Chapter 4 Helpful Hints

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Chapter Overview

Running an update system to keep identical copies of files on two different computers requires planning and organization. This chapter includes some helpful hints and a sample outline of an update system for use with program source code.

Checksumming

When you run NCSA XDIFF to create an update file of the changes you made to a text file on your local machine, it produces a checksum of the control file and stores it in the update file. NCSA XFIX reads this checksum from the update file immediately after reading its version of the control file on the remote machine. If the two are not identical, the following error message appears:

```
Checksum failed ....
```

Some minor edit that you made before generating the control file may have caused this. There is a way to bypass the checksumming: you may skip the checksum process before creating the update file on the local system by providing the -nc option on the command line to execute NCSA XDIFF:

```
xdiff -nc filename updatefile
```

In the above case, the checksum is not verified before the update is applied. It is recommended that instead of skipping checksums you transfer a fresh copy of the entire file and create new control files.

NOTE: You are not advised to skip the checksum or create a control file after a bad checksum error. The first is very dangerous. NCSA XFIX may crash when applying updates to the wrong control file and almost cer-

tainly will fail to produce the correct output. Creating a control file after a bad checksum error propagates the error and could lead to catastrophic errors in later updates.

IMPORTANT NOTE: NCSA XDIFF and XFIX checksum your data to help you avoid running updates on the wrong files. But NCSA XDIFF and XFIX **cannot help you keep track of control files**. You must keep your own backups and do your own copy commands to create control files. If you do not feel comfortable doing so, then you should not use NCSA XDIFF/XFIX.

Keeping Track of Your Files

Keep these four hints in mind when using NCSA XDIFF and XFIX:

1. Think of the copy of the source code on your local disk as the primary copy.

   All other copies of the file, including the one on the remote system are secondary. You should back up your primary copy on the local disk as if that were the only copy of your source code. If anything goes wrong, you simply upload a backup copy of the file(s) and create new control files from the new primary copy.

2. Make sure that all control files are identical across systems, no matter how inconvenient.

   Do not delay updating the control file on one system with the intention of fixing it up later. As soon as you edit that file, your opportunity to create a control file copy is lost. If you run XDIFF/XFIX using different versions of control files, you will get a checksumming error. This error alerts you to the fact that you forgot to update all the control files, but it is too late to do so.

3. Update your control files *after* you have run NCSA XFIX successfully.

   If you update them before NCSA XFIX has verified the checksum, any problem with NCSA XFIX requires that you transfer the whole file again. Consider keeping additional backups of your control files when you update them. You can use a sequence of control file backups to help with version control if you are interested in maintaining a version history.

4. *Never* edit the control file.

   If you keep all control files with the c. prefix and you never edit files with the c. prefix, then you cannot make the most common mistake—destroying the checksum of the control file by editing it.

Model Update Cycle

A model update cycle includes the following steps:

1. Transfer your original text file to the remote system.
2. Duplicate the file on each system, prefix the duplicates with c., and set them aside as control files.
3. Edit the local current version with your favorite local editor.
4. When you are finished editing or wish to update the file on the remote system, run NCSA XDIFF to compare the current version and the control file and produce a file of just the differences.
5. Transfer the resulting update file to the remote system.
6. Run NCSA XFIX immediately after uploading.
7. Cleanup your systems, replacing old control files with new.
   a. Backup the old control file.
   b. Duplicate the updated remote file producing a c. prefixed file and overwriting the previous control file.
   c. Duplicate the current version on the local disk, overwriting the previous control file.
8. Take a break, compile your source code, whatever!
9. Return to step 3 to continue editing.