

## Creating data backups on Debian and Ubuntu servers with Bacula professional backup tool

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### 1. Install Bacula Backup System

```
root@pcfreak:~# apt-cache show bacula |grep -i description -A 5
```

**Description: network backup, recovery and verification - meta-package**  
**Bacula is a set of programs to manage backup, recovery and verification of computer data across a network of computers of different kinds.**

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**It is efficient and relatively easy to use, while offering many advanced storage management features that make it easy to find and recover lost or damaged files. Due to its modular design, Bacula is scalable from small single computer systems to networks of hundreds of machines.**

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```
root@pcfreak:~# apt-get install bacula
```

```
Reading package lists... Done
```

```
Building dependency tree
```

```
Reading state information... Done
```

```
The following extra packages will be installed:
```

```
  bacula-client bacula-common bacula-common-sqlite3 bacula-console bacula-director-common  
bacula-director-sqlite3 bacula-fd bacula-sd
```

```
  bacula-sd-sqlite3 bacula-server bacula-traymonitor libsqlite0 mt-st mtx sqlite sqlite3
```

```
Suggested packages:
```

```
  bacula-doc dds2tar scsitools sg3-utils kde gnome-desktop-environment sqlite-doc sqlite3-doc
```

The following NEW packages will be installed:

bacula bacula-client bacula-common bacula-common-sqlite3 bacula-console bacula-director-common bacula-director-sqlite3 bacula-fd bacula-sd

bacula-sd-sqlite3 bacula-server bacula-traymonitor libsqlite0 mt-st mtx sqlite sqlite3

0 upgraded, 17 newly installed, 0 to remove and 0 not upgraded.

2 not fully installed or removed.

Need to get 2,859 kB of archives.

After this operation, 6,992 kB of additional disk space will be used.

Do you want to continue [Y/n]? Y

Get:1 <http://security.debian.org/> squeeze/updates/main bacula-common amd64

5.0.2-2.2+squeeze1 [637 kB]

Get:2 <http://security.debian.org/> squeeze/updates/main bacula-common-sqlite3 amd64

5.0.2-2.2+squeeze1 [102 kB]

Get:3 <http://security.debian.org/> squeeze/updates/main bacula-console amd64 5.0.2-2.2+squeeze1 [67.6 kB]

Get:4 <http://security.debian.org/> squeeze/updates/main bacula-director-common amd64

5.0.2-2.2+squeeze1 [56.6 kB]

Get:5 <http://security.debian.org/> squeeze/updates/main bacula-director-sqlite3 amd64

5.0.2-2.2+squeeze1 [308 kB]

Get:6 <http://security.debian.org/> squeeze/updates/main bacula-sd amd64 5.0.2-2.2+squeeze1 [459 kB]

Get:7 <http://security.debian.org/> squeeze/updates/main bacula-sd-sqlite3 amd64

5.0.2-2.2+squeeze1 [435 kB]

Get:8 <http://security.debian.org/> squeeze/updates/main bacula-server all 5.0.2-2.2+squeeze1 [48.5 kB]

Get:9 <http://security.debian.org/> squeeze/updates/main bacula-fd amd64 5.0.2-2.2+squeeze1 [124 kB]

Get:10 <http://security.debian.org/> squeeze/updates/main bacula-client all 5.0.2-2.2+squeeze1 [48.5 kB]

Get:11 <http://security.debian.org/> squeeze/updates/main bacula all 5.0.2-2.2+squeeze1 [1,030 B]

Get:12 <http://security.debian.org/> squeeze/updates/main bacula-traymonitor amd64

5.0.2-2.2+squeeze1 [70.0 kB]

Get:13 <http://ftp.uk.debian.org/debian/> squeeze/main sqlite3 amd64 3.7.3-1 [100 kB]

Get:14 <http://ftp.uk.debian.org/debian/> squeeze/main libsqlite0 amd64 2.8.17-6 [188 kB]

Get:15 <http://ftp.uk.debian.org/debian/> squeeze/main sqlite amd64 2.8.17-6 [22.0 kB]

Get:16 <http://ftp.uk.debian.org/debian/> squeeze/main mtx amd64 1.3.12-3 [154 kB]

Get:17 <http://ftp.uk.debian.org/debian/> squeeze/main mt-st amd64 1.1-4 [35.6 kB]

Fetches 2,859 kB in 6s (471

kB/s)

Selecting previously deselected package bacula-common.

(Reading database ... 86693 files and directories currently installed.)

Unpacking bacula-common (from .../bacula-common\_5.0.2-2.2+squeeze1\_amd64.deb) ...

Adding user 'bacula'... Ok.

Selecting previously deselected package bacula-common-sqlite3.

Unpacking bacula-common-sqlite3 (from .../bacula-common-

