



## Basic Commands

### Prerequisite

Install Linux kernel header package(s) if you want to collect data using the LiKI DKLM module. See the LinuxKI MasterClass documentation for more details.

### Installation:

```
rpm --install --nodeps linuxki-7.0-1.noarch.rpm
dpkg --install linuxki_7.0-1_all.deb
```

### Add LinuxKI to your PATH variable:

```
export PATH=$PATH:/opt/linuxki
```

### Collect KI Dump:

```
cd /dev/shm # if memory is available
runki [-d <secs>] # default is 20 secs
```

*IMPORTANT NOTE: The longer the trace collection, the larger the resulting LinuxKI trace dump. Be sure you have plenty of disk space or space in /dev/shm to collect your LinuxKI trace dump!*

### Post-process KI Dump data

```
kiall [-r]
```

### Mounting the debug filesystem (debugfs)

```
mount -t debugfs debugfs /sys/kernel/debug
```

*Note: Most Linux versions now mount /sys/kernel/debug by default.*

### Curses-base live mode

```
kiinfo -live [-a <secs>] # default is 5 secs
```

### Clean-up KI files in cwd

```
kiclean -p -v -f
```

## KI dump collection Examples

### KI dump help

```
runki -h
```

### Collect for 60 seconds

```
runki -d 60
```

### Collect using ftrace with all events

```
runki -f
```

### Collect with Advanced CPU statistics

```
runki -R
```

### Collect and include scsi subsys

```
runki -e default -s scsi
```

### Collect with Collect/MW, sar, perf data and Java stacks

```
runki -M -U -X -j
```

### Collect with all subsystems, excluding some system calls

```
echo "time" >sysignore
echo "futex" >>sysignore
echo "gettimeofday" >>sysignore
runki -e all -I sysignore
```

### Collect using PID filtering for 2 minutes

```
runki -P 26814 -d 120
```

### Collect data and add a comment

```
runki -c "slow run, only 30 MB/sec"
```

## KI Dump Post Processing Examples

### Post-processing help

```
kiall -h
```

### Create <hostname>/<timestamp> subdir structure

```
kiall -r
```

### Create Visualization charts and graphs

```
kiall -V
```

### Create Kparse Report in text format

```
kiall -x
```

## Online kiinfo Examples

### kiinfo help

```
kiinfo -h
```

### PID Analysis Report with multiple PID filters for 30 seconds

```
kiinfo -kipid pid=6814,pid=6815,scdetail -a 30
```

### Disk Analysis report to show top 10 pids accessing a specific dev every 5 seconds for a minute

```
kiinfo -kidsk dev=0x00800010,npid=10 -a 5 -p 12
```

### CPU/RunQ Analysis with Advanced CPU statistics

```
kiinfo -kirunq events=default,msr -a 5
```

### Show just SCSI Synchronize Cache commands for 1 minute

```
kiinfo -kitrace subsys=scsi -a 60 | grep -i
synchronize_cache
```

## KI Dump kiinfo Examples

### PID Analysis Report with System Call details, Cooperating Task details, and per-pid RunQ Histogram

```
kiinfo -kipid scdetail,coop,rqhist -ts
0416_1523
```

### PID Analysis Report with Time filtering

```
kiinfo -kipid scdetail -start 3.0 -end 4.0 -ts
0416_1523
```

### Disk Analysis Report with modify I/O Histogram

```
echo "2 5 10 20 50 100" >bkfname
kiinfo -kidsk bkfname=bkfname -ts 0416_1523
```

### Kitrace Report with formatted time and the per-cpu sequence counter for a specific CPU

```
kiinfo -kitrace seqcnt,fmttime,cpu=4 -ts
0416_1523
```

## Kiinfo -live Commands Menu

### Global Statistics and Select

s - Select Task/CPU/Disk  
g - Global Task List  
l - Global Node Stats  
c - Global CPU Stats  
p - Global Prof Stats  
h - Global HT CPU Stats  
i - Global IRQ Stats  
d - Global Disk Stats  
m - Global Mpath Stats  
y - Global WWN Stats  
z - Global HBA Stats  
t - Global IO by PID  
f - Global File Stats  
w - Global Wait Stats  
u - Global Futex Stats  
n - Global Socket Stats  
k - Global Docker Stats

