



Altair PBS Professional® MLS Tutorial

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PBS Professional MLS Configuration

Special Release

- PBS Professional 11.3.200 is the SELinux release
- Available only by contacting Altair
- Special PBS Professional MLS Admin Guide available
- Special installation instructions are necessary





PBS Professional MLS Configuration

Overview

- Vet and install supplied PBS SELinux policy
- Install PBS using our “normal” instructions
- SELinux-specific configuration tweaks
- Differences from “normal” PBS





PBS Professional MLS Configuration

Policy

- Provide distribution image to site security personnel
- Extract and install SELinux policy files;
 - Configure site-specific PBS policy by adding:
 - PAM SELinux policy for `login` and `sshd`
 - Rules to:
 - Allow sandboxes in users' home directories
 - Allow use of `/dev/shm` SELinux type, `tmpfs_t`
 - `netlabel.rules` entries for PBS services as needed





PBS Professional MLS Configuration

Install

- Proceed with PBS installation
- Configure site file staging to respect SELinux extended attributes

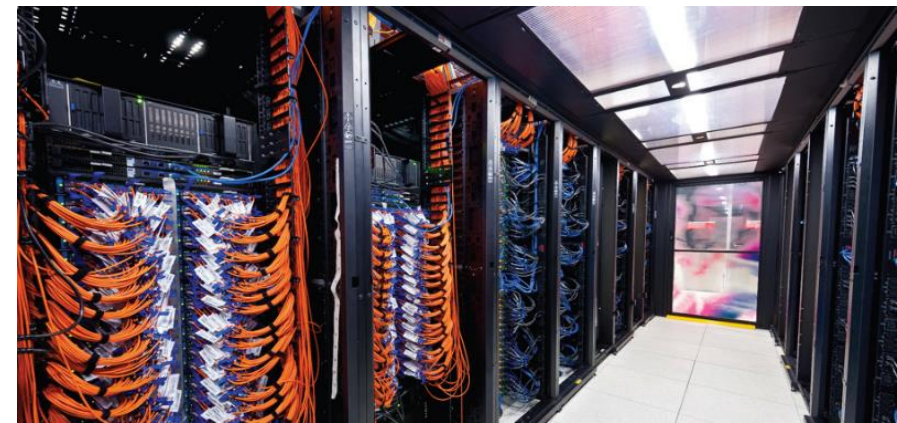




PBS Professional MLS Configuration

SELinux Tweaks

- Protect normally-world-readable log directories
- turn off `query_other_jobs`





PBS Professional MLS Configuration

Delta From Stock PBS

- Users may operate on their own jobs if the user and job security contexts match
- Users may not query others' jobs or inspect log files
- Cannot use non-SELinux-enabled PBS binaries or utilities constructed using non-SELinux-enabled PBS interfaces





For More Information

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Visit www.pbsworks.com



Read the case study of this implementation with Red Hat and Lockheed Martin



Success Story

Altair | PBS Works | redhat

Lockheed Martin Improves Security Capabilities and Reduces HPC Costs with PBS Professional



LOCKHEED MARTIN

Customer Profile
Headquartered in Bethesda, MD, Lockheed Martin (LMC) is a global security and aerospace company that employs about 115,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainability of advanced technology systems, products and services.

Key Highlights

Industry
Aerospace and Defense

Challenge
Support multiple security domains while consolidating HPC systems.

Altair Solution
PBS Professional with support for Red Hat cross-domain security

Benefits

- Tens of millions in HPC cost savings
- Reduced datacenter footprint and power consumption
- Simplified IT architecture
- Enhanced flexibility and control

The Challenge: Managing HPC Resources in Multi-Level Security Environments
LMC configures the systems for the government with Red Hat Enterprise Linux 6 cross-domain system (CDS) configurations for multi-level security (MLS). Red Hat Enterprise Linux's CDS capabilities deliver an out-of-the-box configuration that enables users and data at different security levels to share the same resources (including hardware, operating systems, disks, etc.). This configuration uses the MLS policy and other features built into Red Hat Enterprise Linux to enable Role Based Access Control (RBAC), automated auditing, and many other security features.

Red Hat Enterprise Linux's MLS configuration helps control hardware costs by combining users at different security levels on the same HPC systems while ensuring efficient system access by all users. This is particularly useful for the U.S. military and intelligence

Lockheed Martin staffs several government owned HPC programs that provide support for managing the high-performance computing (HPC) resources used by government directed R&D contractors and scientists to support compute-intensive modeling and simulation research. LMC provides supercomputing hardware and helps users convert, optimize and parallelize their software codes to run as efficiently as possible on the government owned HPC systems. The LMC staff also helps contractors and scientists get access to the data they need to perform their computational research.

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Keywords: Aerospace and Defense, Lockheed Martin, Red Hat, SELinux, MLS, HPC, PBS Professional