Bacula Community Installation Guide

Bacula Systems Documentation

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Community This guide explains how to install Bacula Community binaries on Debian, Ubuntu and CentOS/RedHat. The examples given in this manual are for Bacula Community binaries 13.0.1. The installation will be made and setup with a PostgreSQL database backend. These binaries have been graciously prepared for the community by Bacula Sys tems SA. Please note that Bacula Systems builds these binaries, but does not provide support for the Bacula Community version. However if there are problems installing the binaries, you can get help by using the Contacts form on the Bacula Systems Web site https://www.baculasystems.com/contactus. If you need support, please see https://www.bacula.org/support. If you find a bug in Bacula, please verify that it is a bug on the bacula.org email list then submit an issue report at https://gitlab.bacula.org.

By following this guide the software below will be installed:

- Bacula Community binaries

- PostgreSQL (Catalog)

Note: If you intend to use MySQL instead of PostgreSQL, please adapt the commands in this guide and replace "postgresql" with "mysql".

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1 Requirements

Community

- An up-to-date Operating System.

- We recommend that you have the basic knowledge of PostgreSQL administration.

- If you have previously installed Bacula either from a distribution site such as Ubuntu or CentOS, or if you have built Bacula and installed it from source, you will most likely need to save your installation, in particular your bacula Director, Client, Storage daemon, and bconsole configuration files (e.g. `bacula-dir.conf`). Then you must uninstall the old Bacula binaries. If you do not do this, you may end up with conflicting binaries or libraries.

- These installation procedures install all the Bacula binary and source files (with the exception of certain system startup scripts) in the directory /opt/bacula. The directory structure of the installation is the standard recommended directory structure documented in the manual. The main directories are `/opt/bacula/bin` (binaries), `/opt/bacula/etc` (configuration files), `/opt/bacula/lib` (shared object libraries), `/opt/bacula/plugins` (plugins such a bpipe), `/opt/bacula/scripts` (helper scripts such as mtx-changer) and /opt/bacula/working (Bacula daemon temporary files).

2 Debian: Installation with apt

Community

2.1 Additional Package Installation

Community To use Bacula Community repositories, you need to install the following package:

```
apt-get update
apt-get install apt-transport-http
```

2.2 Import GPG Key

Community The packages are signed with a GPG key signature that you can find at the Bacula download area: https://www.bacula.org/downloads/Bacula-4096-Distribution-Verification-key.asc

You can install this key on your system as follows:

```
cd /tmp
wget https://www.bacula.org/downloads/Bacula-4096-Distribution-Verification-
↪key.asc
apt-key add Bacula-4096-Distribution-Verification-key.asc
rm Bacula-4096-Distribution-Verification-key.asc
```

2.3 apt Package Manager Configuration

Community Add the following entries to a new file called:

/etc/apt/sources.list.d/Bacula-Community.list,

adapting the URL to point to your personal Download Area. Also, please pay careful attention to use the correct Bacula Community version and platform in the URL.

```
#Bacula Community
deb https://www.bacula.org/packages/@access-key@/debs/@bacula-version@␣
↪@debian-version@ main
```

For example for Debian Buster use:

```
#Bacula Community
deb https://www.bacula.org/packages/@access-key@/debs/13.0.1 buster main
```

Where:

- `@access-key@` refers to your personalized access key. This is the trailing path component sent in the registration email. Copying the URI from that email will be one of the simplest ways to set this up correctly.

- `@bacula-version@` should be replaced by the version of Bacula Community you are installing (e.g. 13.0.1)

- `@debian-version@` is the code name of the distribution (such as "jessie", "wheezy", or "squeeze")

Complete example:

```
#Bacula Community
deb https://www.bacula.org/packages/abc123defxxxyyy/debs/13.0.1 buster main
```

2.4 Package Installation

Community

Update Package Manager

Run `apt-get update` to update the package system and verify that your Bacula Community repositories are correctly configured.

Install Catalog Database Server

If PostgreSQL is not already installed, please run this command to install it:

```
apt-get install postgresql postgresql-client
```

Install Bacula Community Software

Run this command to install the packages:

```
apt-get install bacula-postgresql
```

`apt-get` will ask if you want to "Configure database for bacula-postgresql with dbconfig-common?" Choose "Yes", then enter a password and confirm it. Please now go to the Security and Permissions Considerations chapter and continue the installation from there. If you run into trouble or have an error mes sage while installing or configuring your Bacula Community binaries, please contact Support.

