



Tech Talk - working remotely

20 Nov 2017



ssh - via password

syntax: ssh [-option1 -option2 ...] **user@remotehost**

Need to remember: username, host address, password

ssh - via password

syntax: `ssh [-option1 -option2 ...] user@remotehost`

Need to remember: username, host address, password

```
[13:29][pharao]:~$ ssh franzkir@franzkirsten.de
franzkir@franzkirsten.de's password:
X11 forwarding request failed on channel 0
franzkir@cp60 [~]#
franzkir@cp60 [~]#
franzkir@cp60 [~]#
franzkir@cp60 [~]#
franzkir@cp60 [~]#
```



ssh - via public key

syntax: ssh [-option1 -option2 ...] **user@remotehost**

Need to remember: username and host address, **not** password

Need to setup personal keys first, copy them to remote host (typically into remotehost:\$HOME/.ssh/authorized_keys)

ssh - generate keys

syntax: `ssh [-option1 -option2 ...] user@remotehost`

Need to remember: username and host address, **not** password

Need to setup personal keys first, copy them to remote host (typically into `remotehost:$HOME/.ssh/authorized_keys`)

```
[13:30][pharao]:~$  
[13:30][pharao]:~$ ssh-keygen  
Generating public/private rsa key pair.  
Enter file in which to save the key (/home/pharao/.ssh/id_rsa):  
Enter passphrase (empty for no passphrase):  
Enter same passphrase again:  
Your identification has been saved in /home/pharao/.ssh/id_rsa.  
Your public key has been saved in /home/pharao/.ssh/id_rsa.pub.  
The key fingerprint is:  
SHA256:ZYR5ugXTRMP1qmtSgy8Iu9pHpg06SUBQlvG0n2RX0PY pharao@pharao  
The key's randomart image is:  
+---[RSA 2048]---+  
|.oo..o    B=..    |  
|o..    + =.+..    |
```

ssh - generate keys

syntax: `ssh [-option1 -option2 ...] user@remotehost`

Need to remember: username and host address, **not** password

Need to setup personal keys first, copy them to remote host (typically into `remotehost:$HOME/.ssh/authorized_keys`)

```
[13:32][pharao]:~$ ls -ltrh .ssh/ | tail -2
-rw-r--r--  1 pharao pharao  395 Nov 16 13:32 id_rsa.pub
-rw-----  1 pharao pharao 1.7K Nov 16 13:32 id_rsa
[13:32][pharao]:~$ cat .ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDfLd5htCrVwFhn5kQ8Gm
Y+dFenA0M7UIg4uTFzBJ1YRlab39RZyFmyRE/2m4LgYG7sdNmaqngwFBmv
[13:33][pharao]:~$
```

ssh - copy public key to remote host

```
[13:37][pharao]:~$ ssh-copy-id -i /home/pharao/.ssh/id_rsa.pub franzkir@franzkirsten.de
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/pharao/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to
franzkir@franzkirsten.de's password:
X11 forwarding request failed on channel 0
stdin: is not a tty
```

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'franzkir@franzkirsten.de'"
and check to make sure that only the key(s) you wanted were added.

```
[13:39][pharao]:~$
[13:39][pharao]:~$
```

ssh - via private keys

```
[13:39][pharao]:~$ ssh franzkir@franzkirsten.de
X11 forwarding request failed on channel 0
franzkir@cp60 [~]#
franzkir@cp60 [~]#
```


