



TECHNICAL BULLETIN

MACPRO CONFIGURATION

BUILDING A CODEX DIGITAL LAB

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Canon



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Mac Pro Configuration Guide

Building a Codex Digital Lab

Safety Warnings

- Please observe any warnings and follow all instructions.
- Do not use this equipment near water and clean only with a dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.
- Do not expose to excessive vibration, or drop this product.
- Do not defeat the safety purpose of the polarised or grounding-type plug. A polarised plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade, or the third prong, is provided for your safety.
- If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched, particularly at plug ends, convenience receptacles, and the point where they exit from the equipment.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the equipment.
- Unplug this equipment during lightning storms or when not in operation for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, has been exposed to rain or moisture, does not operate normally, or has been dropped.
- To reduce the risk of fire or electric shock, do not expose equipment to rain or moisture.
- To avoid electrical shock, do not attempt to open this equipment. Refer servicing to qualified personnel only.

Disclaimer

Codex products are continually developed to remain at the forefront of the industry, and as such the information in this guide is subject to change without notice. Whilst Codex endeavour to ensure that all documentation provided is correct at the time of writing, this document is not guaranteed to be error-free.

Codex does not assume responsibility for issues or losses due to misinterpretation of the information in this document, errors in this document, or incorrect configuration or installation of the equipment described herein.

Please report any errors found in this document to support@codexdigital.com

1 Introduction

This guide describes how to configure a Mac Pro computer using both Codex and third party software/hardware to provide the following features:

- Processing of data from recording media for Codex ARRIRAW, Onboard M, and Onboard S recorders using the Transfer Station M for Mac OS X.
- Comprehensive toolset for producing master backups, digital dailies and editorial files.
- 8TB of internal RAID-3 protected storage (6TB usable) for storage of original camera negative data captured onto Codex recording systems.
- Duplicate verified archives of data to LTO5 tape and/or disk using the Codex OFFLOAD feature.

The following guides will be referred to and should therefore also be downloaded from www.codexdigital.com/support/media-stations: 'Offloading files from a Codex system'

For support email support@codexdigital.com

This guide provides an overview of the installation process for hardware manufactured both by Codex and third parties. As such, be sure to consult the documentation from manufacturers of the third party hardware for the latest information.

2 Specification

Operating System:

Apple Mac OS X Snow Leopard or Lion 10.6.2 or higher.

Hardware:

Workstation - Mac Pro 2008 or 2009
CPU – 8 core or higher
CPU type – Intel Xeon 5000 or higher
RAM – 8GB
HDD – 500MB free space
Optical Bay HDD Mount Kit – Scythe Anti-Vibration HDD Stabilizer 2 or similar
SAS HBA – ATTO Express SAS H680 or H6F0
Monitor – Support for 1920x1080 or 2560x1620
Optical Drive – DVD-ROM
Keyboard – Keyboard
Storage – 4 x 2TB drives, identical make and model, fitted to internal bays

Codex Transfer Station for Mac OS X

Codex Software

Codex Platform Server
Codex Storage Option (licence required)
Codex Disk and Tape Offloader Option (licence required)

3 Installing Hardware into a Mac Pro – General Notes

Shut down the Mac Pro before commencing with any hardware installation. Allow 10 minutes for the internal components of the machine to cool, and then touch the case of the machine to discharge any static electricity from you. Unplug the mains power cable from the computer.

Lift the latch on the rear of the computer:



