

```
OOO FFFFF FFFF III CCCCC EEEEE
  O OF  F  I CC  E
  O OFF FFF I CC  EEE
  O OF  F  I CC  E
OOO F  F  III CCCCC EEEEE
```

```
" NN  N "
" NN  N "
" N N N "
  N N N
  N  NN
```

```
H H OOO M M EEEEE
H H O O MM MM E
HHHHH O O M M M EEE
  H H O O M M E
H H OOO M M EEEEE
```

Version 1.0

A file synchronizing tool
for people who have a PC
at home AND at the office

Program and documentation Copyright 1994
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Foreword

I like PCs. I like them so much that I have one PC at the office (the one I am earning my money with), and one at home (the one I spend that money for). These two PCs are not yet connected (via modems or whatever), so if I need to have certain data on both machines, I have to dance the "good old" disquette shuffle. But even if I had a better link than that, one question would still remain: Is there a way to start working on one machine, and continue working on the other one at any time still using the same data pool ?

Well, at least I have been careful to make that possible one day. Every time I installed an application on both PCs, I used the same directory structure on each of them (i.e., same directory names, same number of subdirectories, same names for those subdirectories, and same file names). Of course, there are also plenty of applications on either machine which I do not want to have on the other one. Anyway--for the apps that I DO use on both computers, I take care to have consistent directory structures and files.

Sounds familiar ? If yes, read on. What I am going to introduce to you is a utility tailored to keep the files on those PCs "synchronized".

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An Introduction to Office'n'Home

Office'n'Home is a program that is dedicated to everybody who wants to keep the directories and files of two or more PCs synchronized.

But what is "Synchronization"? As an informal definition, we will say that two directories are synchronized if (and only if) they have exactly the same entries. And two (or more) PCs are synchronized if (and only if) all the directories that should be synchronized are indeed synchronized. This makes it necessary for a synchronizing program to make sure that...

- a) files that have been newly created on one PC must be created on the other PC, too;
- b) files that have been updated on one PC must be accordingly updated on the other PC;
- c) files that have been deleted on one PC must be removed from the other PC, too;
- d) files that have been renamed on one PC must be accordingly renamed on the other PC (automatically taking care of updates that eventually occurred after the rename operation).

My particular situation is that I have a 386 with one hard disk at the office (being a node in the company's Token-Ring/Novell LAN), and a stand-alone 486 with two hard disks at home. On the office PC, there are drive names from A: to Z:, two of them being of special interest for me: First, the C: drive is the local drive, where I am keeping the files I privately own (such as development tools the company refused to buy for me). Second, the V: drive is the part of the LAN server's very big hard disk where the files reside that I must have access to. Given this, I must be able to keep two things synchronized: Both PC's entire C: drives, and a certain part of the office PC's V: drive against my home PC's D: drive.

If your situation is principally similar, then Office'n'Home is one for you, too. Of course, your individual configuration may look very different. For example, there may be no LAN involved at all, or you may want to have only certain directories synchronized, or every directory except certain files (to keep your private correspondence exclusively at home, for instance).

Most commercial backup utilities (such as Central Point Backup) are able to partially give you synchronization; this partial approach is normally called an "additive" or "incremental backup". Why is this only a partial solution? Well, from the postulates (a) to (d) given above, you can instruct the utility to take care of (a) and (b) for you, but not of (c). In the case of (d), things get even more confusing as follows: Imagine you have a document file named

DRAFT.DOC on both PCs. Today, while you're working at the office, you give it the "final touch", and make up your mind to rename it to FINAL.DOC. Before you go home, you do an incremental backup to diskette, and once arrived at home, you do a restore.

Oops! Now you have two documents at home (DRAFT.DOC has never been deleted there, and FINAL.DOC has just been restored), while you have only one at the office. Even worse: in case you had not yet saved DRAFT.DOC on your home PC, then you will bring it back to your office PC with your next incremental backup. Voila, there it will be again, grinning at you: "You did not really think you can get rid of me, did you!?"

You bet this imagination was something I disliked. So this is, finally, why I wrote oah: I needed it myself. And as I'm writing this, I have been using it for more than a year.

What is Office'n'Home, and what is necessary to run it?

Office'n'Home is a DOS program that works in conjunction with a backup utility of choice, and makes full file synchronization of two PC's hard disks (or parts thereof) possible.

Office'n'Home has been tested to be compatible with MS-DOS 3.3, 5.0, and 6.0, and with Novell Netware 3.11. However, since Office'n'Home accesses only very few basic DOS services (and only well-documented ones), I am as confident as one can be that it runs on other DOS or Network OS "flavors".

Be alarmed, however, to NEVER RUN Office'n'Home FROM WITHIN A MULTITASKING ENVIRONMENT, such as Windows, DesqView, or OS/2! This has nothing to do with Office'n'Home itself, but rather with the way these environments are working. They all need "temporary files", and in case one of those is accidentally deleted, unpredictable things may happen. So if you're a Windows user, run it before you start Windows, or afterwards. More about the do's and dont's will follow later, in more detail.

