



Release Notes

PanFS 12.0.0

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New Features

PanFS 12.0.0 is a major release that introduces Vantage, a new UI for VDURA systems that currently supplements the existing PanActive Manager UI. It pairs a new web-based management UI with a new command-line tool (PanCTL), a new core management API, and native multi-tenancy, so a single realm can now be securely divided, administered, and monitored by multiple independent tenants from one consistent set of tools. The release also adds a new multi-tenant S3 gateway, scale-out of a volume across multiple File Managers, tenant-aware realm networking, and RDMA and storage-node performance improvements.

Vantage: A New Web Management Experience

Vantage is a modern web application built on a consistent shell: persistent navigation, breadcrumbs, light and dark themes, and a common table and layout language that carries across every feature area. Vantage supplements the existing UI by adding support for multi-tenancy, with more features forthcoming.

- A new application shell with global navigation, breadcrumbs, and an About page that reports the UI and realm build versions, giving administrators a single, consistently styled entry point into the cluster.
- Full light and dark theme support across the application.
- A simple Home dashboard is the first screen after login, surfacing at-a-glance stats such as unassigned capacity, alert summaries, and IOPS, bandwidth, and metadata operation charts, with data that refreshes automatically.
- A guided first sign-in: Users who receive an admin-issued temporary password are walked through a mandatory Set Password screen before reaching the dashboard and can change their own password afterward through a self-service My Account page.
- My Account brings together a user's profile, password management, and their own recent activity in one place.
- Refreshed VDURA branding and logo assets throughout the interface.

Storage, Node, and Hardware Management

Vantage gives Platform Admins full lifecycle management of StorageSets, Volumes, and Nodes, plus a visual view into the physical hardware behind them, all from the browser.

- StorageSets can be listed, created, inspected, and edited from the UI, including adding storage capacity to an existing StorageSet.
 - Volumes support a full create, list, view, and edit workflow, with capacity-aware creation hints and inline editing of properties such as name, description, quotas, EFSA mode, and recovery priority.
- A Nodes view lists and differentiates physical and virtual nodes by type and software role, with detail pages for each, including hostnames and generated node names for easier identification.
- Hardware Visualization gives administrators a physical view of the cluster: Node and drive layouts, per-component detail pages, and LED blink or identify actions at both the node and individual disk level, so a specific drive or component can be located in a rack.
 - Hardware and drive tables were reworked for real-world scale: Raw sensor data is normalized into readable values, large tables such as Drive Assets support filtering, and component status now rolls up to its parent enclosure, so a problem is visible at a glance.

Monitoring, Alerts, and Audit Logging

A new Status Center consolidates alerts, system events, and a full audit trail, and gives every tenant, user, and admin a page that answers who did what, from where, and when.

- vdura-api now emits a dedicated audit event log for every security-relevant operation, capturing who performed it, from where, what was affected, whether it succeeded, and what changed.
- Audit Log views built on that trail now appear wherever the question who did this comes up: The platform-wide Status Center, each Tenant Dashboard and Tenant Details page, individual User Details pages, and a user's own My Account profile.
- New proactive alerting: Administrators are notified if the PanFS root filesystem is not mounted on a Director, and management-stack process alerts are suppressed for Directors outside the active realm-manager set to reduce noise.

Multi-Tenancy and Access Control

PanFS 12.0.0 introduces native multi-tenancy: A Platform Admin can create isolated tenants, assign them storage, and hand each one a scoped administrative experience, while role-based access control governs exactly what every user can see and do.

- Platform Admins can create, view, edit, and delete tenants, assign StorageSets to them, and provision volumes on their behalf, all from a dedicated Tenant management area.
- A Platform/Tenant switcher in the application header lets a Platform Admin move into a tenant's own scoped view, such as its Volumes and Dashboard, without a separate login; Tenant Admins and Tenant Users can also sign in directly into their tenant's dedicated area.
- Tenants have their own network configuration. Administrators can create, edit, and delete tenant network configurations, including VLAN-based and VXLAN configurations, from a dedicated Networking tab on both the tenant-facing and platform-facing tenant pages.
- Tenant setup status tracking (Setup Incomplete, Finishing Setup, Active) and in-context prompts guide a Platform Admin through finishing a new tenant's configuration.
- Role management is simple and transparent. A single Manage Roles dialog adds and removes a user's roles in one save, and a plain-language effective-permissions summary shows exactly what a user's combined roles grant, wherever roles are assigned or reviewed.
- Service Accounts give integrations and automation their own identity, independent of a human user, with their own roles and API tokens, manageable from list, create, and detail pages.

