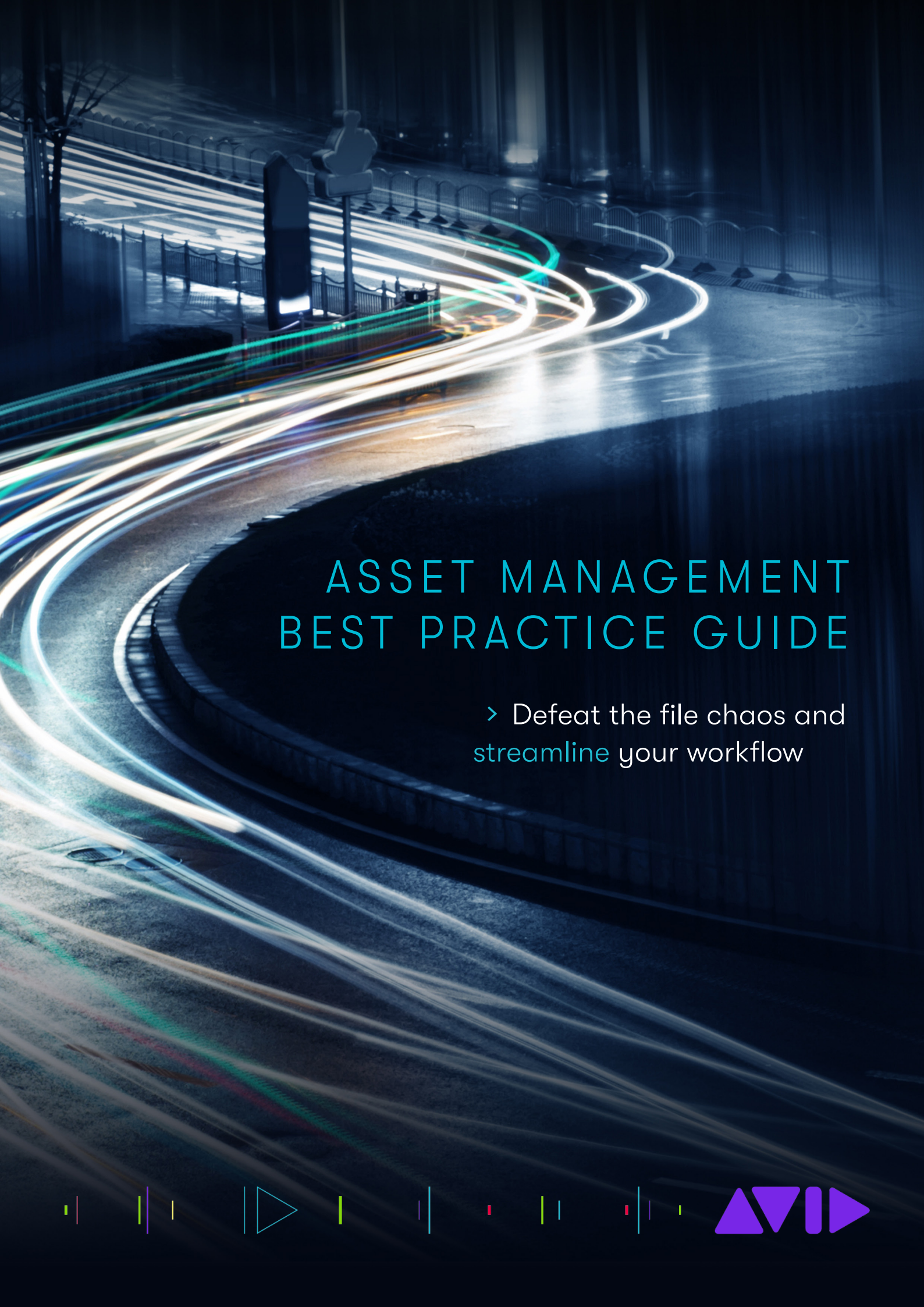




ASSET MANAGEMENT BEST PRACTICE GUIDE

> Defeat the file chaos and
streamline your workflow





IN THIS GUIDE

We'll share the foundation of a solid asset management strategy:

- > First, we'll explain **file naming best practices** and how to develop a **standardized folder structure**.
- > Then, we'll cover **metadata enrichment** and **metadata preservation** throughout the post pipeline.
- > Next, we'll discuss **storing media** during and after the lifetime of your project.
- > Lastly, we'll explore the importance of **documenting your workflow** to keep your whole team on the same page.

