

By Falko Timme

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Back Up Linux And Windows Systems With BackupPC

Version 1.0

Author: Falko Timme <ft [at] falkotimme [dot] com>

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This tutorial shows how you can back up Linux and Windows systems with BackupPC. BackupPC acts as a server and is installed on a Linux system, and from there it can connect to all Linux and Windows systems in your local network to back them up and restore them without interfering with the user's work on that system. On the clients minimal to no configuration is needed. BackupPC supports full and incremental backups, and it comes with a neat web frontend for the administrator and normal user so that backups and recoveries can be managed through a web browser. It should be noted, however, that BackupPC does file-based backups, not bit-wise backups like Ghost4Linux, for example, so it is not made for disk/partition imaging.

BackupPC comes with a clever pooling scheme that minimizes disk storage and disk I/O. Identical files across multiple backups of the same or different PCs are stored only once resulting in substantial savings in disk storage and disk I/O.

I want to say first that this is not the only way of setting up such a system. There are many ways of achieving this goal but this is the way I take. I do not issue any guarantee that this will work for you!

1 Preliminary Note

In this tutorial I will set up BackupPC on a Debian Etch server with the static IP address `192.168.0.100` and the hostname `server1.example.com`. The procedure should be similar or the same on Debian Sarge and Ubuntu.

BackupPC stores the backups in `/var/lib/backuppc`, so I've made that an extra partition of about 90 GB on the BackupPC server. It should be noted that this is still very small, especially if you want to back up lots of machines, so bigger is better. Also, you should consider using **LVM** for the `/var/lib/backuppc` partition so that you can enlarge it whenever you need it. You can learn more about LVM in this tutorial:

http://www.howtoforge.com/linux_lvm

I will show how to back up and restore a Ubuntu Edgy Eft desktop system with the hostname/NetBIOS name *falko-desktop* and a Windows XP laptop with the NetBIOS name *notebook*. Both get their network settings through DHCP.

BackupPC supports three transfer methods, *smb*, *rsync/rsyncd*, and *tar*. *rsync* is the recommended method for Linux systems, so I will use that for the Ubuntu desktop, and *smb* is the preferred method for Windows systems, so I use it for the Windows laptop.

2 Install BackupPC

On *server1.example.com*, we run this command as root to install BackupPC:

```
apt-get install backuppc rsync libfile-rsyncp-perl par2 smbfs
```

You will be asked a few questions:

Workgroup/Domain Name:

Modify smb.conf to use WINS settings from DHCP? <-- No

Then you will see this message:

Web administration default user created

BackupPC can be managed through its web interface:

http://server1.example.com/backuppc/

For that purpose, a web user named 'backuppc' with 'dAamcQIH' as password has been created. You can change this password by running 'htpasswd /etc/backuppc/htpasswd backuppc'.

Please make a note of the web frontend password (*dAamcQIH* in this case) for the user *backuppc*. If you don't like the password, you can change it by running

```
htpasswd /etc/backuppc/htpasswd backuppc
```

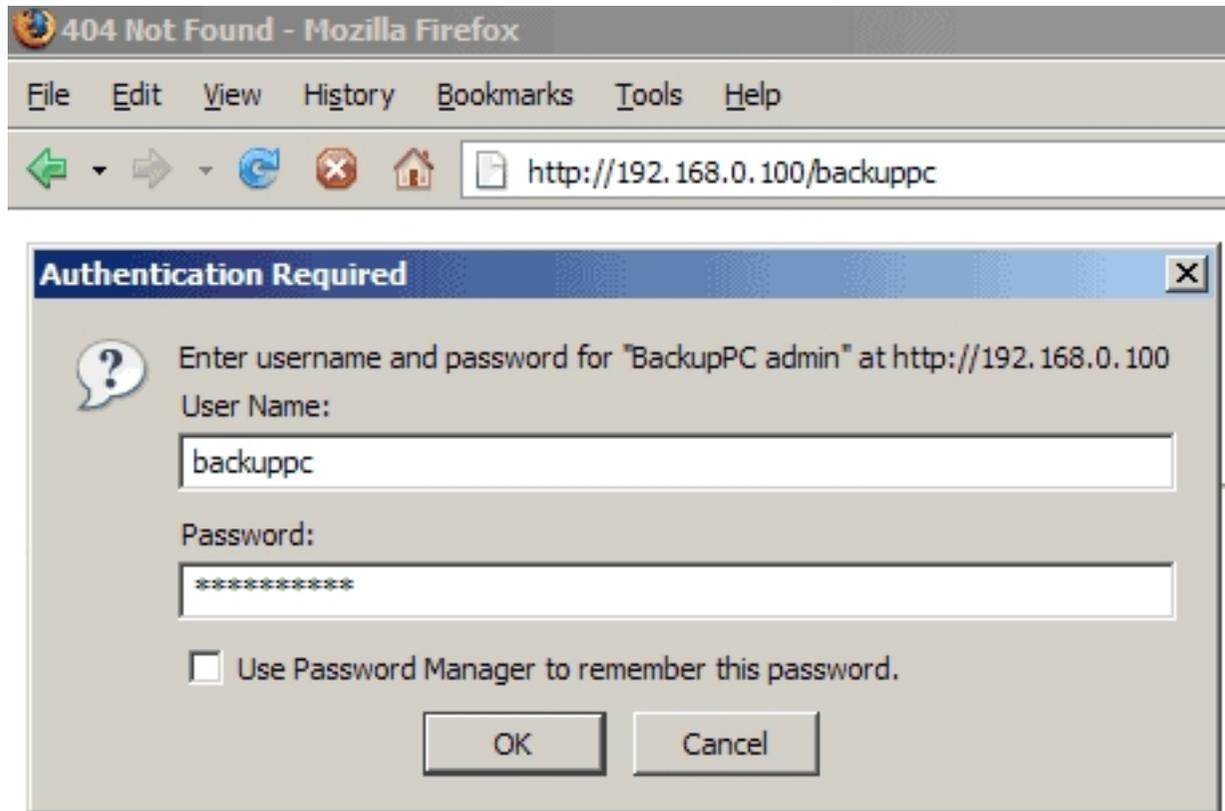
Then open a browser and type in `http://192.168.0.100/backuppc/` (or `http://server1.example.com/backuppc/` if you have a proper DNS record for `server1.example.com` in your network). If you get a login prompt, everything is fine, if not (like on my installation), run this command:

```
dpkg-reconfigure backuppc
```

You will see this question:

```
Add aliases for /backuppc/ to your apache config files ?
```

Afterwards, go to `http://192.168.0.100/backuppc/` again and log in with the username `backuppc` and `backuppc`'s password:



3 The BackupPC Web Interface

Now that you are logged in to BackupPC's web interface, you should browse the menu to become familiar with it. The entry page is the *Status* page:

BackupPC Server Status

Hosts

Select a host...

