SuperDuper!

Heroic System Recovery For Mere Mortals.

Using the Macintosh is a fantastic, trouble-free experience.

Except when it's not. Like when:

- That system update you just applied has a **subtle but fatal incompatibility** with your Macintosh
- The system **suddenly fails to boot**
- The new driver you just updated is causing your Macintosh to **crash**
- That lousy software you just tried didn't come with an uninstaller, and **scattered files all over your drive**
- You need to test new versions of the operating system with **production data you can't afford to lose**

For those lucky enough to have avoided these problems, be happy… for the moment. For the rest of us, though, recovering has been a painful, error-prone, time-wasting experience.

Until now.

Have no fear. SuperDuper is here!

When you use SuperDuper, you no longer have to worry about the effects that system updates, new drivers and trial programs might have on your Macintosh. Because when you use SuperDuper's **Safety Clones**, complete recovery is only a few clicks away. **And you won't lose any of your personal files!**

Carbon copies. And a whole lot more.

SuperDuper is the most advanced, yet easy to use disk copying program available for Mac OS X. It can, of course, make a straight copy, or "clone" – useful when you want to move all your data from one machine to another, or to do a simple backup. In moments, you can completely duplicate your boot drive to another drive, partition or image file. In even less time, you can update an existing clone with the latest data: use **Smart Update** and, minutes later, your duplicate is totally up to date!

Clones, though, don't always work well when it's time to recover from an **unexpected, operating system related** disaster. Unless you take specific, error-prone steps, restoring a drive image restores **everything** on the drive, overwriting both the system **and** user files. If that's what you want to do, great. But it's usually not, **because everything you've done since the backup would be lost!**

Clones for safety.

To ensure you can **safely** roll back a system after the unexpected occurs, SuperDuper doesn't stop there.

With a few clicks, you can create a "**Safety Clone**" (explained in **Safety Clones — system recovery without downtime!** on page 5), which "checkpoints" your system, preserving your computer's critical applications and files while you run on a working, bootable copy. If anything goes wrong, just reboot to the original. When you do, **your current Documents, Music, Pictures – even iSync data – are available!** You can get back to work **immediately!**

Clones for industry!

SuperDuper has enough features to satisfy the advanced user, too. Its simple-but-powerful Copy Scripts allow **complete control** of **exactly** which files get copied, ignored – even **aliased** ("soft linked" for the Unix inclined) from one drive to another!

In addition to end users, SuperDuper is perfect for software developers, software "seed" sites, QA testers – even system administrators:

- **Developers and Seed Sites**
  Need to keep up to date with the most recent weekly build of a new operating system? Use the provided "Copy with Shared User Files and Applications" script, or create your own. A few clicks later and your clone is ready to upgrade, without unsafe downgrades, or unsupported "intermediate build" upgrades!

- **QA Testers**
  Need to regress against a large number of operating system targets, or other types of fixed configurations? Simply save a series of images, with or without shared files, and in minutes you can restore them and be ready to test.

- **System Administrators**
  Need complete control over building a standard image for one, one hundred or one thousand systems? SuperDuper's **Copy Scripts** make it easy!

SuperDuper can help **you**, whether you're a beginning Macintosh user or a battle-hardened veteran.

Faster than a speeding bullet – and more accurate!

SuperDuper isn't just the most powerful cloner: it's incredibly fast, too. Its Smart Update feature evaluates hundreds of thousands of files and directories in just minutes, automatically updating your clone to reflect any changes you've made on the original drive – including custom icons, HFS+ attributes, ownership changes… the works!

Section 1 – Welcome to SuperDuper!

SuperDuper operates in two different "modes" – registered and unregistered. The unregistered version allows easy, complete and user-specific backup clones to partitions, FireWire drives, or image files.

Once registered, SuperDuper allows you to create Safety Clones, fully customize the cloning process using its unique Copy Scripts, save and restore settings, authenticate for automated operation (and to avoid authenticating every time you copy), and select a "copy mode" other than Erase, then copy.

Disclaimer

Although SuperDuper! has been carefully tested, and should perform its functions without data loss, you use this software **at your own risk and without any warranty. Always work with care when dealing with important data.**

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OK! Now that that's out of the way, let's talk about SuperDuper.

Section 2 – What does SuperDuper! do?

Boiled down as much as possible, SuperDuper! can be described as an easy to use, yet sophisticated program designed to copy data from one volume to another. But while that tells you, in a generic way, what the application does, it doesn't really tell you what it's intended to **do**.

In general, then, SuperDuper! is designed to do two things that are both related to copying data, but are only tangentially related to each other: create backups (something we're all familiar with), and create Safety Clones (which are unique to SuperDuper!).

Quick and easy backups

SuperDuper! is designed to make and update full, clone-style "backups" of a volume to another volume. These backups are fully bootable if the original is bootable, and can be used to restore individual files or to start up should a disaster occur. Backing up and restoring are fully discussed in the sections that immediately follow this one.

Of course, SuperDuper! can also make selective backups, and update each backup **quickly** and **easily** using **Smart Update**. It can even be automated with **AppleScript**!

Safety Clones — system recovery without downtime!

Back in the days before OS X, it was relatively easy to back up the "System Folder". It wasn't that large, really, and could be copied to another drive or even burned to a CD. If anything went wrong – a bad extension, corrupted preferences – you could restore the system file and get back to work relatively easily and painlessly.

With the advent of OS X, the system itself because more complex. While it's much more stable, it's also much more difficult to preserve a working version as a "checkpoint" – and when things go wrong, it's not nearly as easy to restore a working environment.

SuperDuper's Safety Clones are the solution to this problem.

A **Safety Clone** is a bootable copy of your system, stored on another hard drive or partition, that **shares** your personal documents and data with the original. In the past, you might have stored this copy away in a drawer as a backup. With SuperDuper, you actually **use the Safety Clone as your startup volume**.

You can safely install any system updates, drivers or programs on the Safety Clone, without worrying about what might happen to your system. If anything goes wrong, you can simply start up from the original system. SuperDuper has preserved it in its original, pre-disaster state – but all your new and changed personal documents are totally up to date. **Within**

minutes, you're up and running again – **without having to go through a difficult and time-consuming restore process**.

Of course, the original volume, being a "checkpoint", doesn't have any of the programs or system updates that you might have installed since you made the copy. That's a good thing, since they're probably what caused the problem in the first place!

Safety Clones are different than (and don't substitute for) a rigorous regular backup program. While backup programs excel at recovering specific files, and are great for archiving incremental changes to a set of documents, they're less useful when you don't know what's wrong, and therefore don't know what to restore! Restoring the entire system can take a long time, and it's difficult to restore a running system without going through the "disaster recovery" process… and that can take hours. With the Safety Clone, you only need to reboot!

Let's get started by learning how to back up!

Section 3 – Making your first backup

Backing up is one of those things that never seems important until something goes horribly wrong, and things never go horribly wrong until the worst possible moment. Many backup programs do too much for the "normal" user: rather than making it easy and faster to get their data backed up, they overcomplicate the process to the point of frustration.

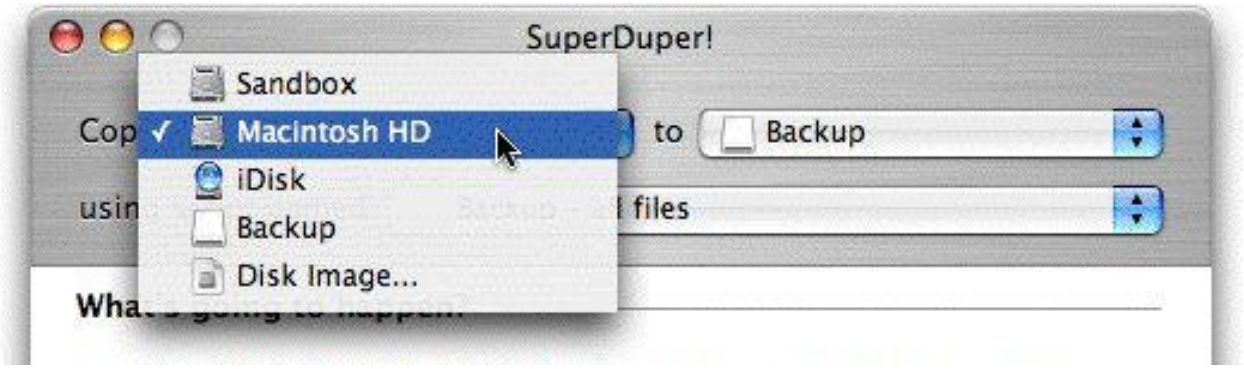
We know your time is valuable, and that a backup isn't useful unless it's recent and includes the files you expect. That's why we've made the process of backing up *extremely* simple, and – with Smart Update – we've also made it fast and efficient.

Step 1: Prepare for your backup

Although it's not strictly necessary, it's usually a good practice to quit all running applications before performing a backup. Since there are some that aren't visible, like the Microsoft Office Database Daemon, it's easiest to log out of your account, and then log back in with the Shift key held down. This will prevent your startup items from running, and helps to ensure that your personal data doesn't change during the backup.

Step 2: Start SuperDuper! and choose your source and destination volumes

After launching SuperDuper!, you'll need to choose the volume you want to back up, and the place to store the backup. You can back up to an internal drive, an external drive, or an image file (which can be stored locally or on a network volume). You can even copy to another computer: just put it in FireWire Target Disk Mode by booting it with "t" held down, and connect it to the computer – it'll act just like an external FireWire drive.



Caution!

If you choose a destination volume that already has files on it, those files may be overwritten by the backup operation. The exact behavior of SuperDuper! is defined by the **During copy** section of **Options...**, discussed below.

Step 3: Choose your backup script

There are two different built-in Backup scripts included with SuperDuper!: **Backup – all files** and **Backup – user files**.

Backup – all files (highly recommended) does what it says: it creates a complete, bootable backup of the selected volume. This is often called a "bootable clone", and can be used to start your system in the event of a catastrophic hard drive failure. Clones make great backups for users who are backing up for safety, and where the need to recover many previous versions of a document is not necessary.

Backup – user files is similar, but it does not create a bootable backup. Instead, it only backs up user specific files in the Home directories of the various accounts on your system (as well as the special iSync files stored elsewhere). This type of backup is not bootable, since it doesn't contain operating system files, but is useful for storing copies of your personal data. It's much harder to recover from a disaster if you've only got your personal files backed up.

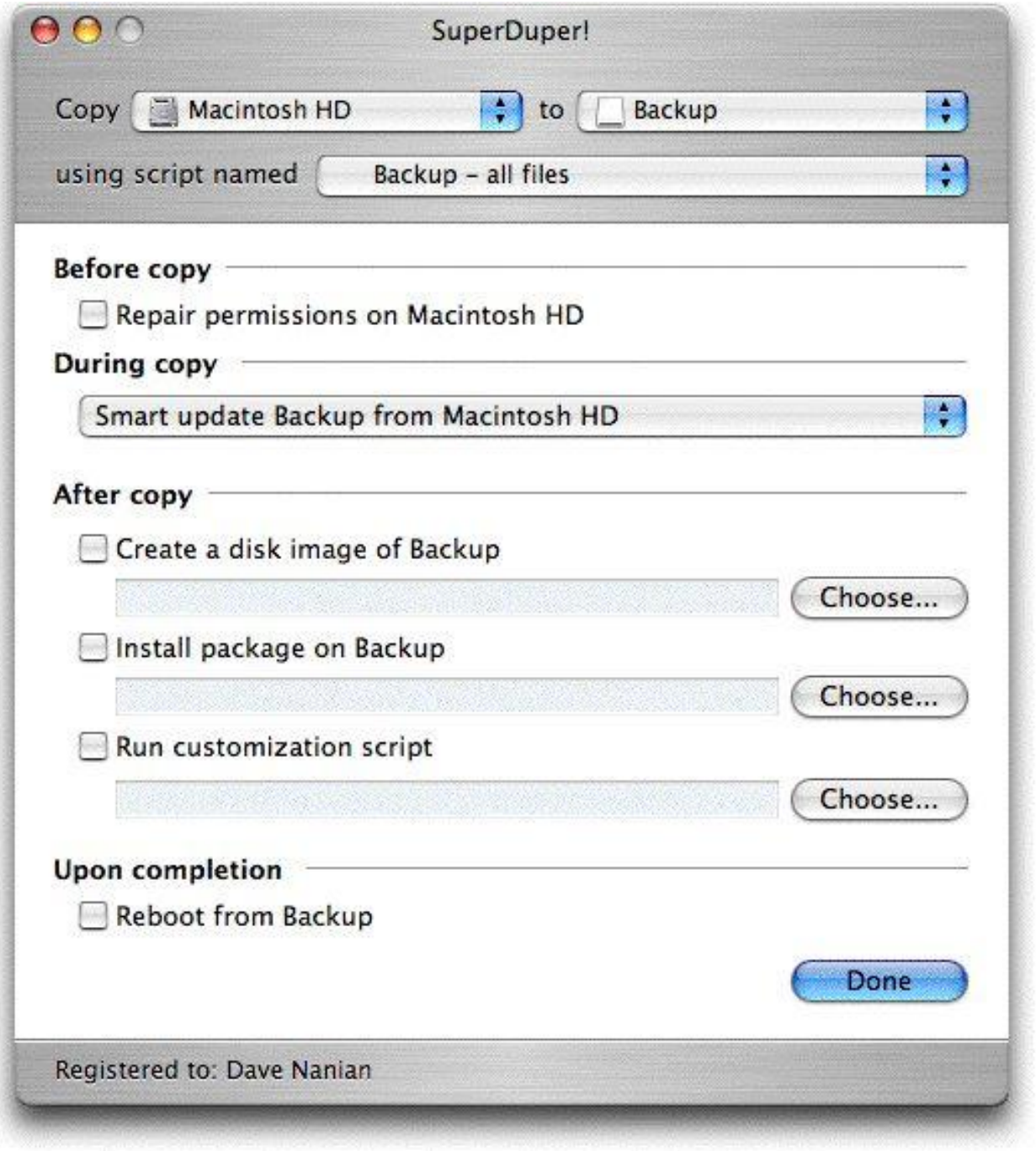
Note

The other two default scripts, **Safety Clone – shared users and applications** and **Safety Clone – shared users** should ***not*** be used to create conventional backups. Rather, these create a **Safety Clone**, which is discussed fully in **Section 7 – Creating a Safety Clone** starting on page 17.