As already mentioned, you need a backup program that is able to save only those files whose "Archive Bit" is set (these are files that are either new, or have been changed recently; you will find more literature about the "Archive Bit" in your DOS manual). This is no restriction, however, because since you have DOS, you also already have a very well-suited (and well-documented) backup "program": the XCOPY command! Please take the time now to browse your DOS manual for the XCOPY command with the /A or /M parameter; I will later assume that you know it.

Of course, any commercially available, dedicated backup program (such as PC Backup, the Norton Backup, or Fastback, to name a few) will do at least as well as XCOPY. In case you have the choice between both a DOS and a Win-

dows version of your backup program, I recommend using the DOS version. A DOS program avoids having to run Windows only for backup or restore purposes. But of course, both "flavors" will do just as well.

Since Office'n'Home can delete files (to serve the list items (c) and (d) in the introduction), I very strongly recommend you to have a good un-delete utility installed, such as DATAMON with Delete Sentry from the PC Tools. This is, of course, far more a general recommendation for your everyday work, than a precaution due to oah.

You should also have a good working knowledge of DOS. If you know, for example, how to copy or delete a file or directory, then you will feel comfortable with Office'n'Home. Of course, you should also know your backup utility, at least good enough to know how to create or restore incremental backups. In the following text, I will give you tips related to Central Point Backup V8 for DOS, but I think you will be able to easily apply them to the program you're actually using.

One last condition for using oah: You can place it, and run it from, any directory on any drive you like AS LONG AS it is possible for Office'n'Home to delete and re-create itself. This means that if you chose a directory on a network drive, you must have "access, read, delete, create, and write rights" for at least the file OFCNHOM.EXE. But before you even start to worry if you have these rights or not: better don't run Office'n'Home from a network drive! On my office PC, I always run it from the local hard disk, from where it can easily scan the network drives. It is also possible to run it from a diskette, if everything else fails.

Why is it Shareware?

It may be unusual to have an excursion about Shareware at the relative beginning of a documentation, but I felt that you ought to know as soon as possible how to use Office'n'Home "officially". I am trying hard to make both the program and its documentation as usable as possible, and I just thought that if I am fair to you, you will be fair to me. Okay - here goes:

This version of Office'n'Home is NOT public domain or free software, but is "Shareware" (I'll assume here that you have at least an informal understanding of what Shareware is. You can find an exact definition at the end of this documentation). You may try Office'n'Home out to see if it is useful for you. If you use it, you must register and pay for one license per two CPU's (i.e., your home and office PCs).

With the license, you will receive a version of the program that does not any more show the Shareware info on-screen. More info about how and where to license can be found at the end of this documentation.

The program (in the form of the original archived file only) may be freely distributed, but not sold (except under license; more info individually upon request).

Non-registered users of this software are granted a limited 14 day license to make an evaluation copy for trial use for the purpose of determining whether Office'n'Home is suitable for their needs. At the end of this trial period, you should either register your copy, or discontinue using Office'n'Home.

How does Office'n'Home work ?

Office'n'Home works in two "passes". The first pass scans the hard disk(s) of the PC it is currently running on for files that do not exist on the other PC (i.e., when it is running on the home PC, it searches files not existing on the office PC, and vice versa). It does not touch entire directories that do not exist on the other PC, even if you allowed it to. But once there is a directory that does exist on both PCs under the same name, Office'n'Home will "have a closer look" at that directory's contents.

When it finds a file that does not exist on the other PC, Office'n'Home prompts you whether this file should be deleted or not. NEVER will it delete anything without your explicit allowance to do so. From my own experience with oah, I have found that this confirmation is so important that I have removed a former "don't ask, just kill" option from the program, and nobody will ever convince me to re-install it!

Now there are two possibilities: You may either agree with the deletion (in case the file is undeletable, Office'n'Home will notify you), or you may prefer to leave it alone, and Office'n'Home will offer you to mark this file as "updated". Why updated ? Well, for synchronization's sake. Remember: We want to be sure that the directories we want to synchronize ARE INDEED synchronized, which means that there have to be exactly the same file names! Not a single one more, not a single one less. So if you refuse to delete a file that does not exist on the other PC, then you are bringing the two PCs out of synchronization! To compensate for that, Office'n'Home wants to make sure that this file will be included in your next incremental backup (all updated files will), and everything will be in order again.

By the way--you have certainly realized that in the former paragraph I was saying "the same file names"; this is not necessarily the same as "the same files". An example: Assume you have told Office'n'Home to synchronize both PC's C: drives. You have a file C:\TXT\A.TXT on the office PC, which is 6 bytes long and contains the text "Banana". You also have a file C:\TXT\A.TXT on your home PC, but this one is three bytes long and contains "JAM". Assume further that there are no other files in that directory on either PC. Question:

Would Office'n'Home consider these directories synchronized? Answer: Yes ! Everything else could be fatal. Fatal ? Well, I leave it to you to see that. Tip: Just think of each PC's CONFIG.SYS...

Pass 1 (synchronization) will not take place the very first time you are running oah, because it is not yet known which files are on the other PC, and which are not. You will be notified accordingly.

