Docusnap X - Linux Inventory Using RSA Key Authentication

Using an RSA Key in Docusnap

TITLE	Docusnap X - Linux Inventory Using RSA Key Authentication
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1. Introduction

Remote inventory scans of Linux systems with Docusnap must be performed by the root user. Only by logging in as root user, you can make sure to inventory each and every piece of information existing in the system. If you do not have access to the root user credentials or if root user access is blocked by SSH, there are two other possibilities for inventorying your Linux systems.

1. Use the script-based inventory process for Linux systems – see the dedicated HowTo document.
2. Use an RSA key for the authentication at remote systems

This HowTo document describes how to create an RSA key. You can subsequently use this RSA key to authenticate yourself at Linux systems when you need to inventory them.

IMPORTANT: As of version 10.0.884.3, Docusnap uses the OpenSSH format for generating a private SSH key. If you already used an RSA key in the predecessor version of Docusnap for authentication, you can continue to use it for a certain time. However, it is recommended to replace it as soon as possible – see chapter 4.

Read the remainder of this HowTo document to learn in a step-by-step procedure how you can set up an RSA key:

Chapter 2 describes how to generally enable the use of a RSA key in Docusnap and how to create this RSA key in Docusnap.

Chapter 3 describes how you to create an RSA key by using the PuTTY Key Generator.

Chapter 4 describes how to convert an existing RSA key to the OpenSSH format to enable its continued use in the current Docusnap version.

Chapter 5 describes how to import the converted RSA key to Docusnap and to use it subsequently.

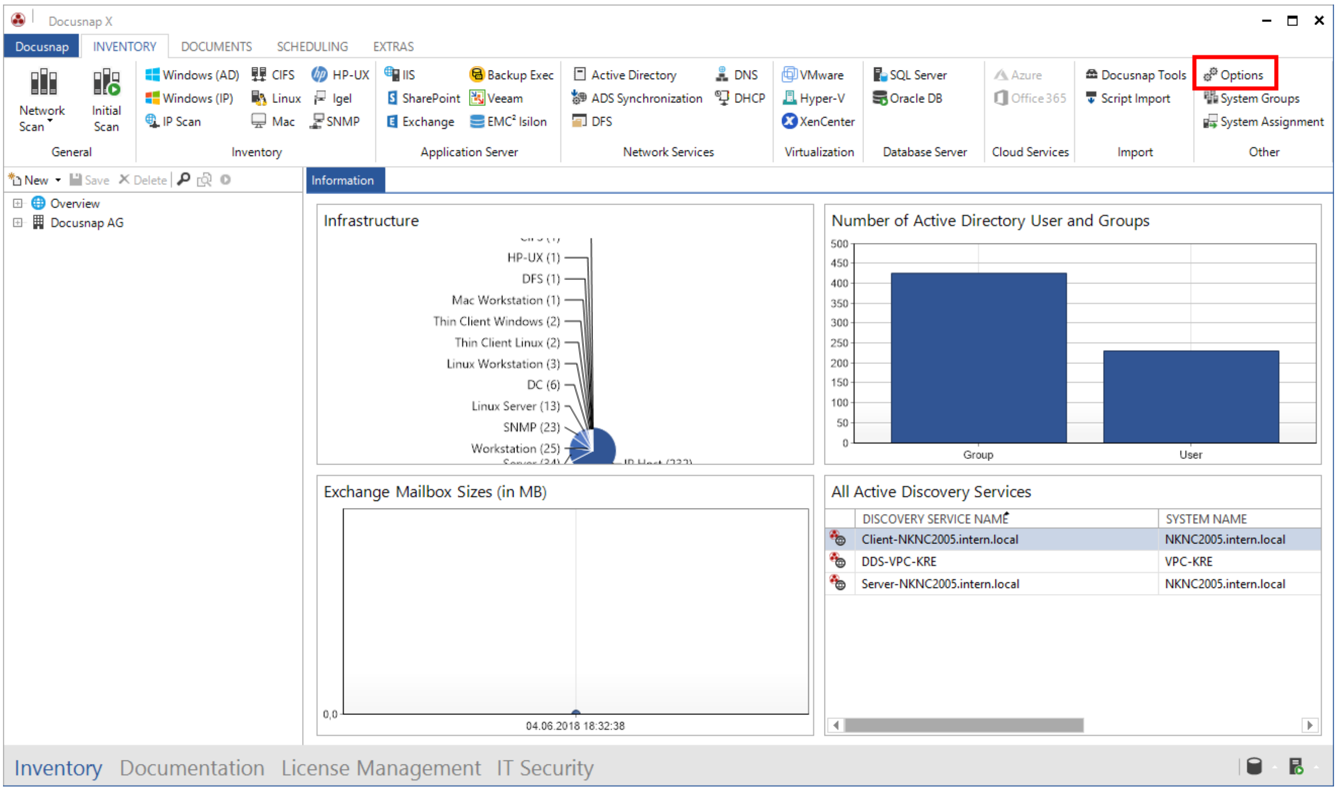
Chapter 6 describes how to specify and store the previously created and converted RSA key on Linux systems.

2. Creating and Using an RSA Key in Docusnap

In Docusnap, you can create an RSA key for inventorying Linux systems. This can be done in the **Options** dialog of the Inventory module.

Please note that you can only create one single RSA key in Docusnap!

Open the Options dialog by clicking the **Options** button.



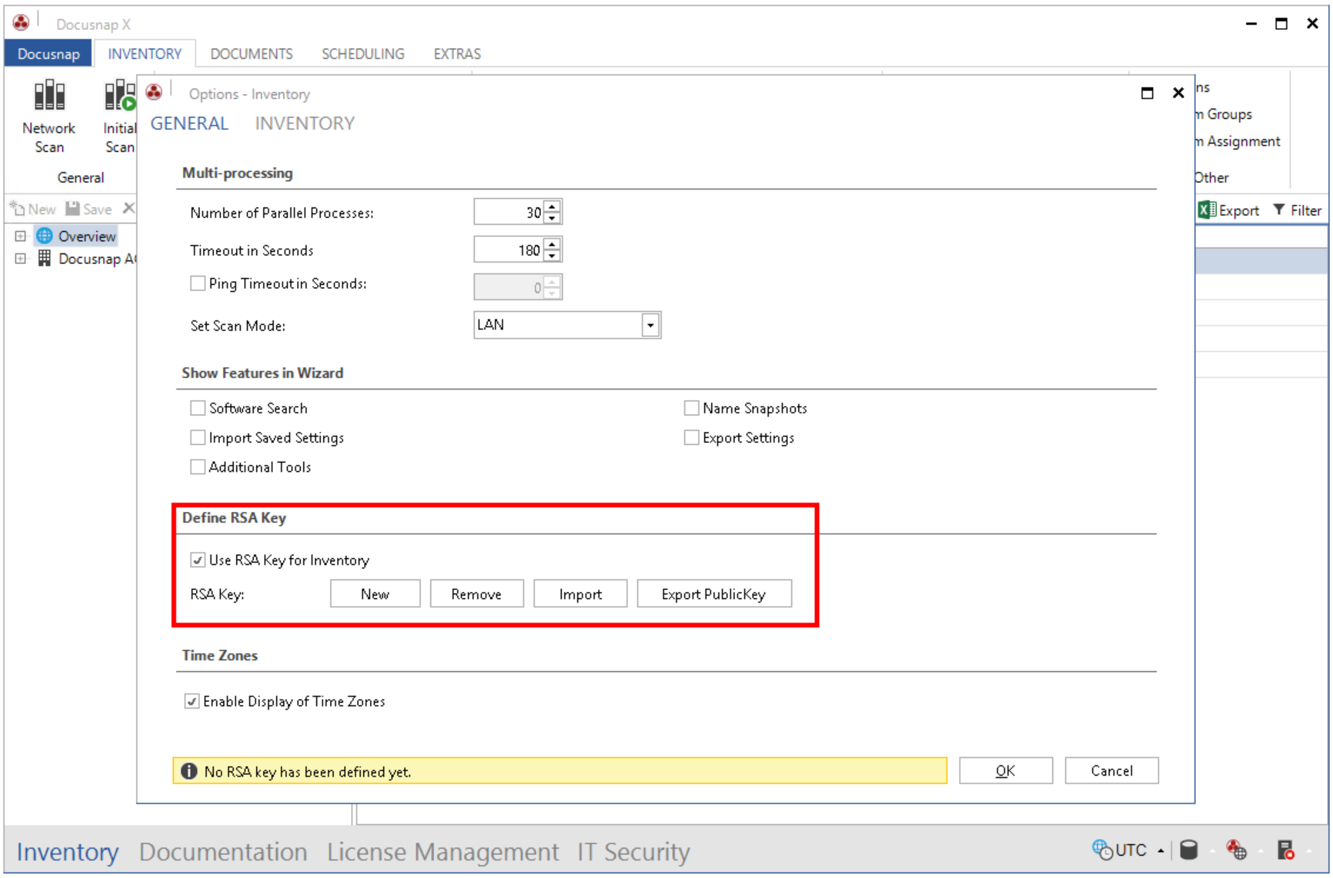
DISCOVERY SERVICE NAME	SYSTEM NAME
Client-NKNC2005.intern.local	NKNC2005.intern.local
DDS-VPC-KRE	VPC-KRE
Server-NKNC2005.intern.local	NKNC2005.intern.local

Fig. 1 – Opening the Inventory Options

In the next step, enable the Use RSA Key for Inventory and click the New button to create the RSA key.

