

A
Northern Illinois University
Academic Computing Services
WorkShop

Netware File Management

Sharing Information With Others

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The purpose of this workshop is to demonstrate the operations available to a personal computer attached to a Netware file and print server. The operations are demonstrated through the menu utilities SYSCON, SESSION, FILER, SALVAGE, and PCONSOLE. The following topics are covered.

Server Access
Login Scripts
Directory Mapping
Directory Access
File Management
Printer Access

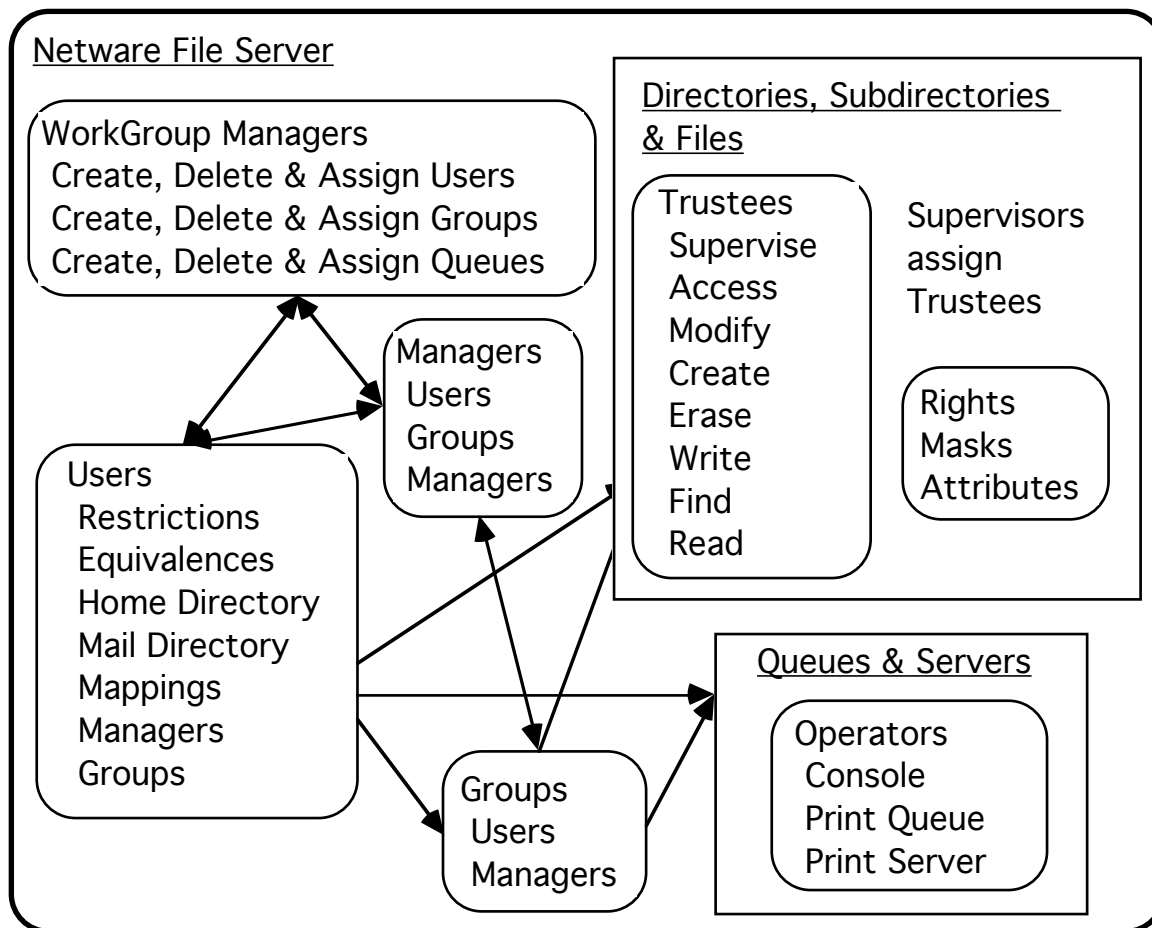
The benefit of the network is to share resources of others, to share your resources with others, and to maintain control of your resources.

There are several components to Netware that you should recognize:

User, Group, Manager, and WorkGroup Manager
Directory, Subdirectory, and File
Trustee, Supervisor, Rights, Mask, and Attribute
Server, Queue, and Operator

A server on a network is a multi-user environment, very much like a mainframe environment.

