



Data Science Academy

[www.datascienceacademy.com.br](http://www.datascienceacademy.com.br)

Programação Paralela em GPU

Acesso Remoto ao Super Servidor DSA



**Siga todas as instruções abaixo para acessar o servidor de Deep Learning da DSA.**

**Este documento está dividido em 2 seções, de acordo com seu sistema operacional: Windows e MacOSX/Linux.**

**O servidor da DSA é para estudo dos temas abordados ao longo do curso. Utilize o servidor com cuidado e atenção e não armazene arquivos que não sejam relacionados ao curso.**

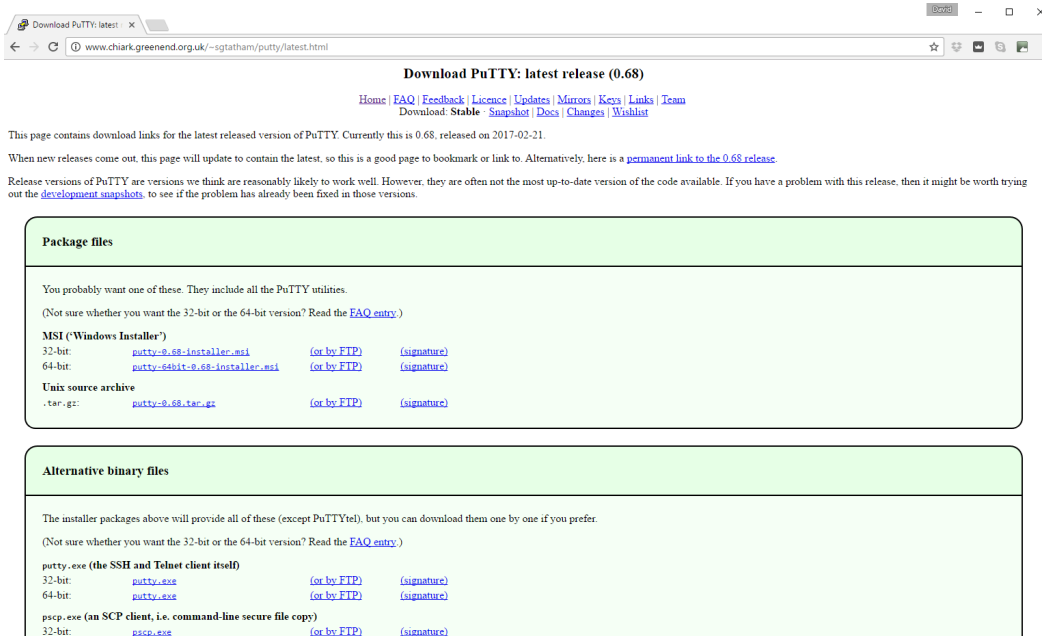
**Esse servidor não terá backup e poderá ser reinstalado a qualquer momento para atualização de hardware e/ou de software. Certifique-se de manter uma cópia de todos seus arquivos localmente no seu computador.**



# Windows

- 1- Acesse o endereço abaixo e faça o download do putty e puttygen (fique atento à versão de acordo com seu sistema operacional 32 ou 64 bits).

<http://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>



The screenshot shows a web browser window with the address bar displaying [www.chiark.greenend.org.uk/~sgtatham/putty/latest.html](http://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html). The page title is "Download PuTTY: latest release (0.68)". The page content includes navigation links (Home, FAQ, Feedback, Licence, Updates, Mirrors, Keys, Links, Team), download links (Stable, Snapshot, Docs, Changes, Wishlist), and a section titled "Package files". This section lists download links for MSI (Windows Installer) and Unix source archive, with options for 32-bit and 64-bit versions. Below this is a section titled "Alternative binary files" which lists download links for putty.exe and pscp.exe, also with options for 32-bit and 64-bit versions.

**Download PuTTY: latest release (0.68)**

[Home](#) | [FAQ](#) | [Feedback](#) | [Licence](#) | [Updates](#) | [Mirrors](#) | [Keys](#) | [Links](#) | [Team](#)  
[Download: Stable](#) | [Snapshot](#) | [Docs](#) | [Changes](#) | [Wishlist](#)

This page contains download links for the latest released version of PuTTY. Currently this is 0.68, released on 2017-02-21.

When new releases come out, this page will update to contain the latest, so this is a good page to bookmark or link to. Alternatively, here is a [permanent link to the 0.68 release](#).

Release versions of PuTTY are versions we think are reasonably likely to work well. However, they are often not the most up-to-date version of the code available. If you have a problem with this release, then it might be worth trying out the [development snapshots](#), to see if the problem has already been fixed in those versions.

**Package files**

You probably want one of these. They include all the PuTTY utilities.  
(Not sure whether you want the 32-bit or the 64-bit version? Read the [FAQ entry](#).)

**MSI ("Windows Installer")**

32-bit: [putty-0.68-installer.msi](#) ([or by FTP](#)) ([signature](#))  
64-bit: [putty-64bit-0.68-installer.msi](#) ([or by FTP](#)) ([signature](#))

**Unix source archive**

.tar.gz: [putty-0.68.tar.gz](#) ([or by FTP](#)) ([signature](#))

**Alternative binary files**

The installer packages above will provide all of these (except PuTTYtel), but you can download them one by one if you prefer.  
(Not sure whether you want the 32-bit or the 64-bit version? Read the [FAQ entry](#).)

