DOUBLEDATA
SAFETY IN NUMBERS

Mac/Win v1.0
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Contents

Double Data System Requirements

Apple Macintosh version

Minimum System Requirements

- Intel Processor
- 1Gb RAM
- Mac OS 10.7.1 or later

Recommended System

- Latest Mac Pro
- Multiple data busses (SATA, eSATA, SAS, Fiber Channel)
- RAID system capable of writing at 400+MB/sec
- 4Gb RAM
- Mac OS 10.8.x

Microsoft Windows version

Minimum System Requirements

- 1Gb RAM
- Windows 7

Recommended System

- Intel I7
- 4Gb RAM
- Windows 7, fully patched to latest version
- Multiple data busses (SATA, eSATA, SAS, Fiber Channel)
- RAID system capable of writing at 400+MB/sec

Double Data User Interface

Apple Macintosh Version

Main Window

Primary Session
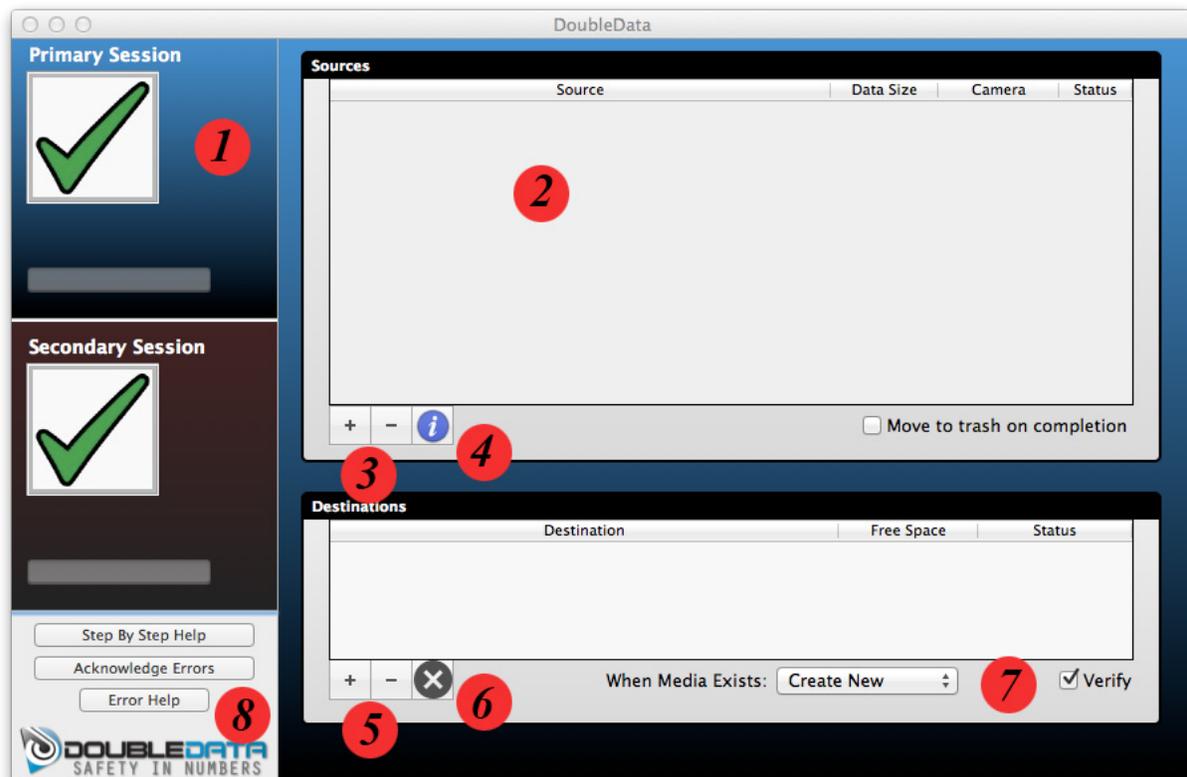
1. Primary Session At A Glance & Hot Button
2. Source listing
3. Add / Remove Sources
4. Source Project Information
5. Add / Remove Destinations
6. Destination Halt Copy
7. Primary Session Destination Options
8. Error & Help Information

