

# Bacula Server Installation and Configuration on Centos 6.2

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**Categories :** [Backup Server](#), [Backup tools](#), [Linux Tools](#), [Uncategorized](#)

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### What is Bacula?

[Bacula](#) is a set of Open Source, enterprise ready, computer programs that permit you (or the system administrator) to manage backup, recovery, and verification of computer data across a network of computers of different kinds.

In technical terms, it is an Open Source, enterprise ready, network based backup program.

Website: <http://www.bacula.org/en/>

### Enable EPEL Repository on RHEL/CentOS 7/6/5?

**You have to Enable Epel Repository on Centos machine for installing Bacula. For this follow below steps:**

```
# wget http://download.fedoraproject.org/pub/epel/6/i386/epel-release-6-8.noarch.rpm
# rpm -ivh epel-release-6-8.noarch.rpm
```

**if you get error stating :**

“Cannot retrieve metalink for repository: epel. Please verify its path and try again”  
then run:

```
# sudo yum upgrade ca-certificates --disablerepo=epel
```

**Now, Disable SELinux:**

```
#vi /etc/sysconfig/selinux
```

Change the following: SELINUX=enforcing to SELINUX=disabled

### Steps for Installation on Bacula Server:

**Step 1: Install the Webmin YUM Repository:**

```
# vim /etc/yum.repos.d/webmin.repo
[Webmin]
name=Webmin Distribution Neutral
#baseurl=http://download.webmin.com/download/yum
mirrorlist=http://download.webmin.com/download/yum/mirrorlist
enabled=1
```

**Add GPG key for webmin and install webmin:**

```
# rpm --import http://www.webmin.com/jcameron-key.asc
# yum install webmin
```

You can now login to webmin as <https://baculaserver:10000/> as root with your root password.

**Step 2: Install Mysql and Bacula:**

```
# yum install mysql-devel mysql-server
```

```
# yum install bacula-storage-mysql bacula-docs
# yum install bacula-director-mysql bacula-console
# yum install bacula-traymonitor
```

### Start and Configure Mysql for Bacula:

```
# service mysqld start
# chkconfig mysqld on
```

### Change the Mysql root password if you have a fresh install of Mysql:

```
# mysqladmin -u root password 'new-password'
```

### Now, configure Mysql for bacula, for this run the following scripts, i used password as "redhat":

```
# /usr/libexec/bacula/grant_mysql_privileges -u root -p
Enter password: redhat
# /usr/libexec/bacula/create_mysql_database -u root -p
Enter password: redhat
# /usr/libexec/bacula/make_mysql_tables -u root -p
Enter password: redhat
# /usr/libexec/bacula/grant_bacula_privileges -u root -p
Enter password: redhat
```

### Now, Check mysql database for bacula:

```
Baculaserver # mysql -u root -p
```

```
Enter password:
```

```
mysql> show databases; (let's see what databases the bacula user have access to)
```

```
mysql> use bacula; (set default database to bacula (bacula is the name of the Catalog database)).
```

```
mysql> show tables; (let's see what tables are in the Catalog database)
```

```
mysql> quit (quit MySQL CLI prompt to return to OS system prompt)
```

If you saw bacula in database as well as tables then your mysql database is working fine and database is created.

### Configure the default configuration file bacula-dir.conf on bacula server:

**Step 1:Edit Director Section of "bacula-dir.conf" file and Change Director Name and Password of your choice as i mentioned below:**

```
# vim /etc/bacula/bacula-dir.conf
```

```
Director {                                     † define myself
  Name = kvit-dir
  DIRport = 9101                               † where we listen for UA connections
  QueryFile = "/usr/libexec/bacula/query.sql"
  WorkingDirectory = "/var/spool/bacula"
  PidDirectory = "/var/run"
  Maximum Concurrent Jobs = 1
  Password = "new-password"                   † Console password
  Messages = Daemon
}
```

**Step 2: Edit Catalog Section of bacula-dir.conf file and Change dbuser as bacula and dbpassword as redhat:**

```
Name = MyCatalog
‡ Uncomment the following line if you want the dbi driver
‡ dbdriver = "dbi:sqlitce3"; dbaddress = 127.0.0.1; dbport =
dbname = "bacula"; dbuser = "bacula"; dbpassword = "redhat"
}
```

**Step 3: Create Client {...} section in bacula-dir.conf file for client (192.168.0.151):**

Name: this Client {...} section defines the client, so name it client.

Address: the IP address of the client.

Password: password specific for client and must match the password specified in bacula-fd.conf Director {...} section on the client server.

```
Client {
  Name = client-fd
  Address = 192.168.0.151
  FDPport = 9102
  Catalog = MyCatalog
  Password = "client"                         † password for FileDaemon
  File Retention = 30 days                    † 30 days
  Job Retention = 6 months                    † six months
  AutoPrune = yes                             † Prune expired Jobs/Files
}
```

**Step 4: Create Client {...} section in bacula-dir.conf file for window pc (192.168.0.100):**

```
Client {
  Name = win-fd
  Address = 192.168.0.100
  FDPort = 9102
  Catalog = MyCatalog
  Password = "client1" # password for FileDaemon
  File Retention = 30 days # 30 days
  Job Retention = 6 months # six months
  AutoPrune = yes # Prune expired Jobs/Files
}
```

## Step5:Edit Storage {...} section in bacula-dir.conf file:

Name: we are going to use 2 devices (disks) for backup, so I like the name of this section to represent the disk number of the device, this section is going to point to filestorage having name file and filestorage2 is having name file2.