Pass 2 is a read-only pass. The drives and directories on this PC are scanned for file names (except drives, directories or files you have told Office'n'Home to skip); these names become stored in OFCNHOM.EXE itself. Office'n'Home manages this by filling itself with file names in RAM, then copying itself to a temporary file, then deleting itself from disk, and finally renaming the temporary file to OFCNHOM.EXE.

DOS gurus call this behavior "self-patching" and most of them don't consider it good manner (to which I generally agree). However, this program does not "patch" its code (it does not change the way it works). Instead, it just fills a dedicated data area in its body. This has two big advantages over a separate data file. First, the program needs nothing besides itself. Second, DOS will automatically mark it as "updated" by setting the Archive Bit, so your backup program will include it with the next incremental backup. Self-modifying has the two disadvantages, however, that Office'n'Home cannot be run from a read-only device, and in case you are using an anti-virus utility, you have to tell it that changes in OFCNHOM.EXE are nothing to worry about.

While pass 2 will be performed immediately after pass 1 by default, this does not have to be so. You can instruct Office'n'Home to run only one pass of choice at a time. For example, it is a good idea to have two batch files, like these:

- One batch file (say, FIRST.BAT) gets started every morning to synchronize this PC with the other PC. It does so by first running CP Backup to restore all files that have been added or updated on the other PC, and then running pass 1 of Office'n'Home to take care for the deleted and renamed files.
- The second batch file (say, LAST.BAT) is being run in the afternoon, just before you switch off the machine, to prepare for the synchronization of the other PC. This batch file first runs pass 2 of oah, and then starts CP Backup to do an incremental backup. This diskette will be read by the other PC's FIRST.BAT, and so forth.

I will give you examples of how FIRST.BAT and LAST.BAT may look like in one of the following chapters.

Now that you have a good idea of what Office'n'Home is good for, and how it

works, let's have a look at how the program is actually being called and the options available.

Office'n'Home's Syntax: How to start the program and how to set its parameters

Let us start with an example. For this example, we will assume that Office'n'Home is installed in directory C:\UTI (of course, any other location is just as fine, as long as you have the privileges to write and to delete files in that directory. Please revert to the previous chapters for an explanation why this is necessary).

As I have already explained, you should be at a "plain vanilla" DOS prompt to start oah; be careful NOT to call it when Windows, OS/2, or any other multitasking environment is running!

The directory where OFCNHOM.EXE is located must be the current directory, or the DOS PATH must point to it, or you must call it using a fully qualified name (if you don't know what a "fully qualified name" is, or what the PATH is, you ought to read the appropriate chapters in your DOS manual first).

Now have a look at the following line (but DO NOT yet press any key, please!):

C:\UTI\OFCNHOM.EXE c: d:\wpwin.* /x *.pvt /n1**

I think you have already correctly guessed what this means, but let's have a closer look at all the components anyway:

C:\UTI\OFCNHOM.EXE This is the program name. In this instance, we are giving DOS the fully qualified name. Of course, this would not be necessary if C:\UTI were our current directory or if C:\UTI were included in the PATH.

c: This is the first "parameter" we're handing over to oah. It tells the program that we want it to include all files on the C: drive, in all directories and sub-directories.

d:\wpwin.*** The second parameter tells Office'n'Home that we want to include all files from drive D:, from all directories whose names begin with WPWIN, and their subdirectories. As you see, Office'n'Home allows for wildcards in directory names (and by the way, in drive names, too).

/x The third parameter starts with a forward slash, so it is called a "switch". The X switch tells Office'n'Home that the list of files to be

included has ended, and that the list of files to be eXcluded follows.

***.pvt** The fourth parameter, *.PVT, tells Office'n'Home to not process files whose extension is PVT, wherever they may be located.

/n1 The fifth and last parameter is yet another switch. It stands for "No pass 1", and means --you guessed it-- that pass number 1 (the synchronization pass) must not be performed. For an explanation of pass 1 and pass 2, please revert to the previous chapter.

Got the idea already ? Fine. Just a few more remarks before we will construct one more example:

- As is true for most DOS utilities, Office'n'Home is not case sensitive. For example, it does not matter if you specify the X switch as /x or /X. However, it IS important that you use the forward slash to announce it; a minus sign (-) will not work.

- Be sure to leave at least one space between any two adjacent parameters.

- As has already been mentioned, wildcards (? and *, as usual in DOS) are okay in drive letters, directory names, file names, and file extensions. For each of these, the default value is "*". For example, MYFILE*.* is interpreted as ?:*\MYFILE.*, meaning "Have a look at every drive from A: to Z:, and at every directory and subdirectory you may find, and process any file whose name starts with MYFILE."

- Office'n'Home uses a "smart scan" algorithm when looking at drives and directories. This means that it will not touch a drive or directory if it were useless to search something of interest there. In the example discussed above, Office'n'Home would not read another drive besides C: and D:.

- If you exclude a directory (for example, D:\TMP), you automatically also exclude all its subdirectories (D:\TMP\SUB1, D:\TMP\SUB1\SUB11, D:\TMP\SUB2,...). When you include a directory (for example, D:\OKAY), you do NOT automatically include its subdirectories. You have to explicitly allow subdirectory inclusion with proper wildcard usage (D:\OKAY*).