Secondary Session
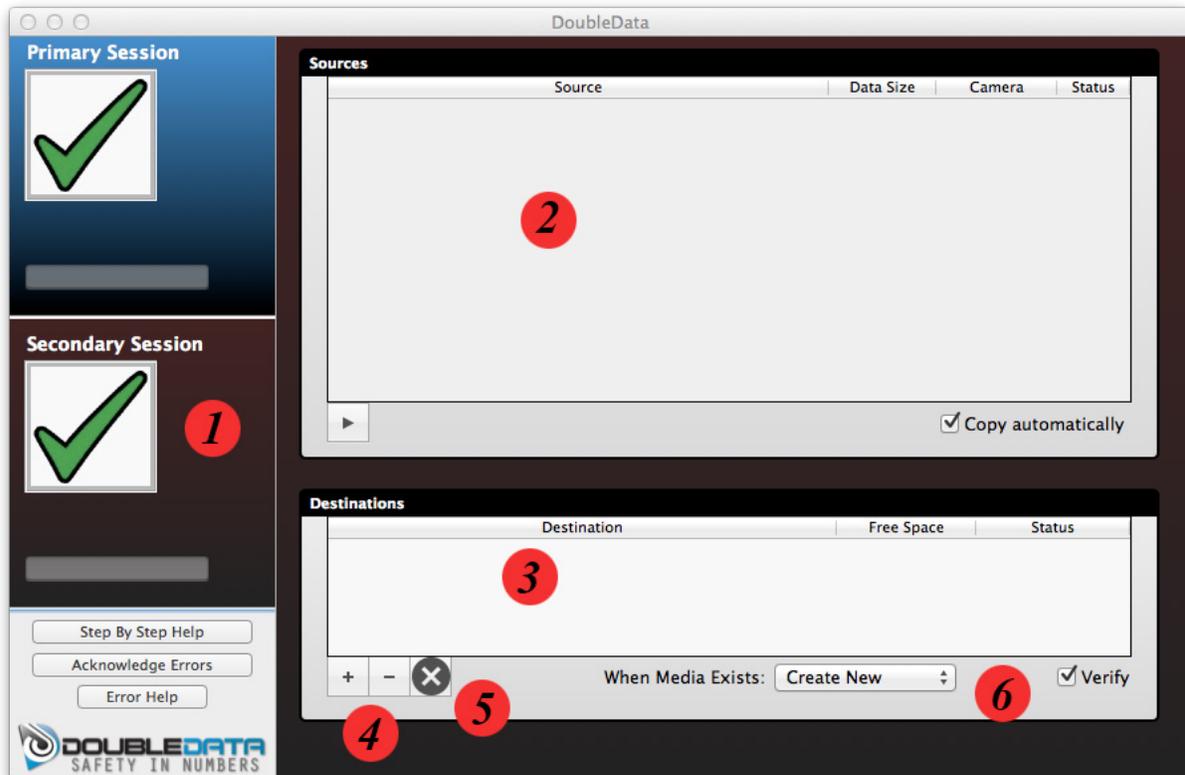
1. Secondary Session At A Glance & Hot Button
2. Source listing
3. Destination Listing
4. Add / Remove Destinations
5. Destination Halt Copy
6. Secondary Session Destination Options

