Log Correlation Engine 4.4 Statistics Daemon Guide

February 26, 2015

(Revision 1)

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Introduction

This document outlines the basic concepts of the Log Correlation Engine 4.4 statistics daemon, configuration, and a basic review of statistics. Please email any comments and suggestions to support@tenable.com.

The goal of the Log Correlation Engine statistics daemon is to automatically determine a baseline of network activity and then create alerts for anomalous behavior.

Standards and Conventions

Command line options and keywords are also indicated with the **`courier bold`** font. Command line examples may or may not include the command line prompt and output text from the results of the command. Command line examples will display the command being run in **`courier bold`** to indicate what the user typed while the sample output generated by the system will be indicated in `courier` (not bold). Following is an example running of the Unix **`pwd`** command:

```
# pwd
/opt/lce
#
```

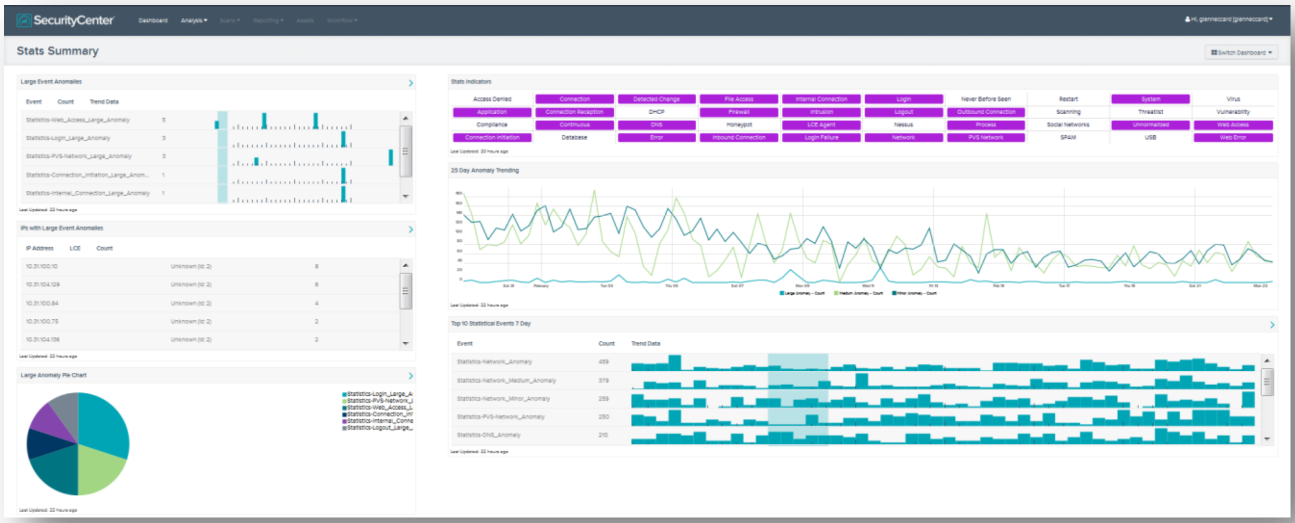
Important notes and considerations are highlighted with this symbol and grey text boxes.

Tips, examples, and best practices are highlighted with this symbol and white on blue text.

Basic Operation

The Log Correlation Engine (LCE) statistics daemon, "**`stats`**", is designed to monitor LCE database files in real-time and generate new events when there are large changes in the behavior of events for a particular host. The sole purpose of the daemon is to generate an alert when a large statistical increase in any type of activity has been observed.

Graphs demonstrating statistical anomalies can be easily added to the SecurityCenter dashboard to give the user a feel for recent events based on various activity types.



The **`stats`** daemon models the following characteristics of each host:

- Number of inbound, outbound and internal connections
- Number of client or server connections
- Number of specific events

The **`stats`** daemon will maintain these statistics for each active host in the LCE database. When a certain threshold is crossed, the **`stats`** daemon will generate new LCE events that indicate changes in behavior, such as an increase in connections or an increase in a certain event count.

When the **`stats`** daemon is first started, it examines the existing LCE database files and uses all existing events as training data. The training data is used to determine the "normal" number of events for each host during each hour of the day. After the **`stats`** daemon has collected the training data, it will examine the LCE database files every hour and alert if it sees a large deviation in event counts for a host.

