ADMINISTRATION GUIDE (SUPER-USERS)

NASLORD 3.0.0

Administration Guide (Super-Users)

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1. INTRODUCTION AND ROLES

NASLORD DISTINGUISHES THREE TYPES OF ACCOUNTS

- SUPER-USERS administer NASLord itself. They automatically have access to all active Access Zones, MTrees and Namespaces, across all Clusters, Appliances and VDCs configured in NASLord. They do not need to be granted access to anything explicitly.
- TENANT ADMINISTRATORS are end users. They only see and manage the PowerScale Access Zones, PowerProtect DD MTrees and ObjectScale Namespaces that have been explicitly granted to them. Their view of the interface is simplified accordingly. (See the NASLord 3.0.0 Tenant User Guide.)
- TENANT USERS are end users. They only see and manage the PowerScale Access Zones, PowerProtect DD MTrees and ObjectScale Namespaces that have been explicitly granted to them. Their view of the interface is simplified accordingly. (See the NASLord 3.0.0 Tenant User Guide.)

This guide covers everything a super-user needs: connecting storage systems, creating Tenants and users, configuring chargeback, budgets and report delivery, and operating the appliance.

Most administrative functions are reached from the ADMIN PAGE in the web interface.

2. USER MANAGEMENT

CREATING A LOCAL USER

1. Navigate to ADMIN PAGE -> USER MANAGEMENT.
2. Click the +CREATE LOCAL USER button located on the top right corner.
3. Enter the user details: Username, First Name, Last Name, Email and Password.
4. For a SUPER-USER: enable the "Super-user" checkbox. No further grants are needed.
5. For a TENANT ADMINISTRATOR: select the PowerScale Access Zone(s), PowerProtect DD MTree(s) and/or ObjectScale Namespace(s) this user is allowed to manage. Optionally associate the user with a Tenant (see section 5) so they can view that Tenant's charge reports and budget dashboards. (INDENT)
6. Click the "ADD USER" button on the bottom right.

MANAGING USERS

- Once a user has been created, hover the mouse over the cells on the right of the user list to see the Access Zone(s), MTree(s) and Namespace(s) that the user can manage.
- Right-click on any user and select "Edit" or "Delete" as necessary.
- The user list also records each user's last authentication timestamp and source IP address, which is useful for auditing.

3. LDAP AUTHENTICATION

NASLord users can authenticate against an external LDAP directory instead of using local passwords.

1. Navigate to ADMIN PAGE -> LDAP and add/edit the LDAP provider: server address, port, bind credentials, search base and attribute mappings.
2. When creating or editing users, select "LDAP Authentication" as the authentication method.
3. Tenants can be mapped to the directory as well: each Tenant can carry an LDAP base OU and an LDAP administrator group DN (see section 5), which ties directory users to the proper Tenant.

Local and LDAP users can coexist; the built-in "admin" account remains local so you cannot be locked out by a directory outage.

4. TWO-FACTOR AUTHENTICATION

NASLord supports time-based one-time password (TOTP) two-factor authentication, compatible with standard authenticator applications, with static backup tokens for recovery.

- To enable or disable 2FA system-wide: ADMIN PAGE -> TWO-FACTOR AUTHENTICATION.
- When 2FA is enabled, users enroll their authenticator device at their next login and must provide a one-time code at each subsequent login.
- Keep the backup tokens in a safe place; they allow login when the authenticator device is unavailable.

5. TENANT MANAGEMENT

Tenants are the unit of cost allocation and reporting in **NAS**Lord 3.0. A Tenant groups storage components (PowerScale Access Zones and ObjectScale Namespaces) and carries the billing information used by charge reports, budgets, and report delivery.

CREATING A TENANT

1. Navigate to ADMIN PAGE -> TENANTS and add a new Tenant.
2. Fill in the Tenant details:
   - Name (must be unique)
   - Contact name, phone number, office address
   - E-mail address, and a separate report e-mail address (where monthly reports are sent)
   - Currency: USD, CAD, EUR, GBP or BRL
   - Optional LDAP base OU and LDAP administrator group DN
   - Notes
   - Enabled flag
3. Optionally enable "monthly reports" for the Tenant so its charge report is delivered automatically each month (requires e-mail settings, section 12.1, or report routes, section 10).