**putty.exe (the SSH and Telnet client itself)**

32-bit: [putty.exe](#) ([or by FTP](#)) ([signature](#))  
64-bit: [putty.exe](#) ([or by FTP](#)) ([signature](#))

**pscp.exe (an SCP client, i.e. command-line secure file copy)**

32-bit: [pscp.exe](#) ([or by FTP](#)) ([signature](#))



## 2- Download do puttygen (para gerar as chaves de segurança).

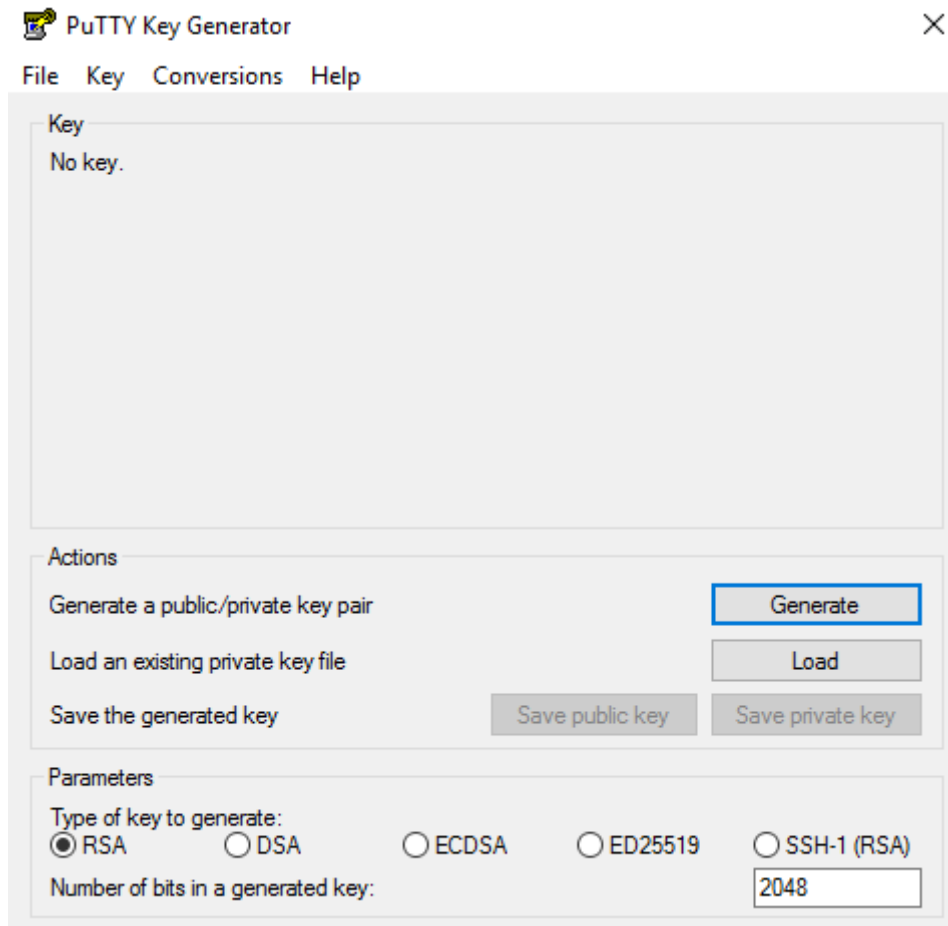
The screenshot shows a web browser window with the address bar displaying "www.chiark.greenend.org.uk/~sgtatham/putty/latest.html". The page content is titled "Alternative binaries" and lists various Putty-related executables and archives. Each item is listed with its 32-bit and 64-bit versions, download methods (or by FTP), and a link to the signature file.

Binary	32-bit	64-bit	Download Method	Signature
<b>putty.exe (the SSH and Telnet client itself)</b>				
putty.exe	<a href="#">putty.exe</a>	<a href="#">putty.exe</a>	(or by FTP)	(signature)
putty.exe	<a href="#">putty.exe</a>	<a href="#">putty.exe</a>	(or by FTP)	(signature)
<b>pscp.exe (an SCP client, i.e. command-line secure file copy)</b>				
pscp.exe	<a href="#">pscp.exe</a>	<a href="#">pscp.exe</a>	(or by FTP)	(signature)
pscp.exe	<a href="#">pscp.exe</a>	<a href="#">pscp.exe</a>	(or by FTP)	(signature)
<b>psftp.exe (an SFTP client, i.e. general file transfer sessions much like FTP)</b>				
psftp.exe	<a href="#">psftp.exe</a>	<a href="#">psftp.exe</a>	(or by FTP)	(signature)
psftp.exe	<a href="#">psftp.exe</a>	<a href="#">psftp.exe</a>	(or by FTP)	(signature)
<b>puttytel.exe (a Telnet-only client)</b>				
puttytel.exe	<a href="#">puttytel.exe</a>	<a href="#">puttytel.exe</a>	(or by FTP)	(signature)
puttytel.exe	<a href="#">puttytel.exe</a>	<a href="#">puttytel.exe</a>	(or by FTP)	(signature)
<b>plink.exe (a command-line interface to the PuTTY back ends)</b>				
plink.exe	<a href="#">plink.exe</a>	<a href="#">plink.exe</a>	(or by FTP)	(signature)
plink.exe	<a href="#">plink.exe</a>	<a href="#">plink.exe</a>	(or by FTP)	(signature)
<b>pageant.exe (an SSH authentication agent for PuTTY, PSCP, PSFTP, and Plink)</b>				
pageant.exe	<a href="#">pageant.exe</a>	<a href="#">pageant.exe</a>	(or by FTP)	(signature)
pageant.exe	<a href="#">pageant.exe</a>	<a href="#">pageant.exe</a>	(or by FTP)	(signature)
<b>puttygen.exe (a RSA and DSA key generation utility)</b>				
puttygen.exe	<a href="#">puttygen.exe</a>	<a href="#">puttygen.exe</a>	(or by FTP)	(signature)
puttygen.exe	<a href="#">puttygen.exe</a>	<a href="#">puttygen.exe</a>	(or by FTP)	(signature)
<b>putty.zip (a .ZIP archive of all the above)</b>				
putty.zip	<a href="#">putty.zip</a>	<a href="#">putty.zip</a>	(or by FTP)	(signature)
putty.zip	<a href="#">putty.zip</a>	<a href="#">putty.zip</a>	(or by FTP)	(signature)

