Alibaba Cloud Report

Alibaba config list: https://github.com/wenhuizhang/kconfig-safety-check/tree/master/config_files/alibaba

Tool usage: "./bin/kconfig-safety-check -p X86_64 -c ./config_files/aws/* -m show_fail -e prod"

1. config-2.6.18-371.11.1.el5.x86_64-centos5

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-2.6.18-371.11.1.el
2 [+] Special report mode: show_fail
3 [+] Kconfig file to check: ./config_files/alibaba/config-2.6.18-371.11.1.el5.x86_64-centos
4 [+] Detected architecture: X86_64
5 [+] Detected kernel version: 2.6.18
6 2.6.18
  type |desired val | decision |
              option name
10 CONFIG_KEXEC
                                     |kconfig|
                                                       |ELISA_safety|Kernel Memory:K
11 CONFIG_KPROBES
                                     |kconfig|
                                                       |ELISA_safety|Stack memory:En
12 CONFIG_KALLSYMS
                                                       |ELISA_safety|Stack memory:En
                                     |kconfig|
13 CONFIG_PROVE_LOCKING
                                                       |ELISA_safety|Debug:Kernel mo
                                     |kconfig|
                                                       |ELISA_safety| Debug:RT mutex
14 CONFIG_DEBUG_RT_MUTEXES
                                     |kconfig|
15 CONFIG_DEBUG_SPINLOCK
                                                       |ELISA_safety| Debug:RT mutex
                                     |kconfig|
16 CONFIG_DEBUG_MUTEXES
                                     |kconfig|
                                                       |ELISA_safety| Debug:RT mutex
17 CONFIG_DEBUG_LOCK_ALLOC
                                                       |ELISA_safety| Debug:RT mutex
                                     |kconfig|
  CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                     |kconfig|
                                                       |ELISA_safety| Debug:RT mutex
19 CONFIG_RCU_TORTURE_TEST
                                     |kconfig|
                                                        |ELISA_safety| Debug:RT mutex
20
21 [+] Config check is finished: 'OK' - 2 (suppressed in output) / 'FAIL' - 10
```

2. config-2.6.32-754.35.1.el6.x86_64-centos6

```
% ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-2.6.32-754.35.1.e
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-2.6.32-754.35.1.el6.x86_64-centos
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 2.6.32
 6 2.6.32
 | type | desired val | decision |
                option name
 10 CONFIG_SLUB_DEBUG
                                         |kconfig|
                                                            |ELISA_safety|Memory manageme
11 CONFIG_DEBUG_SG
                                         |kconfig|
                                                             |ELISA_safety|Driver: Heap ov
                                                      У
12 CONFIG_KMEM
                                         |kconfig|
                                                              Intel
                                                                      |Kernel Memory:Ker
                                                      n
                                                             |ELISA_safety, Intel|Kernel M
13 CONFIG_DEVPORT
                                         |kconfig|
                                                      n
14 CONFIG_HIBERNATION
                                                             |ELISA_safety|Kernel Memory:K
                                         |kconfig|
15 CONFIG_KEXEC
                                                             |ELISA_safety|Kernel Memory:K
                                         |kconfig|
                                                      n
16 CONFIG_COMPAT_BRK
                                         |kconfig|
                                                            |ELISA_safety|Heap memory:R/W
                                                      n
                                                             |ELISA_safety|Stack memory:En
17 CONFIG_KPROBES
                                         |kconfig|
18 CONFIG_PROC_KCORE
                                                             |ELISA_safety|Stack memory:En
                                         |kconfig|
                                                      n
19 CONFIG_KALLSYMS
                                                            |ELISA_safety|Stack memory:En
                                         |kconfig|
20 CONFIG_PROVE_LOCKING
                                         |kconfig|
                                                             |ELISA_safety|Debug:Kernel mo
                                                      У
21 CONFIG_DEBUG_RT_MUTEXES
                                                             |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
22 CONFIG_DEBUG_NOTIFIERS
                                                             |ELISA_safety|Debug:Notificat
                                         |kconfig|
                                                      У
23 CONFIG LOCK STAT
                                                             |ELISA_safety|Debug:Notificat
                                         |kconfig|
                                                      У
24 CONFIG_DEBUG_SPINLOCK
                                                             |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
25 CONFIG_DEBUG_MUTEXES
                                                             |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
26 CONFIG_DEBUG_LOCK_ALLOC
                                                             |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
27 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                                             |ELISA_safety| Debug:RT mutex
                                        |kconfig|
                                                      У
28 CONFIG_RCU_TORTURE_TEST
                                                             |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
29 CONFIG_SECURITY_WRITABLE_HOOKS
                                         |kconfig|
                                                             |ELISA_security|Linux Securit
                                                      n
30 CONFIG_SECURITY_INFINIBAND
                                         |kconfig|
                                                             |ELISA_security|Linux_Securit
31 CONFIG_SECURITY_PATH
                                         |kconfig|
                                                            |ELISA_security|Linux Securit
                                                      У
32 CONFIG_LSM_MMAP_MIN_ADDR
                                                            |ELISA_security|Linux Securit
                                         |kconfig|
                                                      У
33 CONFIG_HAVE_HARDENED_USERCOPY_ALLOCATOR | kconfig|
                                                            |ELISA_security|Linux Securit
                                                      У
34 CONFIG_STATIC_USERMODEHELPER
                                         |kconfig|
                                                             |ELISA_security|Linux Securit
                                                      У
35 CONFIG_STATIC_USERMODEHELPER_PATH
                                                             |ELISA_security|Linux Securit
                                         |kconfig|
                                                      У
36 CONFIG_DEFAULT_SECURITY_DAC
                                         |kconfig|
                                                             |ELISA_security|Linux Securit
                                                      У
38 [+] Config check is finished: 'OK' - 14 (suppressed in output) / 'FAIL' - 27
```

3. config-3.10.0-1160.62.1.el7.x86_64-centos7

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-3.10.0-1160.62.1.e
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-3.10.0-1160.62.1.el7.x86_64-cento
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 3.10.0
 6 3.10.0
 | type | desired val | decision |
                option name
 10 CONFIG_DEBUG_SG
                                         |kconfig|
                                                            |ELISA_safety|Driver: Heap ov
11 CONFIG_KMEM
                                         |kconfig|
                                                              Intel | Kernel Memory:Ker
12 CONFIG_DEVPORT
                                         |kconfig|
                                                            |ELISA_safety, Intel|Kernel M
13 CONFIG_ACPI_CUSTOM_METHOD
                                                            |ELISA_safety|Kernel Memory:K
                                         |kconfig|
                                                      n
14 CONFIG_LEGACY_PTYS
                                                            |ELISA_safety|Kernel Memory:K
                                         |kconfig|
15 CONFIG_HIBERNATION
                                                             |ELISA_safety|Kernel Memory:K
                                         |kconfig|
                                                      n
16 CONFIG_KEXEC
                                         |kconfig|
                                                            |ELISA_safety|Kernel Memory:K
                                                      n
17 CONFIG_SECURITY_DMESG_RESTRICT
                                                            |ELISA_safety|Kernel Memory:D
                                         |kconfig|
                                                      У
                                                            |ELISA_safety|Heap memory:R/W
18 CONFIG_COMPAT_BRK
                                         |kconfig|
                                                      n
19 CONFIG_KPROBES
                                                            |ELISA_safety|Stack memory:En
                                         |kconfig|
                                                      n
20 CONFIG_PROC_KCORE
                                         |kconfig|
                                                            |ELISA_safety|Stack memory:En
21 CONFIG KALLSYMS
                                                            |ELISA_safety|Stack memory:En
                                         |kconfig|
                                                      n
22 CONFIG_PROVE_LOCKING
                                                            |ELISA_safety|Debug:Kernel mo
                                         |kconfig|
                                                      У
23 CONFIG DEBUG RT MUTEXES
                                                            |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
24 CONFIG_DEBUG_NOTIFIERS
                                                            |ELISA_safety|Debug:Notificat
                                         |kconfig|
                                                      У
25 CONFIG_LOCK_STAT
                                                            |ELISA_safety|Debug:Notificat
                                         |kconfig|
                                                      У
26 CONFIG DEBUG SPINLOCK
                                                            |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
27 CONFIG_DEBUG_MUTEXES
                                                            |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
28 CONFIG_DEBUG_LOCK_ALLOC
                                                            |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
29 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                                            |ELISA_safety| Debug:RT mutex
                                         |kconfig|
                                                      У
30 CONFIG_RCU_TORTURE_TEST
                                         |kconfig|
                                                            |ELISA_safety| Debug:RT mutex
31 CONFIG_DEBUG_ATOMIC_SLEEP
                                         |kconfig|
                                                            |ELISA_safety| Debug:RT mutex
                                                      У
32 CONFIG_SECURITY_WRITABLE_HOOKS
                                                            |ELISA_security|Linux Securit
                                         |kconfig|
                                                      n
33 CONFIG_LSM_MMAP_MIN_ADDR
                                         |kconfig|
                                                            |ELISA_security|Linux Securit
                                                      У
34 CONFIG_STATIC_USERMODEHELPER
                                         |kconfig|
                                                             |ELISA_security|Linux Securit
                                                      У
35 CONFIG_STATIC_USERMODEHELPER_PATH
                                                            |ELISA_security|Linux Securit
                                         |kconfig|
                                                      У
36 CONFIG_DEFAULT_SECURITY_DAC
                                         |kconfig|
                                                            |ELISA_security|Linux Securit
                                                      У
38 [+] Config check is finished: 'OK' - 18 (suppressed in output) / 'FAIL' - 27
```

