

Pleiades Front-End Load Balancer

Category: Security & Logging In

There are 8 front-end nodes to the Pleiades super-cluster, namely, pfe[20-27]. To provide a load balanced front-end environment for all users of Pleiades, a mechanism has been created to automatically pick the least loaded system from among pfe[20-27] for a user login. The system load is a weighted function of disk, processor, and network loads. The load balancer is invoked using the special hostname pfe (or pfe.nas.nasa.gov) instead of the explicit pfe[20-27] when logging in via SSH.

In some instances, there may be a need to log into the last Pleiades front-end accessed from a given host. For example, the user may have started a long-running process on a particular front-end such as a VNC session. In this case, the special hostname pfe-last (or pfe-last.nas.nasa.gov) may be used. This hostname will connect the user to the last front-end they accessed from the same host (for example, from sfe1).

The usage of this mechanism is described below. These examples assume that you want to login via sfe1. Change "sfe1" to sfe2, sfe3, or sfe4 if you choose to use them instead.

Logging in to a PFE through Two-Step Process

If you normally login to a Pleiades front-end (pfe[20-27]) in two steps (first login to sfe[1-4], then login to pfe[20-27]), you can simply do the following to connect to the least loaded Pleiades front-end:

```
your_localhost% ssh sfe1 (or ssh sfe1.nas.nasa.gov)
sfe1% ssh pfe (or ssh pfe.nas.nasa.gov)
```

Or, if you use different usernames on your localhost and on NAS systems:

```
your_localhost% ssh username@sfe1 (or ssh username@sfe1.nas.nasa.gov)
sfe1% ssh username@pfe (or ssh username@pfe.nas.nasa.gov)
```

If you want to connect to the last front-end you connected to via sfe1, do:

```
your_localhost% ssh sfe1 (or ssh sfe1.nas.nasa.gov)
sfe1% ssh pfe-last (or ssh pfe-last.nas.nasa.gov)
```

Or, if you use different usernames on your localhost and on NAS systems:

```
your_localhost% ssh username@sfe1 (or ssh username@sfe1.nas.nasa.gov)
sfe1% ssh username@pfe-last (or ssh username@pfe-last.nas.nasa.gov)
```

Note that you will be prompted for a password on the pfe N ($N=20$ to 27) system chosen for you by the load balancer.

Logging into a PFE Using SSH Passthrough

If you normally login to a Pleiades front-end using SSH Passthrough, add the following in the `~/.ssh/config` file of your localhost.

```
Host pfe pfe-last pfe.nas.nasa.gov pfe-last.nas.nasa.gov
ProxyCommand ssh sfel.nas.nasa.gov /usr/local/bin/ssh-balance %h
HostKeyAlias pfe20.nas.nasa.gov
HostbasedAuthentication no
```

Or, if you use different usernames on your localhost and on NAS systems:

```
Host pfe pfe-last pfe.nas.nasa.gov pfe-last.nas.nasa.gov
ProxyCommand ssh username@sfel.nas.nasa.gov /usr/local/bin/ssh-balance %h
HostKeyAlias pfe20.nas.nasa.gov
HostbasedAuthentication no
```

Note the use of `ssh-balance` instead of the traditional `ssh-proxy` used for passthrough.

The first time you use this method, you will need to add the usual `-o "StrictHostKeyChecking=ask"` to populate the host key. That is:

```
your_localhost% ssh -o "StrictHostKeyChecking=ask" pfe (or
pfe.nas.nasa.gov)
```

After the key has been populated, to connect to the least loaded Pleiades front-end, simply do:

```
your_localhost% ssh pfe (or ssh pfe.nas.nasa.gov)
```

To connect to the last front-end you connected to from a particular SFE, do:

```
your_localhost% ssh pfe-last (or ssh pfe-last.nas.nasa.gov)
```

Pleiades and bbFTP

Due to the manner in which bbFTP operates, it is not possible to perform bbFTP transfers to the Pleiades load balancer (that is, pfe or pfe-last). Instead, you must select a specific front-end for the transfer (for example, pfe20). Transfers using the `scp`, `sftp`, and `rsync` commands will work normally with the load balancer.

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<http://www.nas.nasa.gov/hecc/support/kb/entry/233/?ajax=1>