The key pair is encrypted using the RSA method. The key is then encrypted again and stored in the database. By default, no passphrase will be created.

If you want to enhance security and store an additional passphrase, you can create use a third-party product (e.g. PuTTY Key Gen) to create the RSA key. In this case, please refer to chapter 3.



Multi-processing

Number of Parallel Processes: 30

Timeout in Seconds 180

□ Ping Timeout in Seconds: 0

Set Scan Mode: LAN

Show Features in Wizard

□ Software Search
□ Import Saved Settings
□ Additional Tools
□ Name Snapshots
□ Export Settings

Define RSA Key

☑ Use RSA Key for Inventory

RSA Key:

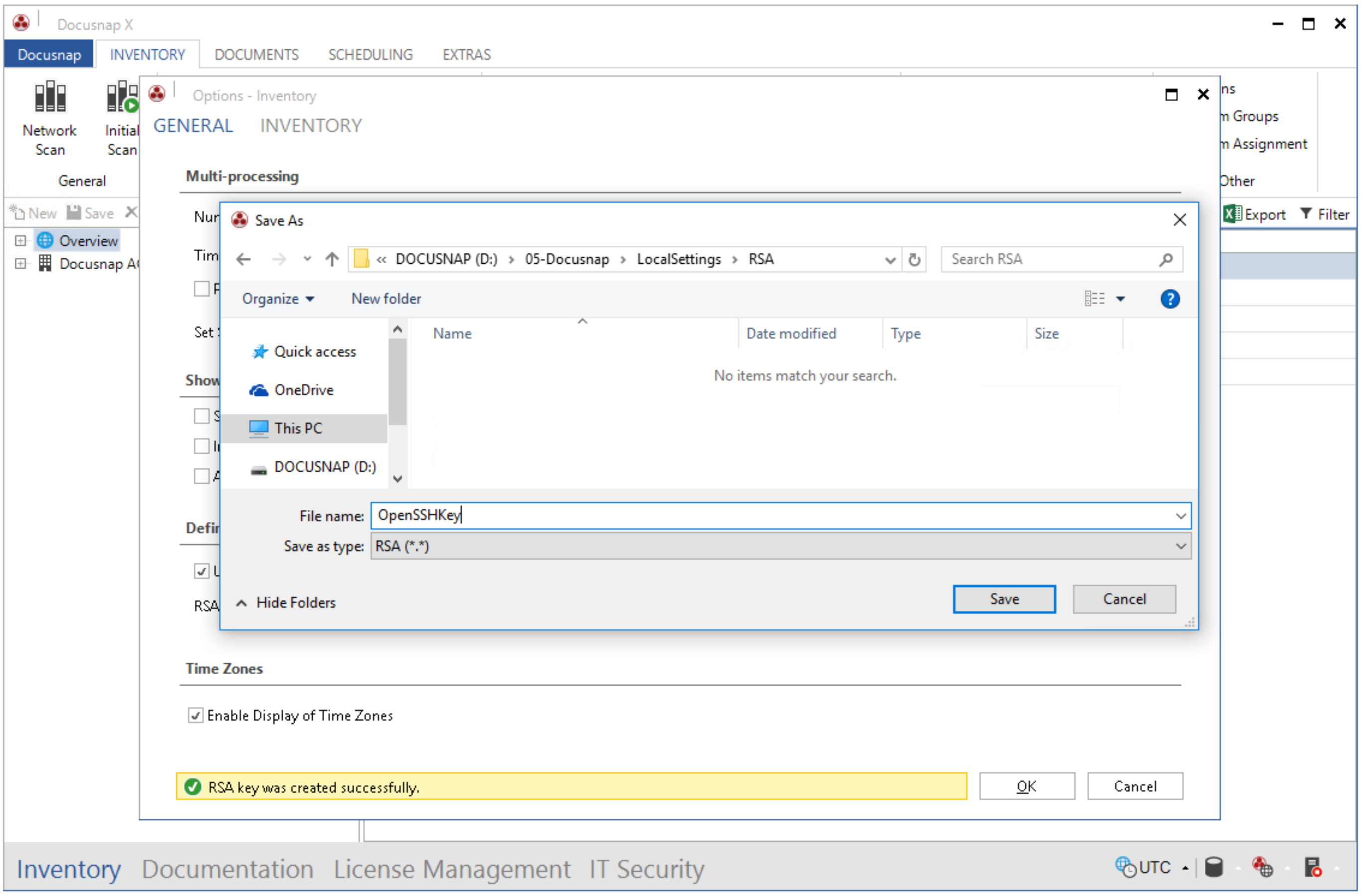
Time Zones

☑ Enable Display of Time Zones

No RSA key has been defined yet.

Fig. 2 – Enabling and creating an RSA key

The Export PublicKey button allows you to export a public key that can then be stored on the Linux systems – see chapter 6.



Save As

DOCUSNAP (D:) › 05-Docusnap › LocalSettings › RSA

No items match your search.

File name: OpenSSHKey

Save as type: RSA (*.*)

☑ Enable Display of Time Zones

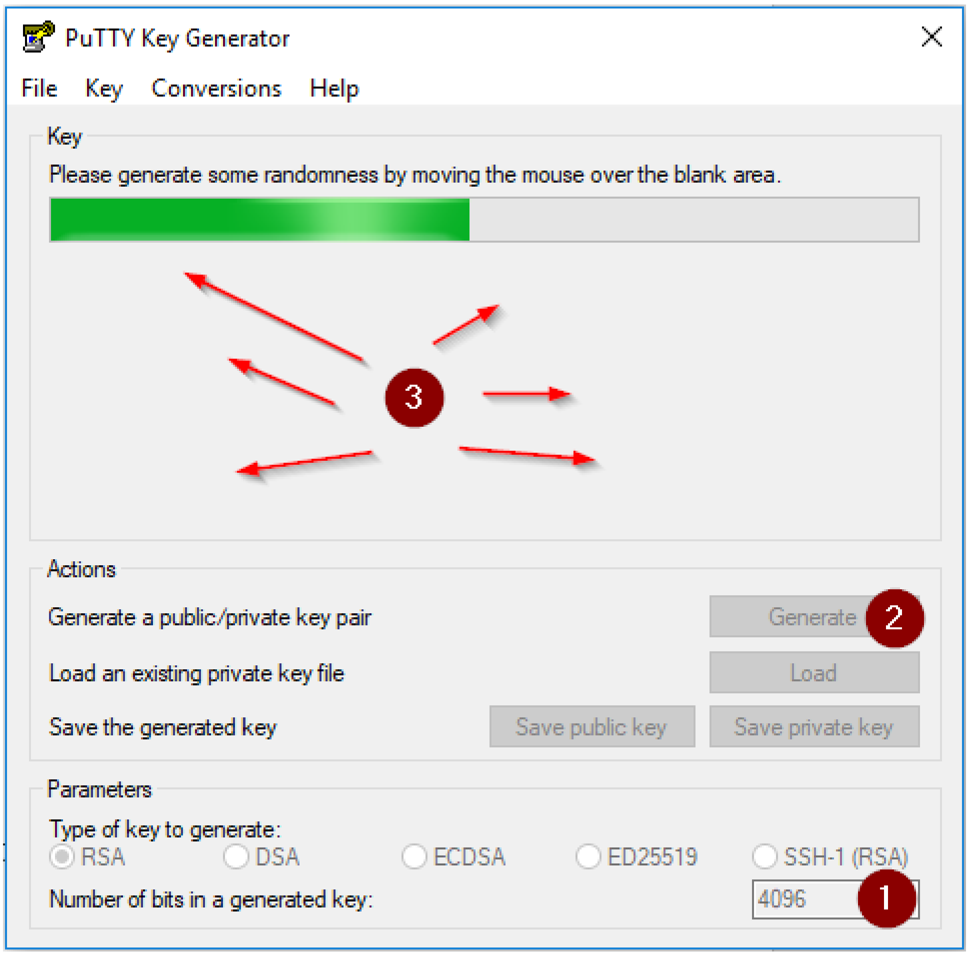
RSA key was created successfully.

