

2. Address Translation Examples

Segment	VA	Base	Size
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Code	0-2K	32768	2K
Heap	4-7K	34816	3K (grows positive) [4K = 4096] [34816 + 3K = 37888]
Stack	16-14K	28672	2K (grows negative) [16K = 16384]

Virtual Address 100 (Code) --> Physical Address $32768 + 100 = 32868$

Virtual Address 4200 (Heap) --> Physical Address $34816 + (4200 - 4096) = 34920$

Virtual Address 15360 (Stack) --> Physical Address $28672 - (16384 - 15360) = 27648$

Segmentation Violation = Segmentation Fault = Illegal Virtual Address:

Virtual Address 8000 (Heap) --> Physical Address $34816 + (8000 - 4096) = 38720 \geq 37888$