Address: ip address of the pc which is having storage available.

SDPort: the port on which to connect the Storage Daemon.

Password: this password should match the bacula-sd.conf Director {...} section.

Media Type: Bacula supports many different media types, eg. DDS-4 tapes, DVDs etc. We are using files to store the backup data, so we specify the Media Type = File.

```
Storage {
  Name = File
  # Do not use "localhost" here
  Address = 192.168.0.150 # N.B. Use a fully qualified name here
  SDPort = 9103
  Password = "storage"
  Device = FileStorage
  Media Type = File
}
```

```
Storage {
  Name = File2
  # Do not use "localhost" here
  Address = 192.168.0.150
  SDPort = 9103
  Password = "storage"
  Device = FileStorage2
  Media Type = File
}
```

## Step 6:create new Pools in Pool {...} section in bacula-dir.conf:

```
Pool {
  Name = File
  Pool Type = Backup
  Recycle = yes                                # Bacula can automatically recycle Volumes
  Label Format = Local-
  AutoPrune = yes                              # Prune expired volumes
  Volume Retention = 365 days                  # one year
  Maximum Volume Bytes = 50G                   # limit Volume size to something reasonable
  Maximum Volumes = 100                       # limit number of Volumes in Pool.
}
```

```
Pool {
  Name = RemoteFile
  Pool Type = Backup
  Recycle = yes                                # Bacula can automatically recycle Volumes
  Label Format = Remote-
  AutoPrune = yes                              # Prune expired volumes
  Volume Retention = 365 days                  # one year
  Maximum Volume Bytes = 50G                   # limit Volume size to something reasonable
  Maximum Volumes = 100                       # limit number of Volumes in Pool.
}
```

### Step 7: Open bconsole.conf file and edit bconsole.conf Director Section on bacula server:

```
# vim /etc/bacula/bconsole.conf
```

Name: Here you must use the same name you gave the bacula-dir.conf Director {} section (there the Director defines itself).

DIRport: The port on which the Console will contact the Director.

Address: the address on which the Director run

Password: the password should match the password in the bacula-dir Director {} section.

```
Director {
  Name = kvit-dir
  DIRport = 9101
  address = 192.168.0.150
  Password = "new-password"
}
```

Edit name, address and password. It should be same as mentioned in bacula-dir.conf file.

### Step 8: Create the backup folders:

I am configuring storage on the same machine which i used for bacula server. So, storage and bacula server is on same PC.

```
# mkdir /backup1
# mkdir /backup2
#chown -R bacula:bacula /backup1
#chown -R bacula:bacula /backup2
#chmod -R 700 /backup1
#chmod -R 700 /backup2
```

### Step 9: Now, Open bacula-sd.conf file and edit storage Section:

```
# vim /etc/bacula/bacula-sd.conf
```

Name: This same name is also in the bacula-dir.conf Storage {...} section.

SDPort: The port on which this Storage daemon will listen (and therefore the port on which the Director must contact this Storage daemon).

SDAddress: mention IP of the storage server.

```
Storage {                                # definition of myself
    Name = bacula-sd
    SDPort = 9103                          # Director's port
    WorkingDirectory = "/var/spool/bacula"
    Pid Directory = "/var/run"
    Maximum Concurrent Jobs = 20
}
```

### Now, Edit Director Section in bacula-sd.conf file:

Name: the name of the Director that can administer this Storage daemon.

Password: the password that the Director must use to administer this Storage daemon. This same password is also in the bacula-dir.conf Storage {...} section.

```
Director {
    Name = kvit-dir
    Password = "storage"
}
```

### Now, Edit device Section in bacula-sd.conf file:

Name: this will specify a disk device to use for storage.



Archive Device: here you specify the mount point of the actual device (the actual hard drive I want to use is mounted as /bacula/backup1). You can also use just a folder to store your backup, it does not need to be a fresh disk.

```
Device {  
    Name = FileStorage  
    Media Type = File  
    Archive Device = /backup1  
    LabelMedia = yes;           # lets Bacula label unlabeled media  
    Random Access = Yes;  
    AutomaticMount = yes;     # when device opened, read it  
    RemovableMedia = no;  
    AlwaysOpen = no;  
}
```

```
Device {  
    Name = FileStorage2  
    Media Type = File  
    Archive Device = /backup2  
    LabelMedia = yes;           # lets Bacula label unlabeled media  
    Random Access = Yes;  
    AutomaticMount = yes;     # when device opened, read it  
    RemovableMedia = no;  
    AlwaysOpen = no;  
}
```

### Step 10: Edit message Section in bacula-sd.conf file:

Change to correct Director Name, in our case its kvit-dir. This section Send all messages to the Director, mount messages also are sent to the email address.

```
Messages {  
    Name = Standard  
    director = kvit-dir = all  
}
```