Server

- [Status](#)
- [Admin Options](#)
- [Host Summary](#)
- [LOG file](#)
- [Old LOGs](#)
- [Email summary](#)
- [Config file](#)
- [Hosts file](#)
- [Current queues](#)
- [Documentation](#)
- [FAQ](#)
- [SourceForge](#)

General Server Information

- The servers PID is 3706, on host server1.example.com, version 2
- This status was generated at 1/19 15:27.
- The configuration was last loaded at 1/19 15:22.
- PCs will be next queued at 1/19 16:00.
- Other info:
 - ◊ 0 pending backup requests from last scheduled wakeup,
 - ◊ 0 pending user backup requests,
 - ◊ 0 pending command requests,
 - ◊ Pool is 0.00GB comprising files and directories (as of 1/19
 - ◊ Pool hashing gives repeated files with longest chain ,
 - ◊ Nightly cleanup removed 0 files of size 0.00GB (around 1/19
 - ◊ Pool file system was recently at % (1/19 15:27), today's ma

Currently Running Jobs

Host	Type	User	Start Time	Command	PID	Xfer PID
------	------	------	------------	---------	-----	----------

Failures that need attention

Host	Type	User	Last Try	Details	Error Time	Last error (other than no ping)
------	------	------	----------	---------	------------	---------------------------------

Admin Options allows you to reload the server configuration:

BackupPC Server: Admin Options - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Stumble! All I

http://192.168.0.100/backuppc/index.cgi?action=adminOpts

BackupPC

Admin Options

Hosts

Select a host...

Server

- [Status](#)
- [Admin Options](#)
- [Host Summary](#)
- [LOG file](#)
- [Old LOGs](#)
- [Email summary](#)
- [Config file](#)
- [Hosts file](#)
- [Current queues](#)
- [Documentation](#)
- [FAQ](#)
- [SourceForge](#)

Server Control

Reload the server configuration:

Host Summary shows a summary of all configured clients and their backup status. Currently only *localhost* is configured as a client for backups. We will remove *localhost* later on because we don't want to back it up.

BackupPC: Host Summary

This status was generated at 1/19 15:29.

Hosts with good Backups

There are 0 hosts that have been backed up, for a total of:

- 0 full backups of total size 0.00GB (prior to pooling and compress
- 0 incr backups of total size 0.00GB (prior to pooling and compress

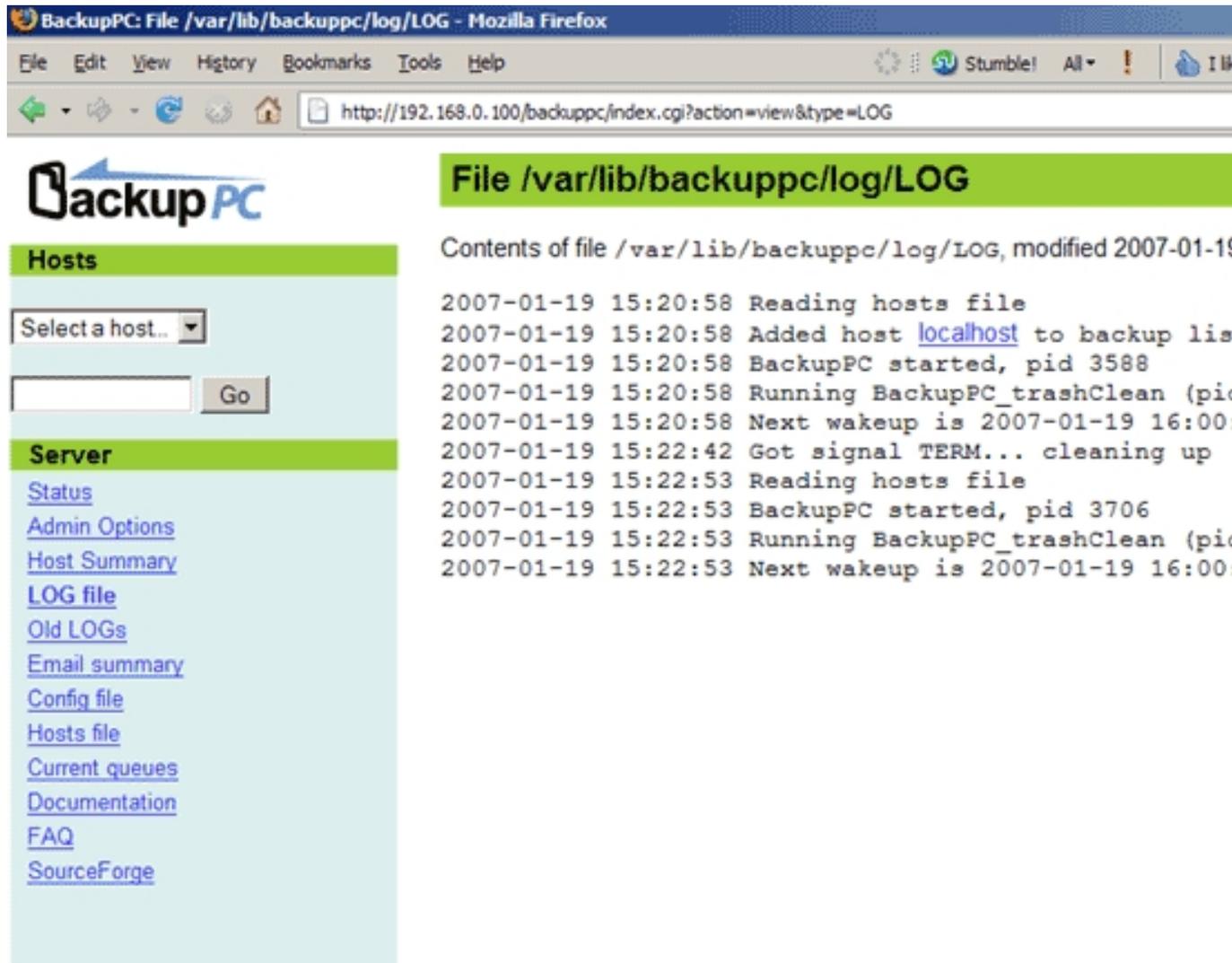
Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days
localhost	backuppc	0		0.00		0	

Hosts with no Backups

There are 1 hosts with no backups.

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days
localhost	backuppc	0		0.00		0	

Under *LOG file* you can find the latest log entries:

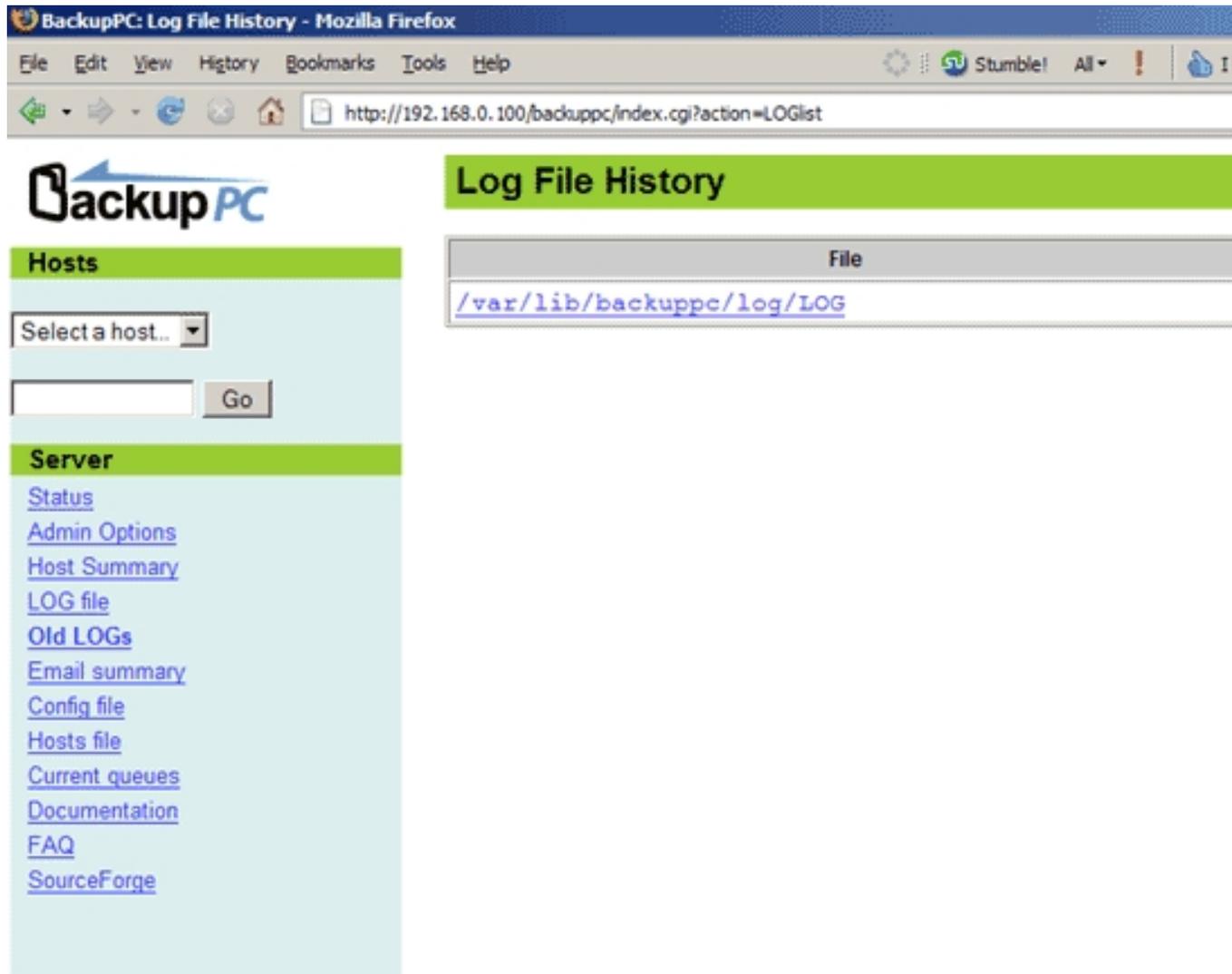


The screenshot shows a Mozilla Firefox browser window displaying the BackupPC web interface. The address bar shows the URL `http://192.168.0.100/backuppc/index.cgi?action=view&type=LOG`. The page title is "BackupPC: File /var/lib/backuppc/log/LOG". The main content area displays the contents of the log file `/var/lib/backuppc/log/LOG`, which was modified on 2007-01-19. The log entries show the following sequence of events:

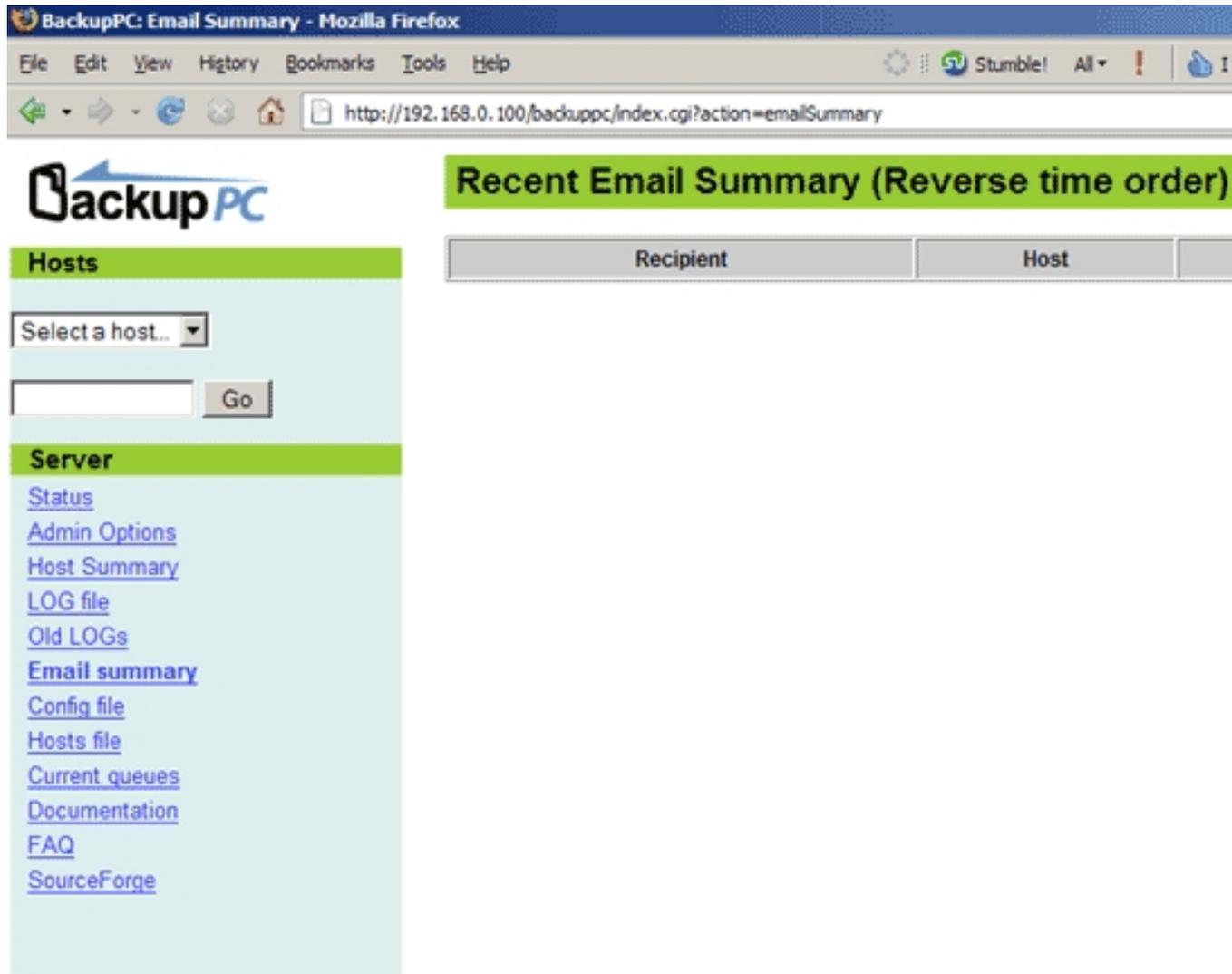
```
2007-01-19 15:20:58 Reading hosts file
2007-01-19 15:20:58 Added host localhost to backup lis
2007-01-19 15:20:58 BackupPC started, pid 3588
2007-01-19 15:20:58 Running BackupPC_trashClean (pic
2007-01-19 15:20:58 Next wakeup is 2007-01-19 16:00:
2007-01-19 15:22:42 Got signal TERM... cleaning up
2007-01-19 15:22:53 Reading hosts file
2007-01-19 15:22:53 BackupPC started, pid 3706
2007-01-19 15:22:53 Running BackupPC_trashClean (pic
2007-01-19 15:22:53 Next wakeup is 2007-01-19 16:00:
```

The left sidebar contains navigation links under the "Server" section: [Status](#), [Admin Options](#), [Host Summary](#), [LOG file](#), [Old LOGs](#), [Email summary](#), [Config file](#), [Hosts file](#), [Current queues](#), [Documentation](#), [FAQ](#), and [SourceForge](#). The "Hosts" section includes a dropdown menu labeled "Select a host..." and a "Go" button.