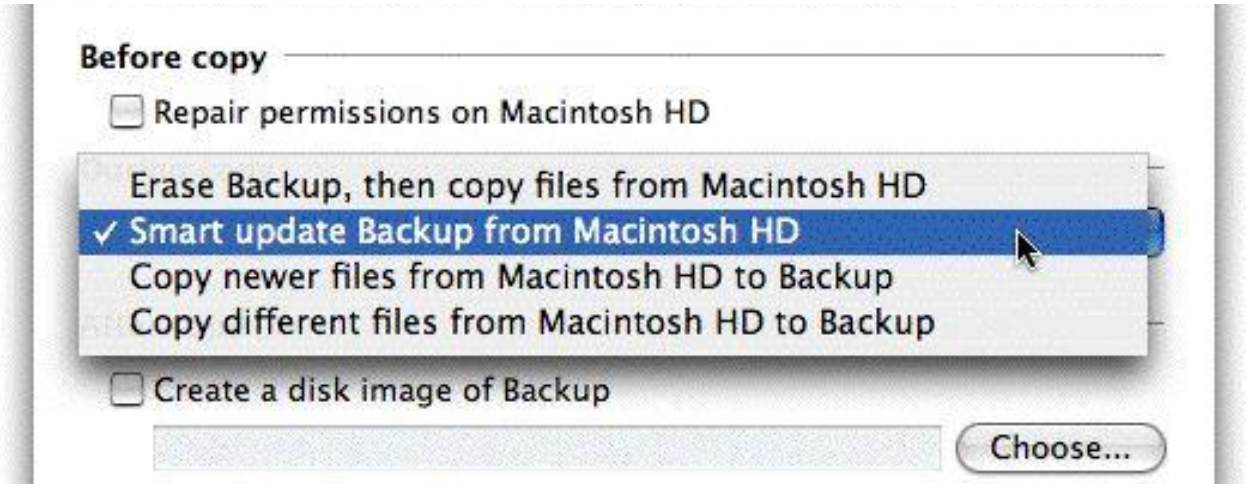
Step 4: Set your options

At this point, you've selected what you want to back up, and where you want to back it up to. The next step is to tell SuperDuper! *how* to perform the backup.

Click the **Options...** button, and you'll be presented with the following:



These are discussed more fully in **Section 8 – The SuperDuper! Interface** on page 20. For now, ensure that everything's unchecked, and concentrate on the selections in the **During copy** pop-up.



If you're running an unregistered copy of SuperDuper!, you can only choose **Erase, then copy...**. This option erases the destination volume before writing to it. While this ensures that the result is an exact copy, if you're performing a 2nd or 3rd backup, it also copies a lot more data than is strictly necessary, taking extra time.

Smart Update... is similar, in that the result is an exact copy of the source. The difference is that it only copies (or **deletes**) as necessary. This takes **much** less time after the first backup, doing in minutes what could otherwise take hours.

Both of the previous options will remove files from the destination volume that aren't present on the source volume, or selected by the copy script. This means that if you choose **Backup – user files**, SuperDuper! will remove any files from the destination volume that are outside the /Users folder. Similarly, if you choose **Backup – all files**, and have stored a file on the destination volume that you want to keep, but isn't present on the source, it will be removed. Remember: by definition, Smart Update does exactly what **Erase, then copy** would do. It just does it faster!

Copy newer and **Copy different**, the other two **During Copy** options, control what SuperDuper! does when it copies a file from a folder on the source volume to the destination, and finds there's already a file in that location with the same name.

When **Copy newer** is selected, the file on the destination is replaced with the one from the source **if** the file on the source has a newer (more recent) modification date.

Copy different replaces the file on the destination if the source file is different (not necessarily newer) in date, size, HFS+ meta data, attributes, etc. So, the file on the destination is replaced if it's not **exactly** the same as the source file.

In both cases, files on the destination that are **not** on the source are left as-is.

Remember: options other than **Erase, then copy...** are only available in the registered version of SuperDuper!

Step 5: Verify your choices

It's always a good idea to verify the selections you've made, to ensure you haven't accidentally chosen the wrong volume or option. SuperDuper!'s unique **What's going to happen?** section allows you to quickly ensure that you're going to get what you asked for. Take a moment to review: it'll save you time in the end.

Step 6: Click "Start Copying"

Simple enough: one click (and a final confirmation) and SuperDuper! handles the rest!

Step 7: The Next Time Around

The next time you launch SuperDuper!, all of your settings will be restored, including the source and destination volumes, if available.

If you want to update an existing backup, and you've registered your copy of SuperDuper!, Click **Options…** and then change the **During copy** setting to **Smart Update…**. This tells SuperDuper! to only make the changes to the backup necessary to ensure it exactly matches the source, which will typically only take a few minutes.

Section 4 – Performing a (very) simple restore

Recovering a single file – or a few files – is quite easy. Just attach the external drive or mount the backup image, and drag the file back to the proper location.

That's all there is to it!

Section 5 – Recovering from a disaster

When things go horribly wrong, the first thing to remember is:

Don't panic.

It's a cliché, I know, but don't head for a full restore before trying other options, such as using Disk Warrior, doing an Archive and Install, or other similar approaches. If you're running from a Safety Clone (see **Section 7 – Creating a Safety Clone** on page 17), boot back to the original!

If the disaster remains it's time to restore from your backup.

There are many different approaches to the restore, depending on where you've stored your backup, and the capability of your particular Macintosh.

Restoring from a bootable backup

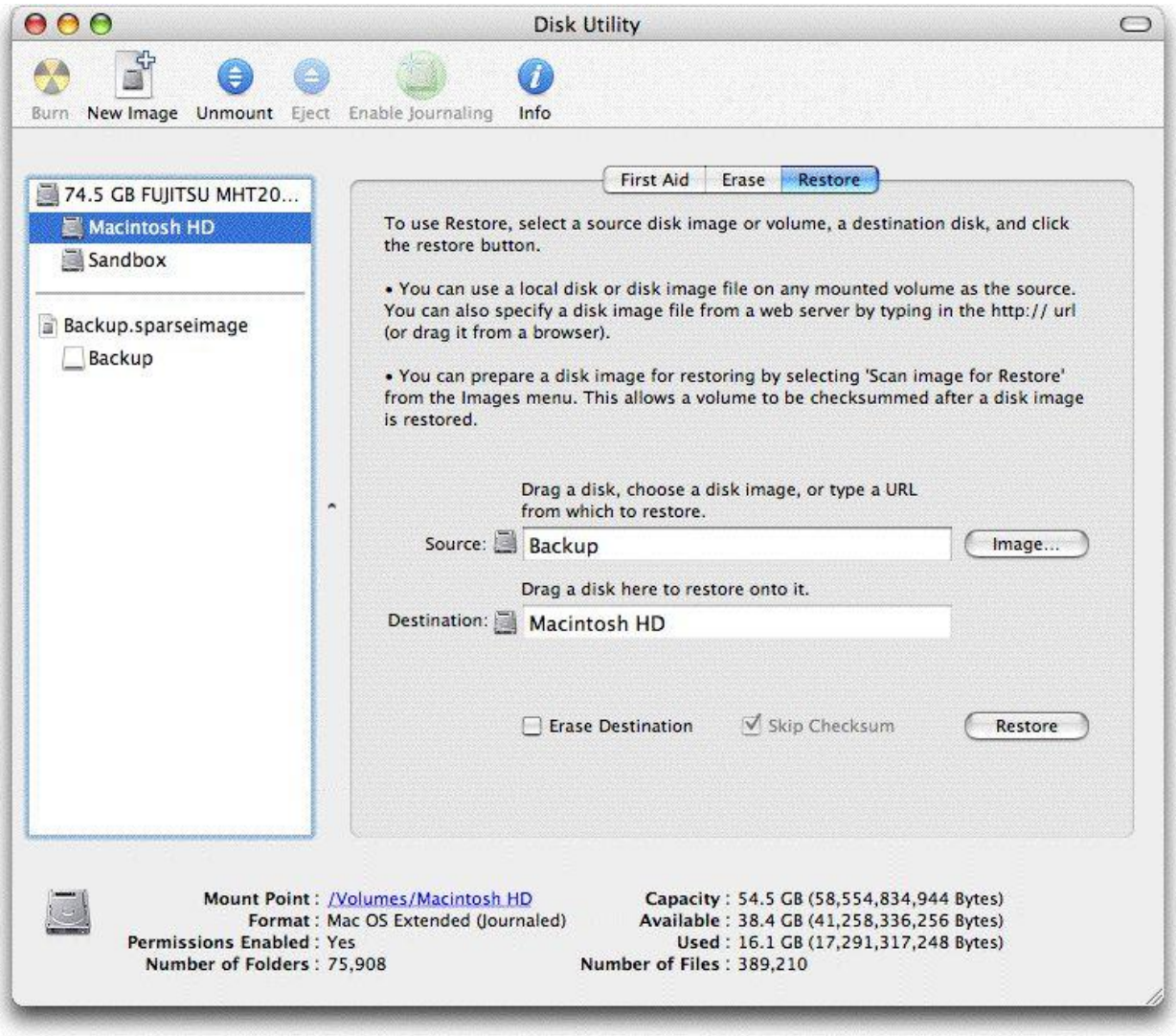
First, if you've backed up to an internal partition, you can boot from it (hold down the Option key when you start your Macintosh and select the backup partition), and then use SuperDuper! to restore the data to the original location. (This works just like backing up, above.)

Similarly, if you've stored a bootable backup on an external FireWire drive, and your Macintosh is capable of booting from FireWire, hold down the Option key when you start, select the FireWire drive, and use SuperDuper! to perform the restore.

Restoring when you can't boot from your backup

If you have a backup image or volume, but can't boot from it, you can still restore using the Panther install CD. To do so:

- Boot from the Install CD.
- When the Installer starts, choose "Disk Utility" from its Application menu.
- Once the Disk Utility starts, select the drive you want to restore to, and switch to the Restore tab.



- Follow the instructions on the Restore tab: the backup created by SuperDuper is **fully compatible** with Disk Utility's Restore function.
- Once the backup has been restored, restart your computer with Option held down, and select it as your startup volume.

That's all there is to it!

Section 6 – Saving and restoring settings

If you have a number of different copy or backup tasks that you want to accomplish on a regular basis, it can be a pain to reset the various options each time you load SuperDuper! Fortunately, SuperDuper! has an answer for those who have registered the program: the ability to save and restore your choices in a "settings file".

A settings file includes the source and destination volumes, selected Copy Script, and all of the options selected in the **Options…** page. Once you've set these the way you want, simply choose **Save** from the **File** menu (or press **Cmd-s**). Give your settings a name, and you're done.

The next time you want to perform the same operation, open SuperDuper! and choose **Load settings…** from the **File** menu (or use the **Recent** menu). SuperDuper! will load your saved settings: after verifying your selections in the **What's going to happen?** section, simply click **Start copying**!

You can also start SuperDuper! with a given set of settings by double-clicking the appropriate settings file in the Finder. By default, the settings files are stored off your Home folder in **Library/Application Support/SuperDuper!/Saved Settings**.

Note

When SuperDuper! loads your settings, it attempts to restore your source and destination volumes. If the volume isn't currently mounted (for example, if you had backed up to a sparse image or a removable drive), SuperDuper! will try to automatically mount it.

If that's not possible, SuperDuper! will present a sheet and prompt you to mount the volume. Once it detects the volume has been mounted, the sheet will automatically be dismissed. If the volume isn't available, click **Cancel**.

Section 7 – Creating a Safety Clone

Creating a Safety Clone is a simple process, but it requires that you have a place to clone **to**. Usually, this involves dividing your hard drive into two partitions: the original, and the location of the Safety Clone, or "Sandbox".

