexed events that match a specified search string can be categorized into event types.

Indexes

When data is added, Splunk software parses the data into individual events, extracts the timestamp, applies line-breaking rules, and stores the events in an *index*. You can create new indexes for different inputs. By default, data is stored in the "main" index. Events are retrieved from one or more indexes during a search.

Index-Time and Search-Time

During *index-time* processing, data is read from a source on a host and is classified into a source type. Timestamps are extracted, and the data is parsed into individual events. Line-breaking rules are applied to segment the events to display in the search results. Each event is written to an index on disk, where the event is later retrieved with a search request.

When a *search* starts, referred to as *search-time*, indexed events are retrieved from disk. *Fields* are extracted from the raw text for the event.

Core Features

Search

Search is the primary way users navigate data in Splunk software. You can write a search to retrieve events from an index, use statistical commands to calculate metrics and generate reports, search for specific conditions within a rolling time window, identify patterns in your data, predict future trends, and so on. You transform the events using the Splunk Search Process Language (SPL™). Searches can be saved as reports and used to power dashboards.

Reports

Reports are saved searches and pivots. You can run reports on an ad hoc basis, schedule reports to run on a regular interval, or set a scheduled report to generate alerts when the results meet particular conditions. Reports can be added to dashboards as dashboard panels.

Dashboards

Dashboards are made up of panels that contain modules such as search boxes, fields, and data visualizations. Dashboard panels are usually connected to saved searches or pivots. They can display the results of completed searches, as well as data from real-time searches.

Alerts

Alerts are triggered when search results meet specific conditions. You can use alerts on historical and real-time searches. Alerts can be configured to trigger actions such as sending alert information to designated email addresses or posting alert information to a web resource.

Additional Features (Splunk Enterprise only)

Data Model

A *data model* is a hierarchically-organized collection of datasets that Pivot uses to generate reports. Data model objects represent individual datasets, which the data model is composed of.

Pivot

Pivot refers to the table, chart, or other visualization you create using the Pivot Editor. You can map attributes defined by data model objects to data visualizations, without manually writing the searches. Pivots can be saved as reports and used to power dashboards.

Apps

Apps are a collection of configurations, knowledge objects, and customer designed views and dashboards. Apps extend the Splunk environment to fit the specific needs of organizational teams such as Unix or Windows system administrators, network security specialists, website managers, business analysts, and so on. A single Splunk Enterprise or Splunk Cloud installation can run multiple apps simultaneously.

Distributed Search

A *distributed search* provides a way to scale your deployment by separating the search management and presentation layer from the indexing and search retrieval layer. You use search to facilitate horizontal scaling for enhanced performance, to control access to indexed data, and to manage geographically dispersed data.

Splunk Components

Forwarders

A Splunk instance that forwards data to another Splunk instance is referred to as a forwarder.

Indexer

An indexer is the Splunk instance that indexes data. The indexer transforms the raw data into events and stores the events into an index. The indexer also searches the indexed data in response to search requests. The search peers are indexers that fulfill search requests from the search head.

Search Head

In a distributed search environment, the search head is the Splunk instance that directs search requests to a set of search peers and merges the results back to the user. If the instance does only search and not indexing, it is usually referred to as a dedicated search head.

Search Processing Language

A Splunk search is a series of commands and arguments. Commands are chained together with a pipe "|" character to indicate that the output of one command feeds into the next command on the right.

```
search | command1 arguments1 |
command2 arguments2 | ...
```

At the start of the search pipeline is an implied search command to retrieve events from the index. Search requests are written with keywords, quoted phrases, boolean expressions, wildcards, field name/value pairs, and comparison expressions. The AND operator is implied between search terms. For example:

```
sourcetype=access_combined error |
top 5 uri
```

This search retrieves indexed web activity events that contain the term "error". For those events, it returns the top 5 most common URI values.

Search commands are used to filter unwanted events, extract more information, calculate values, transform, and statistically analyze the indexed data. Think of the search results retrieved from the index as a dynamically created table. Each indexed event is a row. The field values are columns. Each search command redefines the shape of that table. For example, search commands that filter events will remove rows, search commands that extract fields will add columns.

Time Modifiers

You can specify a time range to retrieve events inline with your search by using the `latest` and `earliest` search modifiers. The relative times are specified with a string of characters to indicate the amount of time (integer and unit) and an optional "snap to" time unit. The syntax is:

```
[+|-]<integer><unit>@<snap_time_
unit>
```

The search "`error earliest=-1d@d latest=-h@h`" retrieves events containing "error" that occurred yesterday snapping to the beginning of the day (00:00:00) and through to the most recent hour of today, snapping on the hour.

The snap to time unit rounds the time down. For example, if it is 11:59:00 and you snap to hours (@h), the time used is 11:00:00 not 12:00:00. You can also snap to specific days of the week using @w0 for Sunday, @w1 for Monday, and so on.

Subsearches

A subsearch runs its own search and returns the results to the parent command as the argument value. The subsearch is run first and is contained in square brackets. For example, the following search uses a subsearch to find all syslog events from the user that had the last login error:

```
sourcetype=syslog [ search login
error | return 1 user ]
```

Optimizing Searches

The key to fast searching is to limit the data that needs to be pulled off disk to an absolute minimum. Then filter that data as early as possible in the search so that processing is done on the minimum data necessary.