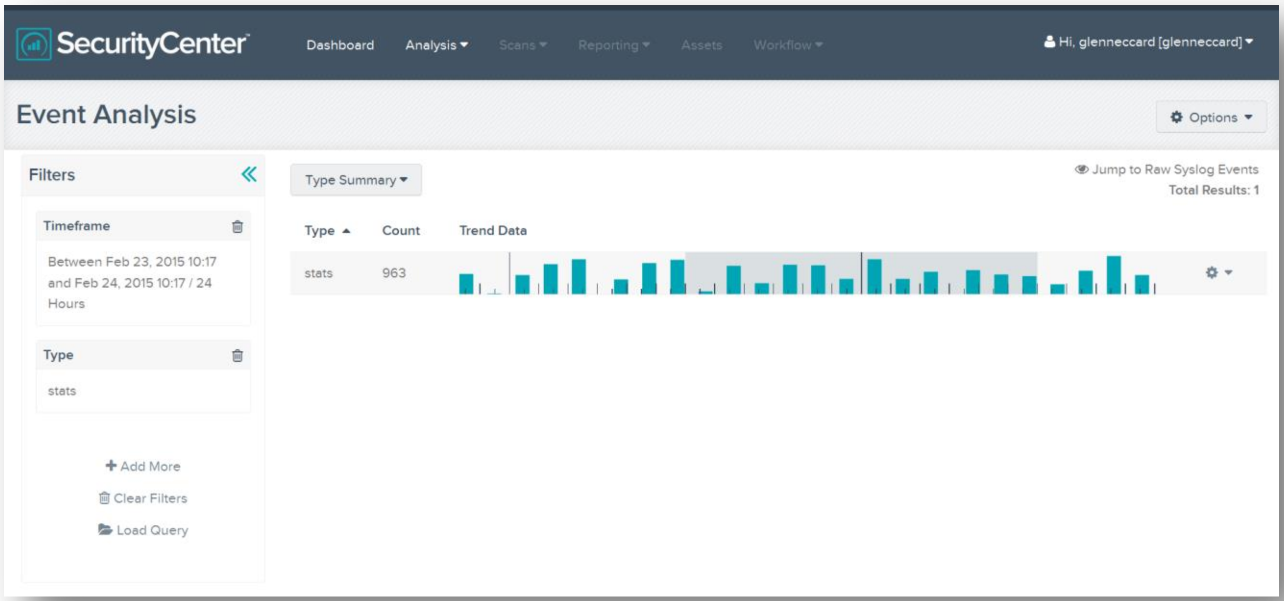
Currently, the **`stats`** daemon will process *all* available data each time it is run, whether as a one-time process or as an hourly daemon. Once the training period is complete, all remaining data will be processed and incorporated into the baseline for future processing.

The **`stats`** daemon compares the previous hours' worth of event activity to other hours of the same time period for previous days. The reason for this is that people use networks, and most people operate differently on a 24-hour clock cycle. Consider the following **`stats`** alert message:

```
stats: Jul 14 03:01:49 – 192.168.1.1 0.0.0.0 Statistics-network_Spike sip/dip SrcIp
event TNM-TCP_Session_Started window Jul 14 02:00:00 03:00:00 average 2.50 stddev
3.77 nhits 95 stddev_units 24.50 freq 0.00
```

This says that IP address 192.168.1.1 had a spike in "network" events. The "network" comes from the unique "types" of LCE events such as "intrusion," "firewall," etc. In this case, we can read on further and see that the event in question was "TNM-TCP_Session_Started". This anomaly occurred on July 14th between 2:00 am and 3:00 am. Normally the number of events was 2.5 with a standard deviation grouping of 3.77. However, during this time period, we saw 95 of these events with a standard deviation grouping of 24.5.

All events from the **`stats`** daemon are normalized as a “stats” type. Within an event summary of all LCE events, all logs generated by the **`stats`** daemon will be on their own event line such as shown below:



Event Analysis

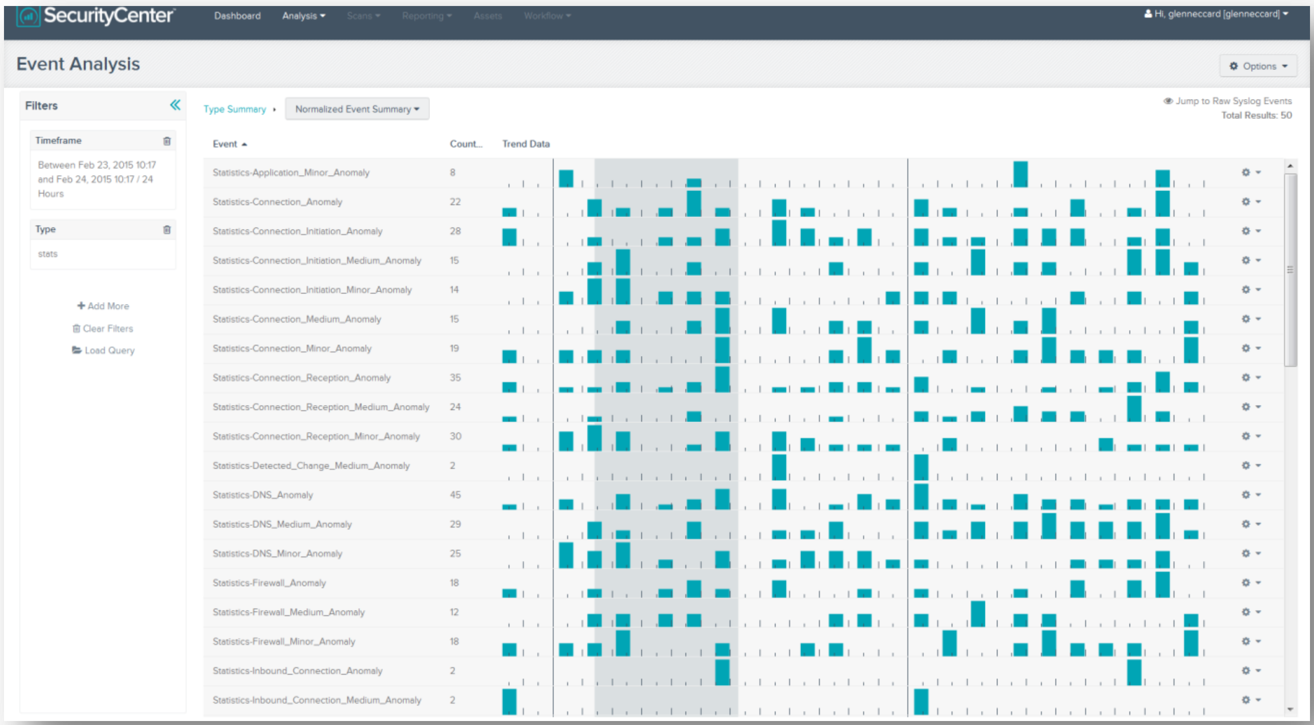
Total Results: 1

Timeframe: Between Feb 23, 2015 10:17 and Feb 24, 2015 10:17 / 24 Hours

Type: stats

Type	Count	Trend Data
stats	963	

In this case, there have been 963 statistical anomalies in the last 24-hours. A SecurityCenter user who clicks on the event count would be presented with the following display:



Event Analysis

Total Results: 50

Timeframe: Between Feb 23, 2015 10:17 and Feb 24, 2015 10:17 / 24 Hours

Type: stats

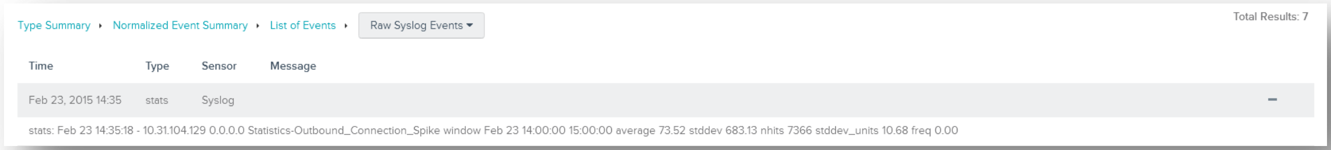
Event	Count...	Trend Data
Statistics-Application_Minor_Anomaly	8	
Statistics-Connection_Anomaly	22	
Statistics-Connection_Initiation_Anomaly	28	
Statistics-Connection_Initiation_Medium_Anomaly	15	
Statistics-Connection_Initiation_Minor_Anomaly	14	
Statistics-Connection_Medium_Anomaly	15	
Statistics-Connection_Minor_Anomaly	19	
Statistics-Connection_Reception_Anomaly	35	
Statistics-Connection_Reception_Medium_Anomaly	24	
Statistics-Connection_Reception_Minor_Anomaly	30	
Statistics-Detected_Change_Medium_Anomaly	2	
Statistics-DNS_Anomaly	45	
Statistics-DNS_Medium_Anomaly	29	
Statistics-DNS_Minor_Anomaly	25	
Statistics-Firewall_Anomaly	18	
Statistics-Firewall_Medium_Anomaly	12	
Statistics-Firewall_Minor_Anomaly	18	
Statistics-Inbound_Connection_Anomaly	2	
Statistics-Inbound_Connection_Medium_Anomaly	2	

In this screen shot, we've captured a portion of the more than 200 unique types of normalized events from the **`stats`** daemon. The PRM library that normalizes **`stats`** logs considers two elements: the unique event type of the anomaly and the size of the anomaly.

In the above screen capture, it can be seen that each event starts out with the name "Statistics," followed by the unique LCE event type, and then the term "Large_Anomaly," "Medium_Anomaly," "Anomaly," or "Minor_Anomaly." This makes it very easy for an analyst to visually observe different types of interactions between different types of log sources. Additionally, each event is graphed from left to right, older events to newer events.

Type	Minimum number of standard deviations from the mean	Maximum number of standard deviations from the mean
Minor Anomaly	1.0	5.99
Anomaly	6.0	9.99
Medium Anomaly	10.0	99.99
Large Anomaly	100.00	999999.99

In the example below, consider the "Statistics-Outbound_Connection_Spike" event that occurred during this timeframe. For the entire monitoring period of the **`stats`** daemon, these events have never occurred in any type of magnitude. On February 23 at 2:35 PM, a statistical anomaly generated an event:



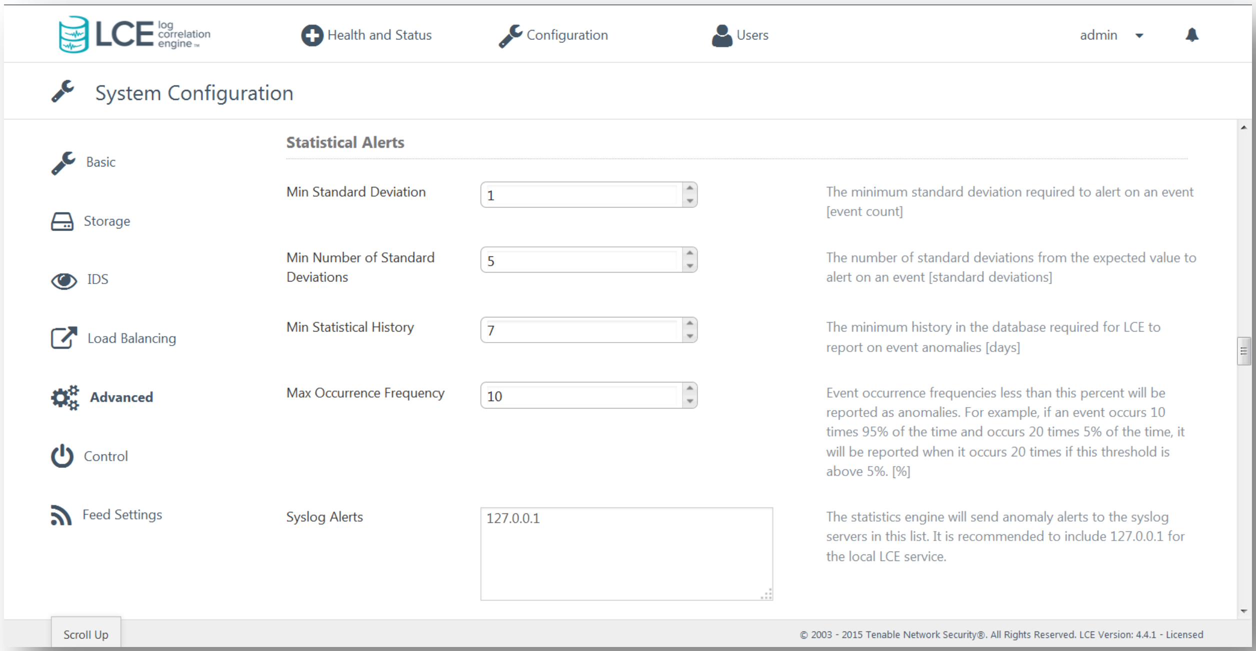
Time	Type	Sensor	Message
Feb 23, 2015 14:35	stats	Syslog	

```
stats: Feb 23 14:35:18 - 10.31.104.129 0.0.0.0 Statistics-Outbound_Connection_Spike window Feb 23 14:00:00 15:00:00 average 73.52 stddev 683.13 nhits 7366 stddev_units 10.68 freq 0.00
```

In this case, the normalized event "Statistics-Outbound_Connection_Spike" had a significant increase. The monitored IP address had more than 7366 events occur between 2:00 PM and 3:00 PM, whereas before 73.52 had been the average.

Configuring the Statistics Daemon

The `stats` daemon is located in the `/opt/lce/daemons` directory. Configuration options used to modify how the `stats` daemon operates are located in the LCE GUI within the "Configuration", "Advanced" section shown below.



Statistical Alerts

Min Standard Deviation	1	The minimum standard deviation required to alert on an event [event count]
Min Number of Standard Deviations	5	The number of standard deviations from the expected value to alert on an event [standard deviations]
Min Statistical History	7	The minimum history in the database required for LCE to report on event anomalies [days]
Max Occurrence Frequency	10	Event occurrence frequencies less than this percent will be reported as anomalies. For example, if an event occurs 10 times 95% of the time and occurs 20 times 5% of the time, it will be reported when it occurs 20 times if this threshold is above 5%. [%]
Syslog Alerts	127.0.0.1	The statistics engine will send anomaly alerts to the syslog servers in this list. It is recommended to include 127.0.0.1 for the local LCE service.

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Statistical Alert Options

Option	Description
Min Standard Deviation	This specifies the minimum standard deviation that must occur for an event before an alert will be generated for it. The higher this number, the more statistically significant a sequence of events needs to be before an alert is raised.
Min Number of Standard Deviations	If an event occurs more or less than 5.0 standard deviation units, an alert will be generated. Setting this value higher will cut down on any sequence of events that occurs close to the standard deviation.
Min Statistical History	This specifies the number of iterations (days) per-event that are required before alerts will be generated. If a large amount of LCE data is already present, set this number to a low value or even to zero. The `stats` daemon can be started to read in all or just part of the existing LCE data. If you have **no** LCE data, leave this value around 7 so the `stats` daemon will not alert on anything until it has seven days of event data.
Max Occurrence Frequency	If an event occurs less than 10% of the time, then an alert will be generated. Even if an event may be statistically significant, that sequence of events may also occur periodically. For example, 50% of the time you are within a standard deviation; however, occasionally (the other 50%) you have outliers two and three standard deviations away. Those outliers may be the cause of 90% of the alerts generated in this case. Setting this value to 10, 20 or other values would only alert for hours that were both out of the

	allotted standard deviation, and also are event counts that have not occurred before.

