

ALTAIR® PBS PROFESSIONAL® FOR HPE SYSTEMS

Altair PBS Professional delivers world-class HPC workload management to Hewlett Packard Enterprise (HPE) cluster users. As an HPE-integrated product, PBS Professional is an efficient, reliable solution that optimizes job scheduling on HPE high-performance computing systems to achieve the highest levels of system utilization. PBS Professional is also integrated with HPE Performance Cluster Manager, ensuring easy cluster deployment and management for administrators.

About PBS Professional

PBS Professional is a fast, powerful workload manager designed to improve productivity, optimize utilization and efficiency, and simplify administration for clusters, clouds, and supercomputers — from the biggest HPC workloads to millions of small, high-throughput jobs. PBS Professional automates job scheduling, management, monitoring, and reporting, and it's the trusted solution for complex Top500 systems as well as smaller clusters, proven for over a decade at thousands of customer sites.

Benefits for HPE Administrators and Users

With PBS Professional, HPE users and admins get industry-leading job scheduling and workload management, scalability to millions of cores, seamless integration with all HPE HPC systems, and unparalleled power management capabilities. Altair provides unbeatable global service and support with local experts in over 25 countries. HPE and Altair collaborate closely for tight, seamless implementation and performance tuning.



Cloud-ready with static and dynamic bursting capabilities



EAL3+ certified security with SELinux support



Superior Job Scheduling and Workload Management – PBS Professional efficiently distributes workloads across HPE platforms, from clusters to the largest supercomputing systems, to drive optimal system utilization. PBS Professional supports multiple users and applications with an efficient queue management system that allows HPE cluster administrators to track usage and set user priorities and policies. It also supports hierarchical scheduling for increased throughput.

Industry-leading Scalability – PBS Professional scales easily to millions of cores.

Seamless Deployment and Integration – PBS Professional is optimized for use with all HPE high-performance computing systems.

Expert Support – Altair supports HPE customers through a network of global experts. This close business collaboration means users can expect high-value, seamless deployments.

Unparalleled Security – PBS Professional is the only workload manager with EAL3+ security certification and SELinux support.

Efficient Power Management – Altair offers unparalleled power awareness with the integration of HPE Performance Cluster Manager and PBS Professional. The solution includes power capping capabilities, per-job power profiles, energy accounting, and more.

Comprehensive Cloud Readiness – The Altair HyperWorks Unlimited cloud appliance combines with HPE Performance Cluster Manager to deliver HPC in the cloud to HPE customers. PBS Professional comes with a built-in GUI that enables administrators to extend HPC resources to public and private clouds including Oracle Cloud Infrastructure, Google Cloud Platform, Microsoft Azure, and Amazon Web Services (AWS). Dynamic bursting makes it easy to manage peak-time workloads.

Allocation and Budget Management – Manage budgets across an entire enterprise and for multiple clusters by allocating users credits for PBS Professional workloads. Credits can be provided in one or more customizable currencies. For visibility into HPC usage, PBS Professional includes full reporting of credit consumption by groups and by individual users.

Forecasting and Simulation – The simulator included with PBS Professional helps admins understand in detail and quickly evaluate situational issues and potential policy changes on workload execution.

Key Features

- GPU/co-processor scheduling prioritizes use and manages access to all types of accelerators, with full access control and accounting
- Supports the latest versions of RHEL, CentOS, and SLES on all Intel® Xeon®, AMD EPYC™, and 64-bit Arm®-based HPE HPC systems
- Health-aware job scheduling – run health checks on nodes either periodically or before/after jobs
- Estimated job-start times enable you to plan your workflows and meet deadlines
- Backfill TopN scheduling eliminates wasted cycles without delaying any work
- Dynamic provisioning via HPE Performance Cluster Manager changes the OS and/or application operating environment to match changing workload demands
- Submission filtering “hooks” to change/augment capabilities on site, on the fly
- Shrink-to-fit jobs boost utilization, especially before planned system outages, and they run sooner
- Workloads are distributed efficiently for maximum return on investment (ROI)
- Virtually unlimited scalability supports configurations from clusters to the largest supercomputers
- User, group, and project limits allow fine-grained policy adjustments
- Job arrays allow for maximum throughput to schedule, execute, and manage unlimited jobs
- Tunable scheduling formula defines any policy, including on-the-fly exceptions
- User-customizable “runjob hooks” ensure allocation management limits are strictly enforced
- Advance resource reservations guarantee resources for recurring needs
- Unified job and resource (“vnode”) architecture lets you write job requirements once and automatically optimizes placement
- Job status with history (via “qstat -x”) means you’ll 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

HPE and Altair: Leaders in HPC

HPE leads the HPC market, offering the broadest spectrum of high-performance computing solutions from workgroup and departmental servers to HPE Cray supercomputers. Altair has served the HPC market for decades with award-winning workload management, engineering, and cloud computing software. Together, HPE and Altair deliver innovative, industry-standard solutions optimized for scalability, performance, and cost-effectiveness.

Read more about HPE and Altair at hpe.com/software/altairpbs.



Efficiently distributes workloads across HPE platforms



Manages budgets across an entire enterprise