

SSH

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1. Ustawienie możliwości logowania root-a poprzez SSH

```
pp@custom-server: ~$ ssh root@localhost
root@localhost's password:
Permission denied, please try again.
root@localhost's password:
Permission denied, please try again.
root@localhost's password:
root@localhost: Permission denied (publickey,password).
pp@custom-server: ~$
```

[0] 1:MAIN* "custom-server" 15:09 03-Dec-21

```
# This is the sshd server system-wide configuration file. See
# sshd_config(5) for more information.

# This sshd was compiled with PATH=/usr/bin:/bin:/usr/sbin:/sbin

# The strategy used for options in the default sshd_config shipped with
# OpenSSH is to specify options with their default value where
# possible, but leave them commented. Uncommented options override the
# default value.

Include /etc/ssh/sshd_config.d/*.conf

# Zezwolenie na logowanie do serwera na konto root
PermitRootLogin yes
# Lista użytkowników którzy mogą się zalogować do serwera
AllowUsers root pp

#Port 22
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::

#HostKey /etc/ssh/ssh_host_rsa_key
```

14,0-1 1%

[0] 1:MAIN* "custom-server" 15:05 03-Dec-21

```

pp@custom-server: ~$ ssh root@localhost [12/266]
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:5i0aeoxBZcYsLmam0/5G0TxLMby25ZI8p1GyXHiSYJE.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
root@localhost's password:
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.4.0-91-generic x86_64)

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

System information as of Fri 03 Dec 2021 03:06:49 PM CET

System load:  0.0          Processes:      171
Usage of /:   4.5% of 221.45GB   Users logged in:  1
Memory usage: 11%          IPv4 address for enp0s8: 192.168.1.54
Swap usage:   0%

 * Super-optimized for small spaces - read how we shrank the memory
   footprint of MicroK8s to make it the smallest full K8s around.

https://ubuntu.com/blog/microk8s-memory-optimisation

[0] 1:MAIN* "custom-server" 15:07 03-Dec-21

```

2. Zalogowanie się na serwer za pomocą SSH

```

pp@custom-server: ~$ ssh pp@localhost
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:5i0aeoxBZcYsLmam0/5G0TxLMby25ZI8p1GyXHiSYJE.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
pp@localhost's password:
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.4.0-90-generic x86_64)

System information as of Wed 08 Dec 2021 08:08:40 AM CET

System load:  0.02          Processes:      186
Usage of /:   4.4% of 221.45GB   Users logged in:  1
Memory usage: 11%          IPv4 address for enp0s8: 192.168.1.42
Swap usage:   0%

0 updates can be applied immediately.

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

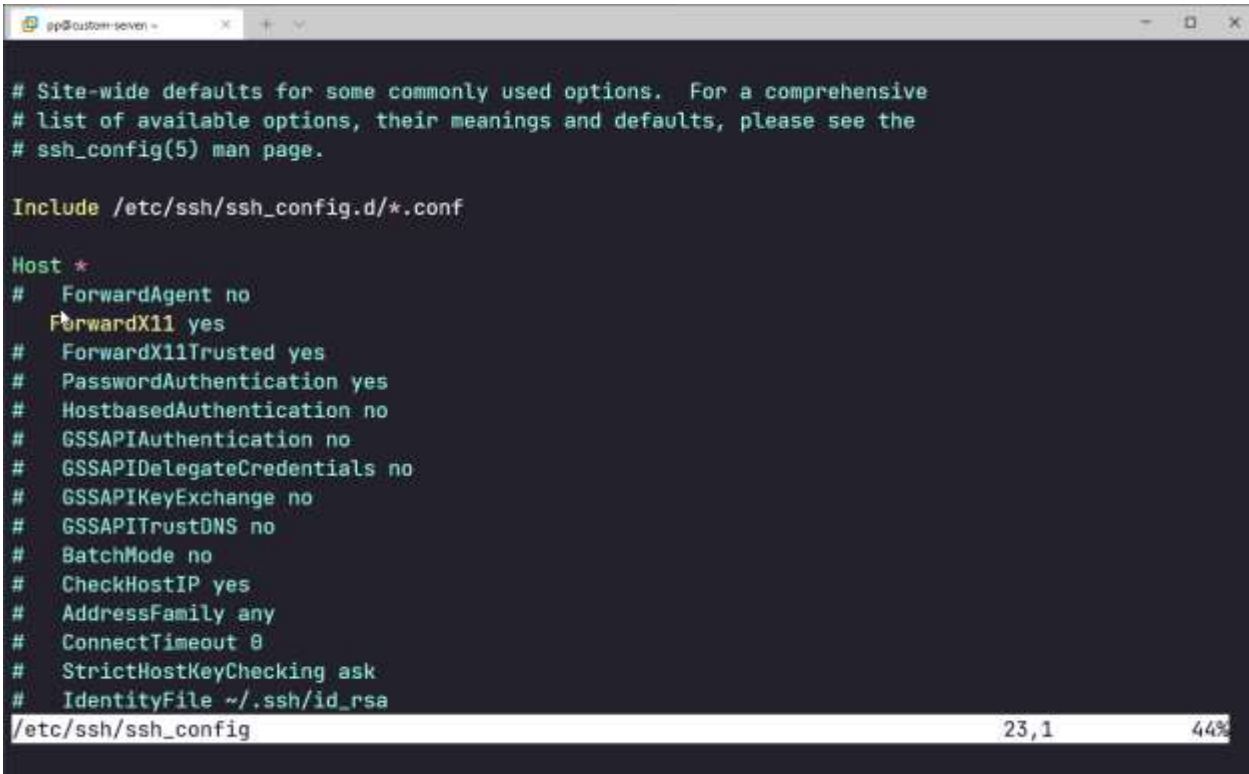
Last login: Wed Dec  8 08:04:52 2021 from fe80::91b1:d79b:fb1f:1385%enp0s8
pp@custom-server: ~$