Documentation

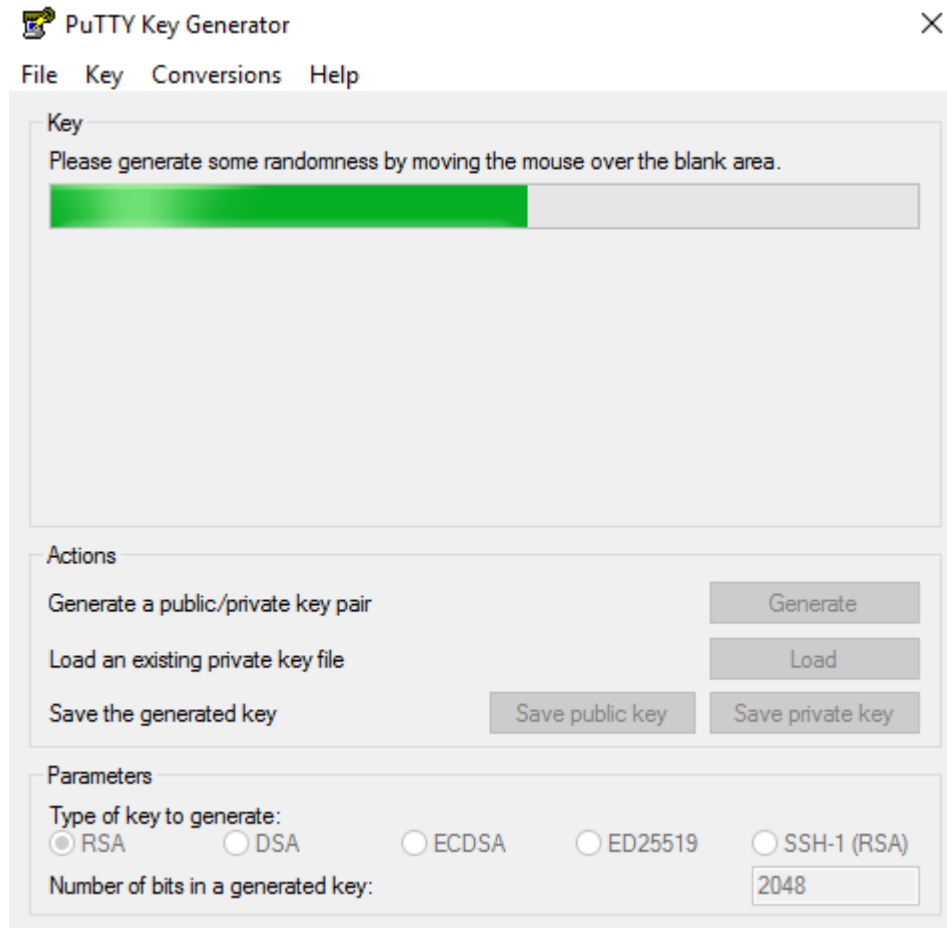


### 3- Abra o puttygen (2 cliques sobre o executável):





- 4- Clique no botão generate (você precisa ficar “movendo” o mouse enquanto a chave estiver sendo criada, pois a chave randômica é criada de acordo com os movimentos do mouse. Se você não movimentar o mouse, a chave não será criada).





- 5- A chave pública será gerada. Copie a chave inteira, cole no bloco de notas (não use Word ou Wordpad) e salve com o nome: `authorized_keys` (nome do arquivo sem extensão). Não use o botão “Save public key”. Copie e cole a chave pública gerada.

**ATENÇÃO:** depois de salvar este arquivo, compacte em formato zip e envie por e-mail para [suporte@datascienceacademy.com.br](mailto:suporte@datascienceacademy.com.br). Esse arquivo será copiado para sua pasta de usuário no servidor e permitirá seu acesso remoto. Guarde esse arquivo com segurança.

The screenshot shows the PuTTY Key Generator application window. The 'Key' section displays a public key for pasting into an OpenSSH `authorized_keys` file. The key is an RSA key with a 2048-bit length. The key fingerprint is shown as `ssh-rsa 2048 9f:5c:7a:6e:f3:aa:88:a3:69:62:35:01:7e:b0:e0:f3`. The key comment is `rsa-key-20170415`. The key passphrase and confirm passphrase fields are empty. The 'Actions' section includes buttons for 'Generate', 'Load', 'Save public key', and 'Save private key'. The 'Parameters' section shows the 'Type of key to generate' set to 'RSA' and the 'Number of bits in a generated key' set to '2048'.

