



# Using the Linux Samba Client with iSeries NetServer

*IBM @server iSeries*

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# Objectives:

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1. Understand the Linux client support provided by AS/400 NetServer in V5R1.
2. Learn to use Samba client utilities like smbclient, smbmount and smbprint.
3. Learn to resolve common issues encountered when using Samba with AS/400 NetServer.

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# Agenda

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- 🎸 What can this do for me?
- 🎸 What is Samba ?
- 🎸 iSeries NetServer Support for Samba
- 🎸 Getting Connected using Samba
- 🎸 Useful Samba Client Utilities
- 🎸 Troubleshooting Tips
- 🎸 More Samba Information



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# What can Samba do for me?

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Use Linux workstations to access data and applications on iSeries server.



Replace Microsoft desktops with Linux workstations and continue to access the same data on your iSeries server.



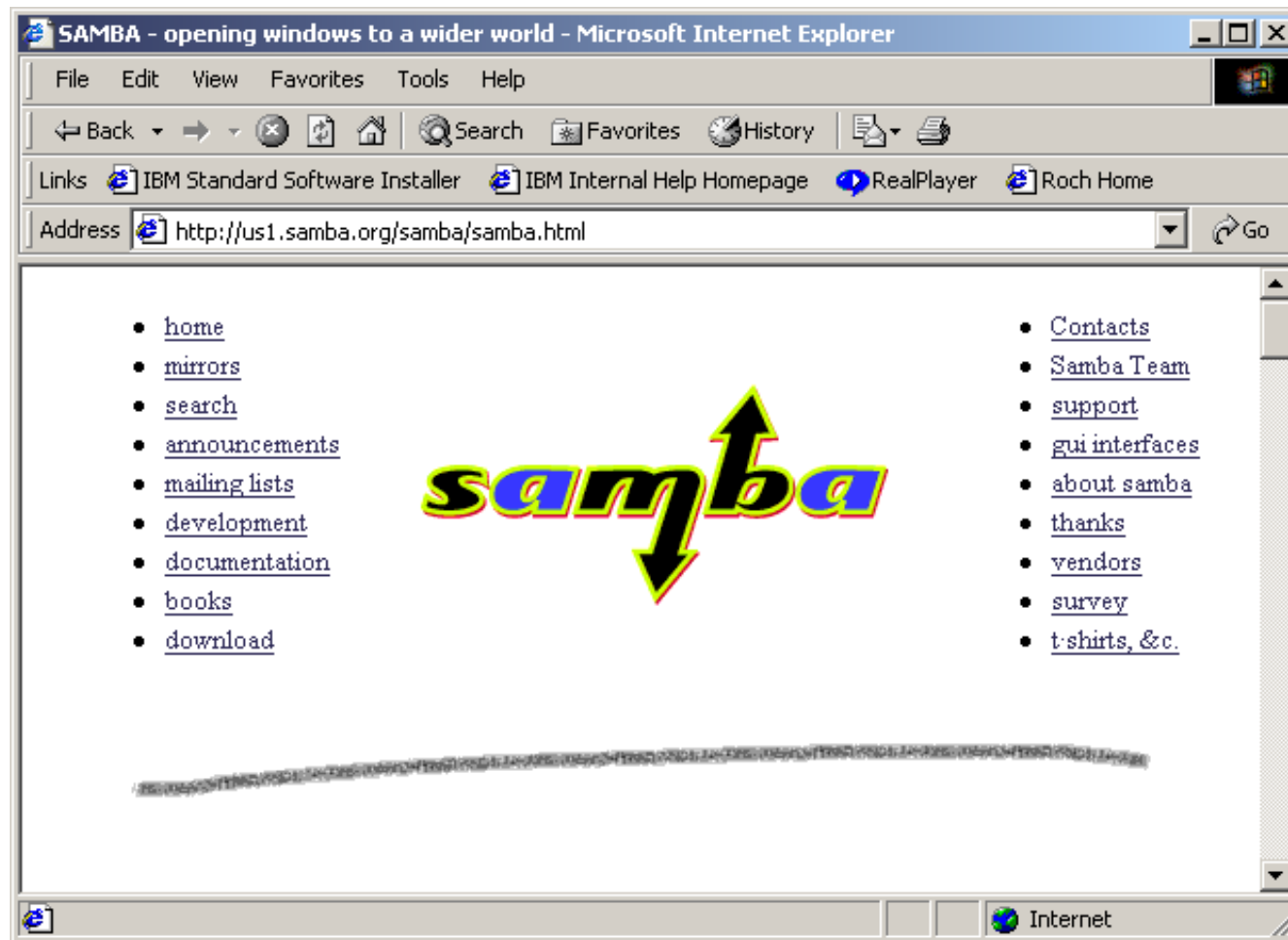
Migrate workstation/application environments to Linux and maintain connectivity with data on your iSeries.