4. config-4.18.0-348.7.1.el8_5.x86_64-centos8

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-4.18.0-348.7.1.el8
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-4.18.0-348.7.1.el8_5.x86_64-cento
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 4.18.0
 6 4.18.0
 | type | desired val | decision |
 8
                 option name
                                                                                reason
 9
10 CONFIG_SLAB_FREELIST_HARDENED
                                          |kconfig|
                                                               |ELISA_safety, Intel|Memory m
                                                       У
11 CONFIG_REFCOUNT_FULL
                                                               |ELISA_safety|Kernel Memory r
                                          |kconfig|
                                                       У
                                                               |ELISA_safety|GCC, plugins, S
12 CONFIG_GCC_PLUGIN_STRUCTKLEAK
                                          |kconfig|
                                                       У
13 CONFIG_GCC_PLUGIN_STRUCTLEAK_BYREF_ALL
                                                               |ELISA_safety|GCC, plugins, S
                                          |kconfig|
                                                        У
                                                               |ELISA_safety, Intel|Stack me
14 CONFIG_SCHED_STACK_END_CHECK
                                          |kconfig|
                                                        У
15 CONFIG_PAGE_POISONING_NO_SANITY
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:St
                                                        n
                                                               |ELISA_safety|Driver: Heap ov
16 CONFIG_DEBUG_SG
                                          |kconfig|
                                                        У
17 CONFIG_KMEM
                                                                 Intel
                                                                         |Kernel Memory:Ker
                                          |kconfig|
                                                        n
18 CONFIG_DEVMEM
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        n
                                                               |ELISA_safety, Intel|Kernel M
19 CONFIG_DEVPORT
                                          |kconfig|
                                                        n
                                                               |ELISA_safety|Kernel Memory:K
20 CONFIG_ACPI_CUSTOM_METHOD
                                          |kconfig|
                                                        n
21 CONFIG LEGACY PTYS
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
22 CONFIG_HIBERNATION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
23 CONFIG KEXEC
                                          [kconfig]
                                                               |ELISA safety|Kernel Memory:K
                                                        n
24 CONFIG_HARDENED_USERCOPY_FALLBACK
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
25 CONFIG_HARDENED_USERCOPY_PAGESPAN
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
26 CONFIG SECURITY DMESG RESTRICT
                                                               |ELISA safety|Kernel Memory:D
                                          |kconfig|
                                                        У
27 CONFIG_COMPAT_BRK
                                                               |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                        n
28 CONFIG_USERFAULTFD
                                                               |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                        n
29 CONFIG DEBUG WX
                                                               |ELISA_safety|Kernel Memory:W
                                          |kconfig|
                                                        У
30 CONFIG_KPROBES
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
31 CONFIG_PROC_KCORE
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
32 CONFIG_KALLSYMS
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
33 CONFIG_WQ_WATCHDOG
                                                               |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                        У
34 CONFIG_PROVE_LOCKING
                                          |kconfig|
                                                               |ELISA_safety|Debug:Kernel mo
                                                        У
35 CONFIG_DEBUG_RT_MUTEXES
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
                                                               |ELISA_safety|Debug:Notificat
36 CONFIG_DEBUG_NOTIFIERS
                                          |kconfig|
                                                       У
37 CONFIG_LOCK_STAT
                                          |kconfig|
                                                               |ELISA_safety|Debug:Notificat
                                                        У
38 CONFIG_DEBUG_SPINLOCK
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
39 CONFIG_DEBUG_MUTEXES
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
40 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
41 CONFIG_DEBUG_LOCK_ALLOC
                                          |kconfig|
                                                        У
42 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
43 CONFIG_LOCK_TORTURE_TEST
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
44 CONFIG_WW_MUTEX_SELFTEST
                                          |kconfig|
                                                        У
45 CONFIG_RCU_TORTURE_TEST
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
46 CONFIG_DEBUG_ATOMIC_SLEEP
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
47 CONFIG_LIVEPATCH
                                          |kconfig|
                                                        n
                                                               |ELISA_safety|
                                                                                Live Patch
48 CONFIG_DEVKMEM
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        У
49 CONFIG_SECURITY_WRITABLE_HOOKS
                                          |kconfig|
                                                               |ELISA_security|Linux Securit
                                                        n
50 CONFIG_SECURITY_PATH
                                          |kconfig|
                                                               |ELISA_security|Linux Securit
                                                        У
51 CONFIG_LSM_MMAP_MIN_ADDR
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        У
```