Whether you're in narrative motion-picture film, scripted television, reality TV, documentaries, science and factual, or any other content creation workflow, asset management can be a dizzying challenge for any video production team. You might be working with a vast array of media assets with differing codecs, formats, frame rates, and versions. You'll likely need to find, sift, sort, tag, annotate, and catalog your footage quickly. And despite these organizational burdens, you'll still need to ensure that energy and time are left over for creative editorial. To carry out all of these tasks on a tight deadline, you'll need smart asset management practices to streamline your workflow and win back some time in your jam-packed day, without losing sight of the full value of the assets you have in your media library.

That said, stepping up your asset management game does take some work. So what makes the effort worth it in the end? In a nutshell, a solid asset management approach creates a meaningful pipeline, providing a structure and a consistency to workflows that routinely are unpredictable, and at times, chaotic. This kind of structure and consistency helps to reduce human error and pave the way to working faster and more efficiently. The upfront discipline of defining a taxonomy for your media assets could yield days of saved time over the lifetime of your project, ensuring that you wrap up on time and on budget, all while keeping your assets well organized. Your assets may also have a life span after a production is done: keep them organized so they can be useful in the future.



Good asset management also helps your team collaborate more effectively, making assets readily available to whomever needs them. With so many people working remotely today, this is even more vital. And in the event that you need to onboard new team members, it'll be easier to get them up to speed if you already have a solid asset management workflow in place.

< WHAT'S > IN A NAME?

CREATING A FILE NAMING CONVENTION

BEST PRACTICE #1

Never, ever lose sight
of your original
camera file name
and timecode

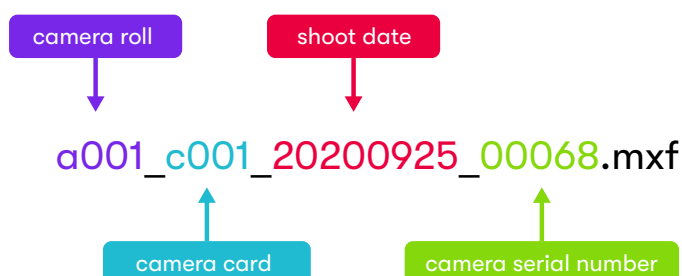
The first and most important step in any asset management workflow is to create a **naming convention** for your media assets. When a camera system creates a file, you don't often have much control over how it names the file. As a result, you might get a file with a cryptic name that says little about what's within the file. On the other hand, you can't break the cardinal rule of camera masters, which is that you never lose sight of the original file name and its timecode. This is where a smart naming convention can save the day.

So what kind of naming convention should you go with? The short answer: it depends. Here are two common scenarios in which you might want to choose one specific naming convention over another.

1. YOU'RE WORKING IN A LOW-RESOLUTION PROXY.

There are various reasons to work in a low-resolution proxy. You may have shooting ratios that are so high that you can't work off the camera master itself, or perhaps you can't get meaningful playback from the original camera file when you're trying to do craft editorial. So, you might go with a low-resolution proxy to solve this kind of problem.