RMD Sync Window
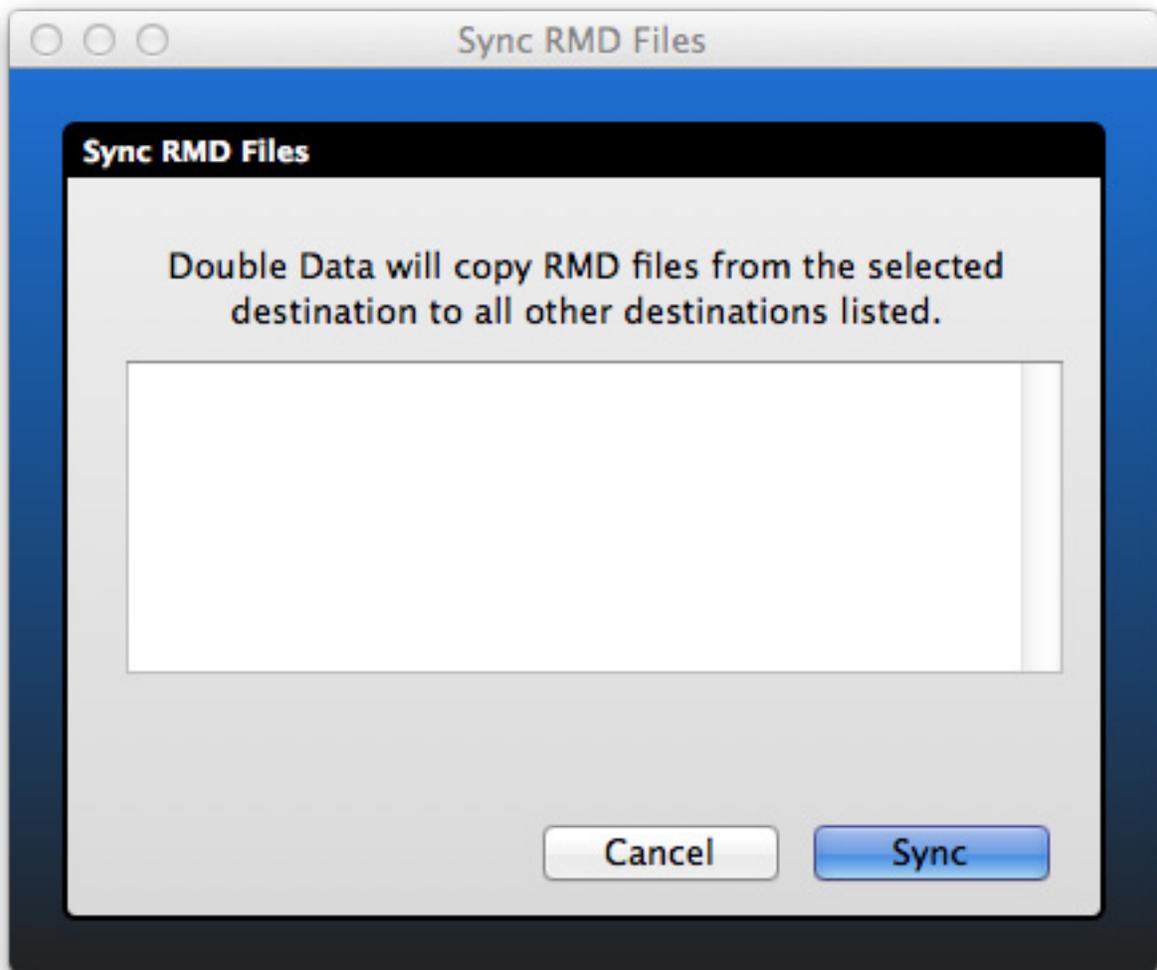
Double Data
Theory Of Operation

Double Data takes a different approach to on-set and post data management than other software. The idea is that your workflow involves, or can be split up into, phases. The first phase would be to get your shots off the original camera media to a high-speed RAID or similar device. From there you will copy to slower speed destinations for redundant copies or shuttle/transfer drives.

Double Data has two 'sessions', the idea being that you will quickly offload files in the first session to a primary RAID, then in the second session copy from that primary RAID to other slower destinations. Double Data will keep track of where each camera media is in the process and automate your sequential backups for best performance, for example only copying things in the second session when the first is standing by.

Of course, if you would rather just copy to all your destinations at once without using the second session, that is also possible to do. Double Data can write a single camera media to four destinations simultaneously.

When coming to Double Data from other software, some things may seem to be a bit backwards. But in thinking out your workflow, it makes more sense and should be intuitive.

Double Data Quick Start Guide

Using Double Data

Getting started with the Double Data involves these simple steps:

Set The Destination Directories

Set your destination directories. Click on the destination "+" button and navigate to where you want the files to be copied. You should NOT create a new directory for each camera media you download, rather have the program automatically create directories based on the camera roll information.

Set The Destination Options

Check your destination options to ensure they are set correctly. In the preferences panel, check the "General" and "Paths" tabs to ensure your options are correctly set.

Add A Source

Click on the source "+" button. A new dialog window will popup. You should select the drive root of your camera media, not a folder inside it.

Set The Project Information

The options here will only be enabled if the source is identified as a camera media. Click on the "Info" button to edit the information. You do not need to fill them out at all if you don't want to. Items are saved between sessions automatically.

Start Copying

You'll notice that your media starts to copy as soon as it is added to the queue. A spinning icon will appear, meaning that the copy process has started.

That's all it takes to securely copy your media.

Double Data Users Guide

Using Double Data

On Set

Overview

Don't let this long help file scare you - using this program is as easy as 4 steps. (1) Setup your defaults (2) Select destinations (3) Select the source (4) Copy. But for more details on what each thing does, read on:

Setup

At the beginning of the show you will want to setup your preferences. This will help you move faster once the shoot starts and the footage starts flowing. Make sure all the drives you wish to copy media files TO are mounted and accessible. Then startup the Double Data.

Next, setup the destination directories. Simply click on the destinations "+" button and navigate to your destination directory. If you need to create a directory, then enter the name of the directory to be created there. Click on "open" and it will load that destination into an available destination spot.

As you add destinations, they are automatically saved as defaults. Then when you restart the Double Data application, it will load these defaults. You can always change your destinations as long as the program is not actively in the copy process.