```

nazwa użytkownika
nazwa hosta/adres ip

3. Umożliwienie uruchamiania programów GUI za pomocą SSH

Włączenie takiej funkcji w kliencie SSH.

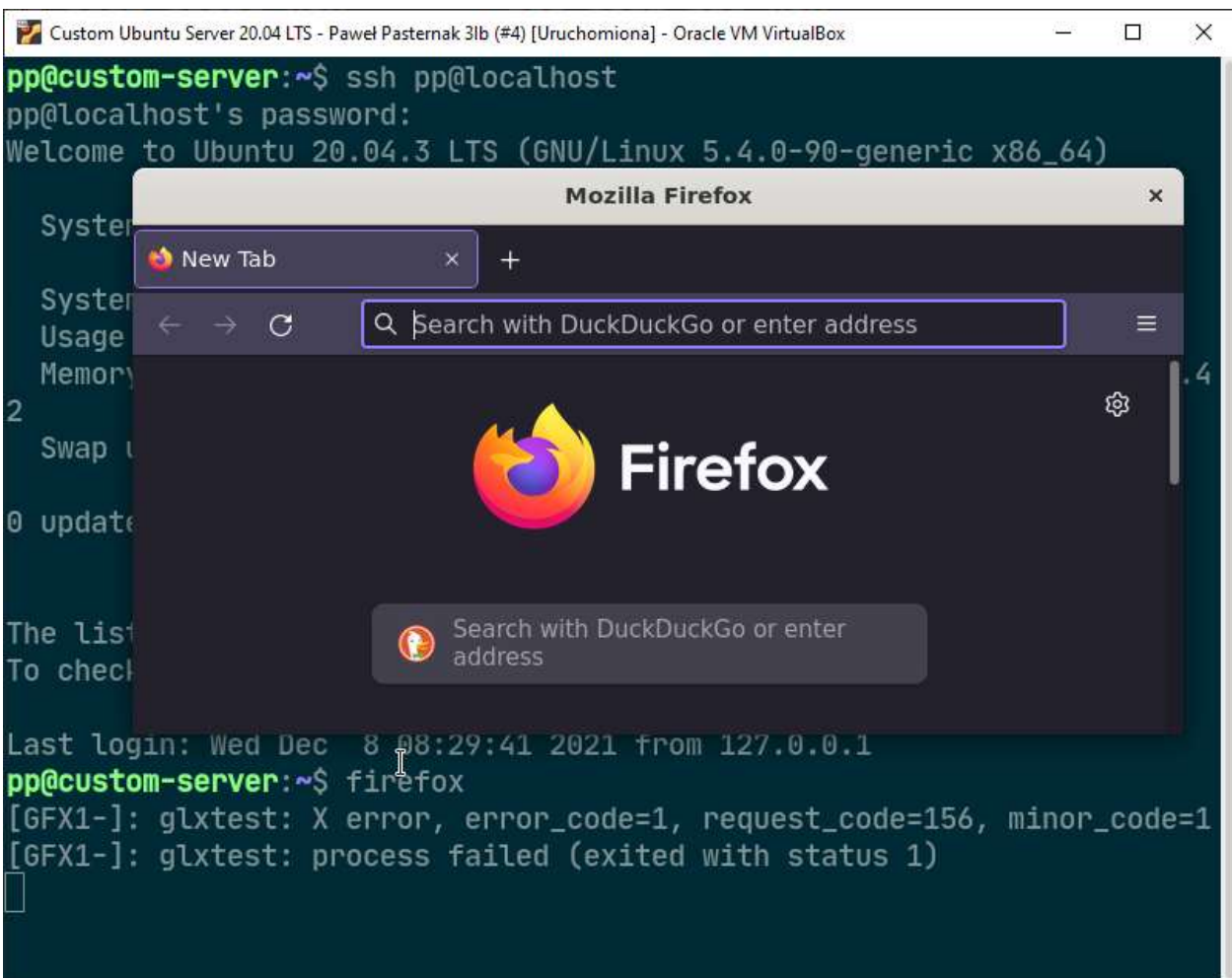


The screenshot shows a terminal window titled 'pp@custom-server'. It displays the contents of the /etc/ssh/ssh_config file. The file includes site-wide defaults and a list of available options. The 'Host *' section is visible, showing settings for ForwardAgent, ForwardX11, and various authentication methods. The terminal cursor is at the bottom of the file.

```
# Site-wide defaults for some commonly used options. For a comprehensive
# list of available options, their meanings and defaults, please see the
# ssh_config(5) man page.

Include /etc/ssh/ssh_config.d/*.conf

Host *
# ForwardAgent no
# ForwardX11 yes
# ForwardX11Trusted yes
# PasswordAuthentication yes
# HostbasedAuthentication no
# GSSAPIAuthentication no
# GSSAPIDelegateCredentials no
# GSSAPIKeyExchange no
# GSSAPITrustDNS no
# BatchMode no
# CheckHostIP yes
# AddressFamily any
# ConnectTimeout 0
# StrictHostKeyChecking ask
# IdentityFile ~/.ssh/id_rsa
```