### Per-Task Statistics and Selective Statistics

G - Task Main Stats  
D - Task Disk Stats  
M - Task Mpath Stats  
L - Task System Calls  
W - Task Wait Stats  
P - Task Profile Stats  
F - Task File Stats  
O - Task Coop Stats  
U - Task Futex Stats  
  
C - Select CPU Stats  
T - Select Disk Stats  
I - Select IRQ Stats  
K - Select Docker Stats  
X - Select Futex Stats

### Control and Miscellaneous Commands

? - Help  
r - Refresh  
b - Prev Screen  
+ - Show Syscall Detail  
- - Hide Syscall Detail

#### *Online mode only*

a - Set Alarm Interval  
e - Exclude Syscall  
E - Show Excl Syscalls

#### *Dump mode only from LiKI traces*

> - Next Step  
< - Prev Step  
j - Step Time  
J - Jump to Time

```
runki [-h] [-L] [-M] [-U] [-X] [-a] [-j] [-J path] [-f | -p] [-n interface] [-v] [-d duration] [-t maxrun] [-P pid] [-G tgid] [-C cpu] [-D dev]
[-R] [-e vent] [-s subsys] [-I sysignore] [-T timestamp] [-c "comment"]
```

```
-h          Help
-L          Gather minimal data for local analysis...no gzip/tar
-M          Include Collectl/MeasureWare data collection
-U          Include userspace profile (perf) data collection
-X          Include sar data collection
-a          Execute 'perf annotate' on userspace profile (perf) data
-j          Collect Java stacks
-J <path>   Location of Java jstack command
-n <interface> Gather tcpdump trace data
-v          Skip vxfs, misc disc data collection
-d <secs>   Duration of KI data collection. Defaults to 20 secs if not specified.
-t <secs>   Maximum time for data collection tools to run. Defaults to 120 secs if not specified.
-p          Skip Per-PID data (lsof, stacks, numa_maps, maps)
-f          Use ftrace tracing instead of liKI DLKM tracing to dump trace data.
-P <pid>    Filter collection on Task ID or PID (LiKI only)
-G <tgid>    Filter collection on Task Group ID or TGID (LiKI only)
-C <cpu>    Filter collection on cpu (LiKI only)
-D <dev>    Filter collection on device (LiKI only)
-R          Advance CPU stats (Freq, CPI, LLC Hit%) using MSR registers (LiKI only)
-e <event>   Identify events to dump. Possible values are: default | all | <event>
-s <subsys>  Identify subsys to dump. For example: irq, scsi, block, etc.
-I <sysignore> File to specify ignored system call (liki only)
-T <timestamp> Should be of the form MMDD_HHMM
-V "<varargs>" Specify multiple filters and flags to pass to kiinfo -likidump
-c "comment" echo comment into comment.$tag file
```

```
kiall [-h] [-l] [-m] [-r] [-f] [-c] [-x] [-t timestamp]
```

```
-h          Help
-l          Lite version - bypasses some options
-m          Do not process collectl or MWA data
-r          restore into created subdir - <host>/<MMDD_HHMM>
-f          Find KI files in pwd and any directories below
-c          Cluster-wide processing
-x          Generate Kparse text format instead of html format
-M          Leave C++ function names mangled
-B          Add Disk Block Frequency stats to Kparse report
-V          Use visualization options where possible in reports
-P [num_threads] Number of parallel threads for Visualization processing
              default=0 - Use 1 threads per logical core
-t <timestamp> Only process KI budle with matching timestamp
```

```
kiclean [-h] [-r] [-f] [-p] [-v]
```

```
-h          Help
-r          Recursively traverse sudirs looking for KI data to archive
-p          Remove PIDS subdirectory
-v          Remove VIS subdirectory & rel. sh/php/html files
-f          Force remove misc/tmp files
```