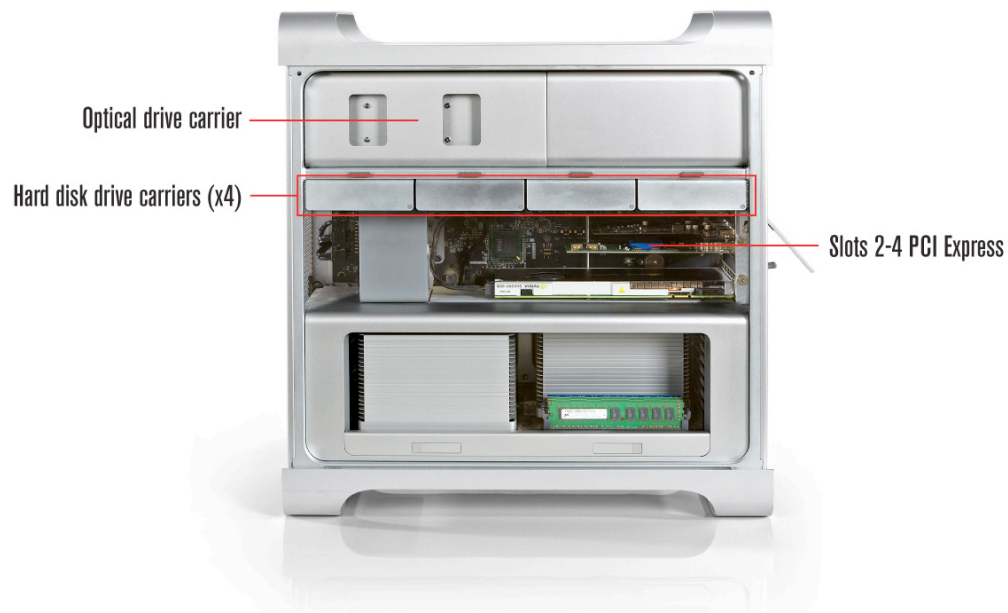
Then remove the side panel from the computer:



Lay the computer flat so that the open side faces upwards, and work in a well lit environment.

After installing hardware refit the side panel and close the latch on the rear of the computer.

4 Mac Pro Expansion Options

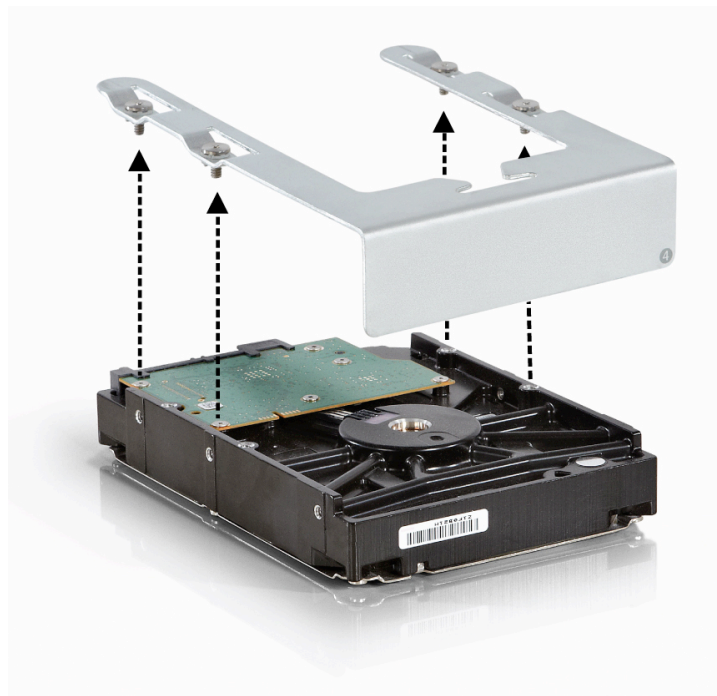


5 Fitting the System Drive into the Optical Drive Bay

The System Drive of a Mac Pro is normally fitted into Hard disk drive carrier 1 (leftmost). With the latch on the rear of the computer raised and the side panel removed, this carrier can be pulled out of the machine.



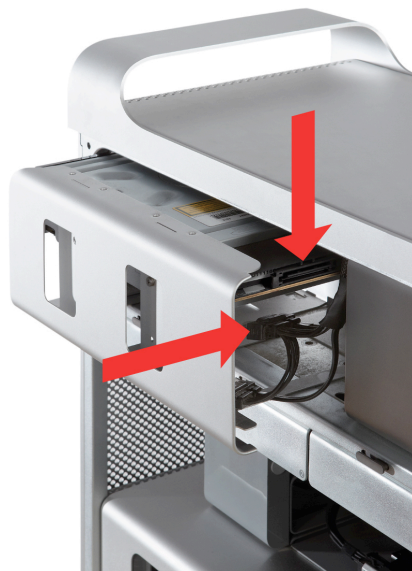
Then unscrew the four screws on the top of the carrier to detach the hard drive.



Pull the Optical Drive Carrier out half way from the Optical Drive Bay.



Disconnect the power and ribbon cables from the optical drive and remove the carrier fully.