### Now, start Bacula and Mysql services:

```
# service bacula-dir start  
# service bacula-sd start  
# chkconfig bacula-dir on  
# chkconfig bacula-sd on  
# service mysqld start  
# chkconfig mysqld on
```

**Install and configure Linux File Daemon (bacula-fd) on bacula client machine(centos machine):**

**Use Putty on a Windows box to log onto the client linux machine and install:**

```
#yum install bacula-client
#rpm -qa bacula-client bacula-common
DONE – bacula file daemon installed on backup target server.
```

**Now, Edit bacula-fd.conf file on client machine and do the following changes as mentioned in red circles:**

```
# vim /etc/bacula/bacula-fd.conf
```

```
Director {
  Name = kvit-dir
  Password = "client"
}
```

```
FileDaemon {                                # this is me
  Name = client-fd
  FDport = 9102                               # where we listen for the director
  WorkingDirectory = /var/spool/bacula
  Pid Directory = /var/run
  Maximum Concurrent Jobs = 20
}
```

```
# Send all messages except skipped files back to Director
Messages {
  Name = Standard
  director = kvit-dir = all, !skipped, !restored
}
```

**Start bacula-fd service on baculaclient:**

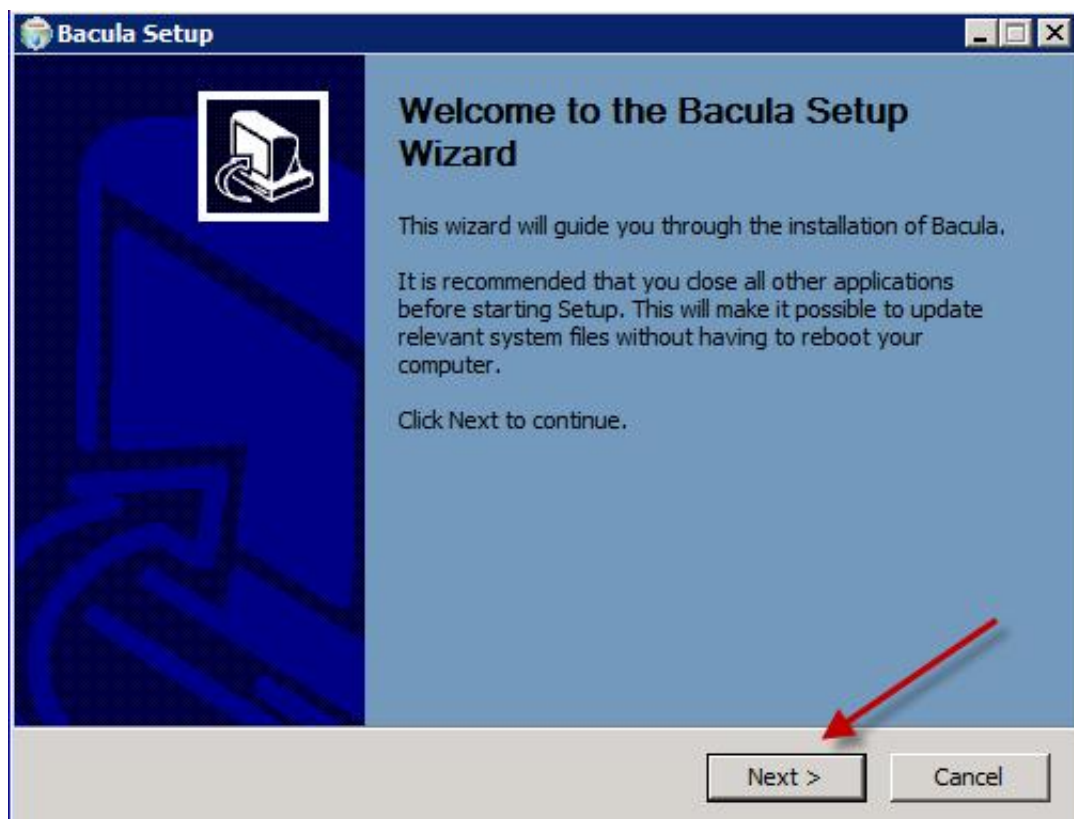
```
# service bacula-fd start
#chkconfig bacula-fd on
```