Partition data into separate indexes, if you will rarely perform searches across multiple types of data. For example, put web data in one index, and firewall data in another.

Limit the time range to only what is needed. For example `-1h` not `-1w`, or `earliest=-1d`.

Use Fast Mode to increase the speed of searches by reducing the event data that they return.

Search as specifically as you can. For example, `fatal_error` not `*error*`

Filter out results as soon as possible before calculations. Use field-value pairs, before the first pipe. For example, `ERROR status=404 |...` instead of `ERROR | search status=404...` Or use filtering commands such as `where`.

Filter out unnecessary fields as soon as possible in the search.

Postpone commands that process over the entire result set (non-streaming commands) as late as possible in your search. Some of these commands are: `dedup`, `sort`, and `stats`.

Use post-processing searches in dashboards.

Use summary indexing, report acceleration, and data model acceleration features.

Common Search Commands

Command	Description
`chart/ timechart`	Returns results in a tabular output for (time-series) charting.
`dedup`	Removes subsequent results that match a specified criterion.
`eval`	Calculates an expression. See COMMON EVAL FUNCTIONS.
`fields`	Removes fields from search results.
`head/tail`	Returns the first/last N results.
`lookup`	Adds field values from an external source.
`rename`	Renames a field. Use wildcards to specify multiple fields.
`rex`	Specifies regular expression named groups to extract fields.
`search`	Filters results to those that match the search expression.
`sort`	Sorts the search results by the specified fields.
`stats`	Provides statistics, grouped optionally by fields. See COMMON STATS FUNCTIONS.
`table`	Specifies fields to keep in the result set. Retains data in tabular format.
`top/rare`	Displays the most/least common values of a field.
`transaction`	Groups search results into transactions.
`where`	Filters search results using eval expressions. Used to compare two different fields.

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Item # SPLUNK-Reference-Guide-Tri-117

Common Eval Functions (continued)

Function	Description	Examples
`round(X,Y)`	Returns X rounded to the amount of decimal places specified by Y. The default is to round to an integer.	`round(2.555, 2)`
`rtrim(X,Y)`	Returns X with the characters in Y trimmed from the right side. If Y is not specified, spaces and tabs are trimmed.	`rtrim(" ZZZZabcZZ ", " Z")`
`searchmatch(X)`	Returns true if the event matches the search string X.	`searchmatch("foo AND bar")`
`split(X,"Y")`	Returns X as a multi-valued field, split by delimiter Y.	`split(address, ";")`
`sqrt(X)`	Returns the square root of X.	`sqrt(9)`
`strftime(X,Y)`	Returns epochtime value X rendered using the format specified by Y.	`strftime(_time, "%H:%M")`
`strptime(X,Y)`	Given a time represented by a string X, returns value parsed from format Y.	`strptime(timeStr, "%H:%M")`
`substr(X,Y,Z)`	Returns a substring field X from start position (1-based) Y for Z (optional) characters.	`substr("string", 1, 3)`
`time()`	Returns the wall-clock time with microsecond resolution.	`time()`
`tonumber(X,Y)`	Converts input string X to a number, where Y (optional, defaults to 10) defines the base of the number to convert to.	`tonumber("0A4",16)`
`tostring(X,Y)`	Returns a field value of X as a string. If the value of X is a number, it reformats it as a string. If X is a Boolean value, reformats to "True" or "False". If X is a number, the second argument Y is optional and can either be "hex" (convert X to hexadecimal), "commas" (formats X with commas and 2 decimal places), or "duration" (converts seconds X to readable time format HH:MM:SS).	`This example returns: foo=615 and foo2=00:10:15: … | eval foo=615 | eval foo2 = tostring(foo, "duration")`
`typeof(X)`	Returns a string representation of the field type.	`This example returns: "NumberStringBoolInvalid": typeof(12)+ typeof("string")+`
`urldecode(X)`	Returns the URL X decoded.	`urldecode("http%3A%2F%2Fwww.splunk.com%2Fdownload%3Fr%3Dheader")`
`validate (X,Y,…)`	Given pairs of arguments, Boolean expressions X and strings Y, returns the string Y corresponding to the first expression X that evaluates to False and defaults to NULL if all are True.	`validate(isint(port), "ERROR: Port is not an integer", port >= 1 AND port <= 65535, "ERROR: Port is out of range")`

Common Stats Functions

Common statistical functions used with the chart, stats, and timechart commands. Field names can be wildcarded, so avg(*delay) might calculate the average of the delay and xdelay fields.

