Atomos Ninja-2

User Manual

AtomOS

EDITION 3: MAY 2013



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Safety Instructions

The Ninja-2 is designed to a high standard but there are some things you should be aware of to prolong the life of the unit and for your own safety.

Batteries and power supplies

The battery supplied with the Ninja-2 is a powerful professional device, designed to retain enough energy to supply the Ninja-2 for hours. You should avoid short-circuiting the battery connections because this can cause a high current to flow which can damage the cells and even pose a fire hazard. For example, you should not carry batteries in a bag or pocket where they may contact other metal objects such as coins.

The power supply and battery charger included are intended for use with the Ninja-2 only. Keep the power supply, plug and cable away from water and unplug from the mains electricity socket when not in use.

Disconnect power supplies before cleaning the Ninja-2 or its components.

Using the Ninja-2 safely

Although the Ninja-2 is very lightweight compared to all the devices it replaces, it is still a solid object that could cause injury if misused.

- Always make sure that the Ninja-2 is mounted securely and is unable to fall onto anyone nearby. This is especially important when there are children present who might be tempted to pull on cables.
- Always ensure that cable runs to the Ninja-2 are clearly visible and do not present a trip hazard.
- Do not place on uneven or unstable surfaces.
- Do not insert anything but Ninja-2 Master Disk caddies in the Master Disk slot on the side of the Ninja-2.
- Do not touch the Ninja-2's screen with sharp, metallic or abrasive objects.
- The Ninja-2 can become warm or hot with prolonged use. Do not place it in contact with your lap or any part of your body where such warming could cause discomfort or injury.
- Do not expose to strong electrical or magnetic fields.
- Do not expose to or use near liquids, rain or moisture.
- Do not dispose of the Ninja-2 or its batteries in municipal waste and do not incinerate it or its batteries, but follow local regulations for safe disposal

Care of disk drives

Spinning disks and SSDs are very sensitive to damage from static electricity. Please observe all the usual precautions when handling them.

Please see the section Mechanical shock and vibration later in this manual for information about how to handle and care for your disk drives.

HDMI Cables

We recommend that you use HDMI cables with the HDMI logo and gold connectors for best performance.

User Manual Conventions

To keep things simple but clear, we've only adopted two conventions in this manual:

A helpful tip, suggestion or something to note because it's not obvious at first

`Menu` **`Monospaced text`** *indicates a menu or touch action*

Warranty & Conditions

Notice

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ATOMOS warrants that:

- the main product, not including TFT/LCD, or any external accessories, will be free from defects in materials and workmanship for a period of 1 years from the date of purchase, **the user may upgrade to a 3 year warranty upon registering their product at www.atomos.com**
- the TFT/LCD, batteries, battery charger, HDD/SSD docking station, Master Caddy and Carry Case will be free from defects in materials and workmanship for a period of 1 year from the date of purchase.

This warranty is exclusively for the benefit of the original purchaser and is not assignable or transferable.

If during the warranty period the product is shown to be defective ATOMOS may at its option:

a) replace the goods or supply equivalent ones, b) repair the goods, c) pay the cost of replacing the goods or of acquiring equivalent ones and d) paying the cost of having the goods repaired;

The customer must notify ATOMOS of any defect in the goods in writing prior to the expiry of the warranty periods set out above. The customer will be solely responsible for returning the goods to ATOMOS or its authorized distributor. Upon acceptance of a warranty claim by ATOMOS, where ATOMOS repairs or replaces the goods, it will be responsible for reasonable shipping costs incurred in sending the goods to the Customer, provided that customer is located in a country in which ATOMOS has an authorized distributor or repair centre or agent.

Warranty Exclusions

This warranty applies only to defects in workmanship and does not cover defects caused by:

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- Exposure to water or weather;
- Exposure to magnetic fields or corrosive liquids or substances;
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Introduction



Thank you for choosing the Atomos Ninja-2: your 10-bit HDMI Recorder/Monitor/Player. It's the most compact portable recorder available, with extremely long battery life, a high-resolution screen, uncompressed-quality playout and real-time pulldown removal.

Ninja-2 preserves the pristine uncompressed video quality from your camera's sensor by directly encoding it into Apple ProRes® or (optionally) Avid DNxHD® as it records to HDD/SSD, making it instantly compatible with your NLE timeline. The Ninja-2's revolutionary 'Sensor-to-NLE' workflow is the fastest and best quality available today!

With the plummeting price of hard disk storage, the 2½" disks used by the Ninja-2 are very cheap; the cost of storage is no longer an issue. Buying a disk for the Ninja-2 is just like buying a tape – except that with a disk you will have instant "non-linear" access to your video.

The Ninja-2's one-touch TFT-LCD interface is intuitive and simple to use. There are no complicated menus or difficult to find functions – everything you need is instantly accessible from the home screen. Refer to 'Using your Ninja-2' for more information.

Software updates for your Ninja-2 will be issued regularly. Registering your Ninja-2 now will ensure you are kept abreast of any updates. Software updates and information will also be available at: **www.atomos.com/support**

We hope you enjoy your Ninja-2!

Your Ninja-2 comes with a standard 1 year warranty on all parts and accessories. ***You can upgrade to a 3 year warranty*** *on the main Ninja-2 Unit alone (excluding TFT/LCD) by registering your Ninja-2 online at* ***www.atomos.com/registration***
This will enable us to let you know about updates to the product and other important information surrounding your purchase.

AtomOS HDMI HDD | SSD ProRes Avid DNxHD®

1. What's included

We try to provide you with as complete a package as possible: you don't have to add anything except 2.5" storage media (you can buy additional packs of empty Master Disk Caddies from your Atomos Reseller) and some cables to suit your set-up, like HDMI cables and tripod screws. All other parts necessary to use the Ninja-2 are included.

Here's the complete list

- Ninja-2 recorder/monitor
- 2 x empty Master Disk Caddies + 8 screws for fixing disks
- Master Caddy Docking Station with USB 2 & 3 Cable
- 9V AC Battery Eliminator (110-240V for AC operation)
- Single Battery Charger with Power Supply Unit
- 1 x Atomos 7.4 V 2600mAh Batteries
- Ninja-2 QuickStart Guide (not pictured)

Atomos does not sell storage and your package will not contain any spinning disks or SSDs. You can buy these locally to keep running costs as low as possible.

We recommend drives, please refer to Part 16 (Technical Specifications) of this manual. For the most up-to-date information please visit:

http://www.atomos.com/discovery-what-drives/



Contents may differ from those shown here.

2. What you also need

Spinning Disk Drives (HDD)

These are the raw storage medium for Ninja-2. You can use either traditional “spinning” disks, or the new solid state ones. Choose 2 ½” spinning drives if your Ninja-2 is going to be attached to a tripod or if it is not going to be subject to excessive vibration. For harsher conditions, choose a solid state drive.



HDD | SSD

Which drives should you use?

There are so many drives available, and new models appear all the time. We are not able to test all drives but here are some guidelines.

Speed and reliability are the main factors. Here are a few things to bear in mind:

- Disk drive data rates tend to be given in megaBYTES per second, and codec data rates are normally given in megaBITS per second. It’s very easy to get confused. But there’s no need to be, because all you have to do to convert megabits to megabytes is divide by 8. So if you’re recording at 220 megaBITS per second, that’s going to result in 220/8 megaBYTES per second, which is 27.5 megaBYTES per second.
- To see what works for you, you may want to start working with relatively fast drives 7200 RPM, and then try slower ones 5400 RPM. This gives you a frame of reference for comparison. Just remember that the higher the bitrate of the Apple ProRes® you’re using, the faster the drive needs to be.

Atomos regularly test hard drives – please check this link before purchasing drives: **http://www.atomos.com/discovery-what-drives/**

Solid State Drives (SSDs)

These are Flash memory devices that come in the same form-factor as 2 ½” disk drives, and they are fully supported by the Ninja-2. See the section below about when you should consider using SSDs.

Mechanical Shock and Vibration

Hard disks are precision mechanical devices that need to be handled carefully. You will be using the same type of drives that are normally used in notebook computers, and you can use this as a guide to whether you need to use mechanical drives or Solid State ones for any proposed projects. If you think a particular usage scenario would be suitable for a notebook computer, then it will probably be OK for a mechanical drive inside a Ninja-2. If you think the drive inside your notebook might suffer damage, then don’t use a mechanical drive.

We can’t give rigid guidelines because there are so many different kinds of drives, each with different mechanical properties. You may even find variations between drives of the same type.

What we have found is that mechanical drives are suitable for most purposes that don’t involve harsh vibration or mechanical shocks. They will be perfect for tripod-mounting, and also for the majority of hand-held work. We would advise against hard-mounting them on moving vehicles (but they would probably be OK if cushioned against the body of the camera operator) and we would not advise using mechanical disks if there is a likelihood that they might be dropped onto a hard surface.

Here are some things that you should bear in mind when using spinning disks:

- Even though spinning drives can withstand substantial shocks when they are not in use, they are more vulnerable when running. Harsh treatment that may not actually damage the drive may interrupt recordings at a much lower level of severity. We recommend that you experiment with your drives by testing them in the conditions that you normally work in.
- Spinning drives have a gyroscopic effect that you will feel faintly if you rotate the Ninja-2 up or down or from side to side. They are particularly sensitive to this type of motion. If you do this too quickly while the drive is spinning, you may get a small gap in your recording.
- Be very gentle when changing batteries if you are recording. Practise this manoeuvre so that you are able to do it smoothly. It is always better to do this in-between takes.
- Do not bang or jolt the Ninja-2 while recording. Gentle and cushioned movement may be OK.
- You will find noticeable differences in the ability of drives to withstand shock and to continue recording during vibration and movement. As we receive reports of drive durability and reliability, we will post them on **www.atomos.com**
- Your Ninja-2 is able to detect when the drive is under stress and it will recover from any break in a recording by waiting until the drive is ready to continue, and then resuming from that point. If frames have been dropped because of shock or vibration, a **“Skippy”** Kangaroo symbol will appear on the home screen on the Ninja-2, just above the disk capacity indicator. This means that you will not normally have to restart the Ninja-2, even if a recording has been interrupted by mechanical disruption to the disk drive. (see ***Recording and Monitoring: Atomos Anti-shock Technology*** for more information)

Taking into account most usage scenarios, we think that mechanical disks will be suitable in the majority of cases. Spinning disks are most sensitive when they are rotating. It is obviously best to avoid dropping them but many disks now have a “drop detector” that will lock the most fragile mechanical parts in place and protect them from surprisingly hard knocks. We recommend that if you want to experiment with this, you do so with a drive that doesn’t contain the day’s shoot!

Backing up and archiving

Remember that no storage medium, including tape, optical disks, spinning disks and flash memory, is completely immune from failure. You should bear this in mind when deciding how to manage your recorded content. At the very least, you should consider the consequences for you and your business if your storage medium were to suffer from a sudden failure, and you should back up your content accordingly. Hard drives that you can use for archiving are becoming increasingly affordable. You may find that it is completely feasible for your to keep your master Ninja-2 disks on a shelf (just like tapes!), and, as a backup, store copies on large hard drives, RAID arrays or Network Attached Storage (NAS).