There are a few asset management best practices to keep in mind if you're using a low-resolution proxy. If you've got a camera file name that is 16-18 characters long and hard to decipher, you'll probably want to rename it to something more human-friendly. For example, the camera might generate a file that looks like this >



When you're using editing software to make a low-res proxy of a camera file like this, the process begins by pointing to a camera master file, sometimes known as the "OCF" or Original Camera File. As you do so, you'll probably see columns of metadata in the bin. Among them, you'll see at least one column where the original camera file name appears. You can rename the original camera file name within the bin to whatever you want. But as you do, **preserve the camera file name** somewhere else. Make sure that there's still at least one column of metadata somewhere in the bin, ideally two columns if you want to be extra careful, where the original camera file name is preserved. This way, as you cut your new proxy, you can still link back to the camera master for your finishing process later on. In tools such as Avid Media Composer®, copying the Original Camera File name to another column is very easy, and can be done globally with a keyboard shortcut for an entire bin's worth of content.

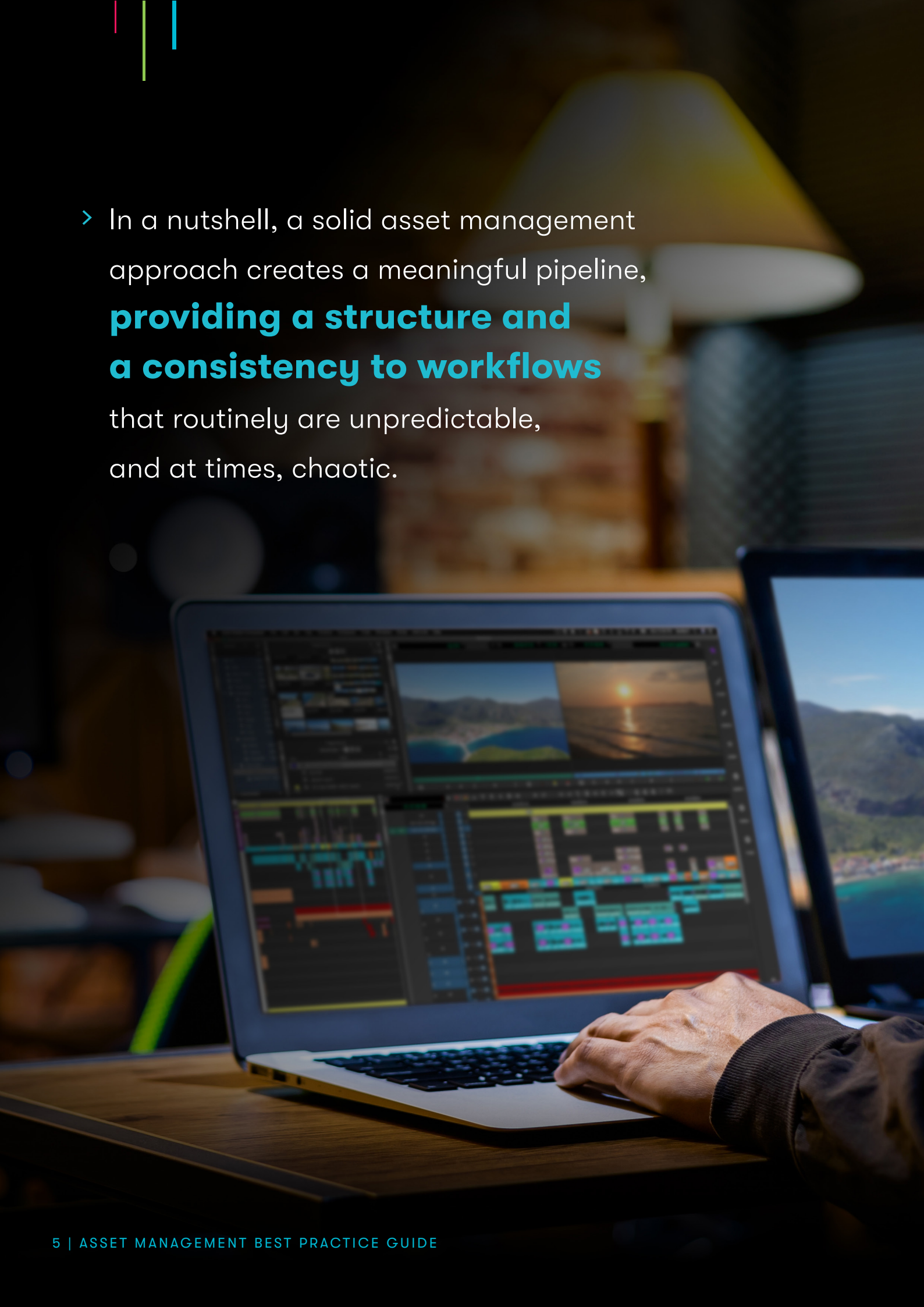
BEST PRACTICE #2
Preserve your original camera file name as a column of metadata in your bin (or better yet, in two of them)