`avg(X)`	Returns the average of the values of field X.
`count(X)`	Returns the number of occurrences of the field X. To indicate a specific field value to match, format X as eval(field="value").
`dc(X)`	Returns the count of distinct values of the field X.
`earliest(X)`	Returns the chronologically earliest seen value of X.
`latest(X)`	Returns the chronologically latest seen value of X.
`max(X)`	Returns the maximum value of the field X. If the values of X are non-numeric, the max is found from alphabetical ordering.
`median(X)`	Returns the middle-most value of the field X.
`min(X)`	Returns the minimum value of the field X. If the values of X are non-numeric, the min is found from alphabetical ordering.
`mode(X)`	Returns the most frequent value of the field X.
`perc<X>(Y)`	Returns the X-th percentile value of the field Y. For example, perc5(total) returns the 5th percentile value of a field "total".
`range(X)`	Returns the difference between the max and min values of the field X.
`stdev(X)`	Returns the sample standard deviation of the field X.
`stdevp(X)`	Returns the population standard deviation of the field X.
`sum(X)`	Returns the sum of the values of the field X.
`sumsq(X)`	Returns the sum of the squares of the values of the field X.
`values(X)`	Returns the list of all distinct values of the field X as a multi-value entry. The order of the values is alphabetical.
`var(X)`	Returns the sample variance of the field X.

Search Examples

Filter Results

Filter results to only include those with "fail" in their raw text and status=0.	`... | search fail status=0`
Remove duplicates of results with the same host value.	`... | dedup host`
Keep only search results whose "_raw" field contains IP addresses in the non-routable class A (10.0.0.0/8).	`... | regex _raw="(?<!\d)10.\d{1,3}\.\d{1,3}\.\d{1,3}(?!\d)"`

Group Results

Cluster results together, sort by their "cluster_count" values, and then return the 20 largest clusters (in data size).	`... | cluster t=0.9 showcount=true | sort limit=20 -cluster_count`
Group results that have the same "host" and "cookie", occur within 30 seconds of each other, and do not have a pause greater than 5 seconds between each event into a transaction.	`... | transaction host cookie maxspan=30s maxpause=5s`
Group results with the same IP address (clientip) and where the first result contains "signon", and the last result contains "purchase".	`... | transaction clientip startswith="signon" endswith="purchase"`

Order Results

Return the first 20 results.	`... | head 20`
Reverse the order of a result set.	`... | reverse`
Sort results by "ip" value (in ascending order) and then by "url" value (in descending order).	`... | sort ip, -url`
Return the last 20 results in reverse order.	`... | tail 20`

Filter Fields

Keep only the "host" and "ip" fields, and display them in that order.	`... | fields + host, ip`
Remove the "host" and "ip" fields from the results.	`... | fields - host, ip`

Reporting

Return the maximum "delay" by "size", where "size" is broken down into a maximum of 10 equal sized buckets.	`... | chart max(delay) by size bins=10`
Return max(delay) for each value of foo.	`... | chart max(delay) over foo`
Return max(delay) for each value of foo split by the value of bar.	`... | chart max(delay) over foo by bar`
Count the events by "host"	`... | stats count by host`

Reporting (cont.)

Create a table showing the count of events and a small line chart.	`... | stats sparkline count by host`
Create a timechart of the count of "web" sources by "host".	`... | timechart count by host`
Calculate the average value of "CPU" each minute for each "host".	`... | timechart span=1m avg(CPU) by host`
Return the average for each hour, of any unique field that ends with the string "lay" (e.g., delay, xdelay, relay, etc).	`... | stats avg(*lay) by date_hour`
Return the 20 most common values of the "url" field.	`... | top limit=20 url`
Return the least common values of the "url" field.	`... | rare url`

Advanced Reporting

Compute the overall average duration and add "avgdur" as a new field to each event where the "duration" field exists.	`... | eventstats avg(duration) as avgdur`
Find the cumulative sum of bytes.	`... | streamstats sum(bytes) as bytes_total | timechart max(bytes_total)`
Find anomalies in the field "close_price" during the last 10 years.	`sourcetype=nasdaq earliest=-10y | anomalydetection close_price`
Create a chart showing the count of events with a predicted value and range added to each event in the time-series.	`... | timechart count | predict count`
Computes a five event simple moving average for field "count" and write to new field "smoothed_count".	`... | timechart count | trendline sma5(count) as smoothed_count`

Add or Modify Fields

Set velocity to distance / time.	`... | eval velocity=distance/time`
Extract "from" and "to" fields using regular expressions. If a raw event contains "From: Susan To: David", then from=Susan and to=David.	`... | rex field=_raw "From: (?<from>.*) To: (?<to>.*)"`
Save the running total of "count" in a field called "total_count".	`... | accum count as total_count`
For each event where "count" exists, compute the difference between count and its previous value and store the result in "countdiff".	`... | delta count as countdiff`
Rename the "_ip" field as "IPAddress".	`... | rename _ip as IPAddress`

Search Examples (continued)

Lookup Tables (Splunk Enterprise only)

For each event, use the lookup table usertogroup to locate the matching "user" value from the event. Output the group field value to the event.	`… | lookup usertogroup user OUTPUT group`
Read in the usertogroup lookup table that is defined in the transforms.conf file.	`… | inputlookup usertogroup`
Write the search results to the lookup file "users.csv".	`… | outputlookup users.csv`

Regular Expressions (Regexes)

Regular Expressions are useful in multiple areas: search commands regex and rex; eval functions match() and replace(); and in field extraction.