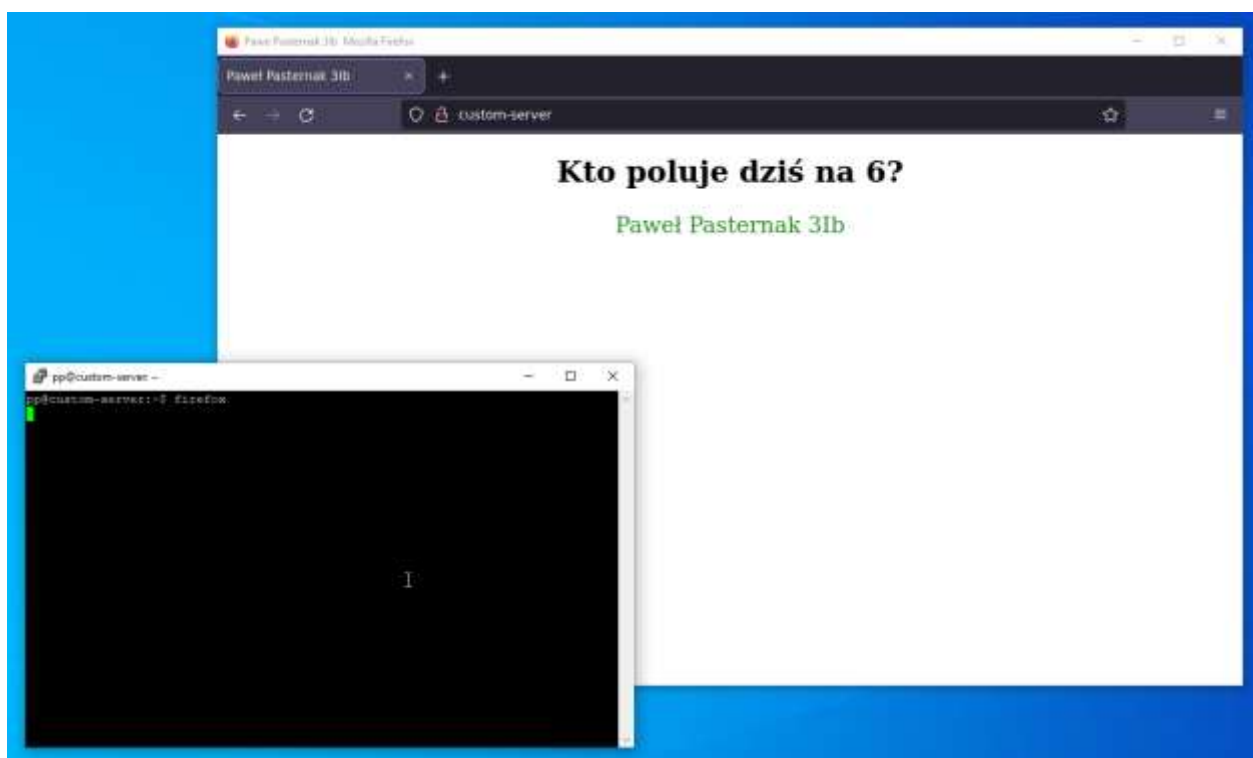
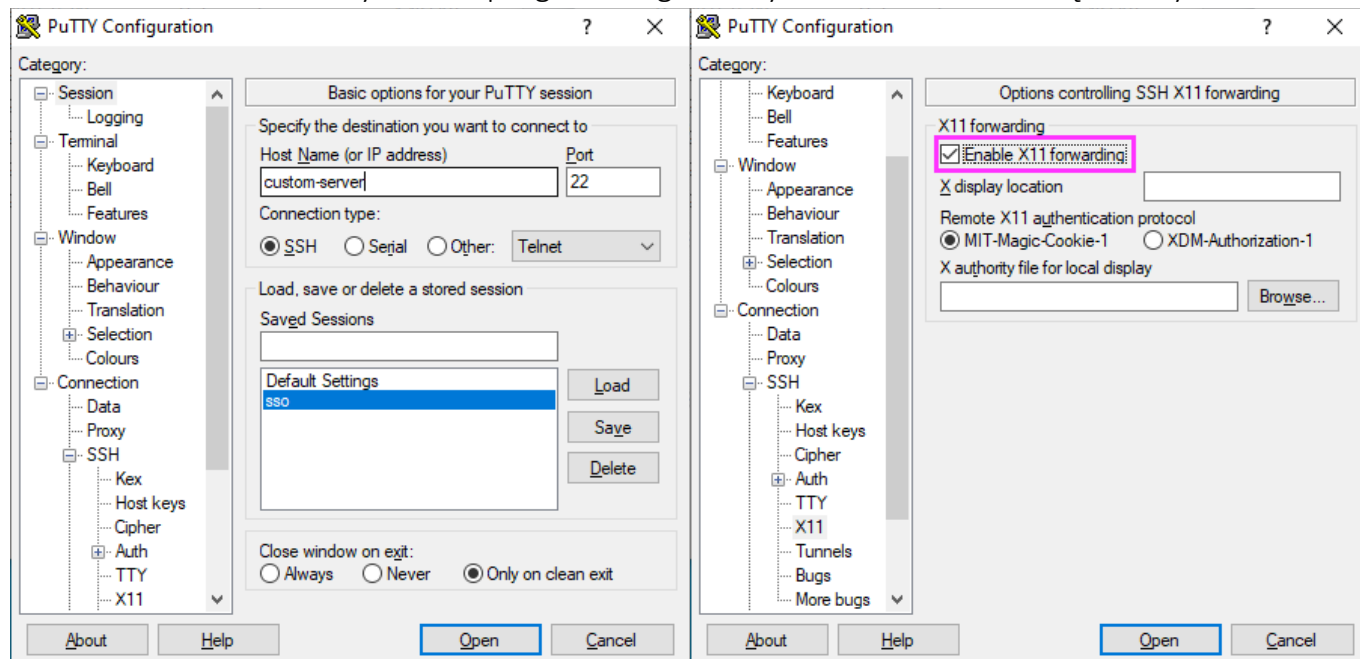
The screenshot shows a terminal window titled 'Custom Ubuntu Server 20.04 LTS - Paweł Pasternak 3lb (#4) [Uruchomiona] - Oracle VM VirtualBox'. The terminal shows an SSH session from 'pp@custom-server' to 'pp@localhost'. The user is prompted for a password and then greeted with the Ubuntu 20.04.3 LTS login message. A 'Mozilla Firefox' window is overlaid on the terminal, showing a new tab with the Firefox logo and a search bar. The terminal shows the command 'firefox' being executed, followed by an error message: '[GFX1-]: glxtest: X