Install Aligned Plugin

If you want to use the Aligned Plugin for deduplication on systems such as ZFS, you must explicitly load that plugin with something like:

```
apt-get install bacula-aligned
```

Keep in mind that to actually use the plugin, you must configure it and restart the Storage Daemon.

3 Ubuntu: Installation with apt

Community

3.1 Additional Package Installation

Community To use Bacula Community repositories, you need to install the following package:

```
apt-get update
apt-get install apt-transport-https
```

3.2 Import GPG Key

Community The packages are signed with a GPG key signature that you can find at the root of your download area: https://www.bacula.org/downloads/Bacula-4096-Distribution-Verification-key.asc

You can install this key on your system as follows:

```
cd /tmp
wget https://www.bacula.org/downloads/Bacula-4096-Distribution-Verification-
 ↪key.asc
apt-key add Bacula-4096-Distribution-Verification-key.asc
rm Bacula-4096-Distribution-Verification-key.asc
```

3.3 apt Package Manager Configuration

Community Add the following entries to a new file called `/etc/apt/sources.list.d/ Bacula-Community.list`, adapting the URL to point to your Download Area. Also, please pay careful attention to use the correct Bacula Community version and platform in the URL.

```
#Bacula Community
deb [arch=amd64] https://www.bacula.org/packages/@access-key@/debs/@bacula-
 ↪version@ @ubuntu-version@ main
```

Note: Please, concatenate the last 2 lines into 1 line.

Note: [arch=amd64] is mandatory only for a 64 bit system.

Where:

- `@access-key@` refers to your personalized area string. This is the trailing path component sent in the registration email. Copying the URI from that email will be one of the simplest ways to set this up correctly.

- `@bacula-version@` should be replaced by the version of Bacula Community you are using (e.g. 13.0.1).

- `@ubuntu-version@` is the code name of the distribution ("xenial" or "bionic", for example).

Complete example:

```
#Bacula Community
deb [arch=amd64] https://www.bacula.org/packages/abc123defxxxyyy/debs/13.0.1
 ↪xenial main
```

Note: Please, concatenate the last 2 lines into 1 line.

3.4 Package Installation

Community

Update Package Manager

Run `apt-get update` to update the package system and verify your Bacula repositories are correctly configured.

Install Database Engine

If PostgreSQL is not already installed, please run this command to install it:

```
apt-get install postgresql postgresql-client
```

Install Bacula Community Software

Run this command to install the packages:

```
apt-get install bacula-postgresql
```

`apt` will ask you if you want to "Configure database for bacula-postgresql with dbconfig-common?" Choose "Yes", then enter a password and confirm it. Please now go to the Security and Permissions Considerations chapter and continue the installation from there.

If you run into trouble or have an error message while installing or configuring your Bacula Community infrastructure, please contact Support.

Install Aligned Plugin

If you want to use the Aligned Plugin for deduplication on systems such as ZFS, you must explicitly load that plugin with something like:

```
apt-get install bacula-aligned
```

Keep in mind that to actually use the plugin, you must configure it and restart the Storage Daemon.

4 CentOS/RedHat 7: Installation with yum

Community

4.1 Import GPG Key

Community In order to use Bacula Community signed packages, you need to import the GPG key.

```
cd /tmp
wget https://www.bacula.org/downloads/Bacula-4096-Distribution-Verification-
→key.asc
rpm--import Bacula-4096-Distribution-Verification-key.asc
rm Bacula-4096-Distribution-Verification-key.asc
```

4.2 yum Package Manager Configuration

Community Add the following entries to your `/etc/yum.repos.d/Bacula.repo` file:

```
[Bacula-Community]
name=CentOS- Bacula- Community
baseurl=https://www.bacula.org/packages/@access-key@/rpms/@bacula-version@/
→el7/x86_64/
enabled=1
protect=0
gpgcheck=1
gpgkey=https://www.bacula.org/downloads/Bacula-4096-Distribution-Verification-
→key.asc
```

Where:

- `@access-key@` refers to your personalized area string. This is the trailing path component sent in the registration email. Copying the URI from that email will be one of the simplest ways to set this up correctly.

- `@bacula-version@` should be replaced by the version of Bacula you intend to install (for example, 13.0.1).