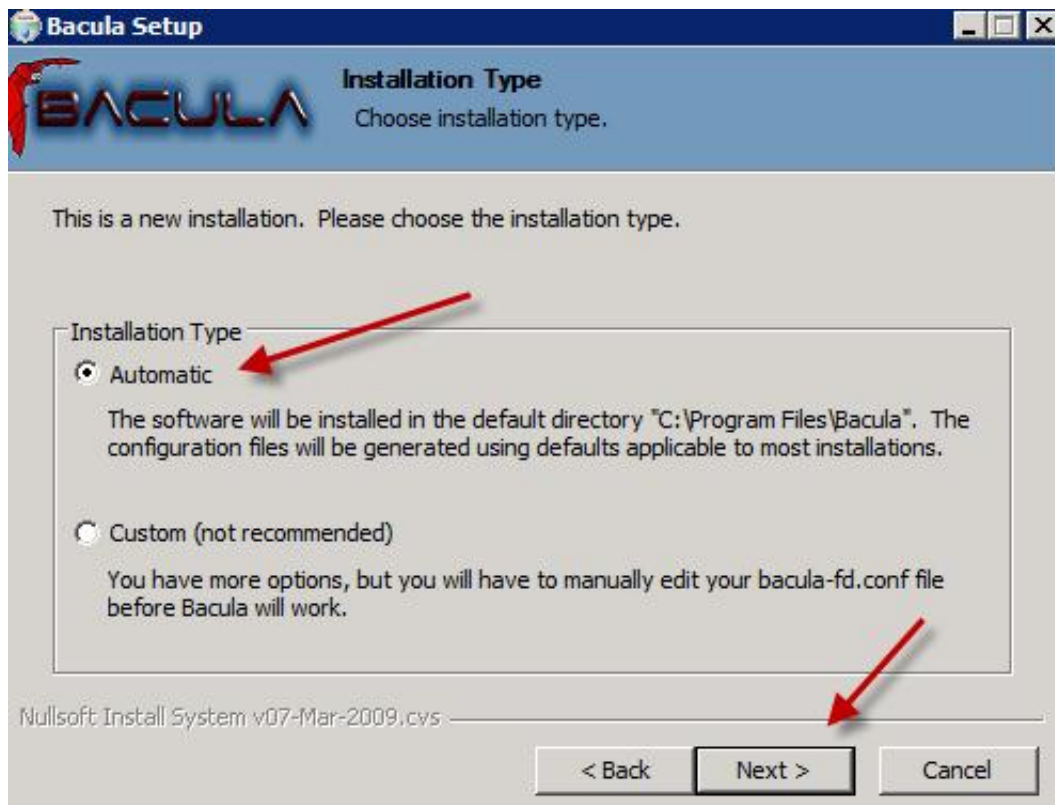
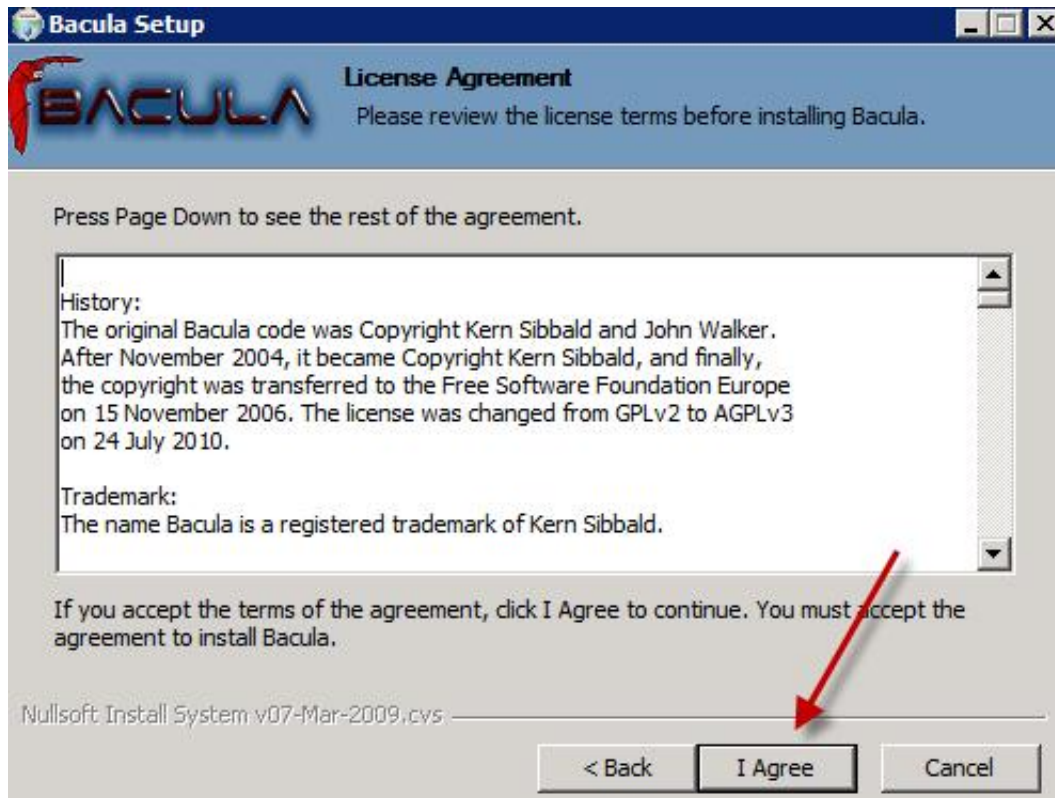
**Install and Configure Windows File Daemon on the windows machine : (bacula client)**