ASSOCIATING COMPONENTS TO A TENANT

- PowerScale: the association is made at the ACCESS ZONE level. Each Access Zone can belong to one Tenant.

- ObjectScale: the association is made at the NAMESPACE level. Each Namespace can belong to one Tenant; Buckets automatically follow the Tenant of their parent Namespace.
- PowerProtect DD MTrees are granted to users directly and are not part of chargeback.

IMPORTANT - currency consistency: all chargeback profiles applied to a Tenant's components must use the same currency as the Tenant. **NAS**Lord validates this and refuses a Tenant currency change or a profile assignment that would create a mismatch.

6. POWERSCALE MULTI-TENANT MANAGER

6.1 ADDING A NEW POWERSCALE CLUSTER

1. Navigate to the POWERSCALE CLUSTERS page and use the "ADD CLUSTER" button located on the top right.
2. Enter the cluster address, API port (default 8080) and credentials. See section 6.3 if you do not want to use the root account.
3. When adding a new cluster, all Access Zones are automatically discovered and added to the **NAS**Lord configuration, but are DISABLED by default.

With the demo license, you can add one (1) PowerScale Cluster and enable up to three (3) Access Zones. Production licenses can be obtained without any Access Zone limit.

6.2 ENABLING ACCESS ZONES

Access Zones must first be enabled, then access must be granted explicitly to Tenant Administrators (section 2), and optionally the zone can be associated to a Tenant for chargeback (section 5).

- Right-click on the Cluster Name and use "Select Access Zones" to enable multiple Access Zones at once.
- Alternatively, right-click on an individual Access Zone and use "Enable Access Zone".

Once granted, Tenant Administrators are restricted to their own Access Zones: they can browse the file system folders associated with their zones and view/create/edit/delete Quotas, Snapshot Schedules, NFS exports and SMB shares.

6.3 (OPTIONAL) CREATING A DEDICATED USER AND ROLE ON POWERSCALE

Follow these steps if you want **NAS**Lord to connect to your clusters with credentials other than root.

Creating a new user (OneFS CLI). Create a user called "naslord" with password "changeme" -- please use a secure password!

```
isi auth users create naslord --enabled yes --password changeme
isi auth users modify naslord --password-expires no
```

Creating a read-write role. Grant the naslord user read/write access to the cluster by creating a role and assigning it to the user:

```
isi auth roles create --name NASLordAdmin --description "NASLordAdmin role
READ/WRITE"
isi auth roles modify NASLordAdmin --add-user naslord
```

```
isi auth roles modify NASLordAdmin --add-priv ISI_PRIV_LOGIN_PAPI
isi auth roles modify NASLordAdmin --add-priv ISI_PRIV_NFS
isi auth roles modify NASLordAdmin --add-priv ISI_PRIV_QUOTA
isi auth roles modify NASLordAdmin --add-priv ISI_PRIV_SMB
isi auth roles modify NASLordAdmin --add-priv ISI_PRIV_SNAPSHOT
isi auth roles modify NASLordAdmin --add-priv ISI_PRIV_NS_TRAVERSE
isi auth roles modify NASLordAdmin --add-priv ISI_PRIV_NS_IFS_ACCESS
isi auth roles modify NASLordAdmin --add-priv ISI_PRIV_IFS_BACKUP
isi auth roles modify NASLordAdmin --add-priv ISI_PRIV_IFS_RESTORE
isi auth roles modify NASLordAdmin --add-priv-ro ISI_PRIV_AUTH
isi auth roles view NASLordAdmin
```

