

MacTCP Netswitch



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1. What it is.....	1
2. System requirements.....	2
3. Updating from earlier versions.....	2
4. How it works.....	3
5. Installing it.....	5
6. Control panel features.....	6

Appendices

A.Synonyms.....	8
B.Using alternate prep file folders.....	9
C.Error codes.....	9
D.Legal stuff.....	10

1. What it is

MacTCP Netswitch is a Macintosh control panel designed to automatically reconfigure MacTCP for those who move their Macintoshes from network to network.

Whether you use a PowerBook or a PowerMac, when you move it to a different network, or even to a different part of the same network, you've got to reconfigure MacTCP for your new location. The obvious solution to this problem is to keep a set of different MacTCP prep files handy, so you can swap in a prep file correctly configured for your location. This is in fact what many people have done. Doing it by hand, however, can be a pain.

Netswitch automates this process for you. Netswitch distinguishes between your prep files by looking at their filenames. Once you've correctly configured a prep file, you give it a name that indicates when it should be used and drop it in a folder specially designated by Netswitch to store your prep files. You might have files named "AppleTalk zone 1" and "AppleTalk zone 2," for example (if your network administrator is singularly unimaginative); or you might have files named "Network" and "SLIP" to distinguish your work from your home setup. At startup, Netswitch gets some basic information about your network connection, decides on that

basis which of your prep files is the correct one, and swaps it in. (The control panel has features to help you name your prep files correctly.)

Netswitch has some other useful features. You can use aliases for prep files, or even for an entire collection of files, so that if part or all of your site uses dynamic or server-based addressing, your network administrator can provide a set of prep files in a folder on a central file server and distribute an alias to the folder. That way your administrator can both assure that you are always configured with the correct settings, and update your settings files as needed with minimal effort. You may also select a prep file manually (overriding Netswitch's automatic selection) by holding down the control key at startup; Netswitch will let you choose a file with the standard open file dialog box. Netswitch can also be turned off temporarily at startup by holding down a key combination specified by the user.

Of course, there are some things that Netswitch still can't do for you:

- It can't swap in a file after you've already started up. (If you need to do this, John Norstad's "MacTCP Switcher," available by anonymous FTP from <ftp.acns.nwu.edu>, is very helpful.)
- It can't configure your MacTCP prep files for you, nor can it correct any errors that you make when you configure them.

WARNING: when Netswitch swaps in a prep file, it replaces your current prep file with a copy of the appropriate file from the prep files folder. If you change your MacTCP configuration, you must copy the changed file back into the MacTCP prep files folder and rename it appropriately, or you will lose all of your changes when

you restart your Macintosh.

2. System requirements

Netswitch requires System 7.0 and AppleTalk version 53 or later to run. (The AppleTalk version should almost never be a problem: it's installed automatically by System 7.0.) The control panel file requires about 125K, and the Netswitch prefs file requires about 1K.

NOTE: To work correctly, MacTCP Netswitch must load before MacTCP. By default, it has a space character before its name to make sure this happens. If you rename it, be sure that its name comes before MacTCP.

3. Updating from earlier versions

This section describes changes from earlier versions of Netswitch. Version 2.0 does basically the same thing that as earlier versions—it automatically swaps in a MacTCP prep file based on information about your network connection. There are some minor changes in the way it does this, though. There are also some new features: most of these are covered in the features section, below. (Be sure to read the note about Netswitch's name under “System Requirements,” above.)

NOTE TO BETA-TESTERS: if you've used an alpha or beta version of Netswitch 2.0, you should delete your Netswitch prefs file (in the Netswitch folder) and let Netswitch replace it with a new one. The old prefs file contains a different format for the preferences data that can cause crashes when used with the release version.

Changes and new features

- Different folder location. MacTCP Netswitch now creates its own “Netswitch” folder inside the Preferences folder, where it puts its preferences file (“Netswitch prefs”) and the “MacTCP prep files” folder. These items are created automatically when it first runs (either at startup or when you open the control panel).
- Different naming convention. By default, Netswitch no longer puts a standard prefix (“MacTCP prep-”) before each prep file name.
- More flexible. Netswitch 2.0 adds a new criterion for choosing a prep file: the type of network selected in the Network control panel (which is independent of whether the network is actually connected).
- Control panel interface. Netswitch 2.0 is a control panel, not an extension. The control panel gives you some control over when Netswitch runs (you can now turn it on and off, or turn it off temporarily by holding down a combination of keys), and it gives you tools to configure your system a little more easily than you could before (see the section on “Control panel features,” below).
- Alternate prep folder. By default, Netswitch looks for prep files in the MacTCP prep files folder in the Netswitch folder. If you like, you can add an alternate prep files folder that will be used if the main folder is aliased and there is no active network connection. This feature allows you to alias the main folder to a network server, while still providing real files to be

used when away from the network. For more information, see appendix B.