PuTTY Key Generator

File Key Conversions Help

Key

Public key for pasting into OpenSSH `authorized_keys` file:

```
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEA5vRLKwEHaMKE
+pKNt0iklj11L8uvGPDaEZJ3JQy86S5DvCibLlwz3u0ju83mnMk63oz/rQWtbGSTdn/ko
yjkMcrrGzZY8g0WxsxOXGM9WAnbEOsr/DximKqvLahTx3e7B
+A3JpGXqKfA/nh02x/4OH9Aezo5AAEmFWQqdjG7NT8roR9TRfKqLbXETjuA3IG4D0q
9swJzxSAgjBJZRwZ3QTzLu6MVVJ597iGfETO
```

Key fingerprint: `ssh-rsa 2048 9f:5c:7a:6e:f3:aa:88:a3:69:62:35:01:7e:b0:e0:f3`

Key comment: `rsa-key-20170415`

Key passphrase:

Confirm passphrase:

Actions

Generate a public/private key pair

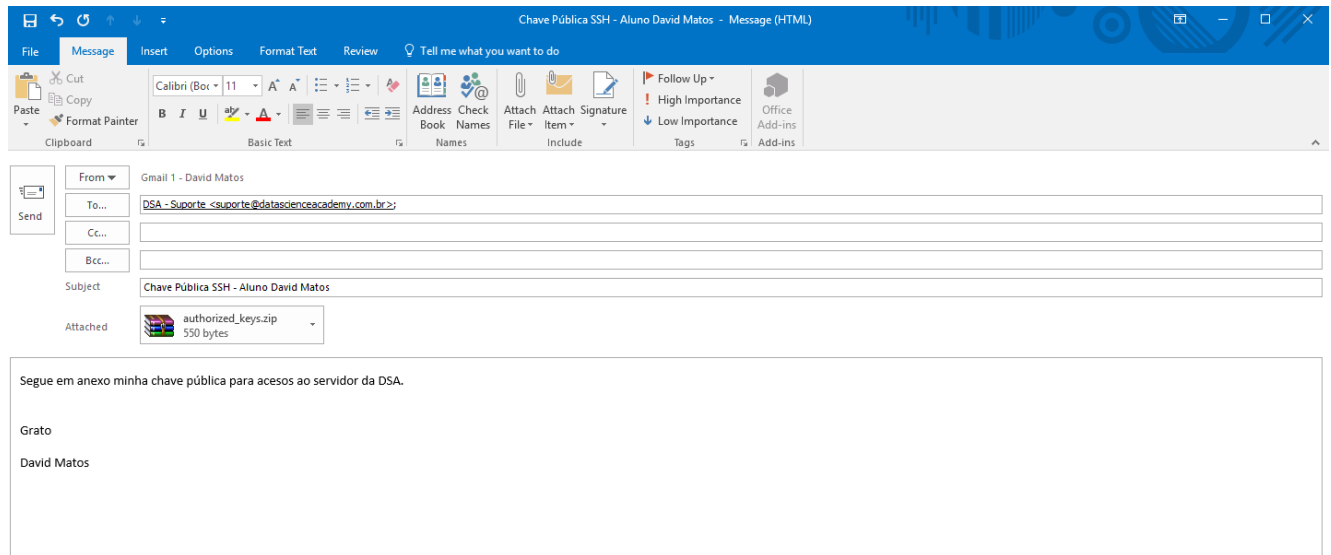
Load an existing private key file

Save the generated key

Parameters

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

Number of bits in a generated key:

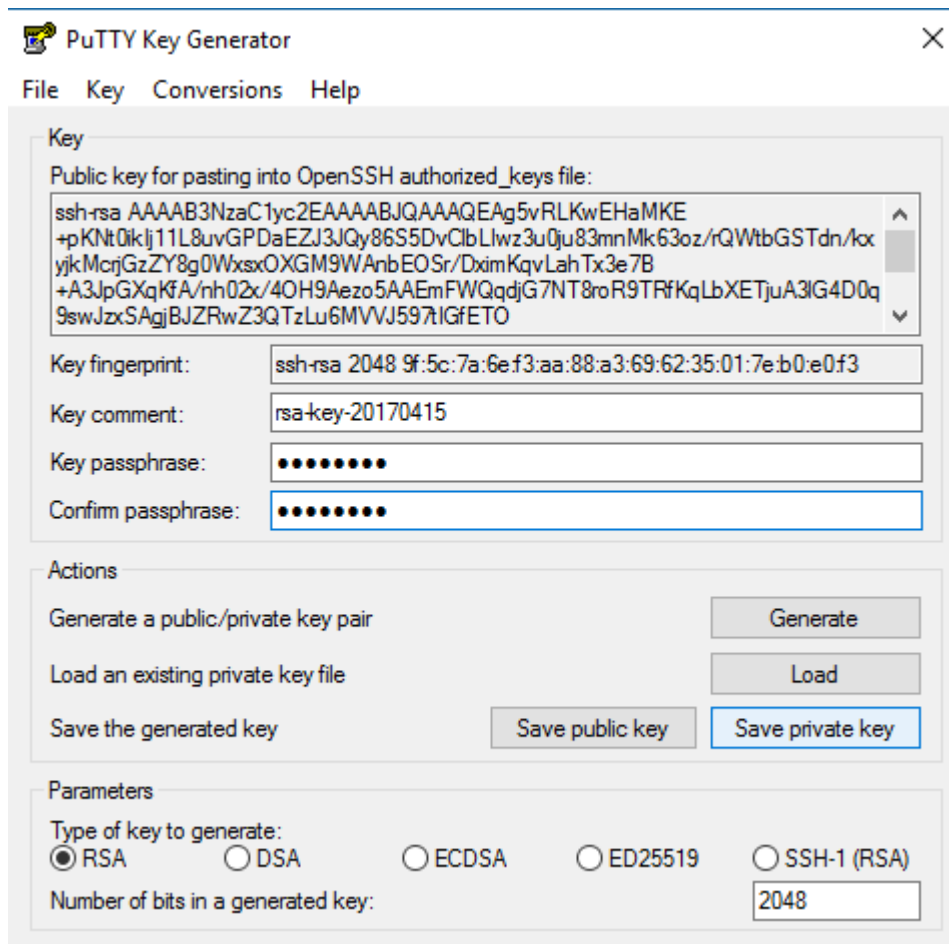


Envie o arquivo por e-mail compactado em formato zip, para evitar que o arquivo seja corrompido



- 6- Em seguida, digite uma senha no campo “Key passphrase” e confirme. Essa senha será usada para login no servidor DSA. Depois de digitar a senha, clique no botão “Save private key”.

