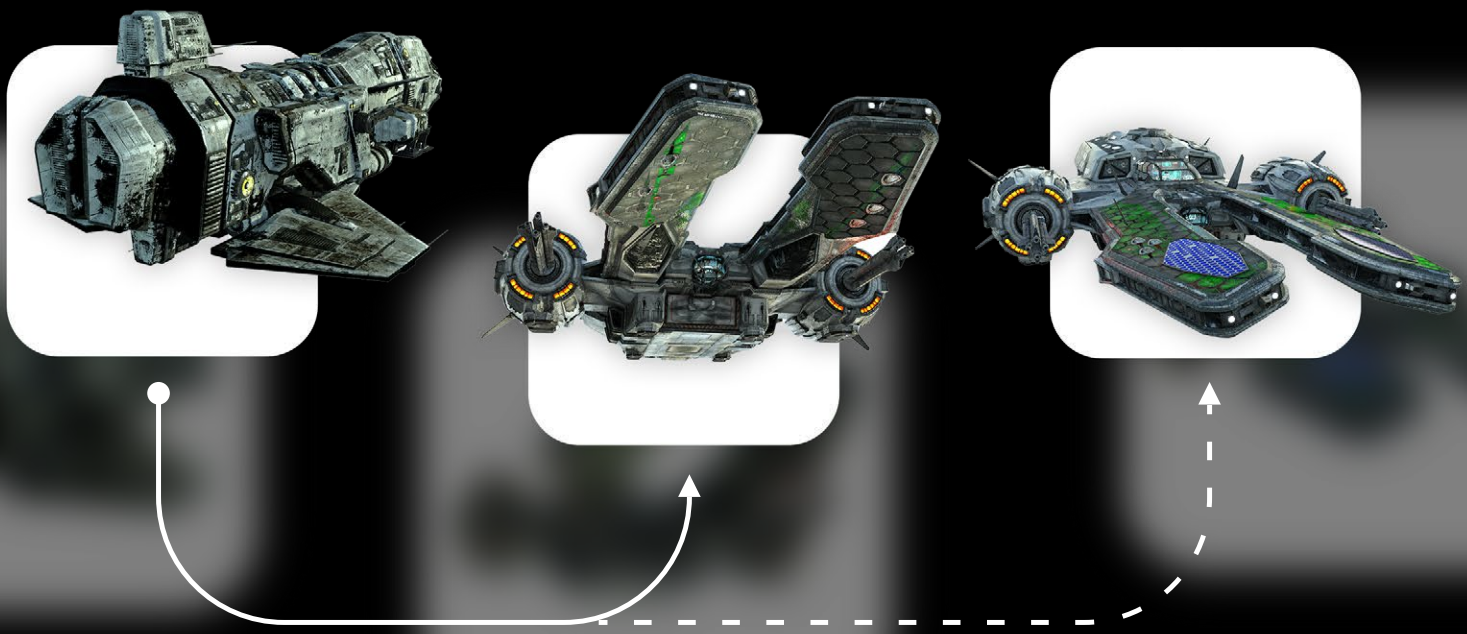
PERFORCE

A TECHNICAL DIRECTOR'S PLAYBOOK

Creating Digital Efficiency at Your Studio

With Digital Asset Management + Version Control



Introduction



The Challenge of Developing Gaming and Media Projects Today

For the technical director in game development, virtual production, or broadcast, efficiency is critical to staying on budget and managing your team across the real-time workflows you collaborate in.

Teams developing a major multimedia project — like a film, a TV show, a video game, or even a digital twin for use in manufacturing — are dealing with more complexity than ever before. The amount of data that goes into these kinds of projects is unprecedented. Think of all the data involved in each component of a 3D model, multiplied by the thousands of files that can go into a single game or virtual environment. Then think of all the iterations each asset can go through before it's finalized.

Teams are simply dealing with way larger dimensions of scale than they were even five or ten years ago. On top of the challenges of managing so many large files, teams have become more geographically distributed. Art teams have grown larger, too. Efficiently managing so many iterations to your projects across a growing and distributed workforce can feel impossible.

That's why we made this playbook.

This is your guide to the mindset and tools you need to create digital efficiency at your studio.

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Let's Start With Version Control



To efficiently manage the production of all of the creative assets that go into projects like games and movies, you need version control. It's a system video game and software developers have relied on for decades to manage teamwork on, i.e. contributions to, their code and files. Now that more industries, like film and automotive, have started adopting the kinds of creation tools that game developers have been using for a long time — like game engines and 3D animation tools — more teams are recognizing the need for version control software.

In essence, a version control system automates the process of tracking and managing changes to files over time. Good version control enables teams to contribute to the same project without overwriting, breaking, or duplicating each other's work.

Choosing the right version control system for your team is an extremely important step. Version control not only sets the foundation for your studio as you become established, but it also sets the guardrails for how flexibly your team can scale and work with other collaborators.

Here is what you need to consider when looking at version control solutions.

"Version control" is often used interchangeably with the term "source control," which is specific to tracking source code.