2. What you also need

HDMI cables (not included)



There's a lot of mythology about HDMI cables. Most people can't tell the difference in picture quality between expensive ones and cheaper ones. There shouldn't be any difference if as long as all the digits going through the cable arrive at the other end. And yet some supposedly "top end" cables can cost hundreds of times more than you necessarily have to spend. It is rare to get a cable that is bad enough to affect the picture, but keep in mind that the longer the cable, the more likely it is to cause problems.

There is at least one good reason for spending a bit more on an HDMI cable: the physical quality.

HDMI was designed as a living-room standard. So most cables are designed to be fitted behind TVs and rarely moved.

That's completely different to the type of use they will get with the Ninja, when they will be moved all the time and need to be strong but flexible. Some of the cheaper HDMI cables might work properly but are almost completely inflexible.

Flexible cables will put less strain on the HDMI sockets on your camera and on your Ninja-2 - but, in any case, it is worth considering some kind of cable management (cable ties or clips) near each HDMI socket - especially since HDMI is not a "locking" connection.

Some cameras and camcorders use a "mini" HDMI connection to save space. Cables with a mini connection at one end and a standard one at the other end are freely available.

*If the HDMI cable is removed while recording the **"Skippy"** image will also be displayed. To remove touch skippy and he will disappear ready for his next notification.*

*Refer to page 21**: Atomos Anti-skip Technology** for more information about "Skippy".*

Standard 1/4" Camcorder Mount



This must fit a standard 1/4" screw mount. Select the type that best suits your application and conditions.

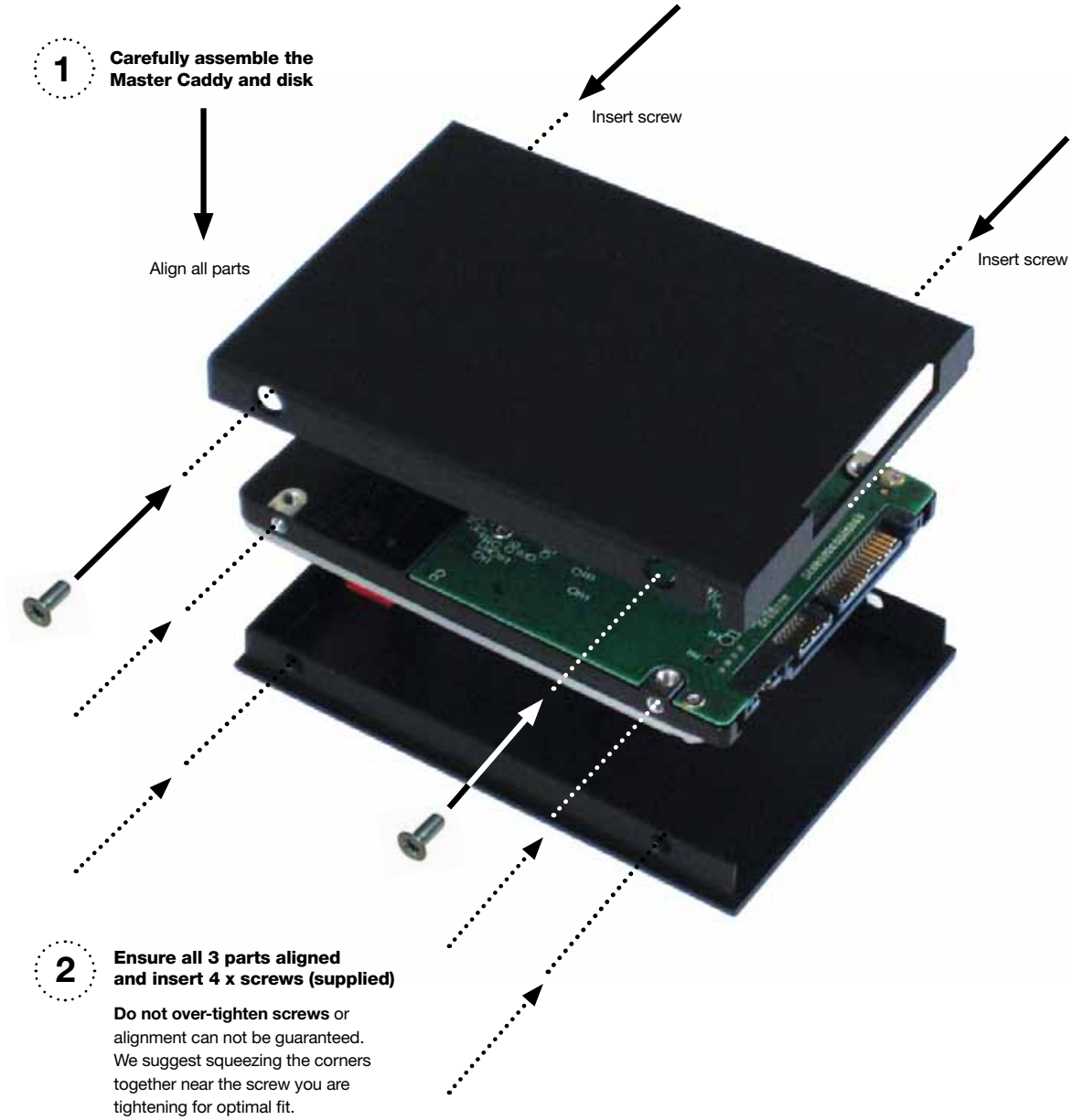
3. Mounting disks in the Master Caddy

Mounting drives in the Master Caddy

This is simplicity itself. Just insert the disk into the caddy, and secure with four screws. The caddy is light and the disk just needs to be held securely. Don't over-tighten the screws. There are no connections to make because pushing the caddy into the Ninja-2 or the Docking station makes all the connections for you.

The Master Caddy can't be inserted the wrong way round. Always make sure that the disk connector faces the slot in the Ninja-2. You have to be quite firm to push the Master Caddy into place, but don't push too hard, just in case something isn't set up or aligned properly. There is very little that can cause problems and the most likely thing is that the Master Caddy isn't properly flush with the drive inside. A quick visual check will confirm this.

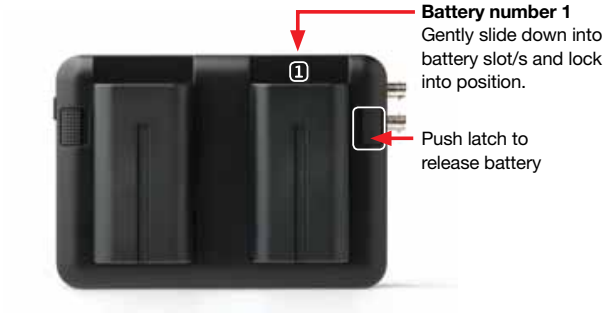
Spinning disks and SSDs are very sensitive to damage from static electricity. Please observe all the usual precautions when handling them, especially ***DO NOT EVER touch the exposed SATA connector*** *as static electricity may be harmful to your disk.*



4. Connecting the Ninja-2 and powering up

Batteries





The Ninja-2 is a battery powered device, and has a special feature to ensure that you never have to interrupt a recording to change a battery. We will come to this shortly.

Like all batteries, you will need to take care of them. Make sure that you don't short circuit the connections because this can result in very high currents that can damage the cells and could pose a fire hazard.

Charge new batteries before using them, using the battery charger supplied.

Batteries do not charge in a linear way. At first they charge very quickly, and then the rate slows down to a trickle. While charging, one or more red lights will blink. When 90% charge is reached, all the lights will flash. It is perfectly OK to use the batteries at this point and ***we recommend stopping at this stage for the longest battery life****. If you leave the batteries on charge after all four lights are flashing, the charger goes into trickle charging mode for the final 10%. Eventually, when trickle charging is complete, and the batteries are at 100% charge, all the lights will go out.*

Always use battery slot 1 for the first battery. This is effectively your primary battery and the Ninja-2 will not start without it.

Battery slot No.2 is the secondary or back-up battery and is not marked. Once the Ninja-2 has been started from battery slot No. 1, it will operate on battery slot No. 2 alone. No. 1 is only required for start up.

To attach the battery, gently slide it down into the slot and lock into position. To remove a battery, push the latch to release it. Each battery has its own latch, which is located to the right of battery No. 1 and to the left of battery No. 2 as you look at the back of the Ninja-2. Pull the latches towards the batteries to release them.

Ninja-2 batteries and modular accessories (Connect Converters, etc) are held in place very tightly because they are on the outside of the device and there has to be no possibility whatsoever that they could work loose, so you will have to be quite firm with the battery latches. We suggest that you familiarise yourself with the force required to remove the batteries and accessories so that you can do this quickly in the field. Make sure that you hold the top and the bottom of the battery or accessory module when sliding it off to avoid dropping it when it is released from the main unit.

The Ninja-2 introduces an Atomos technology called Continuous Power which used battery looping. When power is running low on one battery, the Ninja-2 will automatically switch to the second battery, you can remove one of the batteries and replace it with a fully charged one. Ninja-2 will continue to operate as you do this. You can continue this process indefinitely.

The Ninja-2 may be powered from NiMH & Li Ion 14.4V battery systems. Battery adaptor required.

4. Connecting the Ninja-2 and powering up

Turning ON power to the Ninja-2

The start button is located on the right hand side of the unit (as you look at the screen). Momentarily press the circular button on the right side of the Ninja-2 as you look at the screen to power up the unit. After a couple of seconds you will see the Atomos logo, and then the Ninja-2 Home Screen.

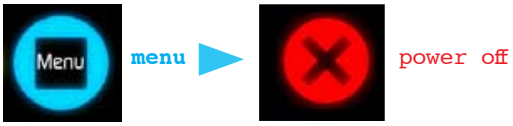
Turning OFF power to the Ninja-2

To turn the unit off, touch `menu` on the home screen, and then **press the red `Power off` icon for 4 seconds** the icon will go white when touched to indicate activation of the button. The unit will then power off. You can also do a forced power down by **depressing the on/off button for four seconds**.

Four seconds *can seem like a long time! We've made it this way to make absolutely certain that the Ninja-2 can't be turned off accidentally.*



Turning OFF power via touchscreen (preferred)



5. Ninja-2 connections



HDMI in: The video input to the Ninja-2 is HDMI. This is the signal that is recorded to the Ninja-2's storage media.

HDMI out: This is for connection to an external monitor or other device with an HDMI input.

Audio: The Ninja-2 can record 2 channels of digital audio embedded in the HDMI signal. There is a 3.5mm Stereo Line-in socket for recording audio in sync with incoming video. Depending on your set-up, you may find that this gives you better results than the microphone on the camera.

You can switch between Analogue Audio Line In and HDMI as your audio sources in the user interface, where you can also adjust the analogue audio input level.

There is also a 3.5mm output that doubles as a Line Out or Headphone Out, which has it's own independent level control in the user interface.