Fig. 3 – Exporting the RSA key

3. Creating an RSA Key Using the PuTTY Key Generator

To create the RSA key, start the PuTTY Key Generator (puttygen.exe) program.

Select the desired parameters for creating the key, e.g. RSA, number of bits: 4096. Then, click the **Generate** button and arbitrarily move the mouse in the program window until the progress bar indicates that the process is complete.



PuTTY Key Generator

Key

Please generate some randomness by moving the mouse over the blank area.

Actions

Generate a public/private key pair

Load an existing private key file

Save the generated key

Parameters

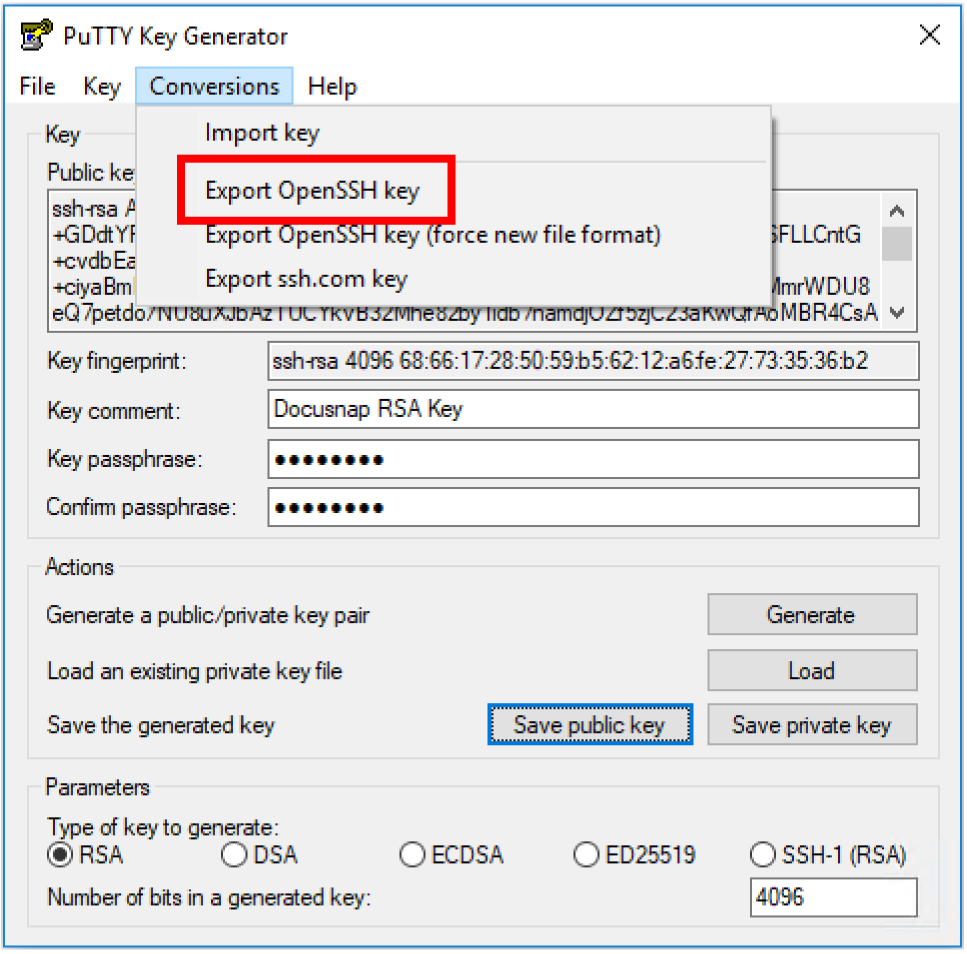
Type of key to generate:

● RSA ○ DSA ○ ECDSA ○ ED25519 ○ SSH-1 (RSA)

Number of bits in a generated key: 4096

Fig. 4 – Creating an RSA key in PuTTY

After creating the key, you can define a passphrase for enhanced security. Then, select the Conversions tab and click Export OpenSSH key.



PuTTY Key Generator

Key

Public key

ssh-rsa A

+GDdtYF ... FLLCntG

+cvdbEa

+ciyaBm ... ImrWDU8

eQ7petdo7NU8uXJbAzTUCYkvB32Mhe8Zby1idb7namdjOZf5zjCZ3aKwGfA6MBR4CsA

Key fingerprint: ssh-rsa 4096 68:66:17:28:50:59:b5:62:12:a6:fe:27:73:35:36:b2

Key comment: Docusnap RSA Key

Key passphrase: ••••••••

Confirm passphrase: ••••••••

Parameters

Type of key to generate:
● RSA ○ DSA ○ ECDSA ○ ED25519 ○ SSH-1 (RSA)

Number of bits in a generated key: 4096

Fig. 5 – Exporting the key to the OpenSSH format

4. Migrating an RSA Key to the OpenSSH Format

As of version 10.0.884.3, Docusnap uses a new format (OpenSSH) for the private SSH key. If you are already using a key that is not in OpenSSH format, we recommend that you convert it.

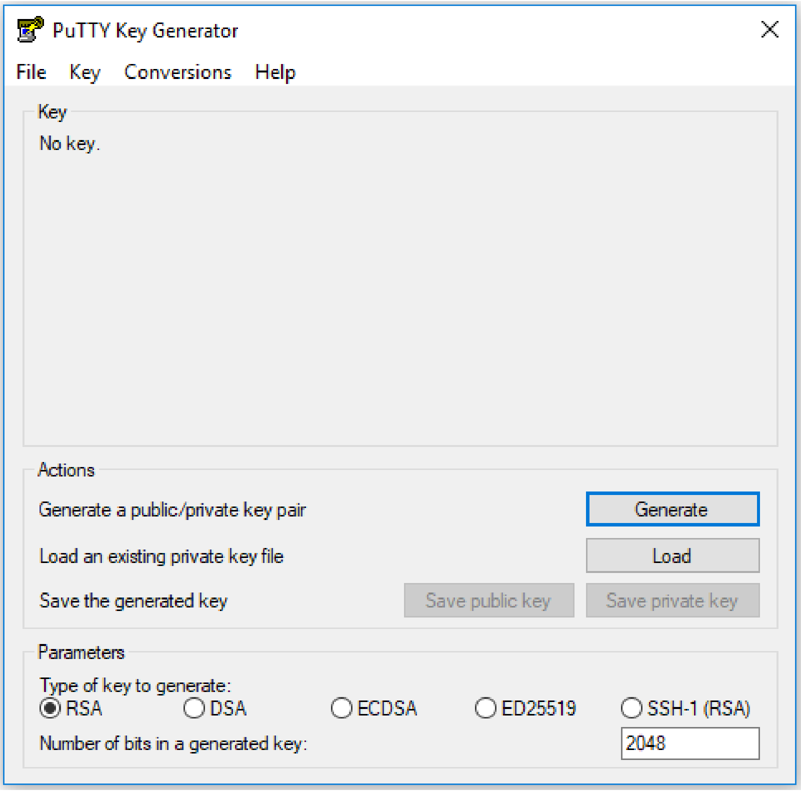
Please note the following points before converting the private key:

- Create a database backup before performing the conversion.
- The previously used key must exist as a file. It is not possible to export the private key from within Docusnap.
- Please note that all existing Linux inventory jobs that were created with the previous RSA key format need to be edited and saved again after the new OpenSSH key has been imported. After this step, Docusnap will use the new RSA key for these inventory jobs.