	original camera file name	original camera file name backup
broll_exterior_20200925	a001_c001_20200925_00068	a001_c001_20200925_00068
give your proxy a human-friendly file name with useful descriptors	preserve the original camera file name generated during ingest as one of the columns in your bin	create a duplicate column as a backup to be extra careful

BEHIND THE CARDINAL RULE: ALWAYS, ALWAYS, ALWAYS PRESERVE YOUR OCF NAME

Why is it so important to preserve the original camera file name? Simply put, if you are editing in a proxy format, conforming back to the original camera file after editing concludes is pretty much impossible without a preserved record of the original camera file name and timecode. ("Conform" can also be referred to as "relink," "up-res," or "matching back.")

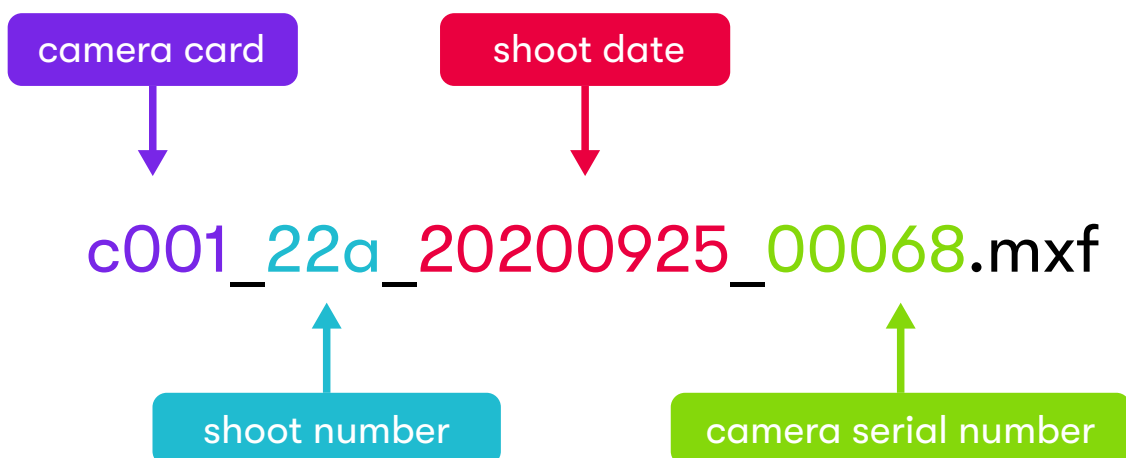
Ensuring this file name is preserved isn't difficult to do, but you should treat it as a mission-critical step **before** editing begins. Editing software usually creates a dedicated column for you during the initial ingest process that automatically includes the camera file name, so in essence you get one of these columns for free. You'll also want to add a second column in your bin by hand so that you never lose sight of that camera file name no matter what happens.

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- A person's hands are shown typing on a laptop keyboard. The laptop screen displays a complex software interface with various panels, charts, and a central image of a sunset over a body of water. The background is dark and out of focus, featuring a warm-toned lamp and some indistinct shapes.
- In a nutshell, a solid asset management approach creates a meaningful pipeline, **providing a structure and a consistency to workflows** that routinely are unpredictable, and at times, chaotic.

2. THE CAMERA FILE NAME THAT YOUR CAMERA GENERATES ISN'T USEFUL.

If you're working with footage from lower-cost cameras, like GoPros or even iPhones, the file name applied by the camera system probably won't be very descriptive. A related problem is redundant files names, which isn't unique to lower-cost cameras: XDCAM camera systems from Sony would typically give the same file name over and over every time you formatted the camera card. The net result would be multiple files with the same camera file name, making it difficult to identify which file corresponded to which shot when doing a conform.

