



Saving and Restoring the System on the Fast Internet Computers

CFS-249

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Comment

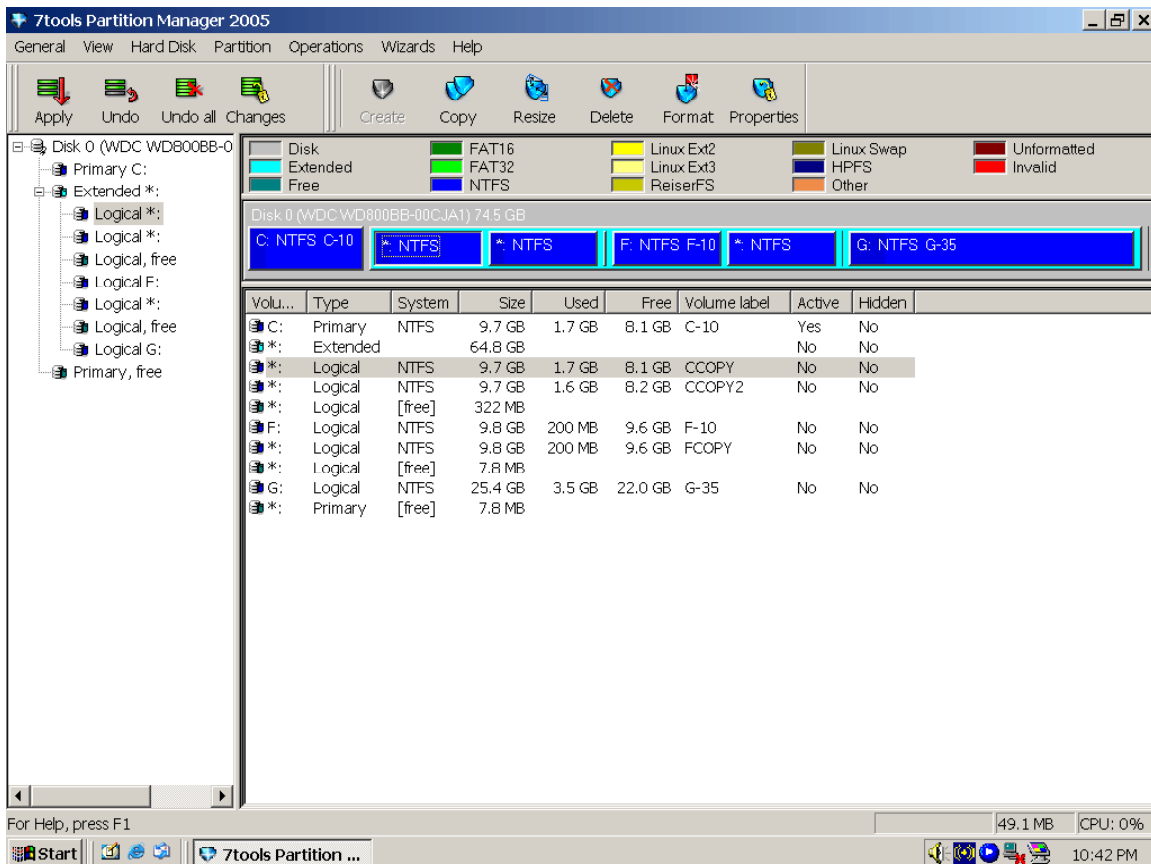
This is a *long* document to describe what really turns out to be a simple procedure that takes just a minute or two of your time and about ten or fifteen minutes of the computer's time, with most of that required to make zipped archives of the saved system. It is, however, an *exacting* process and the document will help you understand what the steps do and also let you check each point along the way to be sure it is correct.

The Basic Idea

With Windows, the storage area of a disk can be divided into "partitions" with the different divisions normally ending up as C:, D:, E:, etc. The operating system, Windows 2000 in this case, is almost always stored on partition C: and it has been the custom of C F Systems to store application programs on F: and main data storage as G:. It is also possible to have "invisible" partitions, spaces that exist on the disk but which do not have letters. These invisible partitions can store data safely because ordinary Windows programs cannot get to them.

What we have done is to set up a primary system partition C: of about 10 GB in size and followed it with two unnamed partitions of exactly the same size (think of them as D and E). Then we have set up an application program partition F: of about 10 GB followed by an unnamed partition of the same size. Finally we have set up a data partition G: of about 25 GB.

To manipulate these partitions we use *Partition Manager* by 7Tools, which will be found under Frequent on the Start Menu. The layout just described looks as follows in Partition Manager:



Here we have set the Volume Label of C: to C-10 and of the two similar-sized partitions following to CCOPY and CCOPY2, making them easier to identify (they also can be identified by all having the same 9.7 GB Size). Likewise F: is F-10 followed by FCOPY, and both of those are 9.8 GB Size. Note that there are several additional items. These will be ignored - that is, they must be left untouched - but to explain what they are, the one with Type listed as Extended is a holder for all the partitions other than the Primary partition C: (that is, F:, G: and everything else) and is never directly accessible. This is a Windows convention that dates back to DOS days. The remaining items have System listed as [free] and are leftovers between the partitions. They are there because it is difficult to set up the necessary equal-sized partitions without leaving a bit of "insurance" space in between.

Saving a System Setup

If you have made changes in your system - typically installing applications, adding fonts, adding items to the desktop, and the system has been running without problems for awhile, it is a good idea to save the system setup. As a gauge, saving the system might happen every few days at the start and taper off to monthly or less often as time goes on. If you have a disaster, you should be able to easily restore back to the last system setup that you have

saved. You may also be able to recover some things from past that time (that haven't already been saved to your other computer) but don't count on it.

