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committer	Greg Kroah-Hartman <gregkh@linuxfoundation.org>	2022-11-16 09:58:15 +0100
commit	466ce46f251dfb259a8cbaa895ab9edd6fb56240 (patch)	
tree	28b84374e41bc3416f6522dc65fcf80590b7db3a	
parent	35d8130f2ad08996f37c7d5ff2a471d0e7b1031a (diff)	
download	linux-466ce46f251dfb259a8cbaa895ab9edd6fb56240.tar.gz	

bpf: Fix wrong reg type conversion in release_reference()

```
[ Upstream commit f1db20814af532f85e091231223e5e4818e8464b ]

Some helper functions will allocate memory. To avoid memory leaks, the
verifier requires the eBPF program to release these memories by calling
the corresponding helper functions.

When a resource is released, all pointer registers corresponding to the
resource should be invalidated. The verifier use release_references() to
do this job, by apply  __mark_reg_unknown() to each relevant register.

It will give these registers the type of SCALAR_VALUE. A register that
will contain a pointer value at runtime, but of type SCALAR_VALUE, which
may allow the unprivileged user to get a kernel pointer by storing this
register into a map.

Using __mark_reg_not_init() while NOT allow_ptr_leaks can mitigate this
problem.

Fixes: fd978bf7fd31 ("bpf: Add reference tracking to verifier")
Signed-off-by: Youlin Li <liulin063@gmail.com>
Signed-off-by: Daniel Borkmann <daniel@iogearbox.net>
Link: https://lore.kernel.org/bpf/20221103093440.3161-1-liulin063@gmail.com
Signed-off-by: Sasha Levin <sashal@kernel.org>
```

Diffstat

-rw-r--r-- kernel/bpf/verifier.c 8

1 files changed, 6 insertions, 2 deletions

```
diff --git a/kernel/bpf/verifier.c b/kernel/bpf/verifier.c
index 96f317c494d9e8..8a73a165ac7695 100644
--- a/kernel/bpf/verifier.c
+++ b/kernel/bpf/verifier.c
@@ -5686,8 +5686,12 @@ static int release_reference(struct bpf_verifier_env *env,
                return err;

        bpf_for_each_reg_in_vstate(env->cur_state, state, reg, ({
-               if (reg->ref_obj_id == ref_obj_id)
-                       __mark_reg_unknown(env, reg);
+               if (reg->ref_obj_id == ref_obj_id) {
+                       if (!env->allow_ptr_leaks)
+                               __mark_reg_not_init(env, reg);
```

```
+                       else
+                               __mark_reg_unknown(env, reg);
+               }
        }));

        return 0;
```