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# What is Samba?

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www.samba.org



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# What is Samba?

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-  Samba is an Open Source file server and client compatible with Microsoft Networking, that comes with many current distributions of Linux.
-  SaMBa - Unix implementation of the SMB protocol (CIFS) maintained by the Samba Team.
-  Provides many functions similar to those provided by Windows Networking, such as file access, name serving, and browse mastering.



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# What is Samba?

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- ★ A common way to get at the Network Neighborhood
- ★ Free, Popular
- ★ Improving
- ★ Licensed under GPL
- ★ Highly configurable
- ★ Vendor independent
- ★ Essential to the value proposition of Linux on iSeries



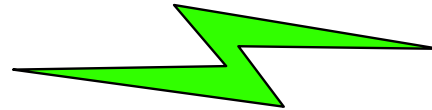
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# iSeries NetServer Support for Samba

*The New Support*

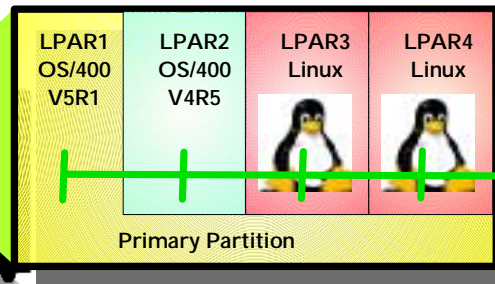
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- Stand-alone Linux client



- iSeries NetServer
- iSeries V5R1 + Linux PTFs

- V5R1 LPAR
- Linux Partitions
- Samba is client to local LPAR #1 and remote iSeries NetServer



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# Getting Connected Using Samba

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1. Apply all the PTFs on the iSeries server.
2. Make sure your Linux workstation is running a supported kernel version.
3. Install the Samba client on the Linux workstation.
4. Use a Samba utility to connect to the iSeries NetServer.

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# Getting Connected using Samba

*Apply the V5R1 iSeries PTFs*

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★ Apply these PTFs to 5722-999

MF27247 - general

MF27248 - file

MF27249 - print

MF27294 - locking

MF27295 - security

★ Apply this PTF to 5722-SS1

SI02179 - XPF



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# Getting Connected using Samba

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## *Checking the kernel level*

- Kernel version is not the distribution.
  - Redhat 7.2 vs kernel 2.4.18
- Kernel version convention: major.minor.patchlevel
  - If minor is odd (e.g. 2.5.x), it is a development version - BEWARE
  - If minor is even (e.g. 2.4.x), it is a stable version.
- 2.4.x kernel is required to connect to iSeries NetServer.

Patchlevel 4 is required by service to provide contracted support.

### EXAMPLE

```
$ uname -a
```

```
Linux samwise 2.4.9 #1 Sun Apr 8 19:37:14 EDT 2001 i586 unknown
```



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# Getting Connected using Samba

## *Checking the Samba Version:*

- ★ Most Linux distributions use a RPM (Redhat Package Manager) method of deploying software.
- ★ Samba consists of 1 or more packages depending on your version and distribution.
- ★ To determine if you have Samba installed use the following command:

### Example 1: RedHat

```
$ rpm -qa | grep samba  
samba-common-2.2.1a  
samba-client-2.2.1a  
samba-2.2.1a
```

### Example 2: SuSE

```
$ rpm -qa | grep smb  
smbclnt -2.2.0a-9
```



# Getting Connected using Samba

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## *Installing Samba*

### Acquire the Samba package

 From a distribution CD

 From the web (e.g. [www.samba.org](http://www.samba.org))

### Backup any Samba config files that already exist on your system.

smb.conf (in `/etc/samba` or `/etc`)

smbpasswd

smbusers

`/etc/rc.d/init.d/smb`

`/etc/pam.d/samba`

### Install the package using a graphical utility or rpm.

rpm install example:

```
$ rpm -ivh samba-client-2.0.7.4.i386.rpm
```

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# Useful Samba Client Utilities

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- ▶ smbclient
- ▶ smbmount
- ▶ smbmount
- ▶ smbprint
- ▶ nmblookup



## Notes:

- Different versions of Samba may come with other utilities, but IBM has not tested the interoperability of these utilities with iSeries NetServer .
- Although smb.conf is primarily a Samba server configuration file, these client utilities may scan it and make use of some options such as "wins server".