```
CONFIG_STATIC_USERMODEHELPER | kconfig| y | ELISA_security|Linux Security | Security | CONFIG_STATIC_USERMODEHELPER_PATH | kconfig| y | ELISA_security|Linux Security | Security | CONFIG_DEFAULT_SECURITY_DAC | kconfig| y | ELISA_security|Linux Security | Security |
```

5. config-4.4.0-93-generic-ubuntu14

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-4.4.0-93-generic-u
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-4.4.0-93-generic-ubuntu14
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 4.4.0
 6 4.4.0
 | type | desired val | decision |
 8
                option name
                                                                               reason
 9
10 CONFIG_DEBUG_LIST
                                          |kconfig|
                                                              |ELISA_safety, Intel|Heap mem
                                                       У
                                                              |ELISA_safety|Driver: Heap ov
11 CONFIG_DEBUG_SG
                                          |kconfig|
                                                       У
12 CONFIG_KMEM
                                          |kconfig|
                                                              Intel
                                                                        |Kernel Memory:Ker
                                                       n
13 CONFIG_DEVMEM
                                                              |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                       n
                                                              |ELISA_safety, Intel|Kernel M
14 CONFIG_DEVPORT
                                          |kconfig|
                                                       n
15 CONFIG_ACPI_CUSTOM_METHOD
                                          |kconfig|
                                                              |ELISA_safety|Kernel Memory:K
                                                       n
                                                              |ELISA_safety|Kernel Memory:K
16 CONFIG_LEGACY_PTYS
                                          |kconfig|
                                                       n
17 CONFIG_HIBERNATION
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
18 CONFIG_KEXEC
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                       n
19 CONFIG_SECURITY_DMESG_RESTRICT
                                          |kconfig|
                                                              |ELISA_safety|Kernel Memory:D
                                                       У
20 CONFIG_COMPAT_BRK
                                          |kconfig|
                                                              |ELISA_safety|Heap memory:R/W
                                                       n
21 CONFIG USERFAULTFD
                                          |kconfig|
                                                              |ELISA_safety|Heap memory:R/W
                                                       n
                                                              |ELISA_safety|Kernel Memory:W
22 CONFIG_DEBUG_WX
                                          |kconfig|
                                                       У
23 CONFIG KPROBES
                                          |kconfig|
                                                              |ELISA safety|Stack memory:En
                                                       n
24 CONFIG_PROC_KCORE
                                                              |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                       n
25 CONFIG_KALLSYMS
                                                              |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                       n
26 CONFIG PROVE LOCKING
                                                              |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                       У
27 CONFIG_DEBUG_RT_MUTEXES
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
28 CONFIG_DEBUG_NOTIFIERS
                                                              |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                       У
29 CONFIG LOCK STAT
                                                              |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                       У
30 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
                                                              |ELISA_safety| Debug:RT mutex
31 CONFIG_DEBUG_MUTEXES
                                          |kconfig|
                                                       У
                                                              |ELISA_safety| Debug:RT mutex
32 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                          |kconfig|
                                                       У
33 CONFIG_DEBUG_LOCK_ALLOC
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
34 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
35 CONFIG_LOCK_TORTURE_TEST
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
36 CONFIG_RCU_TORTURE_TEST
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
37 CONFIG_DEBUG_ATOMIC_SLEEP
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
38 CONFIG_LIVEPATCH
                                                              |ELISA_safety|
                                          |kconfig|
                                                                               Live Patch
                                                       n
39 CONFIG DEVKMEM
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
40 CONFIG_SECURITY_WRITABLE_HOOKS
                                          |kconfig|
                                                       n
41 CONFIG_SECURITY_INFINIBAND
                                                              |ELISA_security|Linux Securit
                                          |kconfig|
                                                       У
42 CONFIG_LSM_MMAP_MIN_ADDR
                                          |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
43 CONFIG_HAVE_HARDENED_USERCOPY_ALLOCATOR |kconfig|
                                                              |ELISA_security|Linux Securit
                                                       У
44 CONFIG_STATIC_USERMODEHELPER
                                                              |ELISA_security|Linux Securit
                                          |kconfig|
                                                       У
45 CONFIG_STATIC_USERMODEHELPER_PATH
                                          |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
46 CONFIG_DEFAULT_SECURITY_DAC
                                          |kconfig|
                                                              |ELISA_security|Linux Securit
                                                       У
47
48 [+] Config check is finished: 'OK' - 16 (suppressed in output) / 'FAIL' - 37
```



```
% ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-4.4.0-210-generic
 1
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-4.4.0-210-generic-ubuntu16
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 4.4.0
 6 4.4.0
 | type | desired val | decision |
 8
                option name
                                                                               reason
 9
10 CONFIG_DEBUG_LIST
                                          |kconfig|
                                                              |ELISA_safety, Intel|Heap mem
                                                       У
                                                              |ELISA_safety|Driver: Heap ov
11 CONFIG_DEBUG_SG
                                          |kconfig|
                                                       У
12 CONFIG_KMEM
                                          |kconfig|
                                                              Intel
                                                                        |Kernel Memory:Ker
                                                       n
13 CONFIG_DEVMEM
                                                              |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                       n
                                                              |ELISA_safety, Intel|Kernel M
14 CONFIG_DEVPORT
                                          |kconfig|
                                                       n
15 CONFIG_ACPI_CUSTOM_METHOD
                                          |kconfig|
                                                              |ELISA_safety|Kernel Memory:K
                                                       n
                                                              |ELISA_safety|Kernel Memory:K
16 CONFIG_LEGACY_PTYS
                                          |kconfig|
                                                       n
17 CONFIG_HIBERNATION
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
18 CONFIG_KEXEC
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                       n
19 CONFIG_SECURITY_DMESG_RESTRICT
                                                              |ELISA_safety|Kernel Memory:D
                                          |kconfig|
                                                       У
20 CONFIG_COMPAT_BRK
                                          |kconfig|
                                                              |ELISA_safety|Heap memory:R/W
                                                       n
21 CONFIG USERFAULTFD
                                          |kconfig|
                                                              |ELISA_safety|Heap memory:R/W
                                                       n
22 CONFIG_DEBUG_WX
                                          |kconfig|
                                                              |ELISA_safety|Kernel Memory:W
                                                       У
23 CONFIG KPROBES
                                          |kconfig|
                                                              |ELISA safety|Stack memory:En
                                                       n
24 CONFIG_PROC_KCORE
                                                              |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                       n
25 CONFIG_KALLSYMS
                                                              |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                       n
26 CONFIG PROVE LOCKING
                                                              |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                       У
27 CONFIG_DEBUG_RT_MUTEXES
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
28 CONFIG_DEBUG_NOTIFIERS
                                                              |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                       У
29 CONFIG LOCK STAT
                                                              |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                       У
30 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
                                                              |ELISA_safety| Debug:RT mutex
31 CONFIG_DEBUG_MUTEXES
                                          |kconfig|
                                                       У
                                                              |ELISA_safety| Debug:RT mutex
32 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                          |kconfig|
                                                       У
33 CONFIG_DEBUG_LOCK_ALLOC
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
34 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
35 CONFIG_LOCK_TORTURE_TEST
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
36 CONFIG_RCU_TORTURE_TEST
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
37 CONFIG_DEBUG_ATOMIC_SLEEP
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
38 CONFIG_LIVEPATCH
                                                              |ELISA_safety|
                                          |kconfig|
                                                                               Live Patch
                                                       n
39 CONFIG DEVKMEM
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
40 CONFIG_SECURITY_WRITABLE_HOOKS
                                          |kconfig|
                                                       n
41 CONFIG_SECURITY_INFINIBAND
                                                              |ELISA_security|Linux Securit
                                          |kconfig|
                                                       У
42 CONFIG_LSM_MMAP_MIN_ADDR
                                          |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
43 CONFIG_HAVE_HARDENED_USERCOPY_ALLOCATOR |kconfig|
                                                              |ELISA_security|Linux Securit
                                                       У
44 CONFIG_STATIC_USERMODEHELPER
                                                              |ELISA_security|Linux Securit
                                          |kconfig|
                                                       У
45 CONFIG_STATIC_USERMODEHELPER_PATH
                                          |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
46 CONFIG_DEFAULT_SECURITY_DAC
                                          |kconfig|
                                                              |ELISA_security|Linux Securit
                                                       У
47
48 [+] Config check is finished: 'OK' - 16 (suppressed in output) / 'FAIL' - 37
```



```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-4.15.0-177-generic
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-4.15.0-177-generic-ubuntu18
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 4.15.0
 6 4.15.0
 | type | desired val | decision |
 8
                 option name
                                                                                reason
 9
10 CONFIG_REFCOUNT_FULL
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory r
                                                       У
11 CONFIG_GCC_PLUGIN_STRUCTKLEAK
                                                               |ELISA_safety|GCC, plugins, S
                                          |kconfig|
                                                       У
                                                               |ELISA_safety|GCC, plugins, S
12 CONFIG_GCC_PLUGIN_STRUCTLEAK_BYREF_ALL
                                          |kconfig|
                                                       У
13 CONFIG_PAGE_POISONING
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        У
14 CONFIG_PAGE_POISONING_NO_SANITY
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:St
                                                        n
15 CONFIG_DEBUG_LIST
                                          |kconfig|
                                                               |ELISA_safety, Intel|Heap mem
                                                       У
16 CONFIG_DEBUG_SG
                                                               |ELISA_safety|Driver: Heap ov
                                          |kconfig|
                                                        У
17 CONFIG_BUG_ON_DATA_CORRUPTION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        У
18 CONFIG_KMEM
                                                                         |Kernel Memory:Ker
                                          |kconfig|
                                                        n
                                                               Intel
                                                               |ELISA_safety, Intel|Kernel M
19 CONFIG_DEVMEM
                                          |kconfig|
                                                        n
20 CONFIG_DEVPORT
                                          |kconfig|
                                                               |ELISA_safety, Intel|Kernel M
                                                        n
21 CONFIG ACPI CUSTOM METHOD
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
                                                               |ELISA_safety|Kernel Memory:K
22 CONFIG_LEGACY_PTYS
                                          |kconfig|
                                                        n
23 CONFIG HIBERNATION
                                          [kconfig]
                                                               |ELISA safety|Kernel Memory:K
                                                        n
24 CONFIG KEXEC
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
25 CONFIG_HARDENED_USERCOPY_PAGESPAN
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
26 CONFIG SECURITY DMESG RESTRICT
                                                               |ELISA safety|Kernel Memory:D
                                          |kconfig|
                                                        У
27 CONFIG_COMPAT_BRK
                                                               |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                        n
28 CONFIG_USERFAULTFD
                                                               |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                        n
29 CONFIG KPROBES
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
30 CONFIG_PROC_KCORE
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
31 CONFIG_KALLSYMS
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
32 CONFIG_WQ_WATCHDOG
                                          |kconfig|
                                                               |ELISA_safety|Debug:Kernel mo
                                                        У
33 CONFIG_PROVE_LOCKING
                                                               |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                        У
34 CONFIG_DEBUG_RT_MUTEXES
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
35 CONFIG_DEBUG_NOTIFIERS
                                                               |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                        У
                                                               |ELISA_safety|Debug:Notificat
36 CONFIG_LOCK_STAT
                                          |kconfig|
                                                       У
37 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
38 CONFIG_DEBUG_MUTEXES
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
39 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
40 CONFIG_DEBUG_LOCK_ALLOC
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
41 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                          |kconfig|
                                                        У
42 CONFIG_LOCK_TORTURE_TEST
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
43 CONFIG_WW_MUTEX_SELFTEST
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
44 CONFIG_RCU_TORTURE_TEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
45 CONFIG_DEBUG_ATOMIC_SLEEP
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
46 CONFIG LIVEPATCH
                                                               |ELISA_safety|
                                                                                Live Patch
                                          |kconfig|
                                                        n
47 CONFIG_DEVKMEM
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        У
48 CONFIG_SECURITY_WRITABLE_HOOKS
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        n
                                                               |ELISA_security|Linux Securit
49 CONFIG_LSM_MMAP_MIN_ADDR
                                          |kconfig|
                                                        У
50 CONFIG_STATIC_USERMODEHELPER
                                          |kconfig|
                                                               |ELISA_security|Linux Securit
                                                        У
51 CONFIG_STATIC_USERMODEHELPER_PATH
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        У
```

```
52 CONFIG_DEFAULT_SECURITY_DAC |kconfig| y |ELISA_security|Linux Securit
53
54 [+] Config check is finished: 'OK' - 31 (suppressed in output) / 'FAIL' - 43
```