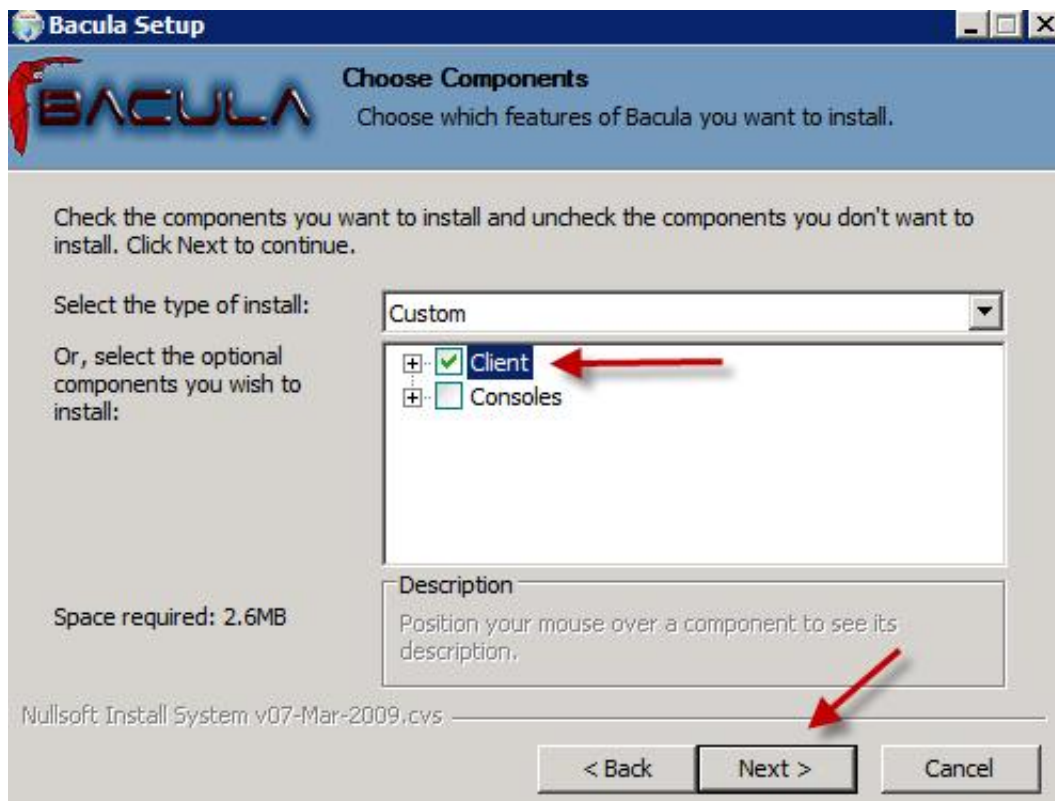
Log on to a windows server that you want to backup either locally or remote using eg. Remote Desktop.

From SourceForge.net [download the bacula windows file daemon](#) that match the version on your backup server (in my case it is 5.0.3).

On your windows server, double click the downloaded installation file to start the bacula file daemon installer.







Write the name that you later will give to the Bacula Director (I choose kvit-dir). Press the "Install" button.

Navigate to C:\Program Files\Bacula, the Bacula main folder on the window (admin1) machine.

In C:\Program Files\Bacula folder notice **bacula-fd.conf** file. Edit this file and change the followings:

```
#
# "Global" File daemon configuration specifications
#
FileDaemon {                                # this is me
  Name = win-fd
  FDport = 9102                               # where we listen for the director
  workingDirectory = "C:\\Program Files\\Bacula\\working"
  Pid Directory = "C:\\Program Files\\Bacula\\working"
# Plugin Directory = "C:\\Program Files\\Bacula\\plugins"
  Maximum Concurrent Jobs = 10
}

#
# List Directors who are permitted to contact this File daemon
#
Director {
  Name = kvit-dir
  Password = "client1"
}
```



## Linux Gateway

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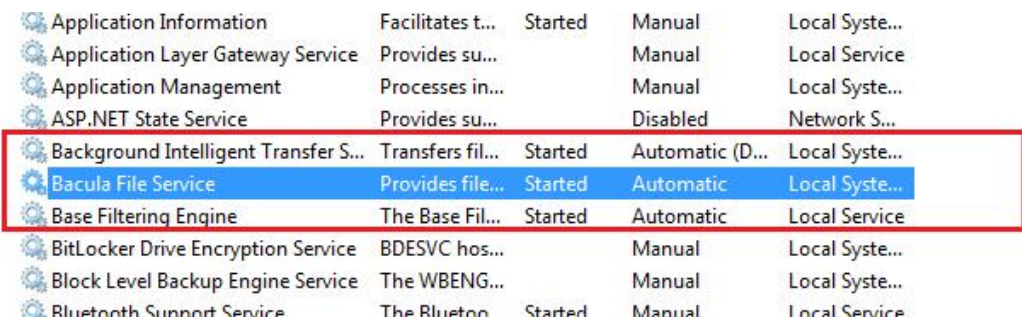
---

```
..
# Restricted Director, used by tray-monitor to get the
# status of the file daemon
#
#Director {
# Name = bacula-mon
# Password = "redhat22"
# Monitor = yes
#}

# send all messages except skipped files back to Director
Messages {
  Name = Standard
  director = kvit-dir = all, !skipped, !restored
}
```

Now, Restart the file daemon service on admin1 :

write services.msc at run and press the "Ok" button to launch the Services Manager.



The screenshot shows the Windows Services console. The 'Bacula File Service' is highlighted in blue and circled in red. The service is set to 'Started' and 'Automatic'.