Program Preferences

Under the menu item "Preferences" there are some options that will affect how Double Data preforms.

General Tab:

Checksum Type

You can choose between MD5, SHA1 and SHA256 for your checksum types. SHA256 are the hardest to calculate, but shouldn't be much slower than the other options on modern processors.

Verify Files in Parallel

This option is for if you are reading from a fast destination, i.e. a fast RAID. In this case it will read multiple files at the same time, allowing for a faster verify operation. Since checksums are limited in that they must be processed on one single thread, this will speed up your operation by opening up multiple threads.

Prevent destination drives from sleeping

This option helps to prevent consumer drives from sleeping between copy runs. When enabled, Double Data will write to a small hidden text file on each destination every 60 seconds. This file takes up very little space and is hidden from normal operations. By doing this Double Data should be able to prevent common errors with consumer drives.

Report errors on media files only (warn on others)

Using this option, only when a camera media file's checksums don't match will the status of the copy be set to error. Other files (such as XML files) may change, and Double Data will report those errors as "warnings", not "errors". If there are both checksum errors on camera media files AND other files, it will report the copy process as "error". Only if there are NO errors on camera media files will it report "warning" or "ok". By disabling this option, it will report every issue as an error.

Rewrite manifest files (for supported camera media)

This option enables the program to update XML files that the camera wrote to the camera media's new absolute path. When writing the XML files, Double Data will parse them and adjust the media paths noted inside them to the media path for each destination. Then when you load that XML into a editing program, the media path will be correct. Double Data will save an original version of the XML file, for reference.

Automatically check for updates

This will enable Double Data to check if a newer version of our software is available, and if so alert you. We advise to always run the latest version of Double Data.

Paths Tab:

Separate footage based on camera letter

This option allows you to set one destination, and Double Data will handle sorting the camera rolls by the camera letter, putting all the rolls for a particular camera inside a single folder in your destination. It will put all the footage from media roll numbers that begin with A into a folder labeled A. You can select the suffix for the name of the folder, such as " Camera" for the folder name "A Camera". When Double Data copies media, it will create directories as needed if the folder for that camera has not yet been setup.

Dynamic destination path

This option allows you to dynamically set what your path will be, based on the information you set here. Any of the items listed in the box will be replaced with data determined by the camera media, current date, or other info. The path will then be created and the camera media copied into it. To indicate a folder, simply use a forward slash: /

Reporting Tab:

Send SMS/email on completion

This option enables the program to send a SMS or email message to the address you specify. For this option to work, the following requirements must be met:
 -You must have an active internet connection when the copy process is complete.
 - You must have the Mail program open, with one email account configured for sending email.
 - You must specify an email account to send the email to. For SMS, please ask your cell phone provider to give you the email address to their SMS gateway.

Send entire log via email

This option appends the log of the copy to the email notification sent. Not

recommended for SMS, as the logs are verbose.

Include timestamp

Double Data will append the current time when finished to the SMS message. This is recommended for SMS, since some SMS operators may not always deliver SMS's in order.

Include destination information

This allows you to include the destination information in the SMS message.

Enable Growl support

This option turns on growl reporting. For more info on Growl, see http://www.growl.info .

Run AppleScript on completion

This allows you to run a AppleScript after a specific copy operation has completed.

Project Info Tab

Setup Media Identifiers for Project Information

This enables you to set a variety of custom identifiers for your camera media, and then select from them in the Project Information window when copying from a camera media. When this option is enabled, you must set the identifiers here and use the drop down box in the project information window, as the text box is disabled. With this option disabled, the drop down box is also disabled and the text box is enabled. To add an identifier, type in the text box the name you wish, select the type of media that is, then click add. To remove an identifier, select it then press remove.

Cache-A Tab

Select method to communicate with Cache-A device

This selects the method that Double Data will communicate with the Cache-A device. You can set it to contact it via the archive name of the device, or the IP address of the device.

Automatically begin archive process after each successful copy

With this option enabled, Double Data will automatically start the process of writing

data to tape on the Cache-A device. Double Data will monitor the progress and alert you if there are any errors. When this option is disabled, you will need to manually start and monitor the copy process.

Cache-A hostname

Enter the last two digits of the name of the archive device as shown in finder. This is normally the last two digits of the serial number.

Cache-A remote IP address

Enter the IP address of the device.

Test connection

This provides a way to ensure that Double Data and the Cache-A device are able to communicate. The test will alert you if it is successful.

Other Preferences

While we are talking about preferences and defaults, we should also discuss the Destination Options. These options are located on the main screen toward the bottom right.

