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Academic Task 3

Question Number: 36

Using any Open-Source Software transfer the files from server to client. Explore other options of this open-source software.

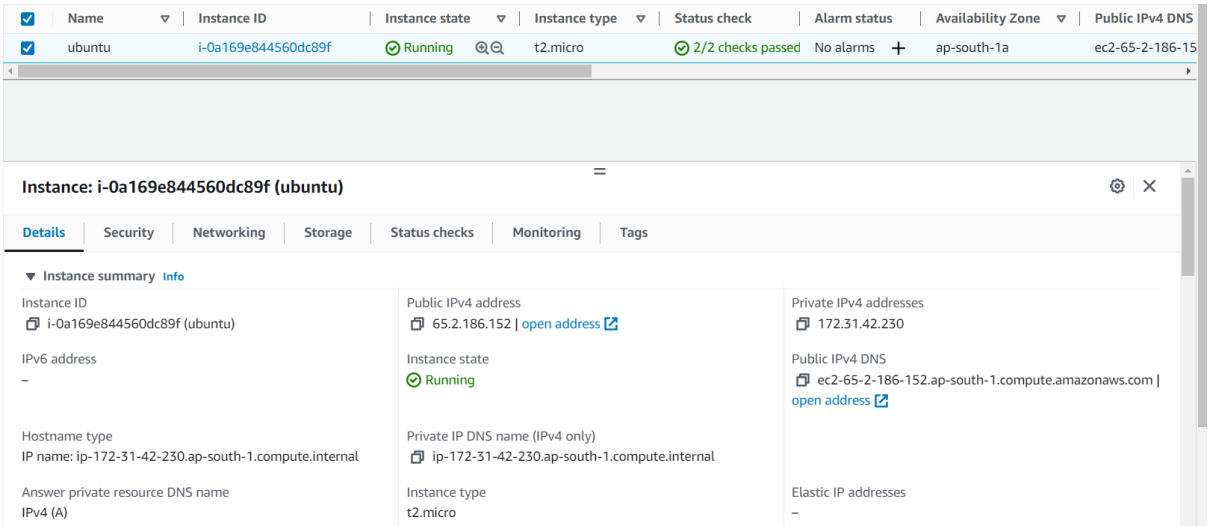
INTRODUCTION:

Secure Copy (SCP) is a file transfer protocol that uses Secure Shell (SSH) to securely transfer files between a local Linux machine and a remote server. SCP allows for secure and efficient file transfers between machines, making it a popular choice for system administrators and developers who need to move files between their local machines and cloud instances server.

In this report, we will discuss how to use SCP to transfer files between an EC2 instance and a local Linux machine.

Step 1: Create Amazon ec2 instance and make connection to this remote server from local client.

First, we create an amazon EC2 ubuntu instance which will act as a remote server for our work. Created the instance and saver the keypair as ‘kpair.pem’ in our local machine Desktop.



Use the following command to connect to your EC2 instance using SSH

```
root@krish-virtual-machine:/home/krish/Desktop# ssh -i "kpair.pem" ubuntu@ec2-65-2-186-152.ap-south-1.compute.amazonaws.com
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.15.0-1031-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Fri Apr  7 14:53:35 UTC 2023

  System load:  0.0               Processes:             97
  Usage of /:   21.1% of 7.57GB   Users logged in:       1
  Memory usage: 21%               IPv4 address for eth0: 172.31.42.230
  Swap usage:   0%


 * Introducing Expanded Security Maintenance for Applications.
   Receive updates to over 25,000 software packages with your
   Ubuntu Pro subscription. Free for personal use.

     https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Fri Apr  7 13:31:55 2023 from 13.233.177.4
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-42-230:~$
```

Here are some files and dir we have created that we'll use for our task

```
aws  Services  Search                                                    [Alt+S]
ubuntu@ip-172-31-42-230:~$ ls
ffile.txt  demofile.html  dir1  filefromserver.html  filefromsserver.html  serverfile1  serverfile2
```

Step 2: transferring file from server to client.