8. config-5.4.0-110-generic-ubuntu20

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-5.4.0-110-generic-
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-5.4.0-110-generic-ubuntu20
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 5.4.0
 6 5.4.0
 | type | desired val | decision |
 8
                 option name
                                                                                reason
 9
10 CONFIG_INIT_ON_FREE_DEFAULT_ON
                                          |kconfig|
                                                               |ELISA_safety|Memory manageme
                                                       У
11 CONFIG_REFCOUNT_FULL
                                                               |ELISA_safety|Kernel Memory r
                                          |kconfig|
                                                       У
                                                               |ELISA_safety|GCC, plugins, S
12 CONFIG_GCC_PLUGIN_STRUCTKLEAK
                                          |kconfig|
                                                       У
13 CONFIG_GCC_PLUGIN_STRUCTLEAK_BYREF_ALL | kconfig|
                                                               |ELISA_safety|GCC, plugins, S
                                                        У
14 CONFIG_INIT_STACK_ALL
                                                               |ELISA_safety|Stack memory:Un
                                          |kconfig|
                                                        У
15 CONFIG_GCC_PLUGIN_STACKLEAK
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:St
                                                       У
16 CONFIG_PAGE_POISONING_NO_SANITY
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        n
17 CONFIG_DEBUG_LIST
                                                               |ELISA_safety, Intel|Heap mem
                                          |kconfig|
                                                        У
18 CONFIG_DEBUG_SG
                                                               |ELISA_safety|Driver: Heap ov
                                          |kconfig|
                                                        У
19 CONFIG_BUG_ON_DATA_CORRUPTION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        У
20 CONFIG_KMEM
                                          |kconfig|
                                                                 Intel
                                                                         |Kernel Memory:Ker
                                                        n
21 CONFIG DEVMEM
                                          |kconfig|
                                                               |ELISA_safety, Intel|Kernel M
                                                        n
22 CONFIG_DEVPORT
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        n
23 CONFIG ACPI CUSTOM METHOD
                                          [kconfig]
                                                               |ELISA safety|Kernel Memory:K
                                                        n
24 CONFIG LEGACY PTYS
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
25 CONFIG_HIBERNATION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
26 CONFIG KEXEC
                                                               |ELISA safety|Kernel Memory:K
                                          |kconfig|
                                                        n
27 CONFIG_HARDENED_USERCOPY_FALLBACK
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
28 CONFIG_HARDENED_USERCOPY_PAGESPAN
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
29 CONFIG_SECURITY_DMESG_RESTRICT
                                                               |ELISA_safety|Kernel Memory:D
                                          |kconfig|
                                                        У
30 CONFIG_COMPAT_BRK
                                          |kconfig|
                                                               |ELISA_safety|Heap memory:R/W
                                                        n
31 CONFIG_USERFAULTFD
                                          |kconfig|
                                                               |ELISA_safety|Heap memory:R/W
                                                        n
32 CONFIG_KPROBES
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
33 CONFIG_PROC_KCORE
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
34 CONFIG_KALLSYMS
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
35 CONFIG_WQ_WATCHDOG
                                                               |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                        У
36 CONFIG_PROVE_LOCKING
                                          |kconfig|
                                                               |ELISA_safety|Debug:Kernel mo
                                                        У
37 CONFIG_DEBUG_RT_MUTEXES
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
38 CONFIG_DEBUG_NOTIFIERS
                                                               |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                        У
39 CONFIG_LOCK_STAT
                                                               |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
40 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
41 CONFIG_DEBUG_MUTEXES
                                          |kconfig|
                                                        У
42 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
43 CONFIG_DEBUG_LOCK_ALLOC
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
44 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
45 CONFIG_LOCK_TORTURE_TEST
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
46 CONFIG_WW_MUTEX_SELFTEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
                                                               |ELISA_safety| Debug:RT mutex
47 CONFIG_RCU_TORTURE_TEST
                                          |kconfig|
                                                       У
48 CONFIG_DEBUG_ATOMIC_SLEEP
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
49 CONFIG_LIVEPATCH
                                          |kconfig|
                                                               |ELISA_safety|
                                                                                Live Patch
                                                        n
50 CONFIG_DEVKMEM
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        У
51 CONFIG_SECURITY_WRITABLE_HOOKS
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        n
```

```
52 CONFIG_LSM_MMAP_MIN_ADDR
                                                                  |ELISA_security|Linux Securit
                                             |kconfig|
   CONFIG STATIC USERMODEHELPER
                                                                  |ELISA_security|Linux Securit
                                             |kconfig|
                                                           У
54 CONFIG_STATIC_USERMODEHELPER_PATH
                                             |kconfig|
                                                                  |ELISA_security|Linux Securit
   CONFIG_DEFAULT_SECURITY_DAC
                                                                  |ELISA_security|Linux Securit
                                             |kconfig|
                                                           У
56
57 [+] Config check is finished: 'OK' - 36 (suppressed in output) / 'FAIL' - 46
```

9. config-3.16.0-7-amd64-debian8

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-3.16.0-7-amd64-deb
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-3.16.0-7-amd64-debian8
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 3.16.59
 6 3.16.59
 | type | desired val | decision |
 8
                option name
                                                                               reason
 10 CONFIG_SLUB_DEBUG
                                          |kconfig|
                                                             |ELISA_safety|Memory manageme
11 CONFIG_DEBUG_LIST
                                          |kconfig|
                                                              |ELISA_safety, Intel|Heap mem
                                                       У
12 CONFIG_DEBUG_SG
                                          |kconfig|
                                                              |ELISA_safety|Driver: Heap ov
                                                       У
13 CONFIG_KMEM
                                                              | Intel | Kernel Memory: Ker
                                          |kconfig|
                                                       n
14 CONFIG_DEVPORT
                                          |kconfig|
                                                              |ELISA_safety, Intel|Kernel M
15 CONFIG_ACPI_CUSTOM_METHOD
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                       n
                                                             |ELISA_safety|Kernel Memory:K
16 CONFIG_LEGACY_PTYS
                                          |kconfig|
                                                       n
17 CONFIG_HIBERNATION
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
18 CONFIG_KEXEC
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                       n
19 CONFIG_SECURITY_DMESG_RESTRICT
                                                              |ELISA_safety|Kernel Memory:D
                                          |kconfig|
20 CONFIG_COMPAT_BRK
                                          |kconfig|
                                                              |ELISA_safety|Heap memory:R/W
                                                       n
21 CONFIG KPROBES
                                          |kconfig|
                                                              |ELISA_safety|Stack memory:En
                                                       n
22 CONFIG_PROC_KCORE
                                          |kconfig|
                                                              |ELISA_safety|Stack memory:En
23 CONFIG KALLSYMS
                                                              |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                       n
24 CONFIG_PROVE_LOCKING
                                                              |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                       У
25 CONFIG_DEBUG_RT_MUTEXES
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
26 CONFIG DEBUG NOTIFIERS
                                                              |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                       У
27 CONFIG_LOCK_STAT
                                                              |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                       У
28 CONFIG_DEBUG_SPINLOCK
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
29 CONFIG_DEBUG_MUTEXES
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
30 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
31 CONFIG_DEBUG_LOCK_ALLOC
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
32 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
33 CONFIG_LOCK_TORTURE_TEST
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
34 CONFIG_RCU_TORTURE_TEST
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
35 CONFIG_DEBUG_ATOMIC_SLEEP
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
36 CONFIG_SECURITY_WRITABLE_HOOKS
                                          |kconfig|
                                                              |ELISA_security|Linux Securit
37 CONFIG_SECURITY_INFINIBAND
                                          |kconfig|
                                                              |ELISA_security|Linux Securit
                                                       У
38 CONFIG_INTEL_TXT
                                                             |ELISA_security|Linux Securit
                                          |kconfig|
                                                       У
39 CONFIG_LSM_MMAP_MIN_ADDR
                                          |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
40 CONFIG_HAVE_HARDENED_USERCOPY_ALLOCATOR |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
41 CONFIG_STATIC_USERMODEHELPER
                                                              |ELISA_security|Linux Securit
                                          |kconfig|
                                                       У
42
  CONFIG_STATIC_USERMODEHELPER_PATH
                                         |kconfig|
                                                       У
                                                             |ELISA_security|Linux Securit
43
44 [+] Config check is finished: 'OK' - 14 (suppressed in output) / 'FAIL' - 33
```