(Alternative) Creating a read-only role. Users will not be able to modify anything on the cluster:

```
isi auth roles create --name NASLordAdmin --description "NASLordAdmin role READ-
ONLY"
isi auth roles modify NASLordAdmin --add-user naslord
isi auth roles modify NASLordAdmin --add-priv-ro ISI_PRIV_LOGIN_PAPI
isi auth roles modify NASLordAdmin --add-priv-ro ISI_PRIV_NFS
isi auth roles modify NASLordAdmin --add-priv-ro ISI_PRIV_QUOTA
isi auth roles modify NASLordAdmin --add-priv-ro ISI_PRIV_SMB
isi auth roles modify NASLordAdmin --add-priv-ro ISI_PRIV_SNAPSHOT
isi auth roles modify NASLordAdmin --add-priv-ro ISI_PRIV_NS_TRAVERSE
isi auth roles modify NASLordAdmin --add-priv-ro ISI_PRIV_NS_IFS_ACCESS
isi auth roles modify NASLordAdmin --add-priv-ro ISI_PRIV_AUTH
isi auth roles view NASLordAdmin
```

HOW TO DELETE THE USER AND ROLE CREATED FOR NASLORD

```
isi auth roles delete NASLordAdmin --force
isi auth users delete naslord --force
```

7. POWERPROTECT DD RETENTION LOCK MANAGER

7.1 ADDING A NEW POWERPROTECT DD APPLIANCE

1. Navigate to the POWERPROTECT DD APPLIANCES page and use the "ADD APPLIANCE" button located on the top right.
2. Enter the appliance address, SSH port (default 22), API port (default 3009) and credentials. See section 7.2 if you do not want to use the sysadmin account.
3. When adding a new appliance, all MTrees are automatically discovered and added to the NASLord configuration. Tenant Administrators do NOT automatically get access to any MTrees; access must be granted explicitly (section 2).

NOTES

- After creating new MTrees or configuring Retention Lock parameters on the appliance, you may need to click "Refresh Cache" in the blue menu bar (white icon with double arrows).
- If some of your MTrees appear in the "Missing MTrees" column, right-click and select "Synchronize MTrees" before proceeding.

With the demo license, you can add one (1) PowerProtect DD Appliance and enable up to three (3) Primary MTrees. Production licenses can be obtained without any Primary MTree limit.

7.2 POWERPROTECT DD CLI CONFIGURATION

Log into the PowerProtect DD unit via SSH, using an account with admin privileges, such as "sysadmin".

Creating new users. User "naslord" will be used by the **NAS**Lord VM to create the Protected Copies in the Retention Locked MTrees:

```
user add naslord role backup-operator min-days-between-change 0 max-days-between-change 9999
```

User "veeambackup" will be used by the backup software (Veeam in this example) to execute regular backup/restore operations:

```
user add veeambackup role none min-days-between-change 0 max-days-between-change 9999
```

(Optional) User "veeamrecover" will be used to recover backups from Retention Locked MTrees in case of disaster:

```
user add veeamrecover role none min-days-between-change 0 max-days-between-change 9999
```

CREATING A STORAGE-UNIT FOR REGULAR BACKUPS

```
mtree create /data/col1/backup01
ddboost storage-unit modify backup01 user veeambackup
```

(OPTIONAL) CREATING A STORAGE-UNIT FOR RECOVERIES IN CASE OF DISASTER

```
mtree create /data/col1/backup01-recover
ddboost storage-unit modify backup01-recover user veeamrecover
```

Creating a MTree for Retention Lock (specify the desired mode of operations -- governance or compliance -- and retention periods):

```
mtree create /data/col1/backup01-retlock
mtree retention-lock enable mode governance mtree /data/col1/backup01-retlock
mtree retention-lock set min-retention-period 720min mtree /data/col1/backup01-retlock
mtree retention-lock set max-retention-period 45days mtree /data/col1/backup01-retlock
mtree retention-lock set automatic-retention-period 14days mtree /data/col1/backup01-retlock
mtree retention-lock set automatic-lock-delay 5min mtree /data/col1/backup01-retlock
```

CREATING NFS EXPORTS (SPECIFY THE NASLORD VM IP ADDRESS; 192.168.12.50 IN THIS EXAMPLE)

```
nfs export create backup01 path /data/col1/backup01 clients 192.168.12.50 options "ro,no_root_squash,all_squash,secure,anonuid=0,anongid=0"
nfs export create backup01-retlock path /data/col1/backup01-retlock clients 192.168.12.50 options "rw,no_root_squash,all_squash,secure,anonuid=0,anongid=0"
```

7.3 CONFIGURING THE MTREE ASSOCIATION

AT THIS POINT YOU SHOULD HAVE

- a PRIMARY MTree where your backup software saves the regular backups (e.g. "backup01"), currently disabled in **NAS**Lord; and
- a RETENTION LOCK MTree with Retention Lock parameters configured (e.g. "backup01-retlock"), shown disabled and with a padlock icon.