For the key conversion, you need the **PuTTY Key Generator** (puttygen.exe) program.

Open PuTTY Key Generator and click **Load** to load the private key. If you are using a passphrase, you are now prompted to enter it.

Click the **Conversions** tab and select **Export OpenSSH key** to export the private key in OpenSSH format.



No key.

Generate a public/private key pair

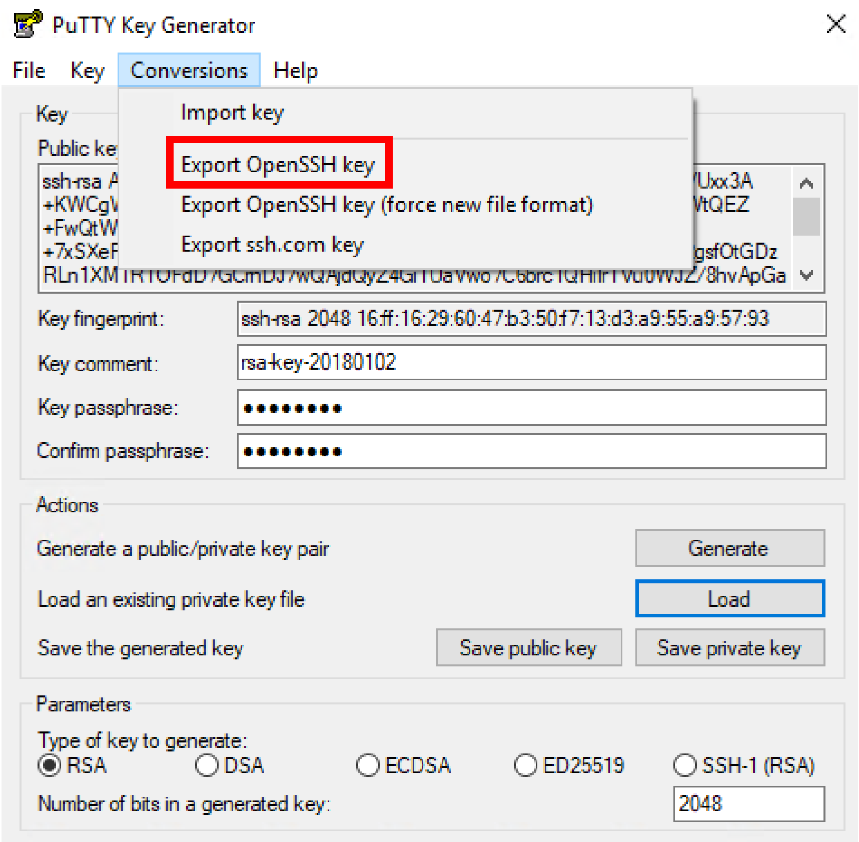
Load an existing private key file

Save the generated key

Type of key to generate:
● RSA ○ DSA ○ ECDSA ○ ED25519 ○ SSH-1 (RSA)

Number of bits in a generated key: 2048

Fig. 6 – Loading the private key in PuTTY Key Generator



Key fingerprint: ssh-rsa 2048 16:ff:16:29:60:47:b3:50:f7:13:d3:a9:55:a9:57:93

Key comment: rsa-key-20180102

Key passphrase: ••••••••

Confirm passphrase: ••••••••

Generate a public/private key pair

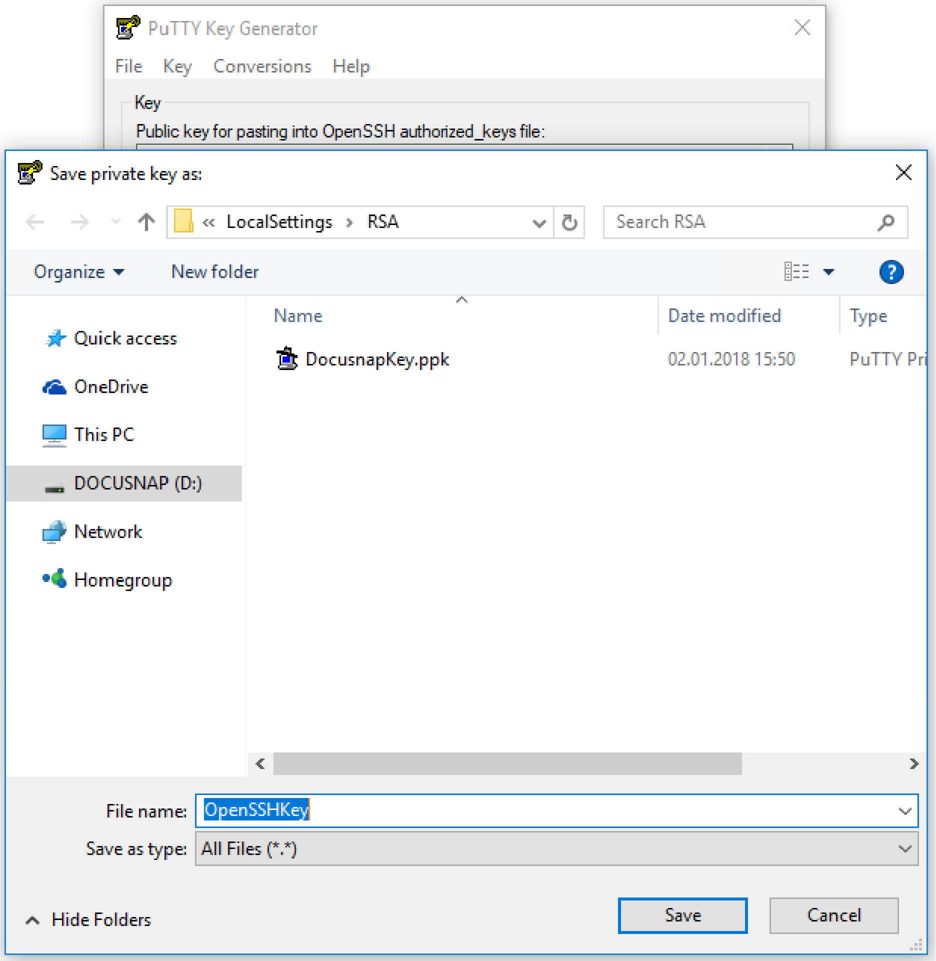
Load an existing private key file

Save the generated key

Type of key to generate:
● RSA ○ DSA ○ ECDSA ○ ED25519 ○ SSH-1 (RSA)

Number of bits in a generated key: 2048

Fig. 7 – Exporting the private key



Name	Date modified	Type
DocusnapKey.ppk	02.01.2018 15:50	PuTTY Pri

File name: OpenSSHKey

Save as type: All Files (*.*)

