

Secure Image Build & Automation Pipeline

Immutable Infrastructure with Packer, Ansible, Terraform & CI/CD

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Problem Statement

- Manual image builds are error-prone, insecure, and non-reproducible.
- Compliance and security hardening is inconsistent.
- No visibility into image provenance, versioning, or rollback.

Goal & Vision

- Automate creation of secure, validated, multi-OS images.
- Integrate security, compliance, and version control end-to-end.
- Ensure traceable, auditable, and reproducible image pipeline.

High-Level Architecture

- GitHub → Source of truth
- Jenkins/GitHub Actions → CI/CD orchestration
- Packer + Ansible → Image creation & hardening
- AWS Inspector / Trivy → Security & compliance scanning
- Terraform → Infrastructure provisioning

Workflow Breakdown

- Source Control: Git-managed
packer/ansible/terraform
- CI/CD Trigger: On PR merge/commit
- Pipeline: Packer build → Ansible provision →
Security scan → AMI publish
- Deployment: Terraform deploys versioned AMI

Key Technologies Table

Tool	Purpose
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Packer	Multi-OS AMI creation
Ansible	Provisioning and OS hardening
Terraform	Infrastructure deployment
CI/CD	Jenkins / GitHub Actions orchestration
Scanners	Trivy / AWS Inspector for security

Security Practices

- Use AWS Secrets Manager or Vault for secret injection
- IAM roles follow least privilege principle
- Images are immutable post-deploy
- Apply CIS Benchmarks via Ansible
- Rollback support to secure AMI snapshots

Benefits

- Secure, hardened image baselines
- Full automation & repeatability
- Linux, Windows, macOS supported
- Fast rollback, reduced drift
- Increased developer productivity

Use Cases at Adobe

- Dev/test image baselines
- Secure Creative Cloud image pipelines
- Enterprise compliance automation
- Consistent lab and cloud environments

Call to Action / Next Steps

- Integrate with Adobe cloud platforms & tools
- Extend support for VMware Fusion, MacStadium
- Document onboarding & usage
- Feedback-driven iteration

THANK YOU