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# Administration of Operating Systems

Samba  
Chapter 23

November 28, 2011

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Systems  
Lab

# Samba

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- Free implementation of SMB/CIFS protocol
  - file and print services
  - authenticated inter-process communication
  - for Microsoft Windows clients
  - work in Windows Server domain
  - as Primary Domain Controller or member
  - can be part of Active Directory domain
- Uses TCP port 445
  - or over NetBIOS API
- Protocol optimised for LAN
- SMB2 introduced in Windows Vista
  - SMB2.1 introduced in Windows 7

# Interoperability

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- NFS clients for Windows exist
  - can be used to share files
- Microsoft Windows demonstrates a lot more of a “hub of the world” mentality
  - it’s easier for Linux to pretend to be Windows
  - than to get Windows to admit that Linux exists
- Samba allows to share more than files
  - printers
  - serial ports
  - IPC: named pipes, RPC, DCOM, WMI, ...
- For files, NFS is actually a better protocol
  - does not matter in practice most of the time

# smb.conf

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- Complex file
- Several sections
  - [global]
  - [homes]
  - [ipc\$]
  - [printers]
  - [share name]
- Many parameters within each section
  - name = value
- *A lot* of options
  - with complex dependencies
- testparm utility

# Samba Configuration

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- Guest account
  - nobody
- IP address security
  - hosts allow & hosts deny
- clear text or encrypted passwords
- user access list
  - invalid users
- security
  - user
  - share
  - server, domain, ads
- Username map

# NetBIOS

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- Windows Network Neighbourhood
  - My Network Places
- Session layer of the OSI model
- Can run on top of TCP
  - but can also use other protocols
- API
  - not network protocol
- Name service
  - register, delete & find names
- Session service
- Datagram service

# Samba Utilities

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- `nmbd`
- `smbd`
- `net`
- `smbtree`
- `smbclient`
- `smbpasswd`
- `nmblookup`
- `pdbedit`
- `swat`
- `testparm`
- `mount -t cifs`



# Security

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- Uses username & password for authentication
  - can use LDAP / NIS / PAM / etc
- Passwords are usually sent encrypted
  - older Windows version use clear text
- Windows users should *map* to Linux user names
  - can be one-to-one mapping
  - can be many-to-one mapping
  - determines file-level permissions
- `sudo smbpasswd ide`
- `sudo smbpasswd -a slawek`
- Complex system
  - has a history of serious vulnerabilities