Close all other applications as best you can before doing this. To save your system you will be doing the following:

1. Delete the partition CCOPY so there will be a place to save the system C: partition.
2. Copy the C: partition (C-10) to the CCOPY partition.
3. Copying will naturally also change the Volume Label of CCOPY to C-10, so it is necessary to change that label back to CCOPY so the copy may be easily distinguished from the original system later. Note that when you prepare to change the label back, the copy will have Volume Label C-10 but will not have a drive letter assigned to it.
4. Repeat the same three steps for F:. First delete partition FCOPY.
5. Copy the F: partition (F-10) to the FCOPY partition.
6. Change the Volume Label of the copy (recognizable because it has a Volume Label F-10, but no drive letter assigned) to FCOPY.
7. Press the large Changes button above and view the six changes. Make sure the list makes sense and follows the above six steps. If so, Apply these actions - Partition Manager waits until you "Apply" and then automatically does all six steps in sequence, requiring a reboot in the process.
8. Exit from Partition Manager and make complete zipped copies of the CCOPY partition (which probably will appear as unit D:) and the FCOPY partition (which probably will appear as E:). The Zips should be given descriptive names with dates and be put in the G:\Disk Area Zips folder.
9. Use Partition Manager to unMount D: and E: so they no longer have drive letters and become inaccessible.

Once you have been through it, these 9 steps require no more than 1 or 2 minutes of your time, and the computer will be doing something on its own for another several minutes. The longest phase will be zipping the partitions. The zips are made so that 1) it is possible to recover back to earlier setups if necessary and 2) there will be better options available if something serious enough happens that normal recovery doesn't work and the disk needs to be completely erased and reloaded.

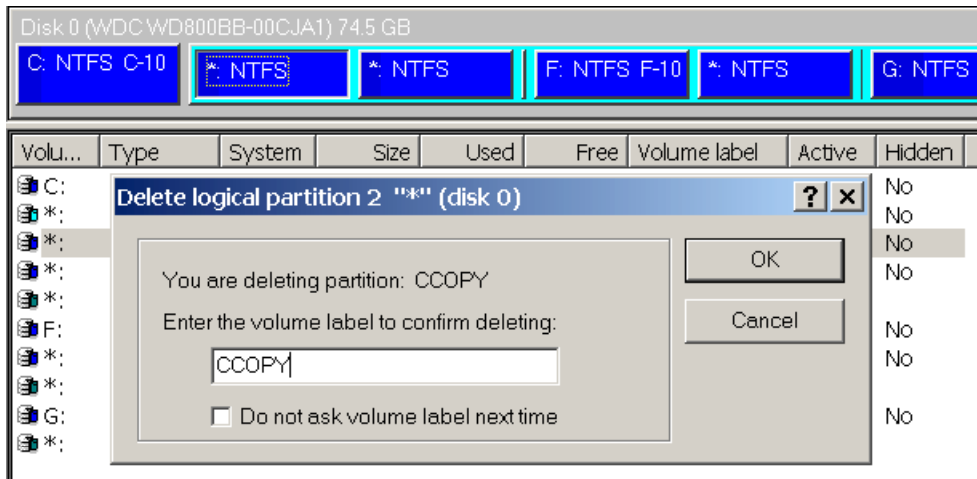
It is a good idea to turn off the Internet while doing this, but it probably really will not make a difference.

Now the same list of steps with screen shots to show what is happening:

Start Menu → Frequent → Partition Manager will give you the application screen shown above:

1. Delete the partition CCOPY so there will be a place to save the system C: partition.

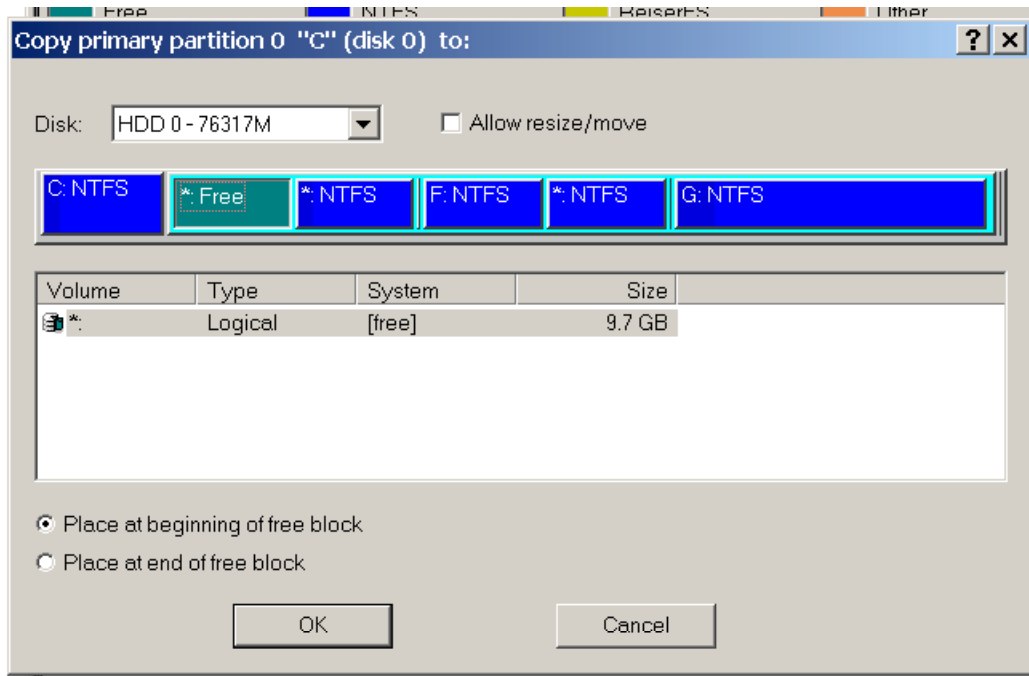
Select the partition with Volume Label CCOPY and press the large Delete button at the top of Partition Manager. A dialog box will appear as below:



It is safer to have Partition Manager ask you to type in the Volume Label to confirm what you are deleting. Note that the dialog box tells you the label of the partition it intends to delete. Type it in and OK.

