

# Setting Up Public Key Authentication

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Follow the steps below to set up public key authentication.

Before You Begin: We highly recommend that you create a `~/.ssh/config` file on your local system as described in [Setting Up SSH Passthrough](#) before you proceed with these steps.

## Step 1: Create an SSH Public/Private Key Pair

To use public key authentication with the [Secure Front Ends \(SFEs\)](#), you need to have an SSH [public/private key pair](#). If you do not, you can create a SSH public/private key pair by typing the following command and following the prompts:

```
your_local_system% ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/Users/username/.ssh/id_rsa): ENTER
Enter passphrase (empty for no passphrase): enter a passphrase
Enter same passphrase again: type your passphrase again
Your identification has been saved in /Users/username/.ssh/id_rsa.
Your public key has been saved in /Users/username/.ssh/id_rsa.pub.
```

Your passphrase for the private key must meet [NASA password requirements](#).

If you are using a non-Unix system, please consult your SSH documentation.

## Step 2: Initialize the SSH Public Key on the SFEs

Copy the public key file to your `~/.ssh2` directory on each SFE you want to use, as follows (where `sfeX` represents `sfe[6-8]`):

```
your_local_system% ssh username@sfeX.nas.nasa.gov ssh-key-init --add < ~/.ssh/id_rsa.pub
```

Windows users: The above command with the redirection (i.e., `< ~/.ssh/id_rsa.pub`) will hang on Windows systems. You can try the following alternative method:

1. On your local Windows system, copy the contents of the `~/.ssh/id_rsa.pub` file onto the clipboard (e.g., using the notepad program on Windows).
2. From your Windows system, ssh into an SFE: `your_local_system% ssh sfe`
3. From the SFE, run the command: `sfe% ssh-key-init --add`
4. Paste the contents of the clipboard, then type Ctl-D to complete.

Note: Public keys with embedded forced commands or other constraints will be ignored.

To view your existing public keys on `sfeX`:

```
ssh username@sfeX.nas.nasa.gov ssh-key-init --get
```

To completely replace all existing public keys on `sfeX`:

```
ssh username@sfeX.nas.nasa.gov ssh-key-init --set < ~/.ssh/id_rsa.pub
```

To delete one or more public keys on `sfeX` that contain the string denoted by `STRING`:

```
ssh username@sfeX.nas.nasa.gov ssh-key-init --remove=STRING
```

For example, the following would remove the public key(s) containing `AAAAB3NzaC1yc2EAAAADAQABAAQAw2qCC`:

```
ssh-key-init --remove=AAAAB3NzaC1yc2EAAAADAQABAAQAw2qCC
```

Notes:

- If you don't specify the full key string, you must ensure that any shorter string you use does not match other keys you do not want to remove.
- The `username@` is not required when your local username matches your NAS username, or if you have already configured your username in the configuration file (`~/.ssh/config`). You can download a NAS template for the configuration file here: [Setting Up SSH Passthrough](#)

You can also invoke the `ssh-key-init` command when you are already logged into an SFE. In this case, omit the `ssh username@sfeX.nas.nasa.gov` portion and begin the command line with `ssh-key-init`. Note that when you include the `--add` and `--set` options directly on an SFE, you must paste the keys into the terminal window and then terminate by typing Control-d. Keep in mind that public keys are not currently synchronized between SFEs, so each `ssh-key-init` invocation is only relevant to the particular `sfeX` it is run on.

To test your public/private key pair:

```
your_local_system% ssh -i ~/.ssh/id_rsa username@sfeX.nas.nasa.gov
```

You will be prompted for both your SecurID passcode and your private key passphrase.

TIP: Complete these steps for all four SFEs so you can set up SSH passthrough on each one. This enables you to easily switch from one to another if necessary. For example, if you have any issues connecting to one, you can try connecting to a different one.

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