All right. Now let us construct an example. Imagine you wanted to synchronize all spreadsheet (*.WKS) and all document (*.DOC) files found on any drive except the diskette drives. My suggestion is the following (your solution may be different):

OFCNHOM *.wks *.doc /x a: b:

Straightforward so far, isn't it? But wait--why didn't we have to exclude the A:

and B: drives in the former example ? Well, due to oah's "smart scan", this was not necessary, because all the files of interest had to be on either the C:, or the D: drive (there was no other possibility). But in the latter example, the explicit exclusion is very well necessary (and I think the reason is plain to see).

Now let's finally consider the general syntax of oah:

**[full path]OFCNHOM {filename} [/x {filename}]
[/n1] [/n2] [/?]**

Something enclosed in square braces ([]) means that this parameter is optional. As you can see, there is not a single mandatory parameter for oah. If you call it with no parameter at all, it will display a short help text and terminate. Do not type the square braces themselves.

Something enclosed in curly braces ({}) means that it may occur zero to 16 times. In other words: both the include files list, and the exclude files list may be empty, or contain up to 16 entries. Do not type the curly braces themselves.

The switches /n1, /n2, and /x have already been introduced in the previous chapter. The only parameter not yet mentioned (/?) was included for DOS compatibility only; it will tell Office'n'Home to display a short help text and terminate.

Be not afraid to give wrong input to oah. If you enter an invalid parameter, Office'n'Home will behave as if the /? parameter was given; in other words: It will display a help screen and terminate. If, on the other hand, everything was syntactically correct, it will display in detail what it is going to do, and it will ask you to confirm this display.

But what will Office'n'Home prompt you once it thinks it has found a file to delete ? Look at this:

**C:\WPDOS60\DOCS
OLDFILE.DOC <-- this file is...
Normal (...)
Delete it ? (y=yes, else no):**

The first and second lines give us the full path name, so we know exactly which file Office'n'Home means. Next, Office'n'Home can display one or more of the following (where the actual wording may vary from version to version):

Normal (neither changed, nor ready-only, etc.):

This file has not recently been changed, nor is it a new one. This is the normal case, under which it is pretty safe to let

Updated or changed

This will be prompted if Office'n'Home finds the Archive Bit set. It is up to you to decide if you need this file any longer, or not. However, this should not be too much of a problem for you, because if you refuse to delete it, it will automatically be included in your next incremental backup.

Hidden

This is a file of whose existence you might not have been aware at all. If you should delete it or not depends very much of the application that created it, and please understand that it is impossible for me to suggest what to do. As a rule of thumb, you should NOT delete a hidden file IF it is also a read-only and/or system file (see below).

Read-Only

This is a file that was flagged by an application to be undeletable. Office'n'Home can, however, delete it anyway, if you allow it to. Please see above under "Hidden" for my suggestions.

System

This file is one that is of great importance for DOS. I strongly recommend you to NOT delete it. I further recommend you NOT to let Office'n'Home flag this file as "changed", since transferring this file can be harmful to the other PC. Of course, if you are sure that it IS safe to delete a certain system file, Office'n'Home is able to do that for you.

Younger than OFCNHOM.EXE

Well, this is a case that simply cannot happen if you're using Office'n'Home regularly and correctly on both PCs. However, me and you are only humans, and we can forget to do something from time to time. When Office'n'Home displays this message, it has found a file that was created AFTER OFCNHOM.EXE. In other words: your current copy of OFCNHOM.EXE is not up-to-date, because for example, you remembered to restore it to this PC, but you forgot to run it in time. However, if you are sure you don't need this file any longer, it is safe to delete it, since a new copy of OFCNHOM.EXE will be prepared prior to your next incremental backup.

While we're talking about prompts--look at these:

D:\PRIVATE <-- Found on this PC only. Skipped.

D:\PRIVATE\CORR <-- On this PC only. Skipped.

D:\PRIVATE\FINANCE <-- On this PC only. Skipped.

Do you remember that I've told you (in the chapter "How Office'n'Home works") that Office'n'Home will touch ONLY directories that exist on BOTH PC's ? Well, here's the proof. While considering the directories on this PC's D: drive, Office'n'Home has found the directory D:\PRIVATE, which does not exist on the other PC. Consequently, it was skipped, and its two subdirectories CORR and FINANCE were skipped, too.

One could argue here that it would be sufficient to tell the user that D:\PRIVATE was skipped, because this automatically means that all subdirectories were skipped as well. But from experience with the program, I find "redundant" information like this quite useful ! It gives me a clue that I might have removed an entire subdirectory on the other PC, and remembers me to remove it on this PC, too.

Depending on whether Office'n'Home was able to complete its job normally or not (because you cancelled it by pressing ESC, for example), it will set the DOS ERRORLEVEL value accordingly upon exit. In case you're running Office'n'Home from a batch file, you can use the DOS command IF ERRORLEVEL to react accordingly. The error levels currently defined are:

0 (Number zero): Normal execution. No problem to report.

1 (Number one): Office'n'Home did either not start at all (due to the /? parameter, which only displays a help screen, for example), or it was cancelled due to a user interrupt (ESC key pressed) or some non-fatal error condition (undefined parameter, etc.).