ssh - via private keys

```
[13:39][pharao]:~$ ssh franzkir@franzkirsten.de
X11 forwarding request failed on channel 0
franzkir@cp60 [~]#
franzkir@cp60 [~]#
franzkir@cp60 [~]#
franzkir@cp60 [~]# cat .ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCAQC/cMnnutkvDFWuFYh5rqtz4Zzs3G0gxI
4rpjq7i3uvPdjp4ylYgb9XBzJbkk1mtpY93EnlN9bcmwC/yAKW5ysJzEFAHPsOQI2590t
M/wnLWENVjzs1uaRf60N/khKwMadKcYmUA6PYDBbCUdMZiDWaeox0r3JrYx3s3lwBBaxzD
nwD8CPiNL4ywF6MtQaAicCLN32zruiRQ2wSWyXy0uNUSJT9+kaDoi7Wr2gMS7EtuZHEHVo
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQABAAQCyGpphhy18yk0Vg3OH6NQTPqhXsomZMR
cZVZpv+1TTgwa0eYBHRvX3QVEOYHBYKVnpT289FPkDzNWJQNdj5SFe5KWFNb6hZmVGMCOL
ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAEAwcW7LxBwefXYByf6Gnvx2D2nwyrwnQTXUD
Pz1uV0QGDYh+5plbqU6mAJRfkwYuZAYmwrsi/e0xGTXhy9zqDdQo/Q0X08eeMLDbw0YTIu
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQABAAQDbmiY25mjgGXoQwM3gqkSajCPq9f1z33
qURyYhUaIpVa7BxWRR1aGCKoHw64kvSCCixcct12xTM1QQEtRAANIWWr66AwZRDtpmH5Aa
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQABAAQDhF0YC/468phKKYqXdkPHYtV2CLZiR3h
31rsKxd/oVXpW+R0gGuw8DI91I0nTTL0MoJxMqPVa049msnBxZpiX0PFbpfS LT4WkFJaVK
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQABAAQDTs3JRaBdn3rdZ7aQ6GxvuKc0PKTzQHx
+Ge8jtGSCZcC0Tnhp1uQ4tl01Xo/2p2Z5ncaFs3Ef6NTXkprSSnWZbLICr1+49PN+X3z0n
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQABAAQCTw1c4wl1a25pv1RY3au70UAPSicSgBs
```

ssh - via private keys

```
[13:39][pharao]:~$ ssh franzkir@franzkirsten.de
X11 forwarding request failed on channel 0
franzkir@cp60 [~]#
franzkir@cp60 [~]#
franzkir@cp60 [~]#
franzkir@cp60 [~]# cat .ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCAQC/cMnnutkvDFWuFYh5rqtz4Zzs3G0gxI
4rpjq7i3uvPdjp4yLYqb9XBzJbkk1mtpY93EnlN9bcmwC/yAKW5ysJzEFAHPs0QI2590t
M/wnLBBaxzD
nwd8CZHEHVo
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQBAQCygpphny18yk0vg30H6NQTPqnXsomZMR
cZVZpv+1TTgwa0eYBHRvX3QVEOYHBYKVnpT289FPkDzNWJQNdj5SFe5KWFNb6hZmVGMCOL
ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAEAwcW7LxBwefXYByf6Gnvx2D2nwyrwnQTXUD
Pz1uV0QGDYh+5plbqU6mAJRfkwYuZAYmwrsi/e0xGTXhy9zqDdQo/Q0X08eeMlDbw0YTIu
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQABADbmiY25mjGqXoQwM3gqkSajCPq9f1z33
qURyYhUaIpVa7BxWRR1aGCKoHw64kvSCCixcct12xTM1QQEtRAANIWWr66AwZRDtpmH5Aa
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQADhF0YC/468phKKYqXdkPHYtV2CLZiR3h
31rsKxd/oVXpW+R0gGuw8DI91I0nTTL0MoJxMqPVa049msnBxZpiX0PFbpfSLT4WkFJaVK
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQADTs3JRaBdn3rdZ7aQ6GxvuKc0PKTzQHx
+Ge8jtGSCZcC0Tnhp1uQ4tl01Xo/2p2Z5ncaFs3Ef6NTXkprSSnWZbLICr1+49PN+X3z0n
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQACtW1c4w1aQ25pv1RY3au70UAPsicsqBs
```