6. Other physical features

Master Caddy Slot

On the left hand side of the unit (as you face the screen) is a slot for Ninja-2 Master Disk Caddies. To insert a caddy, gently push until it clicks into position.

Formatting disks - see page 13



Release and remove Master Caddy

To eject it, use the latch on the right hand side of the Ninja-2 (as pictured)

The Master Caddy is hot-swappable, so you can do this at any time – even while the unit is turned on. But don't do it while recording or you will get a corrupted file that may be unplayable.

Ninja-2 Master Disk Caddies are held in place firmly. Push the latch upwards and grip the protruding part of the Ninja-2 Master Disk Caddy at the top and bottom, pulling strongly but carefully. You may want to practise this manoeuvre a few times until you are completely familiar with the process.



Screw Mounts

The Ninja-2 features standard tripod ¼" screw mounts on the top and bottom of the unit, allowing you to configure your recording setup various ways (¼" camcorder mount not included in Ninja-2 kit).



Ninja-2 Modularity

The Ninja-2 was designed to be a flexible and modular system. It doesn't need any drivers to connect to a computer, you have a choice of spinning hard disk storage or solid state, and it will work with any battery system as long as it connects to the Ninja-2's NP-type slots, or via a DTap connector.

The Ninja-2's battery slots are the key to it's modularity. They provide secure attachment and continuous power, through Atomos' loop-through power system.

The first of the modular add-ons to be announced by Atomos are the Connect converters (pictured). More on this in Part 14.



7. Using the Ninja-2

Using the Ninja-2

The Ninja-2 is controlled via an intuitive touchscreen interface. There are large, obvious controls for Record, Play, Monitor, and Menu, as well as the following information:

- **Current input format and status**
- **Codec currently in use**
- **Remaining battery power**
- **Which of the two batteries is currently active**
- **Headphone/Line Out volume**
- **Audio Input Level meters**
- **Remaining Recording time on disk**
- **Timecode**
- **Record Trigger**
- **Unit name**

Watch out for any items on the screen that are marked by a small blue arrow. If you touch these items you will be taken to other options depending on context. If you touch them repeatedly, you will cycle through related options

A large blue arrow in the top right of the screen will take you out of lower-level menus back to the main control screen

The User Interface in detail

Even though the Ninja-2 is an extremely sophisticated and technically advanced device, we have taken a minimalist approach to the interface. We've only included controls that you really need. This is important in a device that has to be ready for use at all times and must therefore be simple to operate while in use.

The Ninja-2 Touchscreen

Ninja-2 features a very high quality 800x480 pixel video touch screen. Most of us are now familiar with the idea of touchscreens, but there is an important difference between Ninja-2's screen and those you might find on a smartphone.

Ninja-2's screen is pressure and touch sensitive. It takes more than a glancing brush of a finger to trigger the screen. For some applications, (like dragging and dropping) this would be a disadvantage, but for the Ninja-2 it is an important feature, because if the screen was too sensitive, it would be easy to accidentally trigger Ninja-2 operations, potentially interrupting a recording, for example.

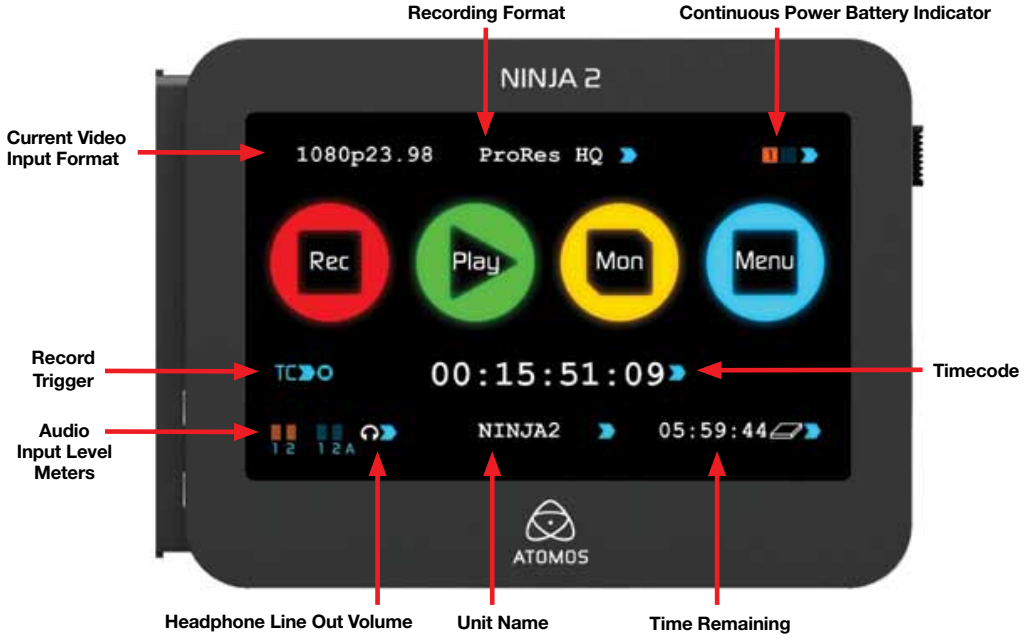
With the Ninja-2 screen, you have to firmly push the screen for an instruction to register. This gives a very positive feel to the device and confidence that commands won't be given in error.

Be definite and deliberate in your pressing on icons on the screen and the Ninja-2 will be very responsive. Remember this is not a capacitive touch device like many Smart Phones; holding contact with the icon for a millisecond will ensure accurate and rapid response.

The Home Screen

This is the screen you see whenever you are not in a function or sub-menu, and it is the first screen that the Ninja-2 boots into when you turn it on. All functions are one touch away: simply touch the screen on any function to be taken to that function's screen.

There are four brightly coloured icons labelled `Rec`, `Play`, `Mon` and `Menu`. In the lower centre of the screen is a timecode display with `Hours:Minutes:Seconds:Frames`. Below this, on the lower edge is the Unit Name: a customisable label that identifies media from your when it is connected to a computer.



Home Screen and Menu Functions

Rec (Record)

This is the icon you touch to begin a recording. Touch it again to stop a recording. While recording the Rec icon changes to a Stop icon. Once your recording has started you have the option to touch the Mon icon to view the signal you are recording.



STANDBY



RECORDING



The Rec icon is dimmed and disabled if there is no valid video input OR, the disk is not formatted, or the disk is full. The button is dimmed because you cannot record.

NO INPUT

Play

Touch this icon to play previously recorded clips. When you press the green Play button you will be taken to the navigation screen.



STANDBY



NAVIGATION

Ninja-2 uses a unit name, scene, shot and take convention to name the clips. Select the clip you want to play by touching the file name and this will start to playback.



NO DISK

The Play button will be dimmed and disabled if there is no disk or the disk is not formatted.
See page 14 - Formatting disks

Mon (Monitor)

Pressing this icon connects the incoming video signal to the screen, so that you can use the Ninja-2 as a field monitor. More about monitoring in the next section, Monitoring and Recording.



STANDBY



The Mon icon is dimmed and unselectable if there is no valid video input.

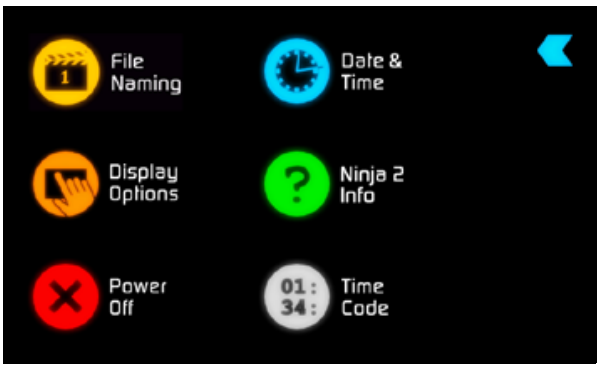
NO INPUT

Menu

Pressing this takes you into a number of options which will explained next.



STANDBY



MENU

Scene & Shot

Allows you to select the scene and shot number that will be recorded next. To select press `scene` or `shot` at the top and the number you wish to use from the list below (up to 999). The number you choose will then be shown underneath the word Scene or Shot in a larger font and will be underlined. The take number is automatically increased with each take.



Date & Time

Allows you to adjust the date and time shown by the clock and calendar in the Ninja-2. This will also change the time of day timecode. Touching the `Date & Time` takes you into the Date and Time Screen. At the top of the screen is the date and the time of day. The month, day and year are selectable by touching them, at which point a scrollable list of dates, months or years will show below, depending on which option has been selected.



To enter a date, for example, begin by touching the month at the top of the screen, and then select the required month from the list below. Then touch the day, and then the year, selecting the required value from the list below.

Setting the time is done in exactly the same way.

Date formats (i.e. dd-mm-yyyy or mm-dd-yyyy) are selectable on the right of the screen. Just keep touching the `date format` icon until it shows the format you want to use.

Display Options / Screen Lock

Allows you to modify the brightness of the screen. You are presented with a horizontal slider. Touch it anywhere on it's length to increase or decrease the brightness of the display or you can slide up and down the blue bar.

SCREEN LOCK

A new feature for the Ninja-2 is the ability to Lock the screen so no changes can be made by mistakenly touching the screen. To Lock the screen press the start button located on the side of the Ninja-2 once quickly.

You will see `Locked` will flash on the screen. Press again to Unlock.



When you access the Display Icons you can choose to disable your screen but only when the screen is locked. While Locked, Display is > `On/off`

Ninja-2 Info

Shows the software (firmware) version and unique device ID (DID) of your Ninja-2 device. This will be required to activate the Avid DNxHD codec.
You can also check on the Atomos website to ensure you are running the latest firmware:
http://www.atomos.com/support



Power Off

Turns the Ninja-2 off. You need to press Power Off for four seconds. Alternatively, you can press the physical On/Off button on the right side of the Ninja-2 for four seconds to force shutdown. Atomos recommends using the touchscreen `Power Off` function .

Timecode

Takes you to the dedicated timecode configuration page.

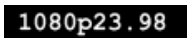
Refer to Part 7 of this manual for more information.

Remember that pressing a large blue arrowhead will always take you back to the previous menu you were in.

Smaller controls and indicators around the Home Screen

There are a number of smaller controls that double-up as indicators around the Home Screen.

Input



At the top left of the screen is not actually a control but will change to display information about the signal being input to the Ninja-2 at the time. If there is no input, it will say No Input. When a valid signal source is connected, the display will change to (for example) 1080i50.

Video Compression Format



At the top middle of the screen shows which version of ProRes® you are using. You can change between versions (LT, HQ and 422) by repeatedly touching the indicator. Avid DNxHD options will be shown here if the codec has been activated.

Battery Indicator



Shows whether you've got one or two batteries connected. If there is no battery connected a number will not be displayed in the appropriate slot. Touching the Battery Indicator takes you to the Batteries screen where you can closely monitor the status of the Batteries.

When a battery is running low its icon will flash.

BATTERIES SCREEN

The Battery screen indicator is made up of two Battery icons, the active battery is shown in orange and the level of each battery is shaded in 1/4 increments with a voltage level shown on top.