Regex	Note	Example	Explanation
`\s`	white space	`\d\s\d`	digit space digit
`\S`	not white space	`\d\S\d`	digit non-whitespace digit
`\d`	digit	`\d\d\d-\d\d-\d\d\d\d`	SSN
`\D`	not digit	`\D\D\D`	three non-digits
`\w`	word character (letter, number, or _)	`\w\w\w`	three word chars
`\W`	not a word character	`\W\W\W`	three non-word chars
`[...]`	any included character	`[a-z0-9#]`	any char that is a thru z, 0 thru 9, or #
`[^...]`	no included character	`[^xyz]`	any char but x, y, or z
`*`	zero or more	`\w*`	zero or more words chars
`+`	one or more	`\d+`	integer
`?`	zero or one	`\d\d\d-?\d\d-?\d\d\d\d`	SSN with dashes being optional
`|`	or	`\w|\d`	word or digit character
`(?P<var>...)`	named extraction	`(?P<ssn>\d\d\d-\d\d-\d\d\d\d)`	pull out a SSN and assign to 'ssn' field
`(?: ... )`	logical or atomic grouping	`(?:[a-zA-z]|\d)`	alphabetic character OR a digit
`^`	start of line	`^\d+`	line begins with at least one digit
`$`	end of line	`\d+$`	line ends with at least one digit
`{...}`	number of repetitions	`\d{3,5}`	between 3-5 digits
`\`	escape	`\[`	escape the [character

Multi-Valued Fields

Combine the multiple values of the recipients field into a single value.	`… | nomv recipients`
Separate the values of the "recipients" field into multiple field values, displaying the top recipients.	`… | makemv delim="," recipients | top recipients`
Create new results for each value of the multivalue field "recipients".	`… | mvexpand recipients`
Find the number of recipient values.	`… | eval to_count = mvcount(recipients)`
Find the first email address in the recipient field.	`… | eval recipient_first = mvindex(recipient,0)`
Find all recipient values that end in .net or .org.	`… | eval netorg_recipients = mvfilter match(recipient,"\.net$") OR match(recipient,"\.org$"))`
Find the index of the first recipient value match "\.org$"	`… | eval orgindex = mvfind(recipient, "\.org$")`

Common Date and Time Formatting

Use these values for eval functions strftime() and strptime(), and for timestamping event data.

Regex	Example	Explanation
Time	`%H`	24 hour (leading zeros) (00 to 23)
	`%I`	12 hour (leading zeros) (01 to 12)
	`%M`	Minute (00 to 59)
	`%S`	Second (00 to 61)
	`%N`	subseconds with width (%3N = millisecs, %6N = microsecs, %9N = nanosecs)
	`%p`	AM or PM
	`%Z`	Time zone (EST)
	`%z`	Time zone offset from UTC, in hour and minute: +hhmm or -hhmm. (-0500 for EST)
	`%s`	Seconds since 1/1/1970 (1308677092)
Days	`%d`	Day of month (leading zeros) (01 to 31)
	`%j`	Day of year (001 to 366)
	`%w`	Weekday (0 to 6)
	`%a`	Abbreviated weekday (Sun)
	`%A`	Weekday (Sunday)
Months	`%b`	Abbreviated month name (Jan)
	`%B`	Month name (January)
	`%m`	Month number (01 to 12)
Years	`%y`	Year without century (00 to 99)
	`%Y`	Year (2015)
Examples	`%Y-%m-%d`	2014-12-31
	`%y-%m-%d`	14-12-31
	`%b %d, %Y`	Jan 24, 2015
	`%B %d, %Y`	January 24, 2015
	`q|%d %b '%y = %Y-%m-%d|`	q|25 Feb '15 = 2015-02-25|

Common Eval Functions

The eval command calculates an expression and puts the resulting value into a field (e.g. "...| eval force = mass * acceleration"). The following table lists some of the functions used with the eval command. You can also use basic arithmetic operators (+ - * / %), string concatenation (e.g., '...| eval name = last . "," . last'), and Boolean operations (AND OR NOT XOR < > <= >= != = == LIKE).