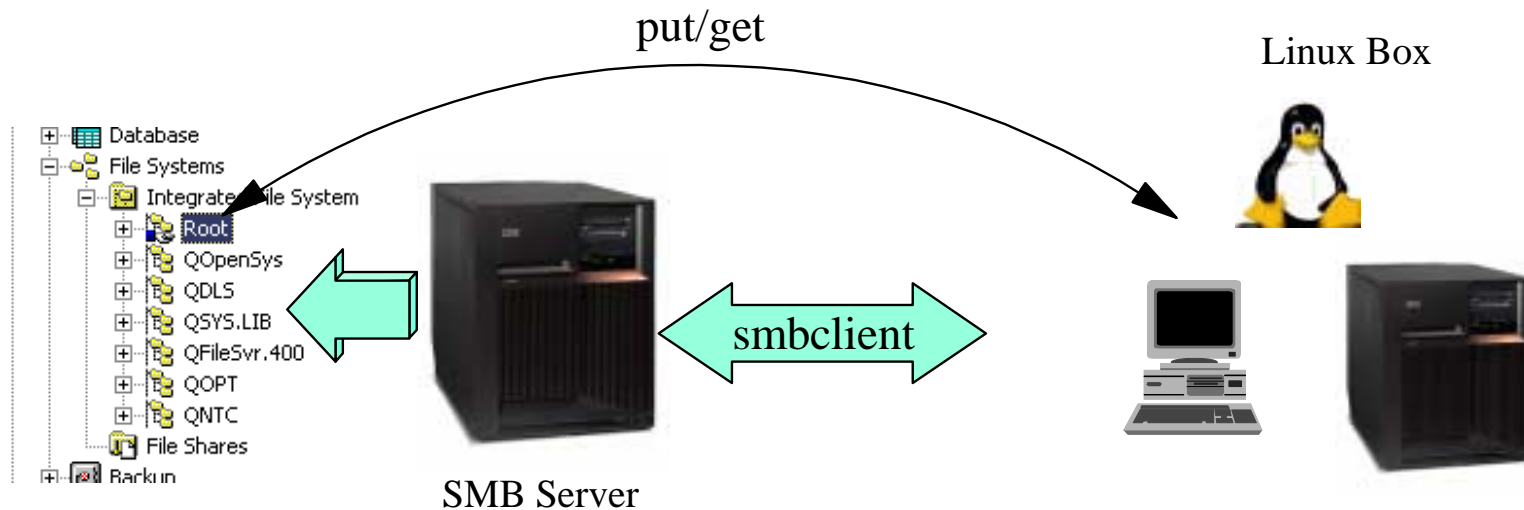
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# Useful Samba Client Utilities - smbclient

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## Samba SMB client function

Like ftp session



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# Useful Samba Client Utilities - smbclient

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- ♪ Command line utility similar to FTP, but using SMB protocol
- ♪ FTP-like syntax (get, put, lcd)
- ♪ Can be used in shell scripts and files just like FTP
- ♪ Attempts to connect to server when invoked
- ♪ General command form

```
smbclient servicename[-U username][options]
```

*servicename = server and share name to connect to*  
*options = **man smbclient** to see all the options*

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# Useful Samba Client Utilities - smbclient

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1. Obtain a list of available shares.

```
$ smbclient -L //mynetsvr -U user
```