Complete example:

```
[Bacula-Community]
name=CentOS- Bacula- Community
baseurl=https://www.bacula.org/packages/9812439823589/rpms/13.0.1/el7/x86_64/
enabled=1
protect=0
gpgcheck=1
```

4.3 Package Installation

Community

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Install Database Engine

If PostgreSQL is not already installed, please run this command to install it:

`yum install postgresql-server`

Initialize and set the PostgreSQL database to auto-start at boot:

```
postgresql-setup initdb
systemctl enable postgresql.service
```

Install Bacula Community Software

Run this command to install the packages:

`yum install bacula-postgresql`

Final Configuration

Start PostgreSQL database

`systemctl start postgresql.service`

Please run the following commands to create the database and grant ownership:

```
su- postgres
/opt/bacula/scripts/create_postgresql_database
/opt/bacula/scripts/make_postgresql_tables
/opt/bacula/scripts/grant_postgresql_privileges
exit
```

Launch the services:

```
systemctl start bacula-fd.service
systemctl start bacula-sd.service
systemctl start bacula-dir.service
```

Please use systemctl to start, stop or restart your Bacula daemons. By default, PostgreSQL uses the IDENT method and will thus recognize and accept the local user "bacula" without further credentials. If you are using tape libraries, you might want to add the bacula user to the "tape" group:

```
gpasswd-a bacula tape
```

Please now go to the Security and Permissions Considerations chapter and continue the installation from there. If you run into trouble or have an error message while installing or configuring your Bacula infrastructure, please contact Support.

Install Aligned Plugin

If you want to use the Aligned Plugin for deduplication on systems such as ZFS, you must explicitly load that plugin with something like:

```
yum install bacula-aligned
```

Keep in mind that to actually use the plugin, you must configure it and restart the Storage Daemon.

5 CentOS/RedHat 6: Installation with yum

Community

5.1 Import GPG Key

Community In order to use Bacula Community signed packages, you need to import the GPG key.

```
cd /tmp
wget https://www.bacula.org/downloads/Bacula-4096-Distribution-Verification-
↪key.asc
rpm--import Bacula-4096-Distribution-Verification-key.asc
rm Bacula-4096-Distribution-Verification-key.asc
```

5.2 yum Package Manager Configuration

Community Add the following entries to your /etc/yum.repos.d/Bacula.repo file:

```
[Bacula-Community]
name=CentOS- Bacula- Community
baseurl=https://www.bacula.org/packages/@access-key@/rpms/@bacula-version@/
↪el6/x86_64/
enabled=1
protect=0
gpgcheck=1
```

Where:

- @access-key@ refers to your personalized area string. Welcome Package This is the trailing path component sent in the registration email. Copying the URI from that email will be one of the simplest ways to set this up correctly.

- @bacula-version@ should be replaced by the version of Bacula you intend to install (for example, 13.0.1)

Complete example:

```
[Bacula]
name=CentOS- Bacula- Community
baseurl=https://www.bacula.org/packages/93798457130918/rpms/13.0.1/el6/x86_64/
enabled=1
protect=0
gpgcheck=1
```

5.3 Package Installation

Community

Install Database Engine

If PostgreSQL is not already installed, please run this command to install it:

`yum install postgresql-server`

Initialize and set the PostgreSQL database to auto-start at boot:

```
service postgresql initdb
chkconfig postgresql on
```

Install Bacula Software

Run this command to install the packages:

`yum install bacula-postgresql`

Final Configuration

Start PostgreSQL database

`service postgresql start`

Please run the following commands to create the database and grant ownership:

```
su- postgres
/opt/bacula/scripts/create_postgresql_database
/opt/bacula/scripts/make_postgresql_tables
/opt/bacula/scripts/grant_postgresql_privileges
exit
```

Launch services:

```
/opt/bacula/scripts/bacula start
```

By default, PostgreSQL uses the IDENT method for authentication, and the Bacula director running as the local user "bacula" is allowed to access the database. If you are using tape libraries, you might want to add the bacula user to the "tape" group:

`gpasswd-a bacula tape`

Please now go to the Security and Permissions Considerations chapter and continue the installation from there. If you run into trouble or have an error message while installing or configuring your Bacula infrastructure, please contact Support.

Install Aligned Plugin

If you want to use the Aligned Plugin for deduplication on systems such as ZFS, you must explicitly load that plugin with something like:

```
yum install bacula-aligned
```

Keep in mind that to actually use the plugin, you must configure it and restart the Storage Daemon.