Note

This procedure is discussed in full in **Appendix – Partitioning Your System** on page 43. From this point forward, it's assumed that you have both an original drive volume (which we're calling *Macintosh HD*) and a blank (or erasable) volume for the safety clone (which we're calling *Sandbox*).

Once you've got your partitioning set up, start SuperDuper. Choose your startup disk (e.g. "*Macintosh HD*") in the first pop-up, and the location of the safety clone (e.g. "*Sandbox*") in the second.

There are two Safety Clone scripts to choose from. One, **Safety clone – shared users and applications**, is usually a better choice. It doesn't **copy** your user data or applications. Instead, it leaves it on (in this case) *Macintosh HD*, and **shares**[1] them with *Sandbox*. The data remains on *Macintosh HD*, but can still be accessed normally from the Safety Clone.

Apple-provided applications, such as iDVD, iTunes and iSync, are copied in full. This ensures that any system updates that affect those applications are isolated to the *Sandbox* volume.

The other, **Safety clone – shared users**, also shares your user data between the two volumes, but makes a full copy of everything else, including your applications.

Note

While **Safety clone – shared users** isolates virtually every aspect of your system, it's typically unnecessary: it's quite rare that applications

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[1] When data or applications are shared, they remain on the original drive (*Macintosh HD*), and are **referenced** by the clone (*Sandbox*) using symlinks/aliases.

themselves become damaged in a way that prevents a system from operating, or can't be fixed by simply reinstalling the application itself. This script also requires far more disk space, since complete copies of all your applications are stored on *Sandbox.*

Once you've decided which of these two scripts to use, select it in the pop-up.

Now, click Options. Select **Erase Sandbox, then copy files from Macintosh HD** to ensure that any existing data on *Sandbox* is deleted before the copy is started, and check **Reboot from Sandbox** to automatically restart from the *Sandbox* volume when the Safety Clone has been completed successfully. Everything else should be left unchecked. When complete, click **Done**.

Whether you do it automatically or manually, restarting from *Sandbox* is a **critical** part of the Safety Clone operation. If you create the clone, but then never use it as your startup volume, your original system remains at risk! The whole **point** of the Safety Clone is to isolate the original system from anything that might happen to it: simply making the clone is not enough! So, **make sure you use *Sandbox* as your startup volume.**

The **What's going to happen?** section describes exactly what SuperDuper will do. Always take a moment to verify that the proper options are selected, and click **Start Copying**. The clone will take some time to complete. In this case, when done, SuperDuper will automatically set your startup disk to *Sandbox* and restart your Macintosh. (This behavior is optional, of course, and controlled by the **Options...** button, discussed below.)

That's all there is to it! When you run from the *Sandbox* volume, any changes you make to your own documents are available to both *Macintosh HD* and *Sandbox*, since those files are shared between the two volumes. Changes made to the system on *Sandbox*, however, are isolated to that volume alone, and cannot affect the system on *Macintosh HD*.

Need to update an existing Safety Clone? No problem! SuperDuper's amazing Smart Update feature will update an existing clone in minutes. Simply boot back to the original and follow the steps above, substituting **Smart Update from Macintosh HD to Sandbox** for **Erase Sandbox, then copy files from Macintosh HD**. SuperDuper will automatically check each and every file and directory on Macintosh HD and Sandbox, copying any files added or changed on Macintosh HD to Sandbox. Any files that are on Sandbox that aren't on Macintosh HD will be automatically deleted.

When the Smart Update is complete, you'll have **exactly** the same result as you would with **Erase Sandbox...**, but it will take a **tiny fraction** of the time. And, of course, Smart Update is **perfect** for updating a full backup clone from the original, too!

Important Note

Unless you're certain you know what you're doing, never, ever copy your Safety Clone back over your original system. Doing so could delete your personal files and applications (which are stored on the original volume, and **referenced** by the Safety Clone).

Starting in v1.5 of SuperDuper!, we've made changes that allow advanced users to copy a Safety Clone back to the original volume, using the "Backup – all files" copy script. However, this will only work if the safety clone and all the shared files were created by SuperDuper!

Please don't attempt this if you're not absolutely **certain** you know what you're doing, and be **sure** you have a recent backup.

Section 8 – The SuperDuper! Interface

Now that you've seen how easy it is to create a Safety Clone, let's talk about the rest of SuperDuper.

SuperDuper's interface allows you to choose a source drive, image or partition, a destination, and a script.

The destination can be another volume or an image. If an image is used, the resulting DMG[2] can be restored (in full) very quickly.

[2] For those who like to know about these sorts of things, the image is fully ASR ("Apple Software Restore") compliant.

Note

When you tell SuperDuper! to back up to an image, SuperDuper! performs a number of operations behind the scenes to create the end result, which is ASR compatible. These steps take quite a long time, require additional disk space, and – unfortunately – not much status is displayed while they take place.

First, SuperDuper! creates a "sparse image" and mounts it. Then, it copies the appropriate files from the source volume to this image. These two steps don't take much time, and occur nearly as quickly as a regular drive-to-drive backup.

Once done, a number of additional operations occur to *finalize* this "sparse image", changing it to a special kind of DMG that is ASR compliant.

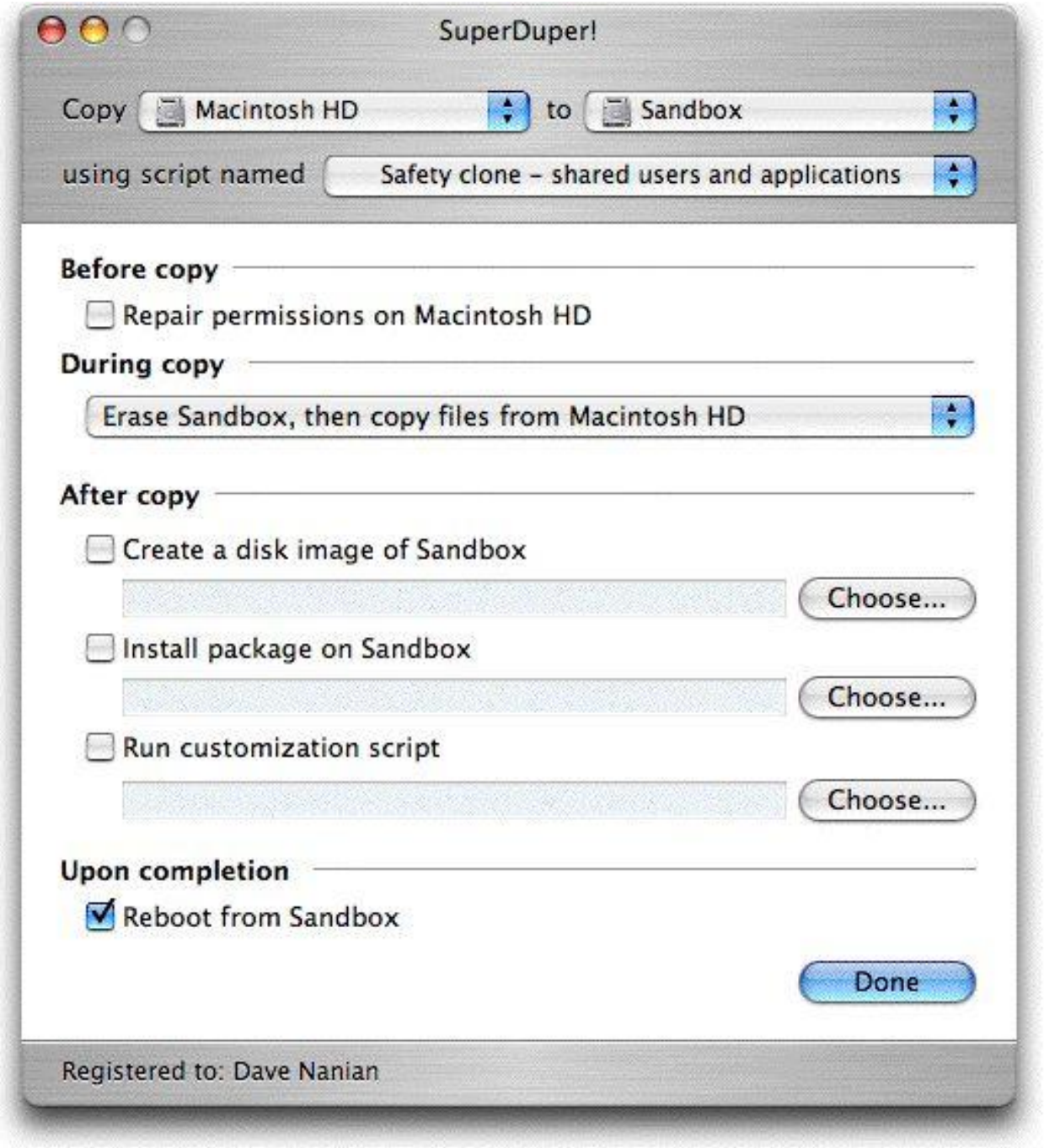
First, the "sparse image" is converted to a Read-Only DMG. This operation requires approximately twice the disk space taken by the original image, and the conversion can take a few hours to process. Once done, ASR scans the image to mark it for fast restore. While this is faster then the conversion, it can still take a long time.

Unfortunately, the Apple programs we use to accomplish these last two steps are quite slow, and do not give us much information about their progress. SuperDuper! puts up an indeterminate progress indicator during the operation, but even with this visible you might think that the program has hung. It hasn't – so hold on and allow it to complete.

You can speed the progress of this part of SuperDuper! by hiding the program with Cmd-h. This seems counter-intuitive, but on some systems simply animating the barber pole can take up a significant amount of CPU time. Hiding the UI avoids this redrawing, leaving more CPU available to do the conversion.

We'll be giving you more control over image processing in future versions of SuperDuper! Until then, the Frequently Asked Questions section of our forums at http://www.shirt-pocket.com/forums has some additional tips about working with images, including a technique that can be used to allow images to be updated. See you there!

The **Options...** button allows you to modify what happens before copying, after copying and at the end of the whole operation. (The various SuperDuper options are discussed in detail in **Section 10 – Advanced Cloning**.)



When you click **Start Copying**, SuperDuper first executes any "Before copy" actions you have selected. Then, files are copied as specified in the "During copy" section. For example, in **Section 6**, you selected **Erase Sandbox, then copy files from Macintosh HD** to ensure *Sandbox* was blank before copying the new data to it.

SuperDuper then makes a list of all of the files and directories on the source. The "script" tells SuperDuper what to do with the files in this list. Normally, each file is copied to the destination. The script you select controls the copying process. Four standard scripts are included with SuperDuper:

- **Backup – all files** copies all files from the source to the destination. This script is used to make a "complete clone" of the source to any target volume or image. You can update the complete clone quickly and easily with SuperDuper's Smart Update feature.
- **Backup – user files** copies only user-specific files from the source to the destination. This is useful if you have limited space, and don't mind re-installing your operating system and applications should something go wrong.
- **Safety clone – shared users** copies all files except for user files, which are shared between the source and destination. As described above, this takes significantly more space than the recommended Safety Clone script below.
- **Safety clone – shared users and applications** copies all files except for user files and installed 3rd party (non-Apple) applications, which are shared between the source and destination. This is the script that most users should use to create a Safety Clone, as described in the previous section.

Only the first two – **Backup – all files** and **Backup – user files** – can be used with an unregistered copy of SuperDuper.

Scripts can be used to extensively customize SuperDuper's operation, and are discussed in detail in **Section 11 – Copy Scripts**.

Note

If you choose a disk image file as the source, SuperDuper will perform a full restore operation. In this case, you cannot select a script. If you wish to only copy some of the files from the image, mount it in the Finder first, and then select the mounted volume as the source instead of the image file itself.

Do not use **Smart Update** to selectively copy files to or from a clone: you'll end up with the same result as if you had selected **Erase, then copy**, which probably isn't what you want. For more information, see the discussion of **Smart Update** on page 27.

Once the copy has been completed, any "After copy" actions you have selected are executed. These can include making an image of the resulting disk for easy subsequent restores, installing a package (such as a software update) to the destination, or running a custom shell script that can perform more complex tasks.

Finally, after everything completes, you can choose to reboot with the destination volume as your startup disk.

Note

If you don't choose to reboot from the destination volume, it's not automatically chosen as your startup disk. You can do this manually using the Startup Disk preference pane in System Preferences.

All of your selections are presented in the **What's going to happen?** section of the main interface, so you can be certain that what SuperDuper is going to do is what you **want** it to do. Review it carefully before selecting **Start Copying** to avoid any unexpected results.

Note

Clicking and unlocking the lock in the main window allows copying to occur without the need to authenticate as an administrator. In addition, unlocking allows AppleScripts to automate the operation of SuperDuper!

See **Section 12 – Automating Execution** on page 32 for more information about automating your backup operations.

Section 9 – Installing applications when running from a Safety Clone

It's important to remember that applications installed into the "System" folder – /Applications – are specific to the volume you're running on. If you install an application while running from the *Sandbox* clone, that application will not be available when running from *Macintosh HD*.

