

# LTTng

Brian Finelli

# Purpose

- Linux Trace Toolkit - next generation
- Linux Kernel Tracer
  - Like logging low level events
- Allows for tracing system calls, interrupt requests, other kernel events
- Also has user space tracing
- LTTng has other useful modules as well

# Setup

- `sudo apt-get install lttng-tools`
- also has git repositories for tools, babeltrace, etc.

# Setup

- list kernel events:
  - `ltnng list -k`
- Create a session
  - `ltnng create sessionName`
- specify events to trace:
  - `ltnng enable-event ... -k`

```
lttng@lttng-Desktop:~$ sudo usermod -aG tracing lttng
[sudo] password for lttng:
lttng@lttng-Desktop:~$ su lttng
Password:
lttng@lttng-Desktop:~$ lttng create mySession
Session mySession created.
Traces will be written in /home/lttng/lttng-traces/mySession-20120730-1154
54
lttng@lttng-Desktop:~$ lttng enable-event sched_switch -k
```

```
lttng@lttng-Desktop:~$ lttng -h
LTTng Trace Control 2.0.1 - Annedd'ale
```

```
usage: lttng [OPTIONS] <COMMAND>
```

#### Options:

-h, --help	Show this help
--list-options	Simple listing of lttng options
--list-commands	Simple listing of lttng commands
-v, --verbose	Increase verbosity
-q, --quiet	Quiet mode
-g, --group NAME	Unix tracing group name. (default: tracing)
-n, --no-sessiond	Don't spawn a session daemon
--sessiond-path PATH	Session daemon full path

#### Commands:

add-context	Add context to event and/or channel
calibrate	Quantify LTTng overhead
create	Create tracing session
destroy	Tear down tracing session
enable-channel	Enable tracing channel
enable-event	Enable tracing event
disable-channel	Disable tracing channel
disable-event	Disable tracing event
list	List possible tracing options
set-session	Set current session name
start	Start tracing
stop	Stop tracing
version	Show version information
view	Start trace viewer

Each command also has its own -h, --help option.

Please see the `lttng(1)` man page for full documentation.  
See <http://lttng.org> for updates, bug reports and news.  
lttng@lttng-Desktop:~\$

- Ittng start mySession
- Ittng stop mySession

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[sudo] password for lttng:
lttng@lttng-Desktop:~$ su lttng
Password:
lttng@lttng-Desktop:~$ lttng create mySession
Session mySession created.
Traces will be written in /home/lttng/lttng-traces/mySession-20120730-115454
lttng@lttng-Desktop:~$ lttng enable-event sched_switch -k
kernel event sched_switch created in channel channel0
lttng@lttng-Desktop:~$ lttng enable-event -a -k
All kernel events are enabled in channel channel0
lttng@lttng-Desktop:~$ lttng start
```

Press Esc to exit full screen mode.

```
lttng@lttng-Desktop:~$ lttng -h
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stop	Stop tracing
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kernel event sched_switch created in channel channel0
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All kernel events are enabled in channel channel0
lttng@lttng-Desktop:~$ lttng start
Tracing started for session mySession
lttng@lttng-Desktop:~$ lttng stop
Tracing stopped for session mySession
lttng@lttng-Desktop:~$
```

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lttng@lttng-Desktop:~$ lttng -h
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```
lttng@lttng-Desktop:~$
```



- Ittng view mySession
- Ittng destroy mySession

```
[11:58:53.914599326] (+0.000002530) sched_stat_runtime: { cpu_id = 0 }, { comm = "ltnng-sessiond", tid = 7828, runtime = 31092, vruntime = 648619376 }
[11:58:53.914601262] (+0.000001936) sched_stat_wait: { cpu_id = 0 }, { comm = "ltnng", tid = 8213, delay = 31092 }
[11:58:53.914601832] (+0.000000570) sched_switch: { cpu_id = 0 }, { prev_comm = "ltnng-sessiond", prev_tid = 7828, prev_prio = 20, prev_state = 1, next_comm = "ltnng", next_tid = 8213, next_prio = 20 }
[11:58:53.914614099] (+0.000012267) exit_syscall: { cpu_id = 0 }, { ret = 0 }
[11:58:53.914616157] (+0.000002058) sys_geteuid: { cpu_id = 0 }, { }
[11:58:53.914616672] (+0.000000515) exit_syscall: { cpu_id = 0 }, { ret = 1000 }
[11:58:53.914617757] (+0.000001085) sys_getegid: { cpu_id = 0 }, { }
[11:58:53.914618099] (+0.000000342) exit_syscall: { cpu_id = 0 }, { ret = 1000 }
[11:58:53.914619345] (+0.000001246) sys_sendmsg: { cpu_id = 0 }, { fd = 3, msg = 0x7FFFFE445DB0, flags = 0 }
[11:58:53.914670963] (+0.0000051618) sched_stat_sleep: { cpu_id = 0 }, { comm = "ltnng-sessiond", tid = 7828, delay = 71110 }
[11:58:53.914672191] (+0.000001228) sched_wakeup: { cpu_id = 0 }, { comm = "ltnng-sessiond", tid = 7828, prio = 120, success = 1, target_cpu = 0 }
[11:58:53.914674237] (+0.000002046) sched_stat_runtime: { cpu_id = 0 }, { comm = "ltnng", tid = 8213, runtime = 71110, vruntime = 1746552372 }
[11:58:53.914675188] (+0.000000951) sched_stat_wait: { cpu_id = 0 }, { comm = "ltnng-sessiond", tid = 7828, delay = 0 }
[11:58:53.914675990] (+0.000000802) sched_switch: { cpu_id = 0 }, { prev_comm = "ltnng", prev_tid = 8213, prev_prio = 20, prev_state = 0, next_comm = "ltnng-sessiond", next_tid = 7828, next_prio = 20 }
[11:58:53.914706963] (+0.000030973) exit_syscall: { cpu_id = 0 }, { ret = 8784 }
[11:58:53.914715666] (+0.000008703) sys_ioctl: { cpu_id = 0 }, { fd = 101, cmd = 62988, arg = 0 }
[11:58:53.914722291] (+0.000006625) exit_syscall: { cpu_id = 0 }, { ret = 0 }
[11:58:53.914723983] (+0.000001692) sys_ioctl: { cpu_id = 0 }, { fd = 26, cmd = 62988, arg = 139994928790856 }
```

```
ltnng@ltnng-Desktop:~$ ltnng -h
LTTng Trace Control 2.0.1 - Annedd'ale
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```
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ltnng@ltnng-Desktop:~$ ltnng destroy mySession
Session mySession destroyed

```

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# Resources

<https://Ittng.org/>

<https://www.youtube.com/user/Ittng>