Perforce Versioning Engine

Enterprise-grade version management for any size code, binaries, images and more

Perforce versioning engine, P4D, is an enterprise-grade version management system that enables your teams to build better products faster. It provides a repository that stores all assets in a shared facility, and keeps track of each change. It handles conflicts resulting from simultaneous changes and provides tools for managing your assets and their history. The result is a repeatable and reliable Continuous Delivery model that paves the way to higher productivity and lower costs.

Trusted by many of the largest, fastest-growing and most innovative global enterprises, P4D is unique in its ability to manage all assets, not just code, and is optimized to support both traditional development models as well as more nimble Continuous Delivery environments producing multiple releases of product each day. As teams iterate on these assets, a system that enables fast, conflict-free collaboration is a must.

Version Everything

P4D is the only version management system that can handle all types of file formats regardless of their size. It was built from the ground up to support any type of file—source code, documents, video, 3D graphics, images, sound files, and much more—and especially assets exceeding hundreds of megabytes in size.

Central and Distributed Modes

P4D enables you to choose a usage model that best suits your development style (See Figure 1):

- Deploy P4D on-premise to handle all your version management tasks from remote clients.
- Deploy Git Fusion with repo remapping to tame Git sprawl and provide access to the “single source of truth” via Git clients.
- Leverage Perforce Sandbox to work on new features in isolation offline; integrate your changes to the mainline when you are ready.

Figure 1: Perforce usage models
Flexible Branching and Task Management

Perforce branching is optimized for modern enterprise development. Developers have several ways to manage tasks. Release engineers can automatically guide change flow through dozens of related product versions. DevOps engineers can maintain a full audit trail and chain of custody for deployed artifacts.

Perforce Streams

Streams accelerate trunk-based development by simplifying the branching and merging of parallel work. Stream Graph (see Figure 2) visually displays mainline updates waiting to merge down to children as well as child work available to copy up to parents.

Task Streams

Task streams are a specialized variant that significantly reduce server load for “lightweight” branches, much like Git. They use “symbolic links” and may be deleted entirely once work has been delivered.

Component-based Development

Streams are also a great tool for component-based development because they can import other streams (read-only or writeable), using the latest or a fixed revision as desired.

Shelving

P4D lets you shelve the changes you’ve made to a task branch to enable reviews, temporary commits, or to let you context switch and work on a different task.

Frustration-free Merge

P4D makes it easy to collaborate on product development. It facilities easy merges across large changelists using tools such as P4Merge. Quickly visualize differences on files and view changes that took place on entire folders between two points in time to resolve integration bugs faster (see Figure 3). Merge capabilities support both text and binary data, and let you compare source code, documents, and images such as JPEG, GIF, TIFF, BMP, etc.

Foundation of a Continuous Delivery Ecosystem

For trunk-based development or any other model, P4D scales to deliver as often as you like. Whether once a week or tens of times per day, P4D powers your automated processes for Continuous Integration and Continuous Delivery without sacrificing performance. Fine-grained permissions and reporting record everything, so tracking releases and surviving audits are simple.

Interoperability

P4D has well-documented and fully-supported programmatic interfaces for your build, test and deployment toolchain and integrates broadly out of the box with:

- Perforce Swarm for code review and collaboration.
- Jenkins, Maven, Puppet, Chef, JIRA and other tools for powering Continuous Delivery within the enterprise.
- User-contributed open source plugins and extensions by a broad community of users.
Support Global Multisite Teams

Whether building a cutting-edge enterprise applications, killer games, ground-breaking mobile devices or the next cloud platform, businesses depend on teams of people working together on important digital assets like code, documents, images, designs, and other electronic files.

P4D’s federated architecture has built-in replication capabilities to serve global multisite teams (see Figure 4) and it enables organizations to:

- Create a multisite versioning environment without sacrificing project transparency, process management, or security — including integration with both LDAP and Active Directory.
- Support a global workforce using configurations such as Proxy, Replica and Edge services.
- Assure highly available, fault-tolerant and consistent revision data with server clustering, a multi-node solution for horizontal data center scaling.
- Develop internationally with auto-detection of local character set and multiple language packs.
- Administer P4D easily and tailor it to their specific needs.
- Add capacity for concurrent users as-needed without sacrificing performance.
- Automate failover to assure new levels of uptime in backup and disaster recovery plans.

Massively Scalable

P4D is the industry’s most scalable version management system. It can support tens of thousands of concurrent users working anywhere, while managing terabytes of data in development assets — with no limit on the size or type of files.

P4D is proven to serve high-volume environments running thousands of builds and millions of integration tests a day so that enterprises can ship quality features faster than ever before.

![Figure 4: Perforce’s architecture supports global multisite teams](image-url)