Function	Description	Examples
`abs(X)`	Returns the absolute value of X.	`abs(number)`
`case(X,"Y",...)`	Takes pairs of arguments X and Y, where X arguments are Boolean expressions. When evaluated to TRUE, the arguments return the corresponding Y argument.	`case(error == 404, "Not found", error == 500,"Internal Server Error", error == 200, "OK")`
`ceil(X)`	Ceiling of a number X.	`ceil(1.9)`
`cidrmatch("X",Y)`	Identifies IP addresses that belong to a particular subnet.	`cidrmatch("10.14.0.172/25",ip)`
`coalesce(X,...)`	Returns the first value that is not null.	`coalesce(null(), "Returned val", null())`
`cos(X)`	Calculates the cosine of X.	`n=cos(0)`
`exact(X)`	Evaluates an expression X using double precision floating point arithmetic.	`exact(3.14*num)`
`exp(X)`	Returns e^X.	`exp(3)`
`if(X,Y,Z)`	If X evaluates to TRUE, the result is the second argument Y. If X evaluates to FALSE, the result evaluates to the third argument Z.	`if(error==200, "OK", "Error")`
`isbool(X)`	Returns TRUE if X is Boolean.	`isbool(field)`
`isint(X)`	Returns TRUE if X is an integer.	`isint(field)`
`isnull(X)`	Returns TRUE if X is NULL.	`isnull(field)`
`isstr()`	Returns TRUE if X is a string.	`isstr(field)`
`len(X)`	This function returns the character length of a string X.	`len(field)`
`like(X,"Y")`	Returns TRUE if and only if X is like the SQLite pattern in Y.	`like(field, "addr%")`
`log(X,Y)`	Returns the log of the first argument X using the second argument Y as the base. Y defaults to 10.	`log(number,2)`
`lower(X)`	Returns the lowercase of X.	`lower(username)`
`ltrim(X,Y)`	Returns X with the characters in Y trimmed from the left side. Y defaults to spaces and tabs.	`ltrim(" ZZZabcZZ ", " Z")`
`match(X,Y)`	Returns if X matches the regex pattern Y.	`match(field, "^\d{1,3}\.\d$")`
`max(X,...)`	Returns the maximum.	`max(delay, mydelay)`
`md5(X)`	Returns the MD5 hash of a string value X.	`md5(field)`
`min(X,...)`	Returns the minimum.	`min(delay, mydelay)`
`mvcount(X)`	Returns the number of values of X.	`mvcount(multifield)`
`mvfilter(X)`	Filters a multi-valued field based on the Boolean expression X.	`mvfilter(match(email, "net$"))`
`mvindex(X,Y,Z)`	Returns a subset of the multivalued field X from start position (zero-based) Y to Z (optional).	`mvindex(multifield, 2)`
`mvjoin(X,Y)`	Given a multi-valued field X and string delimiter Y, and joins the individual values of X using Y.	`mvjoin(address, ";")`
`now()`	Returns the current time, represented in Unix time.	`now()`
`null()`	This function takes no arguments and returns NULL.	`null()`
`nullif(X,Y)`	Given two arguments, fields X and Y, and returns the X if the arguments are different. Otherwise returns NULL.	`nullif(fieldA, fieldB)`
`random()`	Returns a pseudo-random number ranging from 0 to 2147483647.	`random()`
`relative_time(X,Y)`	Given epochtime time X and relative time specifier Y, returns the epochtime value of Y applied to X.	`relative_time(now(),"-1d@d")`
`replace(X,Y,Z)`	Returns a string formed by substituting string Z for every occurrence of regex string Y in string X.	`Returns date with the month and day numbers switched, so if the input was 4/30/2015 the return value would be 30/4/2009: replace(date, "^(\d{1,2})/(\d{1,2})/", "\2/\1/")`

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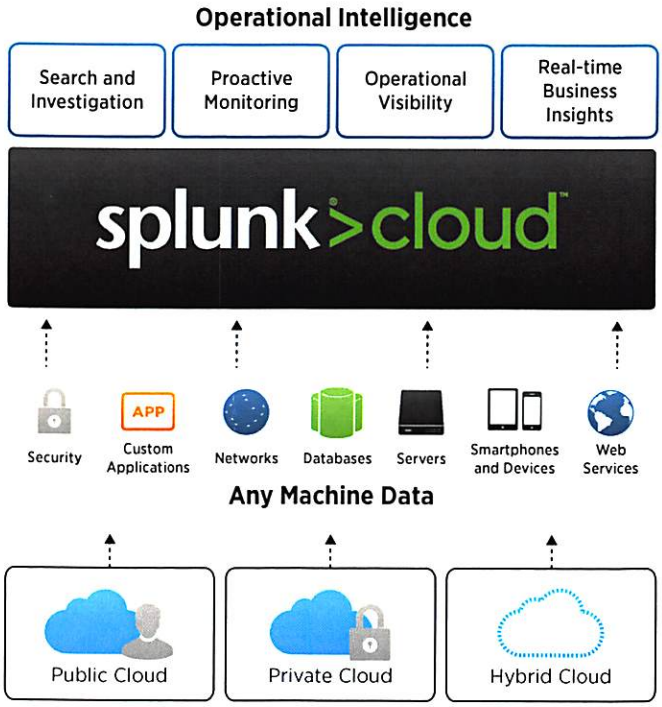
PRODUCT BRIEF

