



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 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 cluster administration
- Gain the flexibility to meet complex custom requirements
- Ensure the highest level of security – only

PBS Pro offers EAL3+ certification and SELinux/MLS 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 (NVIDIA, AMD) as well as the Intel® Xeon Phi™ coprocessor
- 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, IBM, 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
- Green Provisioning™ for automatic
- resource shutdown/restart to conserve energy; proven to lower one customer’s energy use by up to 30%
- User-customizable “runjob hooks” ensure allocation management limits are strictly enforced
- Advance resource 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 (Xeon Phi) scheduling	Heterogeneous clusters	Standing reservations	Checkpoint/restart
Scheduling formula	Kerberos	Eligible time	Job arrays
Fairshare	Age-based scheduling	Metascheduling via peer scheduling	Topology-aware scheduling
OS provisioning	License scheduling	Preemption	Job history (qstat -x)
Web services	Extensible plugin framework (“hooks”)	Dynamic resources	Multi-core
Job dependencies	Estimated job start times	Interactive jobs	Backfill TopN
24x7 online community	Beyond petaflops scalability	User/group/project limits	“Shrink-to-fit” jobs
On-demand licensing	Green provisioning™	\$restrict_user	Cross-domain solutions
Failover	Hybrid jobs (MPI+OpenMP)	MPI integrations	Power-aware scheduling
Policy-based scheduling	Oversubscription	EAL3+ security	Node health monitoring

Supported Platforms

PBS Professional supports all major platforms and operating systems.

