SRA Application Notes

Last Updated: January 29, 2014



National Center for Biotechnology Information (US), Bethesda (MD)

This documentation provides application notes for the Sequence Read Archive (SRA) at the National Center for Biotechnology Information.

Table of Contents

Active Notes	1
Aspera Keys	3
Notice	3
Overview	3
Scope	3
Generating New Keys	3
Converting Key Formats	8



SRA Application Notes

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				
<u>File K</u> ey Con <u>v</u> ersions <u>H</u> elp				
Кеу				
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			
Transfers				
SSH-1 (RSA) SSH-2 RSA	© SSH-2 <u>D</u> SA			
Number of <u>b</u> its in a generated 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:

Aspera Keys

PuTTY Key Generator	x				
<u>File Key Conversions H</u> elp					
Key					
Public key for pasting into OpenSSH authorized_keys file:					
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAIEAh +yFL09OLScqDDj3InoClpGeGEuNC20DLL7Hs721vNK8IC/DjL5YQyf +ffyVEpApX4pdgnkb5u/+VpE2qLxrXGbC5KrlpA/g9haT98it1TGu8l +v8lqG9TeZoVT4T9ZqT/TDxBjkXM9rlq0ib7ugjrfxGibAyG+iR1XcKt58pUc=rsa-key- 20140129					
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 passphrase:					
Confirm passphrase:					
Actions	_				
Generate a public/private key pair <u>G</u> enerate					
Load an existing private key file					
Save the generated key Save p <u>ublic key</u> <u>Save private key</u>	у				
Parameters					
Type of key to generate: ○ SSH- <u>1</u> (RSA)					
Number of <u>bits</u> in a generated key: 1024					

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					
File Key	Conversion	ns Help			
Key	Impo	rt key			
Public ke	Expor	t OpenSSH key	ys file:		
+yFL09C +ffvVEp/	Expor	t ssh.com key	vNK8IC/DjL5YQy 9haT98it1TGu8l	f	
+v8lqG9 2014012	TeZoVT4T92 9	/qT/TDxBjkXM9rlq0ib7	ugjrfxGibAyG+iR1XcKt5	i8pUc=rsa-key- ▼	
Key finger	rprint:	ssh-rsa 1024 52:bf:b0	:10:ae:ef:24:89:de:5a:4	1:5f:bb:a3:ff:73	
Key <u>c</u> omn	nent:	rsa-key-20140129			
Key p <u>a</u> ss	ohrase:				
Confirm p	assphrase:				
Actions					
Generate	a public/priva	ate key pair		<u>G</u> enerate	
Load an e	Load an existing private key file				
Save the	Save the generated key Save public key Save private key				
Parameter	rs				
Type of k SSH- <u>1</u>	ey to generat (RSA)	e:	SSF	I-2 <u>D</u> SA	
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					
	Generate	a public /private	key pair		Generate	
		a pablic/private				
	Load an e	existing private ke	ey file		Load	
	Save the	generated key		Save p <u>u</u> blic key	Save private k	ey
	Parameter	15				
	Type of k	ey to generate:	0.00110.000			
	© SSH- <u>1</u>	(RSA)	SSH-2 <u>R</u> SA	© SSI	H-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	br	×					
File Key Conversion	ns <u>H</u> elp						
Key							
Public key for pasting in	Public key for pasting into OpenSSH authorized_keys file:						
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAIEAh +yFL09OLScqDDj3InoClpGeGEuNC20DLL7Hs721vNK8IC/DjL5YQyf +ffyVEpApX4pdgnkb5u/+VpE2qLxrXGbC5KrlpA/g9haT98it1TGu8l +v8lqG9TeZoVT4T9ZqT/TDxBjkXM9rlq0ib7ugjrfxGibAyG+iR1XcKt58pUc=rsa-key- 20140129							
Key fingerprint:	ssh-rsa 1024 52:bf:b0:10:ae:ef:24:89:de:5a:41:5f:bb:a3:ff:73						
Key <u>c</u> omment:	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 k	ey					
Parameters							
Type of key to generate 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 Generator					x	
File Key Conversions Help						
Key	Import	key				
Public ke	Export	OpenSSH key	ys file:			
+yFL09C	Export	ssh.com key	VNK8IC/DjL	5YQyf	^	
+nyvEp/++ +v8lqG9Te2 20140129	ZoVT4T9Zq	T/TDxBjkXM9rlq0ib7	ugjifxGibAyG+iR1X	usi (cK158pUc=rsa-key-	Ŧ	
Key fingerprir	nt: s	sh-rsa 1024 52:bf:b0:	10:ae:ef:24:89:de:	5a:41:5f:bb:a3:ff:73		
Key <u>c</u> ommen	nt: r	sa-key-20140129				
Key p <u>a</u> ssphra	ase:					
Confirm pass	Confirm passphrase:					
Actions	Actions					
Generate a p	oublic/privat	e key pair		<u>G</u> enerate		
Load an exis	ting private	key file		Load		
Save the generated key Save public key Save private key				ey		
Parameters	Parameters					
Type of keyt ◯ SSH- <u>1</u> (R	Type of key to generate: SSH-1 (RSA) SSH-2 RSA SSH-2 DSA					
Number of <u>bits</u> in a generated key: 1024						

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