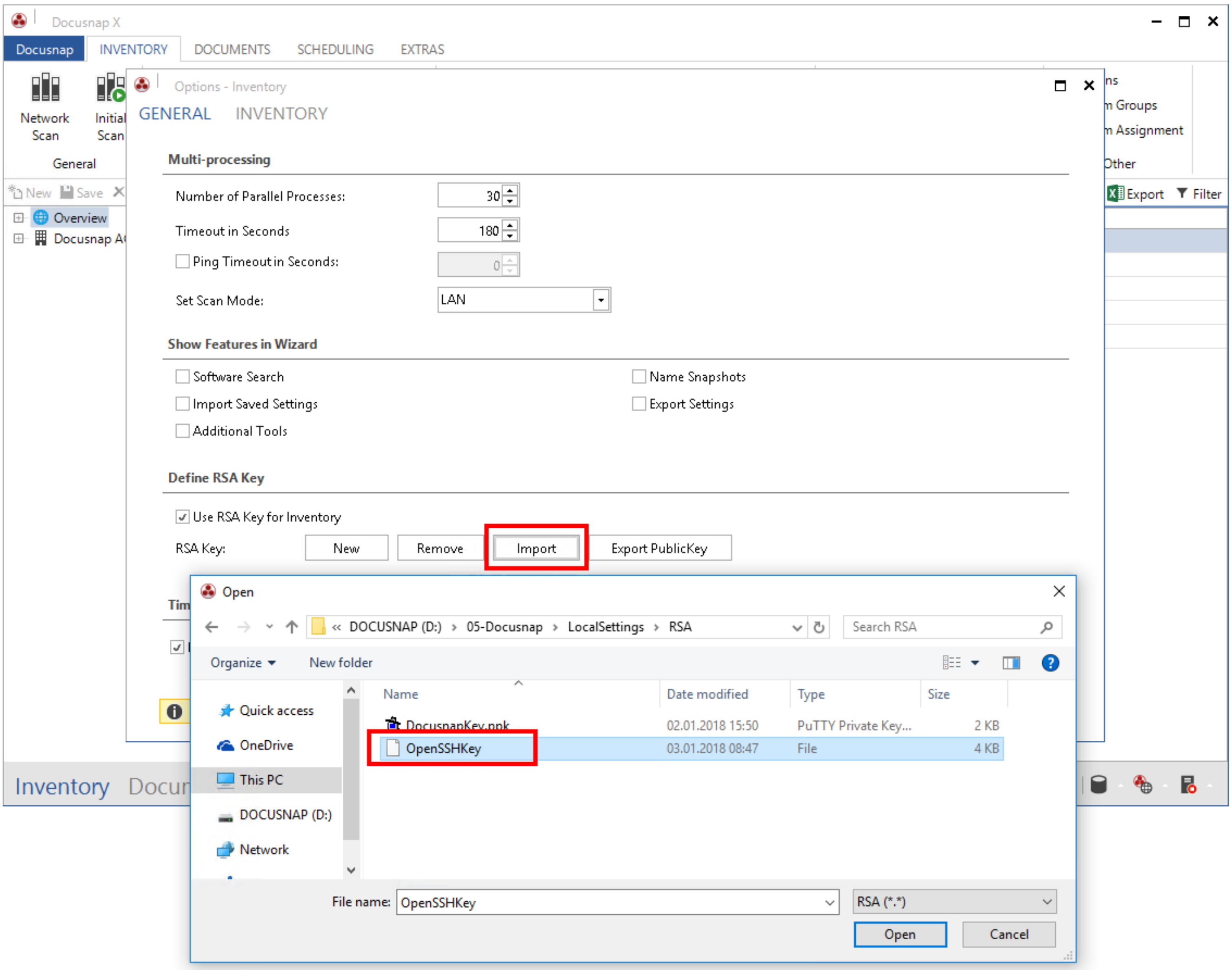
Fig. 8 – Exporting the private key II

5. Importing an RSA Key to Docusnap

To import the converted or newly created RSA key to Docusnap, go to the Inventory Options, click Import, and select the private OpenSSH Key.

Important:

If you are already using an RSA key, remove it from your system first by clicking the Remove button.



Multi-processing

Number of Parallel Processes:	30
Timeout in Seconds	180
□ Ping Timeout in Seconds:	0
Set Scan Mode:	LAN

Show Features in Wizard

□ Software Search	□ Name Snapshots
□ Import Saved Settings	□ Export Settings
□ Additional Tools	

Define RSA Key

☑ Use RSA Key for Inventory

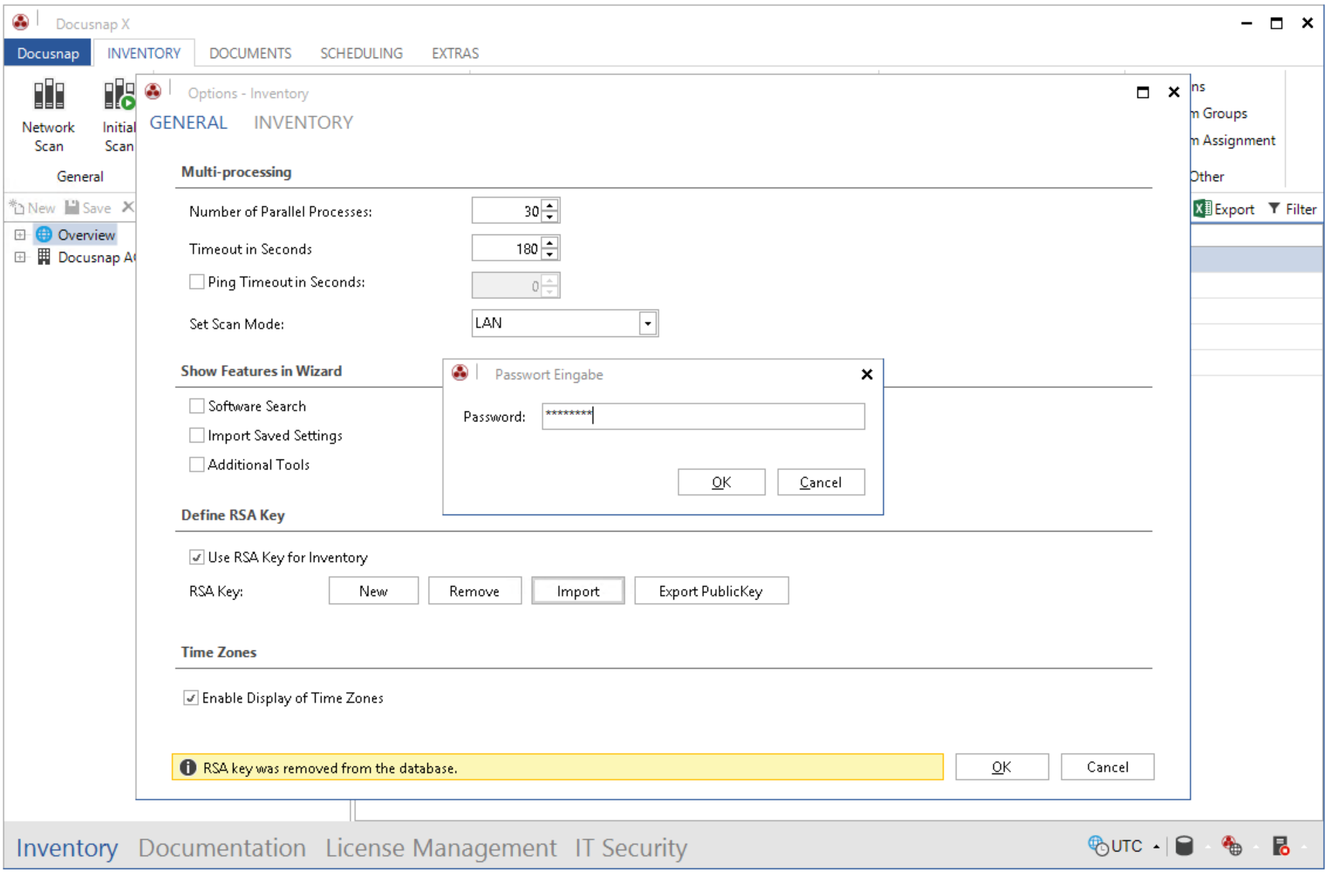
RSA Key: New | Remove | Import | Export PublicKey

Name	Date modified	Type	Size
DocusnapKey.ppk	02.01.2018 15:50	PuTTY Private Key...	2 KB
OpenSSHKey	03.01.2018 08:47	File	4 KB

File name: OpenSSHKey | RSA (*.*)

Fig. 9 – Importing the converted key

If you specified a passphrase for the key, you will be prompted to enter it. After that, the converted key is stored in Docusnap.



Multi-processing

Number of Parallel Processes: 30

Timeout in Seconds: 180

□ Ping Timeout in Seconds: 0

Set Scan Mode: LAN

Show Features in Wizard

□ Software Search

□ Import Saved Settings

□ Additional Tools

Define RSA Key

☑ Use RSA Key for Inventory

RSA Key:

Time Zones

☑ Enable Display of Time Zones

Password: ********

RSA key was removed from the database.

