

U.S. National Library of Medicine National Center for Biotechnology Information **NLM Citation:** SRA Application Notes [Internet]. Bethesda (MD): National Center for Biotechnology Information (US); 2010-. Aspera Keys. 2014 Jan 29. **Bookshelf URL:** https://www.ncbi.nlm.nih.gov/books/

Sequence Read Archive Application Note NCBI Help Manual Decomposition National Center Biotechnology Information U.S. National Library of Medici		<b>As</b> Creat
Status	A	ctive
Active Date	20	014-01-2

Aspera Keys Created: January 29, 2014.

Status	Active
Active Date	2014-01-29
Inactive Date	
Scope	INSDC SRA

# Notice

Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government, and shall not be used for advertising or product endorsement purposes.

# Overview

The ascp program requires a private/public key pair for transfers. This guide describes how users can generate or convert their keys for use with ascp.

# Scope

This document is intended for users transferring large data files from NCBI. It applies to the Sequence Read Archive (SRA), dbGaP, and other archives where Aspera download is enabled.

# **Generating New Keys**

## ascp Version

To find the version of ascp installed, run the program with "-A" or "--version"

../ascp -A

## Versions 2.6 and newer of ascp

Linux/Unix and OS X users can use the ssh-keygen utility

Using ssh-keygen

```
ssh-keygen -f ./private.openssh
```

This will store a private key in the current working directory with the name 'private.openssh' as well as a public key with the name 'private.openssh.pub'

Using puttygen

Download the PuTTY software for UNIX

http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html

For questions concerning PuTTY installation on UNIX, please see the README file provided in the downloaded source.

To generate a OpenSSH private key:

../puttygen -O private-openssh -t rsa -b 1024 -o private.openssh

To generate an open-ssh public key from the private key:

../puttygen private.openssh -O public-openssh -o publicssh.pub

### **Microsoft Windows Users:**

Download puttygen: http://the.earth.li/~sgtatham/putty/latest/x86/puttygen.exe

Run *puttygen.exe* to create an ssh key:

PuTTY Key Generator	×
ile <u>K</u> ey Con <u>v</u> ersions <u>H</u> elp	
Key	
No key.	
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
Save the generated key	
Parameters	
Parameters Type of key to generate: SSH- <u>1</u> (RSA)	© SSH-2 <u>D</u> SA

Make sure that SSH-2 RSA Parameter option is selected, and that the "Number of bits in a generated key" be set to 1024. Then press "Generate" (moving the mouse to generate a key).

Generating a key will result in something like this:

#### Aspera Keys

PuTTY Key Generator				x
<u>File Key Conv</u> ersions	<u>H</u> elp			
Key				
Public key for pasting int	o OpenSSH authorized	d_keys file:		
ssh-rsa AAAAB3NzaC1y +yFL09OLScqDDj3InoC +ffyVEpApX4pdgnkb5u +v8lqG9TeZoVT4T9Zq 20140129	lpGeGEuNC20DLL7H /+VpE2qLxrXGbC5Krlp	ls721vNK8lC/DjL5YQ pA/g9haT98it1TGu8l		*
Key fingerprint:	ssh-rsa 1024 52:bf:b0:1	10:ae:ef:24:89:de:5a:4	11:5f:bb:a3:ff:73	
Key comment:	sa-key-20140129			
Key p <u>a</u> ssphrase:				
Confirm passphrase:				
Actions				
Generate a public/privat	e key pair		<u>G</u> enerate	
Load an existing private	key file		<u>L</u> oad	
Save the generated key		Save p <u>u</u> blic key	Save private k	ey
Parameters				
Type of key to generate: SSH- <u>1</u> (RSA)	SSH-2 RSA	© SS	H-2 <u>D</u> SA	
Number of <u>b</u> its in a gene	rated key:		1024	
L				

Copy the text from the "Public Key for pasting into OpenSSH authorized\_keys file" text box. The OpenSSH public key must look like the following example. Other formats can't be used as the public key.

```
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAIEAoQNz1WIxVOvdRL9fx
... jVp9nc= rsa-key-20090113
```

😴 PuTTY Key Generator					x
File Key	Conversion	s Help			
Key	Key Import key				
Public ke	Public ke Export OpenSSH key ys file:				
+yFL09C +ffyVEp/					
+v8lqG9 2014012	ŤeZóVŤ4T9Z 9	qT/TDxBjkXM9rlq0ib7	ugjrfxGibAyG+iR1XcKt	58pUc=rsa-key-	Ŧ
Key finge	rprint:	ssh-rsa 1024 52:bf:b0	:10:ae:ef:24:89:de:5a:4	1:5f:bb:a3:ff:73	
Key com	nent:	rsa-key-20140129			
Key p <u>a</u> ss	phrase:				
Confirm p	assphrase:				
Actions					
Generate	a public/priva	te key pair		<u>G</u> enerate	
Load an e	Load an existing private key file				
Save the	Save the generated key Save p <u>ublic key</u> <u>Save private key</u>				
Parameters					
	Type of key to generate: SSH-1 (RSA) SSH-2 RSA SSH-2 DSA				
Number o	f <u>b</u> its in a gen	erated key:		1024	

Click "Export OpenSSH Key" in the "Coversions" menu to retain the private key in OpenSSH format. NOTE leave "Key passphrase" and "Confirm passphrase" empty (otherwise, you will be prompted to enter the passphrase whenever you perform an Aspera transaction).

