



Altair PBS Professional™ is the trusted leader in high-performance computing workload management. It efficiently schedules HPC workloads across all forms of computing infrastructure, and it scales easily to support systems of any size — from clusters to the largest supercomputers.

The Altair PBS Works™ Suite

The PBS Works suite includes PBS Professional plus:

- **Altair Accelerator™** enterprise-grade job scheduler
- **Altair Access™** portal for engineers and researchers
- **Altair Control™** HPC administrator control center
- **Altair FlowTracer™** flow development platform
- **Altair Allocator™** multi-site software license manager
- **Altair Monitor™** real-time license monitoring
- **Altair SAO** (software asset optimization) analytics
- **Altair Hero™** end-to-end hardware emulation job scheduler

Learn more:
pbsworks.com

Customers choose PBS Professional to:

- Improve performance with a fast, powerful, reliable workload manager
- Reduce costs by optimizing hardware, software, and power use
- Get first-rate technical support with personal, one-on-one attention
- Maximize user productivity and ensure service-level agreements (SLAs) are met
- Ensure cloud readiness with a product proven for public and private clouds
- Gain peace of mind with an established commercial leader known for excellent service and customer care
- Simplify HPC and AI workload scheduling and administration
- Gain the flexibility to meet complex custom requirements
- Ensure the highest level of security with Multi-Level Security (MLS) SELinux support
- Implement business priorities by ensuring the most important jobs run first and complete on time
- Reduce risk by minimizing — and automatically recovering from — hardware failures

Licensing Options

PBS Professional is available under two different licensing options: one for commercial installations, and another that's Open Source Initiative-compliant. At the heart of this is fostering common standards and a thriving HPC community and, to this end, Altair has made a big investment by releasing the two licensing options. Each version of PBS Professional contains the same core codebase to benefit both the private and public sectors.



Key Features & Benefits

- Shrink-to-fit jobs boost utilization, especially before planned system outages; one supercomputing center recovered 800,000+ idle CPU hours in just a few months
- GPU/coprocessor scheduling prioritizes use of and manages access to all types of accelerators including NVIDIA and AMD
- Estimated job start times enable you to plan your workflows and meet deadlines
- Backfill TopN scheduling eliminates wasted cycles without delaying top-priority work
- Dynamic provisioning automatically changes OS to match changing workload demands
- Submission filtering “hooks” to change/augment capabilities on site, on the fly
- Topology-aware scheduling optimizes task placement for all HPC network topologies (InfiniBand, HPE, Cray, GigE, etc.), improving application performance and reducing network contention
- Job arrays allow for maximum throughput to schedule, execute, and manage unlimited jobs
- User, group, and project limits to implement fine-grained policy adjustments
- Plugins for “execution events” to easily support health checks, third-party integrations and site-specific customizations
- Tunable scheduling formula defines any policy, including on-the-fly exceptions
- Power-awareness – Green Provisioning™ allows energy-conscious sites to schedule and manage jobs based on power capping, ramp rate limiting, and band management, and to define when to turn off/on or idle nodes; proven to lower one customer’s energy use by up to 30%
- User-customizable “runjob hooks” ensure allocation management limits are strictly enforced
- Advance and standing reservations guarantee resources for recurring needs
- Heterogeneous MPI allocations (e.g. 64 GB mem for rank 0, but only 1 GB for others) reduce memory waste
- Job status with history (via “qstat -x”), so you never lose track of jobs
- Python is available everywhere, allowing one script to be used across all architectures
- Preemption and checkpointing allows you to immediately run high-priority work

Technical features			
GPU and Coprocessor Scheduling	Heterogenous Clusters	Advance and Standing Reservations	Checkpoint/Restart
Scheduling Formula	Eligible Time	Job Arrays	Container Support
Cgroups Integration	Customizable Fairshare	Age-based Scheduling	Metascheduling via Peer Scheduling
Release Nodes from Running Jobs	Multisched for Per-Partition Scheduling Policies	Topology-aware Scheduling	OS Provisioning
License Scheduling	Preemption and Preemption Targets	Job History (qstat -x)	Extensible Plugin Framework (“Hooks”)
Dynamic Resources	Job Dependencies	Estimated Job Start Times	Interactive Jobs
Backfill TopN	Beyond Petaflops Scalability	Per-named User/Group/Project Limits	“Shrink-to-fit” Jobs
Control User Logins to Compute Nodes	SELinux/MLS Integration	Failover	Hybrid Jobs (MPI+OpenMP)
MPI Integrations	Policy-based Scheduling	Node Health Monitoring	Soft Walltime
Command Output in Multiple Formats	Broad Platform Support	Power-aware Scheduling (Power Profiling/Capping and Reporting)	HPE Performance Cluster Manager Integration (HPCM)
Power Ramp Rate Limiting*	Power Band Management*	Power On/Off/Idle*	

Supported Platforms

PBS Professional supports all major platforms and operating systems.