When media exists

This option allows you to tell the copy process what to do if it encounters a situation where the source folder already exists at the destination. This may be a case of the folder had already been copied and not properly erased off the camera media, or it may be a case where the computer accidentally create the folder again. In the former case, you will want to just bypass those folders, speeding up the copy process. However, in the latter case, you will want to have that data, but not overwrite the data that is already in the destination. So you can choose what you would like for it to do. The option to "Create a new folder" is the safest. The a new folder will be created at the destination, appended with a timestamp. So both copies of that folder will live on the destination at the same time. You can then go back and see if it was indeed a duplicate and act accordingly. The "Overwrite all" option will put the new data into the destination directory, possibly removing the old data at the destination if the file names match. The "Ignore" option will not copy anything. The "Ask" option will check if the folder is duplicated first and ask what to do ("create new directory", "overwrite", "ignore") before proceeding.

Verify

This option allows you to speed up your copy process, if you are running short on time. You can skip the checking of the checksums in the destination folder, which will save you about 33% on your copy time. However, this is not recommended, as then we cannot guarantee that a correct copy was made at each destination.

Move to trash on completion

This option will move the data from the source media after all copy processes to all destinations are done, including verifying checksums of copied files (if not disabled), to the trash. This will move all data there, but it does not delete it. As long as you do not empty your trash, the media is still easily accessible. But when you put that media back into the camera, it will not notice that the media is there, forcing you to reformat the media on camera- which is the expected practice

The Copy Process

The actual copying process for Double Data is highly automated. Once setup, the program should really do things on its own without too much user intervention.

You first need to ensure that you have the program running and that you have valid destinations setup. These destinations should already be mounted on your computer, and writable. Additionally you should ensure that the copy options are setup correctly for your source.

When Double Data detects that a new camera media has been mounted, it will add that media to the source and begin its copy of that source. There is no need to 'start the copy', as it is always ready to copy and will begin as soon as media is added.

The Second Session

The idea of the secondary session is to break up how you process data. The ideal workflow for on-set use involves copying from a camera media to a high speed RAID, and from the RAID to multiple slower shuttle, client, or other types of drives. By doing this you can generally maximize your available bandwidth to process things faster, and smartly use your available busses to move data when there is available time and bandwidth.

The secondary session helps to take advantage of this, by using breaking up your

workflow to accommodate slower busses or other processing.

Session Switching

To switch between sessions, click on the Primary or Secondary Session listing on the left side of the Double Data main window. If you are in the primary session, clicking anywhere in the red "Secondary Session" box will reveal the secondary session. Similarly if you are in the secondary session, clicking anywhere in the blue "Primary Session" box will reveal that session.

Setup

The idea is that the first destination in your primary session is a high-speed RAID device. This destination will become the SOURCE for your secondary session.

Copying will be done with the same rules and procedures as the first session, with the exception of the "When media exists" option, which is session-specific. You can also disable the verify pass on a per-session basis, but this is not recommended.

Usage

When there is a destination setup in the second session it will be available for copying. When a source in the primary session is done copying, Double Data will automatically add the copy of the source on the first destination of the primary session as a SOURCE in the second session. When the primary session is inactive (all copies are done) it will then begin processing the secondary session.

Disabling

If you do not wish to use the secondary session, you can disable it by removing all destinations from the secondary session.

Pause Processing

If you need to stop processing, you can pause the program. It will remember where it is in the copy process, write the memory to disk, and pause operation. Upon restarting the copy process, Double Data will pick up from where it left off and

continue operation.

<u>Stopping Copies</u>

At any time, you can stop an individual copy process from continuing. For example, if you setup 3 destination directories, but now just want to copy to one, you can stop the other 2 copy processes without affecting the third. To do this, select the destination and click on the 'X' button. This will stop the process at the next available moment - which may not be immediately, but will be before the next file is copied or checksumed.

<u>Removing Directories</u>

To remove a destination directory, simply click on the "-" button next to the destination you wish to remove. This will be saved for the next time you start the program.

<u>Finishing the copying</u>

After all the source folders have been copied to all destinations and (optionally) all files checksumed and (optionally) all files removed off the camera media, then it will present the user with any errors that were encountered. It will sum up the errors to all destinations in one window. It will indicate if it was a copy error or a checksum error, and which files(s) had the error. PLEASE NOTE: NO FILES WILL BE "TRASHED" FROM CAMERA MEDIA IF THERE ARE ANY COPY OR CHECKSUM ERRORS AT ANY TIME, REGARDLESS OF ANY OPTIONS THAT ARE SET. This is for your safety. If there are no errors, it will present the user with a window that says everything was successful.