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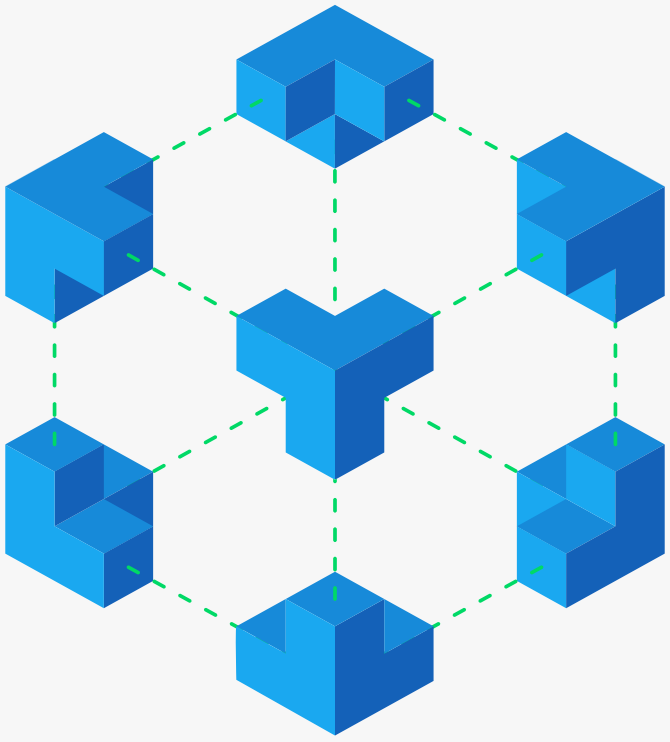
Distributed Version Control

With a distributed version control system, each user downloads a copy of the repository so they can make changes to files locally (on their own machine). There is a main repository, but rather than storing every file and all of its changes, this main repository only saves the differences between files (except in the case of binary files).

Git is a widely popular distributed version control system. Plastic SCM is also a distributed version control system, recently acquired by Unity, the makers of Unity Engine. One advantage of this type of version control is that it can be simpler to get started with, and the general models they employ for branching are simplistic enough for beginners to grasp.

However, a major drawback to distributed version control, especially when working with large and remote teams, is the lack of control. Without a central server, developers and designers on the same team can quickly lose visibility of the current state of each other's work. This can be particularly challenging in the fields of game development and VFX, where artists regularly reference and use common character models and 3D assets across levels and environments. Things can become quickly disjointed on set or in test.

Security is another challenge. Because distributed version control systems tend to have more simplistic branching models, when teams are sharing a repository, they are often sharing an entire project. This means they give vendors and contractors access to more of their IP and data than they would prefer.



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Centralized Version Control

Centralized version control systems store all of the versions and changes to all of your files across all team members to one central server.

With this type of version control, users check out a file they want to work on and make changes before checking it back into the central server. Centralized version control makes it possible to maintain a single source of truth and shared view of the current state of the files, binaries, and assets within a project. Having this single, up-to-date view of your projects greatly reduces the risk of overwriting each other's work, duplicating effort, or wasting effort by making changes to files that cannot be merged (like binary files).

Without centralized version control, teams usually struggle to manage the development of a lot of large assets across teams. This can look like:

- Frequently running into file conflicts, such as two team members editing the same binary file and not being able to merge their versions.
- Struggling to locate a version of a file when you need it.
- Team members are recreating assets because they can't find them or lost the latest version.
- Team members have to send files to each other via email, messaging, online file sharing, or other slow and non-secure avenues.
- Remote team members can't get the file they need when they need to work on it.
- You don't have a fast or secure way to exchange files with external collaborators.

Perforce Helix Core is a centralized version control platform specialized for the gaming and VFX industries. Perforce has long been considered the industry standard for game development because of its performance in working with large files, binaries, and projects, as well as its ability to work with popular game engines like Unreal Engine, Unity, and Godot.

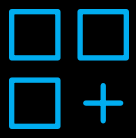
Teams can run into limits early with generalized version control tools, like Git. For instance, Git restricts files larger than 100 MiB and recommends repositories remain smaller than 1 GB. For context, award-winning games today tend to be far, far larger than that. Tiny Tina's Wonderlands, a role-playing first person shooter game developed by Gearbox, has a build stream (i.e. branch) that is 580GB in size and a content source consisting of over 5.5TB of data.

This is the real size of projects many teams are working with today. If you are using highly data intensive game engines like Unreal, you can run into issues on day one.

> "If you're in games, you use Perforce [Helix Core]. This is sort of the mantra."
>
> Mathew Block, Technical Director at Firelight Technologies

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How to Think About Digital Asset Management and Collaboration



A central location to manage the hundreds or thousands of files that go into any one project is a bare necessity for art teams. This is why an array of asset management tools exists.

But the problem with many of the tools available today is that they don't support all of the dimensions of scale for large, complex projects. There are the sizes of game projects like Tiny Tina's Wonderlands noted in the previous section, but there are also the dimensions of scale associated with a team's size.

> Being an efficient studio today requires asset management and version control, but it also requires highly specialized tools.

