



IBM System i5

iSeries NetServer: Easy Access to System i5 Data

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May, 2006

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IBM System i5



Agenda

- Using iSeries NetServer
- Configuration
- Administration
- V5R4 Changes



YOUR
DATA



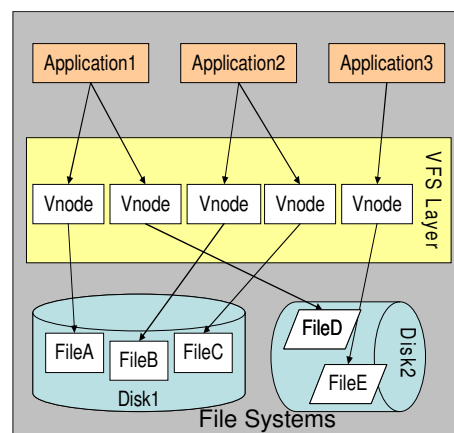
YOU

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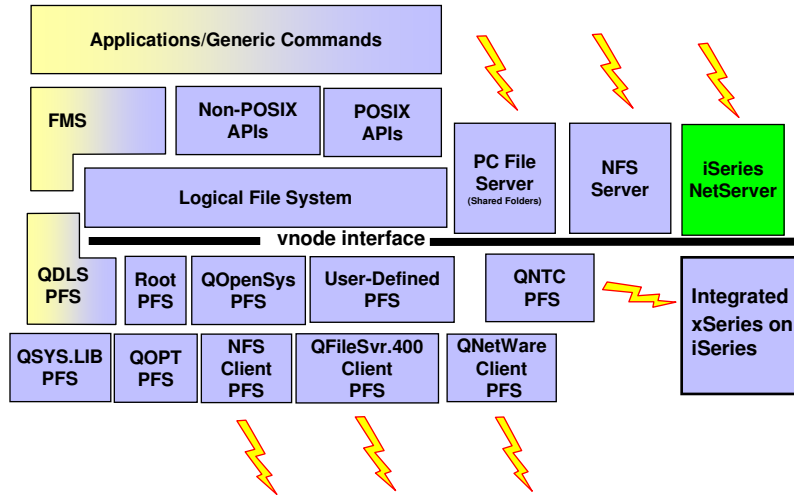
What is iSeries NetServer?

Integrated File System - Overview



VFS layer provides a common interface that hides the implementation of the underlying file system.

Integrated File System



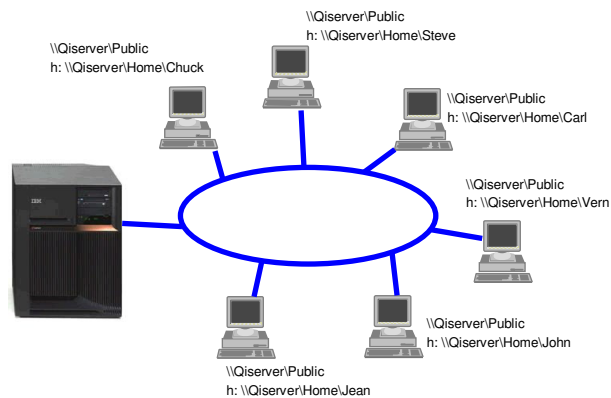
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i5/OS Integrated File System “Shares”

Qiserver shares:

- Public
- Home
 - Home\Chuck
 - Home\Steve
 - Home\Carl
 - Home\Vern
 - Home\John
 - Home\Jean



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iSeries NetServer Scenarios

- Copying files in the Integrated File System (IFS)
 - Each branch stores data in their directory (ex: /corp/Branchnn)
 - Home office uses iSeries NetServer to copy .xls files to corporate directory (ex: /corp/home)
 - Home office uses Excel to work with branch data.
- PC scanning application stores data in IFS
 - Vehicle titles are scanned using PC attached scanner.
 - Scanning app stores files to a share mapped to iSeries NetServer.
 - Images are archived using iSeries Sav/Rst functions.

