

BASIC CONFIGURATION

Useful environment variables

```
# Set password for current session
export RESTIC_PASSWORD="your-30-character-password"

# Set default repository
export RESTIC_REPOSITORY="rclone:gdrive_union:/restic-backup"

# After these variables you can use commands without -r and without password
restic snapshots
```

1. SNAPSHOT VISUALIZATION

List snapshots

```
# List all snapshots
restic -r rclone:gdrive_union:/restic-backup snapshots

# List with extended details
restic -r rclone:gdrive_union:/restic-backup snapshots --verbose

# List snapshots of a specific path
restic -r rclone:gdrive_union:/restic-backup snapshots --path
~/Desktop/Documents

# Output in JSON format (for scripting)
restic -r rclone:gdrive_union:/restic-backup snapshots --json

# List snapshots with grouping by host/path
restic -r rclone:gdrive_union:/restic-backup snapshots --group-by host,paths
```

Specific snapshot information

```
# Complete details of a snapshot
restic -r rclone:gdrive_union:/restic-backup snapshots <snapshot-id>

# List all files in a snapshot
```

```
restic -r rclone:gdrive_union:/restic-backup ls <snapshot-id>

# List with details (permissions, sizes, dates)
restic -r rclone:gdrive_union:/restic-backup ls <snapshot-id> --long

# List only a specific directory
restic -r rclone:gdrive_union:/restic-backup ls <snapshot-id> /Users/<your-
username>/Desktop/Photos
```

2. FILE SEARCH

Find files by name

```
# Search for specific file
restic -r rclone:gdrive_union:/restic-backup find "document.pdf"

# Search with pattern
restic -r rclone:gdrive_union:/restic-backup find "*.jpg"
restic -r rclone:gdrive_union:/restic-backup find "*.mp4"

# Search in specific path
restic -r rclone:gdrive_union:/restic-backup find "*.pdf" --path
/Users/<your-username>/Desktop/Documents

# Case-insensitive search
restic -r rclone:gdrive_union:/restic-backup find "document" --ignore-case

# Output: tells you which snapshots contain the file and the full path
```

3. REPOSITORY STATISTICS

General info

```
# General repository statistics
restic -r rclone:gdrive_union:/restic-backup stats

# Specific snapshot statistics
restic -r rclone:gdrive_union:/restic-backup stats <snapshot-id>
```

```
# Latest snapshot statistics
restic -r rclone:gdrive_union:/restic-backup stats latest

# Used space (raw data on cloud)
restic -r rclone:gdrive_union:/restic-backup stats --mode raw-data

# Space after deduplication
restic -r rclone:gdrive_union:/restic-backup stats --mode restore-size
```

4. SNAPSHOT COMPARISON

Differences between versions

```
# Compare latest snapshot with previous
restic -r rclone:gdrive_union:/restic-backup diff <snapshot-old> <snapshot-new>

# Compare with metadata (also shows changed permissions)
restic -r rclone:gdrive_union:/restic-backup diff <snapshot-old> <snapshot-new> --metadata

# Output shows:
# + added files
# - removed files
# M modified files
```

5. BACKUP

Basic backup

```
# Backup directory
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop

# Backup with tag
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop --tag
important

# Backup with verbose
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop --verbose
```

```
# Dry-run (shows what it would do WITHOUT doing it)
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop --dry-run --
verbose
```

Backup with exclusions

```
# Exclude specific patterns
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop \
--exclude="*.tmp" \
--exclude="*.cache" \
--exclude=".DS_Store" \
--exclude="node_modules" \
--exclude=".git"

# Exclude from file
echo "*.tmp" > ~/.restic-exclude.txt
echo "*.cache" >> ~/.restic-exclude.txt
echo ".DS_Store" >> ~/.restic-exclude.txt
echo "node_modules" >> ~/.restic-exclude.txt

restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop \
--exclude-file=~/.restic-exclude.txt

# Exclude specific directories
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop \
--exclude="/Users/<your-username>/Desktop/Cache" \
--exclude="/Users/<your-username>/Desktop/Temp"
```

Backup with limits

```
# Limit upload bandwidth (example: 10MB/s)
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop --limit-upload
10240

# Limit download bandwidth (for restore)
restic -r rclone:gdrive_union:/restic-backup restore latest --target
~/restore --limit-download 10240
```

6. RESTORE

Full restore

```
# Restore latest snapshot
restic -r rclone:gdrive_union:/restic-backup restore latest --target
~/Desktop/restore

# Restore specific snapshot
restic -r rclone:gdrive_union:/restic-backup restore <snapshot-id> --target
~/Desktop/restore

# Restore with integrity verification
restic -r rclone:gdrive_union:/restic-backup restore latest --target
~/Desktop/restore --verify
```