Fit the System Drive into the spare slot of the Optical Drive Carrier using the instructions that came with the specific Optical Bay HDD Mount Kit being used. This will normally require use of the side mount holes:

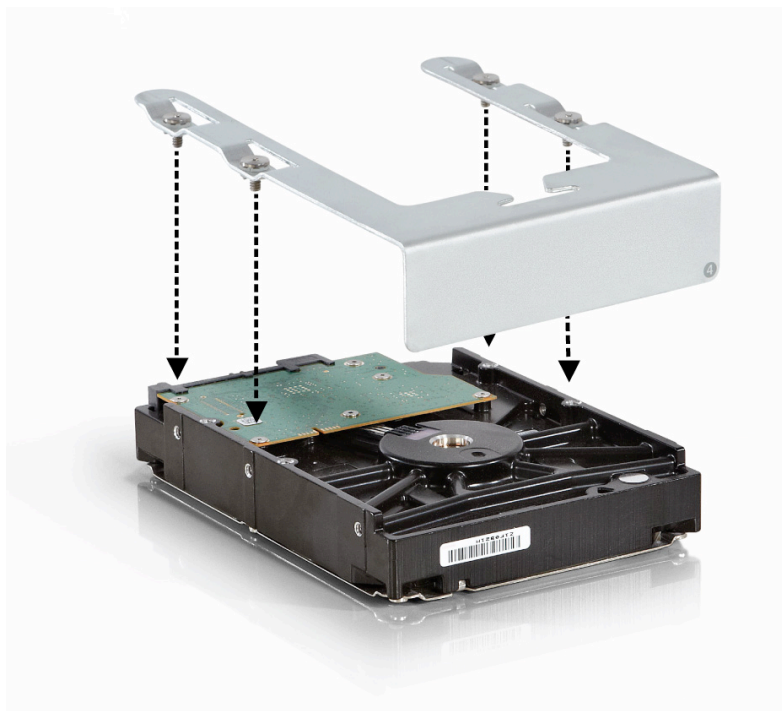


Then slide the optical drive carrier halfway back into the drive bay and reconnect the power and ribbon cables.

Fully insert the Optical Drive Carrier back into the Optical Drive Bay.

6 Fitting the four internal storage disks

Remove the other Hard disk drive carriers from the computer and fit a hard drive to each of them.

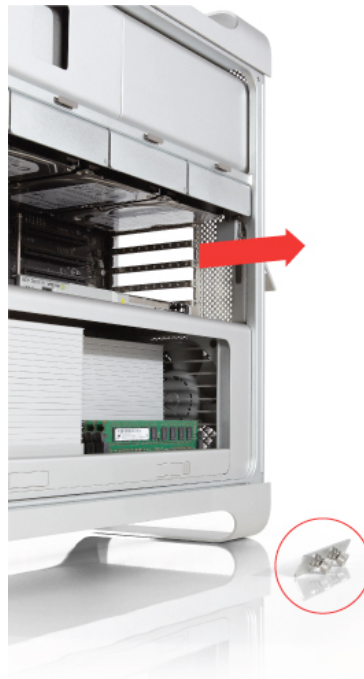


Refit the Hard disk drive carriers into the machine by sliding onto the guides until they snap into place.



7 Fitting the ATTO SAS Card

Unscrew the captive screws and remove the PCI bracket.



Remove the PCI blanking plate for the slot you intend to use for the ATTO SAS card. Do not move the system graphics card that is already installed.

Hold the ATTO SAS card by its corners. Align the gold connector of the ATTO SAS card with the slot and push it down, firmly but gently. Take care not to bend, twist, or force the card.

