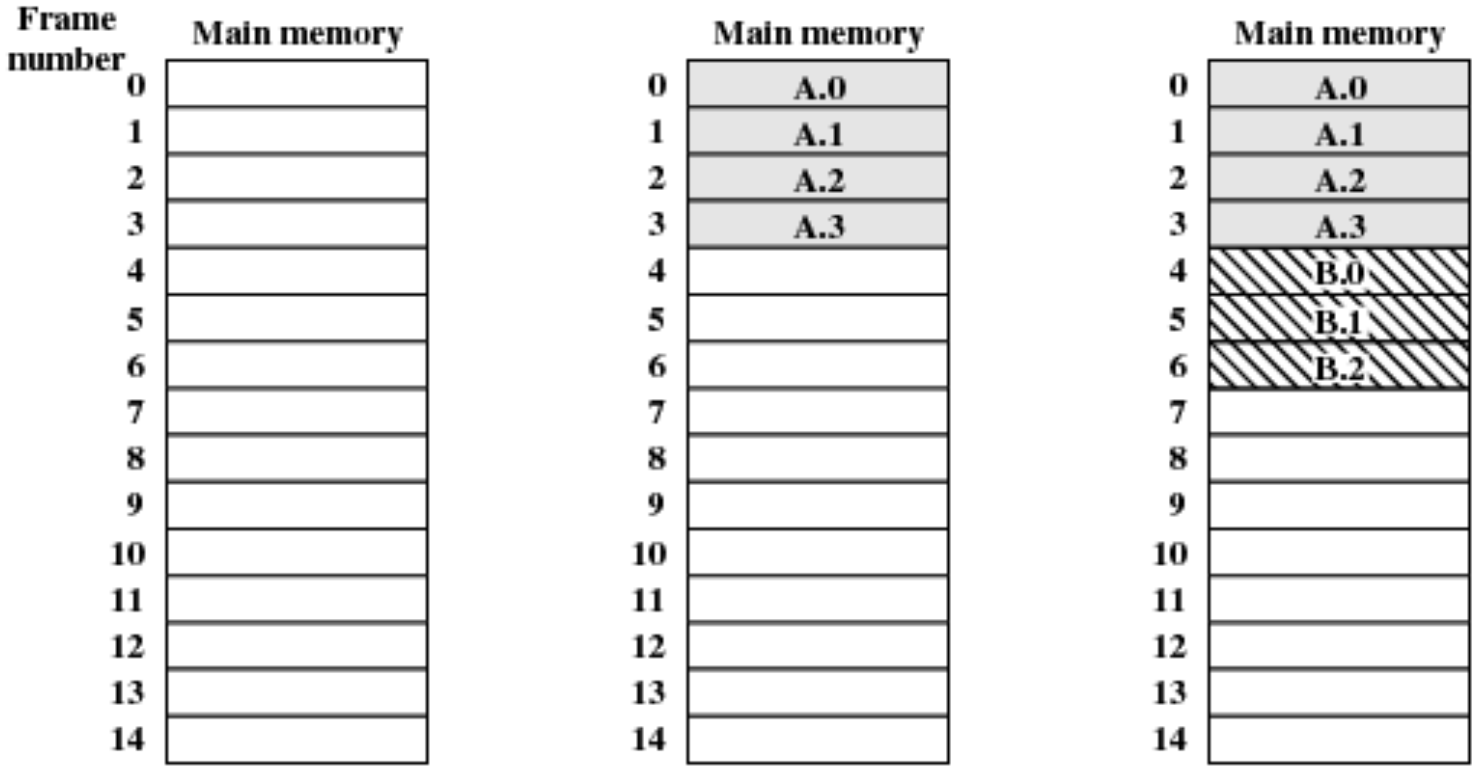
Paging

- Partition memory into small equal fixed-size chunks called page **frames**.
- Processes divided into **pages** as well
- Page frames and pages are of equal size
  - try “pagesize” command
- Operating system maintains a page table for each process
  - Contains the frame location for each page in the process
  - Memory address consist of a page number and offset within the page