Selective restore

```
# Restore single file
restic -r rclone:gdrive_union:/restic-backup restore latest \
--target ~/Desktop/restore \
--include /Users/<your-username>/Desktop/document.pdf

# Restore entire directory
restic -r rclone:gdrive_union:/restic-backup restore latest \
--target ~/Desktop/restore \
--include /Users/<your-username>/Desktop/Photos

# Restore with pattern
restic -r rclone:gdrive_union:/restic-backup restore latest \
--target ~/Desktop/restore \
--include "*.jpg"

# Restore multiple patterns
restic -r rclone:gdrive_union:/restic-backup restore latest \
--target ~/Desktop/restore \
--include "*.jpg" \
--include "*.png" \
--include "*.pdf"

# Restore excluding patterns
restic -r rclone:gdrive_union:/restic-backup restore latest \
--target ~/Desktop/restore \
--exclude "*.*tmp" \
--exclude "*.*cache"
```

Restore in-place (WARNING: overwrites)

```
# WARNING: overwrites existing files!
restic -r rclone:gdrive_union:/restic-backup restore latest \
--target / \
--include /Users/<your-username>/Desktop/document.pdf

# Safer: restore to temp and then manually copy
restic -r rclone:gdrive_union:/restic-backup restore latest \
--target /tmp/restore \
--include /Users/<your-username>/Desktop/document.pdf

# Then manually copy
cp /tmp/restore/Users/<your-username>/Desktop/document.pdf ~/Desktop/
```

7. SNAPSHOT MANAGEMENT (RETENTION)

View policy

```
# Dry-run: shows what would be deleted
restic -r rclone:gdrive_union:/restic-backup forget \
--keep-daily 7 \
--keep-weekly 4 \
--keep-monthly 6 \
--dry-run

# Show in detail
restic -r rclone:gdrive_union:/restic-backup forget \
--keep-daily 7 \
--keep-weekly 4 \
--keep-monthly 6 \
--dry-run \
--verbose
```

Apply retention policy

```
# Apply policy (delete snapshots)
restic -r rclone:gdrive_union:/restic-backup forget \
--keep-daily 7 \
--keep-weekly 4 \
--keep-monthly 6 \
```

```
--prune

# More aggressive policy (example)
restic -r rclone:gdrive_union:/restic-backup forget \
--keep-last 3 \
--keep-daily 7 \
--keep-weekly 4 \
--keep-monthly 6 \
--keep-yearly 2 \
--prune

# Keep all snapshots with specific tag
restic -r rclone:gdrive_union:/restic-backup forget \
--keep-daily 7 \
--keep-tag important \
--prune
```

Manual deletion

```
# Delete specific snapshot
restic -r rclone:gdrive_union:/restic-backup forget <snapshot-id>

# Delete and free space (prune)
restic -r rclone:gdrive_union:/restic-backup forget <snapshot-id> --prune

# Delete all snapshots of a host
restic -r rclone:gdrive_union:/restic-backup forget --host <hostname> --
prune

# Delete all snapshots of a path
restic -r rclone:gdrive_union:/restic-backup forget --path /Users/<your-
username>/Desktop --prune
```

8. REPOSITORY MAINTENANCE

Integrity verification

```
# Quick check (structure only)
restic -r rclone:gdrive_union:/restic-backup check

# Full check (reads ALL data – VERY SLOW)
restic -r rclone:gdrive_union:/restic-backup check --read-data
```

```
# Partial check (10% of data)
restic -r rclone:gdrive_union:/restic-backup check --read-data-subset=10%

# Check with parallelism
restic -r rclone:gdrive_union:/restic-backup check --read-data --read-data-
subset=20%
```

Cleanup and optimization

```
# Prune: removes unreferenced data
restic -r rclone:gdrive_union:/restic-backup prune

# Prune with statistics
restic -r rclone:gdrive_union:/restic-backup prune --verbose

# Rebuild index (if corrupted)
restic -r rclone:gdrive_union:/restic-backup rebuild-index

# Unlock repository (if locked)
restic -r rclone:gdrive_union:/restic-backup unlock

# List active locks
restic -r rclone:gdrive_union:/restic-backup list locks
```

Cache management

```
# Local cache info
restic cache --no-size

# Clean cache
restic cache --cleanup
```

9. ADVANCED OPERATIONS

Mount repository

```
# Mount as filesystem (read-only)
mkdir ~/restic-mount
restic -r rclone:gdrive_union:/restic-backup mount ~/restic-mount
```

```
# Now you can navigate:  
ls ~/restic-mount/snapshots/  
ls ~/restic-mount/snapshots/latest/  
ls ~/restic-mount/snapshots/<snapshot-id>/  
  
# To unmount (in another shell)  
umount ~/restic-mount  
# or on macOS  
diskutil unmount ~/restic-mount
```

