Subject: [PATCH v7 04/10] ipc: add new SHM_SET command for sys_shmctl() call
Posted by Stanislav Kinsbursky on Thu, 18 Oct 2012 10:22:56 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>
---
 include/uapi/linux/shm.h | 1 +
 ipc/compat.c | 1 +
 ipc/shm.c | 14 ++++++++++--
 security/selinux/hooks.c | 1 +
 security/smack/smack_lsm.c | 1 +
 5 files changed, 16 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 {
 /* ipcs ctl 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..650911e 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 shmid_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;
  }

- ipcp = ipcctl_pre_down(ns, &shm_ids(ns), shmid, cmd,
+ ipcp = ipcctl_pre_down(ns, &shm_ids(ns), shmid,
+          (cmd != SHM_SET) ? cmd : IPC_SET,
          &shmid64.shm_perm, 0);
  if (IS_ERR(ipcp))
   return PTR_ERR(ipcp);
@@ -759,6 +763,11 @@ static int shmctl_down(struct ipc_namespace *ns, int shmid, int cmd,
  case IPC_RMID:
   do_shm_rmid(ns, ipcp);
   goto out_up;
+ case SHM_SET:
+  err = ipc_update_key(&shm_ids(ns), &shmid64.shm_perm, ipcp);
+  if (err)
+   break;
+   /* fall through */
  case IPC_SET:
   err = ipc_update_perm(&shmid64.shm_perm, ipcp);
   if (err)
@@ -938,6 +947,7 @@ SYSCALL_DEFINE3(shmctl, int, shmid, int, cmd, struct shmid_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:
```