In the picture above we see Battery 1 is full and active and Battery 2 is currently inactive and 1/4 depleted. If no battery is present it will show an X in the picture and will be Black in colour as pictured right.



Warning: If both of the batteries are fully depleted, the unit will turn itself off. *The Ninja-2 will switch to the battery screen for the last 5 seconds of available power before shutting down, alerting you that shutdown is about to occur.*

AUTO SWITCHING/MANUAL SWITCHING

The Ninja-2 will automatically switch to a new battery when the current battery is depleted. You may also switch between batteries at any time by pressing on that battery icon. The new active battery will then turn orange. You may need to use this if you have for example 3 hours recording but only 2.5 hours of battery in one battery, in which case you would change to a freshly charged one.

Storage Capacity Indicator



Located in the bottom right of the screen. When a disk is inserted, the Storage Capacity Indicator will show the recording capacity of the drive in hours minutes and seconds, based on the currently selected video compression, which of course, will determine the recording bitrate.

FORMATTING HDD/SSD

Touching the Storage Capacity Indicator on the home screen will take you to the Media Information and Format screen. Media Information indicates the drive you have present, in this case a Hitachi 500GB spinning disk.

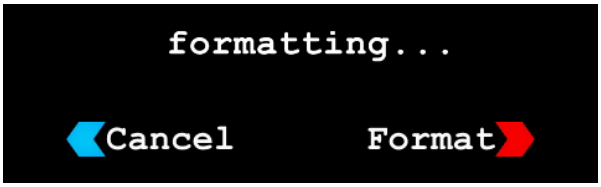
Touching Format HDD/SSD will format the drive inside the Ninja-2. A confirmation screen will give you the choice to continue or cancel the process.

If you do not see your hard drive information, there may be a problem with your connection. Try ejecting the drive and trying again.

Also check the drive compatibility list: http://atomos.activehosted.com/kb/article/what-drives-do-we-recommend

The Ninja-2 file system is exFAT. We recommend that you format each disk with the Ninja-2 and not your computer.





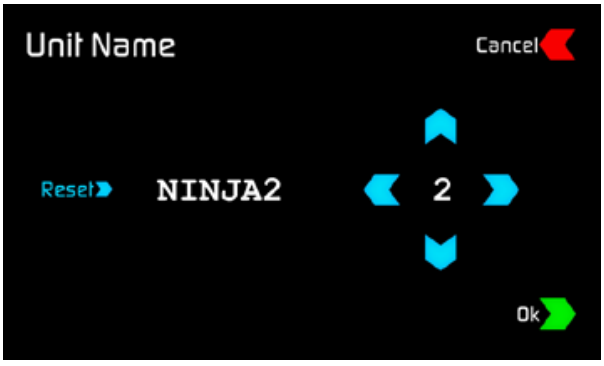
Unit Name



The unit name serves two main purposes:

- **HDD Naming:** Naming the unit names the drive if the drive is formatted after the unit name has been set
- **File Naming:** File name is the current unit name as the start of the recorded clip name; Ninja2_S001_S002_T003

To access the unit name screen simply touch the blue arrow to the right of the unit name. Creating your own unit name is simple. Pressing OK will allocate the new unit name and return you to the menu screen.



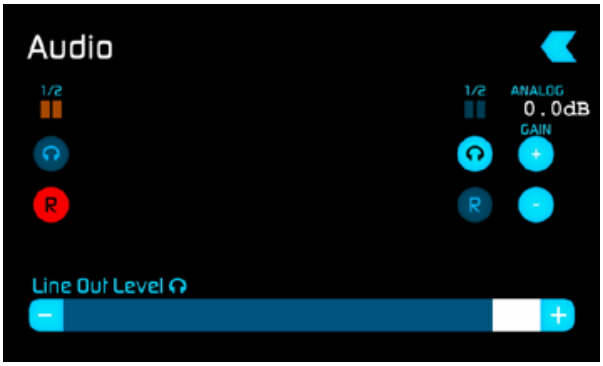
Audio In



Audio In is in the bottom left corner of the screen, just below Headphone Monitoring Level.

There are four small squares, each of which represents an audio input. Inputs 1 and 2 are the two digital embedded inputs which come via the HDMI. Inputs 1 and 2 A are the two analogue stereo line level inputs. Audio Frame delay will allow you to compensate for out of sync audio/video with certain DSLRs, for example the Nikon D800. These four squares also act as approximate level and "signal present" indicators.

Touching the Audio In icon takes you to the Audio In page, where you can choose to record from either HDMI or the analogue inputs, or both, for a four-channel audio recording. There is also a slider to control the analogue gain.



It is not possible to vary the gain if the signal input is from the HDMI connection because this is digital and is embedded in the signal. You can usually adjust this from the camera, see your cameras manual for operational details.

8. Monitoring and Recording

Connect to input

As soon as you connect a supported input to the Ninja-2's HDMI input and have inserted a formatted drive::

- `Rec` and `Mon` icons will go solid and colourful
- The input format will be shown in the top left corner
- Audio inputs will show levels in bottom left corner



READY-TO-RECORD



NO INPUT / NO DISK / NO DISK FORMATTED



NO INPUT / DISK PRESENT



INPUT PRESENT / NO DISK

The Ninja-2 has a high-quality screen that adjusts to the scan frequency of the incoming signal, for a smooth, accurate display.

Before recording

- Check there is a valid signal by looking at the main screen, ensuring it looks like the 'ready-to-record' screen
- Check the input signal is set to what you would like:
  - Progressive with 2:2 or 3:2 pulldown or
  - Interlaced
- If you see `No Input` for any reason please check your camera settings match a supported format for Ninja-2. See technical specifications on page 33.
- Check you have your audio in record set as you require.
- Connect any additional Analogue audio inputs and adjust gain accordingly.
- Connect headphones and monitor the Audio channels to make sure the sound is as expected
- Enter monitor mode to ensure the video is coming in as expected.
- Check you have the correct Scene & Shot number selected. (see page 20 – Organising Material on disk)
- Check your drive is inserted and has been formatted
- Check your timecode settings are as required
- Choose how you will start/stop your recording
- Check for clean input:
  By touching the screen in Monitor mode, you can remove the Atomos overlays to give you a clean screen. If any overlay graphics remain, these will be coming from your camera. Please check the settings on your camera to switch these off.

Choosing your recording format

You can select the recording format by touching the top middle of the touch screen where the format is indicated.



IMPORTANT: You need to match the format you are recording internally on the camera with the format recorded on the Ninja-2. *If you are recording 24p internally on the camera you need to record 24p on the Ninja-2 so the recordings match. To adjust the recording format simply touch the format icon repeatedly and the Ninja-2 will cycle through the options available. The basic rule is match the format of the internal recording on the camera (not the external output of the camera). For more explanation on choosing the correct format on the Ninja-2 and the relationship to camera internal format and output format refer to Section 10 – Pulldown.*

SmartControl

SmartControl is a versatile set of functions used to control the starting and stopping of recording by automatic or external means. This section outlines the different methods to start and stop recording.

Ninja-2 Start and Stop record control can be triggered by the following methods:

1. **Home Page Touch Screen**
2. **Monitor Page**
3. **HDMI Rolling Timecode trigger**
4. **HDMI Camera trigger**

1. Home page Touch Screen

By pressing Rec (Record)



2. From the Monitor Page

By pressing Rec (Record)



3. HDMI Rolling Timecode Trigger record



If HDMI timecode is selected and the camera is in Record run mode, the user has the choice to start and stop recording remotely from the moving HDMI timecode.

To enable this arm the TC icon.

Set the Timecode to HDMI

Set Camera trigger to None/Timecode.

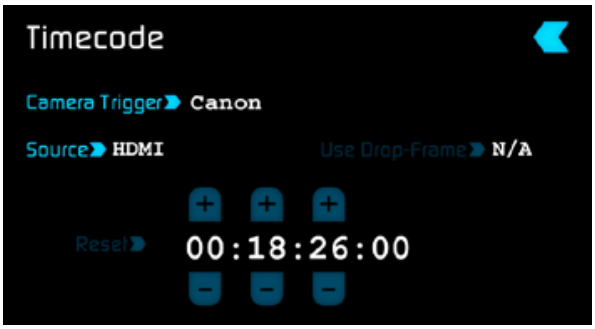
When enabled the camera and the Ninja-2 will start and stop recording simultaneously.

NOTE: Rolling timecode trigger is for use when the camera is in REC RUN timecode mode only. If your camera is set to FREE RUN this trigger will start recording immediately and cannot be stopped until the input is removed. Please note that this currently only works with more recent Sony and Canon cameras.

4. HDMI Camera trigger record

HDMI camera trigger record can be used when the camera is in FREE RUN or REC RUN timecode mode. Please note that not all cameras have Start/Stop flags for triggering record.

The HDMI camera trigger is manufacturer-specific; you will need to select the appropriate manufacturer for your camera. There is a flag within the HDMI signal that lets the Ninja-2 know the start/stop record has been pressed on the camera; in turn this will trigger the Ninja-2 to start/stop recording at the same time as the camera. This functionality is currently supported by the Canon 5D MkIII, 1DXc, EOS-C100, and Sony NEX-FS100.

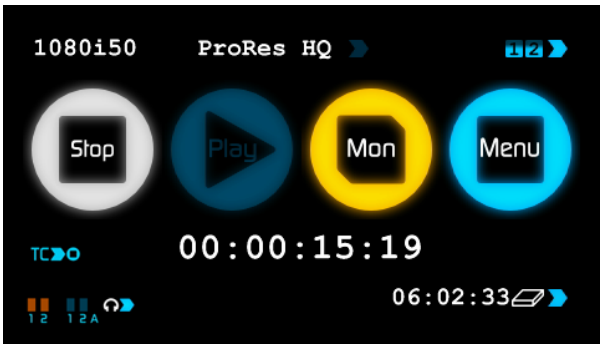


To enable this set Timecode to HDMI then set the camera manufacture in the timecode menu.

When the manufacturer is selected in Camera trigger, this will disable the Timecode trigger.

Once you are recording you will see:

- The Rec button has now changed to Stop on the main screen
- Play button has been disabled
- The Record icon has changed to a stop icon on the monitor screen
- REC is in the top right corner of the monitor screen







Your files will be recorded to your drive with the `unitname, scene` and `shot` you have setup.

To stop, press the `stop` button on the Ninja-2 monitor or the camera record button for either HDMI trigger.

Using the Ninja-2 as a field monitor and viewfinder

With its 5” high-resolution color TFT 800x480pixel screen, the Ninja-2 makes a great field monitor. So good, in fact, that you don’t need any separate monitoring equipment. You could even say that the Ninja-2 is a “Recording Monitor”.

SmartMonitor

To make the Ninja-2’s screen even more useful, we have added new “assist” features in the AtomOS firmware, which we refer to collectively as **SmartMonitor.**

To access these tools, go into Monitor and select the Camcorder icon. A new set of icons will appear



On the right hand side are the icons for each SmartMonitor tool.

