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commit [f1bd8b7fd890d87d0dc4dedc6287ea34dd07c0b4](#) (patch)
tree [ee0f217a14641ecf1dcbef885a673d94a4f3190b](#)
parent [3391f526fcda4780b70385dd78ade40b540d7332](#) (diff)
download [linux-f1bd8b7fd890d87d0dc4dedc6287ea34dd07c0b4.tar.gz](#)

diff options

context:
space:
mode:

ftrace: Fix invalid address access in lookup_rec() when index is 0

commit ee92fa443358f4fc0017c1d0d325c27b37802504 upstream.

KASAN reported follow problem:

```
BUG: KASAN: use-after-free in lookup_rec
Read of size 8 at addr ffff000199270ff0 by task modprobe
CPU: 2 Comm: modprobe
Call trace:
  kasan_report
  __asan_load8
  lookup_rec
  ftrace_location
  arch_check_ftrace_location
  check_kprobe_address_safe
  register_kprobe
```

When checking `pg->records[pg->index - 1].ip` in `lookup_rec()`, it can get a `pg` which is newly added to `ftrace_pages_start` in `ftrace_process_locs()`. Before the first `pg->index++`, `index` is 0 and accessing `pg->records[-1].ip` will cause this problem.

Don't check the `ip` when `pg->index` is 0.

Link: <https://lore.kernel.org/linux-trace-kernel/20230309080230.36064-1-chenzhongjin@huawei.com>

Cc: stable@vger.kernel.org

Fixes: 9644302e3315 ("ftrace: Speed up search by skipping pages by address")

Suggested-by: Steven Rostedt (Google) <rostedt@goodmis.org>

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Diffstat

```
-rw-r--r-- kernel/trace/ftrace.c 3
```

1 files changed, 2 insertions, 1 deletions

diff --git a/kernel/trace/ftrace.c b/kernel/trace/ftrace.c

index 750aa3f08b25ae..a47f7d93e32d24 100644

--- a/kernel/trace/ftrace.c

+++ b/kernel/trace/ftrace.c

```
@@ -1537,7 +1537,8 @@ static struct dyn_ftrace *lookup_rec(unsigned long start, unsigned long end)
    key.flags = end;
    /* overload flags, as it is unsigned long */
```

```
-   for (pg = ftrace_pages_start; pg; pg = pg->next) {  
+       if (end < pg->records[0].ip ||  
+       if (pg->index == 0 ||  
+           end < pg->records[0].ip ||  
            start >= (pg->records[pg->index - 1].ip + MCOUNT_INSN_SIZE))  
                continue;  
            rec = bsearch(&key, pg->records, pg->index,
```