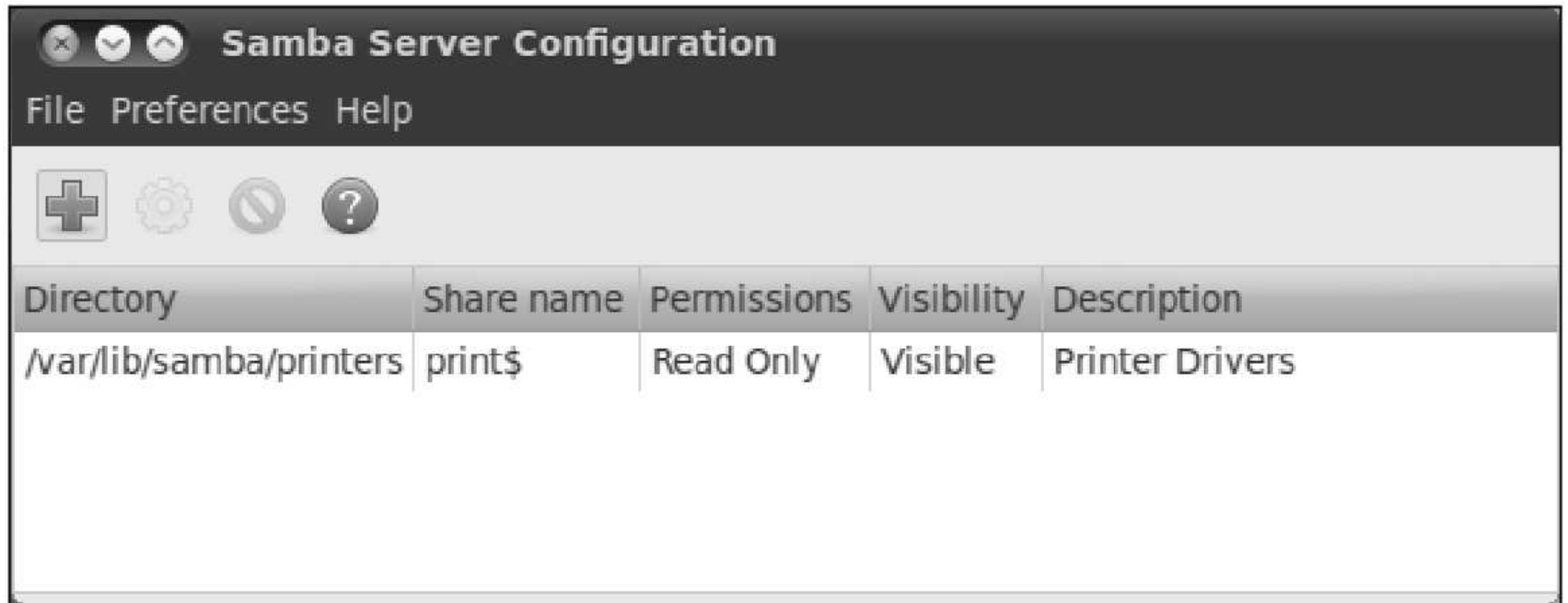
# Shares-Admin

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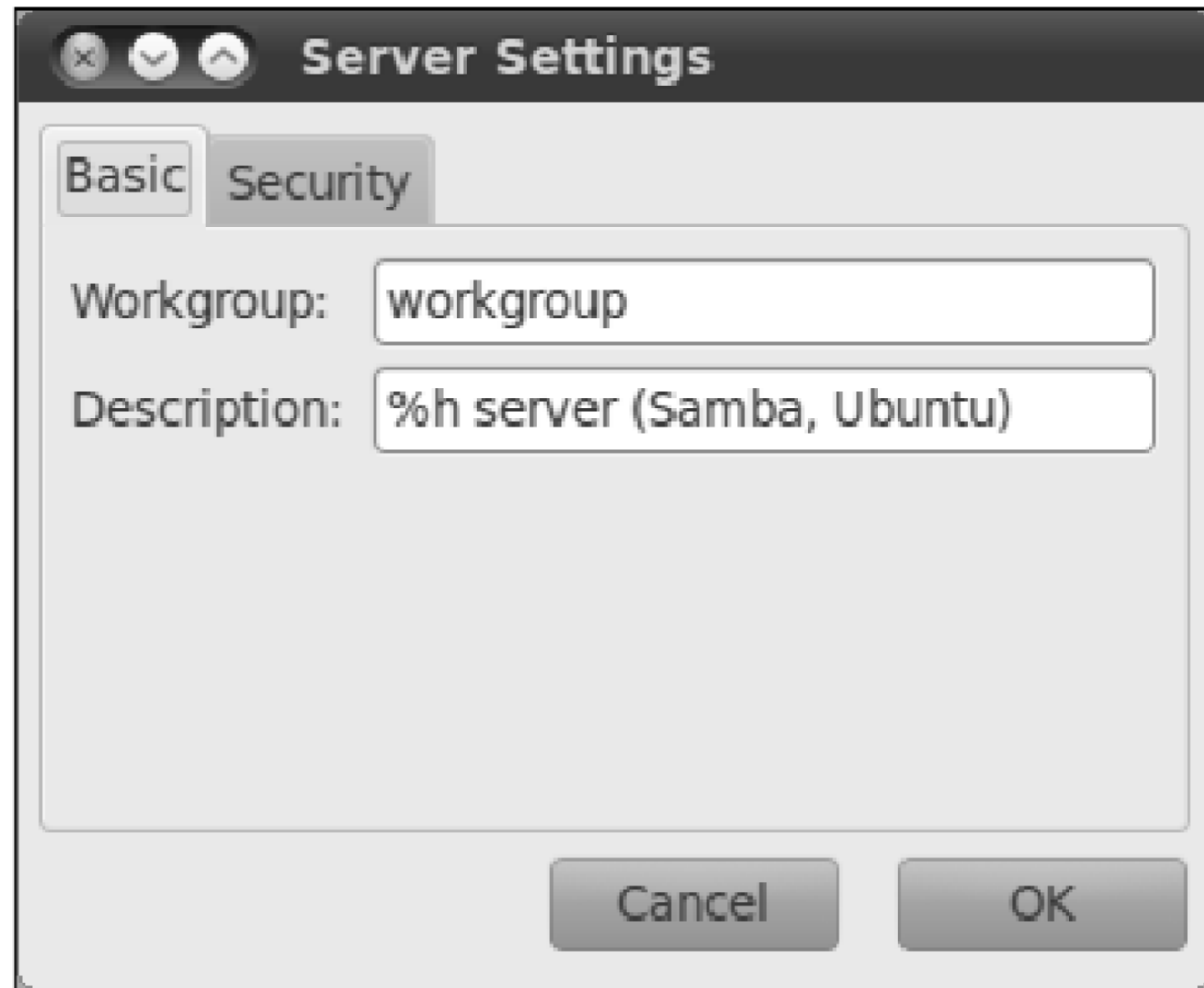