Simple applications (typically those with "drag and drop" installs) can simply be copied to the original volume once you're sure they're safe. More complex applications (typically those with installers) might put files in many locations on your system. When you want to add those to your original volume, you select it as your startup drive, restart your Macintosh, and install it using its installer. You need not re-clone unless you want to save the space on *Sandbox*.

Usage Tip

Here at Shirt Pocket, we keep any new application images and packages installed since making the Safety Clone in a folder on the desktop.

Since the desktop is part of the shared user files, it's available to both the original volume and the sandbox. When it's time to "synchronize" the original, it's only necessary to reboot, install the applications in this folder, and re-clone.

Section 10 – Applying System Updates while running from a Safety Clone

One of the best features of a Safety Clone is that it isolates System-level changes to the *Sandbox*. Should you find any kind of incompatibility, you can easily restart your system from the original volume, which was not modified when the update was applied.

Because of this, you can safely accept system updates when they appear. If you encounter any sort of problem, restart from the original volume – which wasn't touched.

When you have a moment, you can re-clone and restart from your *Sandbox* volume. Use **Smart Update** rather than **Erase Sandbox, then copy...** and it'll only take minutes. When it's done, everything should work exactly as it did before. You're ready for the next – hopefully fixed – update!

If, on the other hand, the System Update worked wonders, you can easily apply it to your original *Macintosh HD* volume at your leisure.

Important Note

Unless you're certain you know what you're doing, never, ever copy your Safety Clone back over your original system. Doing so could delete your personal files and applications (which are stored on the original volume, and **referenced** by the Safety Clone).

Starting in v1.5 of SuperDuper!, we've made changes that allow advanced users to copy a Safety Clone back to the original volume, using the "Backup – all files" copy script. However, this will only work if the safety clone, and the shared files are created by SuperDuper!

Please don't attempt this if you're not absolutely **certain** you know what you're doing, and be **sure** you have a recent backup.

Section 11 – Advanced Cloning

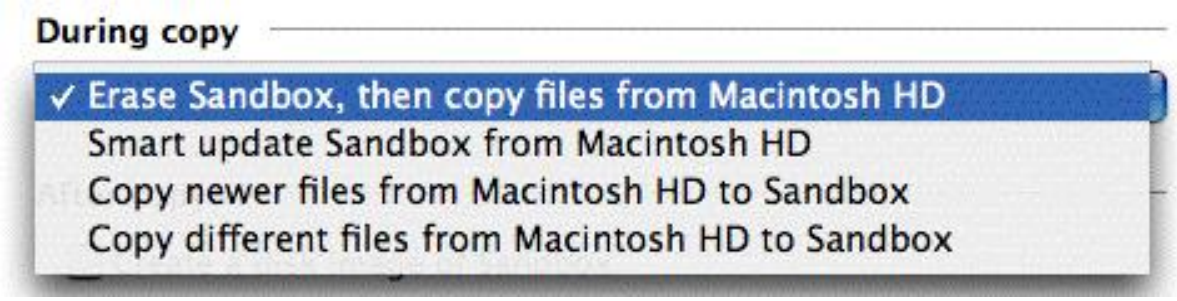
Of course, SuperDuper can be used for a lot more than Safety Cloning. The *Options…* view allows you to customize many aspects of SuperDuper's operation without delving into the world of *Copy Scripts* (see the next section). Let's go through each option, one by one.

The **Before copy** options occur before the main copy operation takes place. **Repair permissions on *Macintosh HD*** (or whatever your source volume is called) verifies and corrects any permission problems before copying files.

If you don't know what this is, don't worry about it!

Typically, you don't need to repair permissions manually – the operating system attempts to ensure that permissions are maintained correctly at all times. If, however, you wish to make sure that your on-disk permissions are as OS X expects them to be before making your clone, check this box.

Note that this is mostly a time saver, since you can use OS X's built-in Disk Utility to repair permissions outside the context of SuperDuper. In general, no harm can come from repairing permissions, but it does take a significant amount of time to complete.



The **During copy** options control how SuperDuper processes the files that the Copy Script selects for copying.

Erase Sandbox, then copy files from Macintosh HD first erases the destination (in this case, *Sandbox*), and then copies all of the files from the source. (*Sandbox* and *Macintosh HD* will be replaced with the names of the source and destination volumes you selected in the main window.) This is usually want you want, since it ensures that the files you've selected on the source are the only ones present on the destination when the operation is complete.

Smart Update Sandbox from Macintosh HD is the best way to update an existing Safety Clone or backup on *Sandbox* from the original on *Macintosh HD*. SuperDuper quickly evaluates the files on the original and the clone, and

automatically makes any changes on the clone necessary to make it an exact copy again. Smart Update will copy any files that differ *Macintosh HD* to *Sandbox*, whether newer or older, and will remove any files on *Sandbox* that don't exist on *Macintosh HD*, the original. The result is **exactly** what you'd get if you chose **Erase Sandbox, then copy files from Macintosh HD**, but SuperDuper only makes the changes necessary to achieve this result – typically copying far fewer gigabytes!

Important Note

As we said above, the result of a Smart Update will be **exactly** what you'd get if you chose **Erase Sandbox, then copy files from Macintosh HD**. That means that any files "outside" the set of files selected by the copy script will be **erased**.

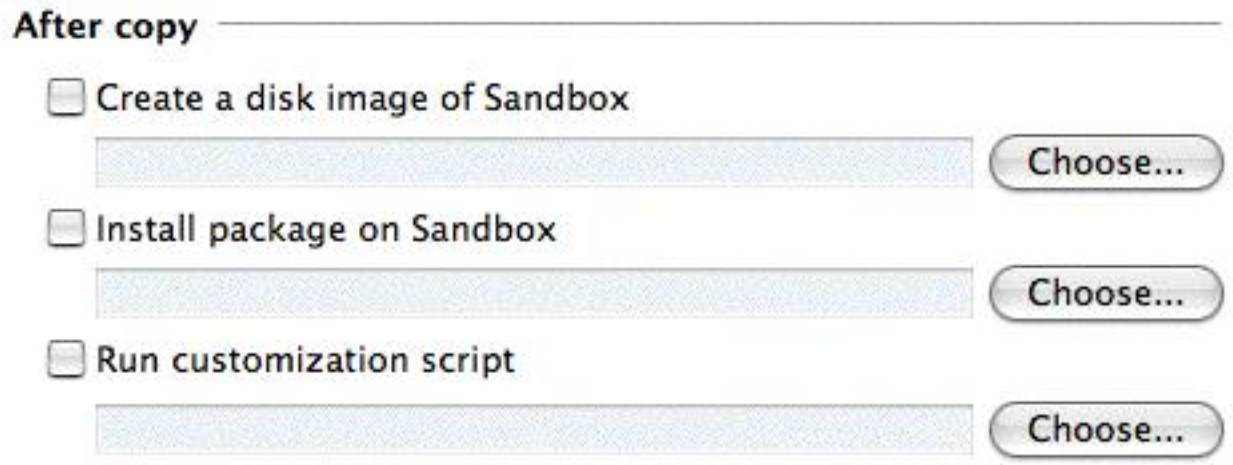
For example, let's say you did an initial copy using **Backup – all files**. Then, later, you decided to try to only "update" your user files the **Backup – user files** script.

Remember that the result of a Smart Update will be exactly what you'd get if you chose **Erase Sandbox, then copy files from Macintosh HD** with the same script. That means that all files on *Sandbox* other than the ones selected by **Backup – user files** will be ***deleted***!

Instead, you should choose the same script you used previously: **Backup – all files**. SuperDuper will *automatically* skip any files that didn't change, so you'll end up copying the smallest amount of data possible to make *Sandbox* match *Macintosh HD* again.

If you want to merge the contents of the source with the destination, you should choose **Copy newer files...** or **Copy different files...**. In this case, SuperDuper will overwrite any pre-existing files with the same name on *Sandbox* with *newer* or *different* files from *Macintosh HD*, skipping files that have the same date *Macintosh HD*, and adding any from *Macintosh HD* that are not present on *Sandbox*. Any files on *Sandbox* that do not exist on *Macintosh HD* are left alone.

Note that for a Safety Clone, you should always use either **Erase, then copy...** (for the first Safety Clone) or **Smart Update** (to update or roll back an existing Safety Clone): it's extremely important to ensure that any "old" files on the clone are removed.



After copy options are run immediately after the *Copy Script* has finished, and are typically used to perform operations on the fresh destination volume.

Create a disk image of *Sandbox* will create a quickly restorable disk image (DMG file) of your destination volume immediately after the copy has finished. This DMG file is fully ASR ("Apple Software Restore") compliant, and can be used to restore the destination volume to this fresh state within minutes (restoring one of these images is much, much faster than doing a "file-by-file" copy).

However, you will pay for this time savings later with additional time up-front. In the case of a Safety Clone, you'd typically use a **Smart Update** instead: it'll take less time up front **and** during the restore.

When you check this box, SuperDuper will prompt you for the name and location it should use to store the disk image file. This location cannot be on the destination volume.

Should a roll-back be necessary, you need only start up from your original disk (typically *Macintosh HD*), select this image as the source, the *Sandbox* as the destination, and "Complete copy" as the script: a few minutes later, your volume is restored, and you're ready to get back to work.

Usage Tip

If you're planning on testing the same clone in a number of different situations, you could use the **Safety clone – users and applications** script, and store a restorable image in my Documents folder for easy future access. Remember, though, that this image is only used to save time if you want to re-clone the **exact** same image later on – and in most situations that start from an existing "base", Smart Update will be faster.

Software testers can also use this option to save an image of a "standard configuration" they've just created. With a few clicks, this image can be restored to exactly duplicate a volume's state before a test was executed.

Install package on *Sandbox* is very useful if you want to create a copy (or Safety Clone) and then install a Software Update or other package to the destination volume. As with **Repair permissions…** above, this option is intended as a timesaver more than anything else, as you can perform this operation yourself after SuperDuper has finished.

Important Note

During beta or "seed" testing, some packages will *not* install properly to a partition other than the one you've booted from. If you see, in any release notes, a comment along the lines of "relocated applications will not update properly…", do ***not*** use the **Install package...** option.

To be *absolutely* safe, unless you're sure – or have confirmed that it works with the package author – always reboot from the target partition before installing a package.

When you select **Install package...**, SuperDuper prompts you for the location of the package file you want to install. This can be located on a mounted disk image, or any location other than the source.

Note

Package installation occurs *after* any disk image is created. This allows the disk image described above to be used to quickly restore to pre-package status.

Run customization script allows you to select any shell script or other executable, and run it after the copy, image and install actions have completed. This script can perform any operation you can think of. Like, for example, something we didn't!

When SuperDuper executes the script, it passes it six parameters:

1 The name of the source volume (e.g. *Macintosh HD*)

2 The mount path of the source volume (e.g. */*)

3 The name of the destination volume (e.g. *Sandbox*)

4 The path of the destination (e.g. */Volumes/Sandbox*)

5 The name of the script the user selected (e.g. *Copy – all files*)

6 The name of the image file being processed, if any. This could be either a source image (if copying from an image to a volume), a destination

image (if copying from a volume to an image), or a post-copy image (selected in the **After copy** options)

Section 12 – Automating Execution

Starting in SuperDuper! v1.5, registered users can actually automate your backups using AppleScript. Our AppleScript interface allows you to:

- Start SuperDuper!
- Check the current status of SuperDuper! – whether idle, running, or in an error state
- Load a set of saved settings (which include the selected volumes and all option settings)
- Run a backup operation

We've included a sample AppleScript in the Extras folder on your SuperDuper! image. You can use this script to automate a daily backup operation.

To do so, drag the application version of the script from the Extras folder to your Applications folder. Then, set up your backup the way you want in SuperDuper, including the source, destination, copy script and option settings. When you've got things the way you want them, choose **File | Save** to save your settings. Accept the default location, and name the settings **Daily Backup**. (You can use a different name, but if you do so you'll have to edit the AppleScript.)

Since you're going to run SuperDuper! automatically, make sure you Unlock it by clicking the lock in the main interface and supplying an Administrator user and password.

Once that's done, executing the script will automatically launch SuperDuper!, load the appropriate settings and start the backup. When complete, SuperDuper will exit, ready to backup again.

We'll be providing a terrific UI for scheduling backups in SuperDuper! in the next major version, but until then you **can** schedule this little "script application" – or any other SuperDuper! AppleScript – using a built-in OS X program known as "cron". Configuring cron is easy if you use CronniX: you can download it from http://www.abstracture.de/cronnix/.

Once you've installed CronniX, add a new scheduled entry for the time you want (cron uses 24-hour time, so enter values appropriately). Check the box to add "/usr/bin/open", and select your script application by using the Browse button. Quit Cronnix, and you're done: SuperDuper! will now run **automatically** at the selected time.

That's all there is to it: feel free to ask any questions you might have in the SuperDuper! forums at http://www.shirt-pocket.com/forums. We look forward to seeing you there!