10. config-4.9.0-18-amd64-debian9

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-4.9.0-18-amd64-deb
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-4.9.0-18-amd64-debian9
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 4.9.303
 6 4.9.303
 type |desired val | decision |
 8
                option name
                                                                               reason
 9
10 CONFIG_SLUB_DEBUG
                                          |kconfig|
                                                              |ELISA_safety|Memory manageme
                                                       У
                                                              |ELISA_safety|Stack memory:St
11 CONFIG_PAGE_POISONING_NO_SANITY
                                          |kconfig|
                                                       n
12 CONFIG_DEBUG_SG
                                          |kconfig|
                                                              |ELISA_safety|Driver: Heap ov
                                                       У
13 CONFIG_KMEM
                                                              | Intel | Kernel Memory: Ker
                                          |kconfig|
                                                       n
                                                              |ELISA_safety, Intel|Kernel M
14 CONFIG_DEVMEM
                                          |kconfig|
                                                       n
15 CONFIG_DEVPORT
                                          |kconfig|
                                                              |ELISA_safety, Intel|Kernel M
                                                       n
16 CONFIG_ACPI_CUSTOM_METHOD
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                       n
17 CONFIG_LEGACY_PTYS
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
18 CONFIG_HIBERNATION
                                                              |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                       n
19 CONFIG_KEXEC
                                          |kconfig|
                                                              |ELISA_safety|Kernel Memory:K
                                                       n
                                                              |ELISA_safety|Kernel Memory:K
20 CONFIG_HARDENED_USERCOPY_PAGESPAN
                                          |kconfig|
                                                       n
21 CONFIG COMPAT BRK
                                          |kconfig|
                                                              |ELISA_safety|Heap memory:R/W
                                                       n
22 CONFIG_USERFAULTFD
                                                              |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                       n
23 CONFIG KPROBES
                                          |kconfig|
                                                              |ELISA_safety|Stack memory:En
                                                       n
24 CONFIG_PROC_KCORE
                                                              |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                       n
25 CONFIG_KALLSYMS
                                                              |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                       n
26 CONFIG WO WATCHDOG
                                                              |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                       У
27 CONFIG_PROVE_LOCKING
                                                              |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                       У
28 CONFIG_DEBUG_RT_MUTEXES
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
29 CONFIG_DEBUG_NOTIFIERS
                                                              |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                       У
30 CONFIG_LOCK_STAT
                                          |kconfig|
                                                              |ELISA_safety|Debug:Notificat
                                                       У
                                                              |ELISA_safety| Debug:RT mutex
31 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                       У
                                                              |ELISA_safety| Debug:RT mutex
32 CONFIG_DEBUG_MUTEXES
                                          |kconfig|
                                                       У
33 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
34 CONFIG_DEBUG_LOCK_ALLOC
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
35 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
                                                              |ELISA_safety| Debug:RT mutex
36 CONFIG_LOCK_TORTURE_TEST
                                          |kconfig|
                                                       У
37 CONFIG_RCU_TORTURE_TEST
                                          |kconfig|
                                                              |ELISA_safety| Debug:RT mutex
                                                       У
38 CONFIG_DEBUG_ATOMIC_SLEEP
                                                              |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
39 CONFIG_LIVEPATCH
                                          |kconfig|
                                                              |ELISA_safety|
                                                                               Live Patch
40 CONFIG_DEVKMEM
                                          |kconfig|
                                                       У
                                                              |ELISA_safety|Kernel Memory:K
41 CONFIG_SECURITY_WRITABLE_HOOKS
                                                              |ELISA_security|Linux Securit
                                          |kconfig|
                                                       n
42 CONFIG_SECURITY_INFINIBAND
                                          |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
43 CONFIG_INTEL_TXT
                                          |kconfig|
                                                              |ELISA_security|Linux Securit
                                                       У
                                                              |ELISA_security|Linux Securit
44 CONFIG_LSM_MMAP_MIN_ADDR
                                          |kconfig|
                                                       У
45 CONFIG_STATIC_USERMODEHELPER
                                          |kconfig|
                                                       У
                                                              |ELISA_security|Linux Securit
46 CONFIG_STATIC_USERMODEHELPER_PATH
                                          |kconfig|
                                                              |ELISA_security|Linux Securit
                                                       У
47
48 [+] Config check is finished: 'OK' - 24 (suppressed in output) / 'FAIL' - 37
```