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Workflow Considerations

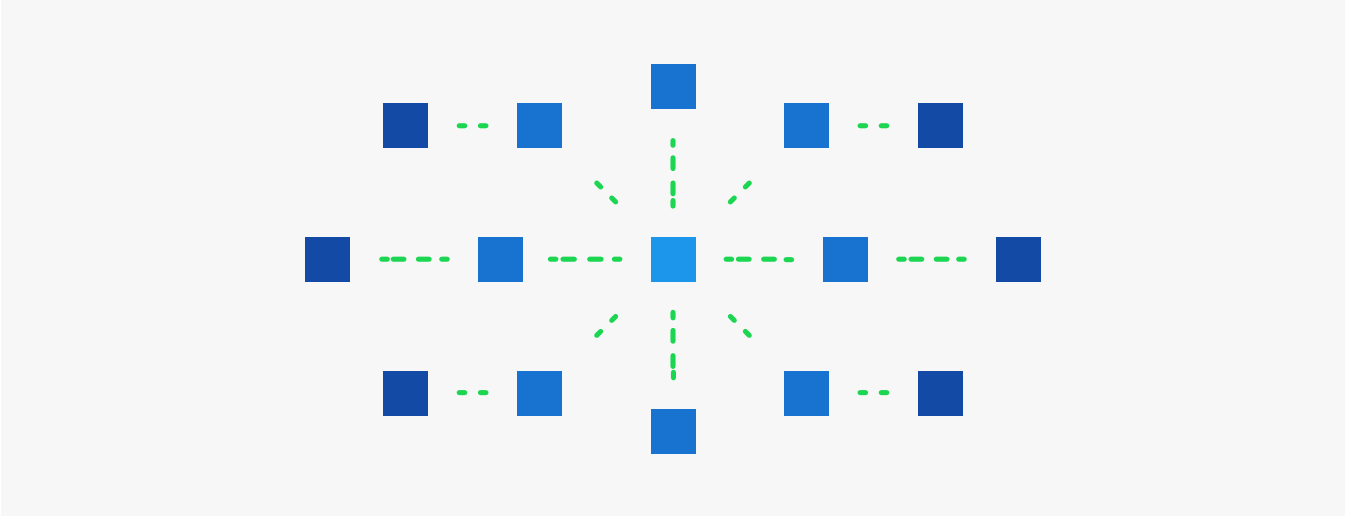
As a technical director, you need to consider how your team will grow and shift through the course of a project. You also need to always be thinking about workflow — for designers, artists, and videographers, and for your contractors and partners.

Here are a few workflow considerations you will want to keep in mind for your team:

- Are the filetypes generated by my tool set supported (i.e. .fbx, .uasset, .3ds, .obj, and more)?
- How will metadata be stored and referenced across versions?
- What AI capabilities can I take advantage of for tagging and labeling large volumes of assets or images?
- How can I extend version control across my developers and designers?
- What levels of permissions control is available for my files and projects?
- How are my teams informed of who is working on what?

Being an efficient studio today requires asset management and version control, but it also requires highly specialized tools. Many tools on the market are great for storing and finding the final versions of assets, and some are great for reviewing in-progress assets. But they don't help streamline their creation by allowing your team to see who is currently working on what and preventing file conflicts. They don't keep a history of every iteration of an asset so you can branch off and experiment with new designs, or easily revert to a previous version. They don't let you quickly grab the latest approved version of the exact asset you need as soon as you need it.

And they often do not work seamlessly with all the game engines, digital content creation (DCC), and proprietary tools your entire organization is using. To be an efficient studio in these industries, you need an asset management tool that connects with your other tools — syncing files to your central server, and eliminating points where files can get lost in translation. You need a system that supports automation in your creative workflows, and one that can be extended to work with any tool you need it to.



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What Efficiency at Your Studio Can Look Like



Now that you have more context on the technology and tools being used in game and media development today, let's go over some frames of reference that demonstrate how the right foundation of tools and the right operational design can supercharge your team's efficiency and give your creative talent the resources and information they need to create award-winning work.

For these scenarios, imagine you are a visual artist or designer based in Quebec, Canada. You've just joined a new film project led by an acclaimed VFX studio. You are trying to quickly understand the workflows you will need to work within, while getting up to speed with the work that has been done, so you can start creating your first work for a pivotal cinematic scene.

Helix DAM adds an intuitive visual layer for finding, reviewing, and iterating on all of your creative files.