Syslog Alert	The `stats` daemon will generate syslog messages to one or more recipients. By default, a local address of 127.0.0.1 is used to send messages to the `lced` services. However, more than one syslog server can be configured on separate lines in the following format:
	
	`syslog-alert 127.0.0.1`
	`syslog-alert 192.168.10.10`

Explanation of Statistical Alerts Section

All log messages about operation, data analysis and discovered statistical behavior anomalies are logged to a date-based log file. By default, this is located in the `/opt/lce/admin/log/stats` directory. The "**Syslog Alerts**" setting is used to configure a destination to send syslog messages directly from the `stats` daemon. There is no need to configure a local syslog service. The `stats` daemon will generate the syslog message and send it to the receiving IP address. This is how events are sent to the LCE daemon. The local IP address of the `lced` syslog listener must be specified. In most cases, 127.0.0.1 will work. If this is not desirable, a LCE client can be used to monitor the `stats` log file directory in `/opt/lce/admin/logs/stats`.

The `stats` daemon applies statistical analysis to several indicators. Each hour, the `stats` daemon will consider each host, and compute the amount of server/client counts, internal/external/inbound counts, and event counts for each unique event type. It will then generate a statistical value for each of these types and alert accordingly if the values have exceeded the "**Min Number of Standard Deviations**" and "**Min Standard Deviation**".

In the "Statistical Alerts" section, the "**Min Standard Deviation**" is by default set to a standard deviation of one (1). This will cause the `stats` daemon to generate an alert for any set of events that occur with a standard deviation greater than one (1). The "Statistical Alerts" section also had a value of 5.0 for the "**Min Standard Deviation**" value and a value of ten (10) for the "**Max Occurrence Frequency**" setting. Please refer to the "Statistics Theory" section to learn more about these values.

The "Statistical Alerts" section also has a "**Min Statistical History**" setting. If set to zero (0) days, the `stats` daemon will begin alerting right away, and base all statistics on existing LCE data. This is ideal if enough existing LCE data is present. If the LCE has been newly installed, it is recommended to use the default "Statistical Alerts" setting of seven (7) days, which will allow the `stats` demon to run for a period of seven days before generating alerts.

Operating the Statistics Daemon

Command Line Options

The `stats` tool has only two command line options. The "**-m**" option tells it to begin monitoring the live LCE silos and the "**-d**" option takes one argument that tells it to only learn from the first specified number of days. Here are some examples:

Example Command	Description
`# ./stats -m`	Uses the entire existing set of data in all LCE silos to learn what is "normal" and begins live monitoring. This is the setting used when run as a daemon.
`# ./stats -m -d 5`	Same as above, but only uses the first five days of available LCE data, and then enables alerts and continues live monitoring.
`# ./stats`	Reads the entire set of LCE data and then prints out events that are statistically significant in the last hour.

`# ./stats -d 5`	Same as above, but will use the first five days data to learn then alert on the remaining data. Command will stop when finished processing through the data.

If the user does not specify "**`-m`**", then **`stats`** will exit as soon as it is done reading in the data in the LCE silos.

RC Scripts

The initial LCE RPM will also install a **`stats`** RC script into **`/etc/rc.d/init.d`** that can be used to start and stop the **`stats`** daemon.

Starting the stats Daemon

The **`stats`** daemon will print status messages to STDOUT. Users who run the **`stats`** daemon for the first time may appreciate seeing some of the logging messages. However, for those users who do not wish to keep an open shell or console, start the **`stats`** daemon redirected to **`/dev/null`**.

The desired way to start the **`stats`** daemon with no command line output and placed into the background is:

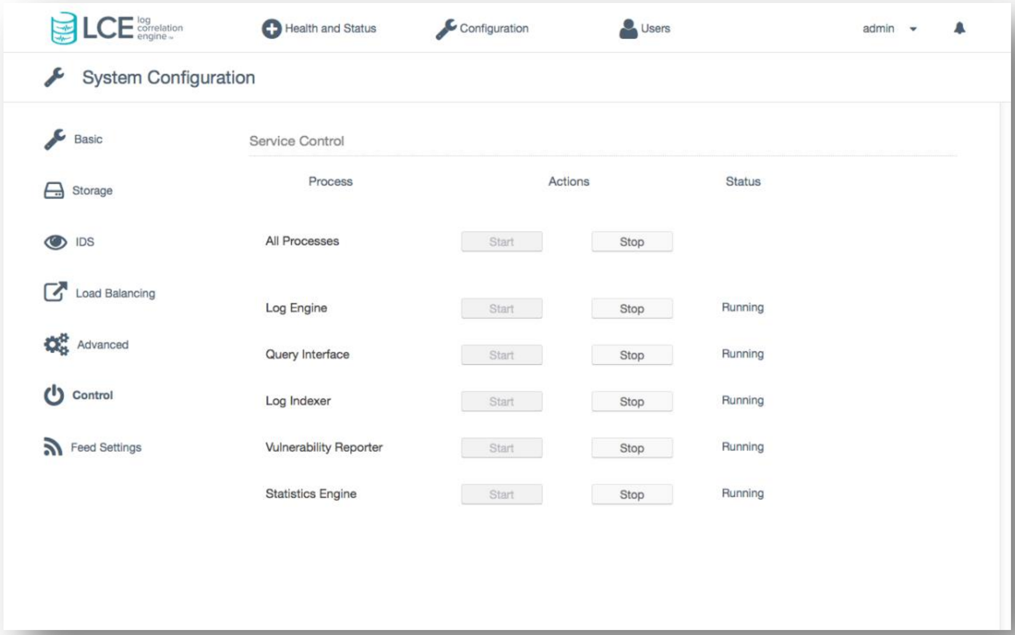
```
# ./stats -m > /dev/null &
```

Stopping the stats Daemon

To manually halt the **`stats`** daemon, use the **`kill`** command in order to cause it to exit. Otherwise, the provided RC script will also stop the **`stats`** daemon.

LCE GUI Control

The stats daemon, along with all the other services in LCE, can be controlled in the LCE GUI by selecting "Configuration" and then "Control" by simply selecting either "Start" or "Stop". The "Control" section also shows the current status of all services.



Process	Actions		Status
All Processes	Start	Stop	
Log Engine	Start	Stop	Running
Query Interface	Start	Stop	Running
Log Indexer	Start	Stop	Running
Vulnerability Reporter	Start	Stop	Running
Statistics Engine	Start	Stop	Running

Operational Log Messages

While running, the **`stats`** daemon will attempt to log various amounts of information. It does nothing until the hourly time change. The daemon will log which LCE silo it is looking at, how many events of interest it is analyzing and will also log when statistically significant event groupings have occurred.

Keeping State

The **`stats`** daemon, when executed from the command line, will quickly parse the entire set of data in the LCE database. Starting it with the **`–m`** option will not cause undue delay or system load and it will efficiently re-learn what is normal for all events.

System Load

There will be no excess system CPU, I/O, or memory load while the **`stats`** daemon is waiting to start its “on the hour” analysis. During the analysis, CPU impact may be noticeable, but it is extremely short in duration.

Statistics Daemon Network Model

The **`stats`** daemon builds up three different types of models when it reads the LCE database files:

- Model of counts for specific events (e.g., “Dragon - Port Scan”).
- Model of counts for the total number of inbound, outbound, and internal events (not specific to any one event).
- Model of counts for the total number of events where a host is the source or destination address (not specific to any one event).

Model of Event Counts for Specific Events

This model is intended to help identify changes in numbers of events for specific host/event pairs. For example, if typically a host has 20 “Dragon - Port Scan” events generated for it per day and this suddenly spikes up to 120 events per day, the **`stats`** daemon would generate an alert if configured to do so.

Note that this model differentiates between a host appearing as a source or destination address in an event. In other words, host 10.0.0.1 may, on average, appear 20 times a day as the source address in a “SnortICMP_Event” event and 30 times a day as the destination address in a “SnortICMP_Event” event. These are two different model counts as far as the **`stats`** daemon is concerned, and a jump in either might generate an event.

Inbound, Outbound and Internal Event Count Model

This model is intended to track how often a host’s traffic is inbound, outbound, and internal. For example, if an internal company file server suddenly starts initiating outbound traffic and causes the outbound traffic event counts to increase, the **`stats`** daemon would generate an alert. This model is not based on specific host/event pairs. Only the addresses are used in this model. The **`stats`** daemon uses the configured included networks when deciding what constitutes internal, outbound, or inbound traffic. Anything not in the included list of networks is considered outside or external to the “home” network.

Model of Client or Server Behavior

This model tracks whether a host is generally acting as a client or a server. It is designed to detect the case where a host that generally acts as a client suddenly starts behaving like a server. For instance, a typical user’s Windows machine will generally act like a client in that most of the traffic from the host will be initiated by the host. If the user’s machine is broken into and a backdoor shell is installed, the machine would start appearing more as a server as hackers connected to the shell.

Statistics Theory

The LCE **`stats`** daemon uses relatively simple statistics to build a model of “normal” traffic patterns in a network and detect when traffic deviates from that model. This section is intended to provide a brief description of the underlying mathematics used by the **`stats`** daemon.

Frequency Distribution

Suppose that during the course of a 30-day period the following number of failed SSH logins are observed at a large university. A count for the number of failed SSH logins for each day is entered in the table:

Failed SSH Login Count During 30 Day Period
10 12 7 15 19 4 10 6 18 11
12 5 5 11 13 12 8 8 16 14
5 13 8 12 8 10 4 16 12 11

Viewed this way, the data does not elicit much useful information. However, if we organize this data into groups we can obtain a quantitative measure of how often we receive a certain number of failed SSH login events each day.