6 Security and Permissions Considerations

Community In order to allow the different elements of your Bacula to communicate, you need to open the following network ports:

- Director: 9101 (TCP)
- Storage Daemon: 9103 (TCP)
- File Daemon: 9102 (TCP)

If your database is located on another server please also open the appropriate ports:

- postgresql: 5432 (TCP and UDP)

Please set up your IPtables or Packet Filters rules to enable this communication. Also check your SELinux/App Armor security rules to enable the following processes to run and be accessible:

- `/opt/bacula/bin/bacula-dir running as user bacula`
- `/opt/bacula/bin/bacula-sd running as user bacula`
- `/opt/bacula/bin/bacula-fd running as user root`

7 Infrastructure Test

Community Now that Bacula components are installed you can run this small test to check if everything is working correctly:

```
sudo-u bacula /opt/bacula/bin/bconsole
```

Then enter the following commands:

```
*run job=BackupCatalog
*messages
*status dir
*quit
```

Example output can be expected to be similar to what we show now.

Output of the bconsole command messages:

```
27-Jun 12:29 cos7-dir JobId 1: shell command: run BeforeJob "/opt/bacula/
↪scripts/[...]
27-Jun 12:29 cos7-dir JobId 1: Start Backup JobId 1, Job=BackupCatalog.2017-
↪06-27[...]
27-Jun 12:29 cos7-dir JobId 1: Created new Volume="Vol-0001", Pool="File",␣
```

(continues on next page)

```
↪MediaT[...]
27-Jun 12:29 cos7-dir JobId 1: Using Device "FileChgr1-Dev1" to write.
27-Jun 12:29 cos7-sd JobId 1: Labeled new Volume "Vol-0001" on file device
↪"FileC[...]
27-Jun 12:29 cos7-sd JobId 1: Wrote label to prelabeled Volume "Vol-0001" on
↪file[...]
27-Jun 12:29 cos7-sd JobId 1: Elapsed time=00:00:01, Transfer rate=57.53 K
↪Bytes/[...]
27-Jun 12:29 cos7-sd JobId 1: Sending spooled attrs to the Director.
↪Despooling 2[...]
27-Jun 12:29 cos7-dir JobId 1: Bacula cos7-dir 8.6.1 (16Jun16):
  Build OS:               x86_64-centos-linux-gnu-bacula centos[...]
  JobId:                  1
  Job:                    BackupCatalog.2017-06-27_12.29.26_03
  Backup Level:           Full
  Client:                 "cos7-fd" 8.6.1 (16Jun16) x86_64-centos-linux-gnu-
↪bacul[...]
  FileSet:                "Catalog" 2017-06-27 12:29:26
  Pool:                   "File" (From Job resource)
  Catalog:                "MyCatalog" (From Client resource)
  Storage:                "File1" (From Job resource)
  Scheduled time:         27-Jun-2017 12:29:23
  Start time:             27-Jun-2017 12:29:29
  End time:               27-Jun-2017 12:29:30
  Elapsed time:           1 sec
  Priority:               11
  FD Files Written:       1
  SD Files Written:       1
  FD Bytes Written:       57,413 (57.41 KB)
  SD Bytes Written:       57,530 (57.53 KB)
  Rate:                   57.4 KB/s
  Software Compression:   None
  Comm Line Compression:  76.9% 4.3:1
  Snapshot/VSS:           no
  Encryption:             no
  Accurate:               no
  Volume name(s):         Vol-0001
  Volume Session Id:      1
  Volume Session Time:    1467023339
  Last Volume Bytes:      58,179 (58.17 KB)
  Non-fatal FD errors:    0
  SD Errors:              0
  FD termination status:  OK
  SD termination status:  OK
  Termination:            Backup OK

27-Jun 12:29 cos7-dir JobId 1: Begin pruning Jobs older than 6 months .
27-Jun 12:29 cos7-dir JobId 1: No Jobs found to prune.
27-Jun 12:29 cos7-dir JobId 1: Begin pruning Files.
27-Jun 12:29 cos7-dir JobId 1: No Files found to prune.
27-Jun 12:29 cos7-dir JobId 1: End auto prune.
```

```
27-Jun 12:29 cos7-dir JobId 1: shell command: run AfterJob "/opt/bacula/
→scripts/d[...]
```