error, error_code=1, request_code=156, minor_code=1' and '[GFX1-]: glxtest: process failed (exited with status 1)'. The terminal cursor is at the bottom of the error message.

```
pp@custom-server:~$ ssh pp@localhost
pp@localhost's password:
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.4.0-90-generic x86_64)

System
System
Usage
Memory
2
Swap
0 update
The list
To check

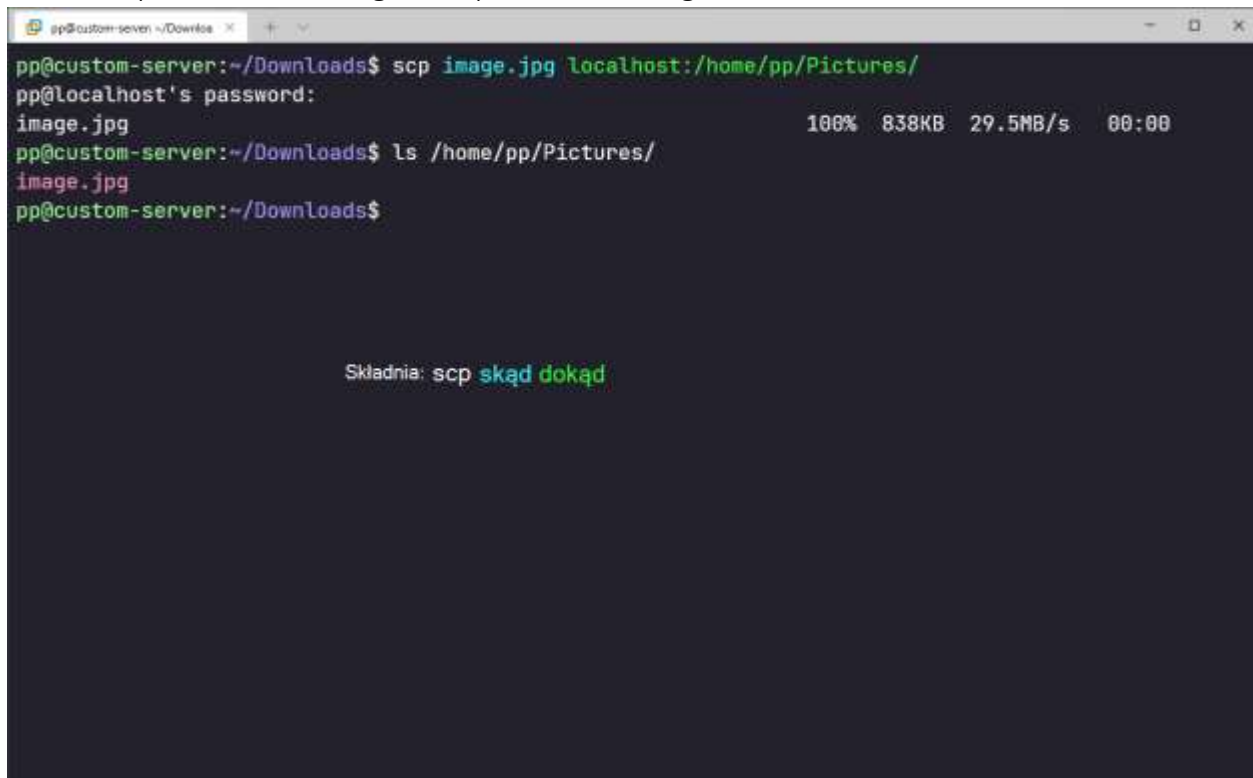
Last login: Wed Dec  8 08:29:41 2021 from 127.0.0.1
pp@custom-server:~$ firefox
[GFX1-]: glxtest: X error, error_code=1, request_code=156, minor_code=1
[GFX1-]: glxtest: process failed (exited with status 1)
```