Old LOGs shows which log files are available. BackupPC has a built-in log rotation mechanism, so there will be more than one log file over time. The maximum amount of log files can be specified in `/etc/backuppc/config.pl`.



Email summary shows a list of backup reports that have been sent by email. Currently it is empty:



Config file shows the contents of BackupPC's main configuration file, `/etc/backuppc/config.pl`:

The screenshot shows a Mozilla Firefox browser window displaying the BackupPC configuration file. The browser's address bar shows the URL: `http://192.168.0.100/backuppc/index.cgi?action=view&type=config`. The page title is "File /etc/backuppc/config.pl".

On the left side, there is a navigation menu with the following items:

- Hosts
- Select a host... (dropdown menu)
- Go (button)
- Server
 - Status
 - Admin Options
 - Host Summary
 - LOG file
 - Old LOGs
 - Email summary
 - Config file
 - Hosts file
 - Current queues
 - Documentation
 - FAQ
 - SourceForge

The main content area displays the contents of the file `/etc/backuppc/config.pl`, modified on 2006-06-07. The file content is as follows:

```

=====
#
# Configuration file for BackupPC.
#
# DESCRIPTION
#
# This is the main configuration file for BackupPC.
#
# This file must be valid perl source, so make sure that all
# quotes, and other syntax are valid.
#
# This file is read by BackupPC at startup, when a backup request
# is sent to BackupPC and also at each wakeup time. The backup
# modification time of this file changes.
#
# The configuration parameters are divided into four groups.
# The first group (general server configuration) is for the
# configuration for BackupPC. The next two groups are for
# to backup, when to do it, and how long to keep the backup.
# group are settings for the CGI http interface.
#
# Configuration settings can also be specified on the command line.
# Simply put the relevant settings in a config.pl file.
    
```

Hosts file shows the contents of `/etc/backuppc/hosts` (the file where the backup clients are specified):

The screenshot shows a Mozilla Firefox browser window displaying the BackupPC web interface. The address bar shows the URL `http://192.168.0.100/backuppc/index.cgi?action=view&type=hosts`. The page title is "BackupPC: File /etc/backuppc/hosts".

The interface features a sidebar on the left with a "Hosts" section containing a dropdown menu labeled "Select a host..." and a "Go" button. Below this is a "Server" section with a list of links: [Status](#), [Admin Options](#), [Host Summary](#), [LOG file](#), [Old LOGs](#), [Email summary](#), [Config file](#), [Hosts file](#), [Current queues](#), [Documentation](#), [FAQ](#), and [SourceForge](#).

The main content area displays the title "File /etc/backuppc/hosts" and the text "Contents of file /etc/backuppc/hosts, modified 2006-06-07 23:07:1". Below this is a code block showing the contents of the hosts file:

```

#-----
#
# Host file list for BackupPC.
#
# DESCRIPTION
#
# This file lists all the hosts that should be backed up
# by BackupPC.
#
# Each line in the hosts file contains three fields
# separated by white space:
#
#   - The host name.  If this host is a static IP address,
#     the host name must be the machine's IP host name (ie: something
#     that can be looked up using nslookup or DNS).  If this host is a
#     dynamic IP host then the host name must be the netbios name of the
#     machine.  It is possible to have a host name with spaces, but that
#     is discouraged.  Escape a space with a backslash.
#
#     craigs\ pc
#
#   - DHCP flag.  Set to 0 if this is a static IP address, or if the
#     machine can be found using nmblookup.
#
#-----

```

Current queues shows requests that currently aren't processed:

The screenshot shows a web browser window titled "BackupPC: Queue Summary - Mozilla Firefox". The address bar shows the URL "http://192.168.0.100/backuppc/index.cgi?action=queue". The page content includes the BackupPC logo, a "Hosts" section with a dropdown menu and a "Go" button, and a "Server" section with various links. The main content area is divided into three sections, each with a table of queued requests:

- Backup Queue Summary** (green header)
- User Queue Summary** (light blue header): "The following user requests are currently queued:"

Host	Req Time
------	----------
- Background Queue Summary** (light blue header): "The following background requests are currently queued:"

Host	Req Time
------	----------
- Command Queue Summary** (light blue header): "The following command requests are currently queued:"

Host	Req Time	User
------	----------	------

Documentation contains the whole BackupPC documentation. You should consider studying it later on:

BackupPC

Hosts

Select a host... ▾

Server

- [Status](#)
- [Admin Options](#)
- [Host Summary](#)
- [LOG file](#)
- [Old LOGs](#)
- [Email summary](#)
- [Config file](#)
- [Hosts file](#)
- [Current queues](#)
- [Documentation](#)
- [FAQ](#)
- [SourceForge](#)

- [BackupPC Introduction](#)
 - ◊ [Overview](#)
 - ◊ [Backup basics](#)
 - ◊ [Resources](#)
 - ◊ [Road map](#)
 - ◊ [You can help](#)
- [Installing BackupPC](#)
 - ◊ [Requirements](#)
 - ◊ [How much disk space do I need?](#)
 - ◊ [Step 1: Getting BackupPC](#)
 - ◊ [Step 2: Installing the distribution](#)
 - ◊ [Step 3: Setting up config.pl](#)
 - ◊ [Step 4: Setting up the hosts file](#)
 - ◊ [Step 5: Client Setup](#)
 - ◊ [Step 6: Running BackupPC](#)
 - ◊ [Step 7: Talking to BackupPC](#)
 - ◊ [Step 8: CGI interface](#)
 - ◊ [How BackupPC Finds Hosts](#)
 - ◊ [Other installation topics](#)
 - ◊ [Fixing installation problems](#)
- [Restore functions](#)
 - ◊ [CGI restore options](#)
 - ◊ [Command-line restore options](#)
- [Archive functions](#)
 - ◊ [Configuring an Archive Host](#)

FAQ and *SourceForge* are external links to the BackupPC FAQ and BackupPC's SourceForge project site.

In the drop-down menu under *Hosts* you find all backup clients that are currently configured. *localhost* is in there by default, but as I said before, we will

remove it.

BackupPC Server Status - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Stumble! All I

http://192.168.0.100/backuppc/index.cgi

BackupPC

BackupPC Server Status

Hosts

Select a host...
 Select a host...
 localhost

Server

- [Status](#)
- [Admin Options](#)
- [Host Summary](#)
- [LOG file](#)
- [Old LOGs](#)
- [Email summary](#)
- [Config file](#)
- [Hosts file](#)
- [Current queues](#)
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General Server Information

- The servers PID is 3706, on host server1.example.com, version 2
- This status was generated at 1/19 15:33.
- The configuration was last loaded at 1/19 15:22.
- PCs will be next queued at 1/19 16:00.
- Other info:
 - ◊ 0 pending backup requests from last scheduled wakeup,
 - ◊ 0 pending user backup requests,
 - ◊ 0 pending command requests,
 - ◊ Pool is 0.00GB comprising files and directories (as of 1/19
 - ◊ Pool hashing gives repeated files with longest chain ,
 - ◊ Nightly cleanup removed 0 files of size 0.00GB (around 1/19
 - ◊ Pool file system was recently at % (1/19 15:33), today's ma

Currently Running Jobs

Host	Type	User	Start Time	Command	PID	Xfer PID
------	------	------	------------	---------	-----	----------

Failures that need attention

Host	Type	User	Last Try	Details	Error Time	Last error (other than no ping)
------	------	------	----------	---------	------------	---------------------------------

BackupPC: Host localhost Backup Summary - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://192.168.0.100/backuppc/index.cgi?host=localhost

BackupPC

localhost

- [localhost Home](#)
- [Browse backups](#)
- [LOG file](#)
- [LOG files](#)
- [Config file](#)

Hosts

localhost

Go

Server

- [Status](#)
- [Admin Options](#)
- [Host Summary](#)
- [LOG file](#)
- [Old LOGs](#)
- [Email summary](#)
- [Config file](#)
- [Hosts file](#)

Host localhost Backup Summary

This PC has never been backed up!!