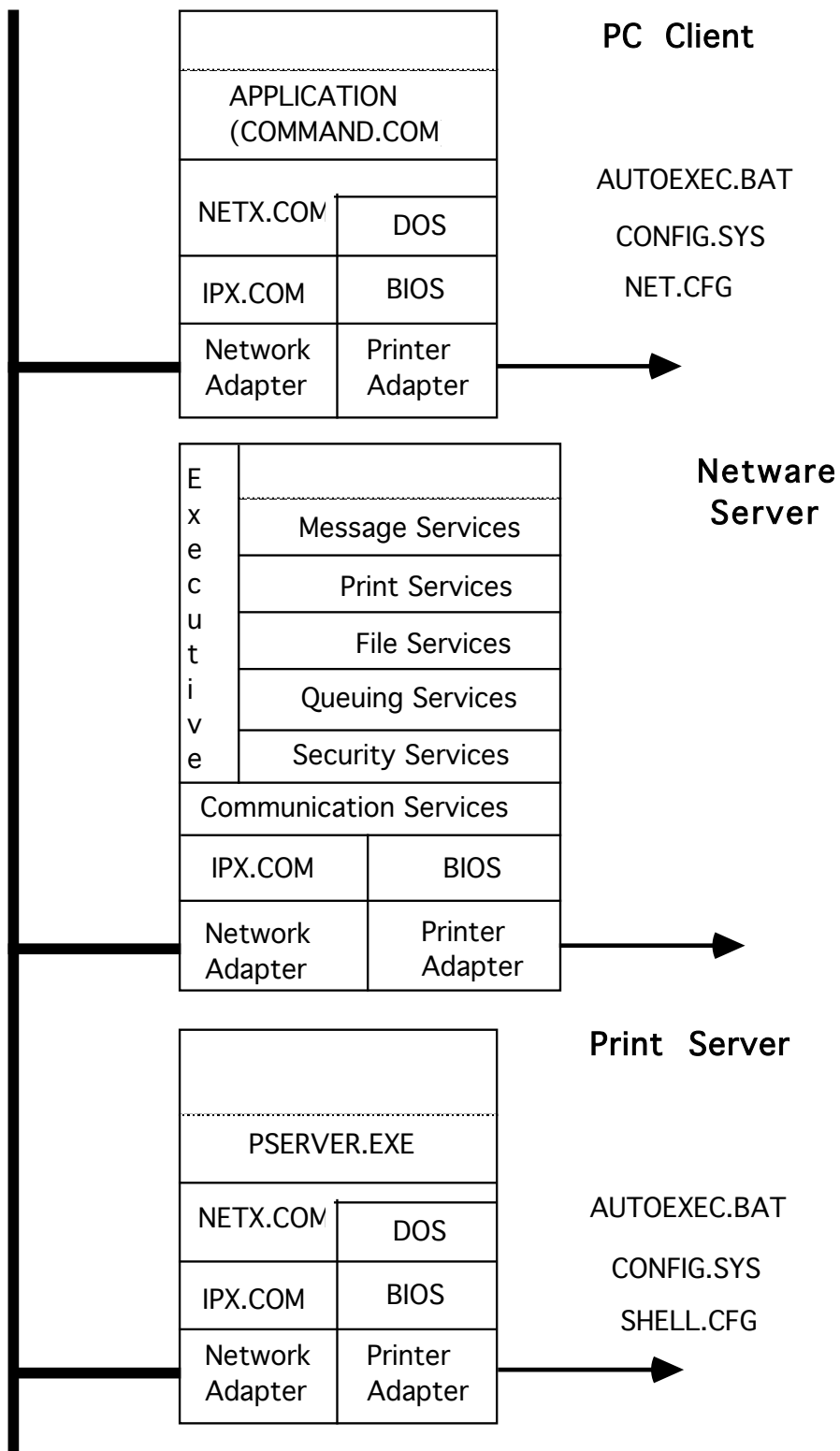
There is security for the server, for directories, and for files.
 You must first identify yourself as a user to the server,
 then you can use the services of the file and print servers.
 Users have further rights to various directories, files, and printers.



Server Access is given to users by WorkGroup Managers.
 Restrictions on user access are controlled by Managers
 set up by the WorkGroup Managers for the Users.
 Groups are created by WorkGroup Managers
 and assigned to Managers to simplify the management of Users.

Directory and File Access is controlled by Trustees.
 Users and Groups are made Trustees by Supervisors,
 that is, Trustees with the Supervise Right.
 Often, Managers are also Supervisors.
 The original WorkGroup Manager and Supervisor is the User SUPERVISOR.

Queue Operation is controlled by Operators who have been assigned the task by WorkGroup Managers.



Server Access

A Netware File Server provides:

security services for control of multiuser access to other services,
queuing services for management of requests for other services,
file services for storage and distribution of information,
printer services for presentation of information,
message services for transfer of information,
and other services.

Loading LSL.COM, network drivers, IPXODI.COM and NETX.COM (EMSNETX.EXE or XMSNETX.EXE) from your AUTOEXEC.BAT file places your system on the network and makes a connection with the nearest Netware server. Your personal computer is configured for DOS in CONFIG.SYS and for Netware in NET.CFG.

You can use menu or command utilities to access the services, but most often NETX waits for other commands to request directories, files, and printers only to interpret your commands and send instructions to a Netware server.

This process make it appear as though directories, files, and printers on the server are directly attached to your personal computer. You have access to one directory of commands on the server without logging in.

f:	Makes the server LOGIN directory the current directory.
slist	Displays a list of Netware servers on the network. Note the default server.
login	Prompts for a username and password.

studnt00 Identifies you as a particular user.
Replace the two digits 00 with
the numbers on your keyboard in the lab.

From the menu, Exit to DOS so that you can type in commands.
Many Netware utilities provided a list of their command line options
when you follow the command with the /? option.

login /? Displays command line options.

logout /? Displays command line options.

logout Disconnects from the server.

login acs/studnt00 Identifies a user to a server
and prompts for a password.

Exit to DOS as above to get a command prompt.
The ATTACH command allows you to have simultaneous access to
a second and subsequent servers.

attach acs/studnt00 Connects to subsequent servers
and prompts for a password.

Respond to the question *Do you still want to attach as STUDNT00 (Y/N)?*
by typing N because Netware logs you off a server
before it attaches you to that server.

whoami Identifies the current user.

whoami /? Displays help for the WHOAMI command.

userlist Displays a list of users and their access
times on the current server.

userlist /? Displays command line options.

setpass Prompts to change your password.
Respond *No*, if you want to use
different passwords on different servers.

setpass /? Displays command line options.

setpass acs/ Prompts to change your password
on a specific server.

Users are given access to Directories through direct assignment and through inclusion in groups. Groups are lists of usernames and groupnames that are given the same access rights to a resource. (Security_Equals) Groups should be given access to resources, such as directories and print queues, on a server, and then users should be added to groups and groups should be added to other groups that have access to resources.

Users, groups, managers, and supervisors are part of server control. Work Group Managers create, delete, and assign users, groups, and print queues.