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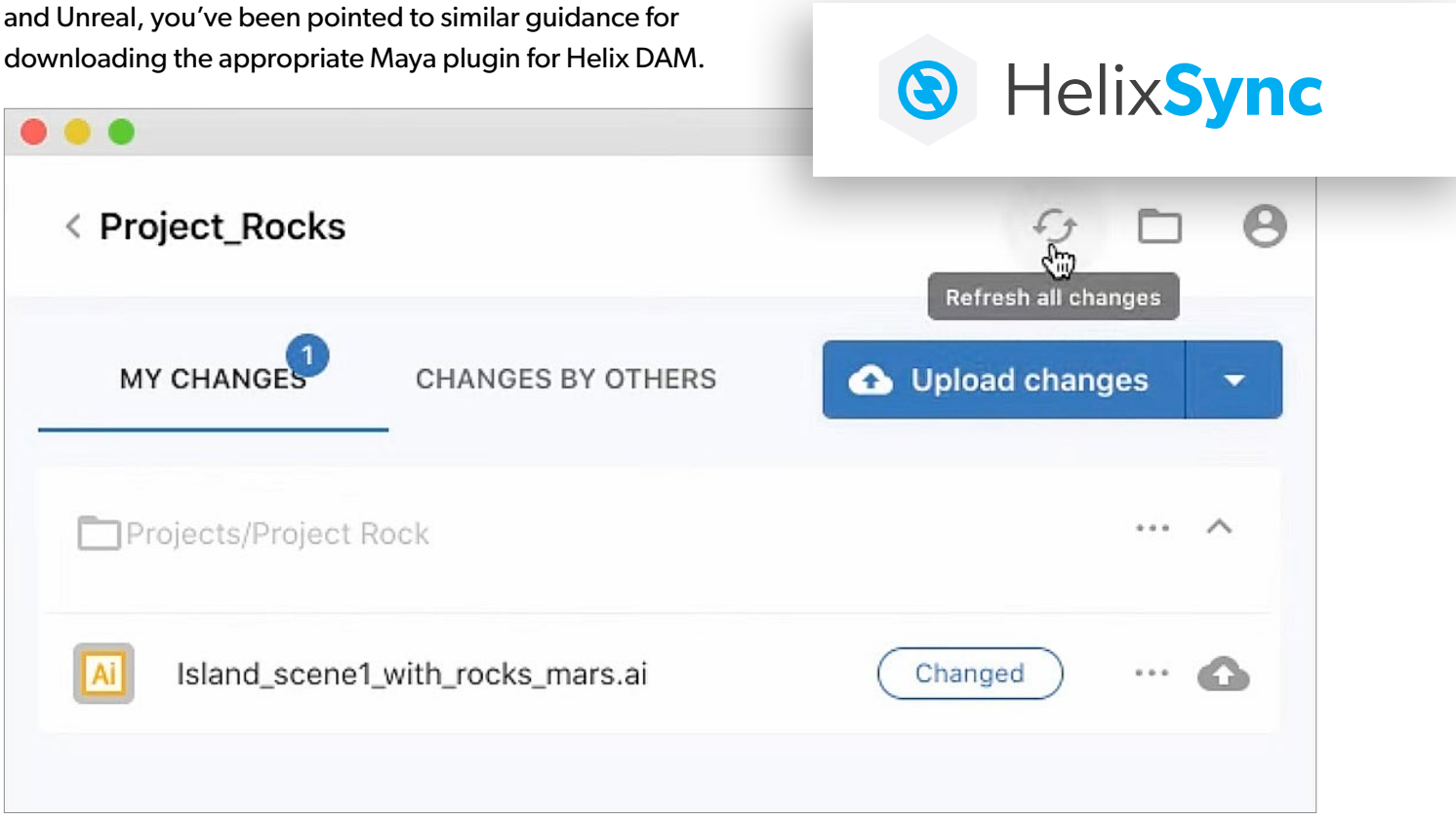
Day 1: Getting Acquainted With the Technology and Systems (i.e. Your Real-time Development Pipeline)

Day 1

The technical director at the studio uses Helix Core and Helix DAM for version control and asset management, respectively. Helix Core serves as the secure and scalable central server for all files across the studios in the US and Europe that you will be collaborating with. Helix DAM adds an intuitive visual layer for finding, reviewing, and iterating on all of the creative files you will work on, and have been given access to.

Integrations have already been established (using the available APIs for Helix Core and Helix DAM) with the tools that artists and designers will be using for this scene — Blender and Maya for 3D character and asset creation, zBrush for detailed modeling, Substance Painter for textures, and Unreal Engine for layout, lighting, and rendering.

The onboarding materials provided give you the login credentials for Helix DAM, and also instructions on downloading Helix Sync (a desktop application that you can use for drag and drop versioning as you refine your work). Since you will also be working with Maya and Unreal, you've been pointed to similar guidance for downloading the appropriate Maya plugin for Helix DAM.



Helix Sync provides a needed bridge between art files and the centralized source of truth provided by Helix Core].

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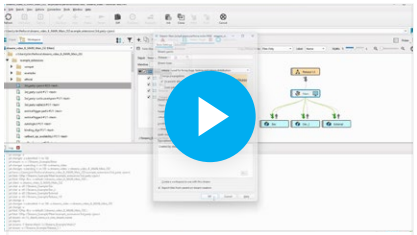
Day 1

Fortunately, the studio has also guided you to a playlist of beginner's guide videos for Helix Core (you're only slightly familiar with version control, and this is your first time working with Helix Core). You've also been pointed to a short video that takes you through setting up your Unreal Engine integration with your studio's Helix Core instance. You've heard it's simple and takes just a few minutes.

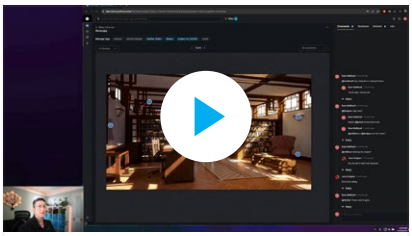
Once you start diving in and becoming familiar with the toolset, you begin to see how the entire tool and asset ecosystem has been connected. This isn't your regular pipeline. And you can immediately start to see how useful this system can be for producers and other creative team leaders because of the visibility it provides into the progress of projects without requiring them to directly access files within the individual tools themselves.