TO ASSOCIATE THEM

1. Right-click on the Primary MTree (e.g. backup01) and select "Edit".
2. Confirm the fields on the top of the form are correct.
3. Select the correct Retention Lock MTree in the pull-down list (e.g. backup01-retlock). Only the MTrees with the correct Automatic Retention Lock parameters appear in this list.
4. If you created a Disaster Recovery MTree, you may select it as well.
5. Select the time of day when Automatic Copies should be created, daily.
6. Leave "Automatic Cleanup" selected (**NAS**Lord deletes the older copies for which the retention period has expired).
7. Select the "Primary MTree Enabled" checkbox.
8. Click the save button on the bottom right.

After the association is completed, the Primary MTree is no longer disabled, and the Retention Lock MTree shows a chain-link icon in addition to the padlock icon, indicating it is linked to a Primary MTree.

Grant the Primary MTree to the appropriate Tenant Administrators (section 2). They will be able to view details and Protected Copies, browse the Primary Data and Protected Copies, and manually create a new Protected Copy. Super-users have a similar view with more details displayed in the table.

8. CHARGEBACK MANAGER

8.1 ADDING A NEW ECS/OBJECTSCALE VDC

1. Navigate to the CHARGEBACK MANAGER page and use the "ADD VDC" button located on the top right.
2. Enter the VDC address, API port (default 4443) and credentials. See section 8.2 if you do not want to use the root account.
3. When adding a new VDC, all Namespaces and Buckets are automatically discovered and added to the **NAS**Lord configuration. If your **NAS**Lord instance is using a demo license, only the first three (3) Namespaces will be automatically enabled.

With the demo license, you can add one (1) ObjectScale VDC and enable up to three (3) Namespaces. Production licenses can be obtained without any Namespace limit.

8.2 ECS/OBJECTSCALE CONFIGURATION (SYSTEM MONITOR USER)

TO AVOID USING THE ROOT ACCOUNT, CREATE A DEDICATED MONITORING USER

1. Log in to the ECS or ObjectScale web UI, using an account with admin privileges, such as the root account.
2. Under Manage -> Users -> Management Users, choose "NEW MANAGEMENT USER".
3. Enter a name and password and select "System Monitor". This user should NOT be configured as a System Administrator nor as a Security Administrator.
4. Click the "SAVE" button.
5. Use this username and password when adding the VDC to **NAS**Lord.

8.3 ENABLING NAMESPACES

- Click on the VDC name (in bold) to see the list of Namespaces.
- Right-click on a Namespace and use "Enable Namespace" or "Disable Namespace" as necessary.
- For each Namespace, the root user, capacity used and creation timestamp are displayed.
- After enabling a Namespace, you may need to click "Refresh Cache" in the blue menu bar (white icon with double arrows).
- Associate each Namespace with its Tenant (section 5) so the usage appears in that Tenant's charge reports.

8.4 CHARGEBACK PROFILES

A Chargeback Profile defines the rates used to convert usage into charges. **NAS**Lord 3.0 has profiles for both platforms:

- ObjectScale profiles: Creation and Deletion rates (per 1,000 operations), Ingress and Egress rates (per GiB), and Capacity rates (per GiB/month). Ingress, Egress and Capacity support multiple tiers.
- PowerScale profiles: Data capacity rate, Protection Overhead rate, and Snapshot capacity rate (per GiB/month), with support for rate tiers.

TO MANAGE PROFILES

1. In the ADMIN PAGE, click on CHARGEBACK PROFILES. **NAS**Lord comes preconfigured with a "Default" profile. The Default profile can be modified but cannot be deleted. Components without an explicitly assigned profile use the Default profile.
2. Click the "+ ADD PROFILE" button on the top right corner to create a new profile.
3. Right-click on any profile to "Edit", "Clone" or "Delete" it.
4. When configuring a profile, select the currency and adjust the rates. For tiered rates, configure as many tiers as necessary; the last tier must be open-ended.