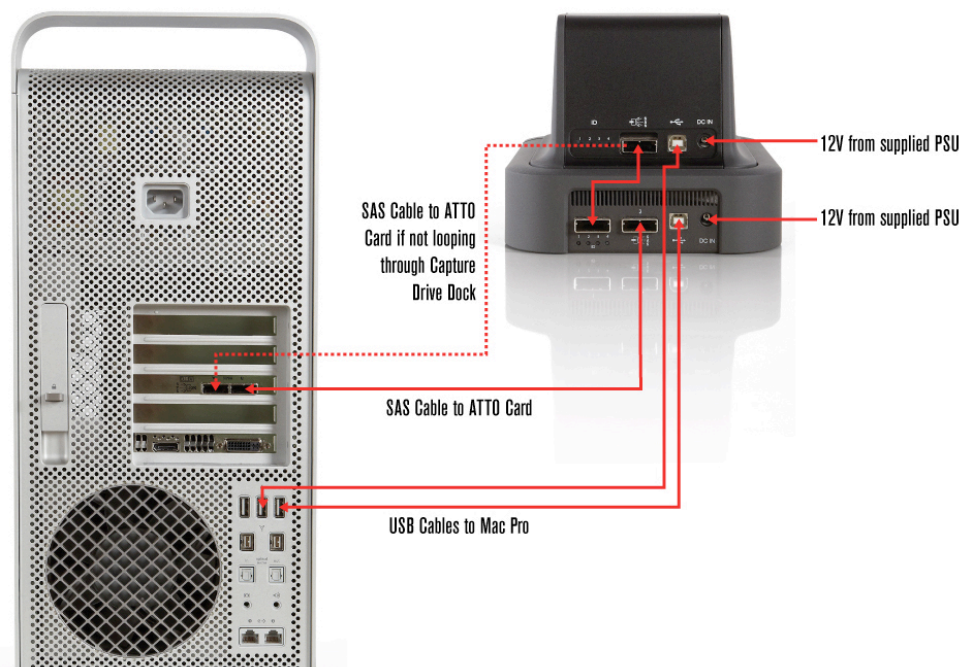


Secure the card by re-fitting the PCI bracket.

8 Cabling the Transfer Station M for Mac OS X

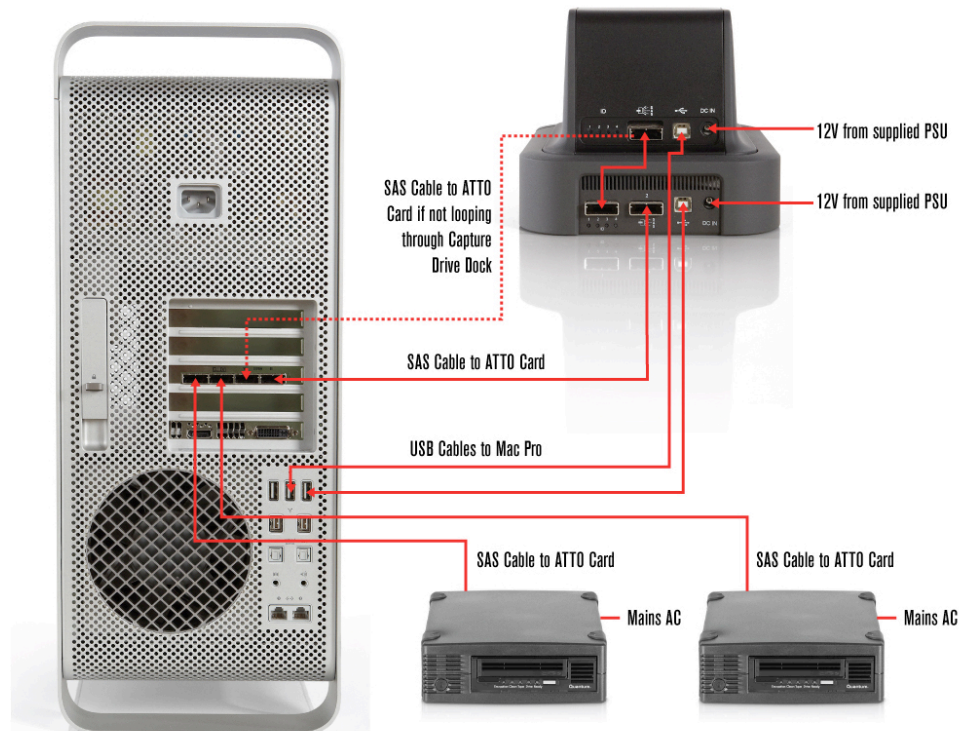
The diagram below shows the correct cabling set up for the Transfer Station for Mac OS X. Please refer to the Transfer Station M for Mac OS X Getting Started Guide for further operational instructions.

The ATTO H680 card that comes supplied with the Transfer Station has 2 ports. To connect more SAS devices, such as one or two Quantum TC-L52BN-AR tape drives, use either an additional H680 card or the 4 port ATTO H6F0 card.



