Universidad Latina De Costa Rica

Facultad de Ingenierías, Tecnologías de la Información y Comunicación

BIT 28 – Sistemas Operativos II

Laboratorio I - Sockets

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Fecha de Entrega:

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Sockets

Según lo que pude aprender y recordar a lo largo de esta clase, los Sockets son como "conectores" digitales que nos ayudan a que dos dispositivos o programas se comuniquen entre sí a través de una red, como internet o una red local. Son una forma de enviar y recibir datos o información entre computadoras, como si fueran cartas que viajan entre personas que mantienen una comunicación constante.

En este ambiente lo primero que sucede es que un programa crea un socket, o mejor dicho, abre como una puerta para enviar o recibir información. En el cual, uno de los programas actúa como un servidor y el otro actúa como un cliente.

Una vez conectados ambos programas, se pueden intercambiar datos, como mensajes de WhatsApp o información de una página web. Y cuando terminan, se cierra el socket o mejor dicho "se cierra la puerta" para liberar recursos y terminar la comunicación.

Hoy en día, los sockets tienen muchas aplicaciones dentro de la vida cotidiana, por ejemplo en Juegos Online, Videollamadas de cualquier tipo de aplicación, chats e incluso para el momento en que navegamos en Internet, buscando respuestas para satisfacer nuestras búsquedas.

Laboratorio

Instrucciones:

Script de shell simple para enviar un mensaje de socket

En una terminal ejecute el servidor y en otra ejecute el cliente:

Server:

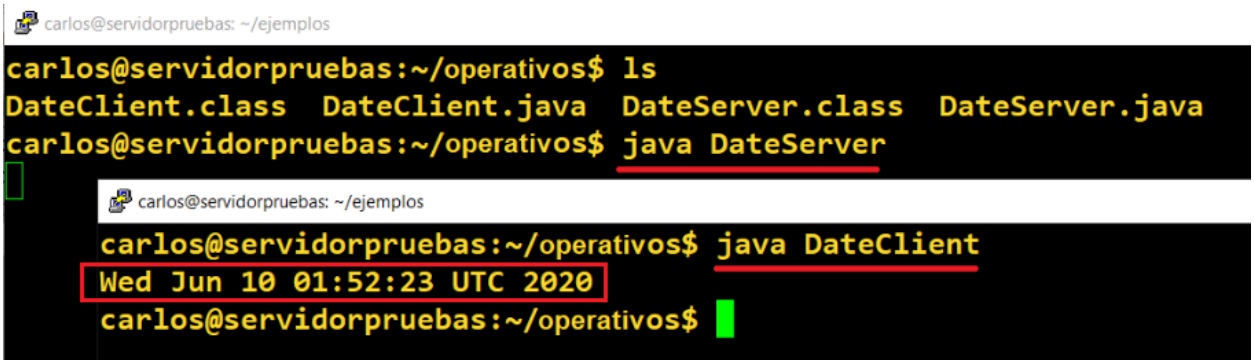
nc -l localhost 3000

Client:

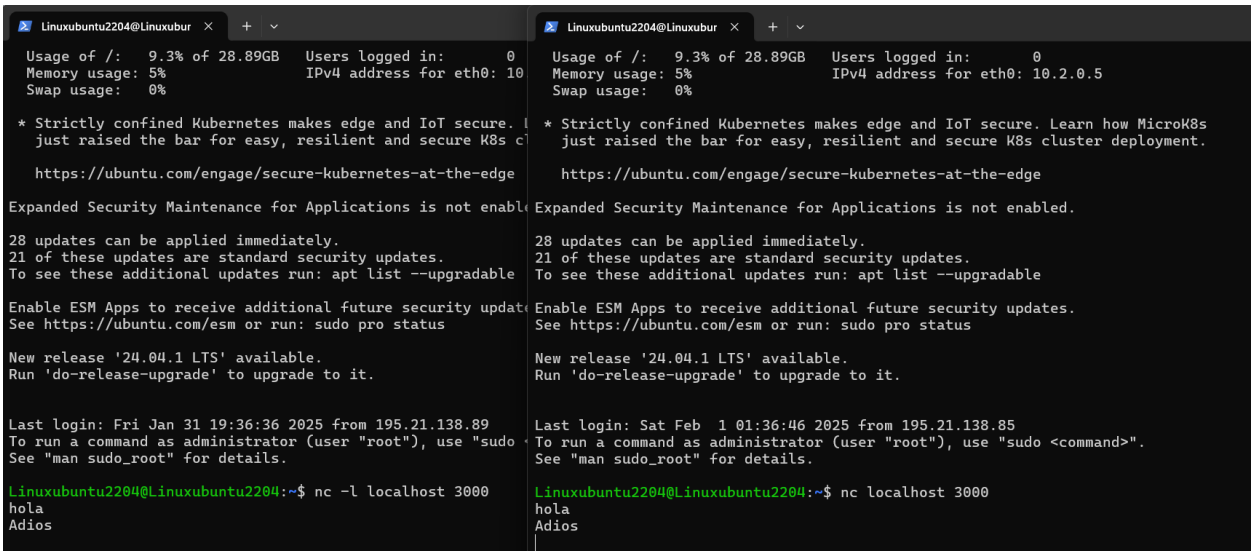
nc localhost 3000

De los ejemplos de GitHub, compilamos los archivos DateClient.java y DateServer.java. Luego, en una terminal ejecutamos el servidor, y en otra terminal, ejecutamos el cliente.

Ejemplo:



Resultados de mi laboratorio:


Linuxubuntu2204@Linuxubur
Usage of /: 9.3% of 28.89GB Users logged in: 0
Memory usage: 5% IPv4 address for eth0: 10
Swap usage: 0%
* Strictly confined Kubernetes makes edge and IoT secure.
just raised the bar for easy, resilient and secure K8s c
https://ubuntu.com/engage/secure-kubernetes-at-the-edge
Expanded Security Maintenance for Applications is not enabl
28 updates can be applied immediately.
21 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updat
See https://ubuntu.com/esm or run: sudo pro status
New release '24.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.
Last login: Fri Jan 31 19:36:36 2025 from 195.21.138.89
To run a command as administrator (user "root"), use "sudo
See "man sudo_root" for details.
Linuxubuntu2204@Linuxubuntu2204:~$ nc -l localhost 3000
hola
Adios
Linuxubuntu2204@Linuxubuntu2204
Usage of /: 9.3% of 28.89GB Users logged in: 0
Memory usage: 5% IPv4 address for eth0: 10.2.0.5
Swap usage: 0%
* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
just raised the bar for easy, resilient and secure K8s cluster deployment.
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New release '24.04.1 LTS' available.
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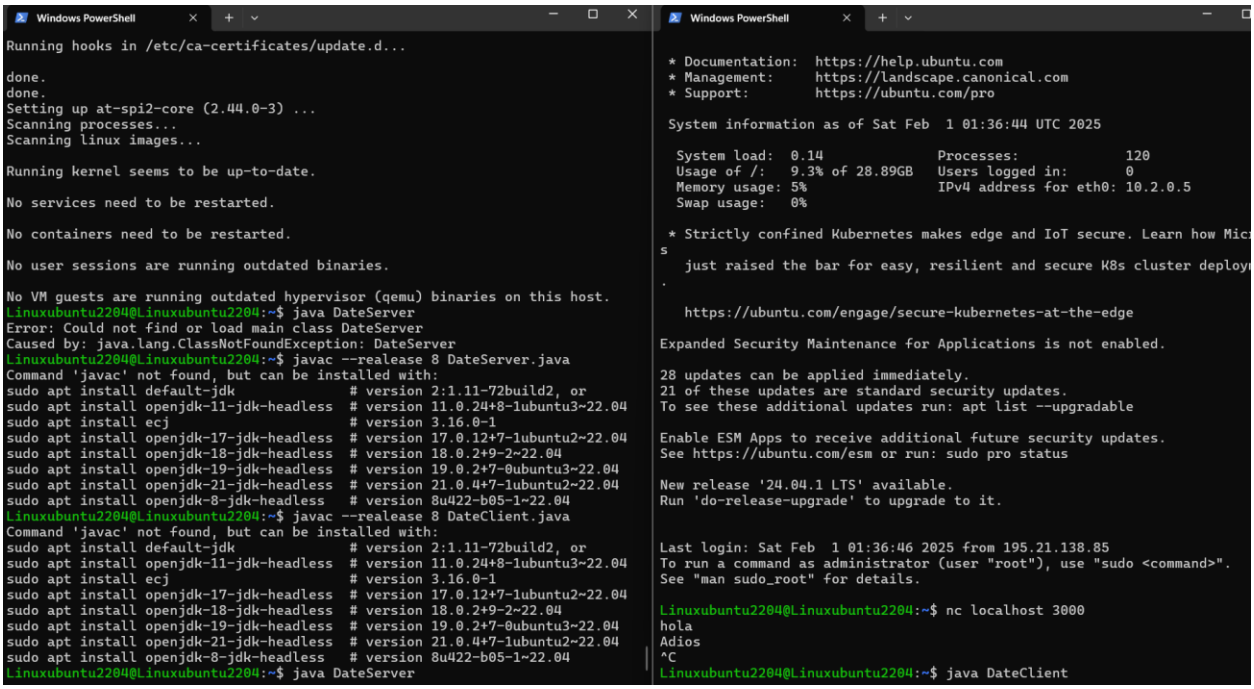
Last login: Sat Feb 1 01:36:46 2025 from 195.21.138.85
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
Linuxubuntu2204@Linuxubuntu2204:~$ nc localhost 3000
hola
Adios