Under these circumstances, many post houses will recommend that you create a "mezzanine" file that represents the original camera file to accommodate this file naming redundancy. Mezzanine workflows preserve the original camera content but rewrap the file, allowing for a human-defined camera file name that is more descriptive. Should you apply this workflow, it's a good idea to follow a convention that is similar to how some of the more digital-cinema cameras name their files, as mentioned in our low-resolution proxy scenario above. For example:



As a result, the original content has a truly unique file name, which allows for a smoother post-production workflow to follow, later in the pipeline. Mezzanine workflows are very flexible, so regardless of the software you use to create a mezzanine file, you've got a great opportunity to apply a human-friendly naming convention to your camera files that is both unique and workflow-bulletproof.

BEST PRACTICE #3

Ensure all files have unique names so that redundant file names don't cause confusion when it's time to conform

There is a drawback however: the rewrap process effectively doubles your storage requirements, and it adds another step to your asset management process, as now both the original camera file name and its “sibling” mezzanine file need to be tracked within an asset management system. Often, assistant editors need to do this rewrap work manually, which adds time and cost. (Automated transcoding systems can speed things up and win back time, but they can be expensive and require certain kinds of technical expertise.)

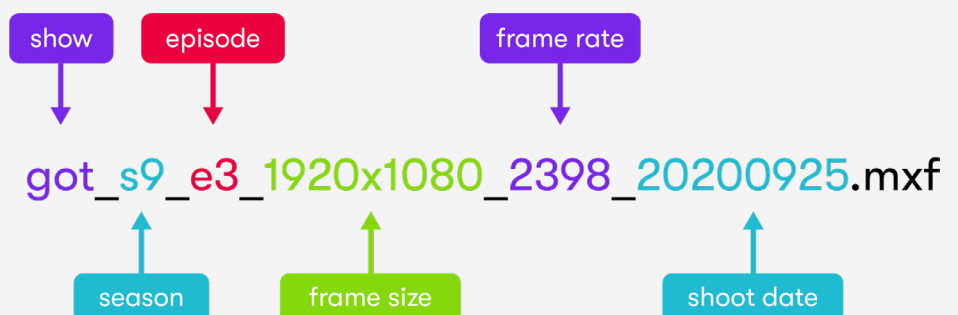
Ultimately a mezzanine-based workflow is a tradeoff, but you might just decide it's worth it.

Some post shops take another approach to this problem and simply rename the original camera file to something else in the bin. You can also get a unique camera file name that way, but you're still going to need a savvy assistant editor putting additional metadata in there to get that done.

A TRIED AND TESTED NAMING CONVENTION

One common approach that can be tweaked for the needs of your production is to use two characters that represent the show name, followed by an underscore, followed by two characters that represent the season number, followed by an underscore, followed by two characters that represent the episode number. You might add one more underscore and then include a format indication like a frame size—HD, for example—or add a reference to the original camera's frame rate. The shoot date is often the last “tag” in the file name.

Here's an example of how this naming convention works. If you were exporting a file for a hypothetical Season Nine for *Game of Thrones*, you would call it >



These differing scenarios for defining a naming convention should cover most post-production needs. Depending on the type of production involved, you may want to alter your naming convention slightly to capture unique details. Whatever naming convention you decide on, be sure to standardize it across everything you bring into your post-production environment, and be sure to institutionalize these standards at the beginning of a production, so that a production's pipeline does not represent a mixture of approaches.