The diagram below shows the cabling setup with the ATTO H6F0 configuration.

Note: only the Quantum TC-L52BN-AR tape drive running firmware 3182 is supported.



9 Software Installation

Register your details at www.codexdigital.com/software to download the latest software for Codex products.

On this webpage go to the section 'Codex Transfer Station for Mac OS X' and download:

- the 'codexserver-...' dmg file that is top of the list. This is the latest version available.
- FTDI USB Serial driver
- OSX Fuse
- ATTO ExpressSAS H680 drivers

Then go to the section 'Codex User Interface Software for Mac OS X' and download the 'codexui-...' version that matches the 'codexserver-...' version you have downloaded.

Install all these software packages following the prompts that are given. After installing all the software it is recommended to restart the computer.

10 Installation of Licenses (Mac Pro Internal and Offload Features)

The Codex Storage Option and Codex Disk and Tape Offloader option both require licenses. Please contact support@codexdigital.com for further details on pricing of these options.

Once a licence key has been received go to the SETUP tab of the Codex UI and click the *i* button (lower-right corner). In the box that is shown select ADD LICENCE, copy/paste the license key in and click the tick/check icon to enable the feature.

Licenses are tied to the Mac Pro machine on which they are installed (as opposed to the Codex Transfer Station hardware).

11 Configuring the Internal Storage Disks

From software release 2012.r2.2502 (21st March 2012) Internal disks in a Mac Pro can be formatted to use with the Codex software.

Disks formatted in this way can be used to store data that is in native format from Codex recording systems. This means you can clone data directly to these disks from a Datapack or Capture Drive without transcoding through the Codex VFS. After data is cloned to the Internal disks metadata is still accessible for editing if required and files can then be transcoded using the Codex VFS.

12 Hardware Setup

The following important points relate to the hardware setup:

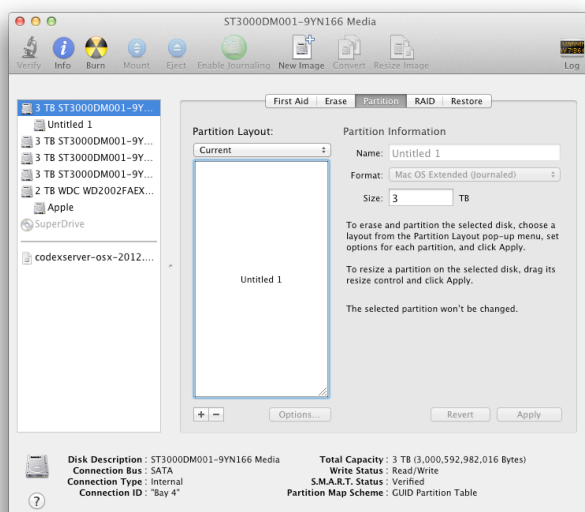
- Up to 4 disks can be used with Codex software, and these must be fitted into the internal drive bays of the Mac Pro.
- An adaptor kit can be purchased¹ that allows the system disk of the Mac Pro to be mounted in the spare optical drive bay. This means that all four internal drive bays can be used for disks as Codex storage. This is the recommended configuration because four disks will provide the highest performance/capacity.
- If an adaptor kit is not used then three of the internal drive bays can be used for Codex storage, providing reduced performance/capacity.
- Identical disks should be used for best performance.
- Codex software uses internal disks in a RAID-3 configuration. Therefore the usable space will be (n-1) * disk capacity. e.g. four 2TB disks will provide 6TB usable space.
- Codex software can use a maximum of 2TB per disk. (Larger disks can be fitted but the full capacity will not be used).

13 Formatting Disks

Codex software does not support GUID partition tables, which is the default on Mac OS X. Therefore if disks have been formatted in this way the partition table must be deleted before the Codex software can use them.