(User Account) Managers and Work Group Managers

- Change Security Equivalences
- Assign Users to Groups
- Assign Users and Groups to Managers
- Change Group Status
- Change Account Balances and Restrictions
- Change Passwords
for the users and groups that
they have created or have been assigned
to manage.

A user or group can be given the identical rights as another user or group by creating a security equivalence to the other user or group. To control directories and files, a user or group must be made a trustee. To control services (resources), a user or group must be made an operator. Resources are (print, job, and archive) queues and servers with unique names. Each resource object can be read from or written to when the appropriate rights have been granted. Resources are separate from files and directories.

whoami /s	Displays security equivalences.
whoami /g	Displays group memberships.
whoami /r	Displays rights in all server directories. This is a long list.

Users are created by a WorkGroup manager and are identified by a username, a fullname, and a password. Users can be given a home directory on the server and a login script. The user should be assigned to a manager who assigns the user to selected groups and assigns selected rights to selected directories of files. Users are also restricted with the following characteristics.

- Password required
- Unique password
- Account expiration
- Password expiration
- Simultaneous connections
- Maximum disk space
- Access times
- Accessible stations

Once signed onto the server, the user can operate on his or her own PC by selecting item on menus or by entering commands at a prompt. The menu utilities, SYSCON, SESSION, FILER, SALVAGE, and PCONSOLE allow you to avoid memorizing (and forgetting) all the command options. They all use a simple set of keys to work:

To select an item, highlight an item by pressing the direction keys or the first unique letter in the item, and then press ENTER. In what follows the symbol "-->" at the beginning of a line indicates that you should select the named item (or any item if nothing is named after the symbol).

F1 Describes the available options.

F1 F1 Displays a the function key assignments.

F3	Modifies, edits, or renames the selected item.
F5	Marks or unmarks the selected item.
F6	Marks a set of items that match a pattern.
F7	Cancel marks and changes.
F9	Changes an option.
INS	Inserts an item.
DEL	Deletes the selected item.
BACKSPACE	Delete the previous character.
TAB	Cycles through the items on the menu.
ESCAPE	Returns to the previous menu.
ALT F10	Exits the menu application.

The SYSCON utility provides information about a user.

syscon	[.Available Topics Accounting Change Current Server File Server Information Group Information Supervisor Options User Information
--> File Server Information	[.Known File Servers
--> ACS	[.File Server Information
ESCAPE	[.Available Topics

```

--> User Information      [.User Names
-->STUDENT00            [.User Information
                          Account Balance
                          Account Restrictions
                          Full Name
                          Change Password
                          Groups Belonged To
                          Managed Users and Groups
                          Managers
                          Other Information
                          Security Equivalences
                          Station Restrictions
                          Time Restrictions
                          Trustee Directory Assignments
                          Trustee File Assignments
                          Volume/Disk Restrictions

```

Options are not shown if you do not have the right to change them. For instance, SYSCON can normally be used to change your password and edit your login script which arranges your environment on access.

```

--> Full Name           [.Full Name:
ESCAPE                 [.User Information

--> Other Information   [.Other Information
                          Last Login:
                          File Server Console Operator:
                          Disk Space In Use:
                          User ID:

```

Write down your User ID for later reference.

```

ESCAPE                 [.User Information

--> Security Equivalences [.Security Equivalences
ESCAPE                 [.User Information

```

```
--> Groups Belonged To      [.Groups Belonged To
                             EVERYONE (Group)
                             NOMAIL   (Group)
```

```
ESCAPE                      [.User Information
```

```
--> Managed Users And Groups [.Managed Users And Groups
```

```
ESCAPE                      [.User Information
```

```
--> Managers                [.Managers
```

```
A10ACSO
```

```
UAMGR
```

```
WGMGR
```

```
ESCAPE                      [.User Information
```

The managers, including in this case Work Group and User Account Managers, can change Account Restrictions.

```
--> Account Restrictions    [.Account Restrictions For User STUDNT00
```

```
Account Disabled:
```

```
Account Has Expiration Date:
```

```
Limited Concurrent Connections:
```

```
Allow User To Change Password:
```

```
Require Password:
```

```
Minimum Password Length:
```

```
Force Periodic Password Changes:
```

```
Limit Grace Logins:
```

```
Require Unique Passwords:
```

```
(Remembers 10)
```

```
ESCAPE                      [.User Information
```

```
--> Account Balance        [.Account Balance For User STUDNT00
```

```
ESCAPE                      [.User Information
```

The SYSCON utility can be used to display (and, if you have the right, to modify) the rights of a user to access directories and files.

The significance of the various rights are discussed with how to set these rights in the section about the FILER utility.

--> Trustee Directory Assignments

- ESCAPE [.Trustee Directory Assignments
- [.User Information

--> Trustee File Assignments

- ESCAPE [.Trustee File Assignments
- [.User Information

SYSCON can be used to get restrictions on your use of space on this volume.

- > User Information [.User Names
- >STUDENT00 [.User Information
- > Volume Restrictions [.Select A Volume
- > USER [.User Volume/Disk Restrictions
 - Limit Volume Space?
 - Volume Space Limit:
 - Volume Space In Use:
- ESCAPE [.Available Topics

The Group Information item on the SYSCON menu is similar to the User Information item.

- > Group Information [.Group Names
- > EVERYONE [.Group Information
 - Full Name
 - Managed Users And Groups
 - Managers
 - Member List
 - Other Information
 - Trustee Directory Assignments
 - Trustee File Assignments
- > Members List [.Group Members
- ALT F10 [.Exit SYSCON
- > Yes

Login Scripts

The User Login Scripts are stored in SYS:\MAIL\STUDENT00\LOGIN along with your mail directory.

The User Login Script is executed after a System Login Script and can be used to redefine standard identifications.