"iSeries Support for Windows Network Neighborhood"

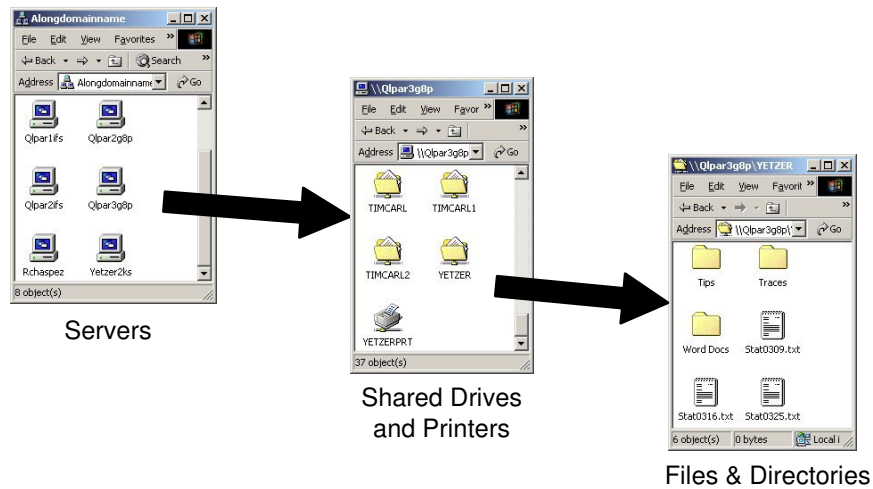
- File and print serving for Common Internet File System (CIFS) clients
 - Windows 98, NT 4.0, ME, 2000, XP, 2003
 - Linux Samba 3.0+
- Compatible with Microsoft Networking and SAMBA
- Part of the base IBM i5/OS™
- Uses TCP/IP for connectivity

Using iSeries NetServer

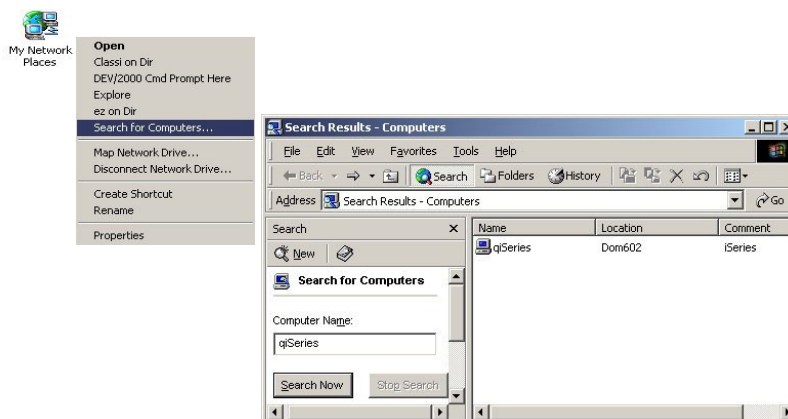
Using iSeries NetServer

- **Network Neighborhood (My Network Places)**
- **Search for computers**
- **Connecting to a share**
- **Working with output queues (Printing)**
- **Using Network DOS commands (net show, net use)**
- **Encrypted password security**