```
% ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-4.19.0-16-amd64-d
 1
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-4.19.0-16-amd64-debian10
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 4.19.181
 6 4.19.181
 | type | desired val | decision |
 8
                 option name
                                                                                reason
 9
10 CONFIG_GCC_PLUGIN_STRUCTKLEAK
                                          |kconfig|
                                                               |ELISA_safety|GCC, plugins, S
                                                       У
11 CONFIG_GCC_PLUGIN_STRUCTLEAK_BYREF_ALL |kconfig|
                                                               |ELISA_safety|GCC, plugins, S
                                                       У
12 CONFIG_BPF_JIT_ALWAYS_ON
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:I
                                                       У
13 CONFIG_PAGE_POISONING_NO_SANITY
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        n
14 CONFIG_DEBUG_SG
                                          |kconfig|
                                                               |ELISA_safety|Driver: Heap ov
                                                        У
15 CONFIG_KMEM
                                          |kconfig|
                                                               | Intel | Kernel Memory: Ker
                                                        n
16 CONFIG_DEVMEM
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        n
17 CONFIG_DEVPORT
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        n
18 CONFIG_ACPI_CUSTOM_METHOD
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
19 CONFIG_LEGACY_PTYS
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
20 CONFIG_HIBERNATION
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
21 CONFIG KEXEC
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
22 CONFIG_HARDENED_USERCOPY_FALLBACK
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
23 CONFIG HARDENED USERCOPY PAGESPAN
                                          [kconfig]
                                                               |ELISA safety|Kernel Memory:K
                                                        n
24 CONFIG COMPAT BRK
                                                               |ELISA_safety|Heap_memory:R/W
                                          |kconfig|
                                                        n
25 CONFIG_USERFAULTFD
                                                               |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                        n
26 CONFIG KPROBES
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
27 CONFIG_PROC_KCORE
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
28 CONFIG_KALLSYMS
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
29 CONFIG WO WATCHDOG
                                                               |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                        У
30 CONFIG_PROVE_LOCKING
                                          |kconfig|
                                                               |ELISA_safety|Debug:Kernel mo
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
31 CONFIG_DEBUG_RT_MUTEXES
                                          |kconfig|
                                                        У
32 CONFIG_DEBUG_NOTIFIERS
                                          |kconfig|
                                                               |ELISA_safety|Debug:Notificat
                                                        У
33 CONFIG_LOCK_STAT
                                                               |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                        У
34 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
35 CONFIG_DEBUG_MUTEXES
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
36 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
37 CONFIG_DEBUG_LOCK_ALLOC
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
38 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
39 CONFIG_LOCK_TORTURE_TEST
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
40 CONFIG_WW_MUTEX_SELFTEST
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
41 CONFIG_RCU_TORTURE_TEST
                                          |kconfig|
                                                        У
42 CONFIG_DEBUG_ATOMIC_SLEEP
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
43 CONFIG_LIVEPATCH
                                          |kconfig|
                                                               |ELISA_safety|
                                                                                Live Patch
                                                        n
44 CONFIG_DEVKMEM
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        У
45 CONFIG_SECURITY_WRITABLE_HOOKS
                                          |kconfig|
                                                        n
                                                               |ELISA_security|Linux Securit
46 CONFIG_SECURITY_INFINIBAND
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                       У
47 CONFIG_INTEL_TXT
                                          |kconfig|
                                                               |ELISA_security|Linux Securit
                                                       У
48 CONFIG_LSM_MMAP_MIN_ADDR
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        У
                                                               |ELISA_security|Linux Securit
49 CONFIG_STATIC_USERMODEHELPER
                                          |kconfig|
                                                        У
50 CONFIG_STATIC_USERMODEHELPER_PATH
                                          |kconfig|
                                                               |ELISA_security|Linux Securit
                                                        У
51 CONFIG_DEFAULT_SECURITY_DAC
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        У
```

12. config-5.10.0-11-amd64-amd64-debian11

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-5.10.0-11-amd64-am
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-5.10.0-11-amd64-amd64-debian11
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 5.10.92
 6 5.10.92
 | type | desired val | decision |
 8
                 option name
                                                                                reason
 9
10 CONFIG_INIT_ON_FREE_DEFAULT_ON
                                          |kconfig|
                                                               |ELISA_safety|Memory manageme
                                                       У
11 CONFIG_GCC_PLUGIN_STRUCTKLEAK
                                                               |ELISA_safety|GCC, plugins, S
                                          |kconfig|
                                                       У
                                                              |ELISA_safety|GCC, plugins, S
12 CONFIG_GCC_PLUGIN_STRUCTLEAK_BYREF_ALL |kconfig|
                                                       У
13 CONFIG_BPF_JIT_ALWAYS_ON
                                                               |ELISA_safety|Kernel Memory:I
                                          |kconfig|
                                                        У
14 CONFIG_GCC_PLUGIN_STACKLEAK
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:St
                                                        У
15 CONFIG_DEBUG_SG
                                          |kconfig|
                                                               |ELISA_safety|Driver: Heap ov
                                                       У
                                                               | Intel | Kernel Memory: Ker
16 CONFIG_KMEM
                                          |kconfig|
                                                        n
17 CONFIG_DEVMEM
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        n
18 CONFIG_DEVPORT
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        n
                                                               |ELISA_safety|Kernel Memory:K
19 CONFIG_ACPI_CUSTOM_METHOD
                                          |kconfig|
                                                        n
                                                               |ELISA_safety|Kernel Memory:K
20 CONFIG_LEGACY_PTYS
                                          |kconfig|
                                                        n
21 CONFIG HIBERNATION
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
22 CONFIG_KEXEC
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
23 CONFIG HARDENED USERCOPY FALLBACK
                                          [kconfig]
                                                               |ELISA safety|Kernel Memory:K
                                                        n
24 CONFIG HARDENED USERCOPY PAGESPAN
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
25 CONFIG_COMPAT_BRK
                                                               |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                        n
26 CONFIG USERFAULTFD
                                                               |ELISA safety|Heap memory:R/W
                                          |kconfig|
                                                        n
27 CONFIG KPROBES
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
28 CONFIG_PROC_KCORE
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
29 CONFIG KALLSYMS
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
30 CONFIG_WQ_WATCHDOG
                                          |kconfig|
                                                               |ELISA_safety|Debug:Kernel mo
                                                        V
31 CONFIG_KCSAN
                                          |kconfig|
                                                               |ELISA_safety|Debug:Kernel mo
                                                        У
32 CONFIG_PROVE_LOCKING
                                          |kconfig|
                                                               |ELISA_safety|Debug:Kernel mo
                                                        У
33 CONFIG_DEBUG_RT_MUTEXES
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
34 CONFIG_DEBUG_NOTIFIERS
                                          |kconfig|
                                                               |ELISA_safety|Debug:Notificat
                                                        У
35 CONFIG_LOCK_STAT
                                          |kconfig|
                                                               |ELISA_safety|Debug:Notificat
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
36 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                       У
37 CONFIG_DEBUG_MUTEXES
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
38 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
39 CONFIG_DEBUG_LOCK_ALLOC
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
40 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
41 CONFIG_LOCK_TORTURE_TEST
                                          |kconfig|
                                                        У
42 CONFIG_WW_MUTEX_SELFTEST
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
43 CONFIG_RCU_TORTURE_TEST
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
44 CONFIG_DEBUG_ATOMIC_SLEEP
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
45 CONFIG_LIVEPATCH
                                          |kconfig|
                                                        n
                                                               |ELISA_safety|
                                                                                Live Patch
46 CONFIG DEVKMEM
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                       У
47 CONFIG_SECURITY_WRITABLE_HOOKS
                                          |kconfig|
                                                        n
                                                               |ELISA_security|Linux Securit
48 CONFIG_SECURITY_INFINIBAND
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        У
49 CONFIG_LSM_MMAP_MIN_ADDR
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        У
50 CONFIG_STATIC_USERMODEHELPER
                                          |kconfig|
                                                               |ELISA_security|Linux Securit
                                                        У
51 CONFIG_STATIC_USERMODEHELPER_PATH
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        У
```

```
52 CONFIG_DEFAULT_SECURITY_DAC |kconfig| y |ELISA_security|Linux Securit
53
54 [+] Config check is finished: 'OK' - 37 (suppressed in output) / 'FAIL' - 43
```

13. config-4.19.91-25.8.al7.x86_64-AlibabaCloudLinux2

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-4.19.91-25.8.al7.x
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-4.19.91-25.8.al7.x86_64-AlibabaCl
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 4.19.91
 6 4.19.91
 | type | desired val | decision |
 8
                 option name
                                                                                reason
 9
10 CONFIG_SLAB_FREELIST_HARDENED
                                          |kconfig|
                                                               |ELISA_safety, Intel|Memory m
                                                       У
11 CONFIG_REFCOUNT_FULL
                                                               |ELISA_safety|Kernel Memory r
                                          |kconfig|
                                                       У
                                                               |ELISA_safety|GCC, plugins, S
12 CONFIG_GCC_PLUGIN_STRUCTKLEAK
                                          |kconfig|
                                                       У
13 CONFIG_GCC_PLUGIN_STRUCTLEAK_BYREF_ALL |kconfig|
                                                               |ELISA_safety|GCC, plugins, S
                                                        У
14 CONFIG_STACKPROTECTOR_STRONG
                                                               |ELISA_safety, Intel|Stack me
                                          |kconfig|
                                                        У
15 CONFIG_PAGE_POISONING
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:St
                                                       У
16 CONFIG_PAGE_POISONING_NO_SANITY
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        n
17 CONFIG_DEBUG_SG
                                                               |ELISA_safety|Driver: Heap ov
                                          |kconfig|
                                                        У
18 CONFIG_BUG_ON_DATA_CORRUPTION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        У
19 CONFIG_KMEM
                                                               | Intel | Kernel Memory: Ker
                                          |kconfig|
                                                        n
20 CONFIG_DEVMEM
                                          |kconfig|
                                                               |ELISA_safety, Intel|Kernel M
                                                        n
21 CONFIG DEVPORT
                                          |kconfig|
                                                               |ELISA_safety, Intel|Kernel M
                                                        n
22 CONFIG_ACPI_CUSTOM_METHOD
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
23 CONFIG LEGACY PTYS
                                          [kconfig]
                                                               |ELISA safety|Kernel Memory:K
                                                        n
24 CONFIG HIBERNATION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
25 CONFIG_KEXEC
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
26 CONFIG HARDENED USERCOPY FALLBACK
                                                               |ELISA safety|Kernel Memory:K
                                          |kconfig|
                                                        n
27 CONFIG_HARDENED_USERCOPY_PAGESPAN
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
28 CONFIG_SECURITY_DMESG_RESTRICT
                                                               |ELISA_safety|Kernel Memory:D
                                          |kconfig|
                                                        У
29 CONFIG COMPAT BRK
                                                               |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                        n
30 CONFIG_USERFAULTFD
                                          |kconfig|
                                                               |ELISA_safety|Heap memory:R/W
                                                        n
31 CONFIG_DEBUG_WX
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:W
                                                        V
32 CONFIG_KPROBES
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
33 CONFIG_PROC_KCORE
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
34 CONFIG_KALLSYMS
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
35 CONFIG_WQ_WATCHDOG
                                                               |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                        У
36 CONFIG_PROVE_LOCKING
                                          |kconfig|
                                                               |ELISA_safety|Debug:Kernel mo
                                                        У
37 CONFIG_DEBUG_RT_MUTEXES
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
38 CONFIG_DEBUG_NOTIFIERS
                                                               |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                        У
39 CONFIG_LOCK_STAT
                                                               |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
40 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
41 CONFIG_DEBUG_MUTEXES
                                          |kconfig|
                                                        У
42 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
43 CONFIG_DEBUG_LOCK_ALLOC
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
44 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
45 CONFIG_LOCK_TORTURE_TEST
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
46 CONFIG_WW_MUTEX_SELFTEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
                                                               |ELISA_safety| Debug:RT mutex
47 CONFIG_RCU_TORTURE_TEST
                                          |kconfig|
                                                       У
48 CONFIG_DEBUG_ATOMIC_SLEEP
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
49 CONFIG_LIVEPATCH
                                          |kconfig|
                                                               |ELISA_safety|
                                                                                Live Patch
                                                        n
50 CONFIG_DEVKMEM
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        У
51 CONFIG_SECURITY_WRITABLE_HOOKS
                                                               |ELISA_security|Linux Securit
                                          |kconfig|
                                                        n
```