To enable the tools you simply press the icon for the tool you would like, the border will change to white.

You can apply all filters to your monitor at the same time but set up individually for your needs

Zebra

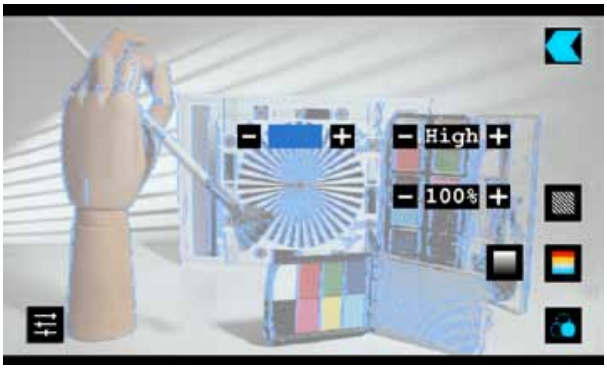


Zebra lines show the parts of the image that are over exposed relevant to the % level set. 95% is usually used for objects, windows and surfaces. 75% is used for checking over exposure of human faces this will indicate reflective or shiny areas on the face.

Focus Peaking

Focus peaking allows the user to ensure their recordings are always in focus. The parts of the image in focus are indicated by the selected colour. By default the Ninja-2 uses red, but you can change the colour in the settings and have a Low, Med and High indicator depending on the look you want to achieve. The width of the lines indicating focus can be adjusted for finer focus line representation. This tool is very accurate.





False Colour

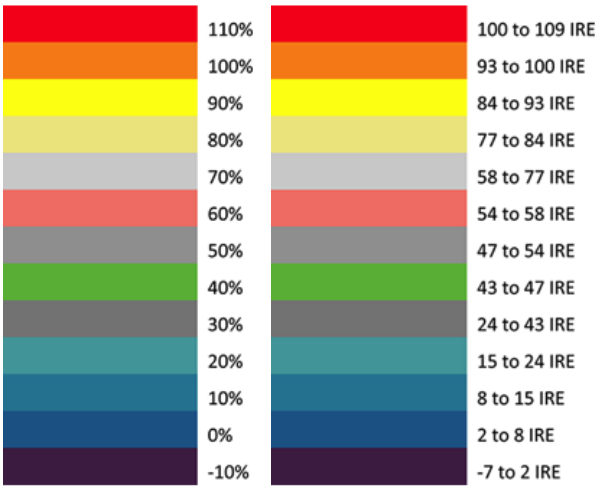


False Colour assigns different colors to areas of different exposure in the image. Instead of just showing what parts of the image are overexposed, it gives a more complete picture of what is going on in the image by using a range of exposure values. Generally speaking, overexposed elements will display as red, and underexposed elements will display as blue.

The gradient between colour levels can be adjusted to have a gradient or not. If gradient is not selected, the colour levels will change instantly to the next colour level.

False Colour Scale:

To help you determine the exposure range with more accuracy, please use the scale below:



Gradient can be ena bled in the settings area.

Blue for Exposure

Displays a black-and-white image that is based on the blue channel of the input signal. Used to observe the noise content of a video image and the judge the overall exposure quality.



Settings

On the bottom left side is the icon to amend the settings of the tools. Current settings are for Focus Peaking, Zebra and False Colour.

SmartLog

SmartLog gives you the ability to tag your clips during recording (or playback, more on this later).

By the pressing the `Favourite` and `Reject` icons you can assign a “good clip” or “bad clip”. This information can then be imported into a non-linear editing system to speed up the edit process, as you can easily see which parts of your recording you have marked to keep or reject.

SmartLog currently only works with Apple FCP X.

How to use

To access the tags, enter the Monitor screen, then press the `Flag`





SmartLog: MONITOR MODE

You can now see your monitor in the background and the `Favourite` and `Reject` icons



You will use these icons as an in and out point on the file, pressing once to set the in point then again to set the output.

When you have selected Favourite, the icon colours will invert (Green background with black text) and the Reject Icon will disappear. When Reject is selected the icon colours will invert (red background with black text) and favourite will disappear.



SmartLog: PLAYBACK MODE



Once recording has finished you will see the green or red in/out points shown on the timeline of the clip once selected.



Your final stage is to Export the XML flag:

- Enter Play or Media Information
- On the bottom right hand side there is an icon Export XML





- Press this once
- You will be shown a please wait screen (the length of time will vary depending on your recording time and amount of flags applied)
- Then it will return you to the previous screen

You can carry on recording but please remember before you eject the drive to export your XML files.

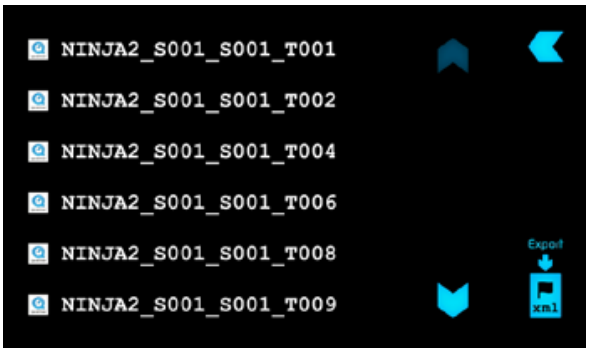
Organising material on the disk

Ninja-2 uses a `unitname, scene, shot` and `take` naming convention:

`NINJA2_S001_S001_T001`

This was recorded on a `Ninja-2 unit` called `NINJA2`, the `scene` selected was 1, the `shot` selected was 1 and it was `take` 1.

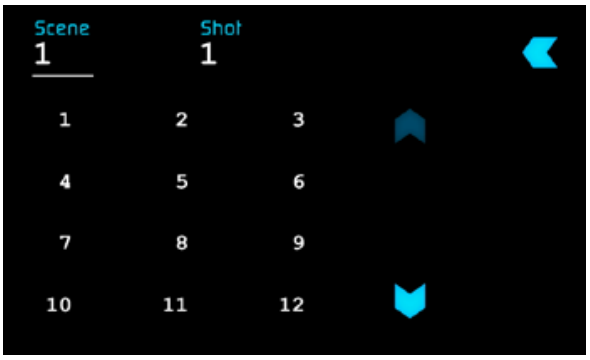
Below is an example of your playback browser window showing file names.



To organise your clips you need to access the Scene & Shot. To navigate press `Menu` on the main screen and then press `Scene` & `Shot` on the menu screen.



You can see along the top you have `scene` and `Shot` with a large underlined number, this is the current selection.



To change them press `scene` or `shot` (depending on the one you wish to change) then the number you wish it to set as. In each selection this goes up to 999.

Once selected you will see the underlined number at the top will have changed. You can now go back to the Main screen and start your record.

If you do not set this up Ninja-2 will start recording from Scene 1 and Shot 1 automatically.

The Ninja-2 uses the exFAT file system. This is recognised natively by both PCs and Macs, without any need to install driver software. It is a 64-bit file system that will let you record to the full capacity of your storage medium without any need to "segment" the files. The maximum file size is so large that you do never need to worry about exceeding it.

***For Windows XP**, service pack 3 and a special exFAT patch are required. Both are available on the Microsoft® website.*

***For MAC OS** Snow Leopard 10.6.5 or higher is required.*

Atomos Anti-Shock Technology

Spinning disks are very reliable in a controlled environment where movement and vibration are minimal and within the capabilities of the devices. They are ideal for low-cost recording, but will suffer reduced performance if they are jolted or receive a sudden impact.

Should one of these events occur, the Ninja-2 will sense the hard disk slowdown. If there is a break in the recording it will detect the number of frames involved and will then continue to record when it is safe to do so.

This means that even if you suffer a momentary break in your recording, the video capture will continue without any intervention from you, the user.

It is obviously important for you to know that you have suffered from an interrupted recording and the user interface will display a warning (in the form of a Kangaroo sign) clearly above the disk-capacity display on the main screen.

If you find you are working on a very active project where you are seeing a lot of **"Skippys"** then you probably need to switch to SSDs, and only use spinning disks for gentler environments.



To remove "Skippy" warning, simply touch the icon and it will disappear.

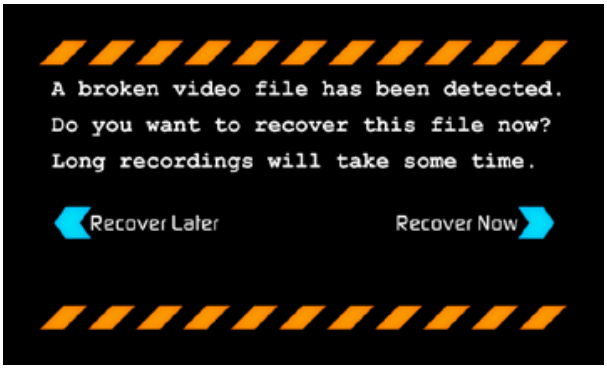
File Recovery

From AtomOS 3.0 onwards, a file recovery feature is included, in the event of a disk being removed, or a battery running out, while recording.

The Ninja-2 saves the file every 8 seconds while in recording mode, so if the recording is stopped suddenly, without closing the file properly, you will only ever lose 8 seconds of material.

In the event of an interrupted recording, when you restart the Ninja-2, or enter playback mode, you will be presented with a menu that gives you the option to recover immediately, or recover it later.

If you recover later, every time you put the disk in, or start up the Ninja-2, the same menu will appear to prompt you to recover the file that did not close properly.



If the drive is broken, or has become corrupted, then we will not be able to recover the file and we recommend that you try third-party hard disk recovery software.

9. Timecode

Using Timecode

Touching the timecode display on the Ninja-2's home screen, just below the four main coloured controls, will take you to the Timecode setup screen (this is also accessible by touching Menu and then Timecode)

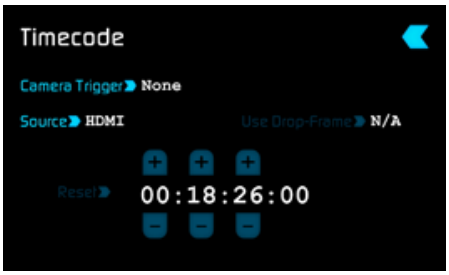


Occupying the lower-centre part of the screen is the timecode display with controls to set the start-time of the timecode.

The four timecode modes supported are:

- **HDMI**
- **Time of Day**
- **Record Run**
- **Auto Restart**

Cycle through these modes by touching the timecode `Source` Selector.



HDMI embedded timecode

With this setting, the HDMI input will set the timecode (as long as the source HDMI device supports this). The controls to adjust the timecode value are disabled in this setting because the embedded timecode in the HDMI signal sets the Timecode value of the recording. If you want to adjust this please, refer to the manual of your HDMI input device. Please note that this currently only works with later Sony and Canon cameras that have this function.

Trigger from HDMI time code
If HDMI timecode is selected and the camera is in REC RUN mode, the user has the choice to start and stop recording remotely from the source camera HDMI timecode.

To enable rolling Timecode Start/Stop functions, simply press the TC icon shown here. When enabled, pressing the camera Record Stop/Start button will make the Ninja-2 start and stop record simultaneously as the timecode starts and stops.