Section 13 – Copy Scripts

While SuperDuper works great as shipped, with scripts that satisfy the typical user, there are those of you out there – and you know who you are – who have needs that are more unique. Fortunately, we have a solution: *Copy Scripts*.

SuperDuper's *Copy Scripts* allow file-level control of copying, and can be built up in stages. You don't have to completely rewrite an existing script (or set of scripts) to handle a new situation: SuperDuper comes with a rich set of standard script building blocks that you can use as a basis for your own. Simply "include" some of these scripts to collect a group of files, and then fine-tune the result for a new situation. Or, start from scratch: it's up to you.

Note

You shouldn't modify the built-in scripts. If you want to modify the behavior of a built-in script, *include* the script and override its actions in the Commands section instead.

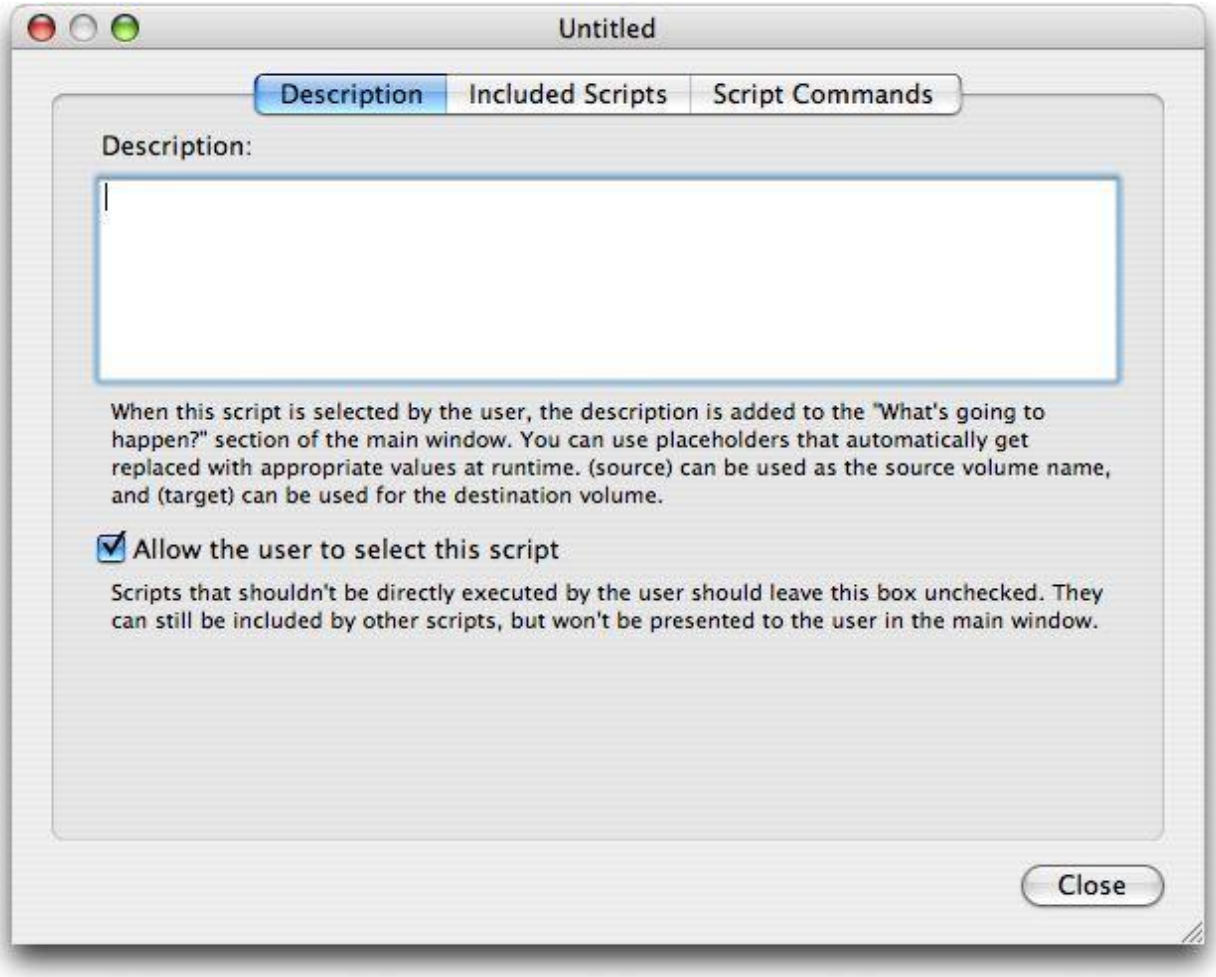
Doing so will ensure that you'll benefit from any modifications we made to the built-in scripts in subsequent releases of SuperDuper!

If you must modify a built-in script, do not overwrite the existing copy: save it to the user "Copy Scripts" folder instead (the save dialog will automatically default to the correct location — ~/Library/Application Support/SuperDuper!/Copy Scripts).

Copy Scripts aren't scripts in the way shell scripts are. Rather, they provide you with a flexible way to select a set of files, and the actions to perform on the files in that set. Once those files are selected, SuperDuper "executes" the result.

Let's see how this works by creating a script that shares some large files from Final Cut Pro 4 to save space on the clone.

First, we'll create a new Copy Script using the File Menu (or use the shortcut **Cmd-n**). There are three sections to the editor: *Description*, *Included Scripts* and *Script Commands*.



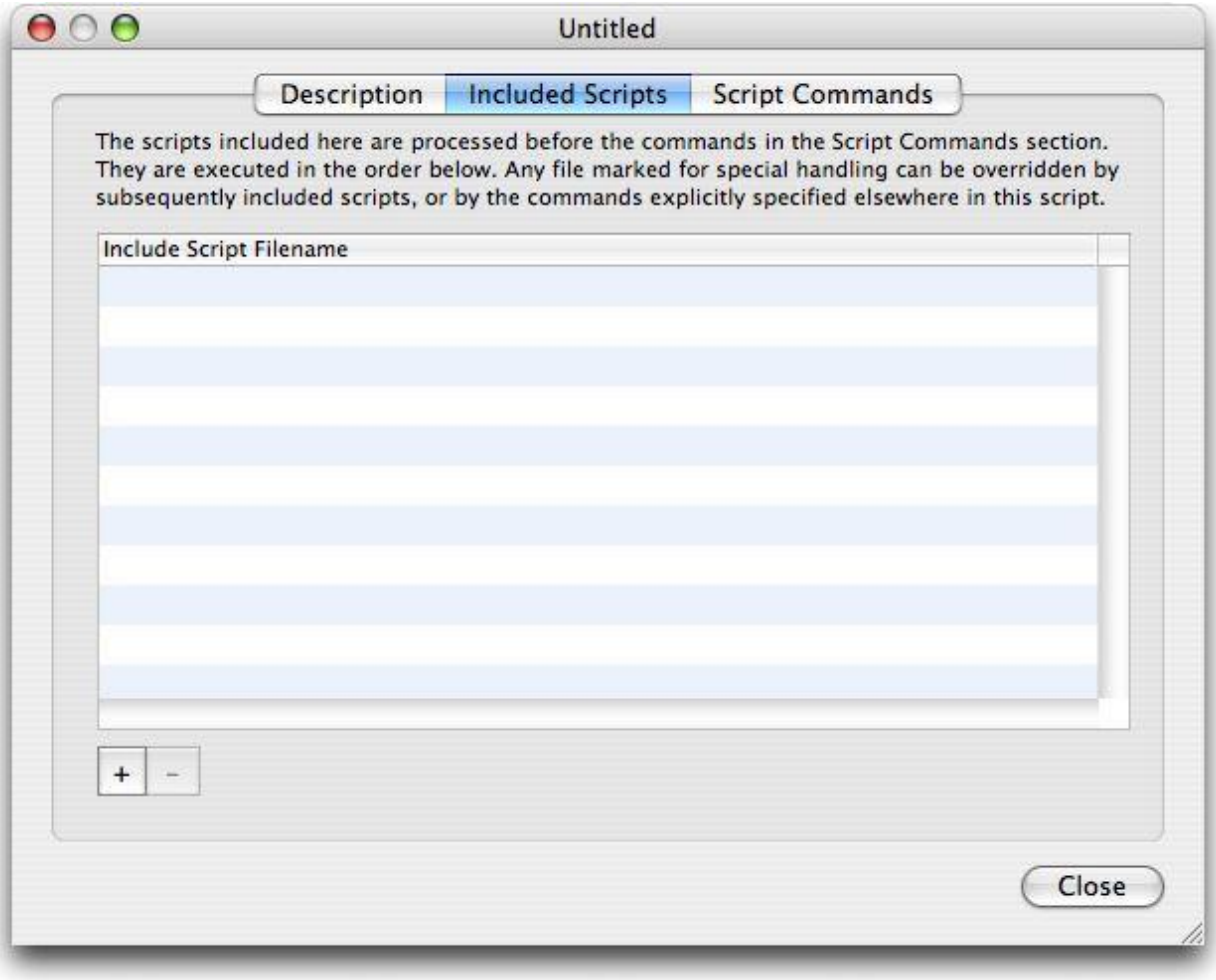
The *Description* section allows you to provide text to the user when they select the script in the main window. It's best to give a clear description of the intent of the script to ensure that the user isn't surprised by the end result.

You can use the placeholders "*(source)*" and "*(target)*" (with the parentheses included, but not the quotes) to refer to the two volumes selected in the main interface. This gives the user more context for the script's actions, and is preferred to using easily confused generic terms like "source" or "destination".

Scripts that aren't intended to run on their own can be hidden from the user by unchecking **Allow the user to select this script**. Once done, the script will not be shown to the user in the Scripts pop-up.

The *Included Scripts* section allows you to select one or more "building block" scripts that should collect a group of files that you want to refine in your new script. All scripts get a list of every file on the source drive, and

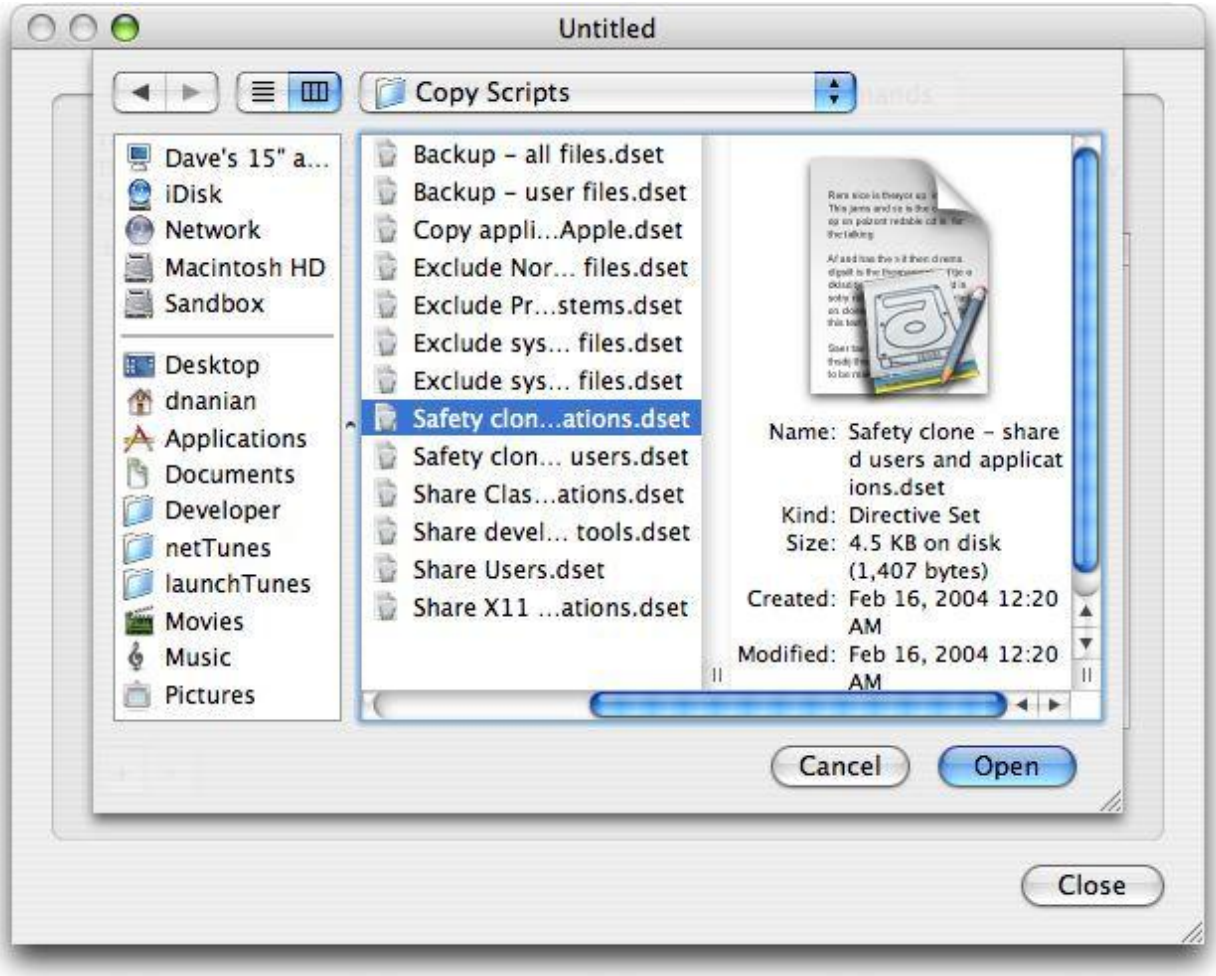
are allowed to modify the commands assigned to each file (which, by default, is to **copy** the file – see the discussion of Script Commands, below). After one script has made changes, the resulting set of files and commands is passed to the next script in the list, from top to bottom, so subsequent scripts can modify or override the actions taken by the ones above.