- This PC is used by [backuppc](#).
- Last status is state "idle" as of 1/19 15:33.

User Actions

Start Full Backup Stop/Dequeue Backup

Backup Summary

Click on the backup number to browse and restore backup files.

Backup#	Type	Filled	Start Date	Duration/mins	Age/days	Server Backup Pat
---------	------	--------	------------	---------------	----------	-------------------

Xfer Error Summary

Backup#	Type	View	#Xfer errs	#b
---------	------	------	------------	----

4 The BackupPC Configuration Files

BackupPC's configuration files are in the `/etc/backuppc` directory. The most important ones are `/etc/backuppc/config.pl` and `/etc/backuppc/hosts`.

You should open them now to become familiar with all configuration options. Both files are heavily commented, so by reading them you should understand what they do. For example, in `/etc/backuppc/config.pl` you can define how often and when BackupPC wakes up to back up the clients, when/how often it does full or incremental backups, how many log files it should keep, etc.

```
vi /etc/backuppc/config.pl
```

```
vi /etc/backuppc/hosts
```

Don't modify them now - most default values are ok to get started.

5 Add The Ubuntu System *falko-desktop* As A Backup Client

To add a client to BackupPC, we must add it to `/etc/backuppc/hosts`. That file has the following format:

<i>host</i>	<i>dhcp</i>	<i>user</i>	<i>moreUsers</i>
<i>hostname1</i>	<i>0</i>	<i>user1</i>	<i>anotheruser,athirduser</i>
<i>hostname1</i>	<i>1</i>	<i>user2</i>	<i>stillanotheruser</i>

The first column contains the hostname/NetBIOS name of the client (e.g. *falko-desktop*), the second column whether the client is configured through DHCP, the third column contains a user that is allowed to log into the BackupPC web interface to manage that backup client, and the fourth (optional) column contains additional users that can do the same.

Although *falko-desktop* is configured through DHCP, *dhcp* should only be set to 1 if the following tests fail:

```
nmblookup falko-desktop
```

If the test is successful, it should display *falko-desktop*'s current IP address:

```
querying falko-desktop on 192.168.0.255
192.168.0.213 falko-desktop<00>
```

Now that you know *falko-desktop*'s current IP address, run the same test in the other direction:

```
nmblookup -A 192.168.0.213
```

If successful, the output should look like this:

```
Looking up status of 192.168.0.213
FALKO-DESKTOP <00> - B <ACTIVE>
FALKO-DESKTOP <03> - B <ACTIVE>
FALKO-DESKTOP <20> - B <ACTIVE>
..__MSBROWSE__ <01> - <GROUP> B <ACTIVE>
MSHOME <00> - <GROUP> B <ACTIVE>
MSHOME <1d> - B <ACTIVE>
MSHOME <1e> - <GROUP> B <ACTIVE>

MAC Address = 00-00-00-00-00-00
```

Both tests were successful, so we can set *dhcp* to 0, and we put *falko-desktop* 0 *falko* into */etc/backuppc/hosts* and comment out the *localhost* line:

```
vi /etc/backuppc/hosts
```

```
[...]  
falko-desktop 0    falko  
#localhost 0    backuppc
```

If the tests had not been successful, we would have put `falko-desktop 1 falko` into `/etc/backuppc/hosts` instead, and in addition to that we would have had to change the variable `$Conf{DHCPAddressRanges}` in `/etc/backuppc/config.pl`.

We have added the user `falko` to the hosts file. That's the system user whom BackupPC will send email reports regarding `falko-desktop`, so we should create that user on the BackupPC server now:

```
useradd -m falko  
  
passwd falko
```

In addition to that we must create a password for `falko` for the BackupPC web interface:

```
htpasswd /etc/backuppc/htpasswd falko
```

(If you like you can now open a second browser and log in as `falko` on `http://192.168.0.100/backuppc/`.)

Now we must edit `/etc/backuppc/config.pl`. The backup method for `falko-desktop` will be `rsync`, so we set `$Conf{XferMethod} = 'rsync';`. `falko-desktop` has just one (big) partition (`/`), so we set `$Conf{RsyncShareName} = '/'`; . If you have multiple partitions to backup, you'd specify something like `$Conf{RsyncShareName} = ['/', '/var', '/data', '/boot']`; instead.

`rsync` will be tunneled through SSH (port 22). SSH needs to know the hostname or IP address of the client. Unless you have a DNS server that resolves `falko-desktop` to its IP address, SSH will not be able to resolve the name `falko-desktop`. Therefore we replace `$host` with `$hostIP` in

`$Conf{RsyncClientCmd}` and `$Conf{RsyncClientRestoreCmd}`.

```
vi /etc/backuppc/config.pl
```

```
[...]  
$Conf{XferMethod} = 'rsync';  
  
$Conf{RsyncClientPath} = '/usr/bin/rsync';  
$Conf{RsyncClientCmd} = '$sshPath -q -x -l root $hostIP $rsyncPath $argList+';  
$Conf{RsyncClientRestoreCmd} = '$sshPath -q -x -l root $hostIP $rsyncPath $argList+';  
$Conf{RsyncShareName} = '/';  
#$Conf{RsyncShareName} = ['/var', '/data', '/boot'];  
[...]
```

(You might wonder now how we can specify options for multiple clients because the options for *notebook* will be different from those for *falko-desktop*. It works like this: the options in `/etc/backuppc/config.pl` are **global** values that are valid for all clients **unless** they have their own configuration file in `/etc/backuppc`, named after their hostname. So for *notebook* we will create `/etc/backuppc/notebook.pl`, and it will contain only the values that are different from the ones in `/etc/backuppc/config.pl`. In fact, we could have created `/etc/backuppc/falko-desktop.pl` for *falko-desktop* instead of modifying `/etc/backuppc/config.pl`.)

Next restart BackupPC:

```
/etc/init.d/backuppc restart
```

5.1 Configure The SSH Tunnel

The *rsync* backup will be tunneled through SSH. The backup is run as the user *backuppc*, therefore this user must be able to login to *falko-desktop* as root without being prompted for a password. Therefore we must exchange public keys to allow password-less logins for *backuppc*.

First we must log in on *falko-desktop* on the shell and create a root login (if you don't use Ubuntu you most probably have one already):

falko-desktop:

```
sudo passwd root
```

```
sudo su
```

Now that you're logged in as root, install OpenSSH and rsync:

```
apt-get install rsync ssh openssh-server
```

Then create a private/public key pair:

```
ssh-keygen -t rsa
```

Generating public/private rsa key pair.