Perforce is committed to educating our users at beginner and admin levels, and regularly puts on free webinars with customers to demonstrate best practices and provide forums for you to meet other like-minded professionals.

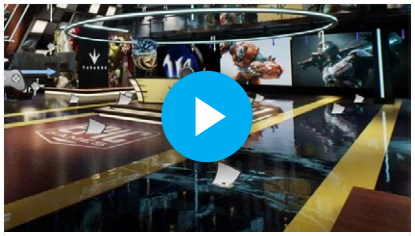
Here are resources for getting started with Helix Core and Helix DAM that our customers like to add to their onboarding docs.



Beginner's Guide videos for Helix Core



Helix DAM (Digital Asset Management) in 7 Steps



How to use Perforce Helix Core + Unreal Engine 5

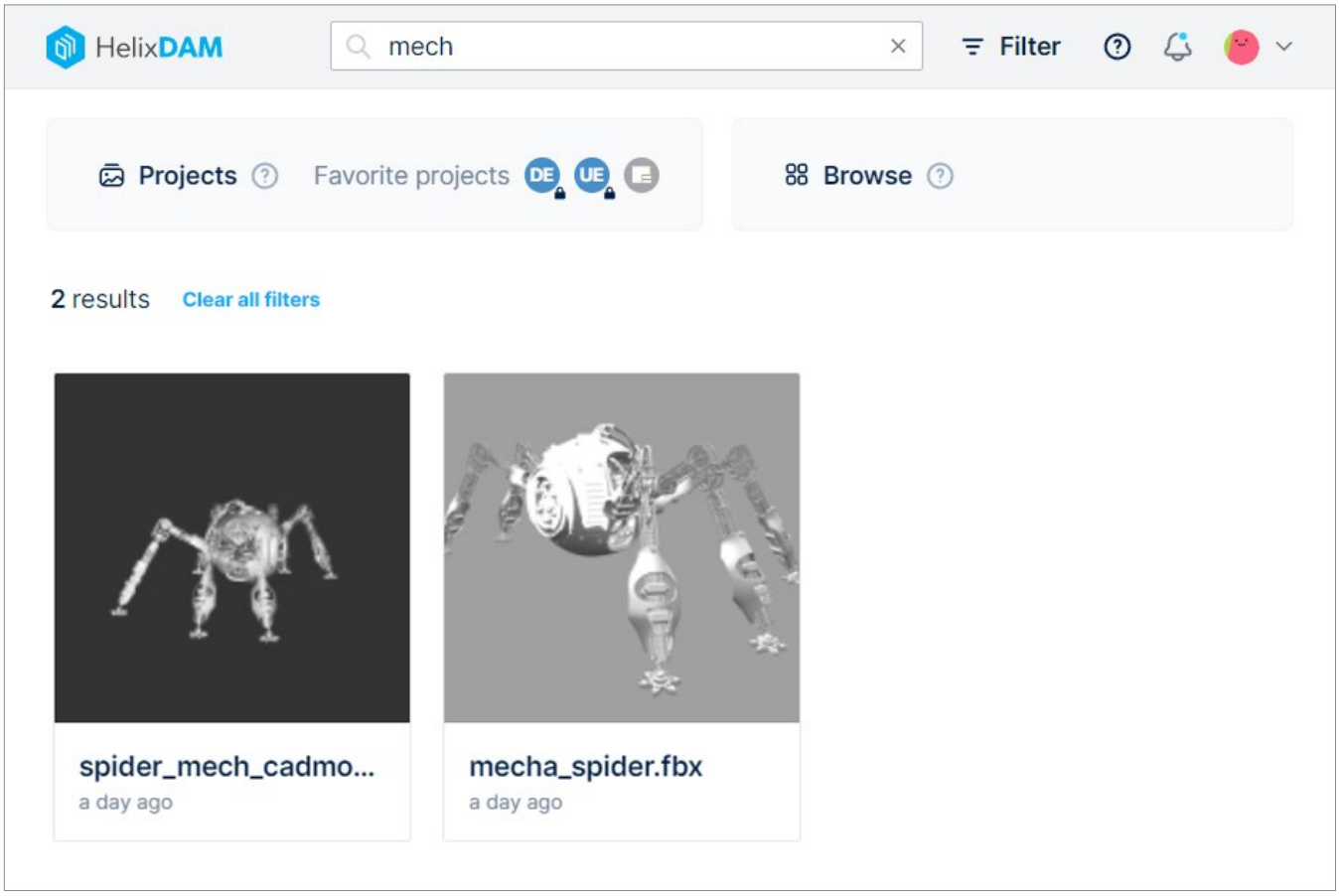
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Day 2: Making Your First 3D Asset

Day 2

You spend the beginning of your second day doing some research to get up to speed on what other teams at your studio are working on. They mention Helix DAM as a great resource for the characters and environments that have been created and after diving in you realize that this is also a great tool for learning from what other team members have already designed. Your technical director has made available, within Helix DAM, not only assets to be used in your scene, but assets for the whole project as well as a related project that was just recently released. Your first assignment to build a 3D model of a mech,suddenly doesn't seem so daunting.