(Currently only certain Sony and Canon cameras support timecode over HDMI).



OFF



DISABLED



ENABLED



When using the camera in FREE RUN timecode mode, the rolling timecode trigger might not work as expected. However, depending on the camera, you can trigger record function by the embedded flag/trigger in the HDMI signal. Most higher end cameras (eg. Canon C100) have this functionality; if unsure check the camera compatibility section of the Atomos website.

Time of Day

With this selected, each new clip that is created will contain embedded timecode accurately showing the time of day that it was recorded, based on the internal Ninja-2 Time of Day clock. This can be set in `Menu > Date & Time`

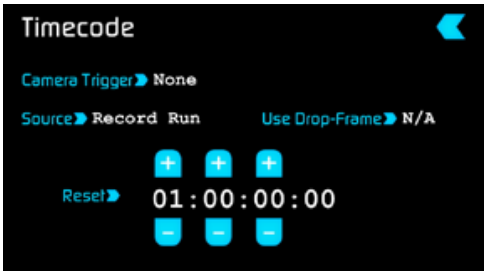


If recording is stopped and then restarted while in this mode, there will be a time gap between the last clip and the next one, equal to the length of time the Ninja-2 has been out of record. The start timecode of each clip will be the exact time of day when recording started.

Time of Day timecode is useful as a reminder of the time that clips were recorded. It can also help with syncing-up of multiple cameras, but remember that the accuracy of the correlation of Time of Day timecode between Ninja-2s will depend on how closely their internal clocks are synchronised.

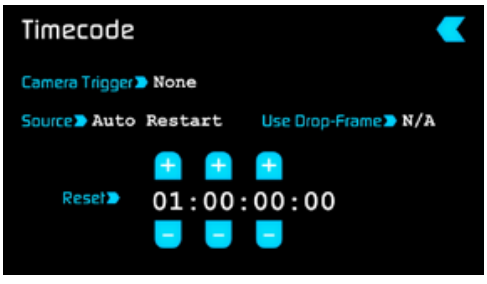
In Time Of Day mode, the controls on the Timecode Setup Screen for adjusting the start-point of the Ninja-2 timecode are not available, as the timecode is set by the Ninja-2's internal clock.

Record Run



With this setting you set the start timecode of the first clip and the following clip will start at the frame immediately after the out point of the preceding clip. This will continue for all clips that follow. This is often referred to as continuous timecode.

Auto Restart



With this setting, the timecode will be reset to the timecode you define here whenever you press record. All your clips will start at this timecode.

To adjust the timecode use the "+" and "-" above and below the hour:minute:seconds sections

10. Pulldown

What is Pulldown?



Many professional and consumer cameras available today do not send true 1080p24, 1080p23.98, 1080p25, 1080p29.97 or 1080p30 signals down their SDI or HDMI outputs.

Instead they send 1080i59.94 in NTSC regions (eg USA, Japan), and 1080i50 in PAL regions (eg Europe)

In order to convert the signal from the internal recording format to 1080i5994 or 1080i50, they use a process called 3:2 or 2:2 pulldown.

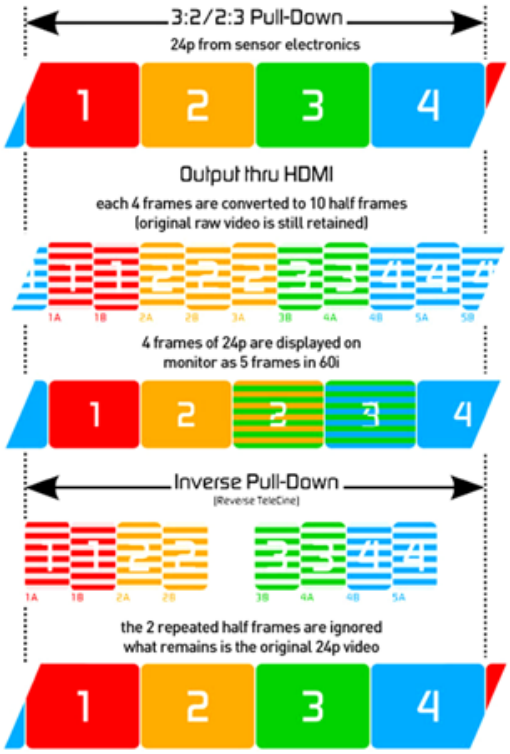
Camera Setting	Pulldown	Ninja-2 Receives
1080p23.98	3:2	1080i59.94
1080p24	3:2	1080i60
1080p25	2:2	1080i50
1080p29.97	2:2	1080i59.94
1080p30	2:2	1080i60

You will, of course, want the Ninja-2 to record eg 1080p24, not 1080i60 to the disk. In many cases, it is not easy for the Ninja-2 to detect the pulldown operation in the video, so you will have to set the correct mode in the Ninja-2 as well as setting it on your camera.

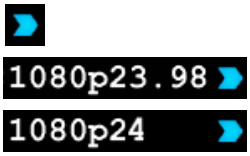
With some cameras, the Ninja-2 can detect and remove the pulldown automatically, in which case the mode you expect (eg 1080p23.98) will display on the Ninja-2 and you will not have to do anything further.

If there is no input detected, then toggle the input by pressing the screen until you see the input you wish to record.

Atomos is adding auto-detection support for more cameras, please check for firmware updates regularly at ***www.atomos.com***



1080p23.98 or 1080p24



If you have set 1080p23.98 or 1080p24 in your camera and your Ninja-2 displays 1080i59.94 or 1080i60, then you can easily remove the pulldown by following these steps:

- Press the `blue arrow` next to the `video format` repeatedly until you see 1080p23.98 (or 1080p24) displayed. You will see that the `Mon` button is dimmed. Your Ninja-2 needs to analyse the video for about 1 second, in order to detect the pulldown sequence and remove it.
- If it is not automatically detected after 1 second, wave your hand from side to side in front of the lens, or wave the camera from side to side for a few seconds. The Ninja-2 will detect the pulldown in the movement, the input video format will show 1080p24 and the Mon/Rec button will highlight.

3:2 pulldown detection is difficult, if not impossible to detect on completely still video. This is why you should wave your hand in front of the lens.

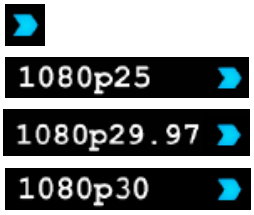
If you lose the input detection – for example you unplug the SDI cable or go to Playback mode, you will need to wave your hand or the camera again, when the signal is restored to the Ninja-2.

Some cameras use a variant of pulldown removal, for example Panasonic Advanced pulldown. The Ninja-2 does NOT support this format, and it will not be detected.

Standard Panasonic pulldown is supported, ensure in the Panasonic camera settings that pulldown is not set to Advanced.

1080p25, 1080p29.97 or 1080p30

For these modes, simply press the `blue arrow` repeatedly until your 1080p desired format is displayed. There is no need to wave your hand or the camera, as 2:2 pulldown removal does not require moving video.



11. Playback & Playout

Using the Playback and Playout features

The Ninja-2 has a powerful playback function that allows you to playback pristine Apple ProRes or (optionally) DNxHD recordings in real-time with controls to navigate quickly to any part of a clip, the ability to play recorded content faster than normal playback speed or step through the clip frame-by-frame to check your footage very accurately.

Playback makes the Ninja-2 a fully-functional portable HD Deck with quality visually identical to uncompressed!

Whenever a clip plays on the Ninja-2's screen, it will also be presented as an HDMI signal through the Ninja-2's HDMI output. You can view this on an HDMI monitor, or, using an optional Atomos H2S Connect Converter, on an SDI monitor.



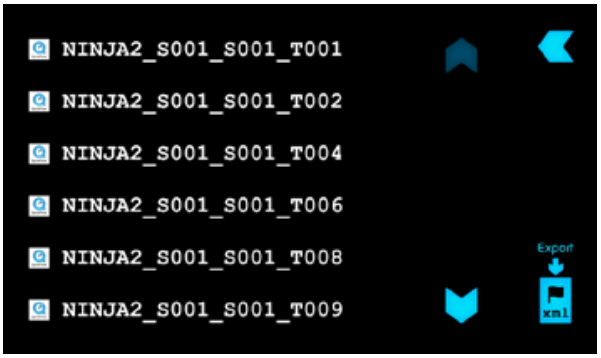
To play back a clip, first touch the green Play control on the home screen. There will be a short pause while clips are made available for playback. You will then be taken to the Play Navigation screen.

exFAT Disks

If the disk has been formatted on Ninja-2 it will use the ExFat file system. The Play navigation screen will display a list of files that have been recorded. The naming convention used includes the unit's name, Scene number, shot number and take number, e.g.

`Ninja2_S001_S001_T001.mov`

This list is ordered in the same order it was recorded in. To navigate the list use the up and down arrows to scroll through. If you edit the XML in playback this will put the file to the top of the list. To play the item touch the file you want to play and this will start the playback.



FAT32 Disks

If the disk has been formatted on the Ninja-2, or on a Mac/Pc as FAT32, it will use the FAT32 file system.

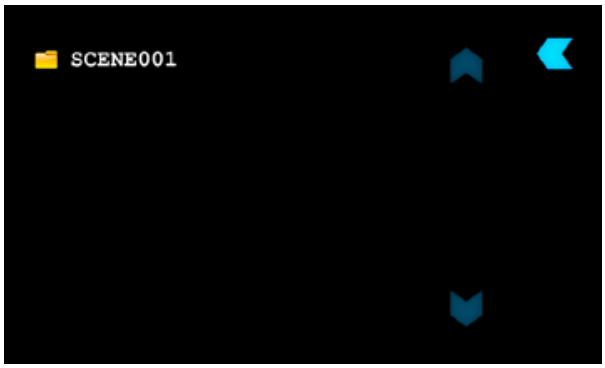
The Play navigation screen will display the `Scene` and `Shot` folder structure.

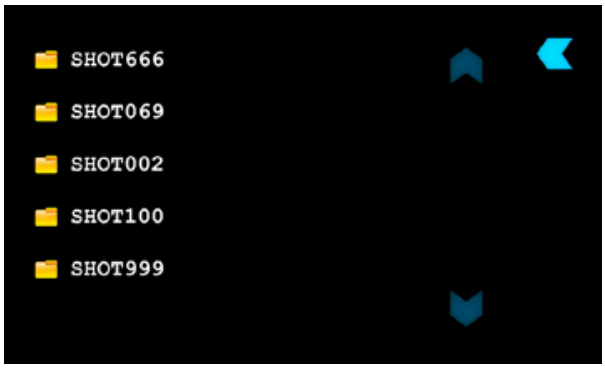
The first screen will show you all the `Scene` folders. In the picture below we can see `Scene001`) within the `Scene` Folder are any `Shot` folders. In the picture below you will see the 5 different shot folders. Within each `Shot` folder will be the list of `takes`.