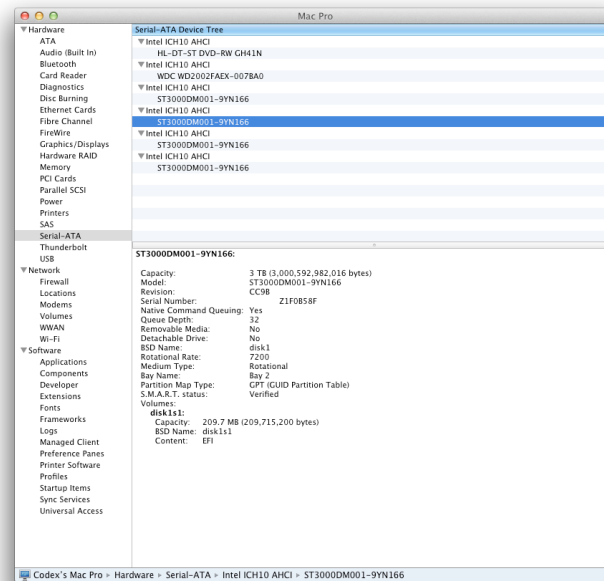
Follow these steps to format the disks – (**Note:** Steps 1 to 6 are only required if the disk has previously been formatted on a Mac):

- 13.1 Use Disk Utility to delete any pre-existing partitions on the disks you want to use. To do this select the required disk from the panel on the left, then select the Partition menu and click the minus (-) button underneath the partition layout graphic:



¹ Contact support@codexdigital.com if you require a part number or supplier for the adaptor.

- 13.2 When the partition has been removed a pop-up box will display that 'The disk you inserted was not readable by this computer'. Choose Ignore.
- 13.3 Repeat step 1 for all disks you would like to use with the Codex software. Be extremely careful not to delete the partition on the system disk (or any other disk containing important data).
- 13.4 Select the Apple symbol at the top left of the screen and then 'About This Mac'. Then select 'More Info...' and then 'System Report'. From the options on the left select 'Serial-ATA'. The screen shown will be something like this:



- 13.5 For each disk that you want to use note the BSD Name, e.g. disk1, disk2, etc. You can also confirm these are the correct disks with other information that is shown such as the Bay Name (physical drive bay inside the Mac) and Model, and Capacity (if this is different from other disks you do not wish to use with the Codex software such as the system disk!).
- 13.6 Open the Terminal application and enter the following command for each disk (with correct disk number):

```
sudo gpt destroy /dev/disk1
```

(Enter admin password)

Important notes:

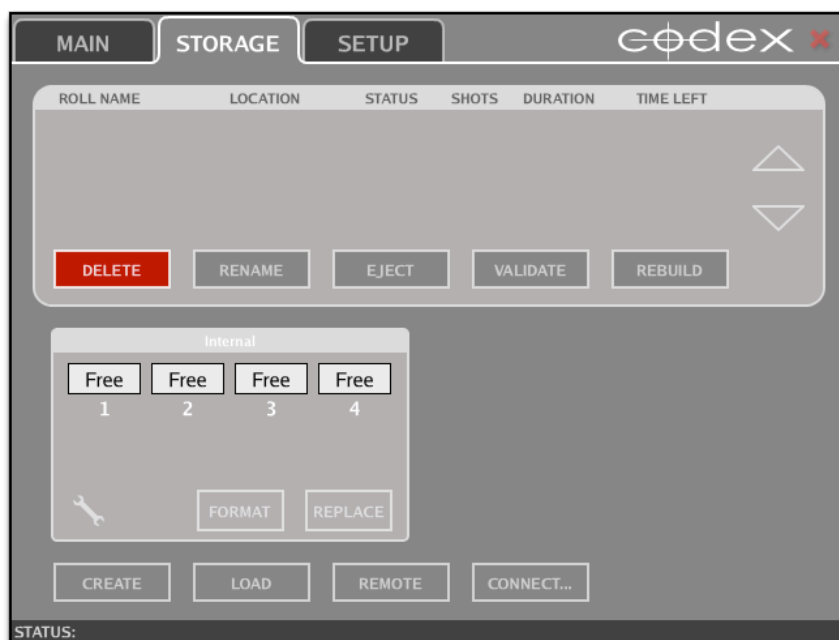
- 1) this command removes the disk partition table and is not reversible, and there is no confirmation prompt – it happens immediately when you enter the command and password.
- 2) disk0 is normally the system disk, and running the command on this disk will effectively delete it – be very careful to make sure you do not run this command on the system disk!

```
codex — bash — 82x24
Last login: Thu Apr 19 13:15:33 on console
Codexs-Mac-Pro:~ codex$
Last login: Tue Apr 24 14:40:59 on console
Codexs-Mac-Pro:~ codex$ sudo gpt destroy /dev/disk1
```

- 13.7 At this stage the Mac will show a message that there is an unrecognized device – choose Ignore.
- 13.8 Open the Codex UI application and select the STORAGE tab. In the lower half of the screen is a graphic labelled Internal. Click on this so it is highlighted in red and then click the LOAD button.