```
sqlite3_5.0.2-2.2+squeeze1_amd64.deb) ...
Selecting previously deselected package bacula-console.
Unpacking bacula-console (from .../bacula-console_5.0.2-2.2+squeeze1_amd64.deb) ...
Processing triggers for man-db ...
Setting up bacula-common (5.0.2-2.2+squeeze1) ...
Selecting previously deselected package bacula-director-common.
(Reading database ... 86860 files and directories currently installed.)
Unpacking bacula-director-common (from .../bacula-director-
common_5.0.2-2.2+squeeze1_amd64.deb) ...
Selecting previously deselected package sqlite3.
Unpacking sqlite3 (from .../sqlite3_3.7.3-1_amd64.deb) ...
Selecting previously deselected package libsqlite0.
Unpacking libsqlite0 (from .../libsqlite0_2.8.17-6_amd64.deb) ...
Selecting previously deselected package sqlite.
Unpacking sqlite (from .../sqlite_2.8.17-6_amd64.deb) ...
Selecting previously deselected package bacula-director-sqlite3.
Unpacking bacula-director-sqlite3 (from .../bacula-director-
sqlite3_5.0.2-2.2+squeeze1_amd64.deb) ...
Selecting previously deselected package mtx.
Unpacking mtx (from .../mtx_1.3.12-3_amd64.deb) ...
Selecting previously deselected package bacula-sd.
Unpacking bacula-sd (from .../bacula-sd_5.0.2-2.2+squeeze1_amd64.deb) ...
Selecting previously deselected package bacula-sd-sqlite3.
Unpacking bacula-sd-sqlite3 (from .../bacula-sd-sqlite3_5.0.2-2.2+squeeze1_amd64.deb) ...
Selecting previously deselected package bacula-server.
Unpacking bacula-server (from .../bacula-server_5.0.2-2.2+squeeze1_all.deb) ...
Selecting previously deselected package bacula-fd.
Unpacking bacula-fd (from .../bacula-fd_5.0.2-2.2+squeeze1_amd64.deb) ...
Selecting previously deselected package bacula-client.
Unpacking bacula-client (from .../bacula-client_5.0.2-2.2+squeeze1_all.deb) ...
Selecting previously deselected package bacula.
Unpacking bacula (from .../bacula_5.0.2-2.2+squeeze1_all.deb) ...
Selecting previously deselected package bacula-traymonitor.
Unpacking bacula-traymonitor (from .../bacula-traymonitor_5.0.2-2.2+squeeze1_amd64.deb) ...
Selecting previously deselected package mt-st.
Unpacking mt-st (from .../archives/mt-st_1.1-4_amd64.deb) ...
Processing triggers for man-db ...
Setting up acct (6.5.4-2.1) ...
Setting up bacula-director-common (5.0.2-2.2+squeeze1) ...
Setting up bacula-director-sqlite3 (5.0.2-2.2+squeeze1) ...
config: Running dbc_go bacula-director-sqlite3 configure
Stopping Bacula Director....
*** Checking type of existing DB at /var/lib/bacula/bacula.db: None
*** Will create new database at this location.
dbconfig-common: writing config to /etc/dbconfig-common/bacula-director-sqlite3.conf
```