Enter file in which to save the key (/root/.ssh/id_rsa):

Created directory '/root/.ssh'.

Enter passphrase (empty for no passphrase):

Enter same passphrase again:

Your identification has been saved in /root/.ssh/id_rsa.

Your public key has been saved in /root/.ssh/id_rsa.pub.

The key fingerprint is:

```
0f:95:00:4b:fd:c3:cc:0b:1f:2b:00:c9:29:bf:ca:4e root@falko-desktop
```

If you don't have a DNS record for `server1.example.com`, you should add `server1.example.com` to `/etc/hosts` now:

```
vi /etc/hosts
```

```
[...]  
192.168.0.100 server1.example.com server1  
[...]
```

Next we create a private/public key pair on `server1.example.com`. We must do this as the user `backuppc`!

[server1.example.com:](#)

```
su backuppc  
  
ssh-keygen -t rsa
```

Generating public/private rsa key pair.

Enter file in which to save the key (/var/lib/backuppc/.ssh/id_rsa):

Created directory '/var/lib/backuppc/.ssh'.

Enter passphrase (empty for no passphrase):

Enter same passphrase again:

Your identification has been saved in /var/lib/backuppc/.ssh/id_rsa.

Your public key has been saved in /var/lib/backuppc/.ssh/id_rsa.pub.

The key fingerprint is:

```
74:20:65:73:47:1c:cb:ba:5d:9b:5d:56:cf:91:1a:1a backuppc@server1.example.com
```

Then we copy the public key to *falko-desktop*. Make sure you use *falko-desktop*'s current IP address in the *scp* command:

```
cp ~/.ssh/id_rsa.pub ~/.ssh/BackupPC_id_rsa.pub

scp ~/.ssh/BackupPC_id_rsa.pub root@192.168.0.213:/root/.ssh/
```

```
The authenticity of host '192.168.0.213 (192.168.0.213)' can't be established.
RSA key fingerprint is 9b:66:3e:ce:b4:8d:63:00:ba:87:14:b2:94:03:cb:a8.
Are you sure you want to continue connecting (yes/no)?
Warning: Permanently added '192.168.0.213' (RSA) to the list of known hosts.
root@192.168.0.213's password:
BackupPC_id_rsa.pub 100% 410 0.4KB/s 00:00
```

Next we append *backuppc*'s public key to *~/.ssh/authorized_keys2* on *falko-desktop* (we do this as root):

```
cat ~/.ssh/BackupPC_id_rsa.pub >> ~/.ssh/authorized_keys2
```

If you have a proper DNS record for *server1.example.com* or added it to *falko-desktop*'s */etc/hosts* file, you can now open *~/.ssh/authorized_keys2* and add *from="server1.example.com"* at the beginning of the file. Thus only *server1.example.com* can enjoy password-less logins. (If *server1.example.com* cannot be resolved on *falko-desktop*, then don't add *from="server1.example.com"*)

```
vi ~/.ssh/authorized_keys2
```

```
from="server1.example.com" ssh-rsa AAAAB3[...]FMZpdAj8Hs9107tZ97Rq2oO/Zw== backuppc@server1.example.com
```

Then copy `root@falko-desktop`'s public key to `server1.example.com` (make sure you use the correct IP address):

```
scp ~/.ssh/id_rsa.pub root@192.168.0.100:/var/lib/backuppc/.ssh/client_id_rsa.pub
```

```
The authenticity of host '192.168.0.100 (192.168.0.100)' can't be established.  
RSA key fingerprint is 29:40:1c:c0:40:f8:e1:4c:68:47:36:b3:f3:53:b1:38.  
Are you sure you want to continue connecting (yes/no)?  
Warning: Permanently added '192.168.0.100' (RSA) to the list of known hosts.  
root@192.168.0.100's password:  
id_rsa.pub 100% 400 0.4KB/s 00:00
```

Back on `server1.example.com`, we append `root@falko-desktop`'s public key to `~/.ssh/known_hosts`. Make sure you're still logged in as the user `backuppc`!

server1.example.com:

```
cat ~/.ssh/client_id_rsa.pub >> ~/.ssh/known_hosts
```

Then we switch back to the root user and delete `/var/lib/backuppc/.ssh/client_id_rsa.pub`:

```
su
```

```
rm -f /var/lib/backuppc/.ssh/client_id_rsa.pub
```

Then become *backuppc* again and change the permissions of the *~/.ssh* directory:

```
su backuppc  
  
chmod -R go-rwx ~/.ssh
```

Do the same on *falko-desktop* (as root):

[falko-desktop:](#)

```
chmod -R go-rwx ~/.ssh
```

Then go back to *server1.example.com* and make sure you're still logged in as *backuppc*. Run the following test command to see if *falko-desktop* prompts you for a password. If you did everything right, it shouldn't. (Make sure to use *falko-desktop*'s current IP address!)

[server1.example.com:](#)

```
ssh -l root 192.168.0.213 whoami
```

The output should simply be

```
root
```

6 Our First Backup

Now that our SSH tunnel is working, we can reload the BackupPC web interface at `http://192.168.0.100/backuppc/`. You should now see `falko-desktop` in the list of hosts, and `localhost` has gone:

BackupPC Server Status

Hosts

Select a host...
 Select a host...
 falko-desktop

Server

- [Status](#)
- [Admin Options](#)
- [Host Summary](#)
- [LOG file](#)
- [Old LOGs](#)
- [Email summary](#)
- [Config file](#)
- [Hosts file](#)
- [Current queues](#)
- [Documentation](#)
- [FAQ](#)
- [SourceForge](#)

General Server Information

- The servers PID is 2151, on host server1.example.com, version 2
- This status was generated at 1/19 16:50.
- The configuration was last loaded at 1/19 16:50.
- PCs will be next queued at 1/19 17:00.
- Other info:
 - ◊ 0 pending backup requests from last scheduled wakeup,
 - ◊ 0 pending user backup requests,
 - ◊ 0 pending command requests,
 - ◊ Pool is 0.00GB comprising files and directories (as of 1/19
 - ◊ Pool hashing gives repeated files with longest chain ,
 - ◊ Nightly cleanup removed 0 files of size 0.00GB (around 1/19
 - ◊ Pool file system was recently at 1% (1/19 16:00), today's m

Currently Running Jobs

Host	Type	User	Start Time	Command	PID	Xfer PID
------	------	------	------------	---------	-----	----------

Failures that need attention

Host	Type	User	Last Try	Details	Error Time	Last error (other than no ping)
------	------	------	----------	---------	------------	---------------------------------

You can wait until BackupPC starts its first backup of *falko-desktop* (in the default configuration it does so at the first full hour), or you start it manually through the web interface.

While the backup is in progress, the *Host Summary* page looks like this:

BackupPC: Host Summary

This status was generated at 1/19 16:51.

Hosts with good Backups

There are 0 hosts that have been backed up, for a total of:

- 0 full backups of total size 0.00GB (prior to pooling and compression),
- 0 incr backups of total size 0.00GB (prior to pooling and compression).