Obs: Essa senha ficará guardada no arquivo de chave privada armazenado no seu computador. Ninguém terá acesso a esta senha, nem mesmo nós da DSA.



The screenshot shows the PuTTY Key Generator window. The 'Key' section displays the public key for pasting into the OpenSSH authorized\_keys file. The 'Key fingerprint' is shown as 'ssh-rsa 2048 9f:5c:7a:6e:f3:aa:88:a3:69:62:35:01:7e:b0:e0:f3'. The 'Key comment' is 'rsa-key-20170415'. The 'Key passphrase' and 'Confirm passphrase' fields are filled with dots. The 'Actions' section has buttons for 'Generate', 'Load', 'Save public key', and 'Save private key'. The 'Parameters' section shows 'Type of key to generate' set to 'RSA' and 'Number of bits in a generated key' set to '2048'.

**Key**

Public key for pasting into OpenSSH authorized\_keys file:

```
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEA5vRLKwEHAMKE
+pKNt0iklj11L8uvGPDaEZJ3JQy86S5DvClbLlwz3u0ju83mnMk63oz/rQWtbGSTdn/kc
yjkMcrgGzZY8g0WxsxOXGM9WAnbEOSr/DximKqvLahTx3e7B
+A3JpGXqKfA/nh02x/4OH9Aezo5AAEmFWQqdjG7NT8roR9TRfKqLbXETjuA3IG4D0q
9swJzxSAgjBJZRwZ3QTzLu6MVVJ597IGfETO
```