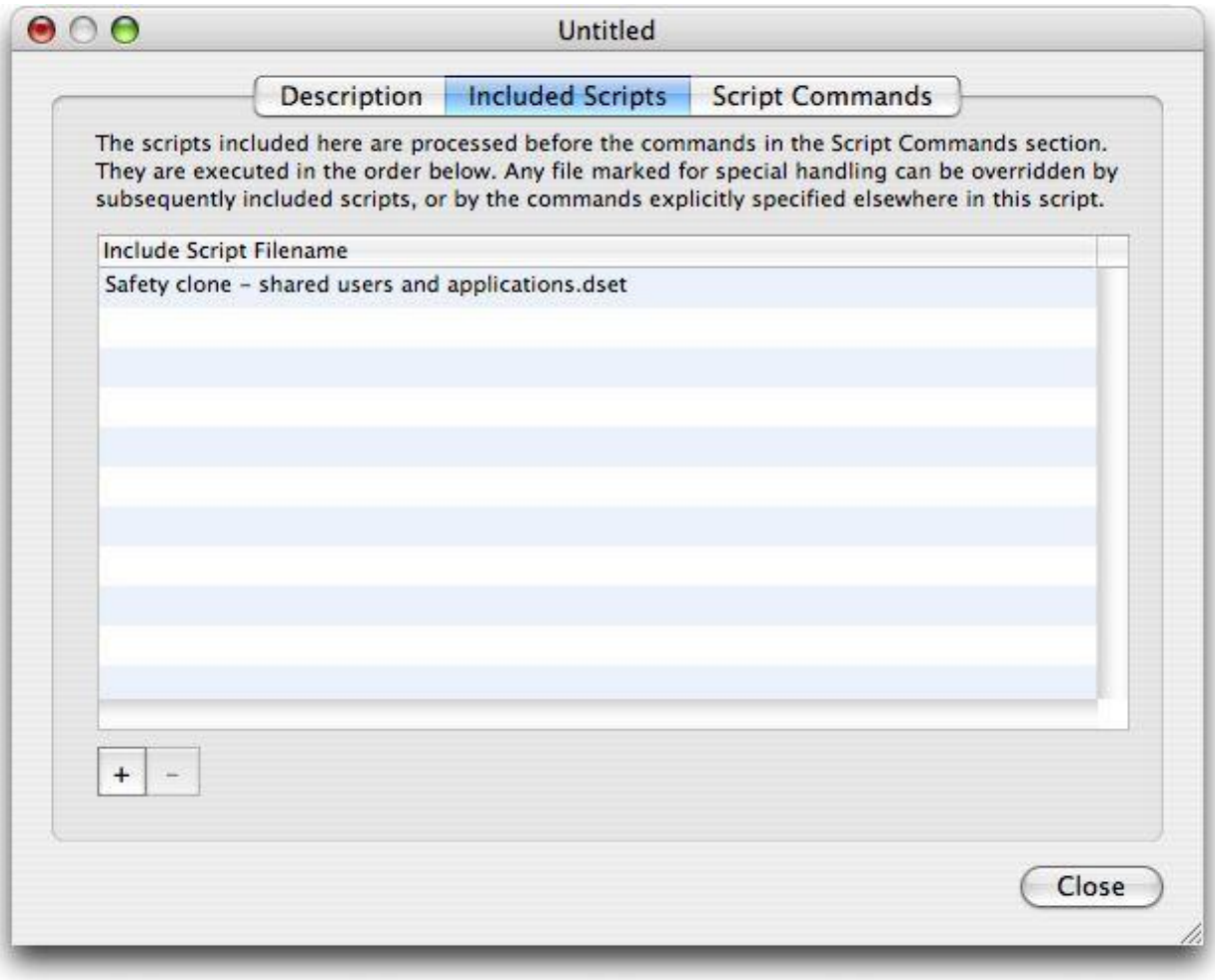
Note

It's important to remember that **every** file on the drive is always included in the set of files passed from one script to another. Scripts only modify the **actions** SuperDuper takes when it encounters the file. These actions are explained in the *Script Commands* discussion, below.

In our case, we're going to base our script on the standard "Safety Clone – shared users and applications" script. To include it, click the **+** button, and choose "Standard Scripts". Then, choose "Safety clone – shared users and applications" from the list of scripts.



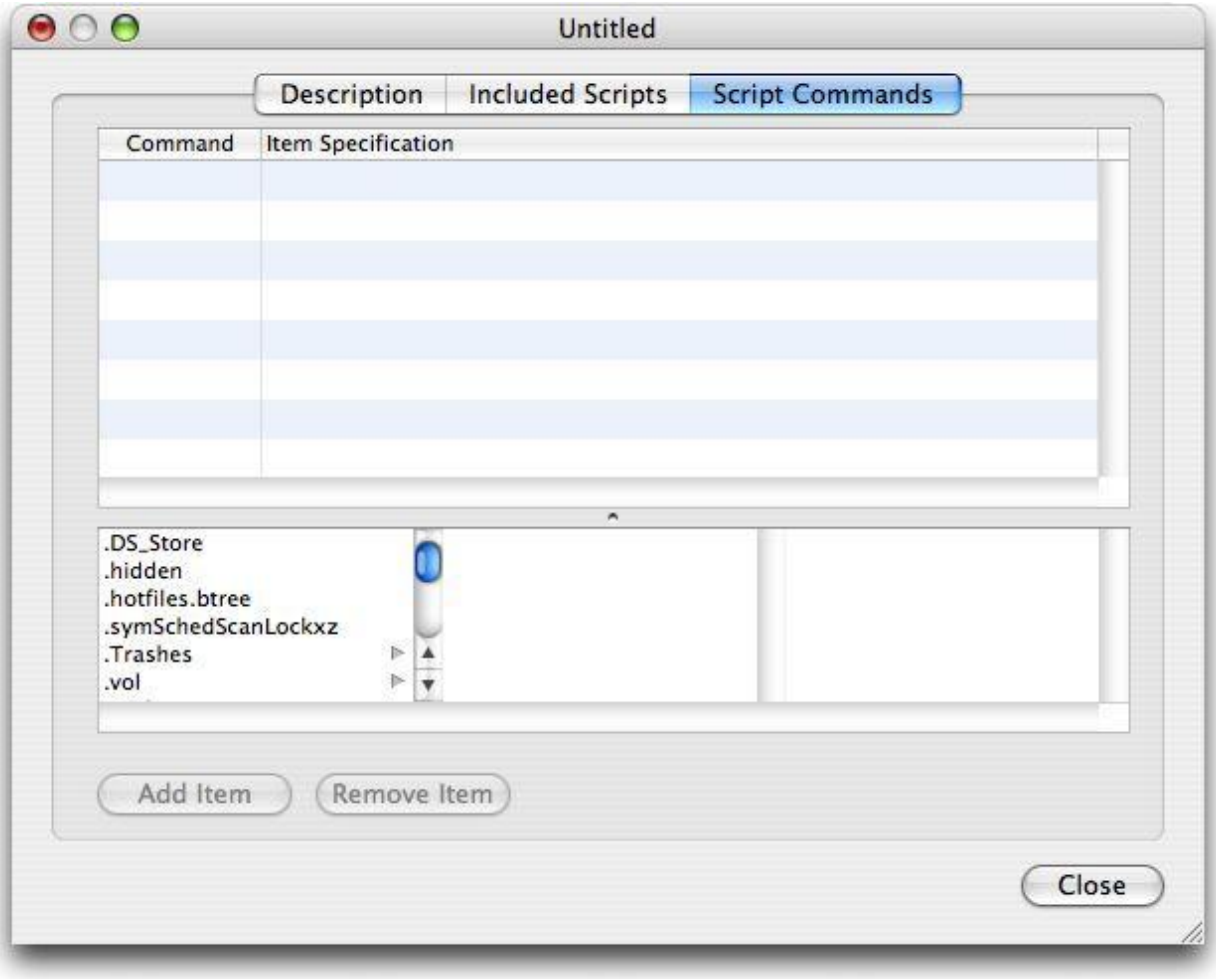
The script will appear in the list of included scripts.



Tip

If there are multiple scripts in the list, you can rearrange them by dragging and dropping.

At this point, the script will work exactly like the *Safety Clone – shared users and applications* script, which isn't quite what we want. To customize it further, let's move on to the *Script Commands* section.



The upper table is a list of the commands that are specific to this particular script. Each row has a column that contains the command to apply to the file specification, which follows. This command can be:

- **Copy** – makes a copy of the matching files on the target (the default action)
- **Ignore** – doesn't copy the matching files to the target
- **Share** – shares the files on the source with the target

Technical Note

Sharing, for those technically inclined, causes the file or directory on the destination to be symbolically linked (a type of alias) to the same file or directory on the source.

The Item Specification column allows you to select the exact files this particular script command operates on. This entry supports wildcards, so you can easily create complex specifications to handle almost any situation you can come up with.

There are four general types of wildcards that can be used in an item specification:

- ***** -- Matches zero or more characters
- **?** – Matches any single character
- **[...]** – Matches any character in the brackets
- **[!...]** – Matches any character except the ones in the brackets

Within brackets, ranges of characters can be separated with **-**, e.g. **[0-9]**, **[!a-zA-Z]**, etc.

Technical Note

For those of you who are into this kind of thing, SuperDuper's wildcards conform to standard Unix file 'globbing' specifications. For those of you who don't know what 'globbing' means, don't worry about it!

The one thing you should keep in mind is that '*' won't match files that start with '.' – this means that to treat all files specially, you'd need to include both '*' and '.*'.

Let's look at a few examples that will hopefully make this clearer:

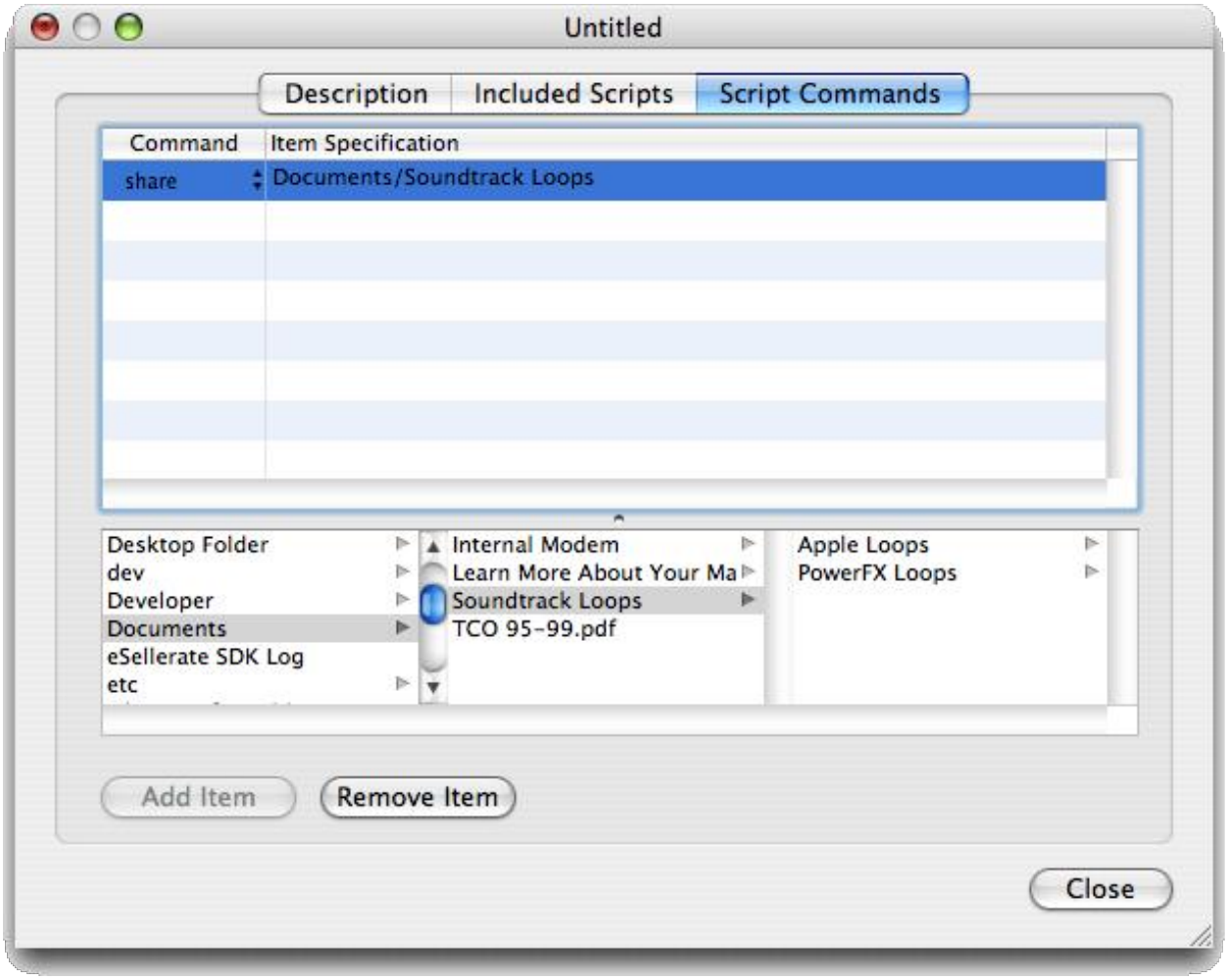
- ***** matches all files in the root directory, except those that begin with '.'.
- **Applications/Retrospect *** would match everything in the Applications directory that starts with "Retrospect " (note the space) – e.g. "Retrospect Express", "Retrospect Client" and "Retrospect 5.1", but not "Retrospect".
- **Applications/Retrospect [1-9].[0-9]** would match "Retrospect 5.1", "Retrospect 5.0" and "Retrospect 6.3", but not "Retrospect 0.1" or "Retrospect 5.33".