2. Connect to an iSeries NetServer share.

```
$ smbclient //mynetsvr/myshr -U user1
```

3. Using smbclient commands.

```
smb: \> cd mydir
```

```
smb: \mydir> put myfile.txt
```

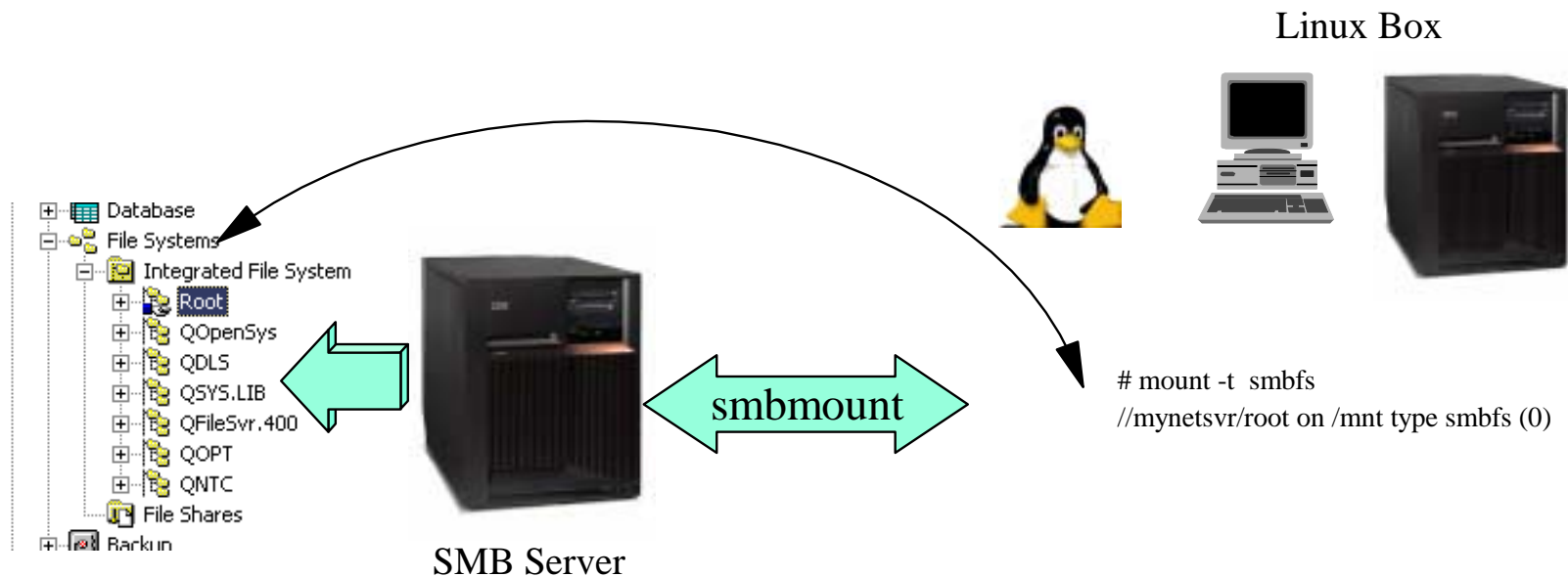
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# Useful Samba Client Utilities - smbmount

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## Linux Samba client function

Equivalent to "mapping a network drive" in Windows



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# Useful Samba Client Utilities - smbmount

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- ♪ smbmount maps the *smbfs* file system.
- ♪ Instead of drive letters, the *smbfs* file system is mounted over a mountpoint.
- ♪ Normal Linux commands and APIs are used to interact with the *smbfs* file system.
- ♪ *root* authority is required to mount an arbitrary file system.
- ♪ There is no limit to the number of mount-points you can have.
- ♪ */etc/fstab* file

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# Useful Samba Client Utilities - smbmount

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1) Mount a share specifying user options.

```
# smbmount //mynetsvr/smbshare /usr/mnts/as400  
-o username=smbuser,password=password
```

2) Determine which shares have been mounted.

```
# mount -t smbfs  
or  
# cat /proc/mounts | grep smbfs
```

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# Useful Samba Client Utilities - smbmount

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- ♪ Samba equivalent of NET USE X: /DELETE in Windows
- ♪ Same authority restrictions as smbmount
- ♪ The only argument is the path of the mount point
- ♪ Will fail if the actual connection has ended

**To cleanup, root must use umount to remove these entries**

## Example:

```
# smbmount /usr/mnts/as400
```

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# Useful Samba Client Utilities - smbprint

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- ♪ A shell script, but not used as a command line utility (*/usr/bin*)
- ♪ Redirects lpr type output to the smbclient utility.
- ♪ Generally, lpr/lpd is preferred since they are native Linux services
- ♪ May be implemented differently for each distribution, check the smbprint script for instructions and expected file locations.
- ♪ AFP and SCS printing are not supported through Samba.
- ♪ Use print configuration tools if they are available with your distribution.