Umożliwienie korzystania z programów graficznych na Windowsie dzięki Putty i X serwerowi:



4. Kopiowanie plików za pomocą SCP

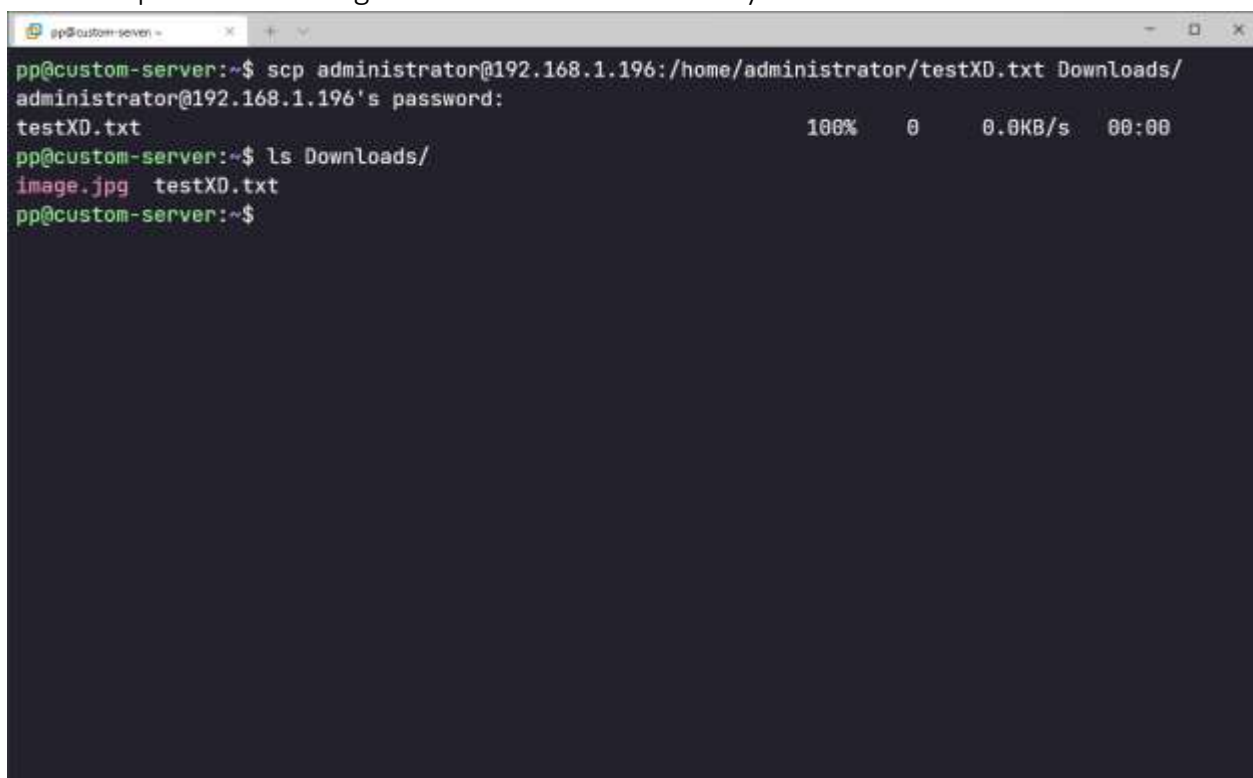
Kopiowanie z naszego komputera do innego serwera



```
pp@custom-server:~/Downloads$ scp image.jpg localhost:/home/pp/Pictures/
pp@localhost's password:
image.jpg                                100% 838KB 29.5MB/s 00:00
pp@custom-server:~/Downloads$ ls /home/pp/Pictures/
image.jpg
pp@custom-server:~/Downloads$
```