Dump and export

```
# Dump entire snapshot as tar  
restic -r rclone:gdrive_union:/restic-backup dump latest / > ~/backup.tar  
  
# Dump specific directory  
restic -r rclone:gdrive_union:/restic-backup dump latest /Users/<your-  
username>/Desktop/Photos > ~/photos.tar  
  
# Dump single file  
restic -r rclone:gdrive_union:/restic-backup dump latest /Users/<your-  
username>/Desktop/document.pdf > ~/document.pdf
```

Copy/migrate repository

```
# Copy all snapshots from one repo to another  
restic -r rclone:gdrive_union:/restic-backup copy \  
--repo2 rclone:new-provider:/restic-backup  
  
# Copy specific snapshot  
restic -r rclone:gdrive_union:/restic-backup copy <snapshot-id> \  
--repo2 rclone:new-provider:/restic-backup
```

Tag management

```
# Add tag to existing snapshot  
restic -r rclone:gdrive_union:/restic-backup tag <snapshot-id> --add  
important  
  
# Remove tag  
restic -r rclone:gdrive_union:/restic-backup tag <snapshot-id> --remove test
```

```
# List snapshots by tag  
restic -r rclone:gdrive_union:/restic-backup snapshots --tag important
```

10. REPOSITORY INFORMATION

General info

```
# List all data packs  
restic -r rclone:gdrive_union:/restic-backup list packs  
  
# List all indexes  
restic -r rclone:gdrive_union:/restic-backup list index  
  
# List encryption keys  
restic -r rclone:gdrive_union:/restic-backup list keys  
  
# Info on specific key  
restic -r rclone:gdrive_union:/restic-backup key list
```

Password change

```
# Change repository password  
restic -r rclone:gdrive_union:/restic-backup key passwd  
  
# Add new key  
restic -r rclone:gdrive_union:/restic-backup key add  
  
# Remove old key  
restic -r rclone:gdrive_union:/restic-backup key remove <key-id>
```

11. DEBUGGING

Verbose output

```
# Level 1 (basic)  
restic -r rclone:gdrive_union:/restic-backup snapshots --verbose  
  
# Level 2 (detailed)
```

```
restic -r rclone:gdrive_union:/restic-backup snapshots --verbose=2
```

```
# JSON for scripting
```

```
restic -r rclone:gdrive_union:/restic-backup snapshots --json | jq .
```

Logging

```
# Log operations to file
```

```
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop 2>&1 | tee  
backup.log
```

```
# Separate error log
```

```
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop 2> error.log
```

12. USEFUL COMBINED COMMANDS

Typical weekly workflow

```
# 1. Backup
```

```
restic -r rclone:gdrive_union:/restic-backup backup ~/Desktop --verbose
```

```
# 2. Apply retention
```

```
restic -r rclone:gdrive_union:/restic-backup forget \  
--keep-daily 7 \  
--keep-weekly 4 \  
--keep-monthly 6 \  
--prune
```

```
# 3. Check integrity (10%)
```

```
restic -r rclone:gdrive_union:/restic-backup check --read-data-subset=10%
```

Find and restore specific file

```
# 1. Search for file
```

```
restic -r rclone:gdrive_union:/restic-backup find "important-document.pdf"
```

```
# Output will tell you snapshot-id
```

```
# 2. Restore
```

```
restic -r rclone:gdrive_union:/restic-backup restore <snapshot-id> \  

```

```
--target ~/restore \
--include /Users/<your-username>/Desktop/important-document.pdf
```

Verify recent backup

```
# 1. List last 5 snapshots
restic -r rclone:gdrive_union:/restic-backup snapshots | tail -5

# 2. Verify latest snapshot
restic -r rclone:gdrive_union:/restic-backup ls latest

# 3. Latest statistics
restic -r rclone:gdrive_union:/restic-backup stats latest
```

QUICK REFERENCE

Snapshot IDs

- `latest` = latest snapshot
- `<snapshot-id>` = specific ID (e.g., `1a2b3c4d`)
- You can use short-id: first 8 characters are enough

Path format

- Always use absolute paths: `/Users/<your-username>/Desktop/file.txt`
- Don't use `~`, always expand: `/Users/<your-username>/`

Pattern matching

- `*.jpg` = all jpg files
- `**/*.pdf` = all pdf files recursively
- Use `--iname` for case-insensitive

Exit codes

- `0` = success
- `1` = warning/non-fatal errors
- `2` = fatal error

PERFORMANCE TIPS

```
# Use aggressive cache
export RESTIC_CACHE_DIR=~/cache/restic

# Parallelize
restic backup ~/Desktop --pack-size 16

# Compress less for speed
restic backup ~/Desktop --compression off
```