

rsync (fast, versatile file copying tool)

This is the ultimate file copying utility, much richer in functionality than →[cp](#). *rsync* is most often used to transfer files over a network, but the tool is equally useful for copying files locally. Invoke it like this, for example:

```
rsync -r --progress --partial SOURCE... DEST
```

SOURCE... may be one or more files/directories that you want to copy, and *DEST* is the destination file or directory. The option *--progress* will display the estimated transfer time and other useful information. The option *--partial* will have *rsync* keep partially copied files if the transfer is interrupted. Both options are very useful for copying large files. You can specify *-P* as a shorthand for *--progress --partial*. The option *-r* ("recursive") is necessary for copying directories with their contents.

The biggest advantage of *rsync* over *cp* is that *rsync* will not copy *SOURCE* files that are already present at *DEST*, while *cp* will uselessly overwrite files that are already in place. Using *rsync* can save you a lot of time when copying an updated version of a directory over an older version. As its name suggests, *rsync* is a file synchronization tool.

There are many useful options to *rsync* and it is difficult to remember them all. Luckily, there is a shorthand *-a* ("archive") for the most popular options, namely *-rlptgoD*. You can look them up in *rsync*'s man page if you're interested.

If you should ever want to copy files over a network, use *rsync* like this:

```
rsync -iavz SOURCE... DEST
```

The option *-i* ("itemize changes") will have *rsync* list the changes that it applies to *DEST*. The option *-z* ("zip") means that files will be sent in compressed form, which speeds up transfer times and saves bandwidth. Finally, *-v* is for "verbose output". If you add the option *-n* (long form: *--dry-run*), *rsync* will do a kind of simulation, showing you what it would do without actually changing anything. The options *-i* and *-n* can also be useful for local copying.

One last note. If *SOURCE* and *DEST* are directories that already exist, there is a subtle difference between typing *SOURCE/* (with a slash) and *SOURCE*(without a slash):

- *SOURCE/* means that the contents of *SOURCE* will be copied to *DEST*. This is like saying *cp -r SOURCE/* DEST*.
- *SOURCE* means that the directory *SOURCE* will be copied to *DEST*, resulting in *DEST/SOURCE*. This is like saying *cp -r SOURCE DEST*.