2 (number two): Office'n'Home experienced severe problems with the operation system and quit immediately to prevent your disk from irrecoverable data loss.

Remember that under DOS, any errorlevel n includes all lower errorlevels (n-1), (n-2) etc., so you must test higher levels first. Look at this sample batch file excerpt:

```
OFCNHOM (any parameters)  
IF ERRORLEVEL 2 GOTO problem  
IF ERRORLEVEL 1 GOTO halted  
REM ERRORLEVEL 0 is true. Everything's fine.
```

All right. you are now allowed and encouraged to experiment a little with Office'n'Home (you did NOT try to do that any earlier, did you!?).

How to set up your Backup Software

As already mentioned, Office'n'Home works closely together with your backup software. The former takes care of the files deleted or renamed, while the latter has to handle the files updated or created. Now that it is clear how to use oah, we will consider what has to be taken care of for the backup program.

The following examples and suggestions refer to Central Point Backup V8 for DOS ("CPB") in Advanced Mode (assuming that you are an advanced user). In case you have another backup software, it should be easy for you to apply everything accordingly.

Start CPB as you normally would. Make sure the backup method is set to "separate incremental", because we want the program to save only changed or freshly created files, and we want it to do that independent of any previous full backup.

Turn "Overwrite Warning" on. We will not need it for backup purposes, but it is very important during a restore (because we **MUST NOT** overwrite any file that already exists on this computer **UNLESS** the backed up file is newer).

If you do not want to save all changes from all drives and directories, specify which ones to include under Options | Selection options | Include/Exclude files. I recommend you to include/exclude the same files in both CPB and oah.

All other backup/restore options (for example, "Save history") are not of interest in this context, and you can leave them as they are, or change them at will.

Write this new CPB setup to a setup file named OFCNHOM. Give it a meaningful description, and accept CPB's defaults for everything else on the Save As screen. That's all!

Three working batch file examples

Now that we have all the pieces, let's build the puzzle! You certainly remember my suggestion to have a "morning" batch file (FIRST.BAT), and an "afternoon" counterpart (LAST.BAT). You will have to install these batch files on both computers. If you would like to use them, you need not type them in, since they have been part of your download.

The following is FIRST.BAT:

```
CLS  
ECHO OFF
```

```
ECHO      Restoring all files that have been updated or created  
ECHO on the other computer...  
ECHO      When Backup asks you if it should overwrite a file,  
ECHO remember to reply with  
ECHO      "overwrite with (N)ewer file only", and  
ECHO "(R)epeat for all later files"!  
PAUSE  
REM Switch to the directory where CPBACKUP is found, and run it  
C:  
CD \CPB  
CPBACKUP  
ECHO      Now synchronizing this computer with the other one...  
REM Switch to the directory where Office'n'Home is found,  
REM and run it (pass 1 only)  
C:  
CD \UTILS  
OFCNHOM c: d:\work /n1  
IF ERRORLEVEL 1 goto syncerr  
ECHO      Finished. Remember to call LAST.BAT  
ECHO before switching off the machine!  
GOTO done  
:syncerr  
ECHO      WARNING: Office'n'Home did not terminate successfully,  
ECHO PCs may not be synchronized  
:done
```

The following is LAST.BAT:

```
CLS  
ECHO OFF  
ECHO      Now searching for drive, directory, and file names...  
REM Switch to the directory where Office'n'Home is found,  
REM and run it (pass 2 only)  
C:  
CD \UTILS  
OFCNHOM c: d:\work /n2  
REM Pass 2 only, expecting normal execution.  
REM  
ECHO      Preparing to save all updated and/or created files.  
ECHO      Have enough diskettes handy. Select File|Load Setup|  
ECHO load OFCNHOM at first.  
ECHO      Then choose Start Backup. When finished, exit the pro-  
gram.  
PAUSE  
REM Switch to the directory where CPBACKUP is found, and run it  
C:
```


CD \CPB**CPBACKUP****ECHO Finished. You may now switch off this machine.****ECHO Remember to run FIRST.BAT on the other computer****ECHO after start-up!**

Finally, here is a third batch file, SYNCPCS.BAT. It is the one that I have been using for about a year to synchronize my PC's entire C: drives. It combines the functionality of FIRST.BAT and LAST.BAT, depending on the replies you're giving to its prompts. The prompting is done using MS-DOS 6's CHOICE command (please have a look at your DOS manual for an explanation), but in case you do not have DOS 6, any other similar tool will do just as well.

This batch file also introduces my way to keep a copy of each PC's CONFIG.SYS and AUTOEXEC.BAT files on ALL machines, yet avoiding to accidentally overwrite or delete either one. There is a command "SET PC=nnn" in each PC's AUTOEXEC, which assigns a unique "PC ID number" on start-up. For example, on my home PC, this line reads "SET PC=001", while on my office PC, it reads "SET PC=002". This makes it easy for my batch files to decide which PC (i.e., which environment) they're actually running on.