PanCTL Command-Line Interface

PanCTL is a new command-line client for the cluster, generated directly from the platform's OpenAPI specification so its command surface tracks the API it drives. It gives operators and automation a scriptable alternative to the web UI for the same resources: Nodes, StorageSets, volumes, tenants, users, and service accounts.

- Core command groups cover authentication (browser-based login, whoami, logout) and CRUD operations against nodes, StorageSets, volumes, tenants, users, and service accounts, all driven by the same REST API as the Vantage web UI.
- A download page in the Vantage UI lets operators grab the correct PanCTL binary for their platform (macOS or Linux) directly from the realm, alongside a getting-started guide.

Core API, Tokens, and Security

A new core management API underpins Vantage, PanCTL, and multi-tenancy alike, with token-based authentication for integrations and a hardened key management infrastructure to secure a multi-tenant cluster.

- PanAPI has native support for managing StorageSets, Volumes, and Tenants, plus a set of v12 extensions to the API surface that back both Vantage and PanCTL.
- API access tokens let users and service accounts authenticate scripts and integrations without sharing a password. A token can be created with a name and expiration date, listed alongside its status and last-used time, and revoked at any time, with its secret shown only once at creation.
- A new two-tier PKI, with a main certificate authority and per-realm certificate authorities, issues and distributes the certificates and keys that secure communication across a multi-tenant cluster, including secure node join, certificate renewal, and integration with the cluster's authentication flow.

S3 Gateway

PanFS 12.0.0 introduces a new S3 interface that lets applications reach data in a realm over the S3 protocol. It replaces the previous S3 gateway and is managed through PanCTL and PanAPI, rather than through the legacy PanCLI and web interfaces.

- The S3 gateway is multi-tenant. Each tenant's S3 gateway runs inside that tenant's own network namespace at a fixed port and is reachable only from the tenant network, keeping S3 access isolated between tenants.
- S3 users and their credentials are managed through PanAPI, which keeps the gateway's user information current as users are created, updated, and deleted.
- The realm DNS server can now serve S3 service records.
- S3 gateway metrics are integrated with the VDURA observability stack, so S3 activity can be monitored alongside other realm metrics.
- The gateway uses tuned DirectFlow client mount options, such as larger readahead and socket buffer settings, so S3 performance can scale.
- Security and resilience are strengthened. The gateway authenticates to PanAPI with a dedicated service account and refreshes its token, and the gateway reconnects to PanAPI after management services fail over.

Tenant and Realm Networking

Multi-tenancy extends below the management layer into the realm's network. Each tenant can have its own isolated network, and storage services answer clients on the network they connect from.

- Tenant subnets are backed by real VLAN or VXLAN encapsulation, selected by platform.
- Realm services and the I/O path answer each request using the addressing of the network it arrived on.
- Subnets can have address ranges, and externally allocated tenant subnets are handled on the node. Client hosts using VXLAN outside the realm can be attached to a tenant subnet through new client attachment endpoints in PanAPI.
- Tenant readiness is enforced. A volume cannot be created for a tenant until its network is ready, and the last subnet of a tenant cannot be removed while it is in use. Tenant network configuration self-heals after a failed apply on a node.
- Tenant data is protected from broad mounts. A global mount from a regular DirectFlow client on the platform network is refused once the realm holds tenants beyond the default one.
- Network multi-tenancy is not available on InfiniBand realms. Attempting to create a tenant on such a realm returns a single clear error through the command line, the REST API, and the UI.

RDMA and Storage Performance

This release improves the performance and resilience of the data path, from the client RDMA stack to the ZFS storage layout on storage nodes.

- RDMA I/O is compatible with per-tenant VLAN and VXLAN network isolation. The I/O path detects and handles RDMA network rail failures.
- The Linux client is now available in two packages, panfs without RDMA dependencies and panfs-rdma with them, so the client can be installed with or without RDMA support.
- All-flash systems gain improved sequential read and write performance through tuning of the I/O path.
- Hybrid nodes now present a single pool of HDD and SSD storage, with tiering behavior unchanged.
- Intent log write-path contention is reduced, and transaction log replication was improved to resolve create and delete hangs on high-performance realms.

Upgrade or Downgrade PanFS

Neither upgrade nor downgrade is supported for PanFS 12.0.0 at the time of release. For questions regarding upgrading or downgrading your VDURA system, contact your VDURA representative.

Technical Support

Please contact VDURA Technical Support with any questions you may have about installing, using, or servicing VDURA products.

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