Windows PowerShell
Running hooks in /etc/ca-certificates/update.d...
done.
done.
Setting up at-spi2-core (2.44.0-3) ...
Scanning processes...
Scanning linux images...
Running kernel seems to be up-to-date.
No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
Linuxubuntu2204@Linuxubuntu2204:~$ java DateServer
Error: Could not find or load main class DateServer
Caused by: java.lang.ClassNotFoundException: DateServer
Linuxubuntu2204@Linuxubuntu2204:~$ javac --realease 8 DateServer.java
Command 'javac' not found, but can be installed with:
sudo apt install default-jdk # version 2:1.11-72build2, or
sudo apt install openjdk-11-jdk-headless # version 11.0.24+8-1ubuntu3~22.04
sudo apt install ecj # version 3.16.0-1
sudo apt install openjdk-17-jdk-headless # version 17.0.12+7-1ubuntu2~22.04
sudo apt install openjdk-18-jdk-headless # version 18.0.2+9-2~22.04
sudo apt install openjdk-19-jdk-headless # version 19.0.2+7-0ubuntu3~22.04
sudo apt install openjdk-21-jdk-headless # version 21.0.4+7-1ubuntu2~22.04
sudo apt install openjdk-8-jdk-headless # version 8u422-b05-1~22.04
Linuxubuntu2204@Linuxubuntu2204:~$ javac --realease 8 DateClient.java
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sudo apt install openjdk-11-jdk-headless # version 11.0.24+8-1ubuntu3~22.04
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sudo apt install openjdk-19-jdk-headless # version 19.0.2+7-0ubuntu3~22.04
sudo apt install openjdk-21-jdk-headless # version 21.0.4+7-1ubuntu2~22.04
sudo apt install openjdk-8-jdk-headless # version 8u422-b05-1~22.04
Linuxubuntu2204@Linuxubuntu2204:~$ java DateServer
Windows PowerShell
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro
System information as of Sat Feb 1 01:36:44 UTC 2025
System load: 0.14 Processes: 120
Usage of /: 9.3% of 28.89GB Users logged in: 0
Memory usage: 5% IPv4 address for eth0: 10.2.0.5
Swap usage: 0%
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hola
Adios
^C
Linuxubuntu2204@Linuxubuntu2204:~$ java DateClient