Output of bconsole command status dir:

```
cos7-dir Version: 8.6.1 (16 June 2017) x86_64-centos-linux-gnu-bacula- [...]
Daemon started 27-Jun-16 12:28, conf reloaded 27-Jun-2017 12:28:59
 Jobs: run=1, running=0 mode=0,2010
 Heap: heap=241,664 smbytes=97,781 max_bytes=128,045 bufs=295 max_bufs=327
 Res: njobs=3 nclients=1 nstores=2 npools=3 ncats=1 nfsets=2 nscheds=2

Scheduled Jobs:
Level           Type     Pri  Scheduled           Job Name        Volume
===================================================================================
Incremental     Backup    10  27-Jun-16 23:05     BackupClient1   Vol-0001
Full            Backup    11  27-Jun-16 23:10     BackupCatalog   Vol-0001
====

Running Jobs:
Console connected at 27-Jun-16 12:29
No Jobs running.
====

Terminated Jobs:
 JobId  Level   Files      Bytes    Status  Finished        Name
====================================================================
    1   Full        1     57.41 K   OK      27-Jun-16 12:29 BackupCatalog
====
```

If you run into trouble or have an error message while installing or configuring your Bacula infrastructure, please contact Support.

8 Bacula Fine Tuning

Community

8.1 Best Practices

Please refer to the Bacula manuals, available at https://www.bacula.org.

- We recommend a PostgreSQL backend to run Bacula.

- Design a backup strategy in case of disaster recovery (more information is available in the chapter "Critical Items to Implement Before Production" in the Main Manual)

    - For example, backup your catalog and store the `.bsr` (bootstrap) file in a safe location.

    - For example, backup your DIR and SD configuration files (if you are using Baculum, please backup its `conf.d/` folder).

As a best practice, document your backup design to provide a good overview and enhance the understanding of your backup infrastructure. Please test your tape library infrastructure following the instructions in the chapter named "btape" in the Utility Manual

8.2 PostgreSQL Catalog

On Debian, to change the catalog password, please run the commands:

```
#su- postgres
$psql
postgres=# alter user bacula with password 'your_new_password';
postgres=# \q
```

Then you must put the new password in **/opt/bacula/etc/bacula-dir.conf** as shown below:

```
  Catalog {
    Name = MyCatalog
    dbname = "bacula"; dbuser = "bacula"; dbpassword = "your_new_password"
  }

Restart the bacula-dir service:
```

```
/etc/init.d/bacula-dir restart
#or, on more recent versions,
#systemctl restart bacula-dir.service
```

9 Upgrade

Community Here are some easy, step-by-step instructions to help you upgrade your Bacula infrastructure. Please remember to always have the Director and Storage Daemon(s) at the same version level. You can upgrade the File Daemons of your clients afterwards. On the Director and any Storage Daemon machine(s), the File Daemon version must also match the DIR or SD version on that machine. For other machines the FD version may be less than or equal to the DIR and SD, but not greater.

9.1 Configuration Files

Community Please backup your main configuration. file folder (the content of **/opt/bacula/etc**) as well as any other files (script, services) you created or modified. If you are using Bacula plugin(s), please backup the **/opt/bacula/working** directory too. The upgrade will overwrite your service files, startup files, and some scripts, but it will not overwrite any **.conf** files.

9.2 Catalog

Community Have a database backup of your Catalog. You can dump it onto temporary media following these instructions:

```
#sudo-u bacula /opt/bacula/scripts/make_catalog_backup.pl MyCatalog
#cp /opt/bacula/working/bacula.sql /tmp
```

Change **/tmp** to any mount point you prefer.

9.3 Repository Update

Community You need to modify your `Bacula.repo` or `Bacula.list` file in order to reflect the version released in your Download Area.

9.4 Minor Upgrade

Community A minor upgrade is an upgrade of the last version number part, for example from 9.0.5 to 9.0.8. Any other upgrade is considered a major upgrade, thus you should refer to the Major Upgrade section.

Just use your package manager to upgrade the different bacula services and plugins. If you run into trouble or have any error messages while upgrading your Bacula infrastructure, please contact Support.

10 Configuring New Client (File Daemon)

Community Adding a Client is very simple in Bacula. You need to define a new Client Resource in the Director configuration and then install and configure the File Daemon to enable communication with the Director.

This chapter assumes that you have a working Director already configured. Examples are given for a basic installation.