- Basic configuration utility
  - for Samba and NFS
- Define users
- Path and share name
- Workgroup
- WINS server

# Shares-Admin



**Figure 23-1** Samba Server Configuration window



**Figure 23-2** Server Settings window, Basic tab

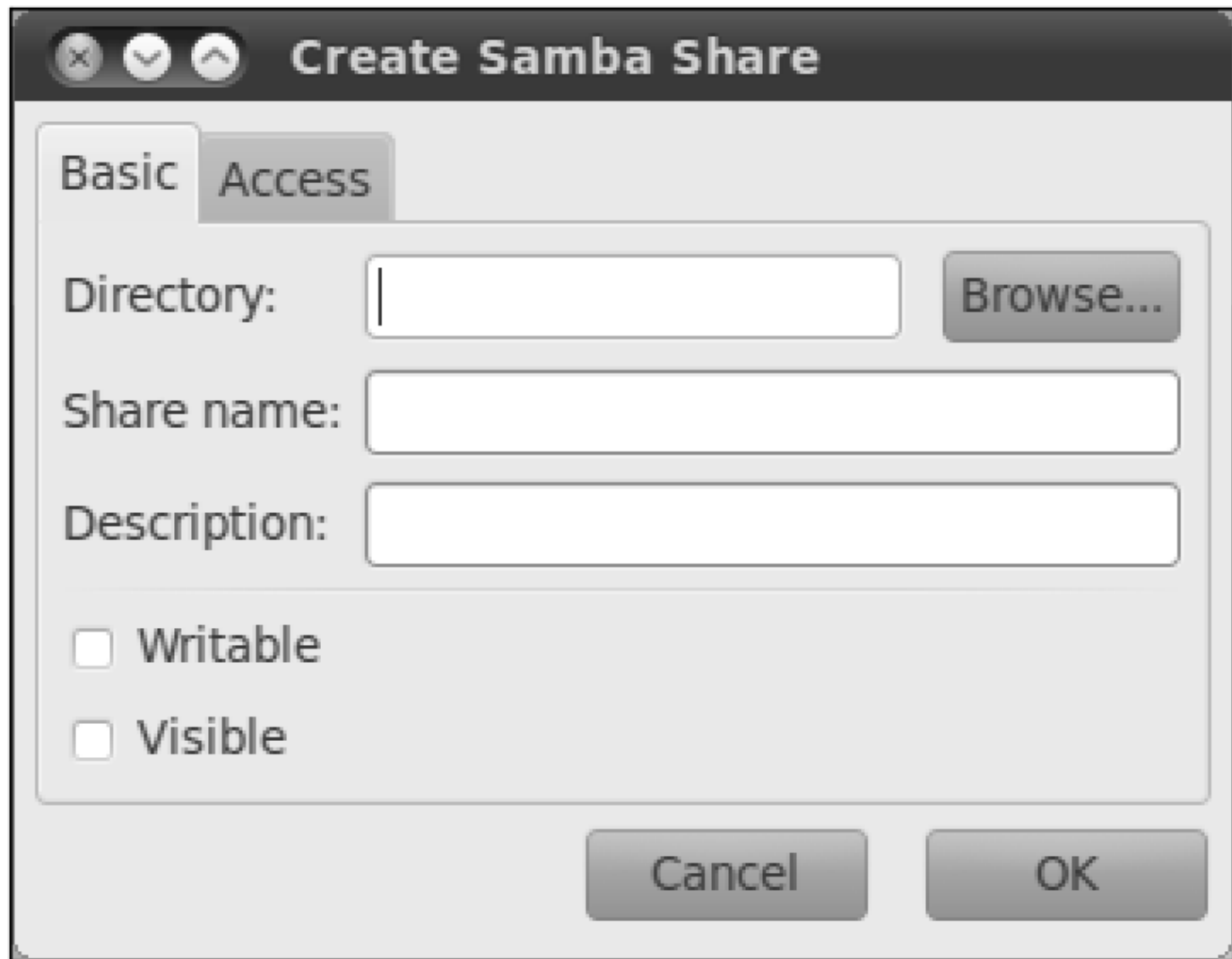
# Shares-Admin



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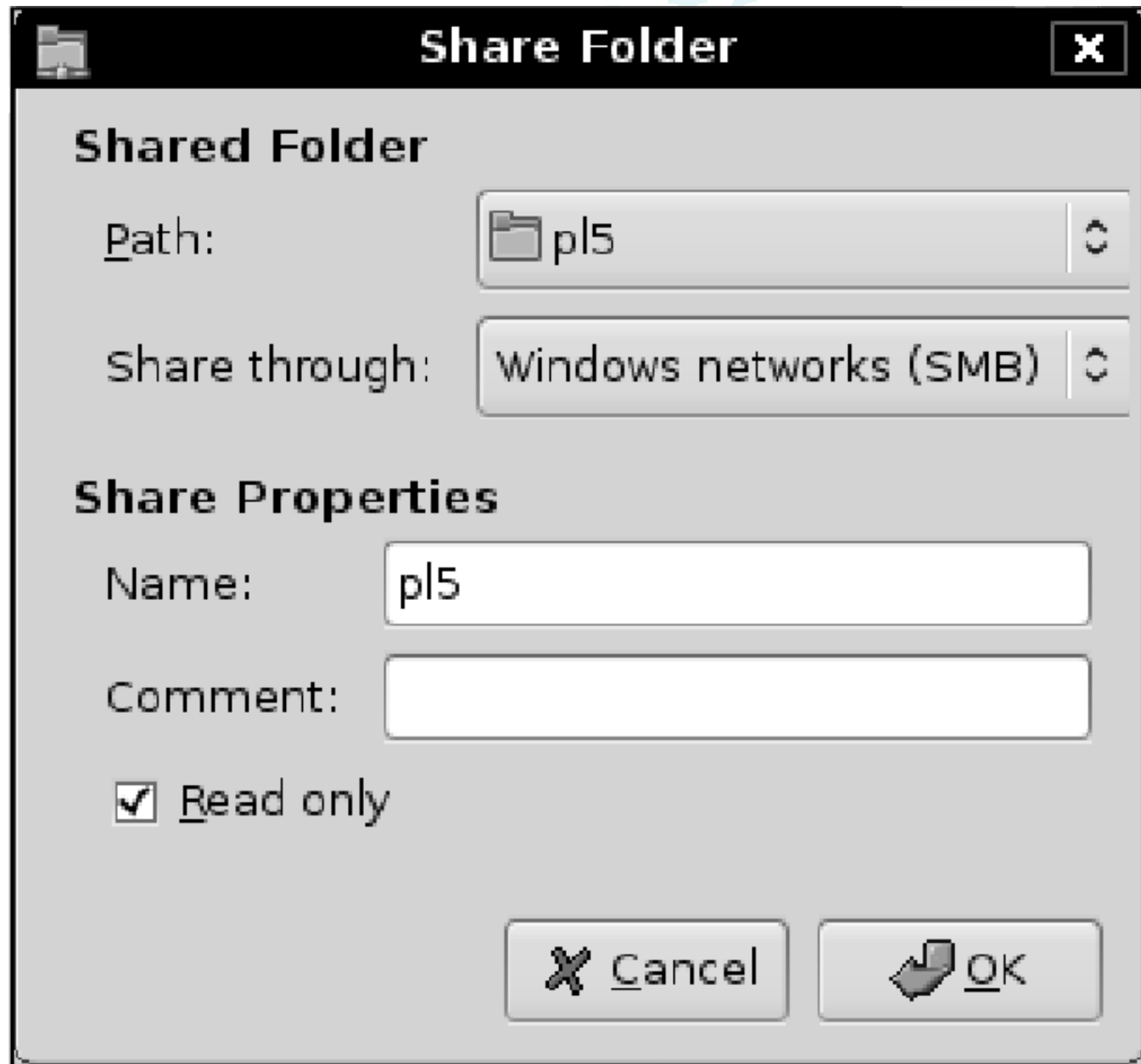