Interval	Frequency	Relative Frequency
0.5-2.5	0	0.00
2.5-4.5	2	0.06
4.5-6.5	3	0.10
6.5-8.5	5	0.16
8.5-10.5	3	0.10
10.5-12.5	9	0.30

12.5-14.5	3	0.10
14.5-16.5	3	0.10
16.5-18.5	1	0.03
18.5-20.5	1	0.03
	30	1.00

The previous table is a frequency distribution table. The relative frequencies in the table represent the probabilities of seeing a certain number of failed SSH login events per day given our current sample set of 30 days.

Examining the table, we see that during the 30-day interval there were no days where we saw only one or two failed SSH login events. If we were to use this table to predict the chances of getting one or two events per day in the future, we would say that the likelihood of this is 0.0%. Similarly, the likelihood of seeing 11 or 12 failed login events on a given day is 30.0% according to this table.

Calculating the relative frequency of events is one way the LCE **`stats`** daemon determines deviations from normal traffic patterns. The relative frequency allows the **`stats`** daemon to determine how likely or unlikely it is to see a certain number of events for a given host.

Measures of Central Tendency

In order to determine the "normal" traffic patterns for a host, the **`stats`** daemon also calculates the average number of events received per-host during each hour of the day. By calculating the average, the **`stats`** daemon can approximate the center of the range of event counts for a host. This center point is then used as the baseline for what constitutes "normal" traffic event counts for this host.

Given a set of n elements x1, x2, ... xn, we can determine the average of the data set using the following formula:

$$\sum_{i=1}^{n} \frac{xi}{n} = \frac{x1 + x2 + \cdots + x_n}{n}$$

This average is also known as the arithmetic mean.

Standard Deviation

While the average of the event counts can show where the approximate center of the data distribution lies, it does not show us how widely dispersed the data is around the center point.

For example, suppose we are given the following set of numbers:

$$\boxed{0, 20, 0, 20}$$

The average of these numbers is:

$$\frac{0 + 20 + 0 + 20}{4} = 10$$

Now suppose we are also given a second set of numbers:

$$\boxed{9, 11, 9, 11}$$

The average of this data set is also 10:

$$\frac{9+11+9+11}{4} = 10$$

The average of the two data sets is the same. However, the second data set contains numbers that are much closer to the average than those in the first set. In other words, the numbers in the first data set have a wider deviation from the average while the numbers in the second data deviate from the average by only a small amount.

Deviation from Average for Data Set 1	
Number	**(Number - Average)**
0	-10
20	10
0	-10
20	10

Deviation from Average for Data Set 2	
Number	**(Number - Average)**
9	-1
11	1
9	-1
11	1

The set of deviations for each element in the data sets may be combined to calculate a single number known as the standard deviation. The standard deviation is a single measure of variation that can be used to describe how widely dispersed the elements in a data set are from the data set's average.

The formula for standard deviation of a set of n measurements x1, x2, ... xn with an average x0 is given by:

$$\sqrt{\frac{\sum_{i=1}^{n}(x - x')}{n}}$$

Standard Deviation Units

Given the average and the standard deviation of the number of events per host, the **`stats`** daemon now has a model of what constitutes "normal" traffic for a host. For example, if a host averages 10 failed SSH login events per day with a standard deviation of 2, then the **`stats`** daemon will expect to generally see around 8 to 12 failed SSH login events for that host.

Now, suppose the **`stats`** daemon observes 16 failed SSH logins for this same host. How far away from "normal" these 16 failed logins are can be measured as follows:

$$\frac{16 - average}{standard\ deviation} = \frac{16 - 10}{2} = 3$$

Using the standard deviation (2) as a unit of measurement, the result, 3, tells us that getting 16 failed logins in one day is three (3) standard deviation units away from the average.

Whether the **`stats`** daemon alerts on this depends on how it is configured. If it were configured to alert when it sees a variation larger than two standard deviation units, then it would generate a new LCE event in this case.

Measuring variation in terms of standard deviation units allows the **`stats`** daemon to measure change relative to each data set's average and standard deviation. For example, even though getting 16 failed SSH login events is a large variation from the average (3 units) getting 16 of some other kind of event (say, Windows login events) may not necessarily be that great a change from the average for Windows login events.

Standard Deviation Combined with Relative Frequency

Standard deviation units and relative frequency are both used by the **`stats daemon`** to determine when to alert on event count variations. Thresholds for both of these numbers are configurable by the user and determine how "sensitive" the **`stats`** daemon is when measuring change.

