



Quobyte Plugin

Bacula Systems Documentation

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Note
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This following chapter presents the strategy to backup Quobyte NAS with Bacula Enterprise.

Through subchapters, more in-depth information can be found about the following topics:

1 Scope

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This plugin is available for **Bacula Enterprise 18.0** and later.

2 Features

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The support for Quobyte is designed to simplify and optimize the backup and restore performance of your Quobyte storage volumes.

When using the File Daemon Snapshot feature, Bacula Enterprise will query the Quobyte server to detect tenants and volumes, and create snapshots for the current Job. The Quobyte network share (`fuse.quobyte`) is required to access files.

With Bacula Enterprise, snapshotting and backing up Quobyte volumes is supported in two different ways:

- The **bsnapshot** Bacula plugin now supports Quobyte volumes in addition to LVM, ZFS, and btrfs volumes.
- The new **quobyte-fd** plugin, when used in conjunction with the **scan_plugin** plugin, supports automatically identifying Quobyte volumes, and creating a Job/Fileset pair for each Quobyte volume identified.

Note

See Quobyte example for the Scan Plugin.

3 Installation

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Snapshot support for Quobyte volumes is available with the standard Bacula Enterprise **bsnapshot** package for all supported platforms.

To perform snapshot backups of Quobyte volumes, it is necessary to install the **bacula-enterprise-snapshot package** on a Client machine that has network access to the Quobyte filer. It is advised to use the Client that resides on your Storage Daemon so that the File Daemon to Storage Daemon data transfers are made internally rather than across the network.

If you intend to use the Automation Center (or **scan_plugin**) with Quobyte to automatically create one Bacula Job/Fileset per Quobyte volume, you will need to install the **bacula-enterprise-quobyte-plugin** package.

It is also necessary to install the Quobyte client package on the Bacula Client machine and this system must have access to the Quobyte tenants and volumes (located under */quobyte* by default).

Note

For further information, refer to the Quobyte documentation.

4 Configuration

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The following chapter presents information on Quobyte configuration.

4.1 Automatic Object Integration

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Since Bacula version 16.0.7, a new solution has been introduced, so that each object can be backed up separately with different Jobs to maximize the throughput and the resiliency. It is highly recommended to use this new solution for that purpose - Automatic Object Integration (Scan Plugin). See an example for Quobyte.

4.2 Quobyte Configuration

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The Quobyte filesystem must be mounted and available on your Bacula Client machine. The configuration can be done through the `/etc/quobyte/client.cfg` or when using systemd `/etc/quobyte/client-service.cfg`.

```
root# cat /etc/quobyte/client-service.cfg
# By default these are the options for the quobyte systemd service
# quobyte-client.service

multi-tenant
# Where to mount to
mount_point=/quobyte
registry=f7sskksge.myquobyte.net
uid=yyyy-xxx-zzzz-aaaa-bbbbbbbbbb
```

Mount the Quobyte filesystem to your machine:

```
root# mkdir /quobyte

root# systemctl enable --now quobyte-client

root# ls /quobyte
tenant_1
tenant_2
```

Install the `qmgmt` Quobyte tool and test the access.

Note

Refer to the Quobyte installation guide for more information.

4.3 Configuration for Built-in bsnapshot Support

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Your Backup Job and Fileset should be defined as:

```
Job {
  Name = "Quobyte"
  Client = storage-fd
  Fileset = quobyte
  ...
}

Fileset {
  Name = quobyte
```

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```
# Enable bsnapshot support for Quobyte volumes
Enable Snapshot = yes

Include {
  Options {
    Signature = sha1
    # Include all subvolumes
    onefs = no
  }
  File = /quobyte
}
```

Access to the Quobyte cluster can be configured in the `/opt/bacula/etc/bsnapshot.conf` bsnapshot configuration file.