**Figure 23-3** Samba Users window



**Figure 23-4** Create Samba Share window, Basic tab

# Shares-Admin



# Swat

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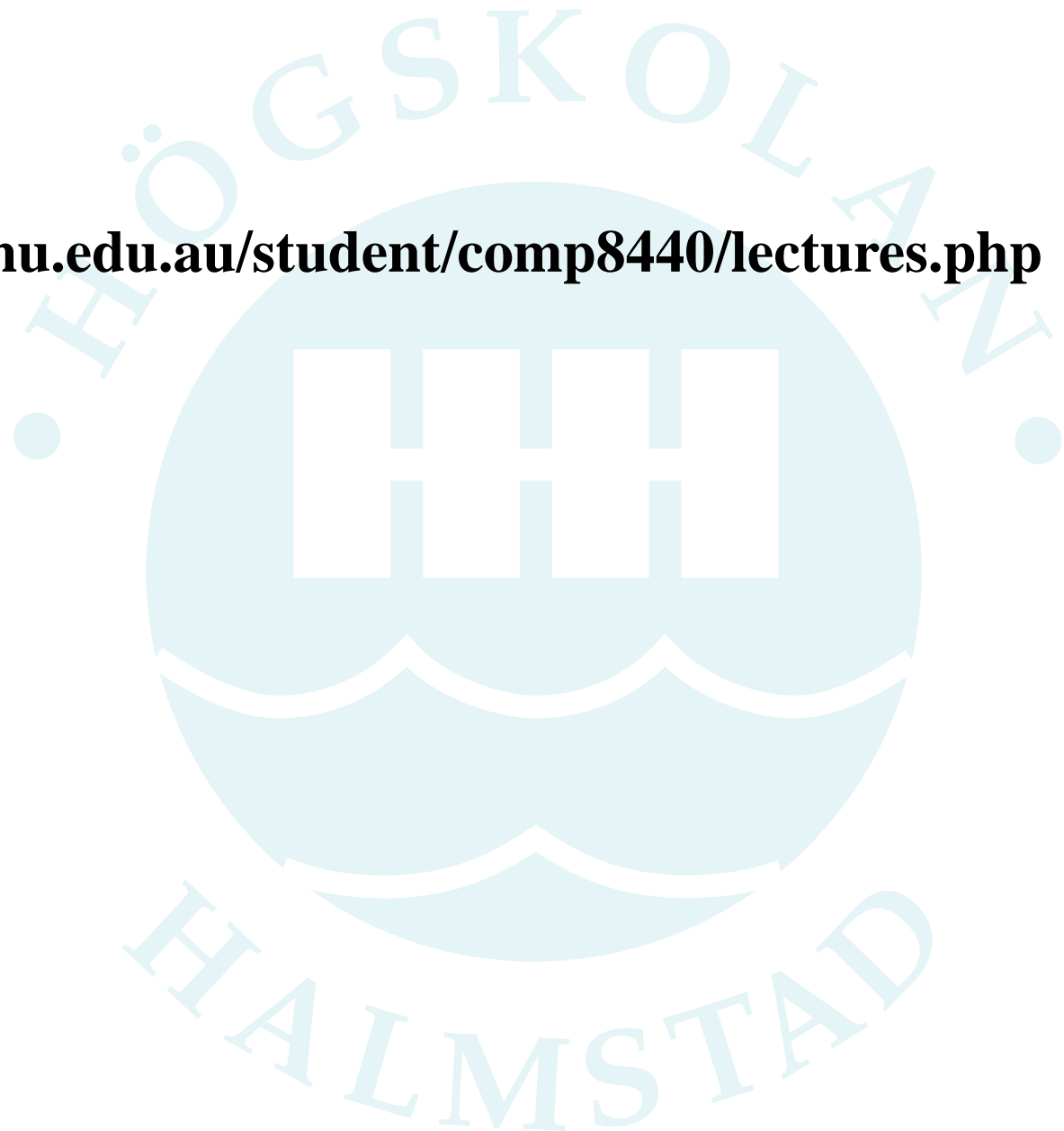


- Easy to use
  - generates good configurations
  - offers basic & advanced view
- Extensive help system
  - description of every available option
- Used to require enabling root password
  - very bad
  - `sudo passwd root`
  - `sudo passwd -dl root`
- Can be done better nowadays
  - `chmod g+w smb.conf`
  - `chgrp adm smb.conf`



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<http://cs.anu.edu.au/student/comp8440/lectures.php>







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**Questions?**

