

SSH, SFTP, and SSH keys

All things you need to know about SSH, SFTP, and SSH keys

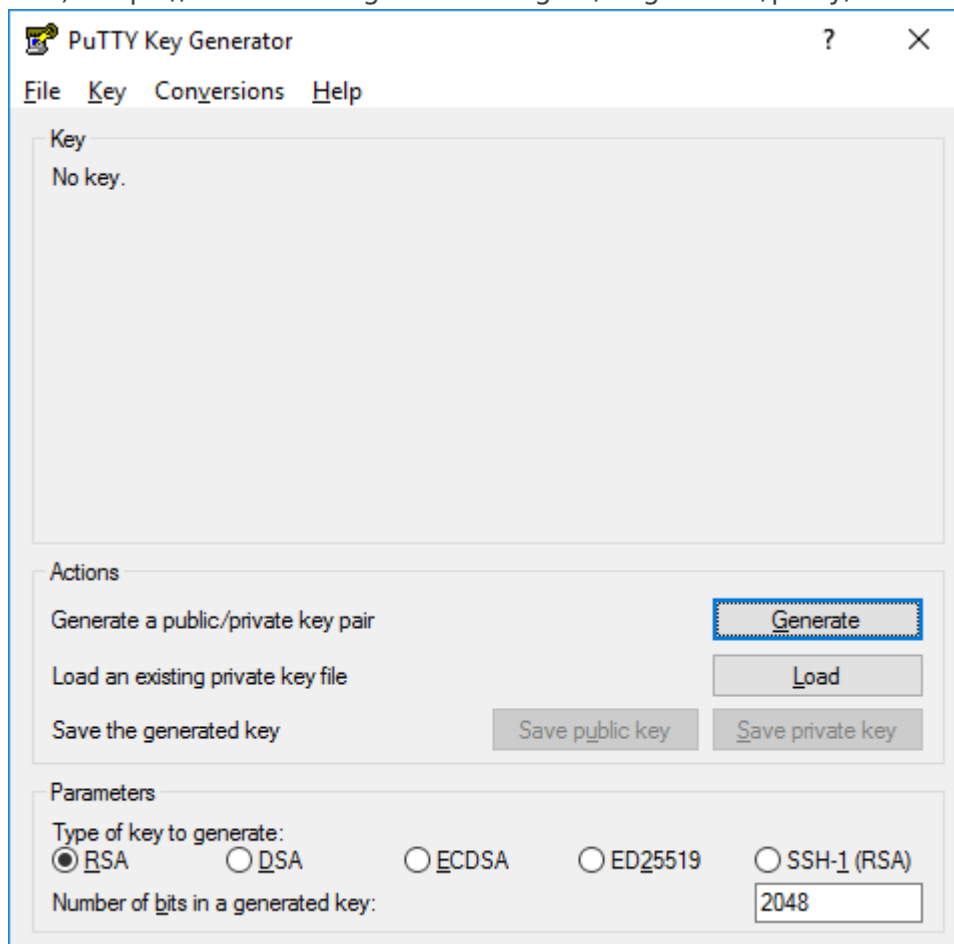
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How do I create SSH keys on Windows?

Instructions on how to create an SSH key on Windows using PuTTYGen.

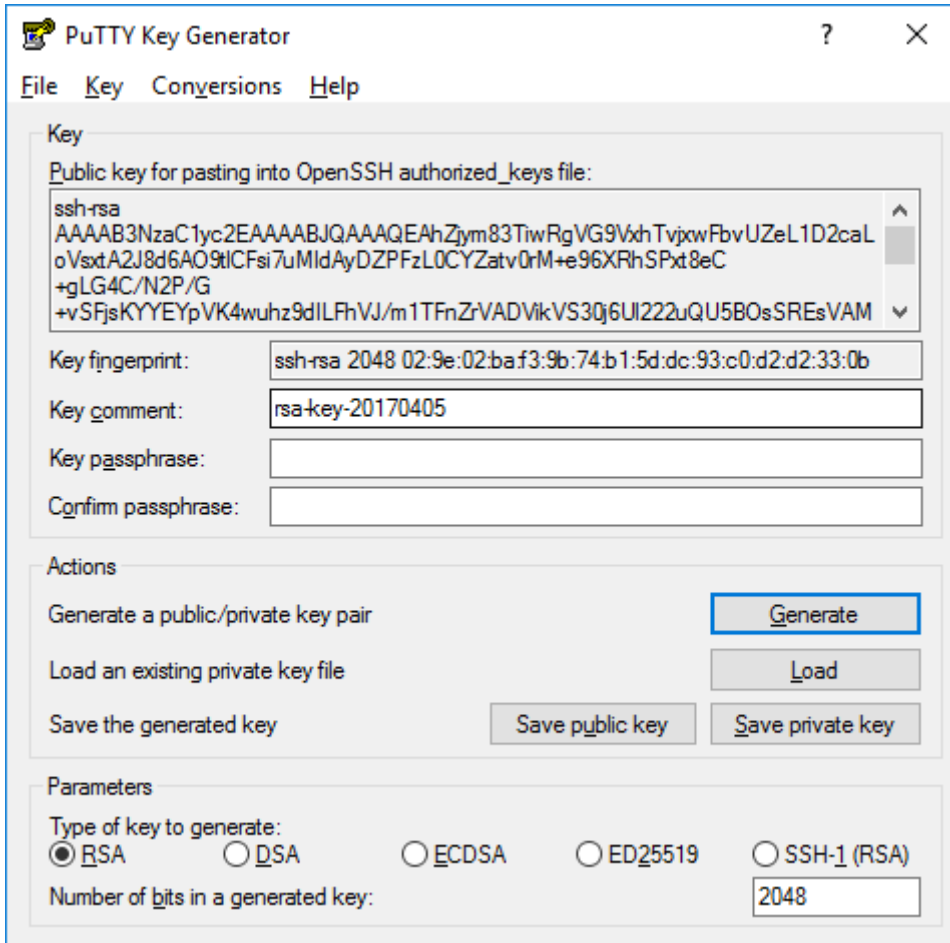
Instructions based on: <https://www.ssh.com/academy/ssh/putty/windows/puttygen>