Assignment of Process Pages to Free Frames



(a) Fifteen Available Frames (b) Load Process A (c) Load Process B

Assignment of Process Pages to Free Frames

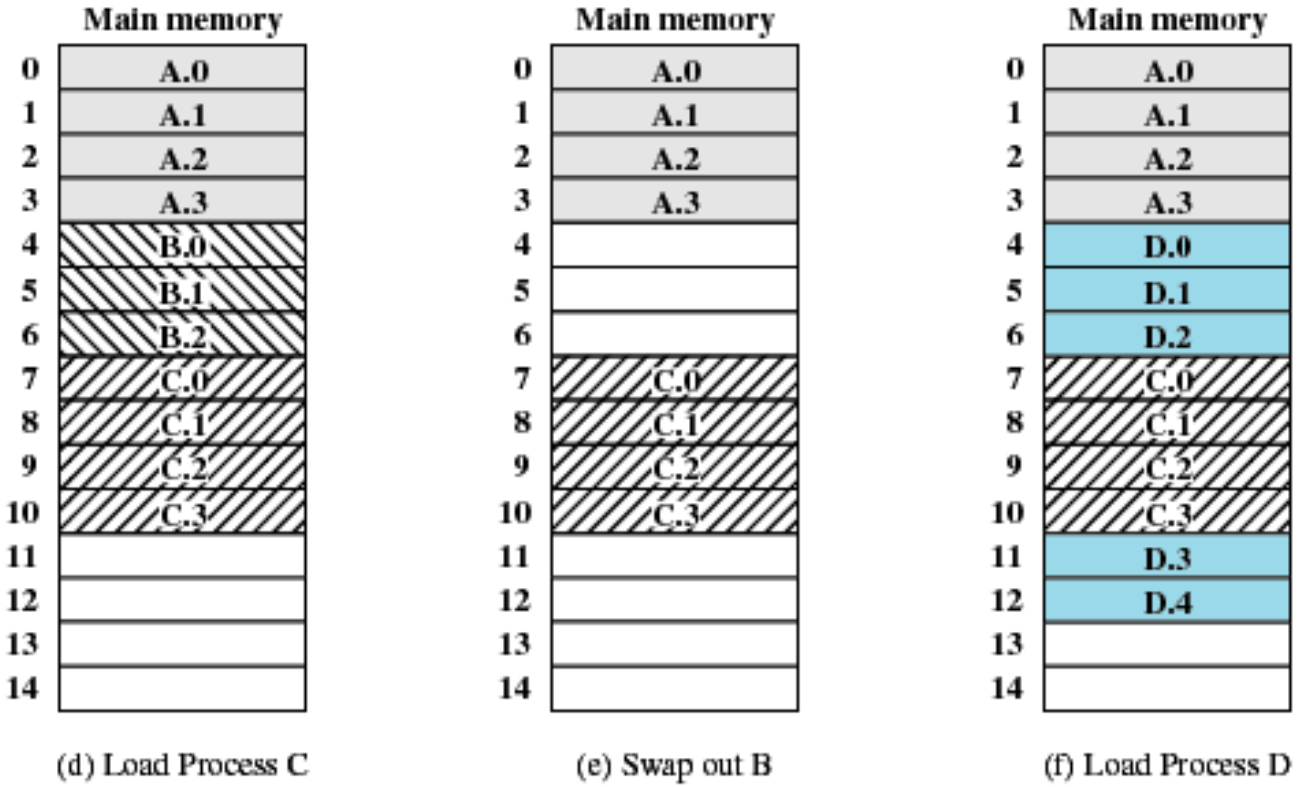


Figure 7.9 Assignment of Process Pages to Free Frames

Page Tables for Example

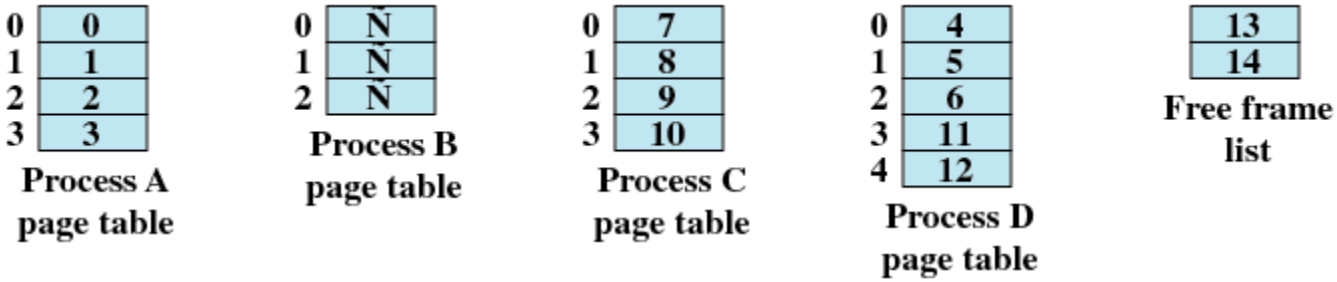
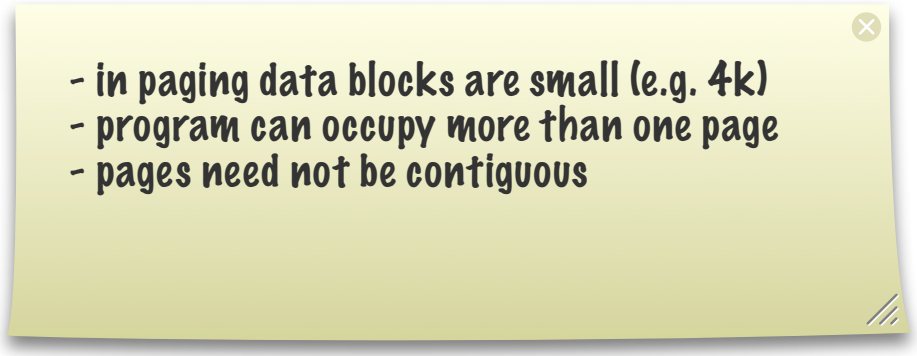


Figure 7.10 Data Structures for the Example of Figure 7.9 at Time Epoch (f)

Paging

- The page frames are of equal size.

Is this the same as fixed partitioning?



Segmentation

- All segments of all programs do not have to be of the same length
- There is a maximum segment length
- Addressing consist of two parts
  - a segment number and
  - an offset

Segmentation

- Since segments are not equal, segmentation may look a bit like dynamic partitioning...

So is it the same or is something different?