2. Copy the C: partition (C-10) to the CCOPY partition.

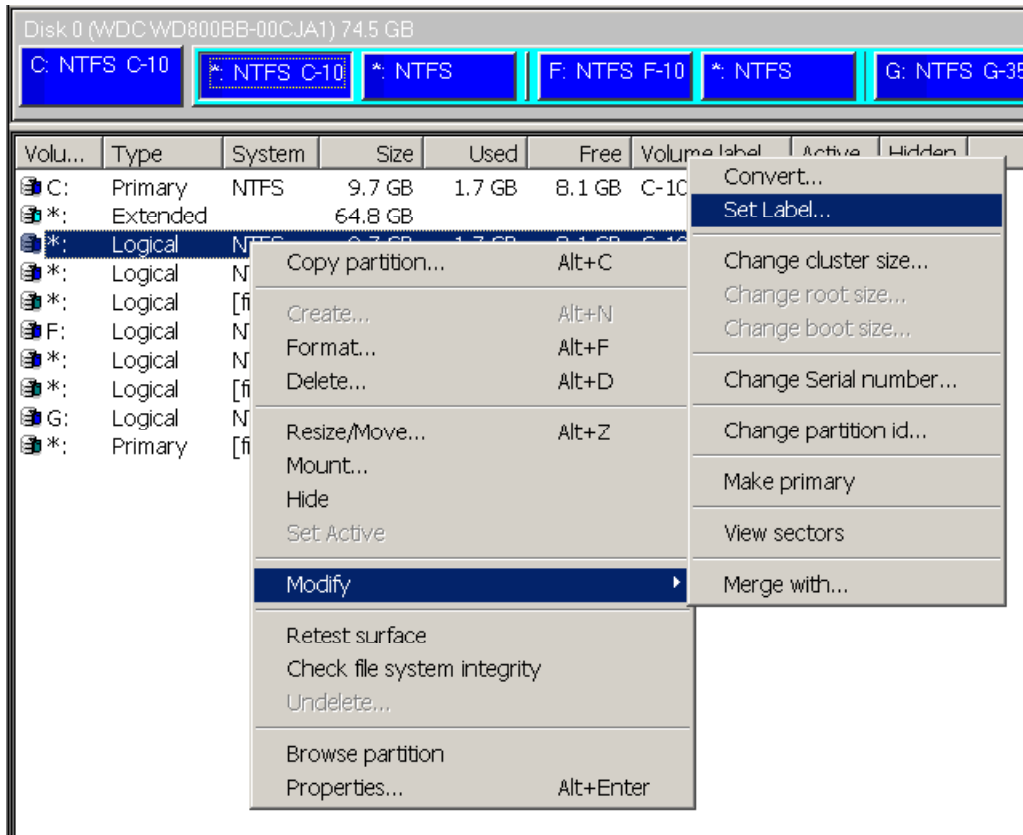
Select the C: partition with (with Volume Label C-10) and press the large Copy button at the top of Partition Manager. A dialog box will appear as below:



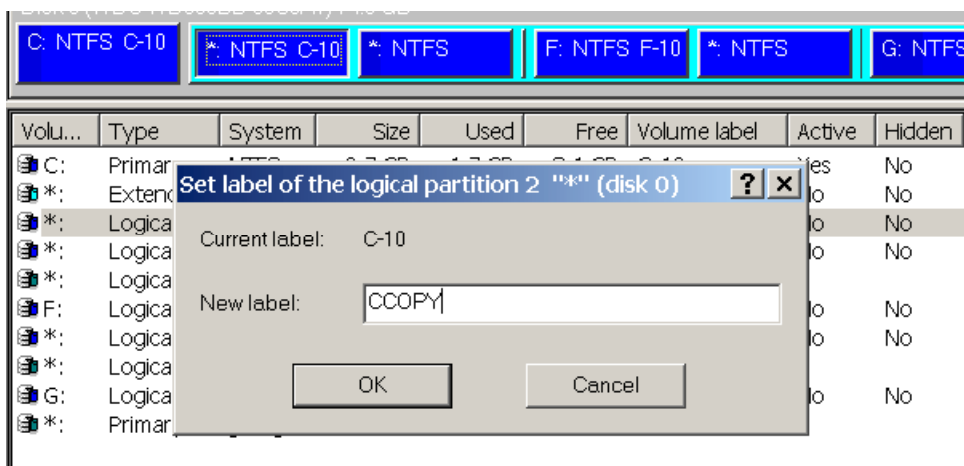
There is only one choice. Leave "Place at beginning of block" checked, and OK.

3. Copying will naturally also change the Volume Label of CCOPY to C-10, so it is necessary to change that label back to CCOPY so the copy may be easily distinguished from the original system later. Note that when you prepare to change the label back, the copy will have Volume Label C-10 but will not have a drive letter assigned to it.

Select the partition with Volume Label C-10 but with no drive letter assigned to it (i. e., it has *: in the first column). "Wrong click" it to get a menu and select Modify → Set Label.