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# Useful Samba Client Utilities - smbprint

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*How to:*

1. Create an OUTQ on the iSeries.
2. Create a printer share on the iSeries.
3. Config the /etc/printcap file.

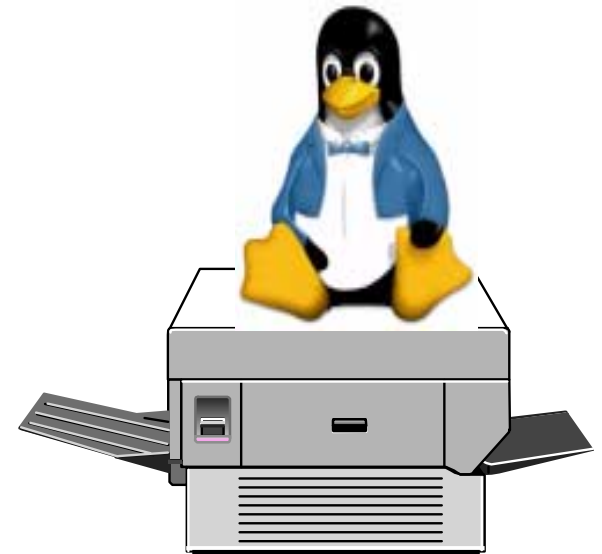
Use GUI utilities like **printtool** if available

4. Restart the lpd daemon.

```
$ /etc/rc.d/init.d/lpd restart
```

5. Print the file.

```
$ lpr -P myprinter myfile
```



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# Useful Samba Client Utilities - nmblookup

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- 🎸 Samba equivalent of **nbtstat** in Windows
- 🎸 Useful for resolving connectivity issues.
- 🎸 Use -S option to perform a node status request (like **nbtstat -a**)
- 🎸 nmblookup does not use Domain Name Service (DNS).

```
$ nmblookup -S myWorkstation
querying myLinuxWorkstation on 9.X.X.255
9.X.Y.Z myLinuxWorkstation<00>
Looking up status of 9.X.Y.Z
receiving 9 names
....
```

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# Troubleshooting Tips

## smbclient problems

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- ★ Socket errors on smbclient connection (`write_socket_data` error)



**iSeries NetServer has been ended since the connection was established**

- ★ smbclient queue command doesn't show the names of the shared output queue entries.



**File names being printed are not available on the iSeries implementation.**

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# Troubleshooting Tips

## smbmount problems

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★ Mount of a share fails. The system name is unknown.

 **There is a name resolution issue. Things to check:**

- TCP/IP configured correctly and active on Linux
- AS/400 NetServer is active and named correctly
- If you server and client are not on the same subnet, WINS or local name resolution must be configured on the client.

★ You receive "session request to *sysname* failed" message, then smbmount works.

 **There is a mismatch between the name used by the client and those recognized by iSeries NetServer. Change Server Alias to \*SYSTEM or configure WINS on Linux client.**


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# Troubleshooting Tips

## smbfs problems

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★ "ls -l" on a directory shows all files owned by the same user

 SMB protocol doesn't handle this information. All objects will be owned by the user specified on the mount command.

★ Can't change the owner of a file.

 You can't change the owner of a file unless you are already the owner.

★ Authority problems for users accessing files in a mounted file system.

 SMB protocol doesn't handle the needed Linux authorities. Check authorities on the iSeries system, as well as the perceived authorities on the Linux system. You may need to remount with a different UID and fmask/dmask permissions specified.

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# Troubleshooting Tips

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Many more troubleshooting tips are available on the iSeries NetServer Linux web page.

**Troubleshooting FAQs for the Samba client** [link](#)

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# More Samba Information

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 iSeries NetServer Linux web page

<http://www.ibm.com/servers/eserver/series/netserver/linux.htm>

 Samba web pages

<http://www.samba.org>

 Up to date kernel information

<http://www.kernel.org>

 Linux

<http://www.ibm.com/series/linux>

<http://www.linux.org>



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