10.1 Installing File Daemon Service on Client

Community Before configuring, you need to install the client package. You can find them in your Download Area. The process is the same as installing the Director and the Storage Daemon, you configure your package manager then use:

```
#apt-get install bacula-client
```

or

```
#yum install bacula-client
```

On a Windows System, simply launch the `bacula-enterprise-win64-X.Y.Z.exe` installer and follow the instructions. Naturally, for 32-bit systems, you would select the installer indicating 32-bit architecture in its file name.

10.2 Defining New Client Resource

Community Edit your `/opt/bacula/etc/bacula-dir.conf` and add a Client Resource like:

```
Client {
  Name = new-client-fd # Client resource name
  Address = new.client.yourdomain # FQDN address of the client
  FDPort = 9102                    # Port used
  Catalog = MyCatalog             # Catalog used
  Password = "4m4z1ngP4ssw0rd"    # password for FileDaemon
  File Retention = 60 days        # Catalog file retention : 60 days
  Job Retention = 6 months        # Catalog Job retention : 6 months
```

(continues on next page)

```
  AutoPrune = yes                    # Prune expired Jobs/Files
}
```

Once added, verify the syntax with:

`#/opt/bacula/bin/bacula-dir-t-u bacula-g bacula`

If no errors are reported, you can reload your configuration using bconsole:

```
#sudo-u bacula /opt/bacula/bin/bconsole
*reload
```

10.3 Setting Up File Daemon

Community On the Client machine, you need to edit the `bacula-fd.conf` file. On GNU/Linux and Unix it is in `/opt/bacula/etc/bacula-fd.conf` by default. On Windows, the file is in `C:\Program Files\Bacula\`.

In this file, you need to configure the communication with the Director as well as the Message resource and the File Daemon options:

```
Director {
  Name = bacula-dir             # Name of your Director
  Password = "4m4z1ngP4ssw0rd"  # Password set for the Client resource
}
[...]
FileDaemon {
  Name = new-client-fd                      # Client resource name
  FDport = 9102                             # Port used for the File Daemon
→service
  WorkingDirectory = /opt/bacula/working   # Working Directory location
  Pid Directory = /opt/bacula/working      # Pid Directory location
  Maximum Concurrent Jobs = 2              # Number of Maximum Concurrent
→Jobs
  Plugin Directory = /opt/bacula/plugins   # Plugin Directory location
}
[...]
```

Don't forget to edit the Message resource:

```
Messages {
  Name = Standard
  director = bacula-dir = all, !skipped, !restore
}
```

Test your modifications with the following command:

`# /opt/bacula/bin/bacula-fd-t-u bacula-g bacula`

On Windows:

`C:\Program Files\Bacula\bacula-fd.exe-t-c C:\Program Files\Bacula\bacula-fd.conf`

If no errors are reported, restart the File Daemon service:

On Linux:

```
#service bacula-fd restart
```

or

```
#systemctl restart bacula-fd
```

On Windows:

Use the Configuration Panel's Services application

or

```
C:\ net start bacula-fd
```

10.4 Verify Installation

Community Now that the Client Resource is configured in the Director and the File Daemon is launched, you can see the status of your Client with bconsole:

```
#sudo-u bacula /opt/bacula/bin/bconsole
Connecting to Director cos7:9101
1000 OK: 10002 cos7-dir Version: 8.6.1 (16 June 2017)
Enter a period to cancel a command.

* status client=new-client-fd
Connecting to Client new-client-fd at cos6:9102

new-client-fd Version: 8.6.1 (16 June 2017) x86_64-centos-linux-gnu-bacula␣
↪centos release
Daemon started 27-Jun-16 12:28. Jobs: run=1 running=0.
 Heap: heap=135,168 smbytes=4,636,621 max_bytes=4,846,424 bufs=137 max_
↪bufs=160
 Sizes: boffset_t=8 size_t=8 debug=0 trace=0 mode=0,2010 bwlimit=0kB/s
 Plugin: bpipe-fd.so

Running Jobs:
Director connected at: 27-Jun-16 12:34
No Jobs running.
====

Terminated Jobs:
 JobId    Level     Files     Bytes   Status   Finished         Name
=================================================================
     1     Full        37      34 M       OK   26-Jun-16 13:05 BackupClient2
====
```

Note: You can also verify that plugins are installed. In the above example, we can see that the bpipe plugin is installed on this Client.