1address-spaces-lab

CST 334 (Operating Systems)
Dr. Glenn Bruns

Lab: Address Spaces

Try to answer these problems without referring to the lecture slides or the text.

1. What is an address space? Write the answer in your own words. .

2. The concept of address space is very general. The internet is a networked collection of computers. What is a virtual address in the internet? What is a physical address?

3. Do you know anything about how a region of storage on a disk drive is addressed? What is a physical address for disk storage? What is a virtual address?

4. What is the size of the virtual memory address space in 32-bit Windows processes? Do some web research to get the answer. What is the size of the virtual memory space in 64-bit Windows processes?

5. In lecture I said that we will usually assume that memory is "byte-addressable". This means that if you read from a location in memory, you get 1 byte of data. In x86 processors, is memory "byte-addressable"? Do some web research.

6. Answer the following question, which is question 1 at the end of Chapter 14 in our text:

Write a simple program called null.c that creates a pointer to an integer, sets it to NULL, and then tries to dereference it. Compile this into an executable called null. What happens when you run this program?

Here is some code to help you get started quickly:

```
#include <stdio.h>
// test to see what happens when a NULL-valued pointer is dereferenced
int main() {
   int *ip;         // a pointer to an int

   // YOUR CODE HERE

}
```

7. If you still have time, think about doing address translation in software. Sketch out the algorithms and data structures you would use.

Published by Google Drive – Report Abuse – Updated automatically every 5 minutes