Service Name	Description	Status	Startup Type	Log On As
Application Information	Facilitates t...	Started	Manual	Local Syste...
Application Layer Gateway Service	Provides su...		Manual	Local Service
Application Management	Processes in...		Manual	Local Syste...
ASP.NET State Service	Provides su...	Disabled	Disabled	Network S...
Background Intelligent Transfer S...	Transfers fil...	Started	Automatic (D...	Local Syste...
<b>Bacula File Service</b>	Provides file...	Started	Automatic	Local Syste...
Base Filtering Engine	The Base Fil...	Started	Automatic	Local Service
BitLocker Drive Encryption Service	BDESVC hos...		Manual	Local Syste...
Block Level Backup Engine Service	The WBENG...		Manual	Local Syste...
Bluetooth Support Service	The Blueton...	Started	Manual	Local Service

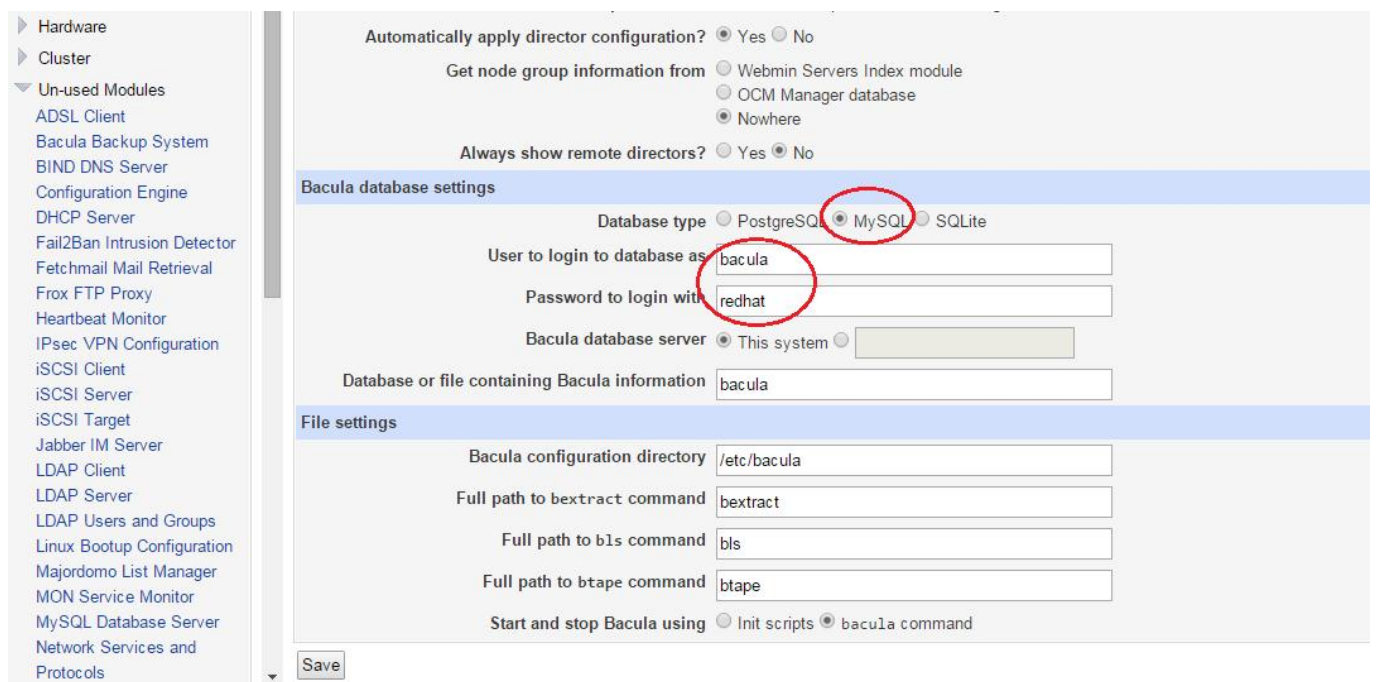
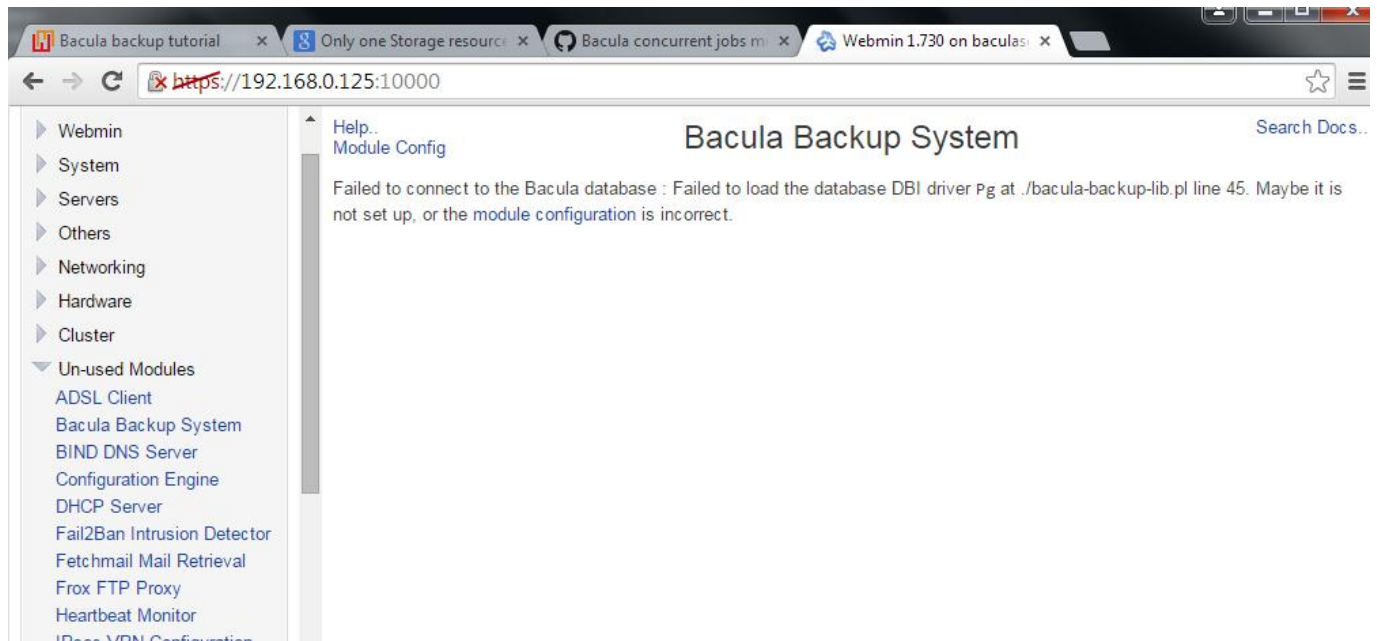
Now, Window machine is configured for backup by bacula.