Fig. 10 – Entering the passphrase

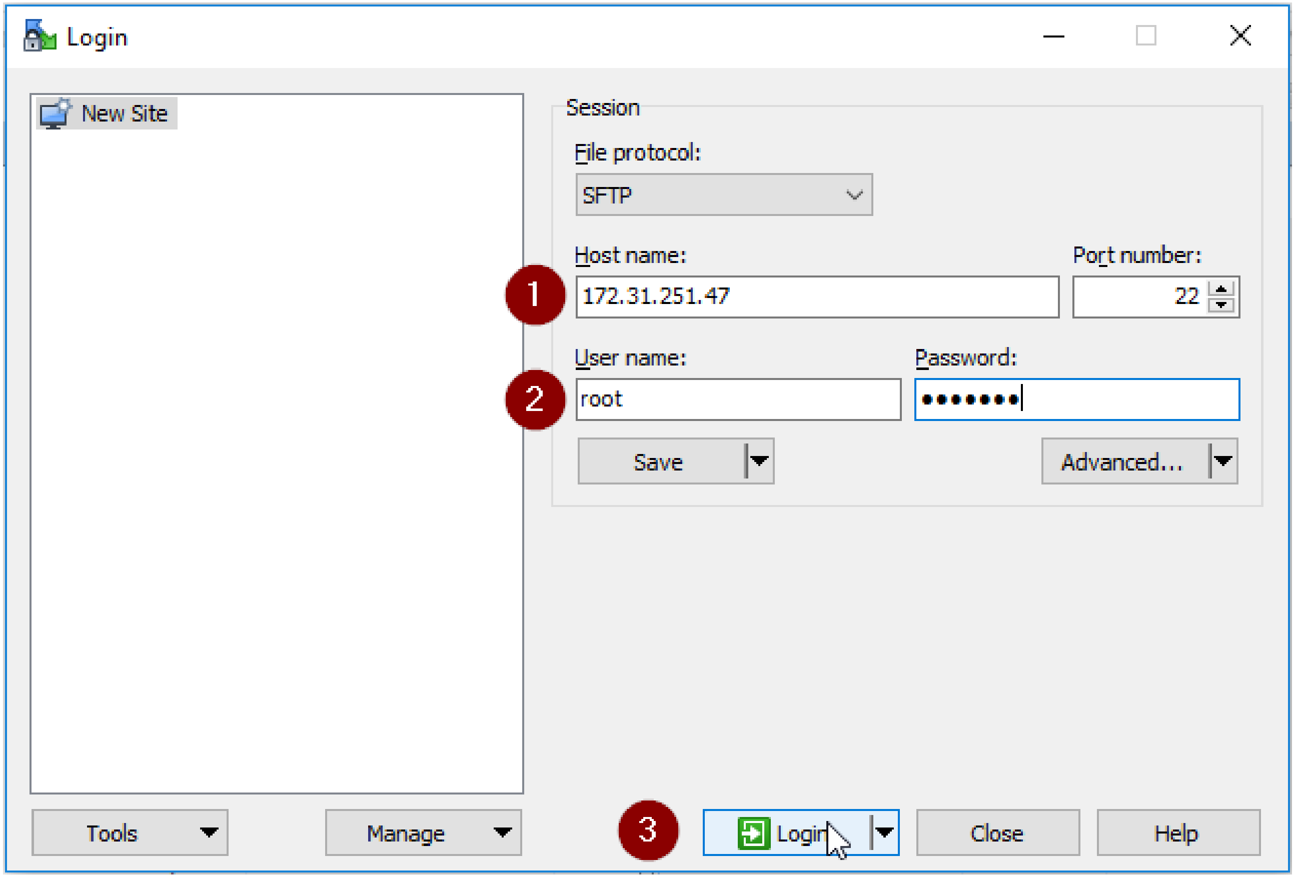
If you previously used an RSA key in the old format and scheduled Linux inventory jobs in Docusnap, make sure to edit these existing jobs and save them again. To do so, select the **Scheduling** tab in the Docusnap main screen and open the **Jobs** window. Locate your Linux inventory job and click **Edit** to edit it. You do not have to make any changes to the job itself, but only need to click through the steps of the job and save it again.

6. Storing the RSA Key in the Linux System

The steps described here may vary from one Linux distribution to the other. Please inform yourself beforehand in which file you have to enter the public key and in which directory you must store this file. The following application example applies to an Ubuntu system (version 14.04 – 64-bit).

This HowTo document uses the WinSCP software for storing the public key in the Linux system.

Open WinSCP and connect to the Linux system.
If the server is not yet known to the client, a security prompt appears. Click Yes to add the host key to the list of trusted computers.



Login

Session

File protocol: SFTP

1 Host name: 172.31.251.47

Port number: 22

2 User name: root

Password: •••••••

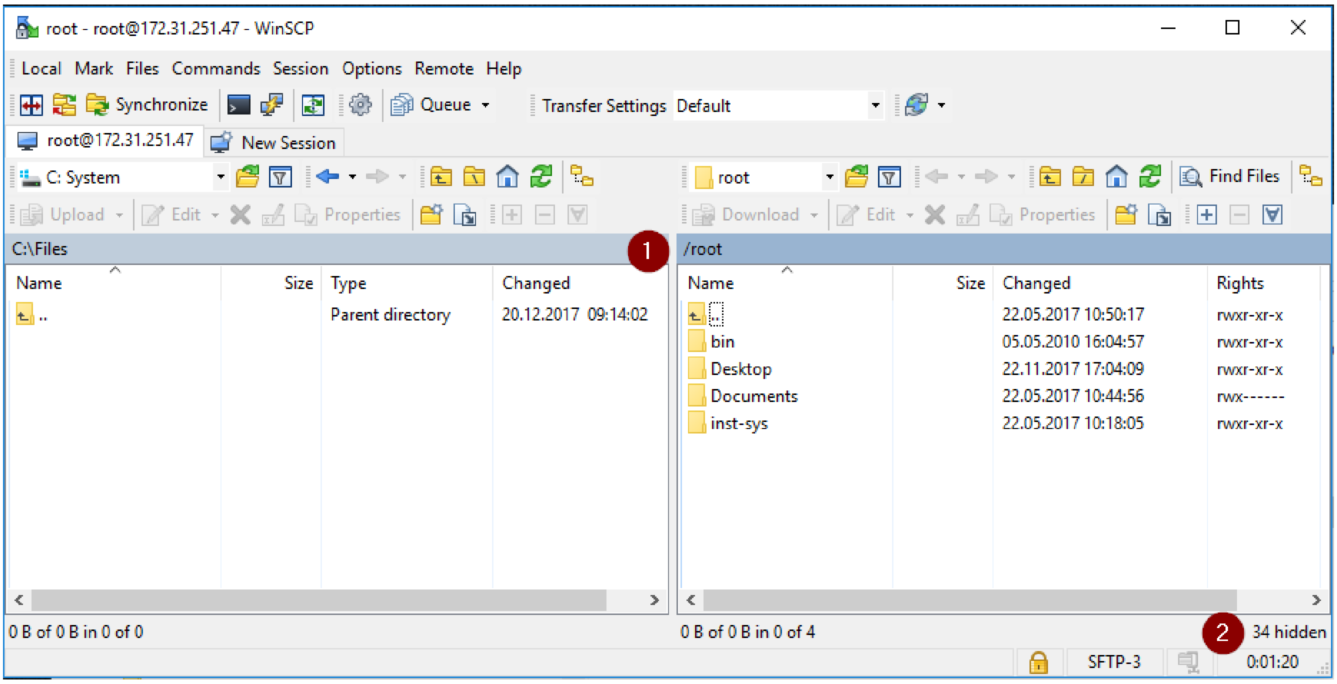
Fig. 11 – Establishing a WinSCP connection

Step 1

After the login, WinSCP displays the home directory of the logged-in user. If this is not the user account to be used in the future to connect via SSH, change to the appropriate home directory.

Step 2

If hidden files and folders are not displayed, click the label that indicates the number of hidden files.