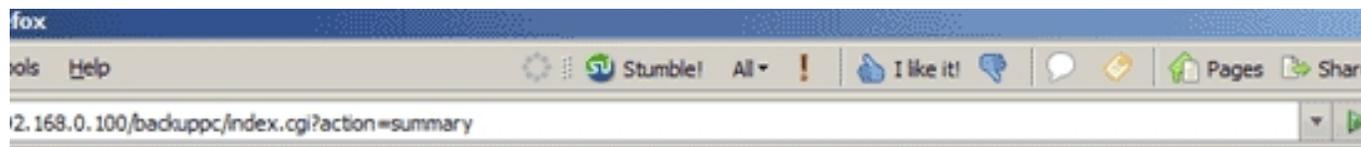
Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days	State	Last attempt
------	------	-------	---------------	--------------	--------------	-------	---------------	-------	--------------

Hosts with no Backups

There are 1 hosts with no backups.

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days	Current State	Last bac
falko-desktop	falko	0		0.00		0		backup in progress	

When the backup is finished, it looks like this:



BackupPC: Host Summary

This status was generated at 1/19 17:33.

Hosts with good Backups

There are 1 hosts that have been backed up, for a total of:

- ◆ 1 full backups of total size 3.64GB (prior to pooling and compression),
- ◆ 0 incr backups of total size 0.00GB (prior to pooling and compression).

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days	State	Last attempt
falko-desktop	falko	1	0.0	3.64	1.46	0		link running	backup done

Hosts with no Backups

There are 0 hosts with no backups.

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days	Current State	Last backup attempt
------	------	-------	---------------	--------------	--------------	-------	---------------	---------------	---------------------

7 Our First Recovery

For testing purposes we can now do our first recovery of files. Go to *falko-desktop Home* and click on the number of the backup under *Backup Summary*

(in this case 0):

The screenshot shows the BackupPC web interface in a Mozilla Firefox browser window. The page title is "BackupPC: Host falko-desktop Backup Summary". The browser address bar shows the URL: `http://192.168.0.100/backuppc/index.cgi?host=falko-desktop`.

The interface features a sidebar on the left with navigation links under "falko-desktop", "Hosts", and "Server". The main content area is titled "Host falko-desktop Backup Summary" and contains the following sections:

- Summary:**
 - This PC is used by [falko](#).
 - Last status is state "idle" (backup done) as of 1/19 17:35.
 - Pings to falko-desktop have succeeded 1 consecutive times.
- User Actions:**

Start Incr Backup Start Full Backup Stop/Dequeue Backup
- Backup Summary:**

Click on the backup number to browse and restore backup files.

Backup#	Type	Filled	Start Date	Duration/mins	Age/days	Size
0	full	yes	1/19 16:51	41.5	0.0	/var/lib/back
- Xfer Error Summary:**

Backup#	Type	View	#Xfer errs
0	full	XferLOG , Errors	11042

On the next page you will see a tree of files and directories from *falko-desktop*. Browse the tree and select the files/directories you want to restore, then click on *Restore selected files*:

Backup browse for falko-desktop

- You are browsing backup #0, which started around 1/19 16:51 (0.0 days ago),
- Select the backup you wish to view:
- Enter directory:
- Click on a directory below to navigate into that directory,
- Click on a file below to restore that file,
- You can view the backup [history](#) of the current directory.

Contents of /home/falko/ghost4linux

Name	Type	Mode	#	Size	
<input checked="" type="checkbox"/> files3	dir	0755	0	4096	
<input checked="" type="checkbox"/> files3.tar.gz	file	0644	0	4528656	
<input checked="" type="checkbox"/> g4l-v0.21.devel	dir	0755	0	4096	
<input checked="" type="checkbox"/> Select all					<input type="button" value="Restore selected files"/>

The next page shows you three different methods to restore the files/directories. In this case I select the first one (*Direct Restore*) and click on *Start Restore*:

The screenshot shows a web browser window titled "BackupPC: Restore Options for falko-desktop - Mozilla Firefox". The address bar shows "http://192.168.0.100/backuppc/index.cgi". The page content includes a sidebar with navigation links for "falko-desktop", "Hosts", and "Server". The main content area is titled "Restore Options for falko-desktop" and lists selected files: "/home/falko/ghost4linux/files3", "/home/falko/ghost4linux/files3.tar.gz", and "/home/falko/ghost4linux/g4l-v0.21.devel". It offers two restore options: "Option 1: Direct Restore" and "Option 2: Download Zip archive".

BackupPC: Restore Options for falko-desktop

You have selected the following files/directories from share /, backup nu

- /home/falko/ghost4linux/files3
- /home/falko/ghost4linux/files3.tar.gz
- /home/falko/ghost4linux/g4l-v0.21.devel