Updating to version 2.0

The update procedure is pretty straightforward. Netswitch automatically sets up its configuration files and converts your old prep files folder either when you first open the control panel or restart. Here's what it does:

- Creates a “Netswitch” folder within your Preferences folder that contains your new prep files folder and your Netswitch preferences file.
- Copies all of your old prep files into the new prep files folder, converting the names in the process. This means that
 - The old prefix (“MacTCP prep-”) is stripped from the beginning of the name (if it's found).
 - If your site administrator modifies Netswitch to use a new prefix, it's added to each file name. By default, Netswitch 2.0 doesn't use any prefix (using a prefix can cause conflicts with long AppleTalk zone names, so we strongly recommend that you don't).
- Looks through your Preferences folder and copies any prep files that it finds there into your prep files folder, without doing any name conversion.
- Removes the old Netswitch extension from the System folder.

4. How it works

When Netswitch runs at startup, it gathers certain information about your network connection, including:

- the type of AppleTalk connection specified in the Network control panel (LocalTalk, EtherTalk, TokenTalk, and so forth);
- whether there's an active network on the link specific in the Network control panel (i.e., whether you can see zones in the Chooser); and
- the name of your AppleTalk zone, if any.

It uses this information to choose a file from the set of MacTCP prep files that you've configured. The prep files are all stored in the "MacTCP prep files" folder—it's located inside the "Netswitch" folder in your Preferences folder.

File naming conventions

Netswitch uses the name assigned to each prep file to distinguish between them. The name can be from any of these categories:

- The name of an AppleTalk zone on your network, or a generic file called "Network," which is loaded when no zone-specific name is available;
- A network link file, which uses the name of the AppleTalk network connection you specify in the Network control panel (Ethernet, Token Ring, LocalTalk, Remote Access); or

- The “Dialup” file. This file is used when none of the above are found. (There are variants on the dialup name, such as “Dialup (generic),” “Dialup (PPP),” and also “PPP” and “SLIP,” but Netswitch doesn’t really distinguish between them—it just takes whichever one it finds first (searching alphabetically). For a list of these names, see appendix A.)

The prep files are stored in a folder called “MacTCP prep files.” That folder is located within the Netswitch folder, which lives in your Preferences folder.

Choosing a file

When it chooses a prep file at startup, Netswitch goes through each of these the three types of files that are mentioned above until it finds a file that matches. (If no file is found, it displays an error icon.) That is, it uses the following instructions:

1. First, see if the Macintosh is connected to a network. If it is, look for a file matching the current AppleTalk zone; if there isn’t one, look for a file called “Network.” If that file doesn’t exist, or if there’s no active network connection, go to step 2.

2. Look for a file that matches the network link type set in the Network control panel (such as LocalTalk, Ethernet, Token Ring, or Remote Access). If there's a file that matches, use it, whether or not an active network is actually detected.
3. If steps 1 and 2 are unsuccessful, choose a Dialup file.

Thus, a zone-specific prep file takes precedence and will always be chosen over a generic network file, just as a generic network file will always be chosen over a network link file.

Aliases

You can mix aliases with real prep files in the MacTCP prep files folder. In fact, you can even substitute an alias for the prep files folder. This allows you to provide a central collection of prep files for an entire group of users, if you want. If you like, you can add an alternate folder of prep files that is used when Netswitch decides that the alias to the main prep folders can't be resolved because the Network is unavailable. See appendix B for instructions.

When you use aliases, they generally point to server volumes on a network; there's not much point in making an alias to a target on a local disk. When Netswitch selects a file that is actually an alias, it will automatically bring up the AppleShare login dialog to get the user's name and password. This is unpleasant, and to be avoided if possible: in the first place, it redraws the screen, which blanks out the icons for all of the extensions the user has loaded (which irritates the user); in the second place, it forces the user to enter a name and password, and stops the boot process until he or she does (which irritates the user). We therefore recommend that you allow

guests read access to the folder that contains the aliased files. (Be sure to log in to the server as a guest when you create the alias!)