<u>Digging Deeper</u>

Should you want to see exactly what happened, when, and why, there is a activity log window. From the "Window" menu, select "Activity Log". This is a detailed log of each files that was transferred, each file that was checked, and all the results. This log is organized by run time, with each operation in the copy process contained in a single run event.

To view a particular run, click on the time the copy started. The window will display all the events associated with that run, including copy and verify passes on each file and the result of each.

Post Production

Overview

Like on set, Double Data serves a vital role in the post production process. It can copy files to multiple destinations at once, and verify that each copy of every file is valid - and is exactly as first read from the original camera media.

Copying Files

Just as in the copying files for on set, you can copy files in post the same way. Simply setup your destinations, select your source, and copy. Since the source folder most likely wont be camera media, it will not re-check the checksums on the source, rather it will use the saved checksums and verify the copies from that. If you would like more info on what each option does, please refer above.

You can select a whole days worth of files to copy, or a whole project. Simply select the folder above all the files you wish to copy. You will see that each camera folder is listed in the queue separately, helping you to identify as copies are done and manage if there are errors.

Verifying files

You do have the option to verify files already in a destination folder without having to copy them again. From the 'Data Manage" menu, select "verify". A new window will open. In that window select the files you wish to verify and then click the "Start" button. If any files don't verify to the saved checksum, you will be alerted to which file. It would be recommended to re-check this file, and if it fails again, assume that this file is no longer valid and restore from a backup.

Accountability and Audit Trails

Where data is kept

md5sums.txt, sha1sums.txt sha256sums.txt

This file is placed in each camera folder and copied with copy process to each destination. This file contains a listing of files in that folder, the checksums for each file, and a unix timestamp of when that checksum was done. These would be the master checksums for each checksum type

md5sums-xxxxxxxx.txt

After each file is copied, the checksums are checked and referenced to the master file (md5sums.txt). The checksum of the file at the destination is then written to this md5sums-xxxxxxxx.txt file. The file contains a checksum for each file in the folder, in the same format as md5sums.txt. This file is never referenced by Double Data, but becomes your audit trail. From these files, you can tell what the MD5 sum for each file was after every copy process. So if there is ever an error, you can see on what date it happened and from there determine the source.

ProjectInformation.txt

This file contains all the project, shot, and camera media information. In addition, it contains info about every folder transferred, each file in that folder, and all the checksums for that file. So this can then become a master list of everything that was transferred to that destination. From here, if you are looking for if a specific shot or file was transferred, you can search this text file and find the time it was transferred and the original camera media for that shot.

Error Checklist

Here are some of the common reasons why there may be errors during copy. These tips should help you diagnose why there are errors.

1. Make sure the source and destination are still attached to the computer and the cables to them did not come loose during the copy process.

2. Make sure external power is supplied to all external devices, and ensure it is connected in such a way as to prevent dislodging or accidental removal.
3. If you are using a external reader, make sure it is in a cool location, and is not warm. Some card readers will produce errors when hot.
4. Swap cables connecting devices. Some Firewire cables can go bad due to bends in the cable or shielding becoming exposed.
5. Make sure there is enough room on the destinations. Double Data should catch when you begin a copy process and there is not enough space on the destinations, but if you are writing to the destination from multiple sources, this may cause an issue.
6. Note which files are creating the errors. You can find the details of which files are causing the errors in the Activity Log.
7. If the errors are NOT caused by camera media files, then you can use the option to "Report errors on camera media files only". You should also review your workflow process to ensure data integrity.
8. Try the copy a second time. Using the "Retry Errors" button Double Data will automatically remove the camera folders that had errors and recopy only those from the source. This saves time with re-copying files.

Best Practices

Here are some tips for getting the most out of this program

- Make sure you use this program, end to end, throughout your production, transfer, post-production and archival process. By using this program throughout, you can ensure end-to-end viability of your camera files.
- Setup your preferences before hand, so you can literally just select and copy during the production.
- Don't use the overwrite option for if a camera folder exists, unless you really know what you are doing. Its always easier to create a new directory then triple check it later.
- If you had an error during the copy process, for any reason, always check all your destinations manually to ensure the data made it across successfully.
- When possible, keep your sources and destinations on individual busses for the data transport. This will allow each device to use the full speed it was rated for, allowing your transfers to be faster.
- Always visually verify your data. Just because it is checksumed doesn't mean the data is valid image data.