The following is SYNCPCS.BAT:

```
@echo off
cls
echo Synchronizing PCs...
REM Ask the user if we need to run oah's pass 2
REM (the following is ONE LINE in the batch file!)
c:\dos\choice /c:yn /t:y,10 /n "Are you going to do a backup ? [Y,n]:
"
if errorlevel 2 goto runpcb
c:\uti\ofcnhom /n1 c:*.*

:runpcb
REM Make sure a copy of CONFIG and AUTOEXEC will be saved...
copy c:\config.sys c:\config.%pc%>nul
copy c:\autoexec.bat c:\autoexec.%pc%>nul
REM ...but not the actual files, to avoid overwriting the other PC's
configuration.
REM (Setting off the "Archive" bits will tell CPB that these files have
NOT changed.)
c:\dos\attrib -a c:\config.sys
c:\dos\attrib -a c:\autoexec.bat
REM Now run PC Backup (the /PS2 param only resets the mouse):
cpbackup /ps2
```

:sync

REM The following is ONE LINE in the batch file!

c:\dos\choice /c:yn /t:y,10 /n "Did you restore anything ? [Y,n]: "
if errorlevel 2 goto exit

REM User did a restore - Now run oah's pass 1:

c:\uti\ofcnhom /n2 c:*.*

:done

As you see, I trust so much in both CP Backup and oah, that I am NOT testing for ERRORLEVELS. I recommend very much to you not to be as lazy as I am, and to add the proper IFs yourself. And again, knowing that I am repeating myself: For heaven's sake, have a good UNDELETE utility installed (such as Delete Sentry) at all times and on all PCs!! This will make your life as a PC user much safer, regardless of whether you're using Office'n'Home or not.

Synchronizing different drives

So far, I have only explained you how to synchronize directories on equally named drives (for example, C:\BAT on the home PC against C:\BAT on the office PC or vice versa). While this is what I am actually doing most of the time, there are situations where it is impossible to grant that all drives exist on all PCs. For example, I sometimes want to synchronize my home PC's D: drive (which is the second hard disk drive) against the \INATIAM directory on my office PC's V: drive (which is in reality my part of the LAN Server's disk. Oh, and INATIAM stands for: It's not a trick, it's a Merony. Blush.)

No problem. Office'n'Home supports both the DOS SUBST command, and the Novell Netware MAP utility. In the following text, I'll assume that you are familiar with the SUBST command; if not, please refer to your DOS manual now and do some experiments with SUBST, until you feel comfortable with it. In case a Novell network is involved at your site, too, then you must also have an understanding of (and access to) MAP.EXE. Sorry, I do not know any other network operating system besides Novell, but I am sure that whichever network you may use, there sure exists something that lets you assign a local drive letter to a networked directory.

We are going to use a "buffer" drive for our purpose. First, we must find a "local" drive letter which is not in use on any PC. I am using K: for this purpose, and I will use it for the following examples, but of course any other unused letter will do just as well. Do not forget to have a look at both PC's CONFIG.SYS files, to verify that LASTDRIVE makes that letter available (your DOS manual will tell you more about LASTDRIVE if necessary).

The rest is obvious. While I do not have to take care for the C: drives (because C: exists on both PCs), I have to remap V:\INATIAM to K: before

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running SYNC.BAT on the office PC, like this:

MAP K:=V:\INATIAM

Or, if I were working on my home PC, I had to do issue a

SUBST K: D:

Of course, it is a good idea to include commands like these in the respective AUTOEXECs. If you prefer not to establish permanent drive mappings, it is okay to use them only temporarily for synchronizing purposes; but then again, remember to un-do them once you don't need them any longer:

**MAP DEL K: ,or
SUBST K: /D ,respectively.**

A day in the life of Mr. Sampleuser

I will now demonstrate how synchronizing two PCs actually works. Let's watch the files that are residing in the C:\WPWIN\DOCS directory of Mr. Whatheheck I.S. Sampleuser's home and office PCs. This is of course not the only directory that he wants to synchronize. Alas, it is the only one he would let us have a look at, and that's sufficient for this chapter's purposes anyway.

On February 2 (who says everything must start on January 1 ?), the documents on both PCs are perfectly synchronized:

<u>Home</u>	<u>Office</u>
DRAFT.DOC	DRAFT.DOC
IOM.DOC	IOM.DOC
PHONES.LST	PHONES.LST

It's 7am, and Mr. Sampleuser starts working at the office. First, he adds a new phone number to his phone list (PHONES.LST). At 9am, his boss drops in to give him the official okay for the new project schedules (DRAFT.DOC). Accordingly, Mr. Sampleuser renames DRAFT.DOC to SCHED1.DOC and prints the copies needed by the respective departments. At 10am, he writes, sends, and saves a fax under the name REQUEST.FAX.

Now the situation looks like this:

<u>Home</u>	<u>Office</u>
DRAFT.DOC	SCHED1.DOC (A)
IOM.DOC	IOM.DOC
PHONES.LST	PHONES.LST (A)
	REQUEST.FAX (A)

...where (A) marks files that have changed, or have been created, since the most recent incremental backup.

Mr. Sampleuser has a half day off, so at 12am, he exits Windows (he can afford using Windows because his work is not time critical), and runs LAST.BAT (see the "Sample Batch files" chapter for an introduction of FIRST.BAT and LAST.BAT).