SPLUNK® CLOUD™

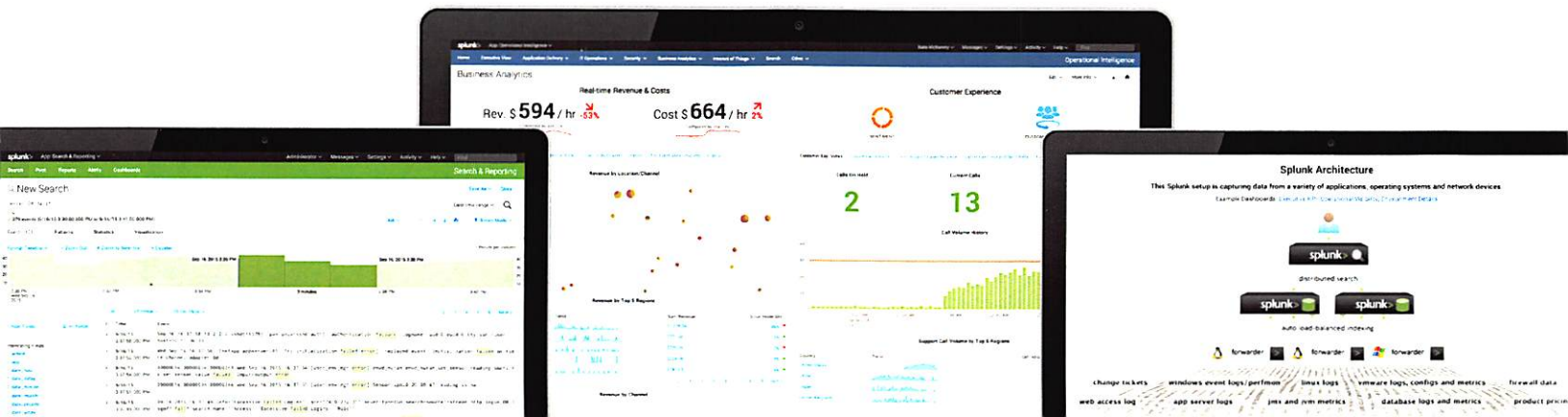
The industry-leading SaaS platform for Operational Intelligence

- **Instant:** Free trial and instant conversion from POC to production
- **Secure:** Completed SOC 2 Type 2 attestation* and ISO 27001 certification*
- **Reliable:** 100 percent uptime SLA and 10TB+/day scalability
- **Hybrid:** Centralized visibility across Splunk Cloud and Splunk Enterprise



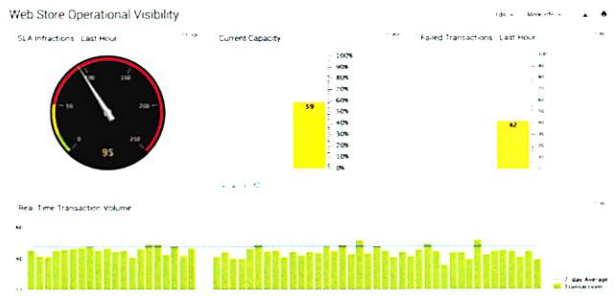
Splunk Cloud delivers Operational Intelligence as a cloud service, enabling you to gain critical insights from your machine data without the need to manage any infrastructure. Splunk Cloud offers all the features of award-winning Splunk Enterprise as an easy-to-use cloud service. With Splunk Cloud you benefit from:

- A solution that is architected for uptime and reliable performance. Splunk Cloud is backed by a 100 percent uptime SLA and delivers dedicated cloud environments for each customer.
- Scalability and flexibility to meet your needs. Get up to 10x bursting flexibility for spikes in data volume. Scale to over 10TB per day.
- Robust security. Your data is safe with Splunk Cloud. Every customer gets an isolated environment and Splunk Cloud has completed the rigorous SOC 2 Type 2 attestation* and ISO 27001 certification*. For more information, see our tech brief: **Safeguarding Customer Data in Splunk Cloud.**



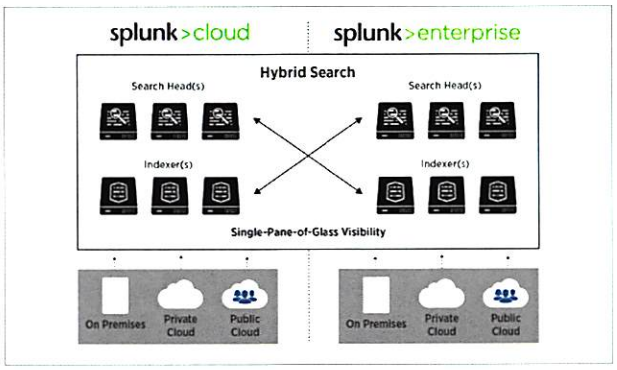
All The Features of Splunk Enterprise

Experience all the features of Splunk Enterprise with all the benefits of SaaS. Using Splunk Cloud, you gain the full functionality of the Splunk Enterprise platform for searching, monitoring, reporting and analyzing all of your real-time and historical machine data.



Centralized Visibility Across Your Entire Environment

Gain centralized visibility across your hybrid environment. Splunk Cloud enables you to adopt cloud at your own pace. Gain operational visibility by searching and analyzing data irrespective of where it resides—in your on-premises infrastructure or in the cloud.



Deploy According to Business Requirements

Easily extend Splunk Enterprise with Splunk Cloud. Splunk Cloud offers single-pane-of-glass visibility across both Splunk Enterprise and Splunk Cloud deployments. This means that you can deploy Splunk as software or SaaS according to your business requirements, while maintaining centralized visibility.

Extend Benefits With Splunk Apps

Splunk Cloud includes support for Splunk Apps and premium solutions such as Splunk Enterprise Security and Splunk IT Service Intelligence. Splunk Apps deliver pre-built dashboards and visualizations to help you gain immediate insight from your data.