Fat 32 has a file size limitation of approx 4GB, when you recorded on the Ninja-2 it would generate a new take each time the recording exceeded this limit.

You will notice the `take` has a different icon, this indicates the file can be played back.

You can navigate the files and folders using the blue up and down arrows. Once you see the `take` you would like to playback, touch the `take` icon you want to play and this will start the playback.







Once a file has been selected for playback, you will see the following options:

Scrub Bar



This is the thick blue line along the bottom of the playback screen. A vertical white “now” line shows the current playback position. You can think of the scrub bar as representing the length of the clip. If you touch the scrub bar, playback will start from that position.

Simply by running your finger along the scrub bar, you can move forwards or backwards through any clip - even if it is eight hours long - at any speed.

Play/Pause



This is the master playback start/stop control and is found to the right of the scrub bar. It toggles between play and stop.

The remaining play controls have two modes depending on whether the Ninja-2 is in Play or Pause.

Play mode



PLAY MODE

Fast Forward/Fast Reverse



Plays the clip at 8x normal speed

Fast Fast Forward/Fast Fast Reverse



Plays the clip at 64x normal speed

Pause mode



PAUSE MODE

Frame Forward/ Frame Reverse



Moves the clip forward/backward by a single frame

Go to start/Go to end



Goes directly to the beginning/end of the current clip

Note that you can jump between any of the controls while in playback: you do not have to press Stop first.

Loop Mode



LOOP MODE

The Ninja-2 has the ability to play back a single clip in loop mode via the HDMI output. This can performed with captured clips at full broadcast quality or the final edited clips from your hard drive.

To do this:

- Go into Playback mode
- Pick the clip you want to loop

Note that when you first select a clip for playback, longer clips will take slightly more time before they start playing. All subsequent navigation within clips of any size will be instantaneous.

- Use the scrub bar to locate the point you wish to start from (In point) and select the `In point` icon on the top left hand side of the playback screen. This will turn red to confirm that it is active.



- Repeat this for the desired Out point by selecting the `Out point` icon on the top right hand side. Again this will change to red.



- Now select the `Loop` icon in the top middle of the screen - that will also turn red to indicate that it is active.



- Press the `Play` button. The segment of the clip you have selected will now loop until you press the `Stop` button.

To change the In and Out points, just stop playback and adjust the start and stop points. Press `Loop/Play` again.

You can loop the playback of the entire clip by simply pressing Loop, then play.



REMOVE OVERLAY

At any time, you can hide all the visible controls by simply touching the screen (away from any controls) once. Touch it again to bring back the controls.

Headphone volume



Allows you to adjust the headphone volume while in the playback page

Timecode



This shows the timecode of the ‘Now’ line

Interlaced playback

Ninja-2 playback shows a frame at a time. If the video footage is interlaced (ie with two fields, each separated by 1/50th or 1/60th of a second) it will play back perfectly well, but when playback is stopped, the frame showing on the screen will flicker between the two fields.

This is a useful and accurate method to determine whether your originally captured footage is progressive (even if it is delivered via an interlaced signal) or genuinely interlaced.

12. Connecting and Editing

Connect

To access and edit your recorded material, connect the Master Caddy Docking Station to a Mac® or Windows® editing workstation via USB 2.0 and USB 3.0.

Eject the Master Caddy from your Ninja-2 and insert it into the Docking Station. After a short wait, the recorded video will be accessible to the target computer via a standard disk (exFAT) file system.

NLE supported

We have chosen the Apple ProRes® and Avid DNxHD® codecs as they are both not only visually lossless, but also edit-ready formats. All major NLEs support ProRes and DNxHD.

- **Final Cut Pro (version 7)**
- **Final Cut X**
- **Adobe CS5 (with 5.51 update)**
- **EDIUS 6**
- **Sony Vegas 10**
- **Lightworks**
- **Avid Media Composer 6**

Avid DNxHD® support requires online activation.

ExFAT compatibility

The Ninja-2 formats your disk as exFAT. We have chosen this file system to overcome the 4GB file limitation of FAT32 and keep compatibility on both Windows and MAC OS.

The Operating Systems that support exFAT are:

- **Windows XP - install the following update :** http://www.microsoft.com/download/en/details.aspx?id=19364
- **Windows Vista - install SP1 or higher**
- **Windows 7 (32/64bit)**
- **Snow Leopard 10.6.5 or higher**
- **Lion 10.7**

The Master Caddy Docking Station is a sophisticated device supporting two different data interfaces: USB 2 and USB 3. Note that when using the Master Caddy Docking Station you may need to connect an additional USB cable to the 5v power input. This is because when it has to power a disk drive and its interface electronics, the Docking Station may consume more power than is available from a single USB port. We supply you with a USB to 5v Power Supply socket for this purpose .

Transferring Files

Now your docking station is connected and your disk is recognised by your operating system, you can edit directly from the drive or copy the files to your own storage.

Windows
Open the disk in My Computer > Select all the files or just the ones you wish to transfer, copy and paste them to your desired location. (ctrl+c copy, ctrl+v paste).

Mac OS
Your Ninja-2 disk will show in Finder. Select the files you wish to transfer, drag the files to your desired location or use the copy and paste commands.(⌘+c copy, ⌘+v paste).

If you have used a FAT32 formatted disk in the Ninja-2 this will have a folder structure Scene, Shot, Take. This will mean you either transfer all the folders or utilise the Windows Search or MACs automate program to transfer just the .mov files. There are instructions on this in our knowledge base; visit ***www.atomos.com/support*** *for more info.*





Importing

Final Cut Pro (version 7), Final Cut X , Adobe CS5 (with 5.51 update), EDIUS 6, Sony Vegas 10, Lightworks and Avid Media Composer 6 support imported files from your Ninja-2 disk.

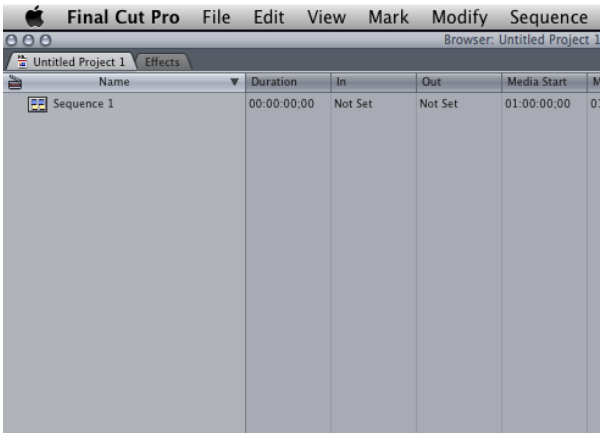
Importing Ninja-2 footage into Final Cut Pro

You can import Ninja-2 footage into Final Cut Pro (FCP) in just a few simple steps.

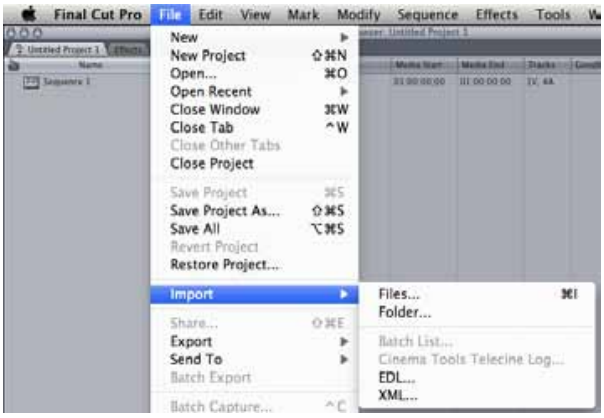
First, connect the Ninja-2 Docking Station to your Apple Mac using the USB 2.0 or USB 3.0 port. Insert the Ninja-2 Master Caddy containing the disk with your footage into the Docking Station and you will see the drive appear in your Finder window.

Start FCP and open your project (or start a new one).

The screen will look like this:

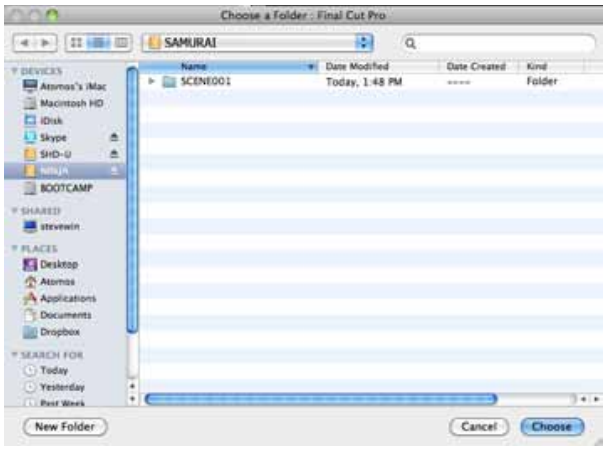


Go to the `File` menu and select `Import > folder`:

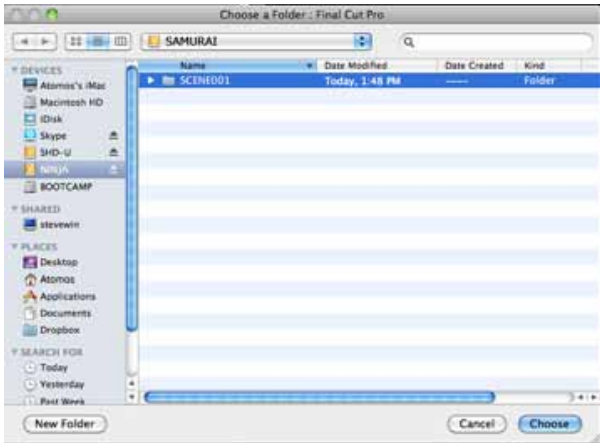


FCP will show you a “browse” window. **Look for the Ninja-2 drive, and click on it.**

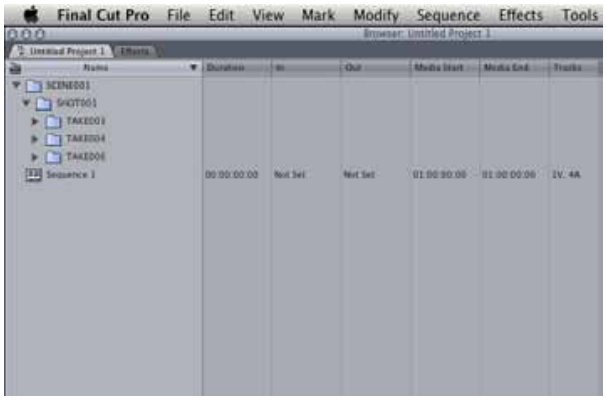
You’ll see the folders in the Ninja-2 drive. **Select the folder containing the footage you want to import:**



Click on Choose and go back to your FCP project window:



Your Scene, Shot and Take folders now appear in the project window, ready for use in your FCP project.