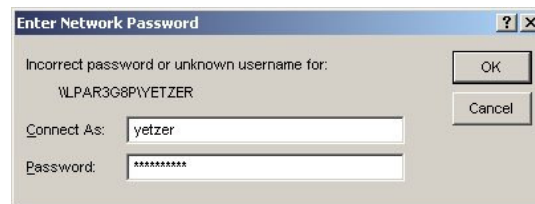
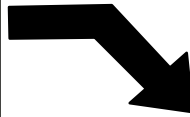
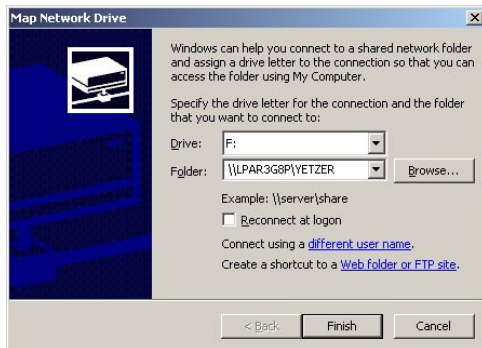
Network Neighborhood and iSeries NetServer "Shares"



"Search for Computers" - Connecting with Windows 2000

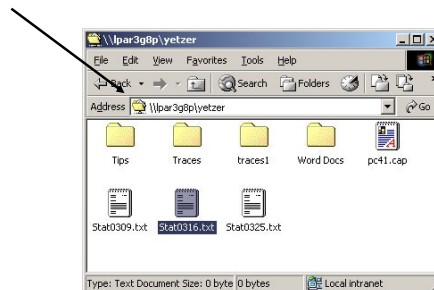


Mapping a Drive - Security



Another way to access your data

Rather than mapping a drive use UNC format.



The Universal Naming Convention (UNC) is two backslashes followed by the computer name, share name, folder name(s), and filename, each separated by a single backslash.

iSeries NetServer Configuration

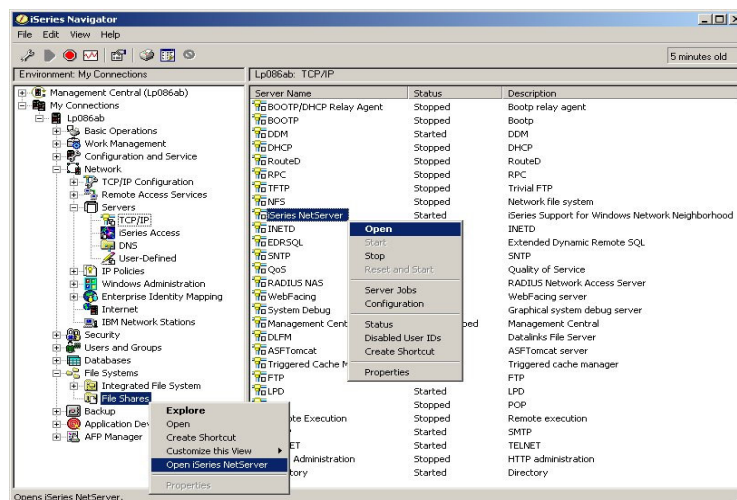
Configuring iSeries NetServer

- Prerequisites
- iSeries Navigator Interfaces
- iSeries Configuration
- Configuration wizard
- Properties
- Creating a Share

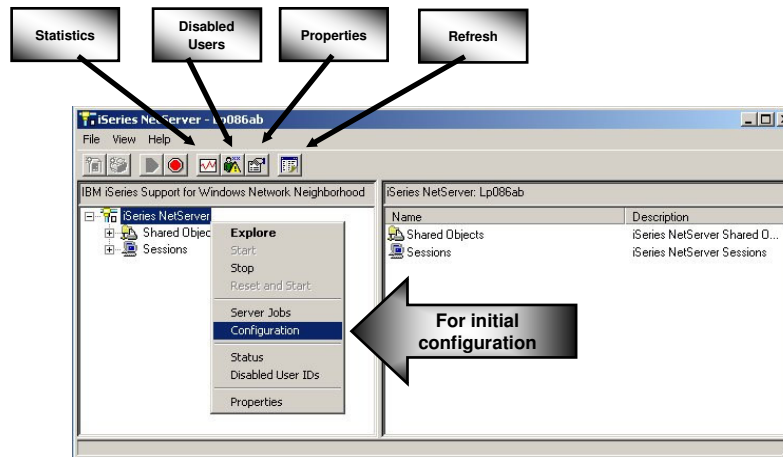
iSeries Setup - Prerequisites

- TCP/IP support configured
- QSERVER subsystem started
 - STRSBS SBS(QSERVER)
 - ★ If using the subsystem support provided in V5R2, the alternate subsystems must be started as well.