- program may occupy more than one segment
- segments need not be contiguous

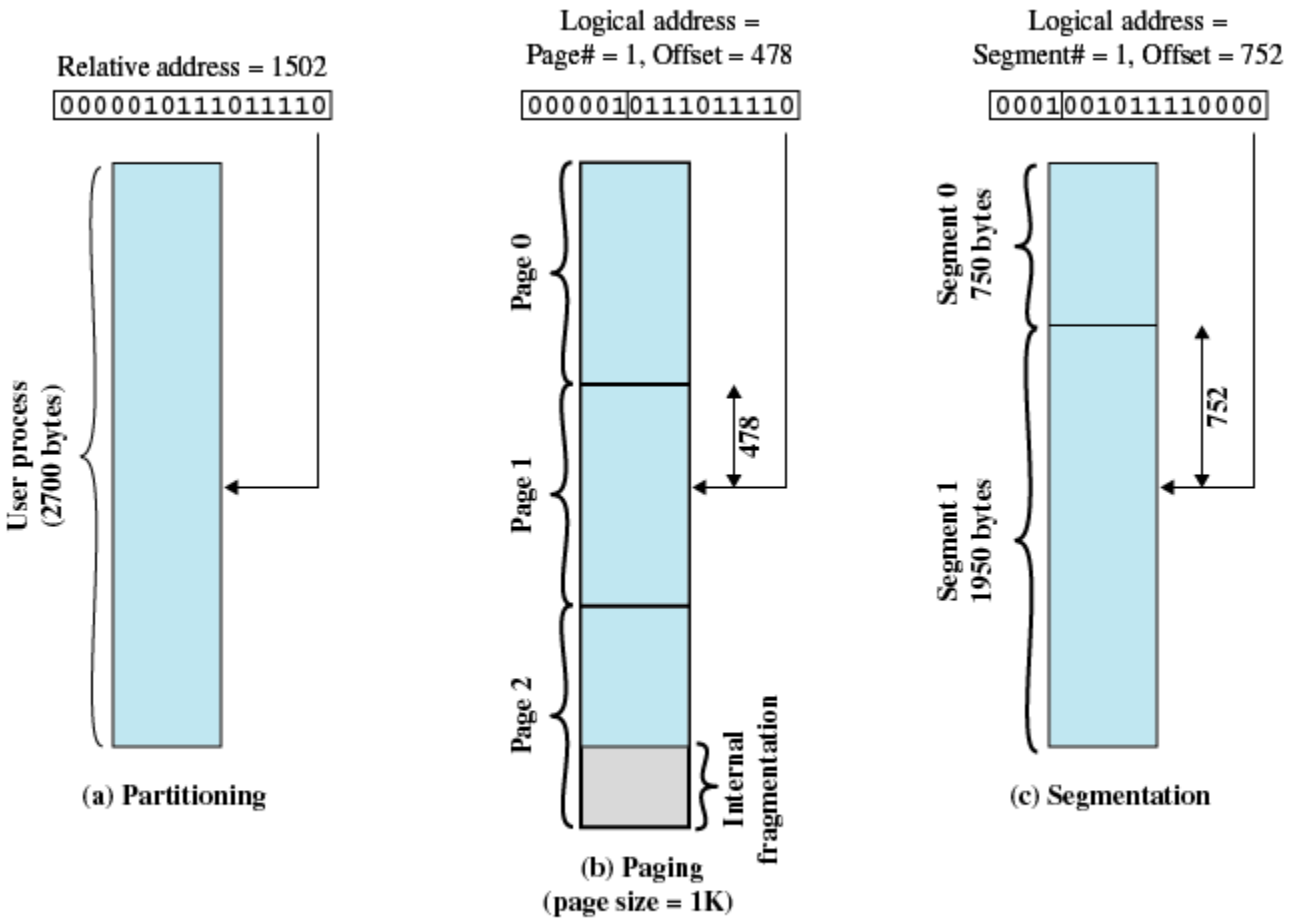
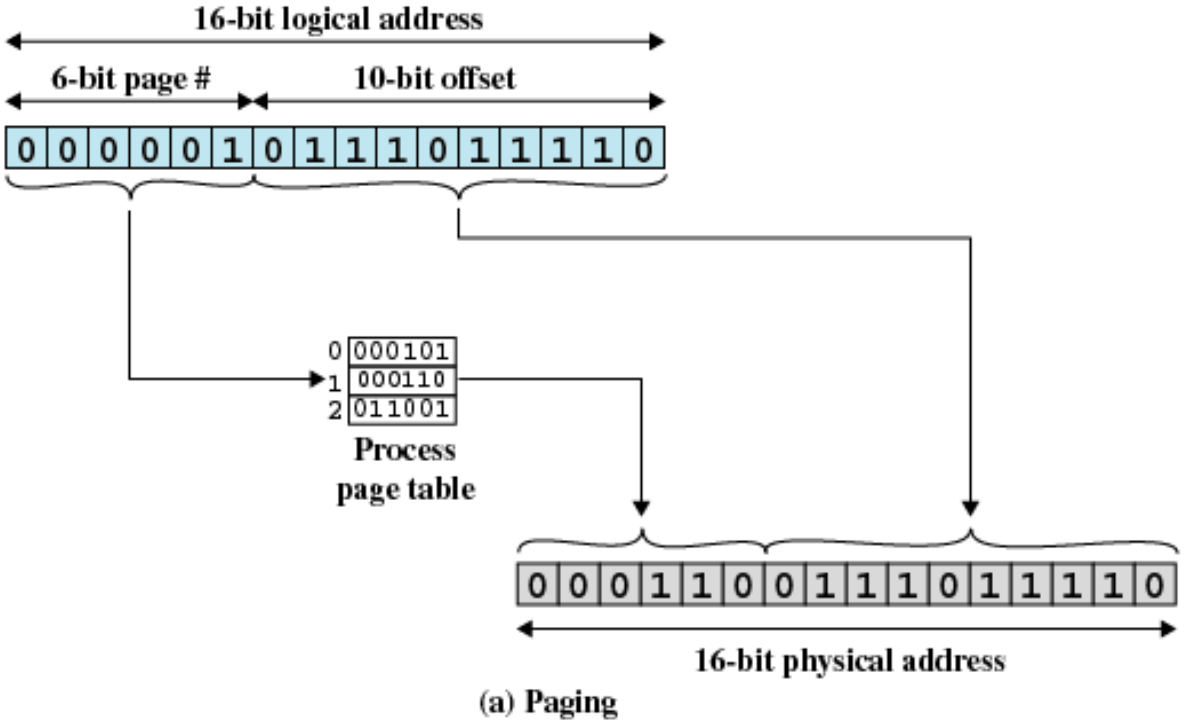


