

## Executive Summary — WCDN Panther Domain Authority

This operation established the Panther Domain Authority, a fully functional Windows Server Active Directory environment designed to mirror real-world enterprise identity infrastructure within the Wakanda Cyber Defense Network (WCDN). The mission centered on building a resilient two-domain-controller architecture capable of supporting secure authentication, centralized management, DNS services, and enterprise-grade directory operations.

The deployment began by configuring PDC01, the Primary Domain Controller. The server was renamed, rebooted, and assigned a static IP address to stabilize its identity on the network — a foundational requirement for domain trust and DNS reliability. Connectivity validation confirmed stable network communication, allowing the next phase of the mission to proceed.

Active Directory Domain Services (AD DS) was installed and configured to form a new forest. During initial domain promotion attempts, a configuration error prompted a rollback, which was resolved by re-running the forest creation process with corrected inputs. After promotion and reboot, PDC01 officially became the authoritative domain controller for the Panther Domain.

Next, RDC01 was deployed as the secondary Domain Controller. After renaming the server, setting its static IP, and verifying connectivity, RDC01 joined the Panther Domain and was successfully promoted to a Domain Controller. This established redundancy, fault tolerance, and load balancing capability for authentication and directory operations.

Directory replication verification, using `repadmin /syncall /AdeP`, confirmed full synchronization between PDC01 and RDC01. This validated healthy SYSVOL replication, AD object consistency, DNS zone transfers, and replication topology integrity — essential components of enterprise identity resilience.

To demonstrate administrative control, TestUser was created using both GUI and PowerShell command automation, verifying that account creation, propagation, and authentication succeeded across controllers. Additional validation steps confirmed AD DS role installation, DNS configuration, and Global Catalog availability on both servers.

Through this operation, the Panther Domain Authority achieved full readiness as a centralized identity and access management environment. This mission showcased practical enterprise skills including domain creation and promotion, multi-controller replication, DNS zone configuration, Active Directory troubleshooting, server management and PowerShell automation, identity provisioning, and infrastructure resilience.

The completed project reflects strong competency in Windows enterprise administration and forms a critical foundation for secure authentication, authorization, and centralized governance within WCDN infrastructure operations.