**Configure Webmin and testing connections on bacula and mysql:**

**Now use your web browser and enter the host IP address where you installed Bacula:**

**<https://192.168.0.125:10000>**

This will take you to the Webmin. Login using user root. You will find the Bacula module on the left under System. It's showing error. Click on module configuration and do the following changes which mentioned in red circle and save it. Now, you are able to access bacula through webmin console.



**Now, we are going to check the connections on bacula server:**

On bacula server type `bconsole` and press enter:

```
#bconsole
```

This starts the console program and confirms that you can connect to bacula Director.

```
*status storage          (test if you can connect to storage resources)
```

```
*status storage
The defined Storage resources are:
  1: File
  2: File2
```

\*status client (prompt for a client to connect to – try selecting win-fd to see if you can connect to window pc)

```
*status client
The defined Client resources are:
  1: client-fd
  2: win-fd
Select Client (File daemon) resource (1-2):
```

\*list clients (you should be able to see the 2 clients win & client)

```
*list clients
Automatically selected Catalog: MyCatalog
Using Catalog "MyCatalog"
+-----+-----+-----+-----+
| ClientId | Name      | FileRetention | JobRetention |
+-----+-----+-----+-----+
|      1  | client-fd |    2,592,000 |   15,552,000 |
|      2  | win-fd    |    2,592,000 |   15,552,000 |
+-----+-----+-----+-----+
You have messages.
```

\*quit

### Check database on mysql server:

```
#mysql -u bacula -p
```

Enter password:

Mysql>show databases; (show what databases the bacula user have access to)

Mysql> use bacula; (set default database to bacula (bacula is the name of the Catalog database).

Mysql> show tables; (let's see what tables are in the Catalog database)

Mysql>select \* from Client; (you get exactly the same 2 clients we saw before using the bacula list clients command)

Mysql>quit



### Create Jobs and Filesets under bacula-dir directory:

```
#vi /etc/bacula/bacula-dir.conf
```

```
#####create backup and restore job for client pc#####
```

```
Job {  
Name = RemoteBackup  
JobDefs = DefaultJob  
Client = client-fd  
Pool = RemoteFile  
Level = Full  
FileSet = "Full Set"  
Storage = File  
}
```

```
Job {  
Name = "RestoreRemote"  
Type = Restore  
Client=client-fd  
FileSet="Full Set"  
Storage = File  
Pool = Default  
Messages = Standard  
Where = /bacula/restore  
}
```

```
#####create backup and restore job for windows pc#####
```

```
Job {  
Name = "RestorewinRemote"  
Type = Restore  
Client=win-fd  
FileSet="Full Set"  
Storage = File  
Pool = Default  
Messages = Standard  
Where = /bacula/restore  
}
```

```
Job {  
Name = "RemotewinBackup"
```

```
JobDefs = "DefaultJob"  
Client = win-fd  
Pool = RemoteFile  
}
```

### ##### Create "Fileset" for window client #####

```
FileSet {  
Name = win-backup  
Include {  
File = D:/folder1  
Options {  
}  
}  
}
```

### ##### Create "Fileset" for linux client #####

```
FileSet {  
Name = "Full Set"  
Include {  
Options {  
signature = MD5  
}  
}  
}
```

