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Subject: [PATCH v5 00/10] IPC: checkpoint/restore in userspace enhancements

Posted by [Stanislav Kinsbursky](#) on Wed, 19 Sep 2012 16:05:21 GMT

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v5:

- 1) Several define-dependent compile bugs fixed
- 2) IPC message copy test updated
- 3) A couple of minor fixes.
- 4) Qlogic driver update: rename of its internal SEM\_SET define into SEM\_INIT (compile error).

v4:

- 1) If MSG\_COPY flag is specified, then "mtype" is not a type, but message number to copy.
- 2) MSG\_SET\_COPY logic for sys\_msgctl() was removed.

v3:

- 1) Copy messages to user-space under spinlock was replaced by allocation of dummy message before queue lock and then copy of desired message to the dummy one instead of unlinking it from queue list.  
I.e. the message queue copy logic was changed: messages can be retrived one by one (instead of receiving of the whole list at once).

This patch set is aimed to provide additional functionality for all IPC objects, which is required for migration of these objects by user-space checkpoint/restore utils (CRIU).

The main problem here was impossibility to set up object id. This patch set solves the problem in two steps:

- 1) Makes it possible to create new object (shared memory, semaphores set or messages queue) with ID, equal to passed key.
- 2) Makes it possible to change existent object key.

Another problem was to peek messages from queues without deleting them. This was achived by introducing of new MSG\_COPY flag for sys\_msgrcv(). If MSG\_COPY flag is set, then msgtyp is interpreted as message number.

The following series implements...

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Stanislav Kinsbursky (10):

- ipc: remove forced assignment of selected message
- ipc: "use key as id" functionality for resource get system call introduced
- ipc: segment key change helper introduced
- ipc: add new SHM\_SET command for sys\_shmctl() call
- ipc: add new MSG\_SET command for sys\_msgctl() call
- glge driver: rename internal SEM\_SET macro to SEM\_INIT

ipc: add new SEM\_SET command for sys\_semctl() call  
IPC: message queue receive cleanup  
IPC: message queue copy feature introduced  
test: IPC message queue copy feture test

```
drivers/net/ethernet/qlogic/qlge/qlge.h      | 4
drivers/net/ethernet/qlogic/qlge/qlge_main.c | 16 +-
include/linux/ipc.h                          | 1
include/linux/msg.h                          | 7 +
include/linux/sem.h                          | 1
include/linux/shm.h                          | 1
ipc/compat.c                                 | 45 +++--
ipc/msg.c                                     | 112 ++++++++---
ipc/msgutil.c                                | 38 ++++
ipc/sem.c                                     | 14 +
ipc/shm.c                                     | 17 +-
ipc/util.c                                    | 69 +++++++
ipc/util.h                                    | 6 +
security/selinux/hooks.c                     | 3
security/smack/smack_lsm.c                   | 3
tools/testing/selftests/ipc/Makefile          | 28 +++
tools/testing/selftests/ipc/msgque.c         | 251 ++++++++
17 files changed, 547 insertions(+), 69 deletions(-)
create mode 100644 tools/testing/selftests/ipc/Makefile
create mode 100644 tools/testing/selftests/ipc/msgque.c
```

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Signature

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