What happens first, is that Office'n'Home stores the four names listed above, marking itself as "changed" immediately afterwards. Next, PC Backup does an incremental backup, which includes all changed files from all directories that Mr. Sampleuser wants to synchronize. This means that from out sample directory, SCHED1.DOC, PHONES.LST, and REQUEST.FAX are getting stored on diskette. And most important: Since Mr. Sampleuser took care to include his utilities directory in the backup, OFCNHOM.EXE is being saved, too.

Okay. Mr. Sampleuser is a quite normal PC user. Once arrived at home, he gives a short kiss to his wife and children, and storms into the cellar to fire up his private PC. After boot-up has completed, he inserts the diskette he prepared at the office, and starts FIRST.BAT.

The first thing FIRST.BAT does is to call PC Backup to restore all files from diskette. Of course, Mr. Sampleuser is careful to overwrite files ONLY if the copy on diskette is newer. Let's take a snapshot here:

<u>Home</u>	<u>Office</u>
DRAFT.DOC	SCHED1.DOC
IOM.DOC	IOM.DOC
PHONES.LST (A)	PHONES.LST
REQUEST.FAX (A)	REQUEST.FAX
SCHED1.DOC (A)	

Note that on the office PC, the (A)'s have disappeared. This proves that a backup had taken place.

Now Office'n'Home gets into play. Almost instantly, it displays the following prompt:

```
C:\WPWIN\DOCS  
DRAFT.DOC <-- This file is...  
Normal (...)  
Delete it ? (y=yes, else no):
```

Mr. Sampleuser replies "y" to get rid of this file, and voila, both PCs are synchronized again. He jots down some marvelous ideas for tomorrow's work into a file IDEAS.DOC, and remembers to run LAST.BAT before switching off

<u>Home</u>	<u>Office</u>
SCHED1.DOC (A)	SCHED1.DOC
IOM.DOC	IOM.DOC
PHONES.LST (A)	PHONES.LST
REQUEST.FAX (A)	REQUEST.FAX
IDEAS.DOC (A)	

This time, you should be able to tell which files will be saved to diskette, and scanned into OFCNHOM.EXE, so I won't bother you be repeating all that stuff.

Can we guess what tomorrow's FIRST.BAT on the office PC will do ? Sure we can. First, it will restore all files that are newer on diskette than on disk. In other words, only IDEAS.DOC will be restored. Second, Office'n'Home will find nothing to delete (at least not in this directory). So we can already predict tomorrow's documents:

<u>Home</u>	<u>Office</u>
SCHED1.DOC	SCHED1.DOC
IOM.DOC	IOM.DOC
PHONES.LST	PHONES.LST
REQUEST.FAX	REQUEST.FAX
IDEAS.DOC	IDEAS.DOC (A)

And Mr. Sampleuser was happily synchronizing his files ever after...

What if...?

Since this is the very first time I am releasing Office'n'Home to the public, I have not yet received any questions and/or concerns. But as far as I can consider it, these are the questions you are most likely to ask (and the respective answers, of course):

Q: What if I had two or more consecutive sessions on PC #1 (I mean, I did not have the time to work on PC #2) ?

A: No problem at all. From the view of PC #2, your many PC #1 sessions look like one. Just prepare for synchronizing as soon as you're going to work on PC #2. In case you do not know in advance when you'll be working at PC#2, be prepared for it every day, but remember to use another set of backup diskettes each time. Once you are ready to begin on PC #2, restore all diskettes in chronological order, and run oah. That's all.

Q: What if I started working on PC #1, having forgotten to first synchronize it with #2?

A: Again: No problem! Simply run Office'n'Home now. Be careful with the files that Office'n'Home will flag as "newer than OFCNHOM.EXE". A general suggestion cannot be given, but if you're in doubt, better leave these files in place.

Q: Sometimes Office'n'Home asks me if I want to delete a file from a directory which I did not include. How come ?

A: First: You DID include that directory! Have a closer look at your Office'n'Home command line to convince yourself. Particularly, look at the wild cards... Second: To get out of that directory for the moment, do not let Office'n'Home delete the file, and do not let it mark the file as updated. The program will then ask you if it should leave this directory alone. Answer "y" (yes).

Q: What if I had accidentally allowed Office'n'Home to delete a file ?

A: Don't panic! After all, you have followed my advice to have an UNDELETE utility installed, haven't you? Okay--write down the file's name as long as you still see it on the screen, and remember to undelete it as soon as possible. If you wish, you can now run Office'n'Home once again to mark this file as updated.

Q: I am using another program than PC Backup for my backup purposes. Is that okay with Office'n'Home ?

A: Sure it is. Even plain XCOPY (with the /A parameter) will do. Just be aware that your backup program will not be able to read the sample OFCNHOM.SET file (a PC Backup-specific configuration file), and you will have to change the sample batch files accordingly (FIRST.BAT and LAST.BAT).

Q: I am not usually doing "incremental" backups to diskette. Instead, I use to make full or differential backups to tape. So what ?