### Run backup and restore jobs for window client:

On bacula server type bconsole and press enter:

```
#bconsole
```

```
*run      (start the interactive prompt for running a job, you should see all jobs defined)
```

```
[root@bacula ~]# bconsole
Connecting to Director 192.168.0.150:9101
1000 OK: kvit-dir Version: 5.0.0 (26 January 2010)
Enter a period to cancel a command.
*run
Automatically selected Catalog: MyCatalog
Using Catalog "MyCatalog"
A job name must be specified.
The defined Job resources are:
    1: RemoteBackup
    2: RemotewinBackup
    3: BackupClient2
    4: BackupCatalog
    5: RestoreFiles
    6: RestoreRemote
    7: RestorewinRemote
Select Job resource (1-7): 2
```

```
Select Job resource (1-7): 2
Run Backup job
JobName:  RemotewinBackup
Level:    Full
Client:   win-fd
FileSet:  win-backup
Pool:     File (From Job resource)
Storage:  File2 (From Job resource)
When:     2015-03-18 01:44:39
Priority: 10
OK to run? (yes/mod/no): yes
```

\*status dir

```
*status dir
kvit-dir Version: 5.0.0 (26 January 2010) i386-redhat-linux-gnu redhat
Daemon started 18-Mar-15 02:24, 4 Jobs run since started.
Heap: heap=135,168 smbytes=155,545 max_bytes=169,732 bufs=293 max_bufs=463
```

```
Terminated Jobs:
```

JobId	Level	Files	Bytes	Status	Finished	Name
27	Full	2	674	OK	18-Mar-15 01:48	RemotewinBackup
28	Full	2	674	OK	18-Mar-15 01:49	RemotewinBackup
30	Full	2	674	OK	18-Mar-15 02:05	RemotewinBackup
32	Full	395	36.96 M	OK	18-Mar-15 02:12	BackupClient2
34	Full	0	0	Cancel	18-Mar-15 02:23	RemoteBackup
35	Full	0	0	Cancel	18-Mar-15 02:23	RemoteBackup
36	Full	0	0	Cancel	18-Mar-15 02:25	RemoteBackup
37	Full	0	0	Cancel	18-Mar-15 02:30	RemoteBackup
38	Full	0	0	Cancel	18-Mar-15 02:30	RemoteBackup
39	Full	395	36.96 M	OK	18-Mar-15 02:31	RemoteBackup

As shown above in red circle job 39 completed.

Now, lets see how to Restore files:

On bacula server type bconsole and press enter:

```
#bconsole
```

```
[root@bacula ~]# bconsole
Connecting to Director 192.168.0.150:9101
1000 OK: kvit-dir Version: 5.0.0 (26 January 2010)
Enter a period to cancel a command.
*restore
```

Start the interactive restore process. The Catalog MyCatalog is automatically selected and you are presented with 12 different ways to select from which JobIds you want to restore.

```
To select the JobIds, you have the following choices:
 1: List last 20 Jobs run
 2: List Jobs where a given File is saved
 3: Enter list of comma separated JobIds to select
 4: Enter SQL list command
 5: Select the most recent backup for a client
 6: Select backup for a client before a specified time
 7: Enter a list of files to restore
 8: Enter a list of files to restore before a specified time
 9: Find the JobIds of the most recent backup for a client
10: Find the JobIds for a backup for a client before a specified time
11: Enter a list of directories to restore for found JobIds
12: Select full restore to a specified Job date
13: Cancel
Select item: (1-13): 5
```

Select method 5 “**Select the most recent backup for a client**” which will prompt you to select what client to restore.

Here I selected client win-fd

```
Select item: (1-13): 5
Defined Clients:
  1: client-fd
  2: win-fd
Select the Client (1-2): 2
```

The latest full backup JobId (30) is selected.

we use dir to see what is in current folder, here we find a subfolder called D:/

cd D:/ : we use cd to change directory.

we use mark to mark files or folders we want to restore, here we mark “folder1? folder. We mark folder1 to backup.

we use done to tell that we are finished selecting files.

```
cwd is: /
$ dir
----- 0 root      root                0 1970-01-01 05:30:00 D:/
$ mark D:/
3 files marked.
$ dir
----- 0 root      root                0 1970-01-01 05:30:00 *D:/
$ cd D:/
cwd is: D:/
$ ls
*folder1/
$ mark folder1
2 files marked.
$ done
```

```
The job will require the following
Volume(s)           Storage(s)           SD Device(s)
=====
Local-0009          File2                 FileStorage2

Volumes marked with "*" are online.

2 files selected to be restored.

The defined Restore Job resources are:
  1: RestoreFiles
  2: RestoreRemote
  3: RestorewinRemote
Select Restore Job (1-3): 3
```

```
The defined Restore Job resources are:
  1: RestoreFiles
  2: RestoreRemote
  3: RestorewinRemote
Select Restore Job (1-3): 3
Run Restore job
JobName:             RestorewinRemote
Bootstrap:           /var/spool/bacula/kvit-dir.restore.2.bsr
Where:               D:/restore
Replace:             always
FileSet:             win-backup
Backup Client:       win-fd
Restore Client:      win-fd
Storage:             File2
When:               2015-03-18 02:59:37
Catalog:            MyCatalog
Priority:            10
Plugin Options:     *None*
OK to run? (yes/mod/no): yes
```

```
*status dir
```

```
40          2          674   OK      18-Mar-15 02:53 RestoreRemote
41 Full      395      36.96 M OK      18-Mar-15 02:55 RemoteBackup
42          2          674   OK      18-Mar-15 03:00 RestorewinRemote
```

As above we can see that restore job is completed.



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