

Администрирование сетевых подсистем

Лабораторная работа №11

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Информация

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Приобретение практических навыков по настройке удалённого доступа к серверу с помощью SSH.

```
#LoginGraceTime 2m  
PermitRootLogin no  
#StrictModes yes  
#MaxAuthTries 6  
#MaxSessions 10
```

Рис. 1: Запрет доступа для пользователя root

```
#AllowAgentForwarding yes  
#AllowTcpForwarding yes  
AllowUsers vagrant  
#GatewayPorts no
```

Рис. 2: Редактирование sshd_config

```
#AllowAgentForwarding yes  
#AllowTcpForwarding yes  
AllowUsers vagrant user  
#GatewayPorts no
```

Рис. 3: Повторное редактирование sshd_config



```
#Port 22
```

```
Port 22
```

```
Port 2022
```

```
#AddressFamily any
```

```
#ListenAddress 0.0.0.0
```

```
#ListenAddress ::
```

Рис. 4: Добавление организации через два порта



```
PubkeyAuthentication yes
```

Рис. 5: Повторное редактирование sshd_config

Выполнение лабораторной работы

```
[root@server ~]# systemctl restart sshd
[root@server ~]# systemctl status -l sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: e>
   Active: active (running) since Thu 2026-02-12 14:25:48 MSK; 16s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
   Main PID: 8489 (sshd)
     Tasks: 1 (limit: 48821)
    Memory: 1.4M
       CPU: 18ms
    CGroup: /system.slice/ssh.service
            └─8489 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 12 14:25:48 server systemd[1]: Starting OpenSSH server daemon...
Feb 12 14:25:48 server sshd[8489]: error: Bind to port 222 on 0.0.0.0 failed>
Feb 12 14:25:48 server systemd[1]: Started OpenSSH server daemon.
Feb 12 14:25:48 server sshd[8489]: error: Bind to port 222 on :: failed: Per>
Feb 12 14:25:48 server sshd[8489]: Server listening on 0.0.0.0 port 22.
Feb 12 14:25:48 server sshd[8489]: Server listening on :: port 22.
...skipping...
```

Рис. 6: Перезапуск sshd и и просмотр статуса

Выполнение лабораторной работы

```
root@server ~]# semanage port -a -t ssh_port_t -p tcp 2022
root@server ~]# firewall-cmd --add-port=2022/tcp
success
root@server ~]# firewall-cmd --add-port=2022/tcp --permanent
success
root@server ~]# systemctl restart sshd
root@server ~]# systemctl status -l sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
   Active: active (running) since Thu 2026-02-12 14:30:42 MSK; 19s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
   Main PID: 8541 (sshd)
    Tasks: 1 (limit: 48821)
   Memory: 1.4M
      CPU: 13ms
   CGroup: /system.slice/sshd.service
           └─8541 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 12 14:30:42 server systemd[1]: Starting OpenSSH server daemon...
Feb 12 14:30:42 server sshd[8541]: Server listening on 0.0.0.0 port 2022.
Feb 12 14:30:42 server sshd[8541]: Server listening on :: port 2022.
Feb 12 14:30:42 server sshd[8541]: Server listening on 0.0.0.0 port 22.
Feb 12 14:30:42 server sshd[8541]: Server listening on :: port 22.
Feb 12 14:30:42 server systemd[1]: Started OpenSSH server daemon.
```

Рис. 7: Работа с метками безопасности, межсетевым экраном и перезапуск службы

```
[user@client ~]$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/user/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/user/.ssh/id_rsa
Your public key has been saved in /home/user/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:yR2dIrLaudVXGRUM2le9BA1mCxyrIBkI1T3kUW6Lis user@client
The key's randomart image is:
+---[RSA 3072]-----+
|.O.= . .+O.+..+|=
| + + ..+ O.+ +++|
| . . O O . O.O|
| . O. . O+|
| . O. . O+|
| O O O O..|
| . O = O . |
| . . O O . |
| E O O . . |
| ... +. |
+----[SHA256]-----+
[user@client ~]$ ssh-copy-id user@server.user.net
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter
out any that are already installed

/usr/bin/ssh-copy-id: ERROR: ssh: Could not resolve hostname server.user.net:
Name or service not known

[user@client ~]$
```

Рис. 8: Генерация ssh-ключа

```
[user@client ~]$ ssh user@server.user.net  
ssh: Could not resolve hostname server.user.net: Name or service not known  
[user@client ~]$
```

Рис. 9: Обращение к серверу (и снова неудачное)

```
[user@client ~]$ ssh -fNL 8080:localhost:80 user@server.user.net  
ssh: Could not resolve hostname server.user.net: Name or service not known  
[user@client ~]$
```

Рис. 10: Перенаправление портов

Unable to connect

Firefox can't establish a connection to the server at localhost:8080.

- The site could be temporarily unavailable or too busy. Try again in a few moments.
- If you are unable to load any pages, check your computer's network connection.
- If your computer or network is protected by a firewall or proxy, make sure that Firefox is permitted to access the web.

Try Again

Рис. 11: localhost:8080

```
X11Forwarding yes  
#X11DisplayOffset 10  
#X11UseLocalhost yes
```

Рис. 12: Разрешение отображения граф. интерфейсов


```
#!/bin/bash
:
} echo "Provisioning script $0"
:
} echo "Copy configuration files"
} cp -R /vagrant/provision/server/ssh/etc/* /etc
:
} restorecon -vR /etc
}
} echo "Configure firewall"
} firewall-cmd --add-port=2022/tcp
} firewall-cmd --add-port=2022/tcp --permanent
}
} echo "Tuning SELinux"
} semanage port -a -t ssh_port_t -p tcp 2022
}
} echo "Restart sshd service"
} systemctl restart sshd
```

Рис. 13: sshd.sh

```
server.vm.provision "server ssh",  
    type: "shell",  
    preserve_order: true,  
    path: "provision/server/ssh.sh"
```

Рис. 14: Редактирование Vagrantfile

В процессе выполнения данной лабораторной работы я приобрёл практические навыки по настройке удалённого доступа к серверу с помощью SSH.