*SOC 2 Type 2 attestation and ISO 27001 certification are complete for Splunk Cloud customer environments provisioned for data ingestion of over 20GB/day.

Get Started Today

Splunk Cloud is priced by monthly or annual subscription plans based on your data volume. To get started immediately, sign up for our **free cloud trial.**

splunk> sales@splunk.com www.splunk.com

splunk>

TECH BRIEF

SPLUNK® AND AMAZON WEB SERVICES (AWS)

Operational Intelligence across your entire AWS and IT environment

Enterprises are increasingly adopting Amazon Web Services (AWS) to gain the economic and business benefits of the cloud. As more critical workloads move to the cloud, businesses are looking to:

- Guarantee that their mission-critical cloud deployments adhere to security and compliance standards
- Ensure that their application performance and uptime in the cloud meet defined SLAs
- Achieve increased levels of operational visibility without additional complexity

To meet these needs, Splunk has closely aligned with AWS to deliver solutions that offer real-time visibility into your cloud applications, infrastructure and AWS account. With these solutions, you can monitor your AWS deployment using Splunk as well as consume Splunk software as an AWS-based cloud service.

Splunk's Portfolio of Cloud Solutions Includes:

- **Splunk App for AWS:** Provides pre-built dashboards, reports and alerts that instantly deliver critical operational and security insights into your AWS deployment
- **Splunk Cloud:** Delivers Operational Intelligence as a cloud service, backed by a 100% uptime SLA
- **Splunk Light (cloud service):** Automates log search and analysis for small IT environments
- **Splunk Enterprise on AWS:** Delivers Operational Intelligence as self-deployed software on AWS in a bring-your-own-license (BYOL) model
- **Amazon Machine Images:** Accelerate deployment of Splunk Enterprise, Splunk Light and Hunk on AWS
- **Technology Integrations with AWS Lambda, Kinesis and IoT:** Enables direct collection from AWS Lambda (via Splunk HTTP Event Collector) to enable monitoring of AWS Lambda applications as well as services natively integrated with Lambda (such as AWS Kinesis and AWS IoT service)
- **Hunk Integration with EMR/S3:** Enables easy exploration of data in Amazon EMR and S3

"The Splunk App for AWS succeeded in providing us an effortless click through experience in configuring and monitoring all our AWS logs. Using the Splunk App for AWS we are able to visualize and represent our data in a way that makes sense to developers, system administrators and security professionals in one easy to manage interface. The new VPC Flow logging is an exciting and new added bonus that finally gives us insight into intra-VPC and inter-VPC traffic patterns."

Nathan J Gibson,
product privacy and security lead, ADT

Monitor AWS Using the Splunk App for AWS

The Splunk App for AWS integrates with AWS CloudTrail, AWS Config, Amazon CloudWatch, Amazon VPC Flow Logs, Amazon S3 and billing reports provided by the Splunk Add-on for Amazon Web Services. Pulling from these data sources, the prebuilt dashboards in the app help you visualize critical information on the health and security of your AWS environment.

With the app you can:

- Gather important insights into security-related activities such as unauthorized access attempts, network configuration changes and billing anomalies.
- Accelerate your AWS deployment through increased visibility into user behavior and resource utilization.
- Ensure adherence to security and compliance standards with a full audit trail.
- Continuously monitor user actions and meet PCI requirements.

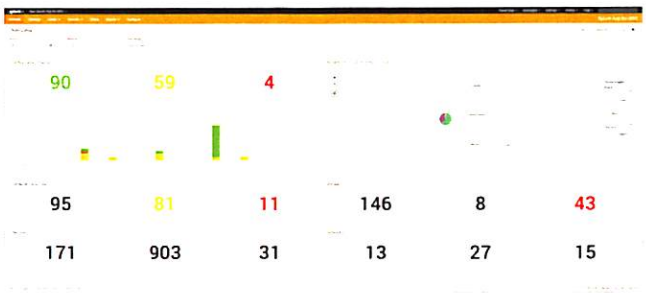


Figure 1: Splunk App for AWS Overview Dashboard

Use Splunk as a Cloud Service

Splunk Cloud

For organizations looking for the full feature set of Splunk Enterprise delivered as a cloud service, Splunk Cloud is the answer. Splunk Cloud is an AWS-based service that delivers all of the functionality of Splunk Enterprise with the flexibility of Software as a Service (SaaS). Using Splunk Cloud, you can search, analyze and visualize data from applications and devices across your entire environment, including AWS, on-premises data centers and any other public/private cloud environments.

Splunk Cloud benefits include:

- **Instant:** Instant access to online trial and seamless transition from POC to production.
- **Secure:** SOC2 Type 2 certified*. Dedicated cloud environments for each customer. Encryption offered in-transit and at rest.
- **Reliable:** Backed by a 100% uptime SLA. Access to all the features of Splunk Enterprise, including apps, APIs and SDKs.
- **Hybrid:** Single pane of glass visibility across Splunk Cloud and Splunk Enterprise deployments (see Figure 2).