A dialog box will appear as below. Change the label to CCOPY

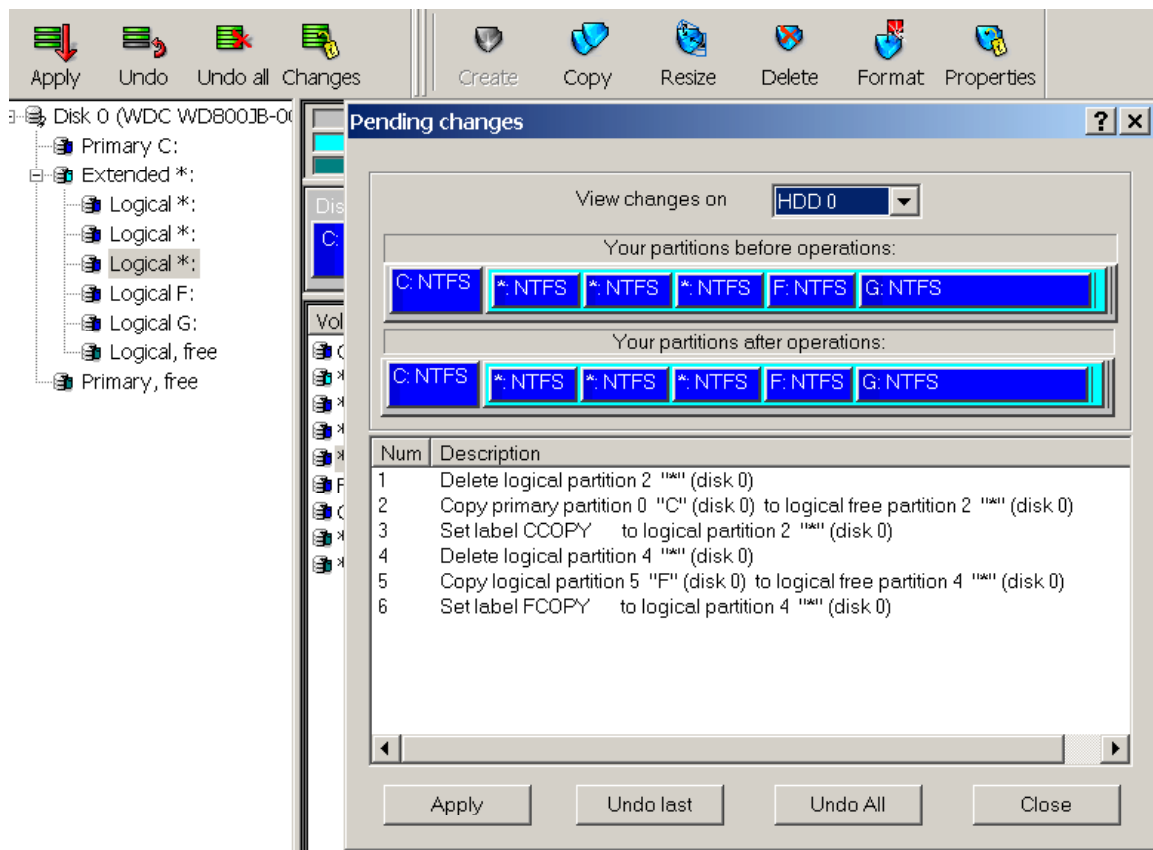


4. Repeat the same three steps for F:. First delete partition FCOPY.

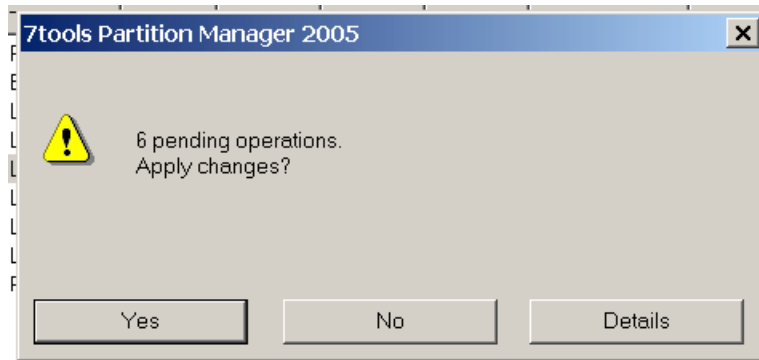
5. Copy the F: partition (F-10) to the "Free" partition where FCOPY had been.

6. Change the Volume Label of the copy (recognizable because it has a Volume Label F-10, but no drive letter assigned) to FCOPY.
7. Press the large Changes button above and view the six changes. Make sure the list makes sense and follows the above six steps. If so, Apply these actions - Partition Manager waits until you "Apply" and then automatically does all six steps in sequence, requiring a reboot in the process.

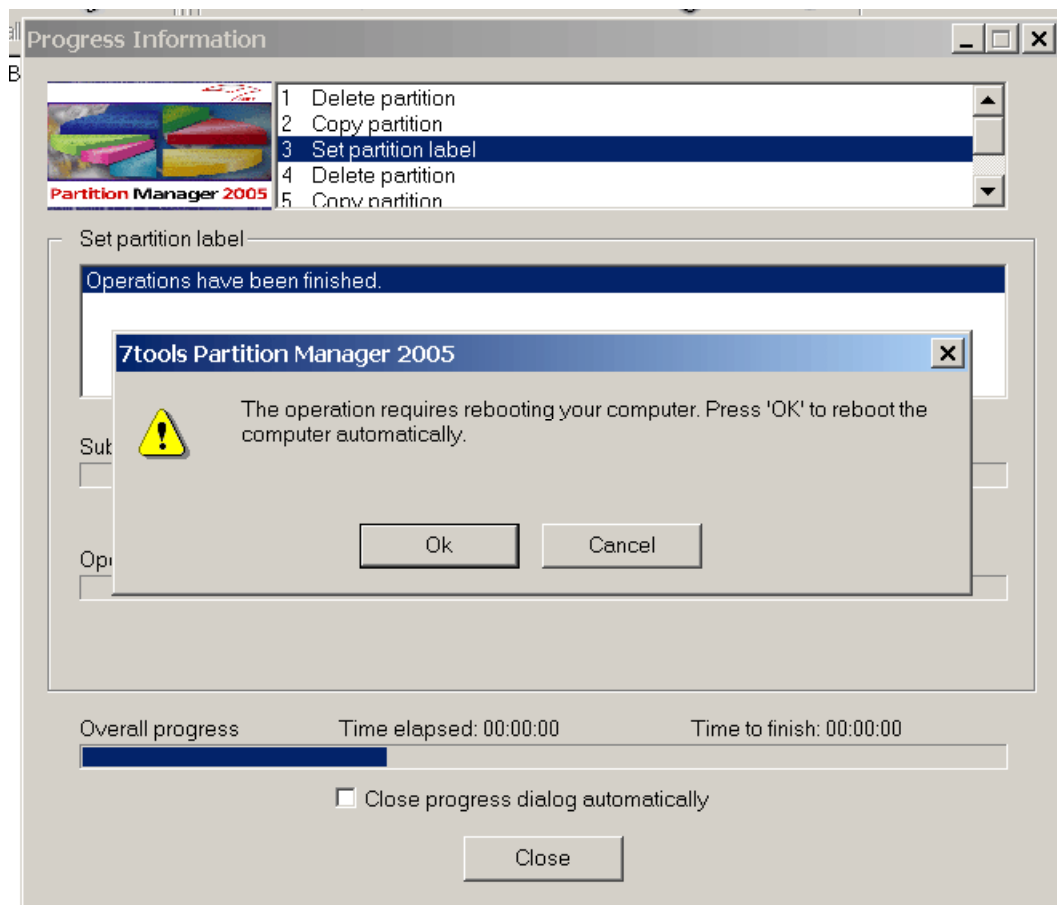
You can see the list of actions that will be applied by pressing the Changes button at top:



If the list looks correct; similar to the above, press the Apply button to start the process. The process will involve rebooting, so be sure all other applications are closed.



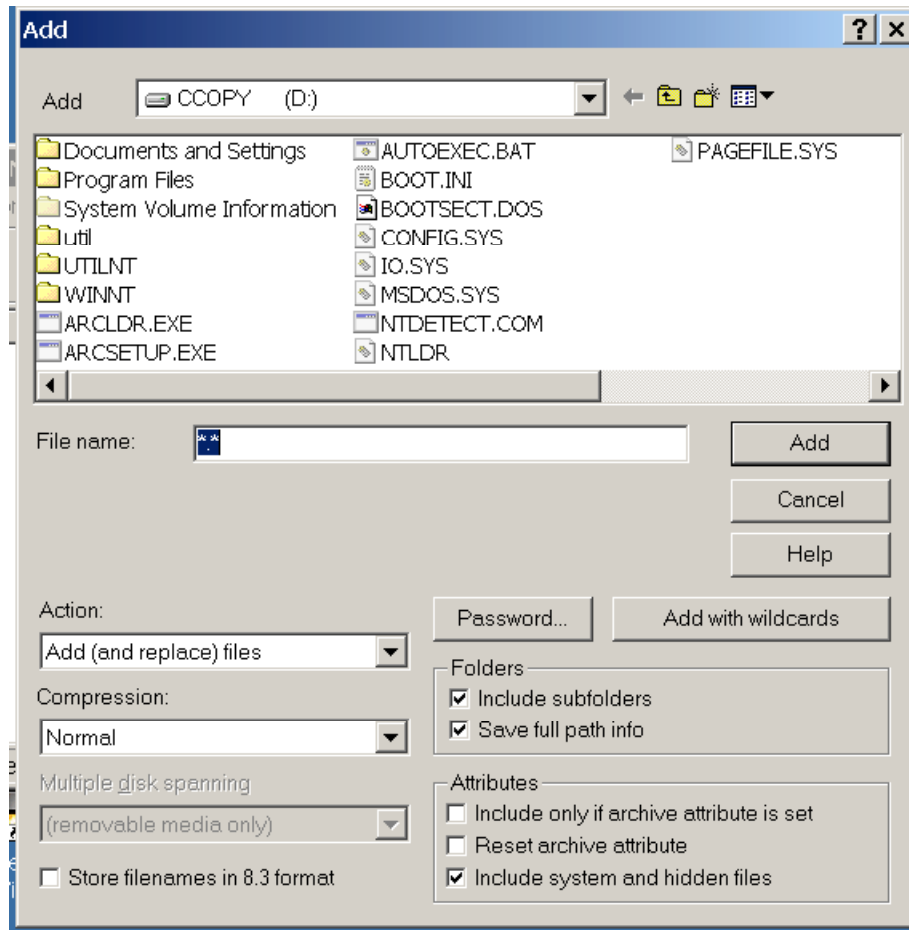
Yes. Shortly you will get a message:



To which reply OK. Then the system will reboot and come up in an unfamiliar mode where it will work for awhile. Eventually it will reboot again and come up in the normal Windows system. When the regular Windows system comes back up, Partition Manager will be open and the partition copies will have been given drive letters. Normally CCOPY is assigned to D: and FCOPY is assigned to E:. If this is not the case, make note of which drive letter is assigned to which of these named partitions.

8. Exit from Partition Manager and make complete zipped copies of the CCOPY partition (which probably will appear as unit D:) and the FCOPY partition (which probably will appear as E:). The Zips should be given descriptive names with dates and be put in the G:\Disk Area Zips folder.

Use Winzip to start a New zip file in G:\Disk Area Zips and give the zip file a name something like "C with XXX 12-24-4" where XXX is a brief phrase to help identify recent changes, then use the Add dialog box:

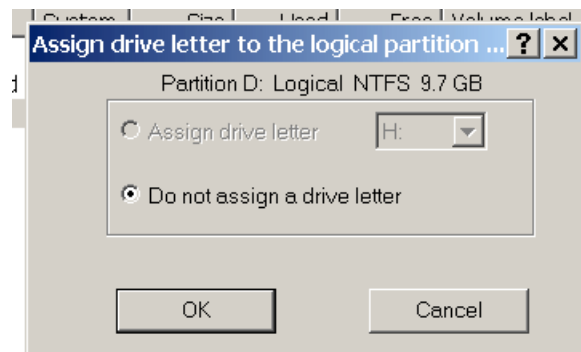
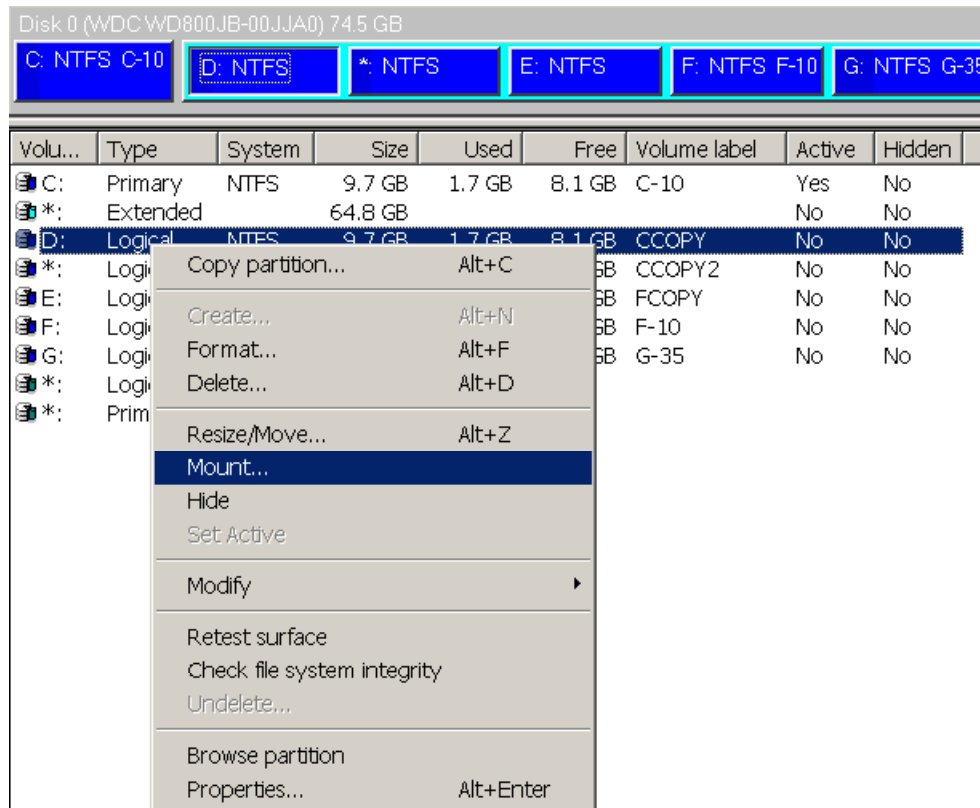


Position in the root directory of the drive. Here, D: is an exact copy of the system C: drive, but as it is *not* the system drive no files are in use and Winzip will not have trouble accessing any of them. Make sure "Include subfolders", "Save full path info", and "Include system and hidden files" are all checked, that the "File name:" is *.* and then use "Add with wildcards." This will work as long as the resulting zip file is less than about 2 GB. Starting off, we are less than half of that.

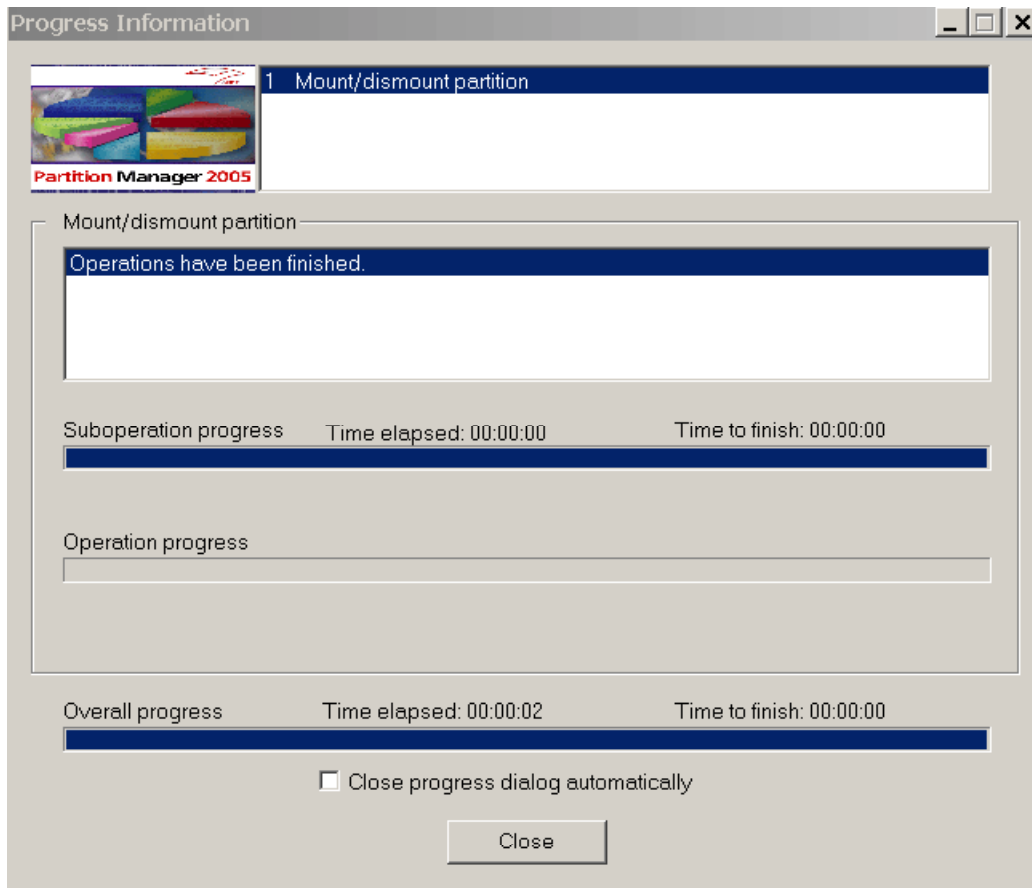
Do the same thing to zip FCOPY, which is probably E:, giving the zip file a name "F with XXX 12-24-4" so that it matches the name of the CCOPY zip.