```
52 CONFIG_LSM_MMAP_MIN_ADDR
                                                                  |ELISA_security|Linux Securit
                                             |kconfig|
53 CONFIG STATIC USERMODEHELPER
                                             |kconfig|
                                                                  |ELISA_security|Linux Securit
                                                           У
54 CONFIG_STATIC_USERMODEHELPER_PATH
                                                                  |ELISA_security|Linux Securit
                                             |kconfig|
   CONFIG_DEFAULT_SECURITY_DAC
                                                                  |ELISA_security|Linux Securit
                                             |kconfig|
                                                           У
56
57 [+] Config check is finished: 'OK' - 31 (suppressed in output) / 'FAIL' - 46
```

14. config-5.10.84-10.4.al8.x86_64-AlibabaCloudLinux3

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-5.10.84-10.4.al8.x
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-5.10.84-10.4.al8.x86_64-AlibabaCl
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 5.10.84
 6 5.10.84
 | type | desired val | decision |
 8
                 option name
                                                                                reason
 10 CONFIG_SLAB_FREELIST_HARDENED
                                          |kconfig|
                                                               |ELISA_safety, Intel|Memory m
                                                       У
11 CONFIG_INIT_ON_FREE_DEFAULT_ON
                                                               |ELISA_safety|Memory manageme
                                          |kconfig|
                                                       У
12 CONFIG_INIT_ON_ALLOC_DEFAULT_ON
                                          |kconfig|
                                                              |ELISA_safety|Memory manageme
                                                       У
13 CONFIG_GCC_PLUGIN_STRUCTKLEAK
                                                               |ELISA_safety|GCC, plugins, S
                                          |kconfig|
                                                        У
                                                               |ELISA_safety|GCC, plugins, S
14 CONFIG_GCC_PLUGIN_STRUCTLEAK_BYREF_ALL
                                          |kconfig|
                                                        У
15 CONFIG_STACKPROTECTOR_STRONG
                                          |kconfig|
                                                               |ELISA_safety, Intel|Stack me
                                                       У
16 CONFIG_SCHED_STACK_END_CHECK
                                                              |ELISA_safety, Intel|Stack me
                                          |kconfig|
                                                        У
17 CONFIG_GCC_PLUGIN_STACKLEAK
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        У
18 CONFIG_PAGE_POISONING
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        У
19 CONFIG_DEBUG_SG
                                          |kconfig|
                                                               |ELISA_safety|Driver: Heap ov
                                                        У
20 CONFIG_KMEM
                                          |kconfig|
                                                                 Intel
                                                                        |Kernel Memory:Ker
                                                        n
21 CONFIG DEVMEM
                                          |kconfig|
                                                               |ELISA_safety, Intel|Kernel M
                                                        n
                                                               |ELISA_safety, Intel|Kernel M
22 CONFIG_DEVPORT
                                          |kconfig|
                                                        n
23 CONFIG ACPI CUSTOM METHOD
                                          [kconfig]
                                                               |ELISA safety|Kernel Memory:K
                                                        n
24 CONFIG LEGACY PTYS
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
25 CONFIG_HIBERNATION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
26 CONFIG KEXEC
                                                               |ELISA safety|Kernel Memory:K
                                          |kconfig|
                                                        n
27 CONFIG_HARDENED_USERCOPY_FALLBACK
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
28 CONFIG_HARDENED_USERCOPY_PAGESPAN
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
29 CONFIG_SECURITY_DMESG_RESTRICT
                                                               |ELISA_safety|Kernel Memory:D
                                          |kconfig|
                                                        У
30 CONFIG_COMPAT_BRK
                                          |kconfig|
                                                               |ELISA_safety|Heap memory:R/W
                                                        n
31 CONFIG_USERFAULTFD
                                          |kconfig|
                                                               |ELISA_safety|Heap memory:R/W
                                                        n
32 CONFIG_DEBUG_WX
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:W
                                                        У
33 CONFIG_KPROBES
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
34 CONFIG_PROC_KCORE
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
35 CONFIG_KALLSYMS
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
36 CONFIG_WQ_WATCHDOG
                                                               |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                        У
37 CONFIG_KCSAN
                                          |kconfig|
                                                               |ELISA_safety|Debug:Kernel mo
                                                        У
38 CONFIG_PROVE_LOCKING
                                                               |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                        У
39 CONFIG_DEBUG_RT_MUTEXES
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
                                                               |ELISA_safety|Debug:Notificat
40 CONFIG_DEBUG_NOTIFIERS
                                          |kconfig|
                                                        У
41 CONFIG_LOCK_STAT
                                                               |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                        У
42 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
43 CONFIG_DEBUG_MUTEXES
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
44 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
45 CONFIG_DEBUG_LOCK_ALLOC
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
46 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                       У
47 CONFIG_LOCK_TORTURE_TEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
48 CONFIG_WW_MUTEX_SELFTEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
49 CONFIG_RCU_TORTURE_TEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
50 CONFIG_DEBUG_ATOMIC_SLEEP
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
51 CONFIG LIVEPATCH
                                                               |ELISA_safety|
                                                                                Live Patch
                                          |kconfig|
                                                        n
```

```
52 CONFIG_DEVKMEM
                                                                    |ELISA_safety|Kernel Memory:K
                                              |kconfig|
53 CONFIG SECURITY WRITABLE HOOKS
                                              |kconfig|
                                                                    |ELISA_security|Linux Securit
                                                            n
54 CONFIG_LSM_MMAP_MIN_ADDR
                                              |kconfig|
                                                                    |ELISA_security|Linux Securit
55 CONFIG_STATIC_USERMODEHELPER
                                              |kconfig|
                                                                    |ELISA_security|Linux Securit
                                                            У
   CONFIG STATIC USERMODEHELPER PATH
                                              |kconfig|
                                                                    |ELISA_security|Linux Securit
                                                            У
   CONFIG_DEFAULT_SECURITY_DAC
                                              |kconfig|
                                                                    |ELISA_security|Linux Securit
58
<sup>59</sup> [+] Config check is finished: 'OK' - 32 (suppressed in output) / 'FAIL' - 48
```

15. config-5.3.18-24.83-default-suse15-sp2

```
1 % ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-5.3.18-24.83-defau
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-5.3.18-24.83-default-suse15-sp2
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 5.3.18
 6 5.3.18
 | type | desired val | decision |
 8
                 option name
                                                                                reason
 9
10 CONFIG_INIT_ON_FREE_DEFAULT_ON
                                          |kconfig|
                                                               |ELISA_safety|Memory manageme
                                                       У
11 CONFIG_INIT_ON_ALLOC_DEFAULT_ON
                                                               |ELISA_safety|Memory manageme
                                          |kconfig|
                                                       У
12 CONFIG_REFCOUNT_FULL
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory r
                                                       У
13 CONFIG_GCC_PLUGIN_STRUCTKLEAK
                                          |kconfig|
                                                               |ELISA_safety|GCC, plugins, S
                                                        У
14 CONFIG_GCC_PLUGIN_STRUCTLEAK_BYREF_ALL
                                          |kconfig|
                                                               |ELISA_safety|GCC, plugins, S
                                                        У
15 CONFIG_INIT_STACK_ALL
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:Un
                                                       У
16 CONFIG_FORTIFY_SOURCE
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        У
17 CONFIG_GCC_PLUGIN_STACKLEAK
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        У
18 CONFIG_PAGE_POISONING
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        У
19 CONFIG_PAGE_POISONING_NO_SANITY
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:St
                                                        n
20 CONFIG_DEBUG_LIST
                                                               |ELISA_safety, Intel|Heap mem
                                          |kconfig|
                                                        У
21 CONFIG DEBUG SG
                                          |kconfig|
                                                               |ELISA_safety|Driver: Heap ov
                                                       У
22 CONFIG_BUG_ON_DATA_CORRUPTION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        У
23 CONFIG KMEM
                                          [kconfig]
                                                                         |Kernel Memory:Ker
                                                        n
24 CONFIG DEVMEM
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        n
25 CONFIG_DEVPORT
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        n
26 CONFIG ACPI CUSTOM METHOD
                                                               |ELISA safety|Kernel Memory:K
                                          |kconfig|
                                                        n
27 CONFIG_LEGACY_PTYS
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
28 CONFIG_HIBERNATION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
29 CONFIG KEXEC
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
                                                               |ELISA_safety, Intel|Kernel M
30 CONFIG_HARDENED_USERCOPY
                                          |kconfig|
                                                        У
31 CONFIG_HARDENED_USERCOPY_FALLBACK
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
32 CONFIG_HARDENED_USERCOPY_PAGESPAN
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
33 CONFIG_COMPAT_BRK
                                                               |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                        n
34 CONFIG_USERFAULTFD
                                          |kconfig|
                                                               |ELISA_safety|Heap memory:R/W
                                                        n
35 CONFIG_DEBUG_WX
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:W
                                                        У
36 CONFIG_KPROBES
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
37 CONFIG_PROC_KCORE
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
38 CONFIG_KALLSYMS
                                                               |ELISA_safety|Stack memory:En
                                          |kconfig|
                                                        n
39 CONFIG_PROVE_LOCKING
                                                               |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
40 CONFIG_DEBUG_RT_MUTEXES
                                          |kconfig|
                                                        У
41 CONFIG_DEBUG_NOTIFIERS
                                                               |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                        У
42 CONFIG_LOCK_STAT
                                          |kconfig|
                                                        У
                                                               |ELISA_safety|Debug:Notificat
43 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
44 CONFIG_DEBUG_MUTEXES
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
45 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
46 CONFIG_DEBUG_LOCK_ALLOC
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
                                                               |ELISA_safety| Debug:RT mutex
47 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                          |kconfig|
                                                       У
48 CONFIG_LOCK_TORTURE_TEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
49 CONFIG_WW_MUTEX_SELFTEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
50 CONFIG_RCU_TORTURE_TEST
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
51 CONFIG_DEBUG_ATOMIC_SLEEP
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
```

```
|kconfig|
                                                                  |ELISA_safety| Live Patch
52 CONFIG_LIVEPATCH
53 CONFIG DEVKMEM
                                             |kconfig|
                                                                  |ELISA_safety|Kernel Memory:K
                                                           У
54 CONFIG_SECURITY_WRITABLE_HOOKS
                                                                  |ELISA_security|Linux Securit
                                             |kconfig|
55 CONFIG_LSM_MMAP_MIN_ADDR
                                             |kconfig|
                                                                  |ELISA_security|Linux Securit
                                                           У
   CONFIG STATIC USERMODEHELPER
                                             |kconfig|
                                                                  |ELISA_security|Linux Securit
                                                           У
57 CONFIG_STATIC_USERMODEHELPER_PATH
                                                                  |ELISA_security|Linux Securit
                                             |kconfig|
   CONFIG_DEFAULT_SECURITY_DAC
                                             |kconfig|
                                                                  |ELISA_security|Linux Securit
                                                           У
59
60 [+] Config check is finished: 'OK' - 33 (suppressed in output) / 'FAIL' - 49
```