Figure 7.11 Logical Addresses

Logical-to-Physical Address Translation



segment 1
offset 752

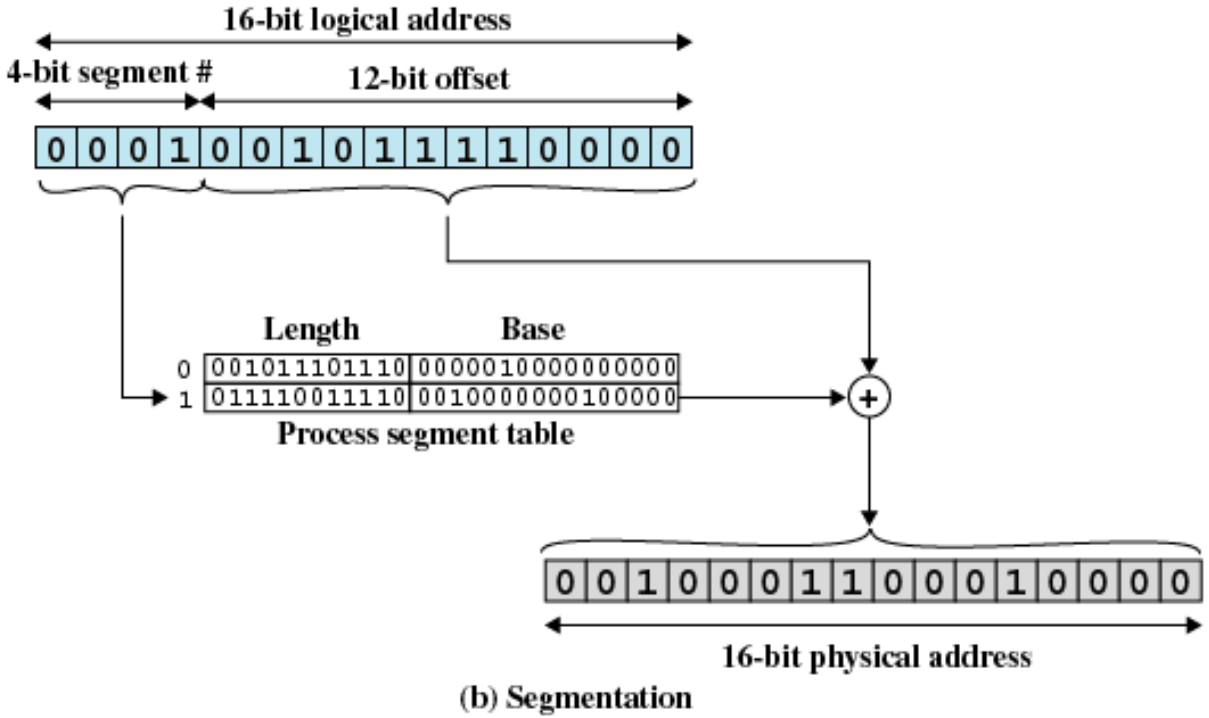


Figure 7.12 Examples of Logical-to-Physical Address Translation

Thus physical address is computed as:

```
   0010000000100000
+        001011110000
=  0010001100010000
```