C:\Files

Name	Size	Type	Changed
..		Parent directory	20.12.2017 09:14:02

/root

Name	Size	Changed	Rights
..		22.05.2017 10:50:17	rwxr-xr-x
bin		05.05.2010 16:04:57	rwxr-xr-x
Desktop		22.11.2017 17:04:09	rwxr-xr-x
Documents		22.05.2017 10:44:56	rwx------
inst-sys		22.05.2017 10:18:05	rwxr-xr-x

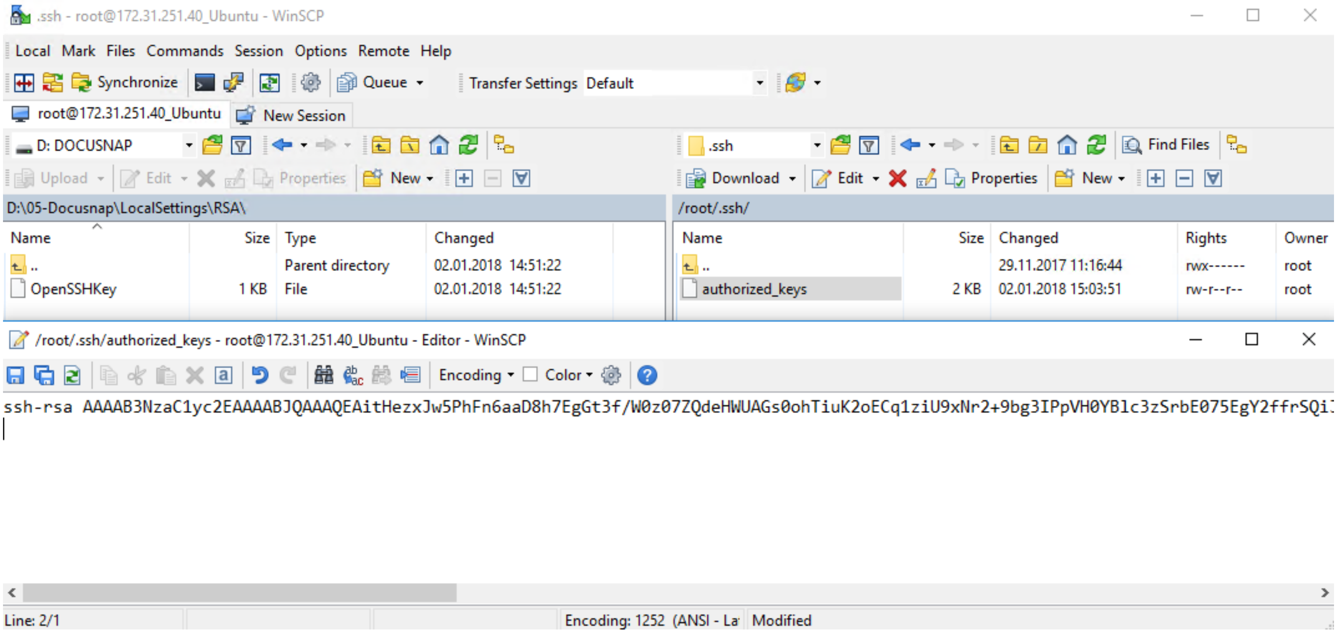
0 B of 0 B in 0 of 0

0 B of 0 B in 0 of 4

34 hidden

Fig. 12 – Connection to the target system is established

Change to the .ssh directory and edit the authorized_keys file residing there.


.ssh - root@172.31.251.40_Ubuntu - WinSCP
Local Mark Files Commands Session Options Remote Help
Synchronize
Queue
Transfer Settings Default
root@172.31.251.40_Ubuntu
New Session
D: DOCUSNAP
.ssh
Find Files
Upload
Edit
Properties
New
Download
Edit
Properties
New
/root/.ssh/authorized_keys - root@172.31.251.40_Ubuntu - Editor - WinSCP
Encoding
Color

D:\05-Docusnap\LocalSettings\RSA\

Name	Size	Type	Changed
..		Parent directory	02.01.2018 14:51:22
OpenSSHKey	1 KB	File	02.01.2018 14:51:22

/root/.ssh/

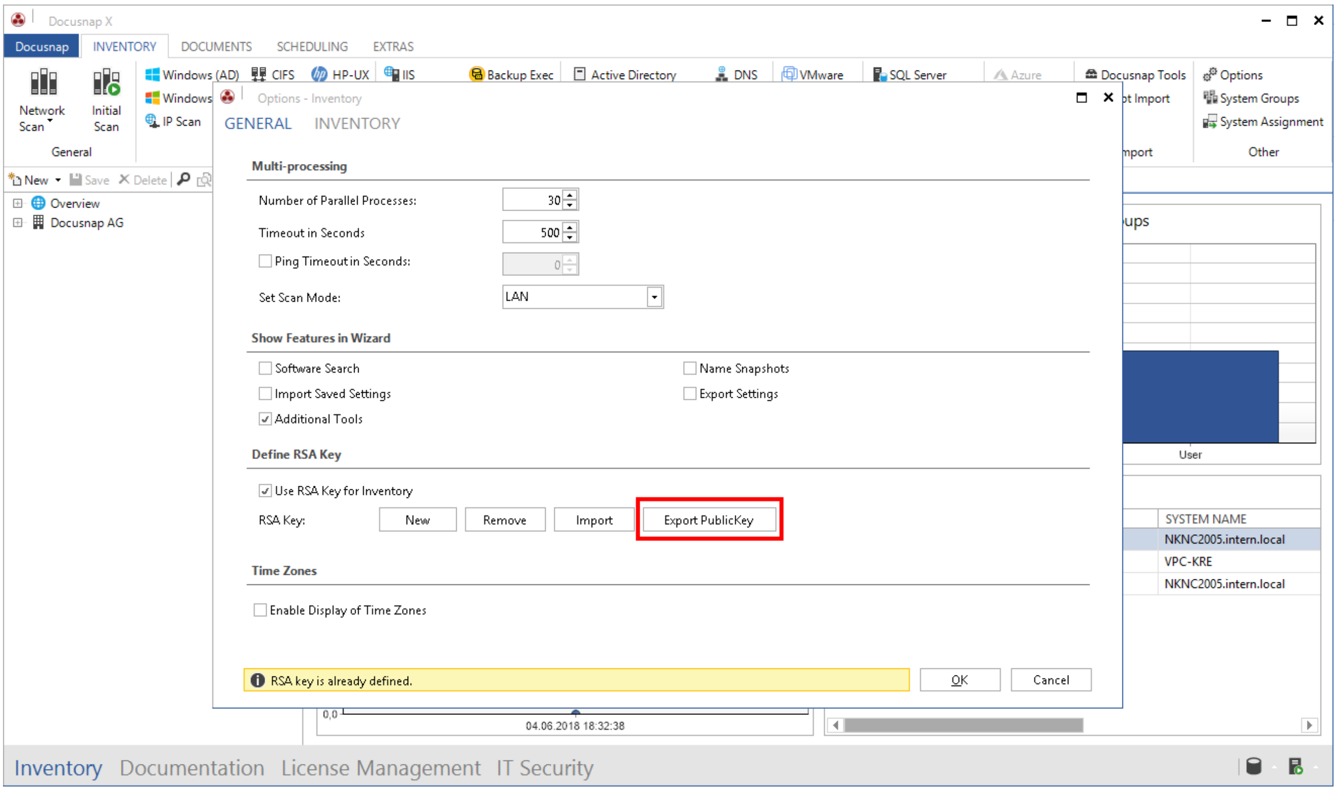
Name	Size	Changed	Rights	Owner
..		29.11.2017 11:16:44	rwx------	root
authorized_keys	2 KB	02.01.2018 15:03:51	rw-r--r--	root

```
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEAitHezxJw5PhFn6aaD8h7EgGt3f/W0z07ZQdeHWUAGs0ohTiuK2oECq1ziU9xNr2+9bg3IPpVH0YBlc3zSrbE075EgY2ffrSQi
```

Line: 2/1 Encoding: 1252 (ANSI - La Modified

Fig. 13 – Editing the authorized_keys file

To specify the previously created RSA key, you need to export the public key from Docusnap. To do so, go to the **Inventory Options**, click the **Export PublicKey** button and save the file. Open the file in a text editor and copy the public key to the clipboard.