Using Double Data With Cache-A Devices

This document assumes you have physically setup your Cache-A device to be on the same network as the computer running Double Data, and have mounted the vtape as described in the Cache-A manual.

Initial Setup

Before selecting your Cache-A device as a destination, you must configure how Double Data will communicate with the device. This configuration is done in the preferences for Double Data.

In the Cache-A tab, select the method you wish to configure your device with, either Hostname or IP address. The hostname is the name of the device as shown in finder. It is normally configured to be "archive" plus the last two digits of the serial number. For the hostname configuration, you just need to enter those two digits. If you changed your hostname or otherwise want to access the device via its IP address, select "IP address" and enter the digits for the IP address in the boxes. Once configured, you should test the communication to ensure that Double Data and the device are properly communicating.

Adding as a destination

Once the device is configured in the preferences, you may add the device as a destination. First, make sure the device is mounted to your system by navigating to it in finder. This ensures the device is ready for writing. In addition, you should already have a tape in the system, initialized, and ready for writing.

To add the device as a destination, select from the menu "Data Manager" > "Destinations" > "Add Cache-A Device", or use the keyboard shortcut command-shift-S. This will show a list of mounted volumes. Select the "vtape" volume. Double Data will ensure the device exists and create a special temporary folder on the device.

The Copy and Writing Process

With the Cache-A device selected as a destination, you can run through the normal copy process in Double Data. After all the footage is verified on the device, Double Data will start the process of writing the files to tape. A window small window will popup with the status of the tape writing process.

When the tape is complete, Double Data will check to see if there were any errors writing to tape. If so, it will display the errors, what files, and what the error was. In this case it will leave all the files on the vtape, so you can manually restart another tape writing process without re-copying the footage to the device. You will also need to remove files from the device once they are successfully archived.

If there are no tape errors, Double Data will automatically remove the footage on the device, and prepare the device for the next round of footage. This does not remove the files from the archived tape, but just from the internal memory on the Cache-A device.

Cache-A Options

Automatically begin archive process after each successful copy

This option enables Double Data to automatically start the tape writing once it determines that all the files are on the Cache-A device. With this option disabled, you will need to manually start the archive to tape process.

Camera Specific Features

Match CDLs (Arri® Specific)

When you select this, Double Data will copy CDL files on the primary session's first destination to the all other destinations listed in the primary and secondary sessions. Double Data will try to account for file system differences and match locations of CDL files between destinations.

Sync RMDs (Red® specific)

This will copy RMD files found on the selected destination to all other destinations in the primary and secondary sessions. Double Data will try to account for file system differences and match locations of RMD files between destinations.

Recover R3D® Data (Red® specific)

This option allows you to attempt to recover R3D® data that has been deleted but not yet overwritten, or on a failed hard drive.

Requirements

Before you run this option, you must have REDUndead® installed on your system. You can download this directly from Red's website.

You should also hook up the media you wish to recover from via USB or Firewire 800. Many eSATA connections do not yield good recovery results.

Operation

When you open the window, Double Data will scan your system and find all attached devices. First select the disk to attempt the recovery from. It is better to select the root of the drive rather than a slice of it. Then select a path to save the recovered files. This path should be greater than the drive it is recovering from, since it will recover all files found on the drive and may recover enough to fill the destination drive.

If you wish for Double Data to inspect the resulting R3D® files and organize them, check the box to "Organize R3D® Files". This will place the R3D® files into RDC folders and sort them by shot date, according to the metadata of the file.

Once you have it setup, click on the "Recover R3D® files" button. Double Data will start the process of reading the data and finding files. It maybe a slow process and take some time. As Double Data finds files, it will list them in the window, allowing you to see what has been recovered. Once finished recovering, Double Data will go through and organize the R3D® files if the option is selected.

Frequently Asked Questions and Answers

The Copy Process

Does Double Data verify camera files for content?
Double Data ensures that the zeros and ones that the camera wrote to your camera media are in exactly the same order and length on all your destinations. If the camera did not write a file correctly or your camera media did not read the data correctly, it cannot protect you against those types of failures.

What information should I put in the Camera Media Type?
This should be a unique identifier that would help you to identify a particular camera media. This should be as specific as possible.

Do I need to fill out all the project information?
Fill in as little or as much info as you feel is necessary. The more information the better. But Double Data does not rely on any of this information to work correctly.

Will Double Data overwrite any data?
Double Data will only overwrite data if you explicitly set it to do so. The option "When media exists" controls this setting. Only if that is set to "Overwrite" will it overwrite any data.