Still have to remember username and machine name



ssh - with a configuration file

Config file locate in: `$HOME/.ssh/config` („config“ is the name of the file)

syntax to log into remote host: `ssh host_name`

Need to remember: `host_name` (something you choose yourself)

ssh - with a configuration file

```
[13:44][pharao]:~$ cat .ssh/config | head -20
```

```
Host *
```

```
    ServerAliveInterval 60
    ForwardX11 yes
    ForwardX11Trusted yes
    # AddressFamily inet
```

```
Host franz
```

```
    HostName franzkirsten.de
    ForwardX11 no
    ForwardX11Trusted no
    User franzkir
    Port 22
    IdentityFile ~/.ssh/id_rsa
```

```
Host lazarus
```

```
    HostName lazarus02
    User franz
    Port 22
    IdentityFile ~/.ssh/id_rsa
    ProxyCommand ssh -i ~/.ssh/id_rsa -W %h:%p franzk@orthrus.mwa128t
```

```
[13:44][pharao]:~$
```



scp, rsync with config file

scp, rsync: used to copy files between different machines

syntax: scp /path/to/file host_name:/path/to/file
 scp host_name:/path/to/file /path/to/file

same syntax applies to rsync

Note that without a config file the syntax is

scp user@remotehost:/path/to/file /path/to/file

scp, rsync with config file

```
[14:18][pharao]:tmp$ scp franz:/home/franzkir/public_html/franz_kirsten.pdf .  
stdin: is not a tty  
franz_kirsten.pdf  
[14:19][pharao]:tmp$  
[14:19][pharao]:tmp$  
[14:19][pharao]:tmp$ scp franz:~/public_html/franz_kirsten.pdf .  
stdin: is not a tty  
franz_kirsten.pdf  
[14:19][pharao]:tmp$
```

scp, rsync with config file

```
[14:19][pharao]:tmp$  
[14:19][pharao]:tmp$ rsync franz:~/public_html/franz_kirsten.pdf .  
X11 forwarding request failed on channel 0  
stdin: is not a tty  
receiving incremental file list  
  
sent 11 bytes  received 45 bytes  112.00 bytes/sec  
total size is 21,747  speedup is 388.34  
[14:19][pharao]:tmp$
```



sshfs – mount a remote disk on your local machine

sshfs – can be read as ,ssh-file-system‘

makes a directory on a hard drive on a remote machine look like a local directory.

Syntax: `sshfs host_name:/path/to/directory /path/to/local/directory`

Note: in case of slow internet connection file transfer and access will be slow.

sshfs - mount a remote disk on your local machine

```
[14:19][pharao]:tmp$  
[14:19][pharao]:tmp$ mkdir public_html_web  
[14:20][pharao]:tmp$  
[14:20][pharao]:tmp$ sshfs franz:/home/franzkir/public_html/ ./public_html_web  
[14:21][pharao]:tmp$  
[14:21][pharao]:tmp$ cd ./public_html_web/  
[14:21][pharao]:public_html_web$  
[14:21][pharao]:public_html_web$ ls  
AOS_Pads_XYZ_ENU.txt  blogs      curtin.png  franz_kirsten_master_thesis_2011.pdf  
array_s.png          cgi-bin    fr2_s.png   franz_kirsten.pdf  
[14:21][pharao]:public_html_web$
```

sshfs - mount a remote disk on your local machine

```
[14:19][pharao]:tmp$  
[14:19][pharao]:tmp$ mkdir public_html_web  
[14:20][pharao]:tmp$  
[14:20][pharao]:tmp$ sshfs franz:/home/franzkir/public_html/ ./public_html_web  
[14:21][pharao]:tmp$  
[14:21][pharao]:tmp$ cd ./public_html_web/  
[14:21][pharao]:public_html_web$  
[14:21][pharao]:public_html_web$ ls  
AOS_Pads_XYZ_ENU.txt  blogs      curtin.png  franz_kirsten_master_thesis_2011.pdf  
array_s.png          cgi-bin    fr2_s.png   franz_kirsten.pdf  
[14:21][pharao]:public_html_web$  
[14:21][pharao]:public_html_web$  
  
[14:22][pharao]:public_html_web$  
[14:22][pharao]:public_html_web$ cd ..  
[14:22][pharao]:tmp$ fusermount -u /home/pharao/tmp/public_html_web  
[14:23][pharao]:tmp$  
[14:23][pharao]:tmp$ ls public_html_web/  
[14:23][pharao]:tmp$  
[14:23][pharao]:tmp$ rm -rf public_html_web/  
[14:24][pharao]:tmp$
```