In the labs, the System Login Script is used to construct and display course-specific menus.

The SYSCON utility is used to edit the login scripts.

The STUDNT IDs do not have the rights to change their login scripts.

```

syscon                [.Available Topics
--> User Information  [.User List
--> STUDNT00         [.
--> Login Scripts    [.Login Script For User STUDNT00
ESCAPE               [.Do you want to exit?
--> Yes
ALT F10

```

The Login Scripts can contain the following commands:

ATTACH <i>servername/username</i>	
MAP INS S2:=SYS:PUBLIC\%MACHINE\%OS_VERSION	Describes where DOS can be found.
COMSPEC = S2:COMMAND.COM COMSPEC	Describes where COMMAND.COM can be found.
WRITE " <i>text %variable \</i> " \r \n \7"	Writes to the screen.
DISPLAY <i>filename</i>	Displays a file.
FDISPLAY <i>filename</i>	Displays only the printable characters in a file.
DRIVE G:	Change to the directory mapped to G:.
DOS SET <i>variablename</i> = " <i>value</i> "	Sets a variable for DOS use.
EXIT	
EXIT " <i>filename</i> "	Exits and executes a file.
FIRE PHASERS n TIMES	

INCLUDE *pathname/filename* Includes the commands
in the filename
in the login script.

PAUSE

REMARK REM * ;

IF ... THEN ... ELSE ... conditional branches can also be used in login scripts with the comparisons AND, OR, NOR, =, <>, >, <, >=, and <= and the delimiters BEGIN and END.

The variables known to the system include:

%LOGIN_NAME, %USER_ID, %STATION, %P_STATION, %MACHINE,
%NETWORK_ADDRESS, %FILE_SERVER, %OS, %OS_VERSION

Other variables (%0, %1, ...) can be set on the login command line and in the NET.CFG file which is read when the station logs into the server.

login /s Overrides the Login Scripts.

Directory and Search Maps

Using full pathnames to access files in a variety of directories is time consuming and error prone.

DOS and Netware keep track of several directories to make it easier to change the current directory.

DOS always keeps track of the current directory.

cd a: Changes the current directory
to the pathname a:\.

While most people think that A: in DOS refers to a particular drive, DOS actually stores a pathname or directoryname with A:.

Most often this pathname is the root directory (\) on your primary diskette drive.

The stored directoryname is called a mapping or just a map.

While many earlier books call these maps drives,

they seldom refer to the drives themselves

and they cause less confusion if recognized as pointers to directories.

These maps function as bookmarks.

Typing A: is a command which makes the directory mapped to A: the current directory.

a: Changes the current directory to the mapping of A:.

A map consists of a server, volume, and path:

server \volume : \ path

When the CD command is used to show the current directory, it displays the current map followed by the path to the current directory. The server and volume are usually not shown.

f: F: \studnt00 >
 Current Map^:^Current Directory

Earlier versions of DOS provided a SUBST command to set drives, but never provided a command to list the drive mappings. Netware provides the MAP command to do these things.

The MAP command uses letters to identify pathnames.

```
map                               Displays all current mappings.
Drive A:           Maps to a Local Disk
...
Drive F:           ACS\USER:    \STUDNT00
                  -----
SEARCH1:          C:\MOUSE
...
SEARCH5:          W:. [ACS\APPS:  \]
...

```

The maps A: through E: are left for DOS diskette and disk drives.

When a command is typed,

Netware uses the maps F:, G:, and so on to identify directories on the file server.

These mappings can be used anyplace that a pathname can be used.

The SEARCH maps are used by NETX to locate executable or batch files after checking the current directory is examined when you type a command at the DOS command prompt. They are similar to the DOS PATH and are searched before the directories in the PATH because NETX works before DOS. Netware *server/volume:* designations cannot be used in the PATH. Search maps and the PATH allow data files to be separated from directories of executables.

The maps are lost once you logout. The User Login Script can be used to reset your maps and display information for you when you login.

The SESSION utility allows you to manage your mappings (and send messages).

```

session                                [.Available Topics
                                        Change Server
                                        Drive Mappings
                                        Group Lists
                                        Search Mappings
                                        Select Default Drive
                                        User List

--> Drive Mappings                      [.Current Drive Mappings
                                        A          (Local Drive)
                                        ...
                                        F:         ACS\USER: \STUDNT00

--> f:                                  [.Effective Rights
ESCAPE                                  [.Current Drive Mappings

```

The system administrator has set up a set of maps that point to the software installed on the server. These maps are set in the System Login Script. You can change or add to these maps with the SESSION utility, the MAP utility at the command prompt, or with the MAP utility in the User Login Script.

Unless you set your maps in your User Login Script, they are lost when you logout.

```

INS          [.Drive:
g           [Select Directory:
INS         [.File Servers
--> ACS     [.Volumes
--> USER   [.Network Directories
--> STUDNT00 [.Network Directories
--> MYDIR   [.Network Directories
ESCAPE     [.Select Directory:
--> ACS\USER:\STUDNT00\MYDIR
           [.Do You Want To Map Root This Drive?
--> N      [.Current Drive Mappings
           G   ACS\USER:\STUDNT00\MYDIR

```

Mapping the drive as a root directory signals the CD command when you try to go to the parent of this directory that it is at the root of the volume and there is no parent.

```

ESCAPE     [.Avaliable Topics
--> Select Default Drive [.Select Default Drive
--> G      [.Avaliable Topics

```

The Default Drive sets the current map and its path as the current directory.

This is the directory that Netware and then DOS use to place text or data files and first look for executable files.

Maps can be used in front of filenames

when you save or retrieve your text or data files.

Netware can be made to look in additional directories for executables by making these directories Netware Search Directory Maps.