If an alias target can't be found, or if the user cancels the login process, Netswitch will continue to search for a prep file at the point just after it tried to resolve the alias.

When Netswitch exits, it automatically unmounts any server volumes that it mounted while trying to resolve an alias. This applies only to volumes that Netswitch mounted; any volumes mounted before Netswitch runs will be left alone.

5. Installing it

Installation is pretty simple: just drop the Netswitch control panel on the System Folder icon. The Finder will ask you if it should be routed into the control panels folder; click “OK” and that should do it. Netswitch will automatically set up the appropriate folders either when you either open the control panel or when you restart. If you're updating from version 1.0.2, you should read the section on updating—there are some changes that you should be aware of. The auto-configuration process is also somewhat different for users who are updating.

As a precaution, it's a good idea to make a backup copy of your current MacTCP prep file before you install Netswitch for the first time.

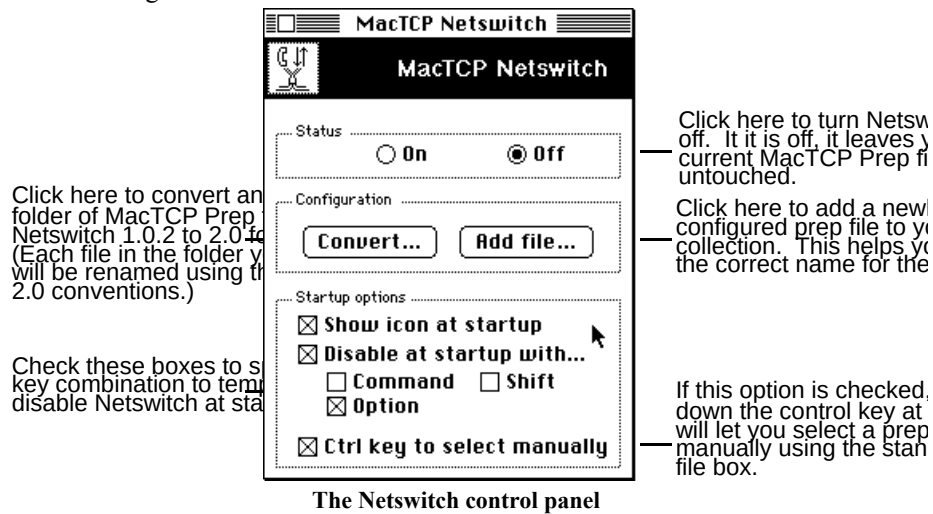
For new users, here's what happens when Netswitch first runs:

- It creates a folder within your Preferences folder, called “Netswitch.”

- Within the Netswitch folder, it creates two items: a folder called “MacTCP prep files” that will store your collection of prep files; and a file called “Netswitch prefs,” which contains the default preferences data. When you use the control panel to change the preferences, your modified preferences are stored in this file.
- It copies your current MacTCP prep file into your prep files folder and renames it. If a network connection is detected (if you can see zones in the Chooser), it renames that file “Network (installed).” If no active network is found, it names the file “Dialup.”
- It looks in your System folder for any MacTCP prep files—that is, it identifies any files with the correct creator and type codes—and copies them into the MacTCP prep files folder. The names are unchanged. (This may seem peculiar, but it is part of the installation process we use at Notre Dame: a process which would simply be too painful and confusing to explain here. Trust us: there’s a good reason.)

6. Control panel features

The Netswitch control panel is divided into three parts. The first is the status pane: it tells you whether Netswitch is on or off. The second pane is for converting old sets of prep files and for adding new prep files. The last pane provides some options that the user can configure to his or her liking.



Status

This just reflects whether Netswitch is on or off. When it's off, nothing happens at startup: Netswitch leaves your MacTCP prep file untouched. (You can turn on a debugging feature by clicking the off button, holding down the option key, and clicking the on button again. This generates a log of Netswitch's actions at boot time, which will probably not be interesting to the average user, though it may be helpful for a network administrator. To turn this feature off, just click the off and on buttons again, without holding down the option key.)

Configuration

These functions allow you to update your version 1.0.2 prep files and to add new prep files to your configuration.

