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Subject: [PATCH v6 04/10] ipc: add new SHM\_SET command for sys\_shmctl() call  
Posted by [Stanislav Kinsbursky](#) on Mon, 15 Oct 2012 15:59:56 GMT  
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New SHM\_SET command will be interpreted exactly as IPC\_SET, but also will update key, cuid and cgid values. IOW, it allows to change existent key value. The fact, that key is not used is checked before update. Otherwise -EEXIST is returned.

Signed-off-by: Stanislav Kinsbursky <[skinsbursky@parallels.com](mailto:skinsbursky@parallels.com)>

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```
include/uapi/linux/shm.h | 1 +
ipc/compat.c             | 1 +
ipc/shm.c                | 13 ++++++++
security/selinux/hooks.c | 1 +
security/smack/smack_lsm.c | 1 +
5 files changed, 15 insertions(+), 2 deletions(-)
```

diff --git a/include/uapi/linux/shm.h b/include/uapi/linux/shm.h

index ec36fa1..d7413fd 100644

--- a/include/uapi/linux/shm.h

+++ b/include/uapi/linux/shm.h

@@ -56,6 +56,7 @@ struct shmid\_ds {

/\* ipcctl commands \*/

#define SHM\_STAT 13

#define SHM\_INFO 14

+ #define SHM\_SET 15

/\* Obsolete, used only for backwards compatibility \*/

struct shminfo {

diff --git a/ipc/compat.c b/ipc/compat.c

index af30d13..35c750d 100644

--- a/ipc/compat.c

+++ b/ipc/compat.c

@@ -692,6 +692,7 @@ long compat\_sys\_shmctl(int first, int second, void \_\_user \*uptr)

case IPC\_SET:

+ case SHM\_SET:

if (version == IPC\_64) {

err = get\_compat\_shmid64\_ds(&s64, uptr);

} else {

diff --git a/ipc/shm.c b/ipc/shm.c

index 80b0046..aebc50d 100644

--- a/ipc/shm.c

+++ b/ipc/shm.c

@@ -636,6 +636,9 @@ copy\_shmid\_from\_user(struct shmid64\_ds \*out, void \_\_user \*buf, int version)

```

    out->shm_perm.uid = tbuf_old.shm_perm.uid;
    out->shm_perm.gid = tbuf_old.shm_perm.gid;
    out->shm_perm.mode = tbuf_old.shm_perm.mode;
+ out->shm_perm.cuid = tbuf_old.shm_perm.cuid;
+ out->shm_perm.cgid = tbuf_old.shm_perm.cgid;
+ out->shm_perm.key = tbuf_old.shm_perm.key;

    return 0;
}
@@ -740,12 +743,13 @@ static int shmctl_down(struct ipc_namespace *ns, int shmid, int cmd,
    struct shmctl_kernel *shp;
    int err;

- if (cmd == IPC_SET) {
+ if (cmd == IPC_SET || cmd == SHM_SET) {
    if (copy_shmid_from_user(&shmid64, buf, version))
        return -EFAULT;
}

- ipcpl = ipcctl_pre_down(ns, &shm_ids(ns), shmid, cmd,
+ ipcpl = ipcctl_pre_down(ns, &shm_ids(ns), shmid,
+ (cmd != SHM_SET) ? cmd : IPC_SET,
+ &shm64.shm_perm, 0);
    if (IS_ERR(ipcpl))
        return PTR_ERR(ipcpl);
@@ -759,6 +763,10 @@ static int shmctl_down(struct ipc_namespace *ns, int shmid, int cmd,
    case IPC_RMID:
        do_shm_rmid(ns, ipcpl);
        goto out_up;
+ case SHM_SET:
+ err = ipc_update_key(&shm_ids(ns), &shm64.shm_perm, ipcpl);
+ if (err)
+ break;
    case IPC_SET:
        err = ipc_update_perm(&shm64.shm_perm, ipcpl);
        if (err)
@@ -938,6 +946,7 @@ SYSCALL_DEFINE3(shmctl, int, shmid, int, cmd, struct shmctl_ds __user
*, buf)
}
    case IPC_RMID:
    case IPC_SET:
+ case SHM_SET:
    err = shmctl_down(ns, shmid, cmd, buf, version);
    return err;
    default:
diff --git a/security/selinux/hooks.c b/security/selinux/hooks.c
index 24ab414..62b2447 100644
--- a/security/selinux/hooks.c

```

```
+++ b/security/selinux/hooks.c
@@ -5027,6 +5027,7 @@ static int selinux_shm_shmctl(struct shmid_kernel *shp, int cmd)
    perms = SHM__GETATTR | SHM__ASSOCIATE;
    break;
    case IPC_SET:
+ case SHM_SET:
    perms = SHM__SETATTR;
    break;
    case SHM_LOCK:
diff --git a/security/smack/smack_lsm.c b/security/smack/smack_lsm.c
index 38be92c..c7eabc9 100644
--- a/security/smack/smack_lsm.c
+++ b/security/smack/smack_lsm.c
@@ -2121,6 +2121,7 @@ static int smack_shm_shmctl(struct shmid_kernel *shp, int cmd)
    may = MAY_READ;
    break;
    case IPC_SET:
+ case SHM_SET:
    case SHM_LOCK:
    case SHM_UNLOCK:
    case IPC_RMID:
```

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