Using ipcrm to clean up GSM (Unix) IPC

1. Introduction

GSM (Unix) makes use of a number of Unix Inter-Process Intercommunication (IPC) facilities. Occasionally, these IPC facilities may be left in a state that prevents GSM (Unix) from loading (normally with "global" or "glintd" crashing with a fatal error). The "glclean all" command (see section 6.7 of the GSM (Unix) manual) normally cleans up the IPC facilities but if glclean does not completely tidy up the IPC facilities these facilities must be removed "by hand" by running standard Unix utilities.

The following Unix IPC facilities are used by GSM (Unix):

- Queues;
- Semaphores;
- Shared Memory.

2. Using ipcs to display the IPC facilities

The standard Unix command ipcs can be used to display the IPC facilities that are currently in use. For example:

```
# ipcs
IPC status from /dev/mem as of Thu 30 Sep 14:04:53 2004
T     ID  KEY        MODE       OWNER    GROUP
Message Queues:
q      0  0x4107001c -Rrw-rw----     root   printq
q     54  0x47534d32 -Rrw-rw----     root   global
Shared Memory:
m      0  0x47041800 --rw-r--r--   imnadm   imnadm
m      1  0x58041800 --rw-r--r--   imnadm   imnadm
m      2  0x4d041800 --rw-r--r--   imnadm   imnadm
m      3  0x49041800 --rw-r--r--   imnadm   imnadm
m      4  0x50041800 --rw-r--r--   imnadm   imnadm
m      5  0x4504035e --rw-rw-rw-   imnadm   imnadm
m      6  0x4304035e --rw-rw-rw-   imnadm   imnadm
m      7  0x4204035e --rw-rw-rw-   imnadm   imnadm
m      8  0x4104035e --rw-rw-rw-   imnadm   imnadm
m      9  0x4404035e --rw-rw-rw-   imnadm   imnadm
m     10  0x00001515 --rw-rw-rw-     root   system
m     11  0x0d0521a8 --rw-rw-rw-     root   system
m     76  0x47534d30 --rw-rw----     root   global
Semaphores:
s  409600000000 --ra-ra-ra-   imnadm   imnadm     4
s      1   0x620520e3 --ra-r--r--     root   system     1
s      2   00000000 --ra-ra-ra-   imnadm   imnadm     1
s      3   00000000 --ra-ra-ra-   imnadm   imnadm    40
s      4   00000000 --ra-ra-ra-   imnadm   imnadm     4
s      5   0x4504035e --ra-ra-ra-   imnadm   imnadm     2
```

```
s     6  00000000 --ra-ra-ra-   imnadm   imnadm     2
s     7  00000000 --ra-ra-ra-   imnadm   imnadm     2
s     8  0x00001515 --ra-ra-ra-     root   system     1
s 49161          0x0105205c --ra-------     root   system     1
s    17  0x47534d33 --ra-ra----     root   global     1
s    11  0x03141592 --ra-ra----     root   system     1
s    19  0x47534d34 --ra-ra----     root   global     2
```

In this example the IPC facilities used by GSM (Unix) are emboldened.

All the GSM (Unix) IPLC facilities are owned by group global.

All the GSM (Unix) IPC facilities have a 4-byte key which starts with the 3 bytes 0x47534d (in hexadecimal). Note that 0x47534d are the ASCII codes for "GSM". Note that the 4-byte key will **not** be 0x47534d if the GLIPCBASE shell variable is used (see section G.53 of the GSM (Unix) manual for more details of the **highly-specialised** GLIPCBASE variable).

The ipcs utility is fully documented in the Unix man pages

3. Using iprm to remove IPC facilities

The standard Unix command ipcrm can be used to remove IPC facilities that are currently in use. **THIS COMMAND MUST BE USED WITH GREAT CARE. IF THE WRONG IPC FACILITY IS REMOVED ACCIDENTLY OTHER APPLICATIONS, OR UNIX ITSELF, MAY CRASH.**

ipcrm removes one or more specified messages, a semaphore or shared memory identifiers. The identifiers are specified by the following options:

-q *msqid* Removes the message queue identifier *msqid* from the system and destroys the message queue and data structure associated with it.

-m *shmid* Removes the shared memory identifier *shmid* from the system. The shared memory segment and data structure associated with it are destroyed after the last detach.

-s *semid* Removes the semaphore identifier *semid* from the system and destroys the set of semaphores and data structure associated with it.

So, using the example ipcs report described above the following ipcrm commands will remove all the GSM (Unix)

```
ipcrm -q 54
ipcrm -m 76
ipcrm -s 17
ipcrm -s 19
```

Like any well-behaved Unix utility, ipcrm will not inform you that it has removed the IPC facility, you must use ipcs again to check that the intended message queue, shared memory-id or semaphore has been removed.

The ipcrm utility is fully documented in the Unix man pages