You search Helix DAM for mechs and find a wide variety of thumbnails, thanks to a mix of AI auto-generated tags and manual tags added by team members. But since you need a 3D model, you narrow your search down by file type. You find a character from the company's previous project that at first glance looks similar to what your supervisor is asking for.

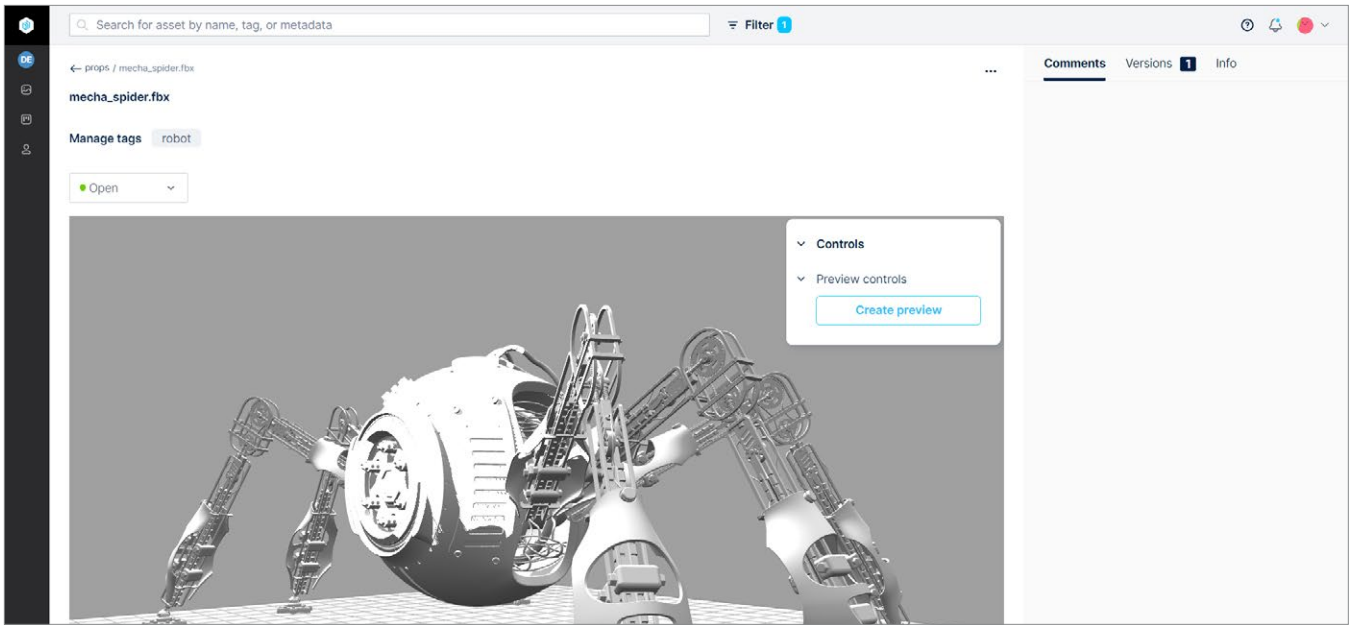


Helix DAM gives you a visual library of all art assets, including 2D, 3D, audio, and video files. Use the search tool to find a specific asset, or browse collections. Thumbnails are auto-generated, letting you find the file you need at a glance.

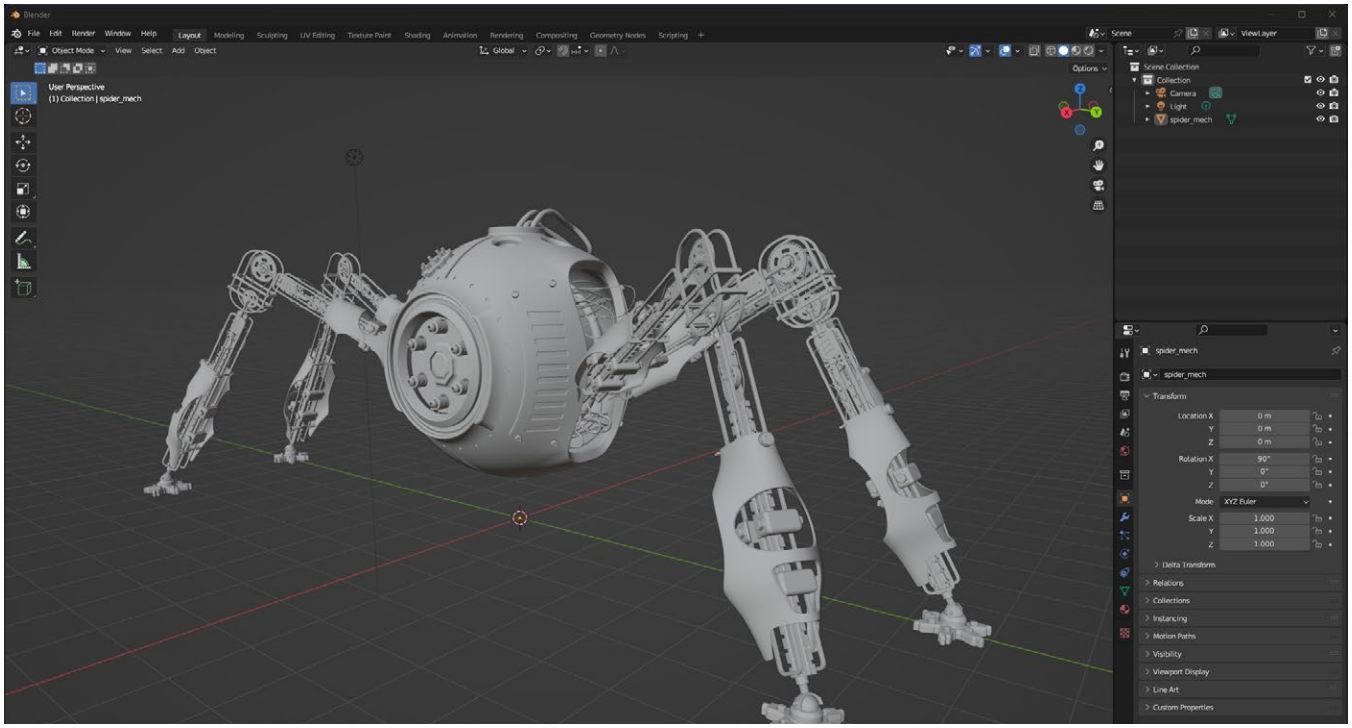
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After spinning it around in the 3D asset previewer to see it from all angles, you decide it's exactly what you need.