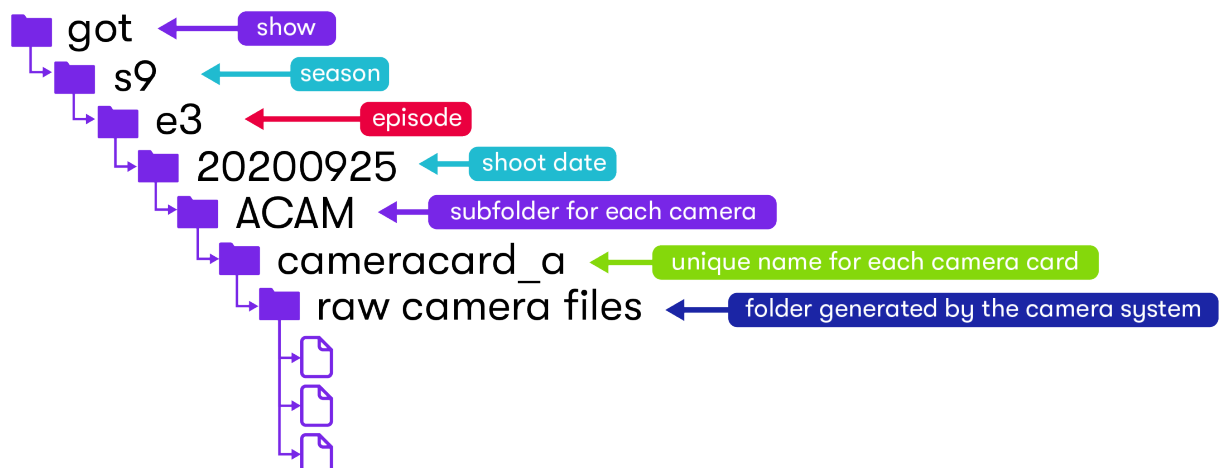
< FILE > IT AWAY

DEFINING YOUR FILE TAXONOMY

When you bring your clips into your editing software or asset management system, you're going to want to properly organize them with a **standardized folder structure** that tells a story about what the content is and how it was shot. If you've already got a file naming convention in place, the folder structure can mirror the file name for maximum consistency. For example, using our hypothetical *Game of Thrones* file name (got_s9_e3_1920x1080_2398_20200925.mxf) as an example, it's easy to create a folder structure to match. We'll begin with a folder named "got" and create subfolders as seen below.

BEST PRACTICE #4

Mirror your file naming convention in your folder structure for maximum consistency



This directory structure is a roadmap. It gives you and your teammates all the key information you need at a glance: the show, the season, the episode, the shoot date, the camera used, and the camera card.

For consistency's sake, it's a good idea to use this same folder structure in your raw file storage as well as within your editing project.

BEST PRACTICE #5

Treat your folder structure like a roadmap that tells a story about what the content is and how it was shot

Depending on your needs, you might tweak this folder structure a bit. For example, instead of having subfolders for your cameras named camera_a, camera_b, and so on, you could organize your camera folders according to each camera's specific name (e.g., C300, RED, or ALEXA). Whatever the case, you will want to have someone from your team prepare a human-friendly folder structure that largely resembles the one mentioned above. The very last folder in the folder "chain" should be the folder created by the camera system itself; within that last camera-generated folder are the camera files that were generated by the camera system.



If you have administrative privileges within your editing software, you may be able to **define a template** that determines where your incoming media is going to be stored. Depending on the degree of sophistication of the toolset being used by a post pipeline, this template could also automatically apply your standardized naming convention. Although it does take some time to define a template upfront, it ultimately saves time by automating your workflows at an early stage of a production. Automation means fewer human errors, less training for new teammates, greater consistency of work, and ultimately more time saving so you can hit those deadlines and continue turning out quality work.

BEST PRACTICE #6
Minimize human error by using templates to define where media will be stored and apply naming conventions

FILE NAMING BEST PRACTICES

As you establish your file naming convention and your standardized folder structure, you can minimize potential workflow issues by following some basic rules on file naming that are common to any computer file system.