Składnia: scp **skąd dokąd**

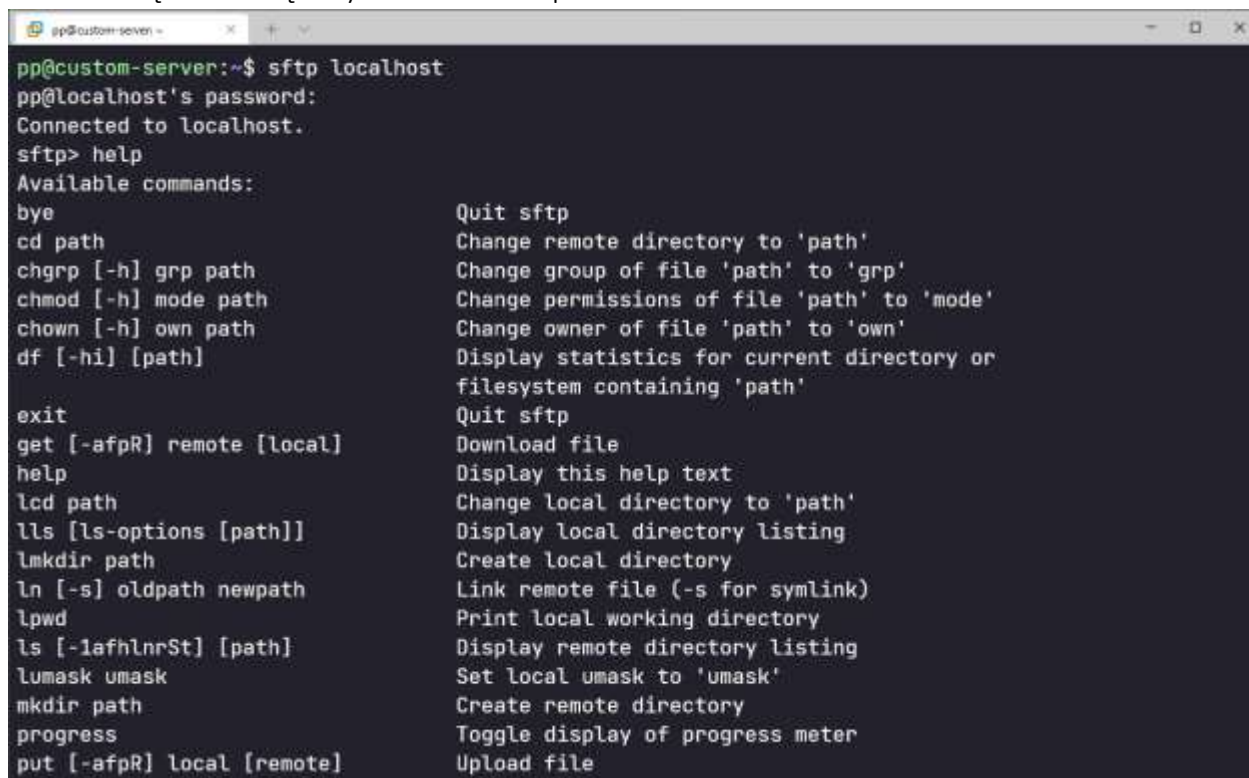
Kopiowanie z innego serwera na serwer lokalny:



```
pp@custom-server:~$ scp administrator@192.168.1.196:/home/administrator/testX0.txt Downloads/
administrator@192.168.1.196's password:
testX0.txt                                100% 0 0.0KB/s 00:00
pp@custom-server:~$ ls Downloads/
image.jpg testX0.txt
pp@custom-server:~$
```