Day 2



You open it in Blender, save a new file you can use to build your character from, then close out of the original. Now the original file is unlocked and another team member can access it if they need to, but the new file you're working on is locked, so no one will be able to accidentally overwrite your work. You spend the afternoon building and perfecting your model, submitting changes to the Helix Core server along the way so that your work will be backed up.



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Day 3: Submitting Your First Asset For Review

Day 3

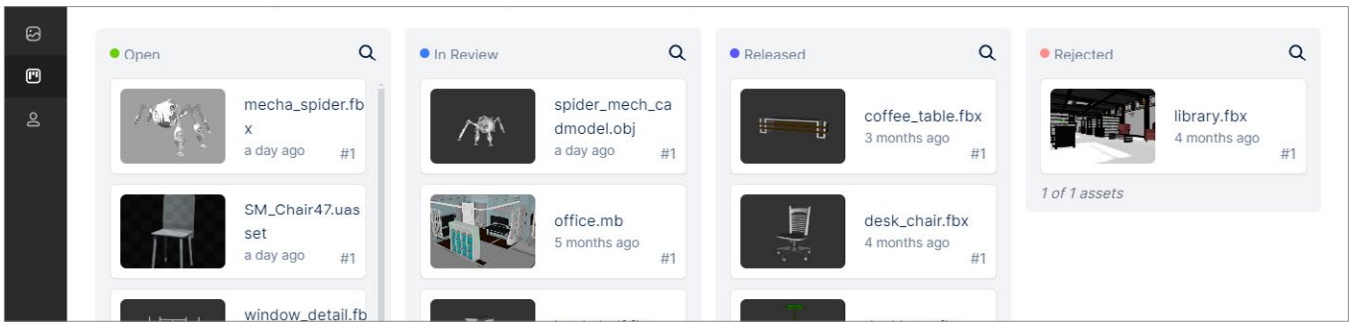
On day three in your new job, you finish up some final tweaks to the mech model. You sync the changes and upload the asset to Helix DAM, checking the AI auto-tags for accuracy and adding a few more custom tags. Now it's time to submit it to your supervisor for review.

Reviews can be a hassle, or at least they were at studios you worked for in the past. At your last job, your team didn't have a good tool to review assets with, so you would have to use file transfer services or email to send a file along to your team — which took a long time and wasn't the most secure delivery method. Feedback would often get lost in the back-and-forth and was made out of context. You would often be left wondering, "where did my manager leave that comment about changing up the decals on this robot, and what exactly did she say she wanted? It wasn't in the email thread, so maybe she sent that in Slack…" Or, "she's telling me to remove the red button, but there are five of them — which one? And now she's in a meeting, so I won't get an answer for at least another hour." What's worse was you knew your manager must be frustrated over the delay in what, to her, should be a quick fix.

But the technical director gave you a preview of how reviewing assets works with Helix DAM, so you're confident this process will be a lot easier here. And now, you can see Helix DAM's review features are straight-forward to use. Your studio customized the Kanban board in Helix DAM to support your team's unique review process, so you change the status of your file to indicate it's ready for review in the modeling phase.

In Helix DAM, your team leaves feedback directly on the preview of your mech model. Your manager tags an arm and asks you to make them bulkier so this character is more imposing. Your teammate agrees and notes that the model could appear more menacing overall. With all feedback in one place, you get to work. As you work through the changes, you respond to your team's comments to ask for clarification as needed, and you resolve them to indicate you've addressed each piece of feedback. Once you get final approval from your supervisor, you're ready to let your team members know that things are ready for next steps.

Having a streamlined review process like this one took the stress out of collaboration and gave you more time back to focus on what you do best — making art.



In Helix DAM, Kanban boards are customizable, supporting your team's unique processes and terminology. Quickly check the status of assets, and drag and drop them as needed to move them forward or backward in review.