Established maps can be used in the search maps.

```

--> Search Mappings      [.Current Search Mappings
                        1
                        2
INS                     [.Search Drive Number:
5                       [.Select Directory
g:.                     [.Current Search Mappings

```

```

...
5          G:..
[ACS\USER:  \STUDNT00\MYDIR]
...
ALT F10      [.Exit Session?]
--> Yes

```

There are some problems when using the CD command to change the current directory because it also changes the current map.

```

f:          [.F:\STUDNT00 >
g:          [.G:\STUDNT00\MYDIR >
map         Drive F:    =ACS\USER:  \STUDNT00
           Drive G:    =ACS\USER:  \STUDNT00\MYDIR
cd ..       [.G:\STUDNT00 >
map         Drive F:    =ACS\USER:  \STUDNT00
           Drive G:    =ACS\USER:  \STUDNT00

```

Notice that the mapping for G: has changed and it no longer points to MYDIR.

It is possible to use variants of the MAP command in place of the SESSION utility.

The MAP command is commonly used in User Login Scripts.

```

map h:      Displays the mapping of H:.
map user:\studnt00  Changes the mapping of current map
                    to the pathname ACS\USER:\STUDNT00.

map h:=     Prompts for changes in the map of H:.
map h:=mydir  Changes the mapping of H: to MYDIR.
map del h:   Removes the mapping for H:.
map root h:=user:\studnt00  Sets the parent directory of
                    ACS\USER:\STUDNT00
                    to the directory itself,
map s10:=user:\studnt00  Changes the search mapping of S10:
                    to the pathname ACS\USER:\STUDNT00.

```

map ins s10:=mydir	Changes the search mapping of S10: to the pathname MYDIR in the current directory and shifts the search mapping of S11: to the pathname ACS\USER:\STUDNT00.
map del s10:	Removes the search mapping from S10:.

Directory Structure

The disk space on the server is divided into several volumes each of which has its own directory structure. Common volume names are: SYS:, USER:, and APPS:. Volume names are identified by a subsequent colon. Volumes on different servers can be addressed by preceding the volumename with a servername and a slash. Netware does not differentiate between backslashes and foreslashes in pathnames as does DOS.

servername\volumename:pathname\filename
pathname = directoryname\subdirectoryname...

The FILER utility displays information about directories.

filer	[.Available Topics Current Directory Information Directory Contents Select Current Directory Set Filer Options Volume Information
-------	--

--> Volume Information	[.Volume Information Server Name: Volume Name: Total KBytes: Kilobytes Available:
------------------------	---

ESCAPE	[.Available Topics
--------	--------------------

You can move between directories using a menu item which prompts for a new current directory or by selecting a subdirectory from a list.

```
--> Select Current Directory  [Current Directory Path:
                                acs\user:\studnt00
acs\sys:\                    [Make This Your Current Directory?
--> Directory Contents       [Directory Contents
                                ..          (parent)
                                \          (root)
                                LOGIN
                                MAIL
                                PUBLIC
                                SYSTEM
```

The LOGIN Directory contains files for use before you identify yourself (log in) to the server.

The MAIL directory contains your mail files and login script.

The PUBLIC directory contains Netware utilities.

The SYSTEM directory contains the Netware system databases NET\$BIND.SYS and NET\$BVAL.SYS and Netware system utilities.

This directory is only accessible by the server supervisors.

```
--> LOGIN                    [Subdirectory Options
                                Copy Subdirectory's Files
                                Copy Subdirectory's Structure
                                Make This Your Current Directory
                                Move Subdirectory's Structure
                                View/Set Directory Information
```

```
--> Make This Your Current Directory
```

```
ESCAPE                       [You Have No Search Rights ...
                                [Directory Contents
                                    ..          (parent)
                                    \          (root)
                                    SLIST.EXE
                                    LOGIN.EXE
                                    NET$DOS.SYS (diskless stations)
                                    AUTOEXEC.BAT
```

Choosing the parent directory from a list of subdirectories is a quick way to move up one level of directories.

```
--> (parent)          [.Directory Contents
                        ..          (parent)
                        \          (root)
                        LOGIN
                        MAIL
                        PUBLIC
                        SYSTEM

--> MAIL              [.Subdirectory Options
                        Copy Subdirectory's Files
                        Copy Subdirctory's Structure
                        Make This Your Current Directory
                        Move Subdirectory's Structure
                        View/Set Directory Information

--> Make This Your Current Directory
                        [.You Have No Search Rights ...

ESCAPE              [.Directory Contents
--> STUDNT00         [.Subdirectory Options
--> Make This Your Current Directory
                        [.You Have No Search Rights ...

ESCAPE              [.Directory Contents
                        LOGIN      (file)

--> LOGIN            [.File Options
                        Copy File
                        Move File
                        View File
                        View/Set File Information

--> View File        [.LOGIN
```

The LOGIN file in the SYS:\MAIL\STUDNT00 directory is your Login Script.

```
ESCAPE              [.Available Topics
```

Subdirectories can be created and eliminated in FILER.

```
--> Select Current Directory    [.Current Directory Path:
acs\user:\studnt00           [.Available Topics
--> Directory Contents        [.Directory Contents
INS                            [.New Subdirectory Name:
mydir                         [.Directory Contents
INS                            [.New Subdirectory Name:
mydir2                        [.Directory Contents
--> mydir2F5
DEL                            [.Delete subdirectory MYDIR2?
--> Yes                        [.Directory Contents
```

The following commands can also be used to get similar information:
chkvol, chkdir, md, and listdir.

Directory Rights

Rights are used to control access to directories and files.

Login rights control access to the server.