1. Launch the program PuTTYgen from your start menu
 - If you don't have it you can Download and install PuTTYgen from here (use 64-bit x86): <https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>



2. At the bottom of the window that pops up, set the number of bits to

3. Click **Generate**. Then wait for the progress bar to complete. Once complete the screen should look like the following



PuTTY Key Generator

File Key Conversions Help

Key

Public key for pasting into OpenSSH authorized_keys file:

```
ssh-rsa
AAAAB3NzaC1yc2EAAAABJQAAAQEAhZjym83TiwRgVG9VxhTvjxwFbvUZeL1D2caL
oVsxT2J8d6AO9tICFsi7uMIdAyDZPFzL0CYZatv0rM+e96XRhSPxt8eC
+gLG4C/N2P/G
+vSFjsKYYEYpVK4wuhz9dILFhVJ/m1TFnZrVADVikVS3Qj6UI222uQU5BOsSREsVAM
```

Key fingerprint: ssh-rsa 2048 02:9e:02:ba:f3:9b:74:b1:5d:dc:93:c0:d2:d2:33:0b

Key comment: rsa-key-20170405

Key passphrase:

Confirm passphrase:

Actions

Generate a public/private key pair **Generate**

Load an existing private key file **Load**

Save the generated key **Save public key** **Save private key**

Parameters

Type of key to generate:
☒ RSA ☐ DSA ☐ ECDSA ☐ ED25519 ☐ SSH-1 (RSA)

Number of bits in a generated key: 2048

4. In the **Key passphrase** area, put a strong password. You will need this password to log into the server.
5. Confirm the passphrase in **Confirm passphrase**
6. Save both the public and private key for safekeeping. You will need the private key to log in.
7. Copy and email me the text in the **Public key for pasting into OpenSSH authorized_key file** textbox.

How do I create SSH keys on Mac?

Instructions on how to create SSH keys on a Mac.

1. Open the Terminal window
2. Run the command

```
ssh-keygen -b 4096 -t rsa
```

3. In the **Enter file in which to save the key** prompt enter the same text in the parenthesis but change `id_rsa` to your `username_phs`. That way it is identifiable

Ex:

```
Enter file in which to save the key (/home/youruser/.ssh/id_rsa):  
/home/youruser/.ssh/username_phs
```

4. In the **Enter passphrase** prompt, give it a strong password. You will need this to log into the server
5. Confirm your passphrase
6. Type the following command and email me the text that it sends you:

Remember to change `youruser` to your mac username.

```
cat /home/youruser/.ssh/username_phs.pub
```

How do I SSH on Windows using PuTTY?

Instructions on how to SSH to a server using PuTTY.

1. Launch Putty from your start menu
 - If you don't have it installed you can install it from here (use 64-bit x86 putty.exe):
<https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>
2. In the **Host Name** text box put in your server name.
3. In the left hand side-bar, go to **Connection** > **Data**
4. In the **Auto-login username** Enter your username for the server
5. In the left hand side-bar, go to **Connection** > **SSH** > **Auth**
6. In the **Private key file for authentication** box, click on **Browse** and find your private key (It is the one that does **NOT** end with .pub)
 - If you don't see that field, then try **Connection** > **SSH** > **Auth** > **Credentials** instead
7. In the left hand side-bar, go back to **Session** (At the top)
8. In the **Saved Sessions** Textbox, enter a name and click **Save**

You have set up your SSH Connection

In the future you can use this connection by double clicking on the server name listed in **Saved Sessions** and then clicking open (If necessary). A new window will open and prompt you for your passphrase.

How do I SSH on Mac?

Instructions on how to SSH to a server on Mac.

In the examples here we are setting up the ssh connection to the server `mercury.ucdavis.edu`. We are also using the ssh key stored at `~/.ssh/mercury` you can change these to match the server and key you are using.