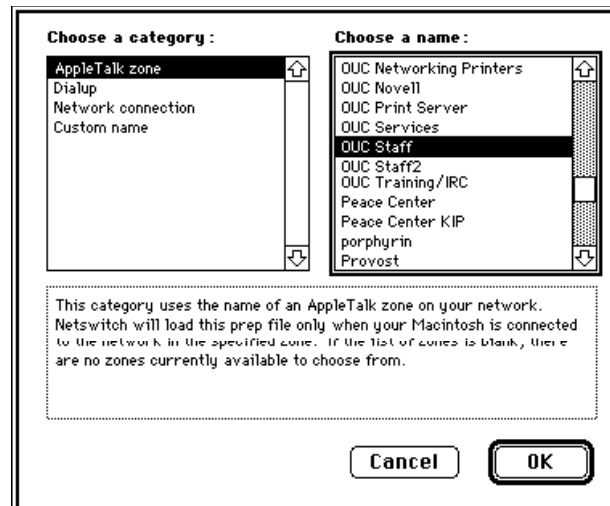
CONVERT: this feature allows you to select a folder of prep files named with Netswitch 1.0.2 conventions, copy them into your MacTCP prep files folder, and convert them to version 2.0 names. The original files are not modified. Netswitch automatically updates any files in the old MacTCP prep files folder when it loads, but this feature is useful if you have multiple collections of prep files configured for version 1.0.2.

When you press this button, Netswitch will prompt you to select a folder. When you do, it will copy all of the files inside that folder and convert the name of each file to version 2.0 format by stripping off the “MacTCP prep-” prefix that was added to each prep file. (Only the copies are modified; the original files are left intact.) If Netswitch has been customized for your local site, it may add a new prefix, but by default, no prefix is added. (It was removed in version 2.0 to avoid conflicts with long AppleTalk zone names: since Macintosh filenames and zone names both have a maximum of 31 characters, long zone names sometimes had to be truncated to allow the prefix to fit, which could cause conflicts between zone names that differed only in the last few characters. There is no way to distinguish “Engineering AppleTalk Zone 1” from “Engineering AppleTalk Zone 2” if the “MacTCP prep-” prefix is added.)

Once the old files are renamed, they are added to the collection in the current MacTCP prep files folder. If any of the new filenames

conflict with files that are already there, you will get an error message and nothing will be done.

ADD FILE: this feature helps you add new prep files to your current collection. When you press this button, a standard open file dialog prompts you to select the prep file you want to convert. (The name of the original file doesn't matter.) When you select a file, Netswitch presents the following dialog box to help you select a name for the new prep file before it is added to the collection.



The add file dialog box

All you need to do to select the correct filename is to click on the category in the left-hand list (AppleTalk zone, network link, dialup), and select a name from the right-hand list. This

window works very much like the Chooser: you can use the tab key to move between the lists, and you can type the first few letters to select an item in the currently selected list. If you're confused about the differences between each name, the help pane at the bottom of the window describes the currently selected item. The categories in the left hand pane are as follows:

- **AppleTalk zone:** when you click this category, the names of all of the available network zones are supplied in the right-hand list, with your current zone selected by default. You can scroll through this list to select the zone you want.
- **Dialup:** this category gives you options for different kinds of dialup connections. Remote access is used when there's no active network detected and your AppleTalk network link is set to Remote only in the Network control panel. Dialup is used when there's no active network and there's no file matching the current AppleTalk network link. (Note that there are other names that are equivalent to "Dialup"—like "PPP"—that can be used. See appendix A.)
- **Network connections:** this category lists the standard types of AppleTalk network connections that may be selected in the Network control panel. The generic "Network" file is used when an active network is detected, but no zone-specific file is found.
- **Custom:** when you click this item, a dialog box will prompt you to enter a custom name. This is useful when none of the available names is appropriate: for example, when you're configuring a file for an AppleTalk zone on another network.

Once you've selected the correct name, just click the OK button.

Netswitch copies the prep file you selected, renames it, and moves it into the current MacTCP prep files folder. The original file is left intact. If the name you select conflicts with a file that's already there, you can choose to select a new name, to overwrite the old file, or to cancel the process altogether.

Startup options

SHOW ICON AT STARTUP determines whether Netswitch displays its icon when it runs at startup. If this option is checked, then the icon is displayed. If not, no icon is displayed, even if there's an error condition. If the icon is drawn with an X through it, then there's been some sort of error: see Appendix C (Error codes) to find out what the error was.