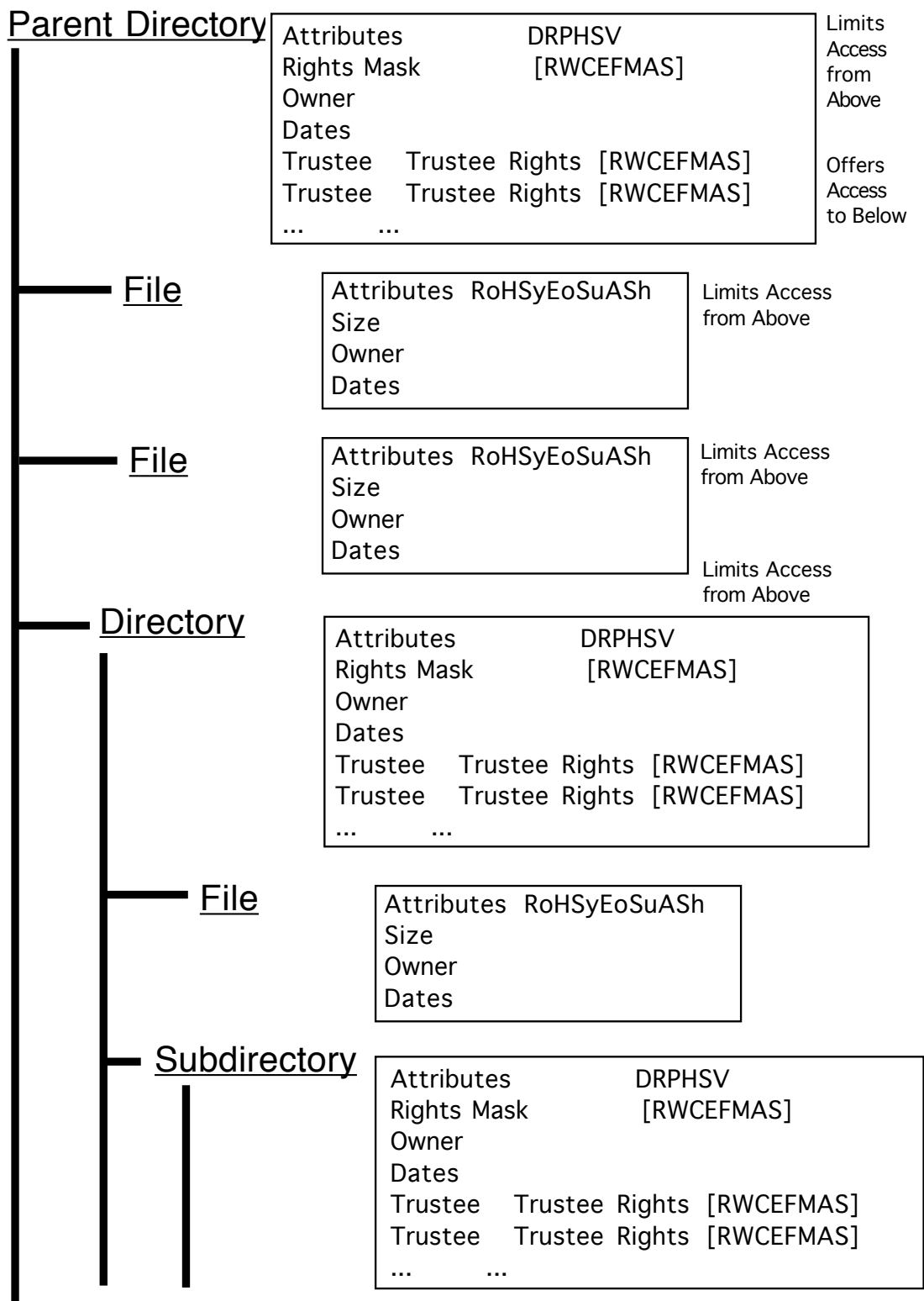
Trustee rights provide access to directories and files.

Inherited rights masks restrict access to a subdirectory.

File and directory attributes further restrict control.

Trustee rights include the following:

Read	Examine file
Write	Change file
Find (file scan or search)	Examine directory
Create	Change directory
Erase	Change directory
Modify	Change name and attributes of a directory
Access	Change trustees, rights, and Inherited Rights Mask of the directory
Supervise	Change trustees, rights, and Inherited Rights Mask of the directory and its subdirectories



The default rights given to a file or directory are Read and Find [RF].
To change a file or directory,
Read, Write, Find, Create, and Erase rights are needed.
Access and Supervise rights are used for assigning rights to a directory.
Trustee rights are inherited by subdirectories unless blocked
by an Inherited Rights Mask installed by a trustee with Supervise rights.
The Access right provides complete control in a directory,
but can be blocked by an Inherited Rights Mask in a subdirectory.
The Supervise right provides complete control in a directory
and in its subdirectories.
It cannot be blocked by an Inherited Rights Mask in a subdirectory.

Trustee rights are specific to a user or group
while the rights mask is applied for all users and groups.
File rights restrict access to a file in a directory.
Trustee rights on a directory take precedence over rights masks
on that directory.
In the absence of trustee rights on a directory,
trustee rights are inherited from the effective rights
of the parent directory.
The effective rights of a user within a directory are
the trustee rights of the directory or
the inherited trustee rights of the parent directory
less the rights mask of the directory.

[RWCEFMAS]	(Inherited) Trustee Rights of a Directory
[RWCEFMAS]	Inherited Rights Mask of a Subdirectory
[.]	Effective Rights of a Subdirectory

Trustee rights can be granted to a user or group in a subdirectory
to override the Inherited Rights Mask of that subdirectory.
By default all subdirectories have an empty Inherited Rights Mask.