12. Connecting and Editing

SmartLog with FCP X

Prior to importing the XML files into FCP X, ensure that:

- You have exported XML whilst the drive is in your Ninja-2
- You have connected your Master Caddy Docking Station and inserted your Master Caddy into the Dock
- You are using an operating system that supports ExFAT
- Your QuickTime version is up to date
- FCP X is the latest version

There are 2 ways to import the XML file:

1. **Directly from the docked hard drive**
2. **Manually into FCP X**

1. Automatic Import

- Open Finder
- Select the drive (in this example it is EXCVIDEO)
- Double-click the unitname.FCPXML file
- This will open FCP X and import the .xml file

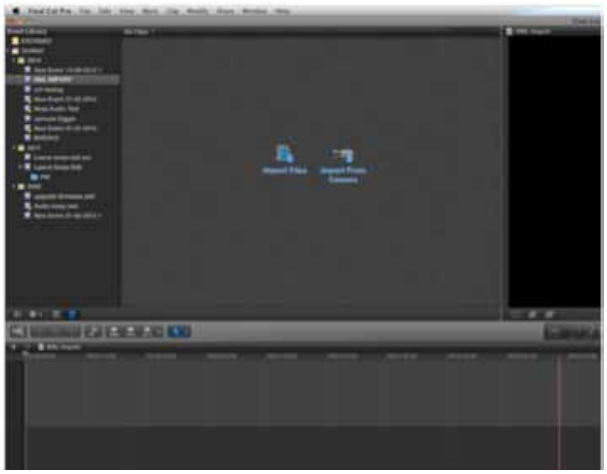
FCP X will make a event of the disk name and reference all the footage in that event.

You will notice that on the clips you have added Smart Tags too, with Green and Red indicating Favorite and Reject.

You can sort these by using the pull-down menu to show favorites. This will show all the individual favorites as separate clips in the Event Viewer.

2. Manual

- Open FCP X
- Create a New Project (or you can use an existing project); in this example it is called XML Import
- Select File, Import, XML



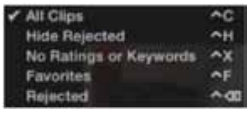
- Select the Ninja-2 drive under Devices (in this example it is called EXCVIDEO)
- Choose the unitname.FCPXML, select Import

The XML will import



Once imported you can expand the clip and you will see the Favourite and Reject tags. You can also filter the view to only see Favourite, etc.





13. Using Ninja-2 with external power supplies

AC Adaptor (included)

This connects on the battery slot on the back of the Ninja-2. Please ensure it is connected to slot 1. The end of the adaptor will connect to a mains plug.

Alternatively you can use any NP-Compatible Charger or power supply, as long as they use a “Dummy Battery”.



D-Tap Adaptor (not included)

This adaptor allows you to take the power supply from any source that has a D-Tap connection such as V-Lock

The D-Tap also connects to the battery slot of the Ninja-2, please ensure it is in slot 1. There will be a D-Tap to D-Tap cable. Voltages up to 20.0V.

14. Using Ninja-2 with Atomos Connect Converters

CONNECT

You can think of Atomos Connect Converters as stand-alone devices or as specially designed modules to give the Ninja-2 additional capabilities. With them you can:

- Add an HD-SDI input to the Ninja-2 for connection to non-HDMI devices using Connect S2H
- Add an HD-SDI output to the Ninja-2 for playout to HD-SDI monitors using Connect H2S

There is nothing to set up when you use a Connect Converter. Just secure the device in a battery slot (in Slot 1 if you only have a single battery) and place the battery that previously occupied that slot in the battery slot on the converter.



15. Software updates

Updating AtomOS (Firmware)

From time to time we will issue software updates for your Ninja-2. To update the firmware (that's the software that runs inside your Ninja-2), there is a simple procedure you have to follow.

- Go to **www.atomos.com/ninja-2-firmware/**
- Locate and download the firmware upgrade

1. Extract the file **ATOMNJA2.FW** from the firmware zip file.

2. Copy ATOMNJA2.FW onto a drive in a Master Caddy.
   a. Atomos recommends you use a freshly formatted known good disk.
   b. Always format your drives in the Ninja-2. The Ninja-2 formats the drive for optimal performance for Video.
   c. Ensure that the firmware update file is on the root of the drive, and not in a folder on the drive.

3. Put 2 freshly charged batteries on your Ninja-2.
   a. It is very important that your Ninja-2 does not lose power during a firmware upgrade.

4. Power down your Ninja-2.

5. Insert the Master Caddy with the ATOMNJA2.FW file.

6. Power up your Ninja-2 with a short press of the Power Button.

7. Watch the screen. The Atomos logo will appear, and after a few seconds the firmware upgrade will start.

8. While the firmware upgrade is happening, there will be flashing coloured lines above and below the Atomos Logo.

9. The firmware upgrade will take up to a few minutes.

10. When the firmware upgrade is finished, the Ninja-2 will:
   a. delete ATOMNJA2.FW from the drive.
   b. Power itself down.

11. Turn on your Ninja-2 again with a short press of the Power Button.

12. When the Ninja-2 has booted, Press "MENU" and then "Ninja-2 Info" and check that the version number is the version expected.

Please ensure your batteries have plenty of charge and that you do not interrupt your Ninja-2 while its firmware is upgrading. You will see a randomised colour-bar display on the screen top and bottom of the screen while updating is taking place. When it is finished, the Ninja-2 will restart and you will be able to use the device as normal.

Problems when installing AtomOS

Very occasionally, the firmware update process can go wrong. This might be because of an incomplete or corrupted download.

In the unlikely event of your Ninja-2 becoming unresponsive, there is a built-in recovery mechanism.

All you have to do is press and **hold the on/off button for 10 seconds**. If you do this your Ninja-2 will revert to its factory condition, and you will be able to retry the firmware update later (taking due precautions to identify and remove possible reasons for the failure of the previous attempt).

16. Ninja-2 Technical Specifications

Ninja-2 Main Unit

Light Weight	370g / 13oz (without batteries & HDD) 670g / 23.5oz (with batteries & HDD)	
Dimensions (without batteries)	115(W)x87(H)x41(D)mm	
Construction	Aircraft grade aluminium for durability + portability. Fanless for silent operation.	
Operating Power	3.0W (Monitoring Only) / 6.0W (Rec, Mon & Play)	
Batteries 7.2V-14.4V Battery System Compatible any source NP Series D-Tap and supporting accessories	**All 7.4v** 1. 2600mAh - Up to 10hrs 2. 5200mAh - Up to 20hrs 3. 7800mAh - Up to 30hrs 4. AC Adaptor (included) 5. D-Tap Adaptor (sold separately)	
Continuous Power*	Primary-Secondary battery system. Change batteries without losing power. Loop batteries continuously. *Patent Pending	
Touchscreen	Size: 4.3" diagonal. Resolution: 800x480. Aspect Ratio: 16:9 native / 4:3 Letterbox. SMPTE Colour Specification Native Frame Rate Playback (48-60Hz)	
Video Input Uncompressed 10/8-bit 4:2:2 Simultaneously displayed on internal 4.3" Ninja-2 screen	HDMI x 1 HD-SDI/SD-SDI (with optional Connect SDI → HDMI converter)	HDMI 1.4
Video Out	Reclocked, ultra low jitter professional grade HDMI output, "HDMI 1.4"	
Supported Formats (In/Out)	**HD 1080i60, 1080i59.94, 1080i50, 1080p30, 1080p25, 1080p24, 1080p23.98, 1080p30(60i), 1080p25(50i), 1080p24(60i), 1080p23.98(60i), 720p60, 720p59.94, 20p50, SD 486i59.94, 576i50** pSF - Progressive Segmented Frame modes are recorded to Progressive rates Most HDMI cameras output 24P, 25P and 30P as 50i or 60i see **www.atomos.com/support**	
Realtime Hardware Encoding 1920x1080 8/10-bit 4:2:2 to:	ProRes®	HQ - 220Mbps 422 - 150Mbps LT - 100Mbps
	Avid DNxHD®	Avid DNxHD-220X - 220Mbps (10-bit) Avid DNxHD-220 - 36 Mbps (8-bit) Avid DNxHD-145 - 36 Mbps (8-bit) Avid DNxHD-60 - 60 Mbps (proxy)
Audio input	HDMI 2 channel + 2 analog channels with gain controls.	
Audio Output	HDMI 2 channel Analog line and Headphone	
Timecode	Sony and Canon compatible HDMI timecode in and out	

Recording Time HDD & SSDs are hot swappable on the fly in the field	**Edit Formats** (I-Frame Only, 422, 8/10-bit)	**HDD or SSD**		
		250GB	**500GB**	**1 TB**
	ProRes® HQ (10-bit, 220Mbps)	2.5 hrs	5hrs	10hrs
	Avid DNxHD-220x (10 bit, 220Mbps)	2.5 hrs	5hrs	10hrs
	ProRes® 422 (10 bit, 150Mbps)	4 hrs	8hrs	16hrs
	Avid DNxHD-145 (8 bit, 145Mbps)	4 hrs	8hrs	16hrs
	ProRes® LT (10 bit, 100Mbps)	5.5 hrs	11hrs	22hrs
	Avid DNxHD-36 (36Mbps)	15hrs	30hrs	61hrs
	SD not supported by Avid DNxHD			

Master Caddy & Accessories

Master Caddy Case for HDD or SSD *2.5" SSD or HDD* *minimum 5400rpm to 10,000rpm* *Standard 9.5mm height*	75x105x12mm **For recommended drives visit: www.atomos.com**
Master Caddy Dock	2.5" internal drive SATA to USB2.0/3.0
Supported Applications	FCPX/FCP7+ / Media Composer 5.0+ / Premiere 5.51 or above / EDIUS 6.0+ / Vegas Pro 10+ / Lightworks
Accessories included	• Universal Battery Charger 110-240V • Docking station and Leads • 2 x Master Caddy Cases • 1 x Atomos 2600mAh battery
Optional extras	• 5 x Master Caddy Cases • Carry Case • Replacement Foam • Connect H2S converter • Connect S2H converter

Construction note:

Your Ninja-2 is designed to operate in ambient temperatures up to 40°C/105°F. It features a fanless design which dissipates internal heat through the aluminium chassis.

If you wish to extend the temperature of operation in high temperature conditions, you can choose an SSD drive, and set the TFT brightness to a minimum.

The top and bottom aluminium surfaces next to the tripod screws are the heat sinks. Under warm or extended operating conditions, these surfaces may get hot to the touch. This is normal part of the design, and shows that your Ninja-2 is dissipating heat successfully.



Do not be alarmed if the top and bottom surfaces seem hot to touch. This is normal part of the design, and shows that your Ninja-2 is dissipating heat successfully.

SSD/HDD usage:

With spinning drives, you need to be careful in handling when recording. The drives will generally stand light/medium occasional bumps without problems, and the Ninja-2 has an anti-shock buffer. However, spinning drives are not suitable for use in high vibration or movement environments, for example if the Ninja-2 is strapped to the side of a motor bike.
With spinning hard drives, use a new drive, or one that has very little usage. Do not use old drives. Do not use drives that have been dropped.
On all drives, when handling, keep fingers away from the SATA connector at all times, as static electricity can damage the electronics inside.

Have you registered your Ninja-2 yet? Upgrade to 3 year warranty now.

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