Key fingerprint: ssh-rsa 2048 9f:5c:7a:6e:f3:aa:88:a3:69:62:35:01:7e:b0:e0:f3

Key comment: rsa-key-20170415

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

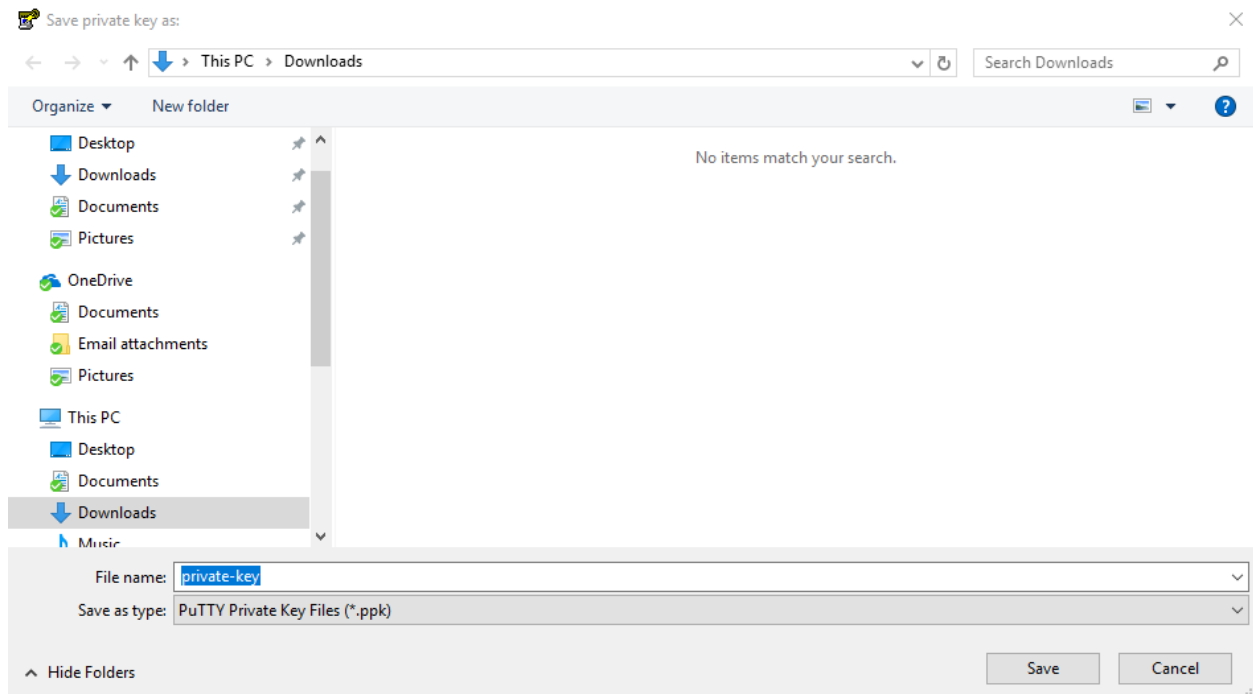
**Parameters**

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

Number of bits in a generated key: 2048

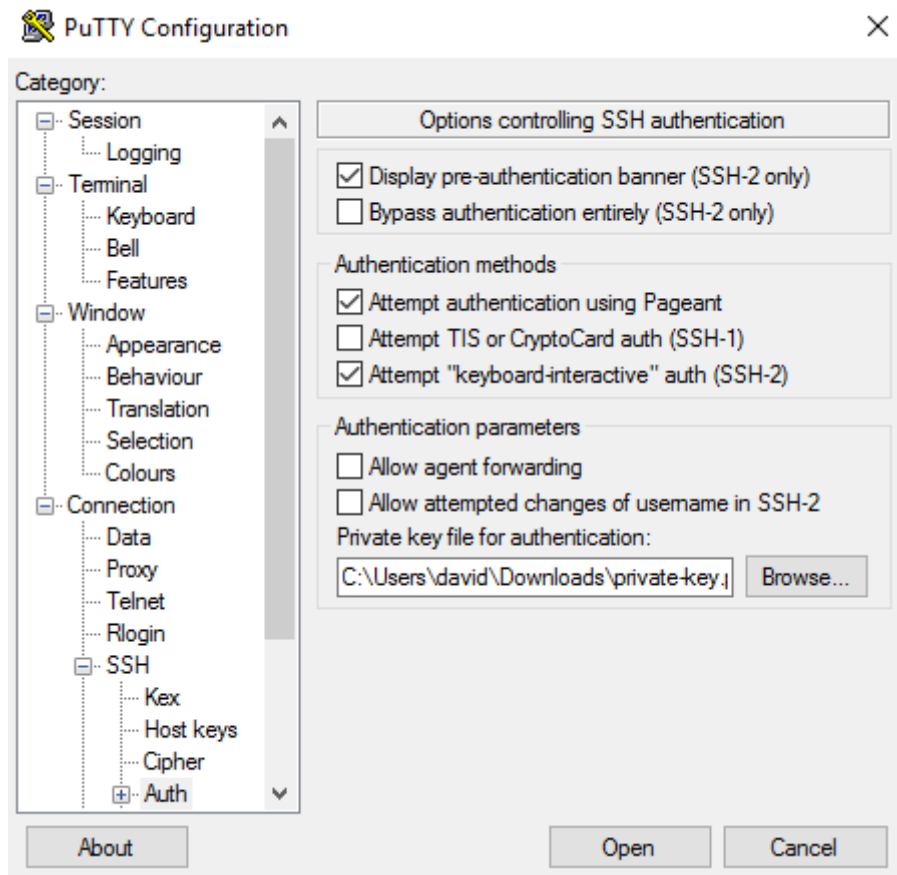


7- Salve o arquivo com o nome que preferir. Sugerimos: **private-key.ppk**.



Isso finaliza a configuração com o puttygen. Pode fechar o aplicativo!

- 8- Abra o putty (você pode colocar o executável onde preferir, pois não há instalação. Sugerimos colocar o arquivo no seu desktop). No menu à esquerda, clique em **Connection – SSH – Auth**. Na caixa Private Key file for authentication, clique no botão browse e selecione a private-key criada no passo anterior.



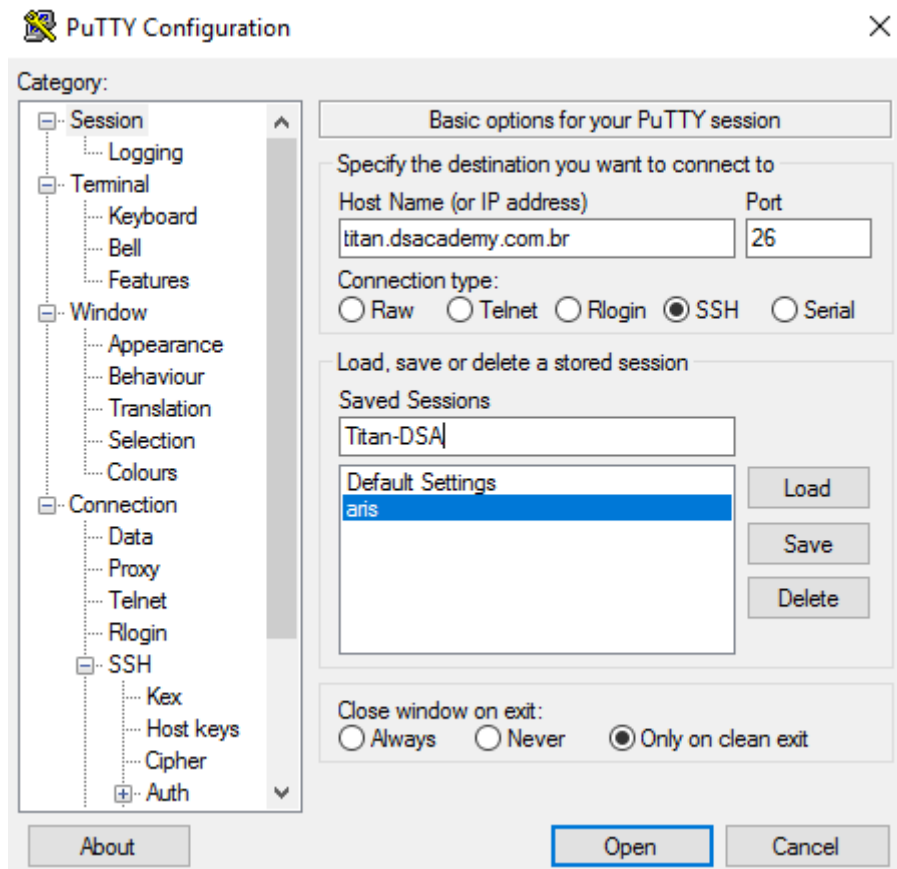


- 9- No menu à esquerda, clique em Session. Preencha os dados de acesso ao servidor e clique em salvar. Dê o nome que preferir, sugerimos: Titan-DSA.

Servidor: **titan.dsacademy.com.br**

Port: **26**

Connection Type: **SSH**





- 10- Clique no botão Open e digite seu usuário de acesso e a senha que você configurou no puttygen.