Below the table is a helpful file browser that makes it easier to add a command to the table. To add a given item to the table, you locate it in the browser and then click **Add Item**. Do not add the drive name or the Volumes directory to the table, since the appropriate drive is always added in front of your file specification. Note that you can edit an Item Specification by double-clicking it in the table.

To continue with the example, I'd like to share the rather large Soundtrack Loops directory installed by both Final Cut 4 and Soundtrack between my

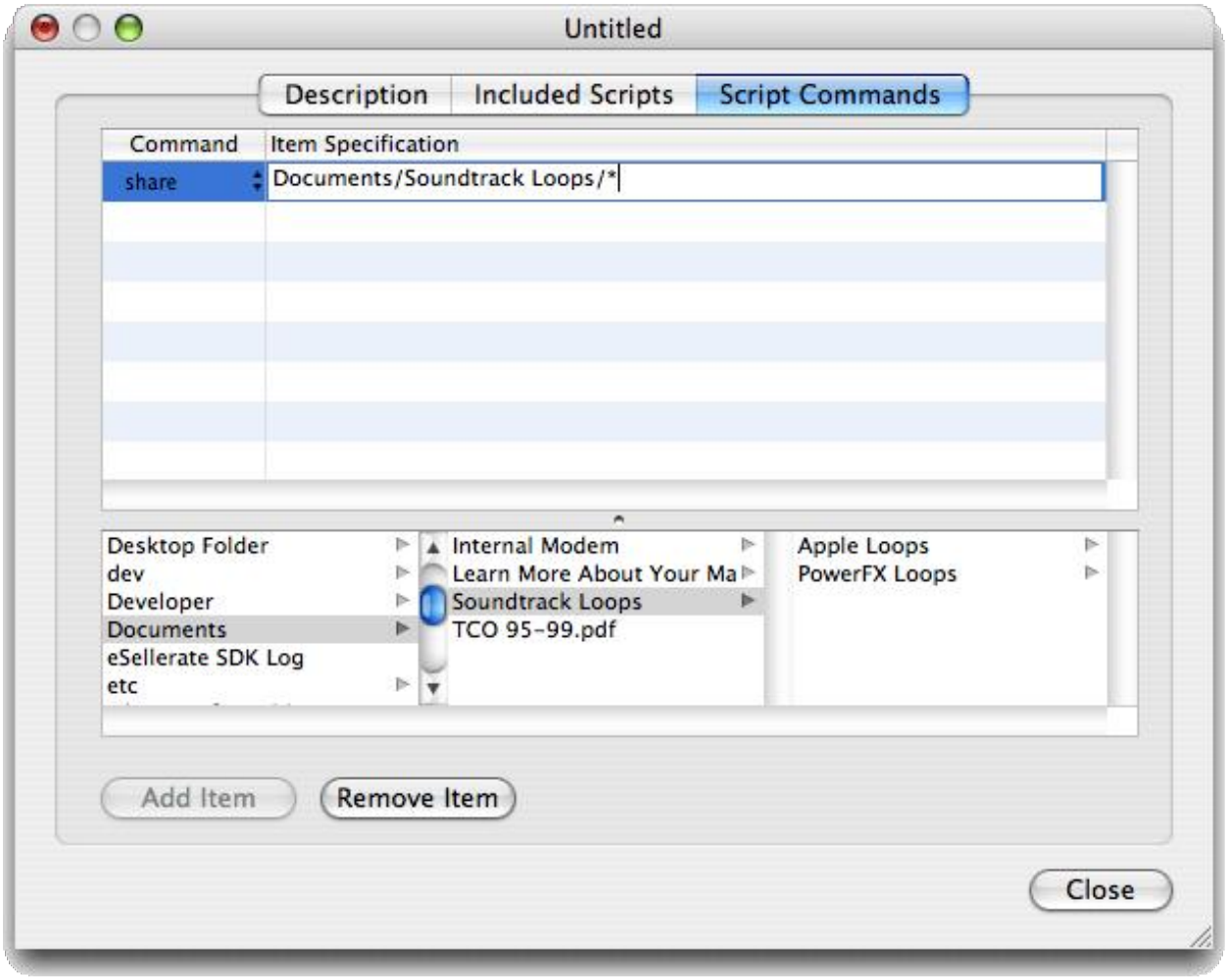
original volume and my safety clone. So, I select the directory in the browser and click **Add Item**.

The default command is **ignore**, which is not what we want. Instead, click on it and change it to **share**.



This will end up sharing the “Soundtrack Loops” directory, and everything in it, from the source to the target volume.

If, instead, I wanted to share everything within Soundtrack Loops, but not the directory itself, I could use wildcards. Just double-click the item specification, and you can edit it at will.



Changing it as above will continue to copy the directory "Soundtrack Loops", but will share the contents of it. In this case, the directories "Apple Loops" and "PowerFX Loops" will be shared with the source.

That's all there is to it! Simply save the script with Cmd-s, giving it a descriptive name. Make sure to store it above the "Standard Scripts" directory.

When this script is chosen, it'll do everything that *Safety clone – shared users and applications* does, but **in addition** it will share those two directories in /Documents/Soundtrack Loops – and, should other directories appear in there in the future, it'll share those as well, due to our use of a wildcard.

Section 14 – Support

At Shirt Pocket, we know that you can't have a great product without providing great support. You can get in touch with us in a number of different ways.

First off, you can join us on the Shirt Pocket web site, at **http://www.shirt-pocket.com**. Our discussion forums are open 24 hours a day, and are a great place to talk about SuperDuper with other experts, including representatives of Shirt Pocket. The forums are an especially good way to ensure that other users can benefit from your comments and questions.

You can also contact us for one-on-one support at **support@shirt-pocket.com**. We're here to help, and strive to answer all questions within 24 hours.

Appendix – Partitioning Your System

SuperDuper can make regular clones without any special setup: you just need something to copy from, and a place to copy to. But to create and use a Safety Clone as easily as possible, you need two (or more) drives, or you need to partition your drive.

To do this, you need to have one of the following:

- An erasable **external FireWire drive** large enough to hold a copy of your drive
- An **Apple iPod** you don't mind erasing with enough space to hold a copy of your drive (since your music is being synced from a copy of iTunes, erasing your iPod won't permanently erase your music – it can always be re-synced when you're done)
- Some other **reliable way of backing up your data**

Partitioning your drive is not difficult, but it is a bit scary, because it can't be done with your data "in place": you need to move your data off the drive you want to partition, run Disk Utility to partition it (destroying the data that's there), and then copy the data back.

SuperDuper! is ideal for making the copy, since it can make a fully bootable backup of the original. You can then check to make sure the copy works properly before you destroy the original data by partitioning. That said, better safe than sorry – please be exceptionally careful when following these instructions. **Although all data should be copied during this process, please take appropriate steps to backup any critical data on the drive. We take no responsibility for any data loss.**

Let's get started! These steps will assume that you've got an external FireWire drive of some type, either a standalone drive or an Apple iPod.

Step 1: Determine the space needed, and select a device

First, check to see how much space you're using on the drive you're going to partition. To do so, select the drive in the Finder and press Cmd-i. You should see something like this:

As you can see, this drive is using about 11GB of drive space. You'll need another drive with **at least** 11GB of space on which to clone it (such as a 15 or 20GB iPod). The drive you select must be able to act as a startup disk.

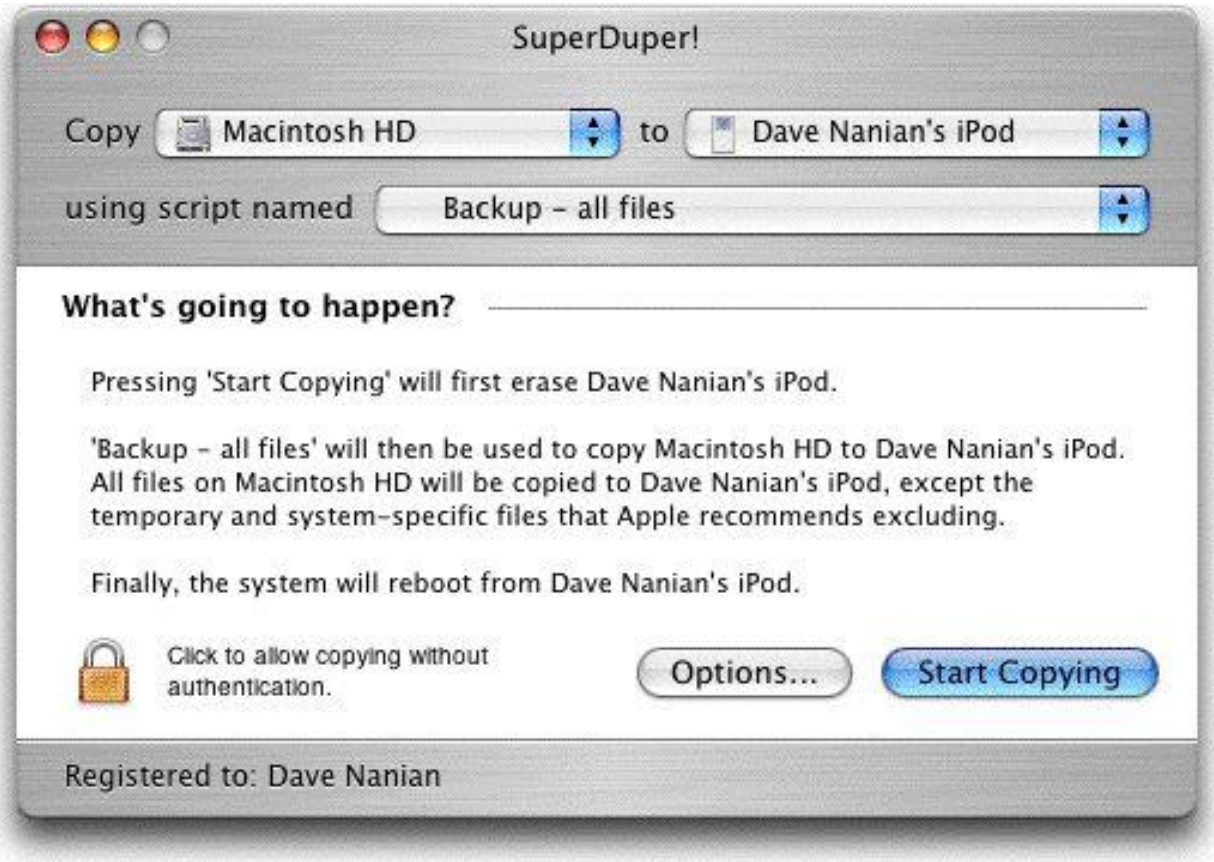
Step 2: Connect the device to your Macintosh

Once you've located a device with sufficient space, attach it to your Macintosh. If it's an internal drive, nothing else need be done. If it's a FireWire device, plug it into your FireWire port. If your FireWire device is an iPod, you'll need to check **Enable FireWire disk use** in iTunes' iPod settings (with the iPod attached, click the button with the picture of the iPod in the lower right of the main iTunes window) to get it to show up as a mountable drive.