- 13.9 Click the Spanner/Wrench icon on the Internal graphic to show the individual disks that will be used. These should have a status of Free.



If the boxes that represent each drive are grey in colour and do not say Free then they have not been formatted correctly (which means there is still a GUID partition table on the disk), or there is no disk fitted in that position.

14 Creating a Roll on the Disks

- 14.1 After confirming that the disks are usable by the Codex software click the Spanner/Wrench icon again. Then click in the middle of the Internal graphic so it is highlighted red.



Now click the CREATE button and input a name for the Roll that will be created across the disks. This Roll is simply to identify the storage when it is loaded in Codex software. Shots that are cloned from a Datapack or Capture Drive will maintain their original Roll metadata when copied.

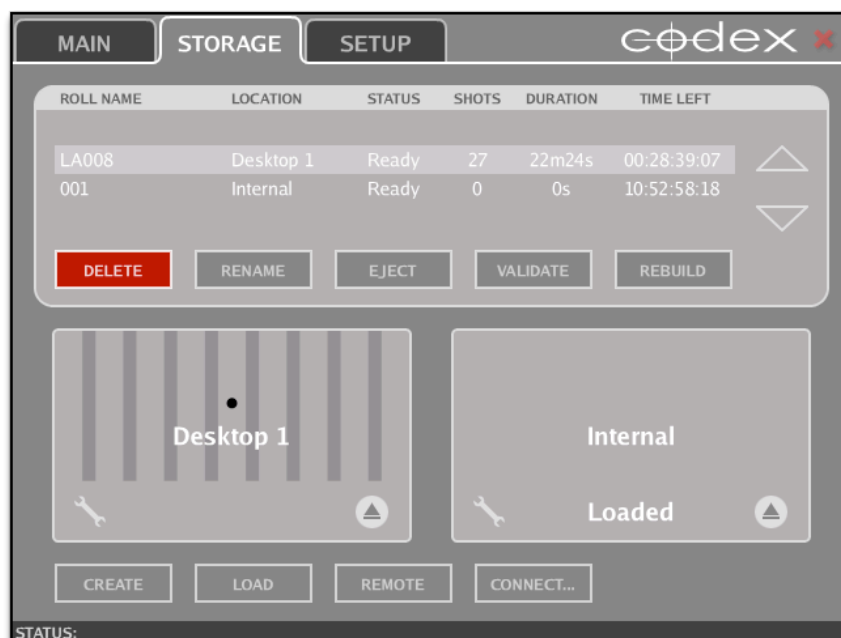
The Roll will be created as a RAID-3 disk array.