To transfer file from ec2 instance to local, we use the below command. we will be running this command on the local machine command line.

scp -i <pem file> username@<ip_address>:<file_to_copy_from_instance> <destination_in_local>

scp -i kpair.pem ubuntu@13.233.85.7:/home/ubuntu/filefromsserver.html . (Here " . " indicates to copy the file in my current directory)

```
root@krish-virtual-machine:/home/krish/Desktop# ls
demo2file.html  demofile.html  keypair.pem  kpair.pem
root@krish-virtual-machine:/home/krish/Desktop# scp -i kpair.pem ubuntu@13.233.85.7:/home/ubuntu/filefromserver.html .
scp: /home/ubuntu/filefromserver.html: No such file or directory
root@krish-virtual-machine:/home/krish/Desktop# scp -i kpair.pem ubuntu@13.233.85.7:/home/ubuntu/filefromsserver.html .
filefromsserver.html                          100%   37     1.0KB/s   00:00
root@krish-virtual-machine:/home/krish/Desktop# ls
demo2file.html  demofile.html  filefromsserver.html  keypair.pem  kpair.pem
```

Also, we can transfer files in folder or directory from server to local client using following command where we have downloaded “dir1” from server.

```
root@krish-virtual-machine:/home/krish/Desktop# scp -i kpair.pem -r ubuntu@13.233.85.7:/home/ubuntu/dir1 /home/krish/Desktop
dir_file2.txt
dir_file3.txt
dir_file1.txt
root@krish-virtual-machine:/home/krish/Desktop# ls
demo2file.html  demofile.html  dir1  filefromsserver.html  keypair.pem  kpair.pem
```

Step3: Transferring files from client to server.

To copy from local to ec2 instance, we can use the below command. we will be running this command on the local machine command line.

scp -i <pem file> <file_to_copy_from_local> ec2-user@<ip_address>:<location_in_the_instance>

scp -i kpair.pem demofile.html ubuntu@13.233.85.7:/home/ubuntu

```
root@krish-virtual-machine:/home/krish/Desktop# scp -i kpair.pem demofile.html ubuntu@13.233.85.7:/home/ubuntu
The authenticity of host '13.233.85.7 (13.233.85.7)' can't be established.
ED25519 key fingerprint is SHA256:t8p3IZkRtbM6wYPnDY/NAZaizj5jGTcm01BniKx6P4c.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '13.233.85.7' (ED25519) to the list of known hosts.
demofile.html                                 100%   54     1.1KB/s   00:00
```

Here we have transferred demofile.html from client to server, we can check this by checking in server connection.

```
ubuntu@ip-172-31-42-230:~$ ls
Ffile.txt  demofile.html  dir1  filefromserver.html  filefromsserver.html  serverfile1  serverfile2
ubuntu@ip-172-31-42-230:~$
```

Step 4: Exploring other options of scp.

To copy a directory and its contents recursively, use the "-r" option:

```
root@krish-virtual-machine:/home/krish/Desktop# scp -r -i kpair.pem demodir/ ubuntu@65.2.186.152:/home/ubuntu/
```

To preserve the modification time, access time, and mode of the original file on the remote host, use the "-p" option:

```
root@krish-virtual-machine:/home/krish/Desktop# scp -p -i kpair.pem demofile.html ubuntu@65.2.186.152:/home/ubuntu/
demofile.html
```

To suppress the progress meter and non-error messages, use the "-q" option.

```
root@krish-virtual-machine:/home/krish/Desktop# scp -q -i kpair.pem demofile.html ubuntu@65.2.186.152:/home/ubuntu/
```

To compress data before sending it over the network, which can significantly improve transfer speeds, use the "-C" option:

```
root@krish-virtual-machine:/home/krish/Desktop# scp -C -i kpair.pem demofile.html ubuntu@65.2.186.152:/home/ubuntu/
```

To limit the bandwidth used by SCP during transfers, which can be useful when transferring large files over a slow network connection, use the "-l" option followed by the maximum bandwidth in Kbit/s:

```
root@krish-virtual-machine:/home/krish/Desktop# scp -l 100 -i kpair.pem demofile.html ubuntu@65.2.186.152:/home/ubuntu/
```

To specify an alternative SSH configuration file to be used for the connection, use the "-F" option followed by the path to the configuration file:

```
root@krish-virtual-machine:/home/krish/Desktop# scp -F /path/to/ssh_config -i kpair.pem demofile.html ubuntu@65.2.186.152:/home/ubuntu/
```