The FILER utility allows the manipulation of files based on their location while the SYSCON utility allows the manipulation based on trustees.

```

filer                                [.Available Topics
                                      Current Directory Information
                                      Directory Contents
                                      Select Current Directory
                                      Set Filer Options
                                      Volume Information

--> Select Current Directory          [.Current Directory Path
--> acs\user:\studnt00              [.Available Topics
--> Directory Contents              [.Directory Contents
INS                                 [.New Subdirectory Name
mydir2                               [.Directory Contents
--> MYDIR2                          [.Subdirectory Options
                                      Copy Subdirectory's Files
                                      Copy Subdirectory's Structure
                                      Make This Your Current Directory
                                      Move Subdirectory's Structure
                                      View/Set Directory Information
                                      Who Has Rights Here

--> View/Set Directory Information    [.Directory Information For MYDIR2
                                      Owner:
                                      Creation Date:
                                      Creation Time:
                                      Directory Attributes:
                                      Current Effective Rights:
                                      Inherited Rights Mask:
                                      Trustees:

--> Inherited Rights Mask:          [.Inherited Rights
                                      Access Control
                                      Create Directory/File
                                      Erase Directory/File
                                      File Scan
                                      Modify Directory/File
                                      Read From File
                                      Supervisory
                                      Write To File
    
```

--> Access ControlF5

--> ModifyF5

--> SupervisoryF5

DEL

--> Yes

--> Inherited Rights Mask:

[.Revoke all Marked Rights?

[.Directory Information For MYDIR2

[.Inherited Rights

Create Directory/File

Erase Directory/File

File Scan

Modify Directory/File

Read From File

Write To File

INS

--> Modify Directory/File

--> Inherited Rights Mask:

[.Other Rights

[.Inherited Rights

Create Directory/File

Erase Directory/File

File Scan

Modify Directory/File

Read From File

Write To File

ESCAPE

--> .. (parent)

--> MYDIR

--> Make This Your Current Directory

--> View/Set Directory Information

--> Directory Attributes

INS

--> Purge

ESCAPE

[.Directory Contents

[.Would You Like To Make The Parent
Directory The Current Directory?

[.Subdirectory Options

[.Make This Your Current Directory

[.Directory Information For MYDIR

[.Current Search Attributes

[.Other Search Attributes

Delete Inhibit

Rename Inhibit

Purge

Hidden

System

Visible

[.Current Search Attributes

[.Directory Information For MYDIR

```

--> Trustees:          [.Trustee Names
INS                   [.Others
--> a10mgp1           [.Trustee Names
                        A10MGP1 (user) [ R F ]
--> A10MGP1          [.Trustee Rights
                        Read From File
                        File Scan
INS                   [.Other Rights
                        Access Control
                        Create Directory/File
                        Erase Directory/File
                        Modify Directory/File
                        Supervisory
                        Write To File

--> Create Directory/FileF5
--> Erase Directory/FileF5
--> Write To FileF5
-->
ESCAPE               [.Trustee Rights
--> A10MGP1          [.Trustee Names
DEL                  [.Delete Trustee?
--> Yes              [.Trustee Names
ESCAPE               [.Directory Information For MYDIR

--> Subdirectories    [.
-->
--> Who Has Rights Here
    
```

The FILER utility can be used to examine the rights to files, too.:

```

--> Select Current Directory  [.Current Directory Path:
                                acs\user:\studnt00
acs\sys:\mail\studnt00     [.Make This Your Current Directory?
--> Directory Contents       [.Directory Contents
                                ..          (parent)
                                \           (root)
                                LOGIN
    
```

The LOGIN file in the SYS:\MAIL\STUDNT00 directory is your Login Script.

```

--> LOGIN                               [File Options
                                         Copy File
                                         Move File
                                         View File
                                         View/Set File Information

--> View File                             [.LOGIN
ESCAPE                                  [.File Options
--> View/Set File Information           [.View/Set File Information
                                         Attributes:
                                         Owner:
                                         Inherited Rights Mask:
                                         Trustees:
                                         Current Effective Rights:
                                         Size:
                                         Creation Date:
                                         Last Accessed Date:
                                         Last Archived Date:
                                         Last Modified Date:

--> Attributes:                           [Current File Attributes
INS

                                         [Other File Attributes
F5
DEL
    
```

Changes require Modify Directory/File rights.

```

--> Inherited Rights Mask:             [ Inherited Rights Mask
F5
DEL
INS

--> Trustees:                           [.Trustees
INS
-->                                     [.Trustees
F5
DEL
INS
    
```

```

ESCAPE      [.File Options
ESCAPE      [.Directory Contents
F5          [.Multiple File Options
              Copy Marked Files
              Set Attributes
              Set Creation Date
              Set Inherited Rights
              Set Last Accessed Date
              Set Last Modified Date
              Set Owner

ALT F10     [.Exit Filer?
--> Yes
    
```

Various command utilities can be used to display and set this same information.

```

listdir      Displays subdirectories and files.

listdir /?   Displays help for the LISTDIR command.

ndir         Shows an option menu and then
              lists the files and subdirectories
              in a network directory.
    
```

```

      file      size      last modified      attributes      owner/creator
    
```

Subdirectories are listed after files.

```

      subdirectory      inherited rights      effective rights      owner      created
    
```

```

ndir /?      Displays help about the NDIR command.

tlist        Displays trustee list in a directory
              that you have supervisor rights.
    
```

```

revoke options pathname username      Removes rights from users
revoke options pathname groupname     or groups in the trustee list
    
```

```

grant options pathname username      Enrolls users and groups
grant options pathname groupname     in the trustee list
    
```

<i>remove username pathname</i> <i>remove groupname pathname</i>	Removes users and groups from the trustee list of a directory.
<i>allow</i>	Displays the inherited rights mask of a directory.
<i>allow pathname rights</i>	Sets the inherited rights mask of a directory.
<i>flag</i> <i>flag pathname\filename</i>	Displays the attributes of a file.
<i>flag pathname\filename attributes</i>	Sets the attributes of a file.

copy inhibited (CI)
 rename inhibited (RI)
 delete inhibited (DI)
 read only (RO)
 execute only (EO)
 shareable (S)
 read write (RW)
 hidden (H)
 system (SY)
 purge (P)
 indexed (I)
 archive (A)

These attributes require the trustee Modify right to change them.

