

pssh HOWTO

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1. Installation and Setup

To install the software, become `root` on your machine and do the following (on RedHat systems):

```
# rpm -ivh pssh-0.2.3-1.i386.rpm
Preparing...          ##### [100%]
   1:pssh             ##### [100%]
```

By default, the software installs itself in `/usr/local/bin` and `/usr/local/lib`. Thus, you'll next want to modify your `PATH` if needed:

```
# export PATH=$PATH:/usr/local/bin
```

2. Preliminaries

All four programs will print their usage and give an example if no arguments are given. For example, with `pssh`:

```
# pssh
Usage: pssh [OPTIONS] -h hosts.txt prog [arg0] ..

-h --hosts    hosts file (each line "host[:port] [user]")
-l --user     username (OPTIONAL)
-p --par      max number of parallel threads (OPTIONAL)
-o --outdir   output directory for stdout files (OPTIONAL)
-t --timeout  timeout in seconds to do ssh to a host (OPTIONAL)
-v --verbose  turn on warning and diagnostic messages (OPTIONAL)
-O --options  SSH options (OPTIONAL)
```

```
Example: pssh -h ips.txt -l irb2 -o /tmp/foo uptime
```

And for `pscp`:

```
# pscp
Usage: pscp [OPTIONS] -h hosts.txt local remote

-h --hosts    hosts file (each line "host[:port] [login]")
-r --recursive recursively copy directories (OPTIONAL)
-l --user     username (OPTIONAL)
-p --par      max number of parallel threads (OPTIONAL)
-t --timeout  timeout in seconds to do scp to a host (OPTIONAL)
-O --options  SSH options (OPTIONAL)
```

```
Example: pscp -h hosts.txt -l irb2 foo.txt /home/irb2/foo.txt
```

Note that before using any of these tools, you *will need to start ssh-agent!* This can be done as follows (substitute `zsh` with your particular shell).

```
# ssh-agent zsh
# ssh-add
Enter passphrase for /x/bnc/.ssh/identity:
```

3. Examples

3.1. pssh

The following example runs `hostname` on three machines (IPs or hostnames) specified in the file `ips.txt` using login `irb2` and saves the output in `/tmp/foo`.

```
# cat ips.txt
128.112.152.122
18.31.0.190
128.232.103.201

# pssh -h ips.txt -l irb2 -o /tmp/foo hostname
Success on 128.112.152.122:22
Success on 18.31.0.190:22
Success on 128.232.103.201:22

# ls /tmp/foo
128.112.152.122 128.232.103.201 18.31.0.190

# cat /tmp/foo/*
planetlab-1.cs.princeton.edu
planetlab1.xeno.cl.cam.ac.uk
planetlab1.lcs.mit.edu
```

By default, `pssh` uses at most 32 `ssh` processes in parallel to `ssh` to the various nodes. (This is somewhat important if you're controlling hundreds or thousands of machines.) By default, it also uses a timeout of one minute to `ssh` to a node and obtain a result. For `ssh` commands that take longer than this (e.g., `sleep 61`), the `-t` option can be used. Note that `pssh` and `pnuke` have a default timeout of one minute. `pscp` and `prsync` have no default timeout, but one can be specified using the `-t` option.

3.2. pscp

Here's an example of using `pscp` to copy files in parallel to a set of machines.

```
# pscp -h ips.txt -l irb2 /etc/hosts /tmp/hosts
Success on 128.112.152.122:22
Success on 18.31.0.190:22
Success on 128.232.103.201:22
```

Using the `-r` option will perform a recursive copy for copying entire directories.

3.3. pnuke

The `pnuke` command is useful when you want to kill a bunch of processes on a set of machines. For example, suppose you've got a bunch of `java` processes running on three nodes that you'd like to nuke (let's use the three machines from the `pssh` example). Here you would do the following:

```
# pnuke -h ips.txt -l irb2 java
Success on 128.112.152.122:22
```

```
Success on 18.31.0.190:22
Success on 128.232.103.201:22
```

The result of the above is to send `kill -9` to all processes owned by `irb2` with the string `java` in their name (as reported by `ps -ef`).

4. Environment Variables

All four programs take similar sets of options. All of these options can be set using the following environment variables:

```
PSSH_HOSTS
PSSH_USER
PSSH_PAR
PSSH_OUTDIR
PSSH_VERBOSE
PSSH_OPTIONS
```

Here are some example settings:

```
# export PSSH_HOSTS="/x/bnc/ips.txt"
# export PSSH_USER="irb2"
# export PSSH_PAR="32"
# export PSSH_OUTDIR="/tmp/bar"
# export PSSH_VERBOSE="0"
# export PSSH_OPTIONS="UserKnownHostsFile /tmp/known_hosts"
```

Using the above settings, the examples can be executed succinctly as:

```
# pssh hostname
Success on 128.112.152.122:22
Success on 18.31.0.190:22
Success on 128.232.103.201:22

# ls /tmp/bar
128.112.152.122 128.232.103.201 18.31.0.190

# cat /tmp/bar/*
planetlab-1.cs.princeton.edu
planetlab1.xeno.cl.cam.ac.uk
planetlab1.lcs.mit.edu

# pscp /etc/hosts /tmp/hosts
Success on 128.112.152.122:22
Success on 18.31.0.190:22
Success on 128.232.103.201:22

# pnuke java
Success on 128.112.152.122:22
Success on 18.31.0.190:22
Success on 128.232.103.201:22
```

5. Feedback

Send me email if you're having problems, find bugs, or have any random comments: Brent Chun (<http://www.theether.org>) (bnc at theether.org). Thus far, I've primarily been testing this software on PlanetLab (<http://www.planet-lab.org>).