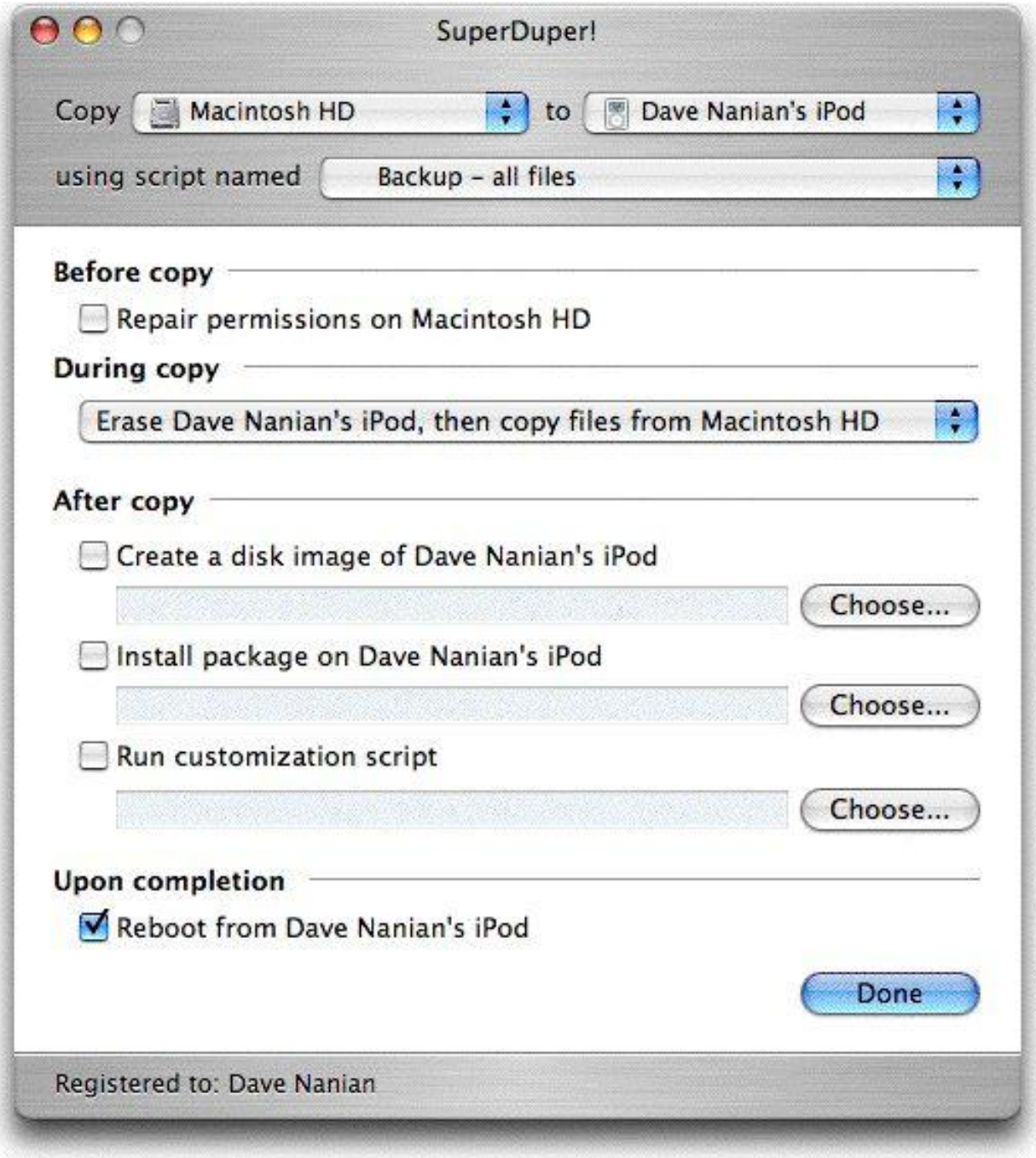
Step 3: Use SuperDuper to clone your drive

Next, start SuperDuper! Choose your boot drive source in the first ("from") drop-down, and the FireWire destination ("to") in the second. The script you should use is **Backup – all files**.

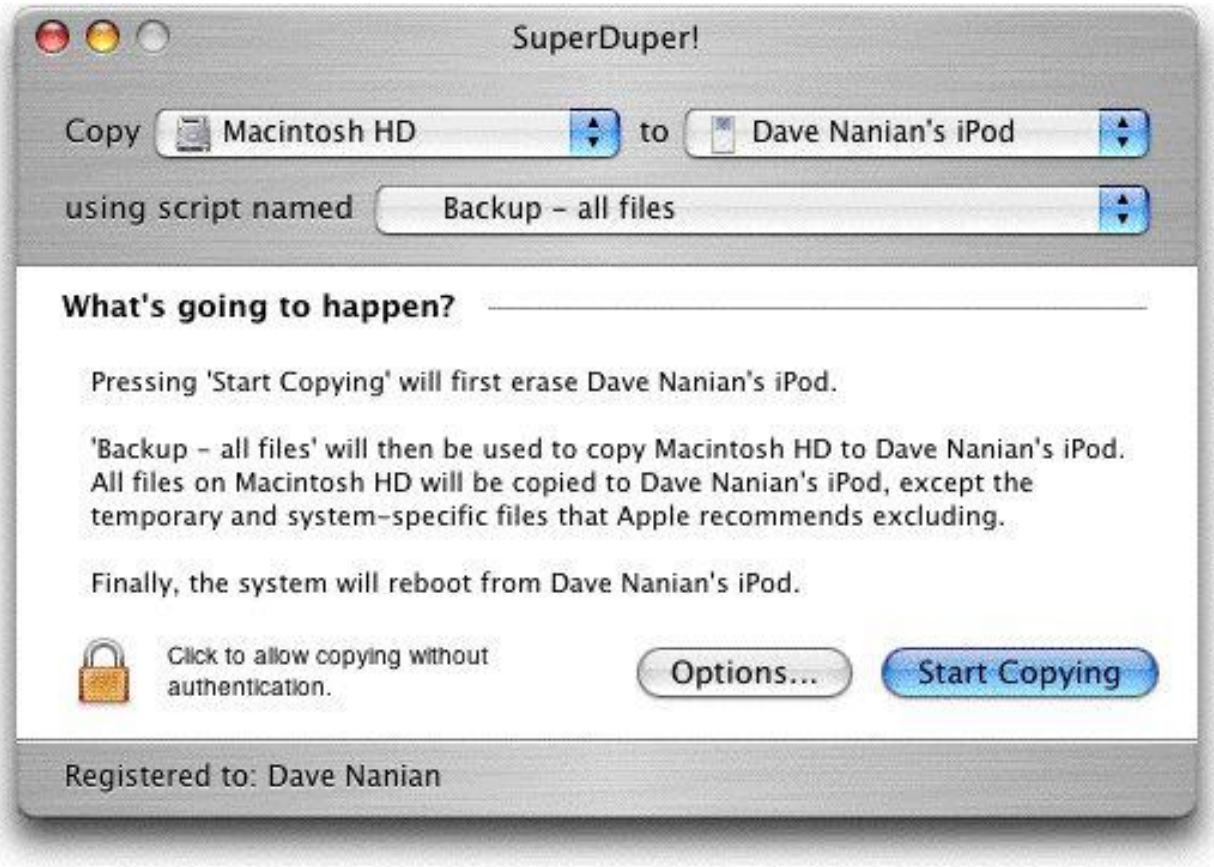
At this point, you should see something like this:



Now, click the **Options...** button. Ensure that the **During copy** option is set to **Erase...**, which will erase the destination drive before copying to it. Everything else should be unchecked except for the **Reboot from...** checkbox in the **Upon completion** section:



Click **Done**. SuperDuper will confirm your choices in the **What's going to happen?** section of the window:



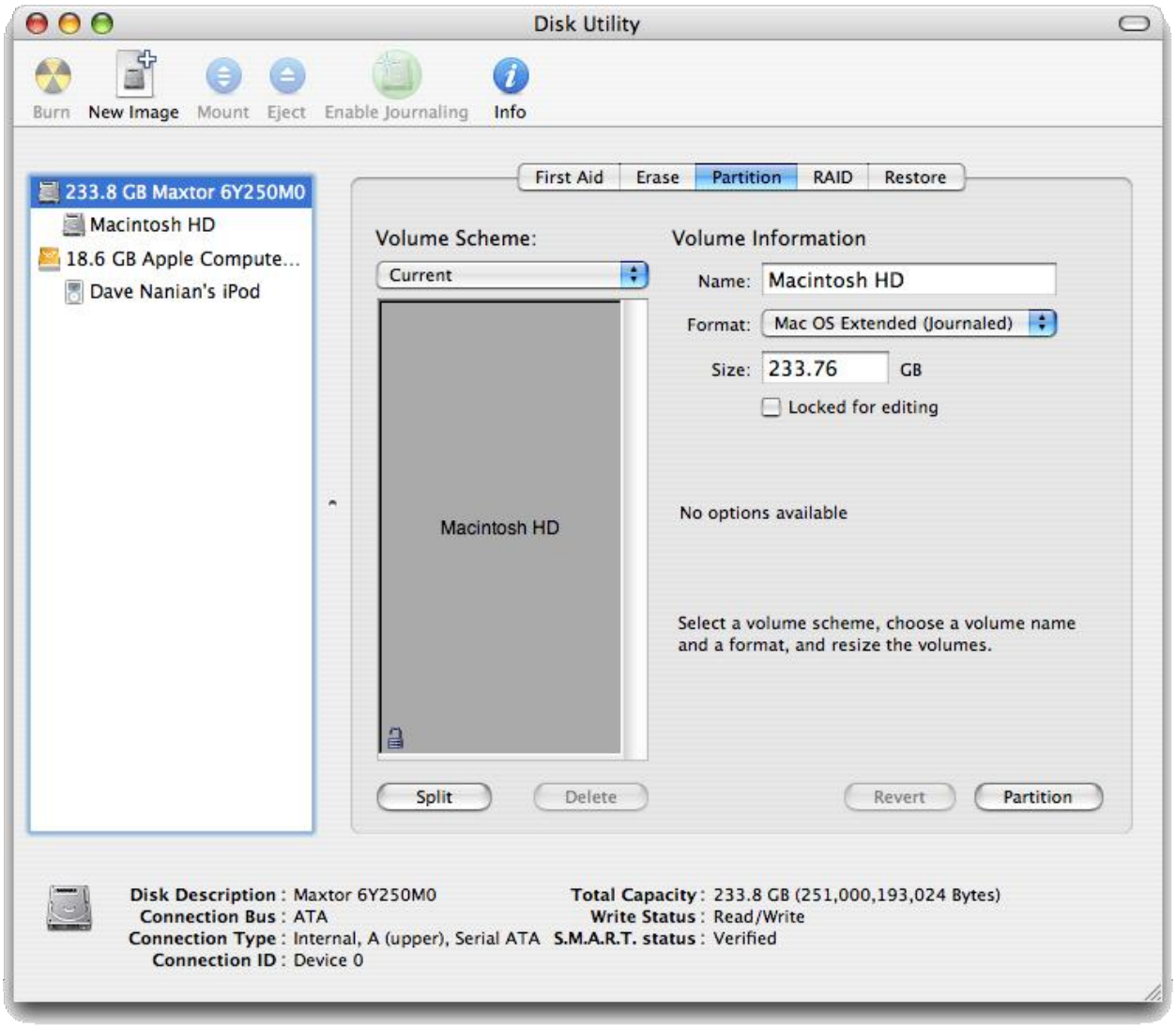
When you're certain that you've chosen the right options, press **Start Copying**. SuperDuper will copy all of the files from the source to the destination, and will reboot from the destination when it's done. Since this will take some time, depending on the amount of data you've got, you may want to relax with a tasty beverage.

Step 4: Verify the clone

When SuperDuper is done, and your system has restarted from your FireWire device, take a moment to look around. Try a few applications to make sure they work properly, and verify that your data is, indeed, where it should be. It's important to make sure you're satisfied with the copy, because in the next step you're going to repartition the original drive.

Step 5: Partition the original drive

Once you're satisfied that things on the copy are working the way they should be, it's time to actually partition the original drive. To do this, launch Disk Utility (it's located in /Applications/Utilities on your FireWire drive). Select the original disk, and switch to the Partition tab. You should see something like this:



Choose **2 partitions** from the **Volume Scheme** drop-down, and size the partitions so that about 75% of the space is allocated to the top partition, and about 25% to the bottom. The bottom partition should be about 10-15GB, and the top should be at **least** large enough to contain your original data. Name the larger clone the same as your original drive (Apple names the startup disc *Macintosh HD* from the factory), and name the second drive something descriptive, like *Sandbox*.

When you're satisfied with your choices, click **Partition**, and Disk Utility will complete the partitioning operation.

Step 6: Restore your data to the original drive

When the partitioning has completed, it's time to use SuperDuper again to restore your data.

Launch SuperDuper from /Applications/Utilities. Choose the startup disk in the source drop-down ("From") and the larger of the two partitions in the second ("To"). The **Backup – all files** script and the options to erase and start up from the destination should already be selected; verify this by reviewing the "What's going to happen?" text.

When you're satisfied with your choices, click **Start Copying** again… and, get yourself another tasty beverage.

Step 7: Final verification.

Once again, check to make sure your copy is functioning the way you expect it to by running some applications and checking your data. Things should work exactly as they did before you started the whole process.

You're done!