```
Creating config file /etc/dbconfig-common/bacula-director-sqlite3.conf with new version
creating database bacula.db: success.
verifying database bacula.db exists: success.
populating database via sql... done.
Processing configuration...Ok.
Starting Bacula Director....:
Setting up bacula-sd (5.0.2-2.2+squeeze1) ...
Starting Bacula Storage daemon....:
Setting up acct (6.5.4-2.1) ...
insserv: warning: script 'K02courier-imap' missing LSB tags and overrides
insserv: script iptables: service skeleton already provided!
insserv: warning: script 'courier-imap' missing LSB tags and overrides
Turning on process accounting, file set to '/var/log/account/pacct'.
Done..
Setting up bacula-sd-sqlite3 (5.0.2-2.2+squeeze1) ...
Setting up bacula-server (5.0.2-2.2+squeeze1) ...
Setting up bacula-fd (5.0.2-2.2+squeeze1) ...
Starting Bacula File daemon....:
Setting up bacula-client (5.0.2-2.2+squeeze1) ...
Setting up bacula (5.0.2-2.2+squeeze1) ...
Setting up proftpd-basic (1.3.3a-6squeeze6) ...
Starting ftp server: proftpd.
Setting up mt-st (1.1-4) ...
update-alternatives: using /bin/mt-st to provide /bin/mt (mt) in auto mode.
```

Once installed you will have 3 processes running in background used by Bacula backup system  
(**bacula-dir**, **bacula-sd** and **bacula-fd**)

```
root@pcfreak:~# ps ax |grep -i bacula|grep -v grep
6044 ? Ssl 0:00 /usr/sbin/bacula-dir -c /etc/bacula/bacula-dir.conf -u bacula -g bacula
6089 ? Ssl 0:00 /usr/sbin/bacula-sd -c /etc/bacula/bacula-sd.conf -u bacula -g tape
6167 ? Ssl 0:00 /usr/sbin/bacula-fd -c /etc/bacula/bacula-fd.conf
```

Here is what each of them does:

### a) **Bacula-dir**

© Bacula-Director is main Bacula Backup system component. Bacula-Director controls the whole backup system and the various other 2 daemon: Bacula-FD and Bacula-SD.

Each of 3 processes bacula-dir, bacula-fd and bacula-sd has their own init script in /etc/rc.d/, e.g.:

```
# /etc/init.d/bacula-directory  
# /etc/init.d/bacula-fd  
# /etc/init.d/bacula-sd
```

## 2. Configuring Bacula Backup System

Configuring Bacula is done via configuration files located in **/etc/bacula**

```
root@pcfreak:~# cd /etc/bacula  
root@pcfreak:/etc/bacula# ls -l  
bacula-dir.conf  
bacula-fd.conf  
bacula-fd.conf.dist  
bacula-sd.conf  
bacula-sd.conf.dist  
bconsole.conf  
common_default_passwords  
scripts/  
tray-monitor.conf
```

## 3. Defining what needs to be backed up

Here is a short description of most important configuration blocks in Bacula's main config **bacula-dir.conf**

1. **Director** resource defines the Director's parameters. **Name**, **Password**, **WorkingDirectory**, and **PidDirectory** must be set. **QueryFile** specifies where the Director can find the SQL queries.

2. **Job** defines a backup or restore to perform. You will need at least one job per client. To simplify configuration of similar clients, create a common **JobDefs** resource and refer to it from within a **Job**. For example, if you have one set of defaults for desktops and another set for servers, you can create a **Desktop** and **Server** (these names are arbitrary and set with the **Name** attribute) **JobDefs** and refer to those two collections of settings from a **Job**.

3. **Schedule** resource is referred to within a Job to allow it to occur automatically.

4. **FileSet** resource defines which files are to be backed up. You can both **Include** and **Exclude** files.

5. Each **Client** resource details the clients that this Director can back up.

6. **Storage** resource specifies the storage daemon available to the Director.

7. **Pool** identifies a set of storage volumes (tapes/files) that Bacula can write data to. Each **Pool** can be configured to use different sets of tapes for different jobs.

8. **Catalog** resource defines Bacula catalog (database) to be used.

9. **Messages** resource captures where to send messages and which messages to send.

*a) Defining directories to be backed up*

Defining what needs to be backed up is done through `bacula-dir.conf` ( `/etc/bacula/bacula-dir.conf` ). In the file there is a FileSet section, where dirs to backed up have to be included, below config defines to backup `/usr/sbin`, `/etc/`, `/root`, `/usr` and `/var` directories

```
# List of files to be backed up
FileSet {
  Name = "Full Set"
  Include {
    Options {
      signature = MD5
    }
  }
#
# Put your list of files here, preceded by 'File =', one per line
# or include an external list with:
#
# File =
```