1. Launch the Terminal and run the following commands:

```
cd ~/.ssh  
nano config
```

2. It should now take you to a text editor in your terminal. Type the following:

Remember to change the `username` to your username for mercury and the IdentityFile to your private key

```
Host mercury.ucdavis.edu  
    User username  
    IdentityFile ~/.ssh/mercury
```

3. Press `Control + X` and follow the on screen instructions to save your file

You have now set up your ssh connection.

You can ssh to the server by running `ssh your.server.name` in the terminal:
For example:

```
ssh mercury.ucdavis.edu
```

How do I install and use FileZilla?

FileZilla is a simple way to transfer files to and from linux servers. Here are some instructions on how to use it.

Installation

1. Download FileZilla Here https://filezilla-project.org/download.php?show_all=1
 - If you are a windows user you will want the top download
`FileZilla_3.64.0_win64-setup.exe`
 2. Run the downloaded file
 - If it shows the "Do you want to allow..." prompt, go ahead and click yes
 - Click `I Agree`
 - Select `Only for me` and click `Next`
 - You can leave everything else as default and just click Next until its complete.
 3. Launch FileZilla
-

Setting Up FileZilla

These are one time setup instructions for FileZilla to use your private key

0. Launch FileZilla
 1. In the top bar click `Edit` > `Settings...`
 2. In the left hand sidebar click `Connection` > `SFTP`
 3. Click on `Add key file...` and choose the **private key** you saved from PuTTYgen
 4. Click OK to close the settings page
-

Transferring files

1. Near the top you will see a bar with fields you can enter text.
 - **Host:** mercury.ucdavis.edu
 - **Username:** Enter your username
 - **Password:** Leave this blank
 - **Port:** 22
2. Click `Quickconnect`
3. Filezilla will likely ask you for a password. Go ahead and leave it blank again
 - If this is your first time connecting, It will show an `Unknown host key` prompt. You can click `Always trust this host` and then click `OK`
4. Filezilla will then ask you for a password a third time, but this time it will have a **Challenge** section. Enter your private key's password here.
5. You should now be logged in it should similar to the image below.
 - The left hand side is your local computer

- The right hand side is the server

FileZilla sftp://amdhome@mercury.ucdavis.edu - FileZilla

File Edit View Transfer Server Bookmarks Help

Host: sftp://mercury.ucd Username: amdhome Password: Port: Quickconnect

Status: Connecting to mercury.ucdavis.edu...
 Status: Using username "amdhome".
 Status: Connected to mercury.ucdavis.edu
 Status: Retrieving directory listing...
 Status: Listing directory /home/amdhome
 Status: Directory listing of "/home/amdhome" successful

Local site: C:\Users\amdhome\ Remote site: /home/amdhome

Filename	Filesize	Filetype	Last modified
..			
.cisco		File folder	8/22/2022 3:20:59 ...
.docker		File folder	8/24/2022 11:47:40...
.ms-ad		File folder	10/24/2022 3:49:31...
3D Objects		File folder	8/22/2022 3:20:18 ...
AppData		File folder	8/22/2022 3:20:06 ...
Application Data		File folder	6/14/2023 1:36:08 ...
Contacts		File folder	8/22/2022 3:20:18 ...
Cookies		File folder	8/30/2022 1:11:36 ...
Desktop		File folder	6/14/2023 1:46:55 ...
diyic		File folder	12/10/2022 9:58:44...
Documents		File folder	6/13/2023 2:07:39 ...
Downloads		File folder	6/14/2023 1:35:10 ...
Favorites		File folder	8/22/2022 3:20:18 ...
IntelGraphicsProfiles		File folder	6/14/2023 8:14:46 ...

8 files and 31 directories. Total size: 15,032,549 bytes

Filename	Filesize	Filetype	Last modified	Permissions	Ov
..					
.cache		File folder	9/9/2022 2:59:3...	drwxrwxr-x	an
.config		File folder	6/5/2023 9:12:4...	drwxrwxr-x	an
.dbus		File folder	9/9/2022 2:59:3...	drwx-----	an
.images		File folder	10/19/2022 1:3...	drwxr-xr-x	an
.java		File folder	9/16/2022 2:08...	drwxrwxr-x	an
.local		File folder	9/9/2022 11:14...	drwx-----	an
.mozilla		File folder	2/1/2016 9:15:2...	drwxr-xr-x	an
.pki		File folder	9/9/2022 3:15:0...	drwxrw----	an
.puppetlabs		File folder	5/31/2023 1:32...	drwxrwxr-x	an
.R		File folder	5/12/2023 12:2...	drwxrwxr-x	an
.studio		File folder	10/19/2022 2:1...	drwxrwxr-x	an
.studio-desktop		File folder	9/9/2022 10:33...	drwxrwxr-x	an
.sasstudio		File folder	9/16/2022 1:57...	drwxr-xr-x	an

11 files and 19 directories. Total size: 10,746,394,521 bytes

Server/Local file	Direction	Remote file	Size	Priority	Status

Queued files Failed transfers Successful transfers

Queue: empty

You can now drag and drop your files from one side of the screen to the other. You can also drag and drop from another file browser into the right side of the screen to upload your files to mercury.

Progress bars will appear at the bottom of the screen.