**ATENÇÃO: você receberá seu usuário de acesso depois de enviar a chave de segurança.**

```
titan.dsacademy.com.br - PuTTY
login as: dmatos
Authenticating with public key "rsa-key-20170415"
Passphrase for key "rsa-key-20170415": █
```



## 11- Login efetuando com sucesso!

```
dmatos@titan: ~  
login as: dmatos  
Authenticating with public key "rsa-key-20170415"  
Passphrase for key "rsa-key-20170415":  
  
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-39-generic x86_64)  
  
* Bem-vindo ao Supercomputador de Deep Learning da Data Science Academy  
* Utilize este computador para suas atividades ao longo dos cursos da Formação Inteligência Artificial  
* Suporte: http://www.datascienceacademy.com.br  
  
9 packages can be updated.  
0 updates are security updates.  
  
Last login: Sat Apr 15 17:02:25 2017 from 192.168.1.1  
dmatos@titan:~$
```

Comece instalando o Anaconda Python. Para fazer o download digite:

**wget** [https://repo.continuum.io/archive/Anaconda3-4.3.1-Linux-x86\\_64.sh](https://repo.continuum.io/archive/Anaconda3-4.3.1-Linux-x86_64.sh)

E em seguida, instale o Anaconda, com o comando abaixo. A instalação deve ser feita no seu diretório home: /home/user/anaconda3

**bash Anaconda3-4.3.1-Linux-x86\_64.sh**

Você tem acesso completo no seu diretório home. Para copiar arquivos para o servidor faça o download e configure o WinSCP (<https://winscp.net/eng/download.php>).

**CUDA e cuDNN já estarão instalados no servidor (você precisa configurar as suas variáveis de ambiente). Você também poderá usar o Docker e Nvidia-Docker no servidor DSA.**

Bons estudos!

Equipe DSA



## MacOSX / Linux

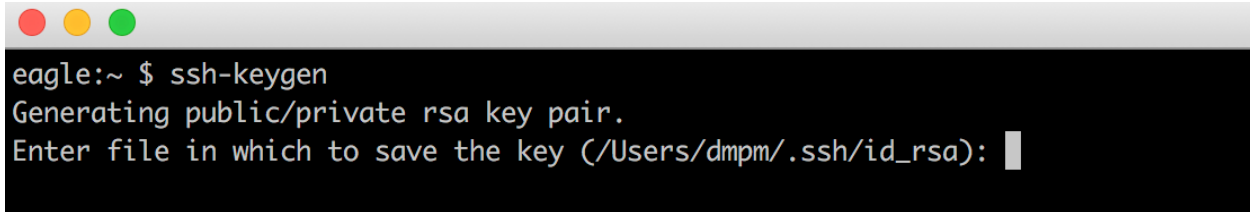
- 1- Abra o terminal e digite **ssh-keygen** para gerar sua chave de segurança.

A screenshot of a terminal window on a Mac. The window has a light gray title bar with three standard Mac window control buttons (red, yellow, green) on the left. The terminal itself has a black background with white text. The prompt 'eagle:~ \$' is visible, followed by the command 'ssh-keygen' and a white cursor block at the end of the line.

```
eagle:~ $ ssh-keygen
```



2- Pressione enter para confirmar o diretório onde serão salvos os arquivos.

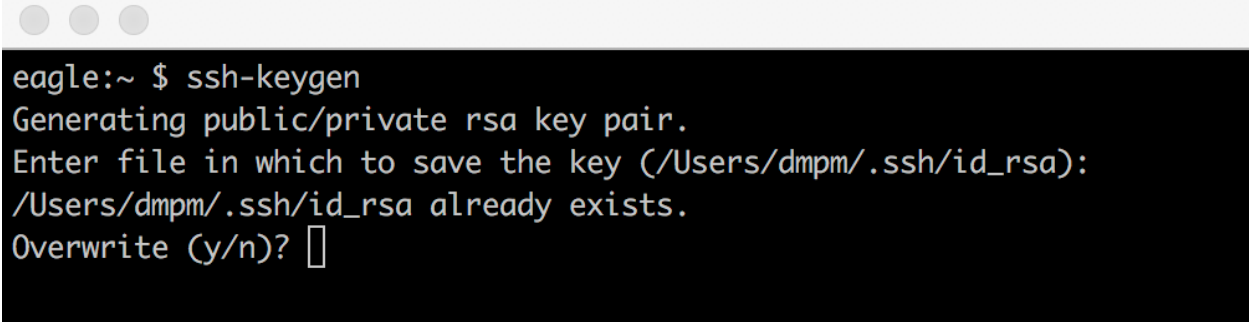
A screenshot of a terminal window with a black background and white text. The window has a standard macOS-style title bar with red, yellow, and green window control buttons. The text in the terminal shows the execution of the 'ssh-keygen' command, followed by prompts for generating a key pair and saving it.

```
eagle:~ $ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/Users/dmpm/.ssh/id_rsa):
```





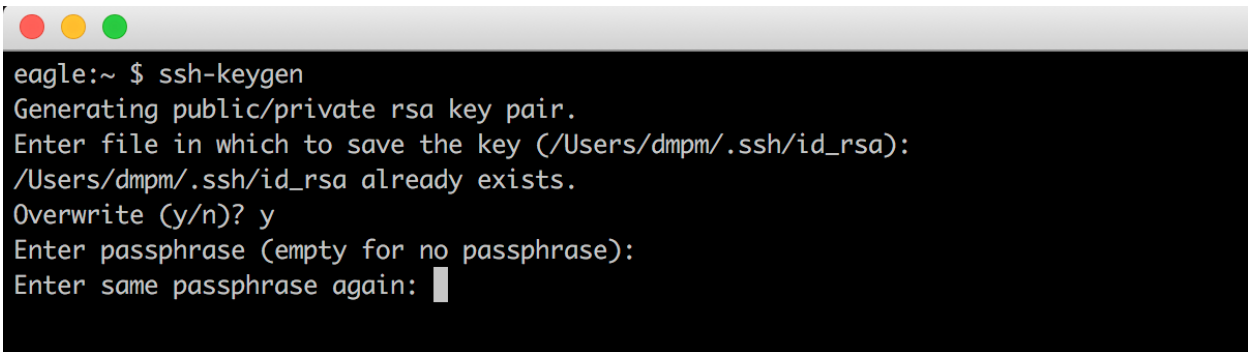
- 3- Caso você já tenha alguma chave no diretório, você receberá uma mensagem para sobrescrever. Certifique-se de salvar qualquer arquivo antes de realizar o procedimento.



```
eagle:~ $ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/Users/dmpm/.ssh/id_rsa):
/Users/dmpm/.ssh/id_rsa already exists.
Overwrite (y/n)? ☐
```