Keys for ascp versions prior to 2.6

### Linux/UNIX Users

Puttygen - Download the PuTTY software for UNIX

http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html

For questions concerning PuTTY installation on UNIX, please see the README file provided in the downloaded source.

To generate a putty private key:

../puttygen -O private -t rsa -b 1024 -o puttyprivate.ppk

To generate an open-ssh public key from the private key:

../puttygen puttyprivate.ppk -0 public-openssh -o publicssh.pub

### **Microsoft Windows Users:**

Download puttygen: http://the.earth.li/~sgtatham/putty/latest/x86/puttygen.exe

Run *puttygen.exe* to create an ssh key:

2	PuTTY K	ey Generator				X
<u>F</u> ile	e <u>K</u> ey	Con <u>v</u> ersions	<u>H</u> elp			
	Кеу					
	No key.					
	Actions					
		a public/private	key pair		Generate	
	Load an e	existing private ke	ey file		<u>L</u> oad	
	Save the	generated key		Save p <u>u</u> blic key	Save private k	ey
	Parameter	15				
		ey to generate:	0.00110.000			
	© SSH- <u>1</u>		© SSH-2 <u>R</u> SA	© SSI	1-2 <u>D</u> SA	
	Number o	f <u>b</u> its in a genera	ted key:		1024	

Make sure that SSH-2 RSA Parameter option is selected, and that the "Number of bits in a generated key" be set to 1024. Then press "Generate" (moving the mouse to generate a key).

Generating a key will result in something like this:

😴 PuTTY Key Generato	pr	X
File Key Conversion	ns <u>H</u> elp	
Key		
Public key for pasting in	nto OpenSSH authorized_keys file:	
+yFL09OLScqDDj3Inc +ffyVEpApX4pdgnkb5	:1yc2EAAAABJQAAAIEAh oClpGeGEuNC20DLL7Hs721vNK8IC/DjL5YQyf 5u/+VpE2qLxrXGbC5KrlpA/g9haT98it1TGu8l ZqT/TDxBjkXM9rlq0ib7ugjrfxGibAyG+iR1XcKt58pUc=rsa-key-	* *
Key fingerprint:	ssh-rsa 1024 52:bf:b0:10:ae:ef:24:89:de:5a:41:5f:bb:a3:ff:73	
Key comment:	rsa-key-20140129	
Key p <u>a</u> ssphrase:		
Confirm passphrase:		
Actions		
Generate a public/priva	ate key pair <u>G</u> enerate	
Load an existing private	e key file Load	
Save the generated ke	Save p <u>u</u> blic key Save private	key
Parameters		
Type of key to generat SSH- <u>1</u> (RSA)	e:	
Number of <u>b</u> its in a gen	nerated key: 1024	

Click "Save Private Key" to retain the private key. NOTE - leave "Key passphrase" and "Confirm passphrase" empty (otherwise, you will be prompted to enter the passphrase whenever you do an Aspera transaction).

Copy the text from the "Public Key for pasting into OpenSSH authorized\_keys file" text box. The OpenSSH public key must look like the following example. Other formats can't be used as the public key.

```
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAIEAoQNz1WIxVOvdRL9fx
... jVp9nc= rsa-key-20090113
```

## **Converting Key Formats**

PuTTY format keys (.ppk) will need to be converted to OpenSSH for use with the latest version of ascp.

## Linux/UNIX Users

To convert a PuTTY format private key to a OpenSSH format private key with puttygen:

```
puttygen <original_key.ppk> -0 private-openssh -o <new_key.openssh>
```

### **Microsoft Windows Users:**

Run *puttygen.exe* to convert a PuTTY format key:

#### Aspera Keys



In the "File" menu select "Load private key". Select the PuTTY key the needs to be converted from the file browswer.

😴 PuTTY Key Ge	enerator			×
File Key Cor	nversion	s] Help		
Key	Key Import key			
Public ke ssh-rsa A	Export	OpenSSH key	ys file:	
+yFL09C		ssh.com key	vNK8IC/DjL5Y 9haT98it1TGu8	(Qyf
+v8lqG9TeZo 20140129	v <b>⊤</b> 4T9Zo	₁T/ŤDxBjkXM9rlq0ib7i	ıgjıfxGibAyG+iR1Xc	kt58pUc=rsa-key- •
Key fingerprint:	: [	ssh-rsa 1024 52:bf:b0::	10:ae:ef:24:89:de:5a	a:41:5f:bb:a3:ff:73
Key comment:		rsa-key-20140129		
Key p <u>a</u> ssphras	e:			
C <u>o</u> nfirm passph	Confirm passphrase:			
Actions				
Generate a put	blic/priva	e key pair		<u>G</u> enerate
Load an existin	ng private	key file		Load
Save the generated key Save public key Save private key			Save private key	
Parameters				
Type of key to SSH- <u>1</u> (RS)		:	© S	SH-2 <u>D</u> SA
Number of <u>b</u> its	in a gene	erated key:		1024

Select "Export OpenSSH key" from the "Conversions" menu.