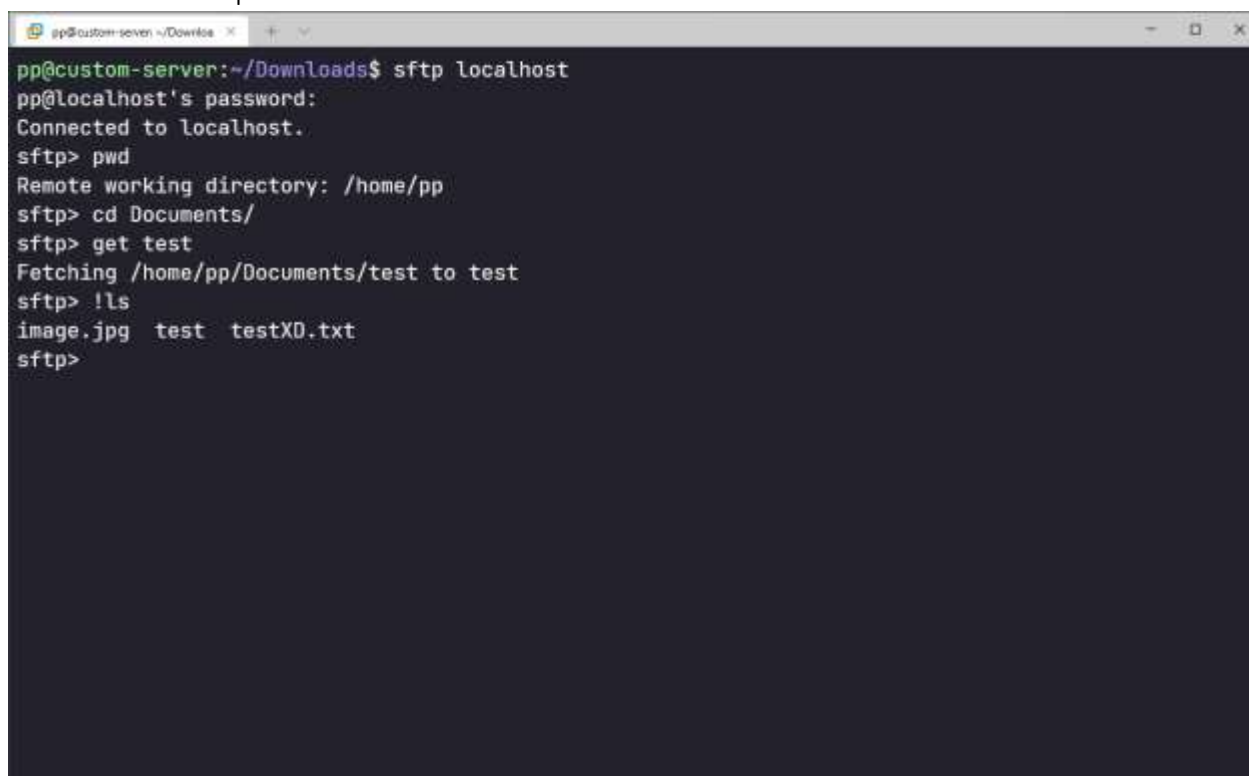
5. Używanie SFTP do przesyłania plików

Połączenie się i wyświetlenie help-a

A terminal window titled 'pp@custom-server' showing the execution of 'sftp localhost'. It prompts for a password, connects to localhost, and then displays the 'help' command output. The help text lists various SFTP commands and their functions in two columns.

```
pp@custom-server:~$ sftp localhost
pp@localhost's password:
Connected to localhost.
sftp> help
Available commands:
bye                Quit sftp
cd path            Change remote directory to 'path'
chgrp [-h] grp path Change group of file 'path' to 'grp'
chmod [-h] mode path Change permissions of file 'path' to 'mode'
chown [-h] own path Change owner of file 'path' to 'own'
df [-hi] [path]    Display statistics for current directory or
                  filesystem containing 'path'
exit              Quit sftp
get [-afpR] remote [local] Download file
help             Display this help text
lcd path         Change local directory to 'path'
lls [ls-options [path]] Display local directory listing
lmkdir path      Create local directory
ln [-s] oldpath newpath Link remote file (-s for symlink)
lpwd             Print local working directory
ls [-lafhlNrSt] [path] Display remote directory listing
lumask umask     Set local umask to 'umask'
mkdir path       Create remote directory
progress         Toggle display of progress meter
put [-afpR] local [remote] Upload file
```