- Don't create a file name that's too long: some operating systems have a limit of 255 characters for all folder names and file names in a given file path
- Don't use illegal characters, such as &, #, \$, %, or *
- Don't use—ever!—forward slashes (/) or back slashes (\), since most computer operating systems understand these symbols to mean a change in directory structure: this is a very common error as slashes are often used in dates, e.g., 10/01/2020
- Avoid using the space bar in file names: use the underscore () instead
- Wherever possible, opt for lowercase letters instead of capital letters

- 
- > When you bring your clips into your editing software or asset management system, you're going to want to properly organize them with a standardized folder structure that **tells a story about what the content is and how it was shot.**

< THE MORE METADATA > THE MERRIER

ENRICHING METADATA WITH ADDITIONAL INFORMATION

For many projects, nonfiction productions in particular, it's worth **enriching the metadata** by logging additional information that will be useful later in the pipeline. Depending on what platform is used for asset management, you can theoretically add metadata with no limit.

For example, you can log information about the location where something was filmed or even what's in the shot itself. If you're working on a film, you may choose to track the keycode, edge code, timecode, and even the director's notes. You can also add annotative markers (e.g., "good shot" or "bad shot") to an interview's transcription. That way, when you're crunched for time, you can search within that transcription to find a precise moment instead of having to wade through the entire interview all over again.

Although many post teams use the NLE software itself to introduce additional metadata, some productions will invest in a dedicated asset management solution or leverage a FileMaker database to get the job done.

When it comes to metadata, the more the merrier, with the obvious tradeoff being the time and budget it takes to do this sort of enrichment. Not every production will have the resources or time to be as granular as they would prefer given more time or more budget. The investment in time, money, and human effort is rarely wasted however: when you enrich your metadata in this way, your footage becomes more valuable over the long term, allowing content owners to repurpose and re-monetize those assets in the future.

BEST PRACTICE #7

Enrich your metadata with information that will be useful later in the production pipeline—or that allows you to remonetize assets in the future

< MOVE MEDIA > MERRILY ALONG

MAINTAINING METADATA ACROSS THE POST PIPELINE

One extremely important caveat to keep in mind as you define what kinds of metadata are important is that metadata doesn't always easily jump from one stage of post production to the next. For this reason, you're going to want to **identify which columns of metadata matter the most** to your post-production workflow and figure out how you will retain them as they move from one stage of the pipeline to the next.

Where possible, online and finishing workflows benefit when the toolset used to offline edit is the same toolset used to online edit. Staying "in the box" means any metadata introduced during the edit is available

to the finishing editor. When switching to different post-production software, the metadata added earlier in the process might not carry over to a later stage of post.

Exporting an EDL out of your editing software for example carries very little of a project's metadata; AAF and XML files carry more, but inevitably changing platforms introduces some frictional cost. Switching from one platform to another is common in many post workflows, so it's critical to know in advance what tools are going to be used within a given pipeline and therefore to know what kinds of metadata will survive the journey.

BEST PRACTICE #8

Minimize platform changes between stages of post production to avoid metadata loss when exporting and importing files

Despite the inevitable friction, there are ways you can map metadata from one tool to another. You'll need well-informed, competent post-production professionals to make sure that process goes well; however, metadata falling through the cracks is always a possibility no matter how competent a team is. On top of that, the exact process for

migrating metadata may vary depending on the type of software or production involved: workflow testing, done in advance, to map out the “journey” metadata will take, is always in the interest of any production.

BEST PRACTICE #9

If you do use different software at different stages during post, perform workflow testing in advance to map how metadata moves between tools

< IN IT FOR THE > LONG HAUL

STORING YOUR ORIGINAL MEDIA

One important aspect of your asset management workflow is figuring out what’s going to happen to the original clips you’ve shot. Are you going to archive them now or at the end of the post-production process? What are you backing up and where are you keeping it? Here, too, the answers depend on your scenario.

1. SCRIPTED WORKFLOWS.

In most scripted workflows, Linear Tape-Open (LTO) data tape is the *de facto* standard. By comparison, low-cost hard drives are rarely accepted as a long-term archive. Creating and maintaining a database of which camera cards are written to which LTO tapes will make those tapes more valuable during the finishing stages of post production.