8.5 ASSIGNING PROFILES TO NAMESPACES, BUCKETS AND ACCESS ZONES

- NAMESPACES: in the list of Namespaces, right-click on a Namespace and select "Associate Chargeback Profile", then pick the desired profile in the pull-down list.

- BUCKETS: by default, all Buckets within a Namespace inherit the Chargeback Profile of the parent Namespace. To override this, click on a Namespace to view its Buckets, right-click on a Bucket and select "Associate Chargeback Profile". Only the profiles using the same currency as the parent Namespace's profile can be applied to individual Buckets. A Bucket can also be reconfigured to inherit again from the parent Namespace.
- ACCESS ZONES: assign a PowerScale Chargeback Profile to each Access Zone that should be charged.

Remember the currency rule: every profile applied to a Tenant's components must use the Tenant's currency.

8.6 HOW CHARGES ARE CALCULATED

- ObjectScale capacity is billed PER DAY: the monthly rate is divided by the number of days in the month, and each daily charge is rounded to the cent. Monthly totals can therefore differ from a naive capacity x rate calculation by a few cents.
- ObjectScale ingress/egress volumes (GiB) and object creation/deletion counts (per 1,000 operations) are summed over the month and charged once.
- PowerScale charges are based on the zone's data capacity, protection overhead and snapshot usage, at the profile's GiB/month rates.
- Only ENABLED components are charged: a disabled Access Zone or Namespace does not appear in charge reports.
- A valid license covering the product is required; otherwise the charge reports are generated empty (see section 13).

9. CHARGE REPORTS AND DASHBOARDS

- Charge reports are generated PER TENANT and PER MONTH (period in YYYYMM format). The report for the current month covers the period up to yesterday and is not available on the 1st of the month.
- For each Tenant you can open:
  - the Charge Reports list (monthly history),
  - the Charge Details view (per-component breakdown),
  - the Consolidated Dashboard (charts and totals).
- An administrator-level Consolidated Dashboard aggregates all Tenants.
- Reports can be exported in PDF Summary, PDF Complete/Detailed, CSV, JSON and XML formats, and rendered in English, French, Spanish, German or Portuguese.
- You can also view the chargeback of a single Namespace with "View Chargeback" in the white menu bar, or click a Bucket name to see the charts for that Bucket.

10. AUTOMATED REPORT DELIVERY

NASLord can deliver charge reports automatically every month, and on demand.

Prerequisite: for e-mail delivery, configure the SMTP settings first (section 12.1).

REPORT DESTINATIONS

A DESTINATION DEFINES WHERE AND HOW REPORTS ARE SENT

- SMTP: one or more e-mail recipients, with a configurable subject line.
- SFTP: host, port, username/password, and remote path.
- HTTP POST: URL, authentication (None, Basic, Bearer or API Key), optional extra headers, TLS verification, and timeout.

Destinations can be individually enabled or disabled.

REPORT ROUTES

A ROUTE BINDS A TENANT TO A DESTINATION, AND DEFINES WHAT IS SENT

- Scope: one specific Tenant, or Global (all Tenants).
- Formats: any combination of PDF Summary, PDF Detailed, CSV, JSON and XML (defaults to PDF Summary).
- Language: English, French, Spanish, German or Portuguese.
- Monthly delivery can be enabled or disabled per route, and a route can be triggered manually at any time.

MONITORING DELIVERIES

The Report Delivery pages show the report runs and every delivery attempt with its outcome, so failed deliveries (unreachable SFTP server, SMTP error, HTTP failure) can be diagnosed and re-triggered.

11. TENANT BUDGETS

Budgets let you compare each Tenant's actual charges against planned spending, and alert when consumption approaches the plan.

CREATING A BUDGET

1. Open the Tenant's Budget Dashboard from the Tenants page and create a budget.
2. Configure:
   - Name and currency (must match the Tenant currency)
   - Monthly budget amount and/or yearly budget amount
   - Fiscal year start month (default: January)
   - Start date, and an optional end date
   - Notes, enabled flag
3. Optionally break the budget down into components with their own monthly/yearly amounts.