Splunk Cloud is available in 10 AWS worldwide regions, including AWS GovCloud (US).

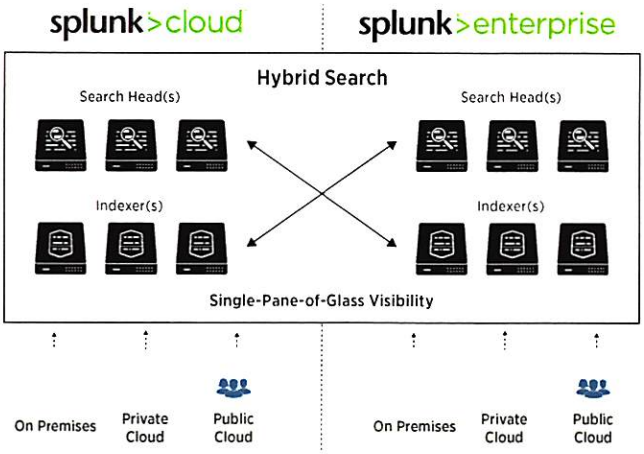


Figure 2: Hybrid search enables single-pane-of-glass visibility

Splunk Light (cloud service)

Splunk Light automates log search and analysis for small IT environments. Using Splunk Light, you can speed tactical troubleshooting by gathering real-time log data from your distributed applications and infrastructure in one place to enable powerful searches and reporting for real-time analysis.

Deploy Splunk Enterprise on AWS

If you prefer to deploy and manage software rather than SaaS, Splunk Enterprise is perfect for deploying on AWS. It's self-contained and can be easily deployed on any Amazon Elastic Compute Cloud (EC2) instance. Splunk Enterprise also scales horizontally, making it ideal for an AWS deployment.

AUTODESK Adobe redhat

Leading joint Splunk-AWS customers deploy Splunk Enterprise on AWS

Accelerate Deployment With Splunk Amazon Machine Images (AMIs)

Splunk offers AMIs to enable you to rapidly deploy standardized, preconfigured instances in EC2. Using a Splunk AMI, you can gain access to Splunk solutions with just a few clicks.

AMIs are available on the AWS Marketplace for Splunk Enterprise, Splunk Light and Hunk.

"Enterprise customers with large Hadoop deployments will gain significant benefits from the Hunk AMI, which will enable them to explore and interact with analytics of raw Hadoop data including Amazon Elastic MapReduce data."

Director, Worldwide Partner Ecosystem, AWS

Leverage Splunk Technology Integrations for AWS

Collect and monitor massive data from various AWS sources in real time.

AWS Lambda Integration

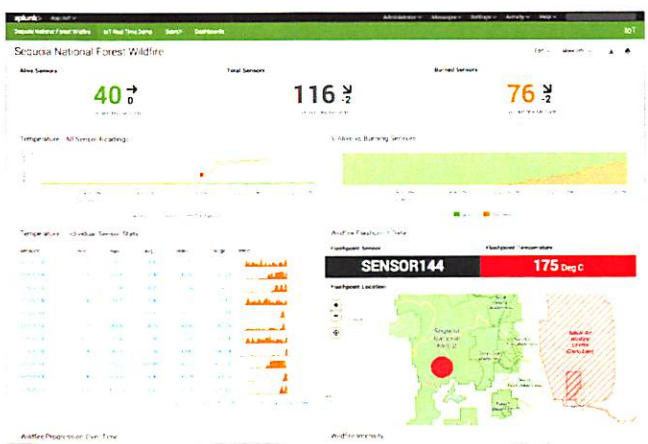
Splunk provides a built-in AWS Lambda Node.js blueprint for HTTP Event Collector that makes it very easy to get started quickly and start sending events from AWS Lambda to HTTP Event Collector running on Splunk Cloud or Splunk Enterprise.

AWS Kinesis Integration

Easily collect and analyze data from AWS Kinesis via native integration with AWS Lambda and the HTTP Event Collector running on Splunk Cloud or Splunk Enterprise.

AWS IoT Integration

Quickly ingest, search, visualize and perform advanced analytics on massive real-time and historical data provided by the AWS IoT Service.



Leverage Hunk Integration with Amazon EMR and S3

Deploy Hunk as a preconfigured instance on the cloud from Amazon Web Services. AWS customers have the option to bring existing Hunk licenses or purchase Hunk by the hour from AWS. Use Hunk to interactively explore, analyze and visualize data stored in Amazon EMR and Amazon S3.

Hunk-EMR integration: sample operations dashboard

Splunk App for AWS.
Get started with the Splunk App for AWS to gain operational visibility and security into your AWS environment.

Splunk Cloud.
Get started now with Splunk Cloud through the free Splunk Cloud Trial.

Splunk Enterprise.
Download Splunk Enterprise for free or find the Splunk Enterprise AMI in the AWS Marketplace.

Hunk.
Get started now by leveraging Hunk integration with Amazon EMR.

Splunk Light.
Smaller IT environments, get started today with the free cloud trial or an AMI.

Leverage Splunk Technology Integrations for AWS.
Utilize AWS Lambda, AWS Kinesis and AWS IoT integrations.

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