Pobranie pliku test z folderu Documents do folderu Downloads

A terminal window titled 'pp@custom-server ~/Downloads' showing the execution of 'sftp localhost'. It prompts for a password, connects to localhost, and then performs a series of commands: 'pwd' (showing remote directory /home/pp), 'cd Documents/' (changing to the Documents directory), 'get test' (downloading the file 'test'), and '!ls' (displaying local files: image.jpg, test, testXD.txt).

```
pp@custom-server:~/Downloads$ sftp localhost
pp@localhost's password:
Connected to localhost.
sftp> pwd
Remote working directory: /home/pp
sftp> cd Documents/
sftp> get test
Fetching /home/pp/Documents/test to test
sftp> !ls
image.jpg  test  testXD.txt
sftp>
```

6. Konfiguracja ustawień sieciowych za pomocą netplan-u

Ustawienie adresu IP, bramy, i serwerów DNS

```
pp@custom-server:~$ cat /etc/netplan/00-installer-config.yaml
network:
  ethernets:

    # Karta Bridge
    enp0s8:
      dhcp4: true

    # Karta Wewnętrzna
    enp0s3:
      dhcp4: false
      addresses: [172.16.26.10/24]
      gateway4: 172.16.26.1
      nameservers:
        addresses: [172.16.26.1, 8.8.4.4]

  version: 2

/etc/netplan/00-installer-config.yaml 8,1 All
```

- Wyświetlenie ip

```
pp@custom-server:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:f4:be:dd brd ff:ff:ff:ff:ff:ff
    inet 172.16.26.10/24 brd 172.16.26.255 scope global enp0s3
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fef4:bedd/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:0a:65:0f brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.42/24 brd 192.168.1.255 scope global dynamic enp0s8
        valid_lft 86069sec preferred_lft 86069sec
    inet6 fe80::a00:27ff:fe0a:650f/64 scope link
        valid_lft forever preferred_lft forever
pp@custom-server:~$
```


- Wyświetlenie bramy

```
pp@custom-server:~$ route -n
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0          172.16.26.1    0.0.0.0         UG    0      0      0 enp0s3
0.0.0.0          192.168.1.1    0.0.0.0         UG    100    0      0 enp0s8
172.16.26.0      0.0.0.0        255.255.255.0   U      0      0      0 enp0s3
192.168.1.0      0.0.0.0        255.255.255.0   U      0      0      0 enp0s8
192.168.1.1      0.0.0.0        255.255.255.255 UH    100    0      0 enp0s8
pp@custom-server:~$
```

- Wyświetlenie DNS-ów

```
local
private
test

Link 3 (enp0s8)
  Current Scopes: DNS
DefaultRoute setting: yes
LLMNR setting: yes
MulticastDNS setting: no
DNSOverTLS setting: no
DNSSEC setting: no
DNSSEC supported: no
DNS Servers: 192.168.1.1

Link 2 (enp0s3)
  Current Scopes: DNS
DefaultRoute setting: yes
LLMNR setting: yes
MulticastDNS setting: no
DNSOverTLS setting: no
DNSSEC setting: no
DNSSEC supported: no
DNS Servers: 172.16.26.1
              8.8.4.4
[lines 31-54/54 (END)]
```

Zmiana nazwy interfejsu sieciowego za pomocą netplanu:

```

network:
  ethernets:
    # Karta Bridge
    eth-bridge:
      match:
        macaddress: 08:00:27:0a:65:0f
      set-name: eth-bridge
      dhcp4: true

    # Karta Wewnętrzna
    eth-internal:
      match:
        macaddress: 08:00:27:f4:be:dd
      set-name: eth-internal
      # Ustawienia z lekcji:
      dhcp4: false
      addresses: [172.16.26.10/24]
      gateway4: 172.16.26.1
      nameservers:
        addresses: [172.16.26.1, 8.8.4.4]

/etc/netplan/00-config.yaml [+]3,0-1Top

[0] 1:sudo+ "custom-server" 14:27 10-Dec-21

```

```

pp@custom-server:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: eth-internal: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:f4:be:dd brd ff:ff:ff:ff:ff:ff
    inet6 fe80::a00:27ff:fef4:bedd/64 scope link
        valid_lft forever preferred_lft forever
3: eth-bridge: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:0a:65:0f brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.42/24 brd 192.168.1.255 scope global dynamic eth-bridge
        valid_lft 86085sec preferred_lft 86085sec
    inet6 fe80::a00:27ff:fe0a:650f/64 scope link
        valid_lft forever preferred_lft forever
pp@custom-server:~$

[0] 1:MAIN+ "custom-server" 14:31 10-Dec-21

```