<i>flagdir *</i>	Displays the attributes of the current directory.
<i>flagdir pathname</i>	Displays the attributes of a directory.

<code>flagdir <i>pathname attributes</i></code>	Sets the attributes of a directory. rename inhibit (R) delete inhibit (D) hidden (H) system (S) purge (P)
<code>renmdir <i>filename filename</i></code>	Renames a directory that you have the rights to modify. "." can be used for the current directory.
<code>ncopy <i>pathname pathname /s</i></code>	Copies the files and non-empty subdirectories in a directory.
<code>ncopy <i>pathname pathname /es</i></code>	Copy the files and all subdirectories in a directory.

Salvaging Lost Files

Erased files in the current directory are marked for deletion but not lost. Files in an erased directory are saved in the hidden DELETED.SAV directory. The SALVAGE utility can correct any accidental erasures as long as no other operations have been attempted.

g:

copy con: myfile

CTRL Z

copy myfile myfile2

copy myfile mydir/myfile3

copy myfile mydir2/myfile4

copy myfile mydir2/myfile5

dir

dir mydir

dir mydir2

del myfile

del mydir/*

del mydir2/*

rd mydir2

salvage

[.Main Menu Options

Salvage From Deleted Directory

Select Current Directory

Set Salvage Options

View/Recover Deleted Files

--> Set Salvage Options

[.Salvage Options

Sort List By Deleted Date

Sort List By File Size

Sort List By Filename

Sort List By Owner

--> View/Recover Deleted Files

[.Erased File Name Pattern To Match

*

[.1 Salvageable File

F6

[.Mark Pattern:

myfile*

-->

[.Recover All Marked Files?

--> Yes	[.0 Salvageable Files
--> mydir	[.0 Salvageable Files
ESCAPE	[.Main Menu Options
--> Select Current Directory	[.
acs\user:\studnt00	[.Main Menu Options
--> Salvage From Deleted Directory	[.Select Volume
--> USER	[.No Rights in Selected Volume
ALT F10	[.Exit Salvage?
--> Yes	

The PURGE utility is used to make files unsalvageable.

<code>purge filename</code>	Permanently removes a file.
<code>purge pathname /all</code>	Permanently removes the files in a directory.

Printing

[Turn Printer off.]
[q=acs-class]

A queue is a group of jobs waiting to be serviced. Queue users place jobs in queue and job servers take jobs from the queue to service them. A queue is a server bindery object that guarantees that only authorized users access and modify the queue. Users, operators, and job servers are properties of a queue.

The PCONSOLE utility is used to control printing.

<code>pconsole</code>	[.Available Options
	Change Current File Server
	Print Queue Information
	Print Server Information

<p>--> Print Queue Information</p>	<p>[.Print Queue Information Current Print Job Entries Current Queue Status Currently Attached Servers Print Queue ID Queue Operators Queue Servers Queue Users</p>
<p>--> Current Queue Status</p>	<p>[.Current Queue Status Number Of Entries In Queue:</p>
<p>--> Current Print Job Entries</p>	<p>[</p>
<p><u>INS</u></p>	<p>[.New Print Job To Be Submitted</p>
<p>--> Description:</p>	<p>to add filename</p>
<p><u>INS</u></p>	<p></p>
<p>--> User Hold:</p>	<p></p>
<p><u>F9</u></p>	<p></p>
<p>--> File Contents:</p>	<p>Bitstream for formatted files</p>
<p>--> Print Banner:</p>	<p></p>
<p><u>F9</u></p>	<p></p>
<p>--> Banner Name:</p>	<p></p>
<p>My Printout</p>	<p></p>
<p><u>ESCAPE</u></p>	<p>[.Print Queue Entry Information</p>
<p><u>DEL</u></p>	<p></p>

nprint *filename options* Prints a file to a Netware printserver.

PS=printserver
S=servername
Q=queue name
C=copies
CR=filename print to *filename*
NB no banner
NAM=name replace username
on banner with *name*
B=bannertext replace banner name
with *bannertext*
NFF no formfeed
after completion
NOTI notify on completion

Netware replaces the DOS service routine at interrupt 17 with the NETX's own routine.

File server puts data in a capture file created for that station. The file can be made temporary or permanent.

Specifying an LPT device does not affect the default device. Netware maintains a table of capture flags for each LPT providing three configurations.

capture	Redirects application output from LPT1 to the default queue on the default server.
spool	Displays the default queue on the default server.

capture l=*localprinter* q=*queuename* s=*servername*
capture l=1 q=acs-class s=acs

Arrange that output to *localprinter* (1,2, or 3) is printed at *queuename* on *servername*.

TI= <i>seconds</i>	timeout before printing
C= <i>copies</i>	copies
CR= <i>filename</i>	print to <i>filename</i>
NB	no banner
NAM= <i>name</i>	replace username on banner with <i>name</i>
B= <i>bannername</i>	replace banner name with <i>bannername</i>
NFF	no formfeed after completion
NOTI	notify on completion

capture sh Show capture status.

endcap	Exit capture.
	L= <i>n</i> end on LPT <i>n</i>
	ALL end on all ports
	C cancel and discard on LPT1
	CL= <i>n</i> cancel and discard on LPT <i>n</i>
	CALL cancel and discard on all ports
whoami /a	Displays all information
logout	Releases your connection to the server.