Different post houses may track this information in different ways. While you can often use your editing software to log these details as metadata in custom columns right in the bin, some might choose to keep track of it in Excel documents or within a FileMaker database.

A purple circle graphic containing the text for Best Practice #10.

BEST PRACTICE #10

Create a custom column in your bin to log the location of your original media—whether LTO or external hard drive

When LTO tape names need to migrate to other metadata-aware platforms, you can use your editing software to create an EDL that points to an LTO tape name column, so you know exactly which LTO tape to pull to find the right raw material when it's needed.

Once your scripted production has wrapped up, LTO tapes are typically delivered to the network or studio. Those LTO tapes represent the true long-term archival asset for that production. Archiving the contents of LTO tapes to a cloud environment is another option that offers more immediate access to that content when needed, but carries a longer-term cost (in contrast, the LTO tape itself, as a storage medium, is relatively cheap). In any event, making a note about where the LTO tapes live will help streamline the handoff later on.

2. NONFICTION WORKFLOWS.

In this case, because of the budgetary constraints that come with high shooting ratios, you may be relying on inexpensive, portable hard drives to store your originals during the post-production process. It's also convenient to have your raw camera media on those hard drives when it comes time to conform, because of the immediacy of random access a hard drive provides. From a metadata tracking standpoint, hard drives can be named in the same way an LTO tape has a name and tracked within a custom column in the NLE bin.

Post houses with a sufficient budget may use RAID arrays to better preserve their camera originals during the various stages of post production, since individual hard drives are at great risk of disk failure; RAIDs allow for disk failure because of the redundant way that data is written to a RAID array. If you have a generous budget, however, you're likely going to put that raw camera media on LTO tape as well to cover all your bases. That way, you'll have the best chance of preserving your originals over the long term and satisfying the requirements of all content stakeholders. Under those circumstances, you'll want to log the LTO tape location as metadata so you can easily locate them if needed.

So what do you do with your originals after nonfiction post production has wrapped up? In most cases, you're probably delivering an

inexpensive hard drive to the network, studio, or owner of the content. From there, the content owner may push the raw camera content to LTO tape for better long-term preservation. If very high shooting ratios were used, however, that might be a bit trickier to pull off. Whatever the case, you'll be well served by tracking your raw camera originals throughout the post-production process so everyone knows where these assets live.

< DO IT BY > THE BOOK

DOCUMENTING YOUR PROCESSES

To make the most of your new asset management best practices, you're going to want to give everyone on your production team the resources and support they need to get their job done. Plan to train folks on the workflows that apply to their specific roles and provide them with a **cheat sheet**—a two- to three-page document that defines how to perform a particular task. Tailor each cheat sheet to each job function you have on your team, whether that's the content librarian, the editor, or the assistant editor.

Such a cheat sheet can help guide teammates on workflow procedures and can minimize the impact of the inevitable nature of a rotating staff. You can store this document on a shared drive so everyone has easy access to it wherever they are, even on their mobile devices.

For a particularly complicated workflow, you may also find it helpful to document the exact asset management workflow across the entire production. This gold-standard reference is sometimes called a **workflow definition document** or a post-production Bible. It carefully defines your naming conventions, your standardized folder structure, and the right columns for entering specific metadata as well as the exact steps you should take in certain cases, like when you have to rewrap a file. Since unscripted TV tends to have such tight turnaround requirements, for

BEST PRACTICE #11

Keep your team on the same page with cheat sheets that define the workflow for common tasks

example, you might see this kind of document in that environment. But for day-to-day purposes, a cheat sheet usually does the trick for most post-production teams.



All of these processes and tools take a little time to learn, granted. Nobody said asset management was glamorous stuff. But once you begin picking up some of these best practices, you can apply them to your own workflows. As you do, you'll appreciate the improvements that you gain as a result. You'll be able to get the job done faster, collaborate more effectively, and simply enjoy the absence of those little frustrations that prevent you from working as efficiently as you know you could. If you want to win back some time and promote tranquility for your post-production team, asset management is a great place to start.

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