Which type of hash should I use?
For most applications, a MD5 hash is more than enough to verify that files are correct amongst copies. The chances of 2 files having the exact same hash are 10e-32, but it is possible. However, the chances of 2 files having the exact same sha1 hash are 10e-96. And the chances of 2 files having the same hash for sha256 are so insignificant, researchers have not been able to compute the probability as yet. The trade off though is that it takes 6 times longer to create a sha1 hash as opposed to a md5 hash. It takes 6 times longer again to create a sha256 as opposed to a sha1. So with more time comes better quality.

What is the different between md5, sha1, and sha256?

The difference is just the precision that the hash for each file is calculated. With the longer span of time you anticipate between re-checks of files, the higher hash function you should use. In practical terms, a md5 hash will serve fine for the production and part of post. However, as time moves forward, you should probably use a better hash function to offset any dropped bits. With archival material, you should absolutely generate sha256 sums.

Can I re-check files that I have already copied?

Yes, select "Data Manage" menu and click on "Verify". Then add the media you which to check and click on "Start". This will go through and re-check each camera folder to ensure each file listed is correct with the saved checksums.

Where are the checksums saved?

They are saved to a file called "md5sums.txt", "sha1sums.txt" or "sha256sums. txt", depending on the type of hash function used. These files are saved in the folder that should also contain the camera media file(s). In addition, the checksum of each file copied is saved in the file "ProjectInformation.txt", in the root of each destination directory.

I'm already in the process of copying items. Can I change any options?

You can change any options at any time, and they will take effect as soon as is possible on each copy operation. For example, if it is already creating checksums and you choose "Don't check checksums" then it will finish the current checksum, but not process any more checksums.

When are files deleted from the source?

Files are only deleted on the source if the following conditions are met:
- The source media has been identified as a camera media.
- All copy operations are complete
- Each copy operation was completed successfully
- If enabled, each checksum of each destination matched the saved source checksum for each file
- If the option is enabled in the "Destination Options" section

Only after all the above conditions are met does Double Data delete files.

Will Double Data delete files from my hard drive?

Double Data will only delete files if the source is identified as a camera media, if all the copy options are successful and if enabled.

How does Double Data determine if the source is a camera media?

When the camera formats a camera media, it places specific files on the media. These files are only for the cameras use, and have no function or bearing on the saved images later. Double Data checks for the existence for these files. It is possible to create a folder that looks like a camera media, with these files and usurp the protection offered by Double Data, but you would have to do this deliberately.

How many destinations can I add?

You can have up to 4 destinations for your source material. After that, at this time, it seems like there would be diminishing returns to enable more than 4 destinations, with current hard drive, processor and bus speeds.

Can I see exactly what happening at each step?

Absolutely. Simply open up the "Activity Log" from the window menu. This will show you each process as it happens. Each file copied and checksumed will be listed, as well as the result of each process.

What if there are errors with the copy or checksums?

If there are any errors, it will alert you to those errors. It will point out which destinations had errors, and what those errors were. For a more detailed report, you can always open the "Activity Log" from the Window menu. If there are ever any errors, and the source is a camera media, NO files will be deleted.

How do I know that the copies and checksums completed successfully?

After the copy is completed it will show a visual indicator based on the result of the copy function. These can be:

Green Check - Success

All files copied successfully and (if enabled) all checksums match between source and destination

Yellow Check - Warning

All camera files copied successfully and (if enabled) all checksums match between

source and destinations. Some non-camera files (i.e. XML files) did not validate. This may be because the content has changed from the first time they were copied, which could be normal.

Red X - Error

Some files did not copy correctly. You should view the activity log to see which ones and why.

Anything else I should know?

Backups. Make lots, keep plenty, and check often.

Keyboard Shortcuts

Mac Shortcuts

Main Window

Item	Command
Add Source Directory	Command-A
Verify Media	Command-G
Add Primary Destination Directory	Command-D
Add Secondary Destination Directory	Shift-Command-D
Add Cache-A Device	Shift-Command-S
Remove Primary Destination	Command-R
Remove Secondary Destination	Shift-Command-R
Pause Processing	Command-. (period)
Preferences	Command-, (comma)
Match CDLs (Arri Specific)	Command-K
Sync RMDs (Red Specific)	Command-J
Recover R3D® Data (Red Specific)	Command-B
Registration Info	Command-Y
Check For Updates	Command-U

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End User License Agreement

Double Data Application
NightSky Hosting, Inc. d.b.a. Double Data

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Contact Information

Contact us at:
Double Data
466 Foothill Blvd., #223
La Canada Flintridge, CA 91011

http://www.doubledata.biz/
support@doubledata.biz