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Remove Chaos From Creation + Set Your Team Up to Build Better



Gaming and media projects across industries are only going to continue to become more complicated. Innovations in creative technology, like generative AI and game engines, are letting teams bring more art to life, faster. The demand for higher-quality media keeps growing, putting more teams on expedited timelines. And their projects are becoming exponentially larger every year.

Streamlining your creative processes in this rapidly changing environment requires rethinking your approach to digital asset management. The DAM tool you choose to keep pace with today's demands needs to be more than a place to find and review files. It needs to connect with your suite of creation tools, minimizing manual tasks where you can lose speed to human error. And it needs to be built on a secure and scalable foundation for digital asset development.

To efficiently manage your studio and pipeline, put Helix Core and Helix DAM on your shortlist of tools to consider.

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See How Helix DAM Can Transform Your Studio's Efficiency

Helix Core has a strong base of customers in gaming and media. If part of your team is already using Helix Core — the engineering side of the house, for example — talk to your Perforce representative about adding on Helix DAM.

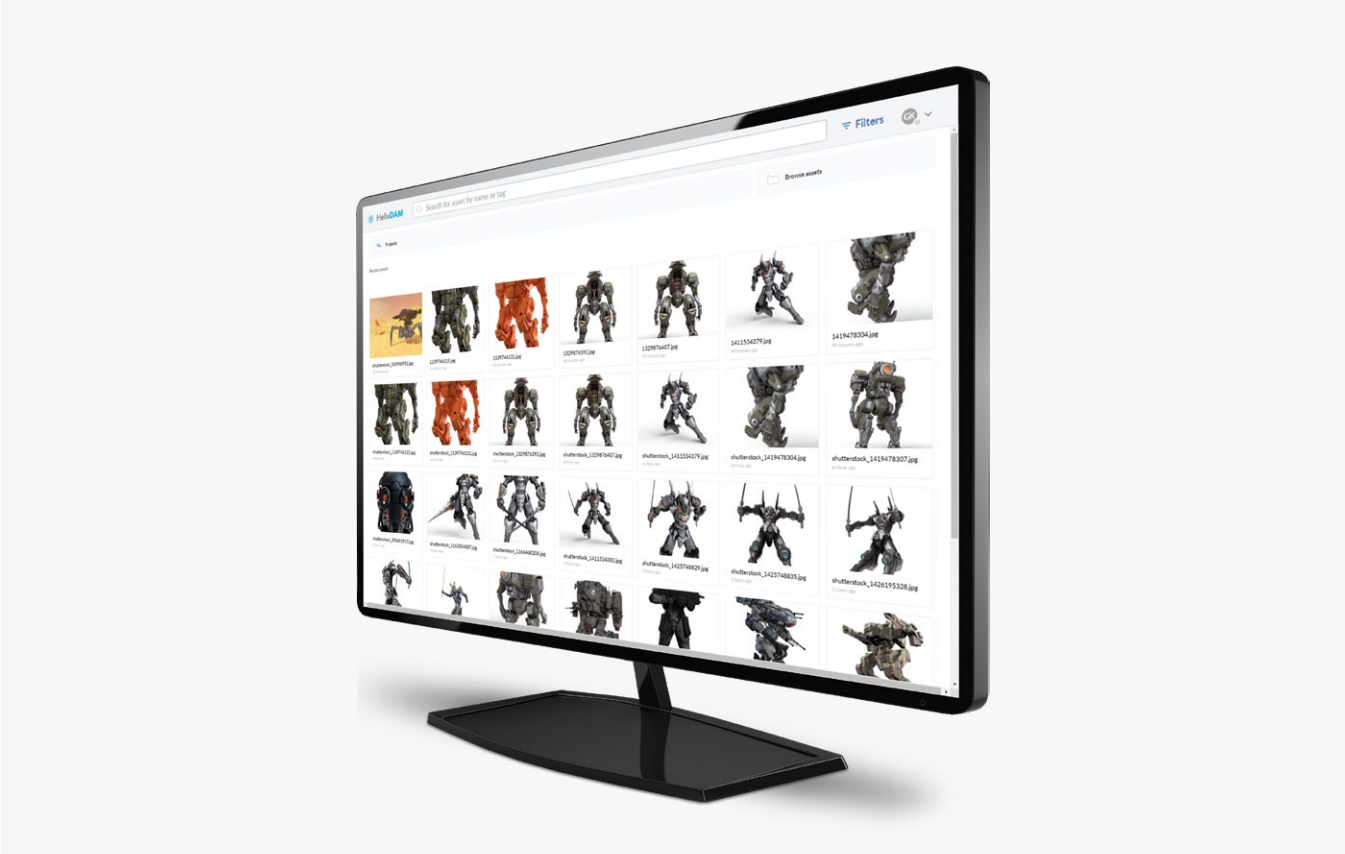
With Helix Core and Helix DAM, your entire organization can get on one page. By syncing Helix DAM to your organization's existing streams in Helix Core, your creative team will be able to build from assets already stored in the Helix Core server. Plus, when your artists and designers sync changes to their files to Helix Core, other teams in your organization can easily reference the most up-to-date file in the final build.

HelixDAM

Try It For Free

Want to see for yourself how easy Helix DAM makes finding, iterating on, and reviewing your art? Test drive Helix DAM free for 14 days in our sandbox — no setup or commitment required.

TRY HELIX DAM



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