THRESHOLDS AND NOTIFICATIONS

- When a budget is created, two alert thresholds are added automatically: 85% (Warning) and 100% (Critical). Thresholds can be adjusted (integer percentages).
- When actual charges cross a threshold, **NAS**Lord can send an e-mail notification (requires SMTP settings, section 12.1).

DASHBOARD AND HISTORY

- The Budget Dashboard shows budget versus actual for the selected period (monthly or fiscal-year view).
- Budget snapshots are recorded periodically, building a history that can be browsed in the Budget Snapshots page and exported as JSON.

12. SYSTEM ADMINISTRATION

12.1 E-MAIL (SMTP) SETTINGS

ADMIN PAGE -> EMAIL SETTINGS: configure the SMTP server, port, credentials and sender address, then use the "test e-mail" function to validate the configuration. SMTP is required for report delivery by e-mail, monthly tenant reports, and budget threshold notifications.

12.2 TIMEZONE

ADMIN PAGE -> TIMEZONE: set the appliance timezone. This affects displayed timestamps and the scheduling of daily/monthly jobs.

12.3 SCHEDULED JOBS AND LOGS

ADMIN PAGE -> SCHEDULED JOBS: view the recurring jobs (metric collection, report generation, report delivery, budget snapshots, cleanup) and their execution logs. The scheduler can be restarted from this page if required.

12.4 DATABASE MANAGEMENT AND BACKUPS

ADMIN PAGE -> DATABASE MANAGEMENT

- Export Database: create a backup of the **NAS**Lord configuration database, and download it for safekeeping.
- Import Database: restore a previously exported backup.
- Existing backup files on the appliance can be downloaded, restored or deleted.

Gallium recommends exporting the database before every upgrade and on a regular schedule.

12.5 LICENSE MANAGEMENT

ADMIN PAGE -> LICENSE

- View the installed license: covered products, limits (clusters, zones, VDCs, namespaces), version and expiry.
- Install a new license key received from Gallium.

REMINDERS

- The demo license is valid for 90 days and is limited to 1 Cluster / 3 Access Zones, 1 Appliance / 3 Primary MTrees, and 1 VDC / 3 Namespaces.

- Charge reports are EMPTY when the license is missing, expired or does not cover the product.
- The license is validated against the product's major version; a 2.x license is not valid on 3.0.0 unless issued for "any" version.

12.6 UPGRADES, REBOOT AND SHUTDOWN

- In-app upgrade: upload the **NAS**Lord upgrade package on the Upgrade page, review the confirmation screen and apply. Export the database first (section 12.4).
- The appliance can be rebooted or shut down from the web interface; application services can also be reloaded without a full reboot.
- Console-level reconfiguration (root password, network settings) is done with the "configure" command in the VM console -- see the Installation Guide.

13. TROUBLESHOOTING

CHARGE REPORTS SHOW $0 / EMPTY

Check the license first (ADMIN PAGE -> LICENSE). Reports are generated empty when the license is missing, expired, or does not cover the product (PowerScale or ObjectScale). Also verify that:

- the Access Zones / Namespaces concerned are ENABLED,
- they are associated with the correct Tenant,
- a chargeback profile with the Tenant's currency is applied (or the Default profile is configured with the correct rates).

A COMPONENT IS MISSING FROM THE INTERFACE

- Click "Refresh Cache" in the blue menu bar (white icon with double arrows) after creating or changing objects directly on the storage systems.
- On PowerProtect DD, if MTrees appear in the "Missing MTrees" column, right-click and select "Synchronize MTrees".

A REPORT FOR THIS MONTH IS NOT AVAILABLE

The current-month report covers data up to yesterday and cannot be produced on the 1st of the month; past months are complete. Future periods cannot be generated.

E-MAIL DELIVERIES FAIL

Use the test function in EMAIL SETTINGS to validate SMTP connectivity, then check the Report Delivery pages for the recorded delivery attempts and error details.

CAPACITY CHARGES DIFFER SLIGHTLY FROM RATE X GIB

This is expected: capacity is billed per day with each daily charge rounded to the cent (see section 8.6).

14. HOW TO CONTACT GALLIUM

To inquire about **NAS**Lord or to obtain a quote for a licensed version, please contact us directly:

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