You have three choices for restoring these files/directories. Please sele

Option 1: Direct Restore

You can start a restore that will restore these files directly onto falko-des

Warning: any existing files that match the ones you have selected will b

Restore the files to host

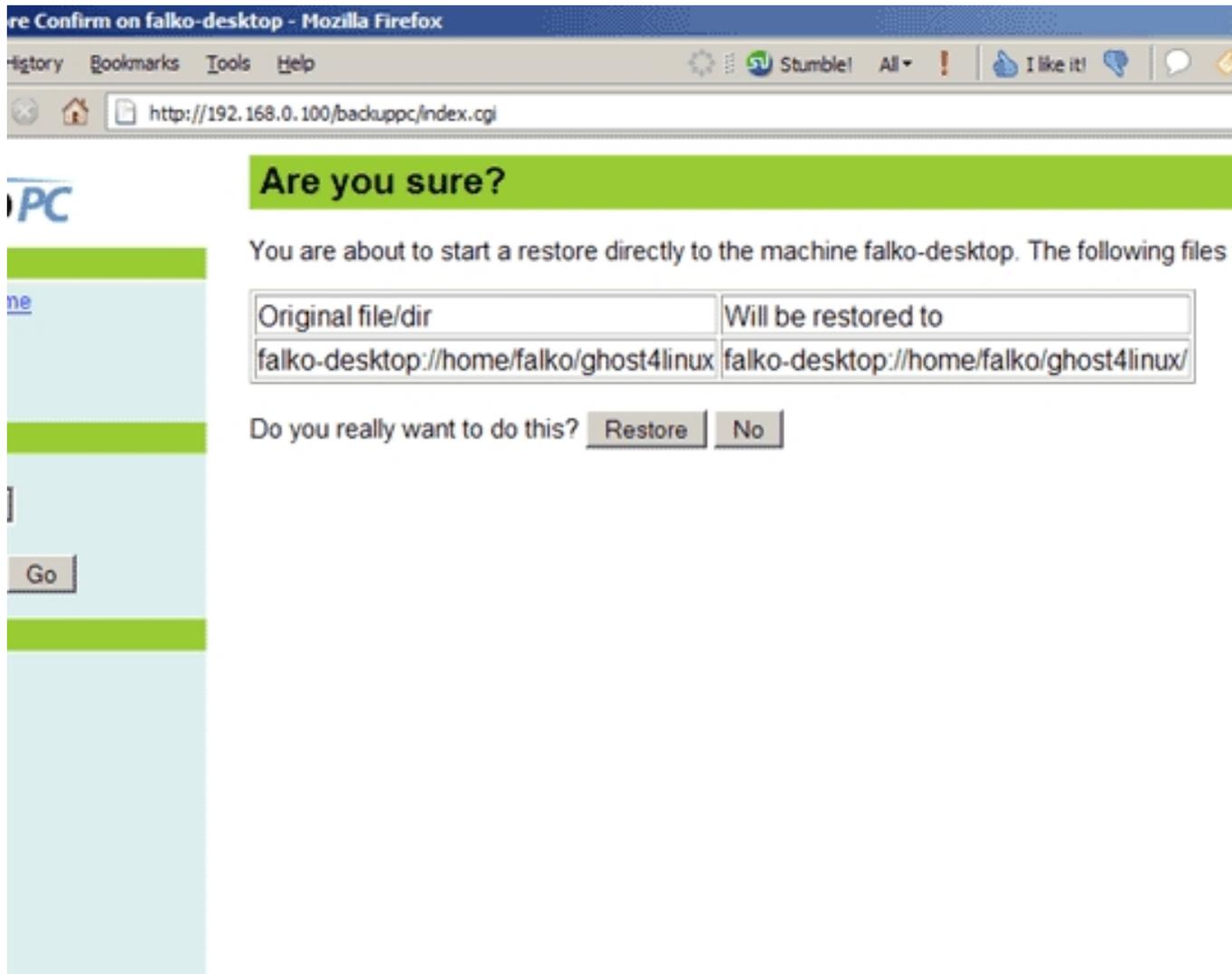
Restore the files to share

Restore the files below dir
(relative to share)

Option 2: Download Zip archive

You can download a Zip archive containing all the files/directories you ha

Confirm this by clicking on *Restore*:



The recovery begins:



Restore requested to host falko-desktop, backup #0, by back

Reply from server was: ok: requested restore of falko-desktop

Go back to [falko-desktop home page](#).



BackupPC: Host Summary

This status was generated at 1/19 17:38.

Hosts with good Backups

There are 1 hosts that have been backed up, for a total of:

- 1 full backups of total size 3.64GB (prior to pooling and compression),
- 0 incr backups of total size 0.00GB (prior to pooling and compression).

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days	State	Last att
falko-desktop	falko	1	0.0	3.64	1.46	0		restore in progress	

Hosts with no Backups

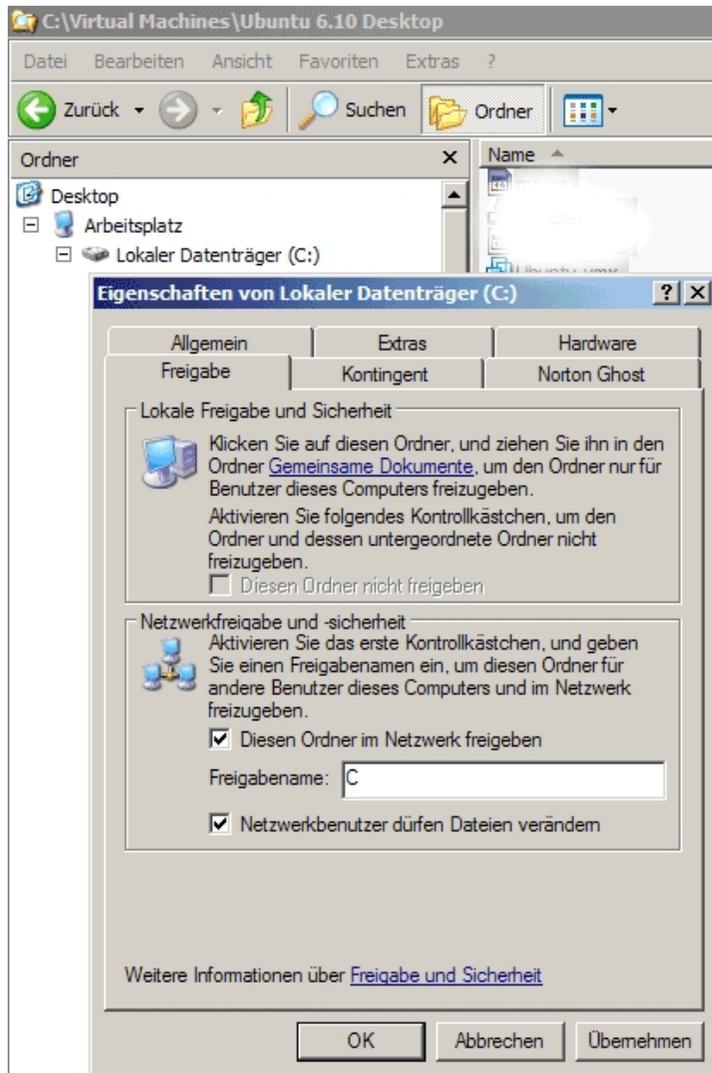
There are 0 hosts with no backups.

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days	Current State	Last backup attempt
------	------	-------	---------------	--------------	--------------	-------	---------------	---------------	---------------------

8 Add The Windows System notebook As A Backup Client

To make backups of Windows systems using *smb*, we must share the folder that we want to back up. In this case I want to backup the whole *C:* drive, so I

right-click on it in the Windows Explorer and go to *Sharing*. As share name I specify *C*.



Next, on `server1.example.com`, I add a line for `notebook` to `/etc/backuppc/hosts` (I do this as root). In this case I use `falko` again as the user. If you use a different username than before, make sure you create it on the system and for the BackupPC web interface, as shown in chapter 5.

server1.example.com:

```
vi /etc/backuppc/hosts
```

```
[...]  
falko-desktop 0 falko  
notebook 0 falko  
#localhost 0 backuppc
```

Then create the file `/etc/backuppc/notebook.pl` and add all options that are different from the ones in `/etc/backuppc/config.pl`. In this case we add `$Conf{XferMethod} = 'smb' ;`. Our share name is `C`, so we put `$Conf{SmbShareName} = 'C' ;` into it as well as the username and password for the Windows share:

```
vi /etc/backuppc/notebook.pl
```

```
$Conf{SmbShareName} = 'C';  
$Conf{SmbShareUserName} = 'username';  
$Conf{SmbSharePasswd} = 'password';  
$Conf{XferMethod} = 'smb';
```

Then restart BackupPC:

```
/etc/init.d/backuppc restart
```

Then reload the BackupPC web interface again. You should now find *notebook* in the list of clients:

BackupPC: Host Summary

This status was generated at 1/19 17:41.

Hosts with good Backups

There are 1 hosts that have been backed up, for a total of:

- 1 full backups of total size 3.64GB (prior to pooling and compress)
- 0 incr backups of total size 0.00GB (prior to pooling and compress)

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Ag
falko-desktop	falko	1	0.0	3.64	1.46	0	

Hosts with no Backups

There are 1 hosts with no backups.

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Ag
notebook	falko	0		0.00		0	

You can start the first backup of *notebook* manually or wait until BackupPC starts it:

BackupPC: Host Summary

This status was generated at 1/19 17:42.

Hosts with good Backups

There are 1 hosts that have been backed up, for a total of:

- 1 full backups of total size 3.64GB (prior to pooling and compression),
- 0 incr backups of total size 0.00GB (prior to pooling and compression).

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days	State	Last attempt
falko-desktop	falko	1	0.0	3.64	1.46	0		idle	restore done

Hosts with no Backups

There are 1 hosts with no backups.

Host	User	#Full	Full Age/days	Full Size/GB	Speed MB/sec	#Incr	Incr Age/days	Current State	Last ba
notebook	falko	0		0.00		0		backup in progress	

That's it already for Windows clients.

Happy backuping! ;-)

9 Links

- BackupPC: <http://backuppc.sourceforge.net>
- BackupPC Documentation: <http://backuppc.sourceforge.net/faq/BackupPC.html>