Locating iSeries NetServer in iSeries Navigator

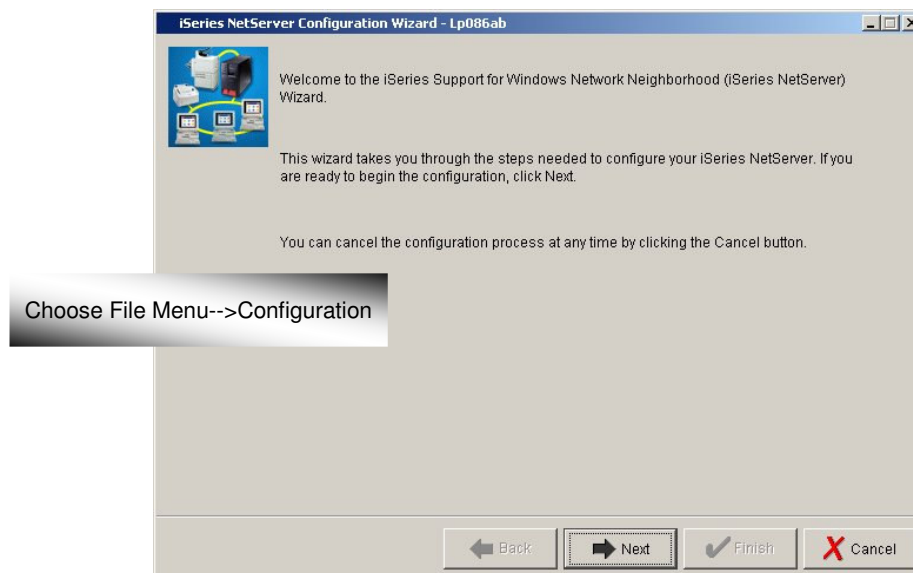


iSeries NetServer Management Window

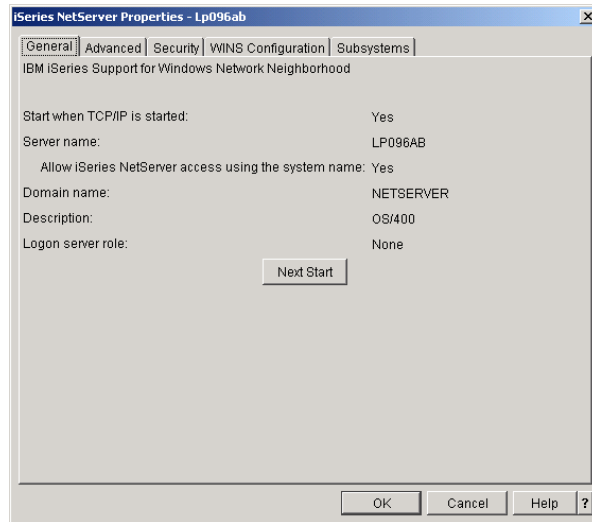


V5R2 View

Use the Wizard for Initial Configuration

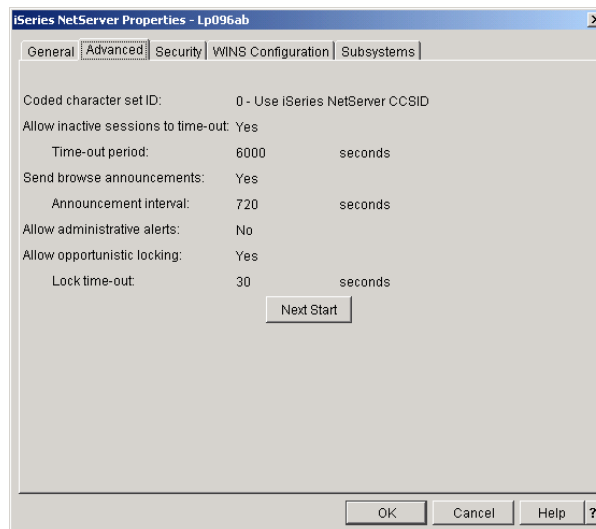


Properties: General Tab



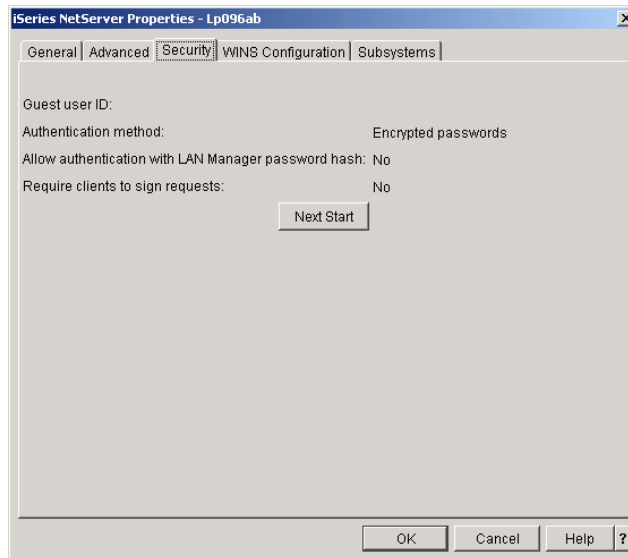
V5R4 Properties dialog

Properties: Advanced Tab



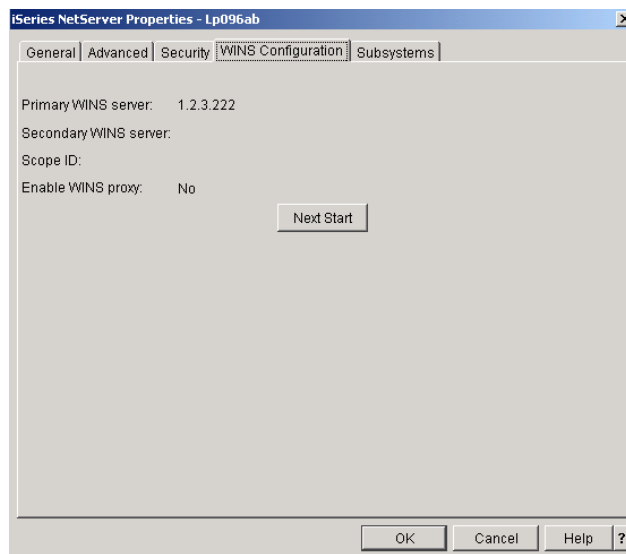
V5R4 Properties dialog

Properties: Security Tab



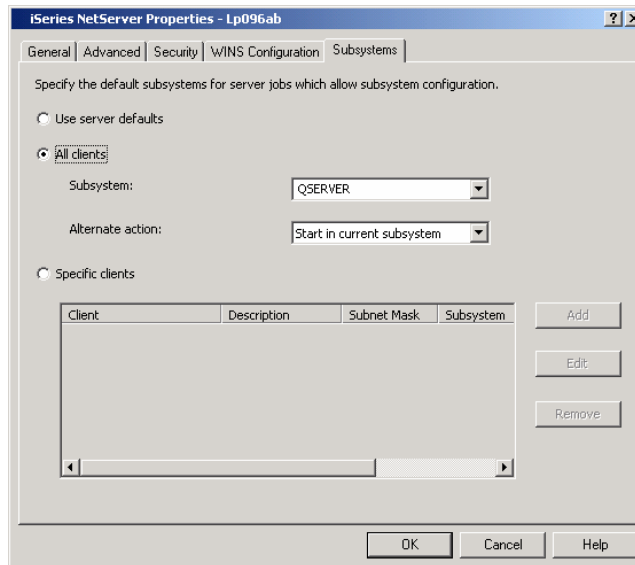
V5R4 Properties dialog

WINS configuration tab



V5R4 Properties dialog

Properties: Subsystem Tab

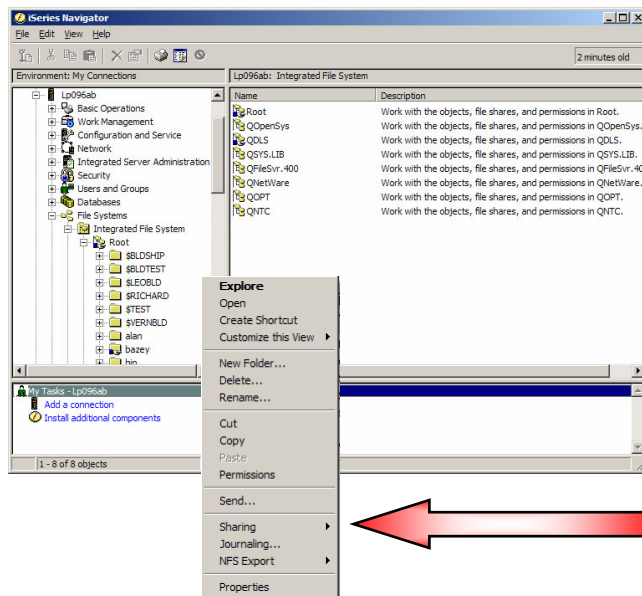


V5R4 Properties dialog

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Create a Share on System i5