```
root# cat /opt/bacula/etc/bsnapshot.conf
env="QUOBYTE_API=http://10.10.10.17:7860"
env="QUOBYTE_USER=admin"
env="QUOBYTE_PASSWORD=Thisisasecurepassword"
```

Note

Refer to the Quobyte documentation to use an API Key if needed.

In this example, all Quobyte volumes are available under the `/quobyte` directory.

It is possible to backup a subset of volumes or tenants by adapting the Fileset configuration:

```
Fileset {
  Name = quobyte_all_tenants

  # Enable Snapshot support for Quobyte
  Enable Snapshot = yes

  Include {
    Options {
      Compression = zstd
      Signature = sha1
      onefs = no
    }
    File = /quobyte/tenant_1
    File = /quobyte/tenant_2
  }
}
```

```
Fileset {
  Name = quobyte_tenant_1_vol1

  # Enable Snapshot support for Quobyte
  Enable Snapshot = yes
}
```

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```
Include {
  Options {
    Signature = Sha1
  }
  File = /quobyte/tenant_1/vol1
}
```

Job output example using the **bsnapshot** plugin on a Quobyte volume:

```
JobId 879: Start Backup JobId 879, Job=QuobyteVol1.2024-01-16_12.01.
↳51_11
JobId 879: Connected to Storage "NULL" at wa-quobyte-dir:9103 with_
↳TLS
JobId 879: Using Device "NULL" to write.
JobId 879: Connected to Client "wa-quobyte-dir-fd" at wa-quobyte-
↳dir:9102 with encryption
JobId 879: Connected to Storage at wa-quobyte-dir:9103 with_
↳encryption
JobId 879: Wrote label to prelabeled Volume "Vol-0038" on TAPE_
↳device "LTO" (/dev/lto)
JobId 879: Create Snapshot for /quobyte/tenant_1/vol1
JobId 879: Delete Snapshot for /quobyte/tenant_1/vol1
JobId 879: Elapsed time=00:36:33, Transfer rate=3.161 M Bytes/second
JobId 879: Sending spooled attrs to the Director. Despooling 634,551_
↳bytes ...
JobId 879: Bacula Enterprise wa-quobyte-dir-dir 18.0.0 (11Jan24):
  Build OS: x86_64-redhat-linux-gnu-bacula-enterprise_
↳redhat (Core)
  JobId: 879
  Job: QuobyteVol1.2024-01-16_12.01.51_11
  Backup Level: Full
  Client: "wa-quobyte-fd" 18.0.0 (11Jan24) x86_64-pc-
↳linux-gnu,redhat,(Core)
  Fileset: "quobyte_tenant_1_vol1" 2023-12-18 14:58:55
  Pool: "DiskBackup365d" (From Job resource)
  Catalog: "BaculaCatalog" (From Client resource)
  Storage: "TAPE" (From Command input)
  Scheduled time: 16-jan-2024 12:01:51
  Start time: 16-jan-2024 12:02:53
  End time: 16-jan-2024 12:39:27
  Elapsed time: 36 mins 34 secs
  Priority: 10
  FD Files Written: 2,532
  SD Files Written: 2,532
  FD Bytes Written: 6,933,339,531 (6.933 GB)
  SD Bytes Written: 6,933,732,834 (6.933 GB)
  Rate: 3160.1 KB/s
  Software Compression: None
  Comm Line Compression: 6.9% 1.1:1
  Snapshot/VSS: yes
  Encryption: no
  Accurate: no
```

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```
Volume name(s):      Vol-0038
Volume Session Id:   325
Volume Session Time: 1702658652
Last Volume Bytes:   6,939,807,455 (6.939 GB)
Non-fatal FD errors: 0
SD Errors:           0
FD termination status: OK
SD termination status: OK
Termination:         Backup OK
```

4.4 Configuration with the quobyte-fd Plugin

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The **quobyte-fd** plugin can be used to optimize the Quobyte support. In this scenario, to maximize the throughput, the idea is to create one Bacula Job and Fileset per volume available on Quobyte. The Automation Center (or **scan_plugin**) was designed to automate the Bacula integration.

The Quobyte Plugin is installed with the **bacula-enterprise-quobyte-plugin** package using the standard package management tools.

Example Job and Fileset using the **Quobyte** Plugin:

```
Job {
  Name = "quobyte_tenant_1_vol1"
  Type = "Backup"
  Client = "wa-quobyte-dir-fd"
  Fileset = "quobyte_tenant_1_vol1"
  ...
}
```

```
Fileset {
  Name = "quobyte_tenant_1_vol1"
  Include {
    Options {
      Signature = sha1
    }
    Plugin = "quobyte: volume=\"/quobyte/tenant_1/vol1\""
  }
}
```

Job output example using the Quobyte Plugin on a Quobyte volume:

```
JobId 1665: Start Backup JobId 1665, Job=quobyte_tenant_1_vol1.2024-06-10_13.
↪05.11_49
```

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```
JobId 1665: Connected to Storage "Dedup2Autochanger" at 10.0.99.122:9103
↳without encryption
JobId 1665: Using Device "Dedup2Autochanger_Dev7" to write.
JobId 1665: Connected to Client "wa-quobyte-dir-fd" at wa-quobyte-dir:9102
↳with TLS
JobId 1665: Enabling Snapshot for the current Fileset
JobId 1665: Connected to Storage at 10.0.99.122:9103 with TLS
JobId 1665: Volume "Dedup2_30d-0114" previously written, moving to end of
↳data.
JobId 1665: Ready to append to end of Volume "Dedup2_30d-0114" size=2,041,142
JobId 1665:   Create Snapshot for /quobyte/tenant_1/vol1
JobId 1665:   Delete Snapshot for /quobyte/tenant_1/vol1
JobId 1665: Elapsed time=00:00:29, Transfer rate=19.57 K Bytes/second
JobId 1665: Sending spooled attrs to the Director. Despooling 501,201 bytes ..
↳.
JobId 1665: Bacula Enterprise wa-quobyte-dir-dir 18.0.3 (05Jun24):
  Build OS:           x86_64-redhat-linux-gnu-bacula-enterprise redhat
↳(Core)
  JobId:              1665
  Job:                quobyte_tenant_1_vol1.2024-06-10_13.05.11_49
  Backup Level:       Full
  Client:             "wa-quobyte-dir-fd" 18.0.3 (05Jun24) x86_64-redhat-
↳linux-gnu-bacula-enterprise,redhat,(Core)
  Fileset:           "quobyte_tenant_1_vol1" 2024-06-07 16:49:48
  Pool:              "Dedup2_30d" (From Job resource)
  Catalog:           "BaculaCatalog" (From Client resource)
  Storage:           "Dedup2Autochanger" (From Pool resource)
  Scheduled time:    10-Jun-2024 13:05:11
  Start time:        10-Jun-2024 13:05:19
  End time:          10-Jun-2024 13:05:48
  Elapsed time:     29 secs
  Priority:          10
  FD Files Written:  2,536
  SD Files Written:  2,536
  FD Bytes Written:  42,498,943 (42.49 MB)
  SD Bytes Written:  567,655 (567.6 KB)
  Rate:             1465.5 KB/s
  Software Compression: 98.7% 74.9:1
  Comm Line Compression: 55.6% 2.3:1
  Snapshot/VSS:     yes
  Encryption:       no
  Accurate:         yes
  Volume name(s):   Dedup2_30d-0114
  Volume Session Id: 28
  Volume Session Time: 1717576935
  Last Volume Bytes: meta: 2,667,617 (2.667 MB) aligned: 176,396,059
↳(176.3 MB)
  Non-fatal FD errors: 0
  SD Errors:         0
  FD termination status: OK
  SD termination status: OK
  Termination:      Backup OK
```

5 Limitations

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The `restart` command has limitations with plugins, as it initiates the Job from scratch rather than continuing it. Bacula determines whether a Job is restarted or continued, but using the `restart` command will result in a new Job.