Linux User/Kernel Memory Split

**Kernel Space
(1 GB)**

0xffffffff

0xc00000000

**User Mode Space
(3 GB)**

Kernel Space
User code CANNOT read from nor write to these addresses, doing so results in a segmentation fault

1 GB

0xc0000000==TASK_SIZE

Random stack offset

Stack (grows down)

RLIMIT_STACK

Random mmap offset

Memory Mapping Segment
File mappings (including dynamic libraries) and anonymous mappings.
Example: /lib/libc.so

Program break brk

Heap

Start_brk

Random brk offset

3 GB

BSS Segment
Uninitialized static variables filled with zeros

Data Segment
Static variables initialized by the programmer

end_data

start_data
end_code

Text Segment (ELF)
Stores the binary image of the process

0x08048000

0