9. Use Partition Manager to unMount D: and E: so they no longer have drive letters and become inaccessible.

Select the CCOPY partition, "wrong click" and select Mount from the menu.



OK for the "Do not assign a drive letter. That will result in:



And you will have to Close. Repeat for the FCOPY drive, which will probably be E:

That concludes completely saving the current system. The zip archives should be periodically moved to DVD disk. Once that is done, it should be safe to delete all but the last three or four pairs of system zips from the G: hard drive.

Restoring from Saved Partitions

The practice gained from saving partitions will make this easier. Again, close all other applications as best you can before doing this.

Using Partition Manager as before:

If you want to save a copy of your current system to be able to get at some of the files later, the best way is to make zipped copies, naming them so they can be recognized as bad. Use Winzip to start a New zip file in G:\Disk Area Zips and give the zip file a name something like "C BAD 12-24-4", then use the Add dialog box. Position in the root directory of the C: drive. Winzip will

complain of not being able to access some files, but this is not a problem as you will never be trying to restore this :bad: system. Make sure "Include subfolders", "Save full path info", and "Include system and hidden files" are all checked, that the "File name:" is *.* and then use "Add with wildcards."

Do the same to zip F: directly, giving the zip file a name "F BAD 12-24-4" so that it matches the name of the C: zip. Note: if you are unable to zip F: and really need to recover data from it, first try simply copying the areas that you need to a new folder on the G: drive. In the rare case where that is not possible either, then modify steps 5 through 7 in the procedure below to become:

5. Use partition Manager to UnMount the F: partition, which should be labeled F-10. (See Item 9 directly above [not below] for details of how to do this.)
6. Use partition Manager to Mount the partition labeled FCOPY using the drive letter F:. (Again see item 9 above [not below] for how to do this; this time you will be selecting a drive letter instead of removing one.)
7. Select the partition that formerly was F: (and now is *:), wrong click and Modify → Set Label to set its label to FBAD. Select the partition that is now labeled FCOPY (and if now F:) and Modify → Set Label to set its label to F-10.

To save a copy of the C: partition, use steps A, B, and C following. This is not necessary if you have made a zipped archive of C: or if troubles are so serious that you would just as soon see it completely wiped out. If you do not need to save a copy of the C: partition, skip to step 1.

- A. Delete the partition with volume label CCOPY2, noting its position in the list (normally it should follow the CCOPY partition). Make sure you delete CCOPY2 and not CCOPY. You will need CCOPY.
- B. Select the system partition C:, Volume Label C-10 and press the large Copy button.
- C. Select the partition that formerly had label CCOPY2 and now has label C-10. It will have *: in the first column. Wrong click and Modify → Set Label to restore the label back to CCOPY2.

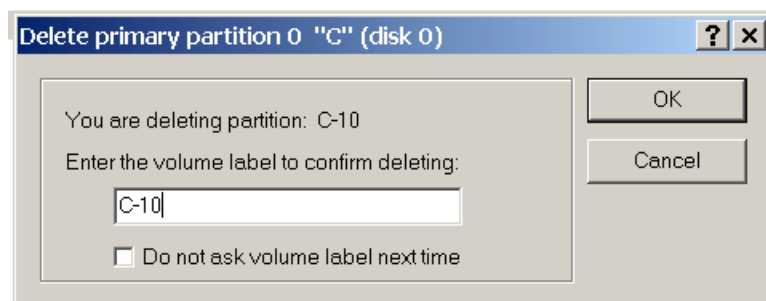
These three steps are just like those in the system save except that the save is to CCOPY2 instead of CCOPY. You may Apply at this point or continue directly on to step 1 below.

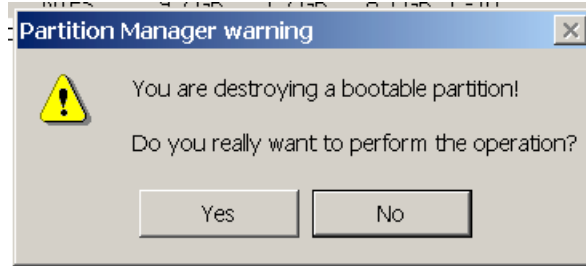
To restore the system:

1. Delete C:, the system partition, which has Volume Label C-10 and is the first partition in the list.
2. Select the partition with Volume Label CCOPY and use the large Copy button to copy to the free partition, which will be the C: you just deleted (but is no longer called C:).
3. Select the first partition in the list (which used to be C: but is now *:) again. Wrong click Modify → Set Label to change the label back to C-10.
4. Select the first partition once again and wrong click. This time select Set Active from the menu. This is very important.
5. Delete F:, the application partition, which has Volume Label F-10, after noting where it is in relation to FCOPY.
6. Select the partition with volume Label FCOPY and use the large Copy button to copy to the free partition, which will be the F: you just deleted (but no longer called F:).
7. Select the partition that formerly was F: (and now is *:), wrong click and Modify → Set Label to set its label back to F-10.
8. Use the large Changes button to see and check the sequence of steps you have set up. If they appear to be correct, Apply. The system will want to reboot. After it finished you should be up and running in your restored system.
9. If you saved a copy of your old system in CCOPY2 and want to be able to access it, select the CCOPY2 partition, wrong click and select Mount. Select a drive letter for CCOPY2. The system will reboot again.