For instance, going back to our original example:

Failed SSH Login Count During 30 Day Period

10 12 7 15 19 4 10 6 18 11
12 5 5 11 13 12 8 8 16 14
5 13 8 12 8 10 4 16 12 11

The average for this data set is 10.5 and the standard deviation unit is approximately 4. The frequency distribution for this data set is repeated below:

Interval	Frequency	Relative Frequency
0.5-2.5	0	0.00
2.5-4.5	2	0.06
4.5-6.5	3	0.10
6.5-8.5	5	0.16
8.5-10.5	3	0.10
10.5-12.5	9	0.30
12.5-14.5	3	0.10
14.5-16.5	3	0.10
16.5-18.5	1	0.03
18.5-20.5	1	0.03
	30	1.00

Suppose the **`stats`** daemon has been configured to alert when the relative frequency for an event count is below 10.0% and the event count is above one (1) standard deviation unit. If the **`stats`** daemon sees 18 failed SSH login events it will alert. This is because the relative frequency (3.0%) is below the threshold (10.0%) and 18 failed logins is over one standard deviation unit away.

Tuning the Statistics Daemon

How much data is enough to determine what is normal?

There is no direct answer to this question. In practice, Tenable tells customers to have at least one week's worth of LCE data. However, if certain events occur on a monthly basis, expect some statistical events to be generated at that time.

Frequently, customers have told Tenable that the **`stats`** daemon has highlighted "normal" events for which there was no prior understanding of in the first place. For example, one customer found that there were a large number of file transfer events each night.

One very useful thing about the **`stats`** daemon is that if there is not enough data, the amount of alerts starts to drop as more data comes in. For example, consider the customer that was receiving large numbers of file transfer events each night. After several nights of this activity, the **`stats`** daemon began to recognize this traffic as "normal" and stopped alerting on it.

What about adding in new events?

If new event types are added to the LCE (such as adding a new type of firewall log source or adding web logs when none existed before), the **`stats`** daemon will immediately generate new events. However, as several days of data of these new events accumulate they will be recognized as "normal" events.

Manually Testing Existing Data

By running the **`stats`** daemon using the "**`-d <#days>`**" option without "**`-m`**", users can use the existing set of LCE data to see what would have alerted. This is also an excellent way to tune the "Statistical Alerts" section of the LCE until only very significant event groupings are highlighted.

For More Information

Tenable has produced a variety of other documents detailing the LCE's deployment, configuration, user operation, and overall testing. These documents are listed here:

- Log Correlation Engine 4.2 Architecture Guide – provides a high-level view of LCE architecture and supported platforms/environments.
- Log Correlation Engine 4.4 Administrator and User Guide – describes installation, configuration, and operation of the LCE.
- Log Correlation Engine 4.4 Quick Start Guide – provides basic instructions to quickly install and configure an LCE server. A more detailed description of configuration and management of an LCE server is provided in the "LCE Administration and User Guide" document.
- Log Correlation Engine 4.4 Client Guide – how to configure, operate, and manage the various Linux, Unix, Windows, NetFlow, and other clients.
- Log Correlation Engine 4.4 OPSEC Client Guide – how to configure, operate, and manage the OPSEC Client.
- LCE 4.4 High Availability Large Scale Deployment Guide – details various configuration methods, architecture examples, and hardware specifications for performance and high availability of large scale deployments of Tenable's Log Correlation Engine (LCE).
- LCE Best Practices – Learn how to best leverage the Log Correlation Engine in your enterprise.
- Tenable Event Correlation – outlines various methods of event correlation provided by Tenable products and describes the type of information leveraged by the correlation, and how this can be used to monitor security and compliance on enterprise networks.
- Tenable Products Plugin Families – provides a description and summary of the plugin families for Nessus, Log Correlation Engine, and the Passive Vulnerability Scanner.
- Log Correlation Engine Log Normalization Guide – explanation of the LCE's log parsing syntax with extensive examples of log parsing and manipulating the LCE's **`.prm`** libraries.
- Log Correlation Engine TASL Reference Guide – explanation of the Tenable Application Scripting Language with extensive examples of a variety of correlation rules.
- Log Correlation Engine 4.4 Statistics Daemon Guide – configuration, operation, and theory of the LCE's statistic daemon used to discover behavioral anomalies.

- Log Correlation Engine 3.6 Large Disk Array Install Guide – configuration, operation, and theory for using the LCE in large disk array environments.
- Example Custom LCE Log Parsing - Minecraft Server Logs – describes how to create a custom log parser using Minecraft as an example.

Documentation is also available for Nessus, the Passive Vulnerability Scanner, and SecurityCenter through the Tenable Support Portal located at https://support.tenable.com/.

There are also some relevant postings at Tenable's blog located at http://www.tenable.com/blog and at the Tenable Discussion Forums located at https://discussions.nessus.org/community/lce.

For further information, please contact Tenable at support@tenable.com, sales@tenable.com, or visit our web site at http://www.tenable.com/.

About Tenable Network Security

Tenable Network Security provides continuous network monitoring to identify vulnerabilities, reduce risk and ensure compliance. Our family of products includes SecurityCenter Continuous View™, which provides the most comprehensive and integrated view of network health, and Nessus®, the global standard in detecting and assessing network data. Tenable is relied upon by more than 20,000 organizations, including the entire U.S. Department of Defense and many of the world's largest companies and governments. For more information, visit tenable.com.