16. config-5.3.18-150300.59.63-default-suse15-sp3

```
% ./bin/kconfig-safety-check -p X86_64 -c ./config_files/alibaba/config-5.3.18-150300.59.
 1
 2 [+] Special report mode: show_fail
 3 [+] Kconfig file to check: ./config_files/alibaba/config-5.3.18-150300.59.63-default-suse1
 4 [+] Detected architecture: X86 64
 5 [+] Detected kernel version: 5.3.18
 6 5.3.18
 | type | desired val | decision |
 8
                 option name
                                                                                reason
 9
10 CONFIG_INIT_ON_FREE_DEFAULT_ON
                                          |kconfig|
                                                               |ELISA_safety|Memory manageme
                                                       У
11 CONFIG_INIT_ON_ALLOC_DEFAULT_ON
                                                               |ELISA_safety|Memory manageme
                                          |kconfig|
                                                       У
12 CONFIG_REFCOUNT_FULL
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory r
                                                       У
13 CONFIG_GCC_PLUGIN_STRUCTKLEAK
                                                               |ELISA_safety|GCC, plugins, S
                                          |kconfig|
                                                        У
14 CONFIG_GCC_PLUGIN_STRUCTLEAK_BYREF_ALL
                                          |kconfig|
                                                               |ELISA_safety|GCC, plugins, S
                                                        У
15 CONFIG_INIT_STACK_ALL
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:Un
                                                       У
16 CONFIG_GCC_PLUGIN_STACKLEAK
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        У
17 CONFIG_PAGE_POISONING
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        У
18 CONFIG_PAGE_POISONING_NO_SANITY
                                                               |ELISA_safety|Stack memory:St
                                          |kconfig|
                                                        n
                                                               |ELISA_safety, Intel|Heap mem
19 CONFIG_DEBUG_LIST
                                          |kconfig|
                                                        У
                                                               |ELISA_safety|Driver: Heap ov
20 CONFIG_DEBUG_SG
                                          |kconfig|
                                                        У
21 CONFIG BUG ON DATA CORRUPTION
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                       У
22 CONFIG_KMEM
                                                                       |Kernel Memory:Ker
                                          |kconfig|
                                                               | Intel
                                                        n
23 CONFIG DEVMEM
                                          [kconfig]
                                                               |ELISA safety, Intel|Kernel M
                                                        n
24 CONFIG DEVPORT
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        n
25 CONFIG_ACPI_CUSTOM_METHOD
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
26 CONFIG LEGACY PTYS
                                                               |ELISA safety|Kernel Memory:K
                                          |kconfig|
                                                        n
27 CONFIG HIBERNATION
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
28 CONFIG_KEXEC
                                                               |ELISA_safety|Kernel Memory:K
                                          |kconfig|
                                                        n
29 CONFIG HARDENED USERCOPY
                                                               |ELISA_safety, Intel|Kernel M
                                          |kconfig|
                                                        У
30 CONFIG_HARDENED_USERCOPY_FALLBACK
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:K
                                                        n
                                                               |ELISA_safety|Kernel Memory:K
31 CONFIG_HARDENED_USERCOPY_PAGESPAN
                                          |kconfig|
                                                        n
32 CONFIG_COMPAT_BRK
                                          |kconfig|
                                                               |ELISA_safety|Heap memory:R/W
                                                        n
33 CONFIG_USERFAULTFD
                                                               |ELISA_safety|Heap memory:R/W
                                          |kconfig|
                                                        n
34 CONFIG_DEBUG_WX
                                          |kconfig|
                                                               |ELISA_safety|Kernel Memory:W
                                                        У
35 CONFIG_KPROBES
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
36 CONFIG_PROC_KCORE
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
37 CONFIG_KALLSYMS
                                          |kconfig|
                                                               |ELISA_safety|Stack memory:En
                                                        n
38 CONFIG_PROVE_LOCKING
                                                               |ELISA_safety|Debug:Kernel mo
                                          |kconfig|
                                                        У
39 CONFIG_DEBUG_RT_MUTEXES
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
                                                               |ELISA_safety|Debug:Notificat
40 CONFIG_DEBUG_NOTIFIERS
                                          |kconfig|
                                                        У
41 CONFIG_LOCK_STAT
                                                               |ELISA_safety|Debug:Notificat
                                          |kconfig|
                                                        У
42 CONFIG_DEBUG_SPINLOCK
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
43 CONFIG_DEBUG_MUTEXES
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
44 CONFIG_DEBUG_WW_MUTEX_SLOWPATH
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
45 CONFIG_DEBUG_LOCK_ALLOC
                                          |kconfig|
                                                        У
                                                               |ELISA_safety| Debug:RT mutex
46 CONFIG_DEBUG_LOCKING_API_SELFTESTS
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                       У
                                                               |ELISA_safety| Debug:RT mutex
47 CONFIG_LOCK_TORTURE_TEST
                                          |kconfig|
                                                       У
48 CONFIG_WW_MUTEX_SELFTEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
49 CONFIG_RCU_TORTURE_TEST
                                                               |ELISA_safety| Debug:RT mutex
                                          |kconfig|
                                                        У
50 CONFIG_DEBUG_ATOMIC_SLEEP
                                          |kconfig|
                                                               |ELISA_safety| Debug:RT mutex
                                                        У
51 CONFIG LIVEPATCH
                                                               |ELISA_safety|
                                                                                Live Patch
                                          |kconfig|
                                                        n
```

```
52 CONFIG_DEVKMEM
                                                                   |ELISA_safety|Kernel Memory:K
                                             |kconfig|
                                                           У
53 CONFIG SECURITY WRITABLE HOOKS
                                                                   |ELISA_security|Linux Securit
                                             |kconfig|
                                                           n
54 CONFIG_LSM_MMAP_MIN_ADDR
                                             |kconfig|
                                                                   |ELISA_security|Linux Securit
                                                           У
   CONFIG_STATIC_USERMODEHELPER
                                                                   |ELISA_security|Linux Securit
                                             |kconfig|
                                                           У
   CONFIG STATIC USERMODEHELPER PATH
                                                                   |ELISA_security|Linux Securit
                                             |kconfig|
                                                           У
   CONFIG_DEFAULT_SECURITY_DAC
                                                                   |ELISA_security|Linux Securit
                                             |kconfig|
58
59 [+] Config check is finished: 'OK' - 34 (suppressed in output) / 'FAIL' - 48
```