DISABLE AT STARTUP determines which keys should be held down to tell Netswitch not to load at startup. If this option is checked, then you may bypass Netswitch temporarily by holding down the selected keys before Netswitch loads at startup. Netswitch will load normally the next time you start up, unless you hold these keys down again.

CONTROL KEY TO SELECT MANUALLY allows you to manually select a file if you hold down the control key before Netswitch runs at startup. This is handy if you're testing a configuration file, or if for some reason you want to use a different file than the one Netswitch would normally pick under the circumstances.

Appendix A. Synonyms

Some of the standard file names have ‘synonyms’: names that might be preferable to administrators or users because they are more descriptive or precise. When looking for a prep file in any particular category, Netswitch will exhaust the list of synonyms before going on to the next type of file. When two or more files are present that are synonyms, Netswitch will pick whichever one appears first alphabetically. Thus, if you have two dialup files, say “Dialup (generic)” and “Dialup (PPP)”, the former will always be selected.

The following list gives all of the synonyms for that are predefined by Netswitch. There may be additional synonyms defined by your local network administrator.

Filename	Description	Synonyms
Network	Used when an active AppleTalk network connection is detected (zones are visible in the Chooser), but no zone-specific file is found.	Network (generic) Network (installed)
Dialup	Used when no active AppleTalk network connection is detected, and no link-specific file is found (e.g., LocalTalk, Ethernet, etc.) Remote Access is <i>not</i> a synonym for Dialup. It’s used when your AppleTalk connection is set to remote only. Dialup is used only when there’s no file available that matches the AppleTalk connection.	Dialup (PPP) Dialup (SLIP) Dialup (generic) PPP SLIP

Appendix B. Using alternate prep file folders

It is possible to have an alternate prep files folder that is used when the main prep files folder is an alias that cannot be resolved. This is useful if you want to use an alias to a folder on a server as the main prep files folder, but you also want be friendly to users at home who can’t access the server at boot time. Here’s what to do:

1. Create an alias to the main prep files folder on the server, rename the alias file “MacTCP prep files,” and drop it in the Netswitch folder.
2. Create a new folder called “Alternate MacTCP prep files” and put it in the Netswitch folder.
3. Put any prep files that the user wishes to access from home in the alternate prep files folder.

When Netswitch runs, it will not try to resolve the alias to the main prep files folder unless it sees an active network connection. If a connection is available, it will present the standard AppleShare login box. Otherwise, it will look for the alternate prep files folder, and try to find an appropriate file there.

Appendix C. Error codes



The icon at the left is Netswitch’s error icon. When Netswitch loads, it can encounter any number of error conditions. The most common errors occur when it can’t locate the prep files folder or a suitable prep file, or it can’t resolve an alias. When an error occurs, the single digit at the right-hand side of the icon reflects the problem.

In very rare cases, there may not be a number; this represents an unknown error, and you should contact the author if you observe such an error (see the electronic mail address at the beginning of this document). Note that if the option to show the icon at startup is not checked, you will not see any icon, even if there is an error. There are nine possible codes:

- 0.....Netswitch did not load: either it was off, or the user held down the key combination to temporarily disable it at startup. This isn't really an error condition.
- 1.....The AppleTalk version is too early for Netswitch to run; version 53 or later is required. To update AppleTalk, download a copy of Apple's Network Software Installer disk and run the Installer.
- 2.....The System version is too early for Netswitch to run. Netswitch requires System 7.0 or later.
- 3.....The prep files folder could not be found. Either the folder did not exist, or an alias to the folder could not be resolved.
- 4.....The preferences folder could not be found. If this happens, reboot your system and try again.
- 5.....There was an error trying to find or copy the selected prep file. This means that no file matching the current system could be found. Either there was no such file in the prep files folder, or all of the possible matches were aliases that couldn't be resolved.
- 6.....An error occurred while trying to delete the current MacTCP prep file. This error should never occur.
- 7.....An error occurred while trying to copy the selected prep file. There may not be enough disk space.
- 8.....An error occurred when Netswitch first tried to convert a set of version 1.0.2 files to version 2.0. The problem may be due to lack of disk space.

D. Legal stuff

Distribution restrictions

MacTCP Netswitch is free and may be distributed without charge, with the following restrictions:

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Thanks to...

The folks who beta-tested version 2.0 of Netswitch. Since I don't have access to every model of Macintosh available, it was a great help to know that somebody besides me was actually using this software on the models I couldn't test it with. And thanks to those users generally who have reported—or will report—bugs.

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