A: Again, absolutely no problem. I was only suggesting separate incremental backups for your convenience, because they usually take the least amount of time. Any kind of backup will do, as long as it will at least include all changed or created files from all directories that are scanned by Office'n'Home. And of course, OFCNHOM.EXE must also be backed up.

Q: I have been running FIRST.BAT (or LAST.BAT), and it says that it cannot find CPBACKUP (or OFCNHOM.EXE). What's up ?

A: Well, when you installed PC Backup (or oah, respectively), you had simply chosen another directory to hold the program than I had. It's just a matter of taste. All you have to do is to edit the batch file(s) to suit your directory names, and re-run it.

Q: I was running LAST.BAT at the office, without problems. However, soon after it was finished, my boss came in and told me to write yet another report for him (TEXT5.DOC). After that, I know I could have simply re-run LAST.BAT (using another diskette), but I did not have the time to do that. Any comments ?

A: Since you were not able to re-run PC Backup after you wrote that last report, it will not be restored to your home PC today (because it was not included in the backup). And since Office'n'Home did not yet know about TEXT5.DOC, it will synchronize your home PC to the office PC as it was at the point in time when you ran LAST.BAT. If you do not immediately need that report at home, don't worry; it will be automatically included the next time you run LAST.BAT on the office PC. If you DO need it, though, I am afraid you're out of luck, and you must be patient until tomorrow.

Q: I have been running the sample batch file SYNCPCS.BAT, but I get the error message "bad command or file name". What's up ?

A: First, SYNCPCS needs DOS 6, because it makes use of the new CHOICE command. Second, if you DO have DOS 6, remember that a sample is a sample. Your programs (such as PC Backup) may be stored in a different directory than I assumed when I wrote SYNCPCS:BAT. Simply edit the batch file to suit your individual file locations, then re-run it.

Q: Are there any files which I should not let Office'n'Home delete under all circumstances ?

A: I recommend to never delete DOS's system files (like IO.SYS, or IBMBIO.COM, respectively). Further, you should not delete AUTOEXEC.BAT, and CONFIG.SYS. It is very unlikely that Office'n'Home will ever ask you if it should delete one of those, though. There may be other files which you should leave alone, too, but that depends very much on what PC environment you're using (for example, it is not a good idea to delete Window's "permanent swap file"). As a rule of thumb, never delete a file if Office'n'Home tells you that it is a system file (you'd better consider why this file does not exist anymore on the other PC!).

Q: Can I synchronize more than two PCs?

A: Sure you can. Let's assume that you have, say, three PCs, named A, B, and C. All you have to do is to synchronize B with A first, C with B second, and A with C third. You don't even have to be concerned of all three PC's at all times. For example, just synchronize A and B every day, and C with A once a week. Everything will be fine! If it is not immediately clear to you why this works, I recommend you to jot down a scenario similar to "Mr. Sampleuser" on a scratch paper; this time not with 2, but with n machines.

(Q&A section to be continued - your ideas are requested!)

A definition of Shareware

I promised to give you an exact definition of "Shareware". Hopefully, this will be exact enough for you:

Shareware distribution gives users a chance to try software before buying it. If you try a Shareware program and continue using it, you are expected to register. Copyright laws apply to both Shareware and commercial software, and the copyright holder retains all rights, with a few specific exceptions as stated below. Shareware authors are accomplished programmers, just like commercial authors, and the programs are of comparable quality. (In both cases, there are good programs and bad ones!) The main difference is in the method of distribution. The author specifically grants the right to copy and distribute the software, either to all and sundry or to a specific group. For example, some authors require written permission before a commercial disk vendor may copy their Shareware.

Shareware is a distribution method, not a type of software. You should find software that suits your needs and pocketbook, whether it's commercial or Shareware. The Shareware system makes fitting your needs easier, because you can try before you buy. And because the overhead is low, prices are low also. Shareware has the ultimate money-back guarantee -- if you don't use the product, you don't pay for it.

How to register, and where to find help

A Office'n'Home registration licenses you to use the product on a regular basis. Individual registrations for Office'n'Home cost \$10. Volume discounts and/or site licenses are available upon request.

At the moment of this writing, I am distributing exclusively through CompuServe ("CIS"), so the only way to register is through CIS. It is also currently the only way to get help.

Registering is easy. Just GO SWREG, and when asked which program to register to, answer 123456. That's all! A single regular registration fee of \$10 will be automatically forwarded to me, and you will be charged through your CIS-related credit card.

Getting help is also easy. Just drop me a note; I am "Michael Meron 100270,270". I will reply asap. (Oh yes, I know there are certain guys who spew test messages, just to see if some CIS account is really alive and kicking. All right, go ahead, I cannot stop you either. But remember that you keep me away from responding to serious mail!)

Disclaimer

I do everything to make sure that Office'n'Home (among others) is well-behaved and does exactly what it is intended to do. However, users of Office'n'Home must accept this disclaimer of warranty: "Office'n'Home is supplied as is. The author disclaims all warranties, expressed or implied, including, without limitation, the warranties of merchantability and of fitness for any purpose. The author assumes no liability for damages, direct or consequential, which may result from the use of Office'n'Home."

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