This will define the directories that users can access.

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Define the share properties - General

The screenshot shows the 'iSeries NetServer File Share - Lp096ab' dialog box with the 'General' tab selected. The 'Text Conversion' tab is also visible. The 'Share name' field contains 'alan'. The 'Description' field is empty. The 'Access' dropdown menu is set to 'Read only'. The 'Maximum number of users' section has 'No maximum' selected. The 'Path name' field contains '/alan'. The 'OK', 'Cancel', and 'Help' buttons are at the bottom.

General | Text Conversion

IBM iSeries Support for Windows Network Neighborhood

Share name: alan

Description:

Access: Read only

Maximum number of users:

☒ No maximum

☐ Maximum users (0 - 2147483647): 0

Path name: /alan

OK Cancel Help

Define the share properties – Text Conversion

The screenshot shows the 'iSeries NetServer File Share - Lp096ab' dialog box with the 'Text Conversion' tab selected. The 'Allow file text conversion' checkbox is checked. The 'Simple conversion' radio button is selected. The 'Coded character set ID' dropdown menu is set to '- Use iSeries NetServer CCSID'. The 'File extensions for automatic EBCDIC/ASCII text conversion' list is empty. The 'Add' and 'Remove' buttons are visible. The 'OK', 'Cancel', and 'Help' buttons are at the bottom.

General | Text Conversion

☒ Allow file text conversion

☒ Simple conversion

☐ Simple and complex conversion

Coded character set ID: - Use iSeries NetServer CCSID Browse...

File extensions for automatic EBCDIC/ASCII text conversion:

Add Remove

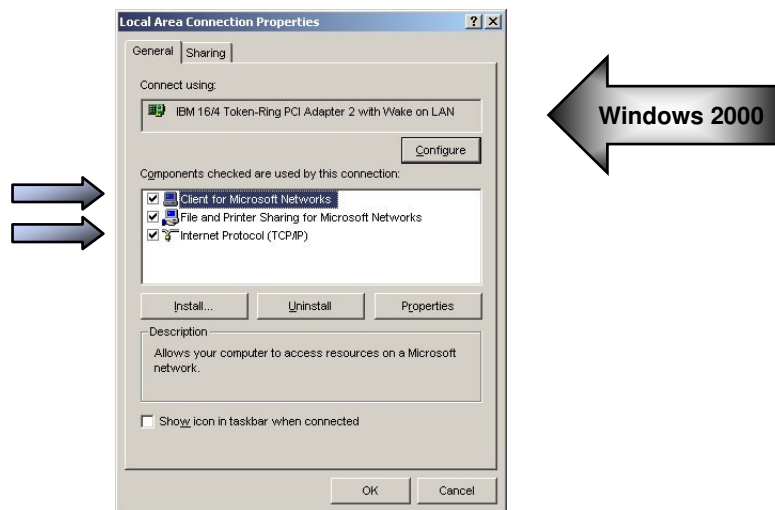
OK Cancel Help

PC Client Configuration

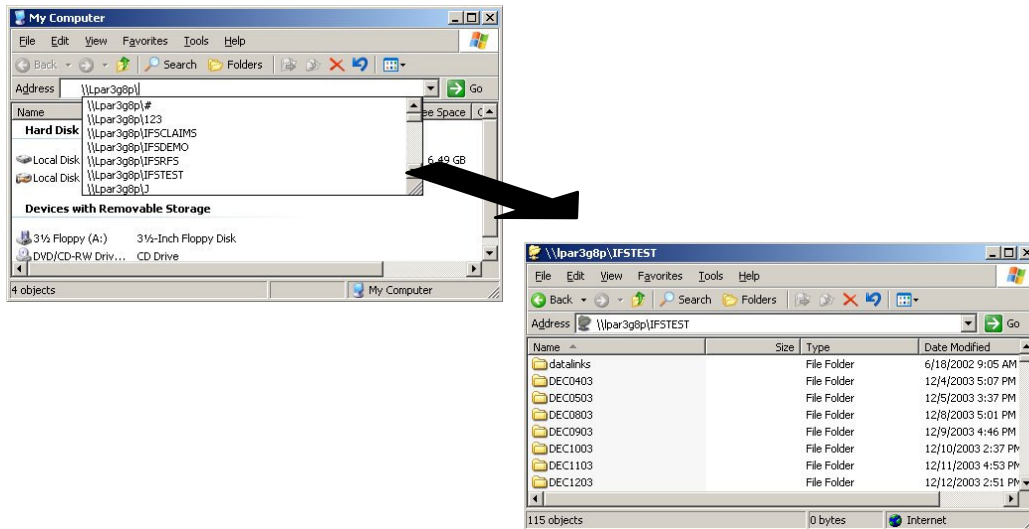
- Client for Microsoft Networks
- Accessing an iSeries Share
- Linux/Samba

PC Setup

Use "Client for Microsoft Networks"