14.2 When the Roll has been created it will be shown in the upper half of the STORAGE screen:

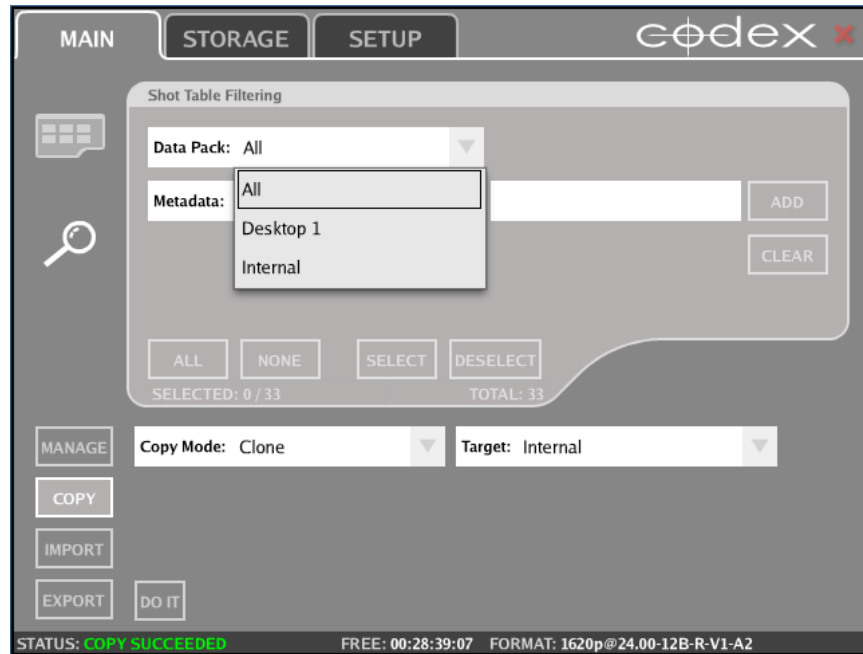


15 Cloning Data to the Internal Storage

15.1 With a Transfer Station attached and a Datapack loaded in addition to the Internal Storage the STORAGE tab appears like this:



- 15.2 To clone data to the Internal Storage go to the MAIN tab. Select the Filter button on the left of the screen (Magnifying Glass icon) and open the Datapack drop down list to select the location you would like to copy from:



- 15.3 Click the Shots View button (above the Filter button) to view the shots on the Data Pack you have chosen. From the bottom left of the screen click COPY and set the Copy Mode as Clone. Open the Target drop down list to chose Internal as the target for your copy:



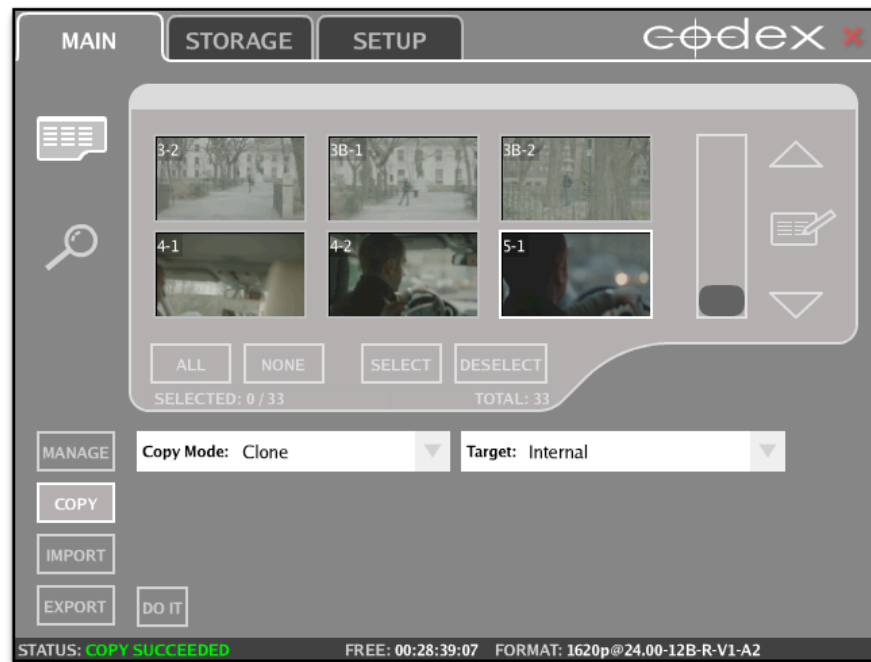
15.4 Then below the shot thumbnails/list click the ALL button so that all shots to copy are marked with a green square:



15.5 To begin the copy click DO IT. The copy progress will be shown:



15.6 When the copy has finished a COPY SUCCEEDED message will be shown at the bottom of the Codex UI:



16 Offloading files from the Internal Storage

Once material has been copied from a Datapack/Capture Drive to the Internal Storage there will be two copies live on the system, and therefore two versions of each shot in the VFS. Therefore before copying files from the VFS (either using Codex OFFLOAD options or a third party backup option) it is recommended to do one of the following:

1. Eject the Datapack/Capture Drive or the Internal Storage so that there is only one copy of your material in the VFS available for copying.
2. Use the {L} token at the beginning of the Filename string for each File Type in the VFS. This will create a top level directory for each storage location, such as 'Desktop-data-pack-1' and 'MacPro-internal' allowing you to copy files from a single location.

Guides for the VFS and Offloading using Codex software can be found at: www.codexdigital.com/support/media-stations

For support please contact support@codexdigital.com

Notes

24 hour support line +44 7985 467 665