- 4- Digite a senha e confirme. Essa senha será usada para efetuar login no servidor.



```
eagle:~ $ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/Users/dmpm/.ssh/id_rsa):
/Users/dmpm/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again: 
```



5- Serão gerados 2 arquivos:

**id\_rsa** (chave privada)

**id\_rsa.pub** (chave pública)

**ATENÇÃO:** depois de gerar os arquivos, compacte o arquivo com a chave pública em formato zip e envie por e-mail para [suporte@datascienceacademy.com.br](mailto:suporte@datascienceacademy.com.br). Esse arquivo será copiado para sua pasta de usuário no servidor e permitirá seu acesso remoto. Guarde esse arquivo com segurança.

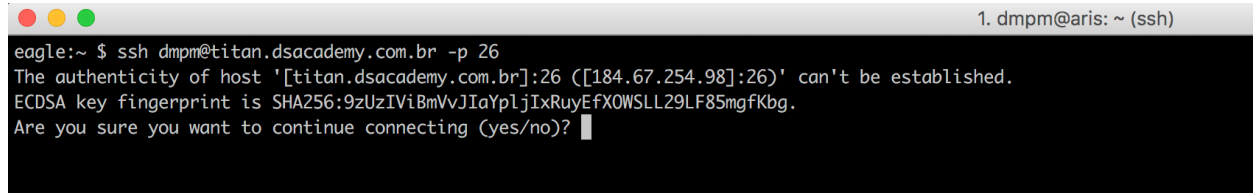
```
eagle:~ $ cd .ssh/
eagle:~/ssh $ ls -la
total 32
drwxr-xr-x  6 dmpm  staff   204 Feb 28 23:51 .
drwxr-xr-x+ 73 dmpm  staff 2482 Apr 15 16:12 ..
-rw-r--r--  1 dmpm  staff   24 Feb 28 23:51 config
-rw-----  1 dmpm  staff 1766 Apr 15 16:36 id_rsa
-rw-r--r--  1 dmpm  staff  409 Apr 15 16:36 id_rsa.pub
-rw-r--r--  1 dmpm  staff 2454 Apr 14 00:49 known_hosts
eagle:~/ssh $
```



6- Depois de enviar o arquivo do item anterior, você receberá seu usuário de acesso. Para efetuar login, digite no terminal:

`ssh user@titan.dsacademy.com.br -p 26`

No primeiro acesso será solicitado a confirmação da chave. Digite yes e pressione enter.



```
eagle:~ $ ssh dmpm@titan.dsacademy.com.br -p 26
The authenticity of host '[titan.dsacademy.com.br]:26 ([184.67.254.98]:26)' can't be established.
ECDSA key fingerprint is SHA256:9zUzIViBmVvJIaYpljIxRuyEfXOWSLL29LF85mgfKbg.
Are you sure you want to continue connecting (yes/no)?
```



## 7- Digite a senha.

```
eagle:~ $ ssh dmpm@titan.dsacademy.com.br -p 26
The authenticity of host '[titan.dsacademy.com.br]:26 ([184.67.254.98]:26)' can't be established.
ECDSA key fingerprint is SHA256:9zUzIViBmVvJIaYpljIxRuyEfxOWSLl29LF85mgfKbg.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '[titan.dsacademy.com.br]:26,[184.67.254.98]:26' (ECDSA) to the list of known hosts.
Enter passphrase for key '/Users/dmpm/.ssh/id_rsa':
```



## 8- Login efetuado com sucesso!

```
1. dmpm@titan: ~ (ssh)
eagle:~ $ ssh dmpm@titan.dsacademy.com.br -p 26
The authenticity of host '[titan.dsacademy.com.br]:26 ([184.67.254.98]:26)' can't be established.
ECDSA key fingerprint is SHA256:9zUzIViBmVvJJaYpljIxRuyEfXOWSLL29LF85mgfKbg.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '[titan.dsacademy.com.br]:26,[184.67.254.98]:26' (ECDSA) to the list of known hosts.
Enter passphrase for key '/Users/dmpm/.ssh/id_rsa':

Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-39-generic x86_64)

 * Bem-vindo ao Supercomputador de Deep Learning da Data Science Academy
 * Utilize este computador para suas atividades ao longo dos cursos da Formação Inteligência Artificial
 * Suporte: http://www.datascienceacademy.com.br

9 packages can be updated.
0 updates are security updates.

Last login: Fri Apr 14 23:59:17 2017 from 192.168.1.139
dmpm@titan:~$
```

Comece instalando o Anaconda Python. Para fazer o download digite:

**wget** [https://repo.continuum.io/archive/Anaconda3-4.3.1-Linux-x86\\_64.sh](https://repo.continuum.io/archive/Anaconda3-4.3.1-Linux-x86_64.sh)

E em seguida, instale o Anaconda, com o comando abaixo. A instalação deve ser feita no seu diretório home: /home/user/anaconda3

**bash Anaconda3-4.3.1-Linux-x86\_64.sh**

Você tem acesso completo no seu diretório home. Para copiar arquivos para o servidor use o comando scp.

**CUDA e cuDNN já estarão instalados no servidor (você precisa configurar as suas variáveis de ambiente). Você também poderá usar o Docker e Nvidia-Docker no servidor DSA.**

Bons estudos!

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