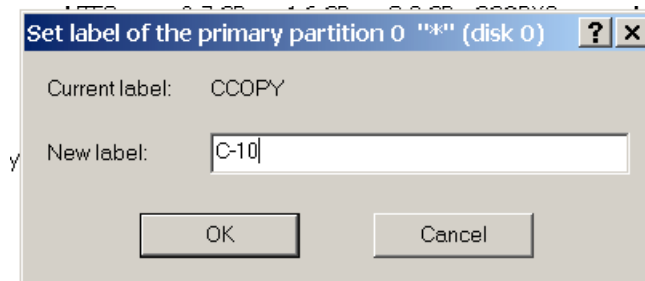
Again, with a few illustrations:

1. Delete C:, the system partition, which has Volume Label C-10 and is the first partition in the list.

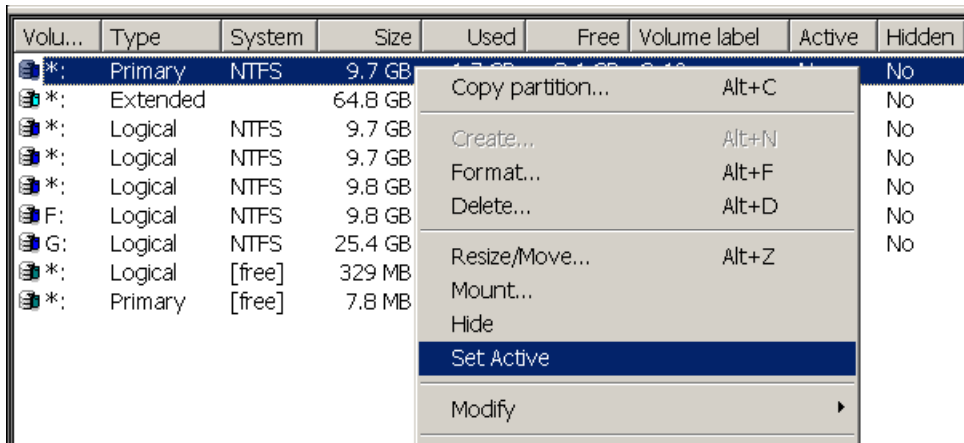




2. Select the partition with Volume Label CCOPY and use the large Copy button to copy to the free partition, which will be the C: you just deleted (but is no longer called C:).
3. Select the first partition in the list (which used to be C: but is now *:) again. Wrong click Modify → Set Label to change the label back to C-10.

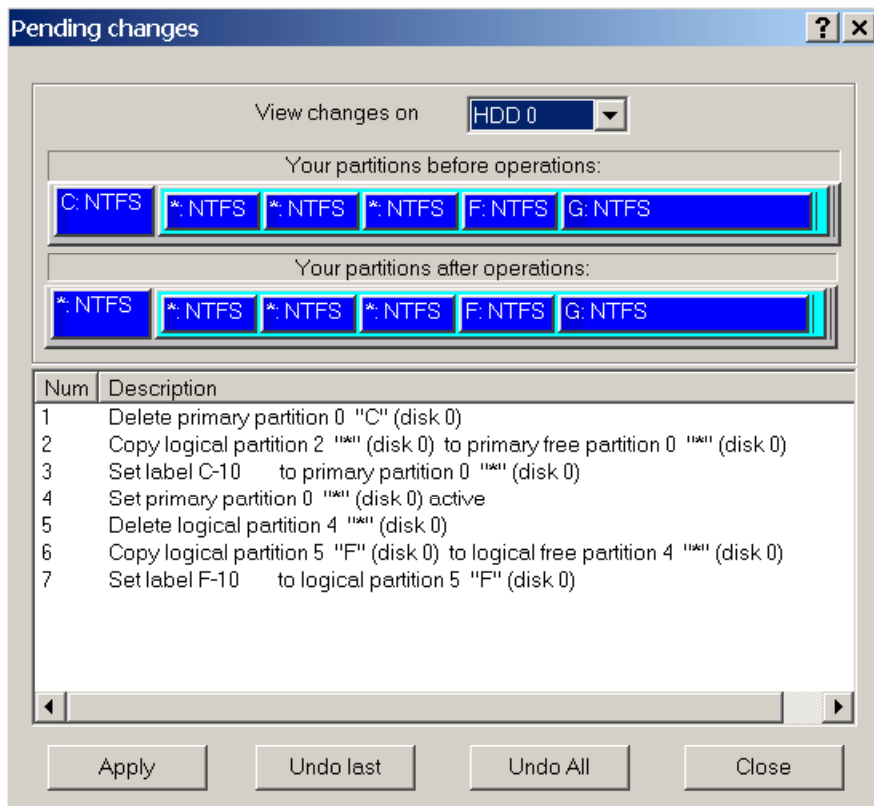


4. Select the first partition again and wrong click. This time select Set Active from the menu. This is very important.



5. Delete F:, the application partition, which has Volume Label F-10, after noting where it is in relation to FCOPY.

6. Select the partition with volume Label FCOPY and use the large Copy button to copy to the free partition, which will be the F: you just deleted (but no longer called F:).
7. Select the partition that formerly was F: (and not is *:), wrong click and Modify → Set Label to set its label back to F-10.
8. Use the large Changes button to see and check the sequence of steps you have set up. If they appear to be correct, Apply. The system will want to reboot. After it finished you should be up and running in your restored system.



9. If you saved a copy of your old system in CCOPY2 and want to be able to access it, select the CCOPY2 partition, wrong click and select Mount. Select a drive letter for CCOPY2. The system will reboot again.

At this point your system should be completely restored. In the unlikely event that something does go wrong, it will be possible with the assistance of a second computer to restore the system from the zipped system backups.

Recover any necessary user data, only as needed, from the "BAD" C and F zip files.

If it was not possible to make zip files of the bad system, use Partition Manager to temporarily assign drive letters to the partitions with the BAD C: and F: system and make zips of those partitions, giving them a name including BAD in each case. After the zips are completed, use Partition Manager to remove the temporary drive letters and then immediately go through the system backup procedure to make sure that the known good system you just restored is in place for future recoveries. It is not necessary to make an archive zip in this case, since this known good system will already have been archived.