Multi-processing

Number of Parallel Processes: 30

Timeout in Seconds: 500

□ Ping Timeout in Seconds: 0

Set Scan Mode: LAN

Show Features in Wizard

□ Software Search
□ Import Saved Settings
☑ Additional Tools
□ Name Snapshots
□ Export Settings

Define RSA Key

☑ Use RSA Key for Inventory

RSA Key: New | Remove | Import | Export PublicKey

Time Zones

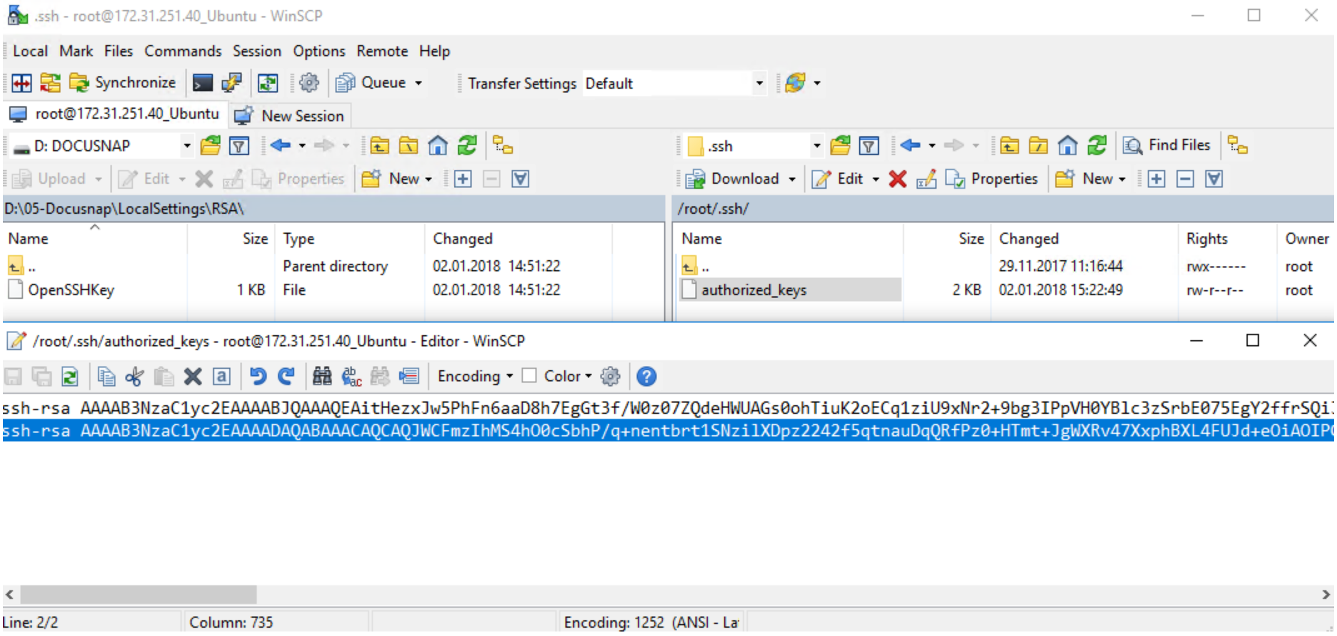
□ Enable Display of Time Zones

RSA key is already defined.

OK | Cancel

Fig. 14 – Exporting the Docusnap PublicKey

Change back to WinSCP and insert the public key in a new row. Save the file.


.ssh - root@172.31.251.40_Ubuntu - WinSCP
Local Mark Files Commands Session Options Remote Help
Synchronize
Queue
Transfer Settings Default
root@172.31.251.40_Ubuntu
New Session
D: DOCUSNAP
.ssh
Find Files
Upload
Edit
Properties
New
Download
/root/.ssh/authorized_keys - root@172.31.251.40_Ubuntu - Editor - WinSCP
Encoding
Color

D:\05-Docusnap\LocalSettings\RSA\

Name	Size	Type	Changed
..		Parent directory	02.01.2018 14:51:22
OpenSSHKey	1 KB	File	02.01.2018 14:51:22

/root/.ssh/

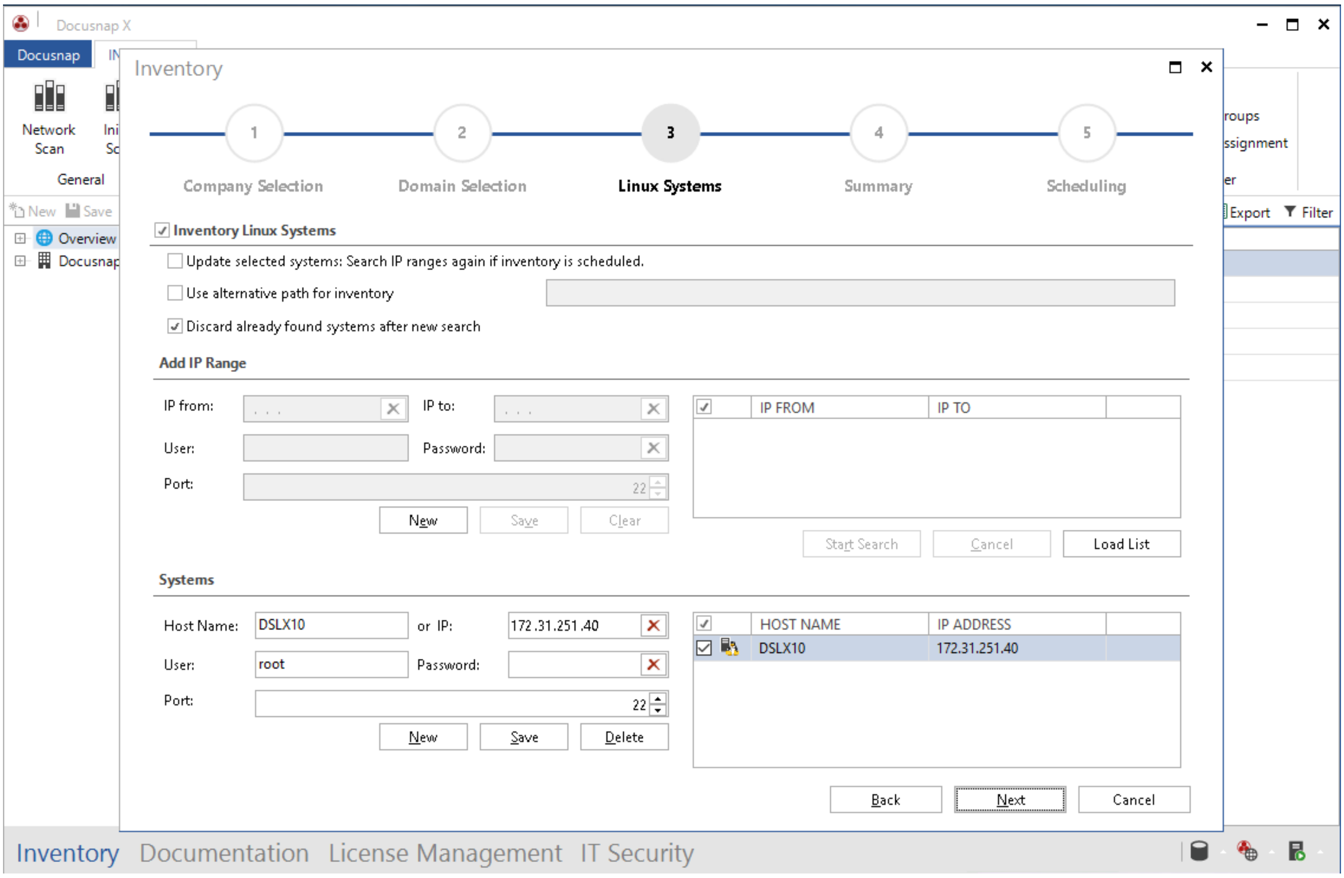
Name	Size	Changed	Rights	Owner
..		29.11.2017 11:16:44	rwx------	root
authorized_keys	2 KB	02.01.2018 15:22:49	rw-r--r--	root

```
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEAitHezxJw5PhFn6aaD8h7EgGt3f/W0z07ZQdeHWUAGs0ohTiuK2oECq1ziU9xNr2+9bg3IPpVH0YBlc3zSrbE075EgY2ffrSQi
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQCAQJWCFmzIhMS4hO0cSbhP/q+nentbrt1SNzilXDpz2242f5qtnauDqQRfPz0+HTmt+JgWXRv47XxphBXL4FUJd+eOiAOIP
```

Line: 2/2 Column: 735 Encoding: 1252 (ANSI - La

Fig. 15 – Specifying the RSA key

The public key is now available on the target system. This means that you can start the inventory scan of this system. You only have to enter the user name in the inventory wizard.



☑ Inventory Linux Systems

☐ Update selected systems: Search IP ranges again if inventory is scheduled.

☐ Use alternative path for inventory

☑ Discard already found systems after new search

Add IP Range

IP from: . . .   IP to: . . .

User: Password:

Port: 22

☑	IP FROM	IP TO

Systems

Host Name: DSLX10   or IP: 172.31.251.40

User: root   Password:

Port: 22

☑	HOST NAME	IP ADDRESS
☑	DSLX10	172.31.251.40

Fig. 16 – Linux inventory wizard

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VERSION HISTORY

Date	Description
January 11, 2018	Version 1.0 created
October 24, 2018	Changed Screenshots