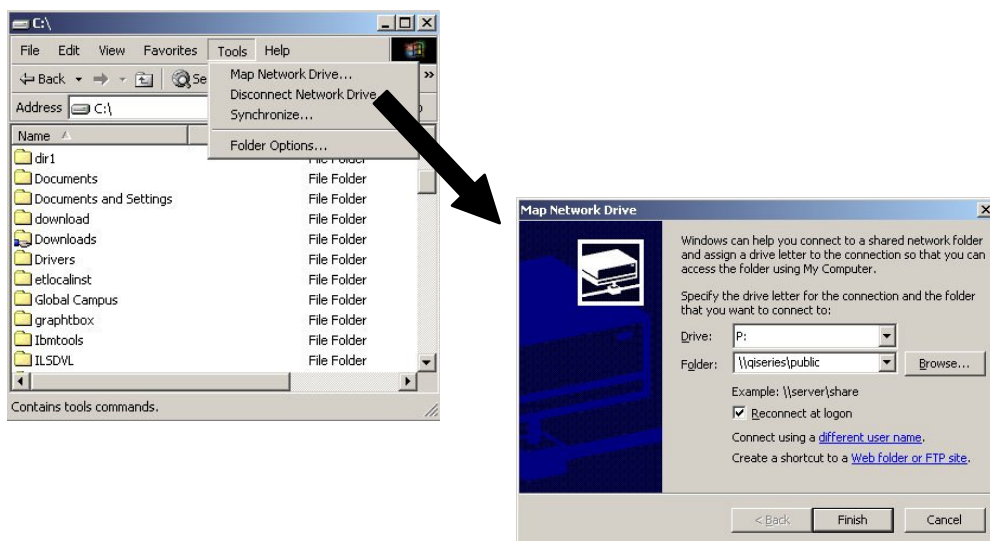
Accessing your iSeries NetServer Share



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Mapping a Drive



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Linux / Samba

- smbclient

- `smbclient //myNetServer/myShare -U username`

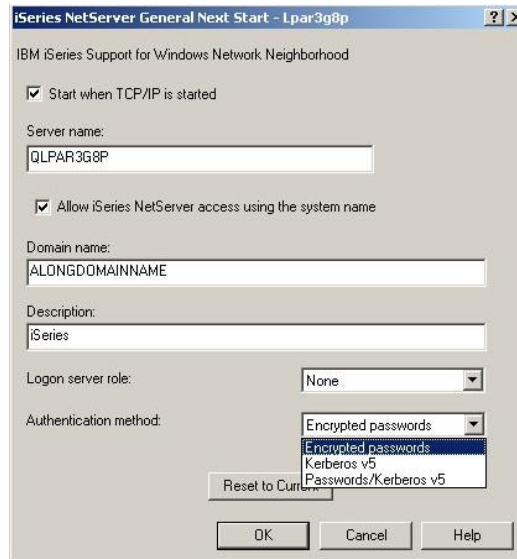
- smbmount

- `smbmount //myNetServer/myShare /usr/mnts/my400`
-o `username=smbUserName,password=myPasswd`

- use "man" for details

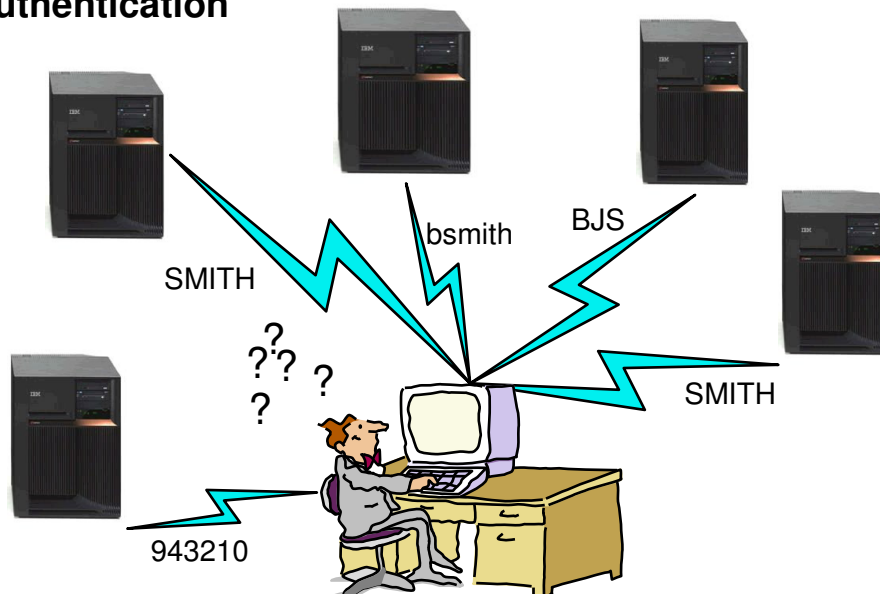
Network Authentication Services Support

NetServer Authentication Option – V5R3/V5R4

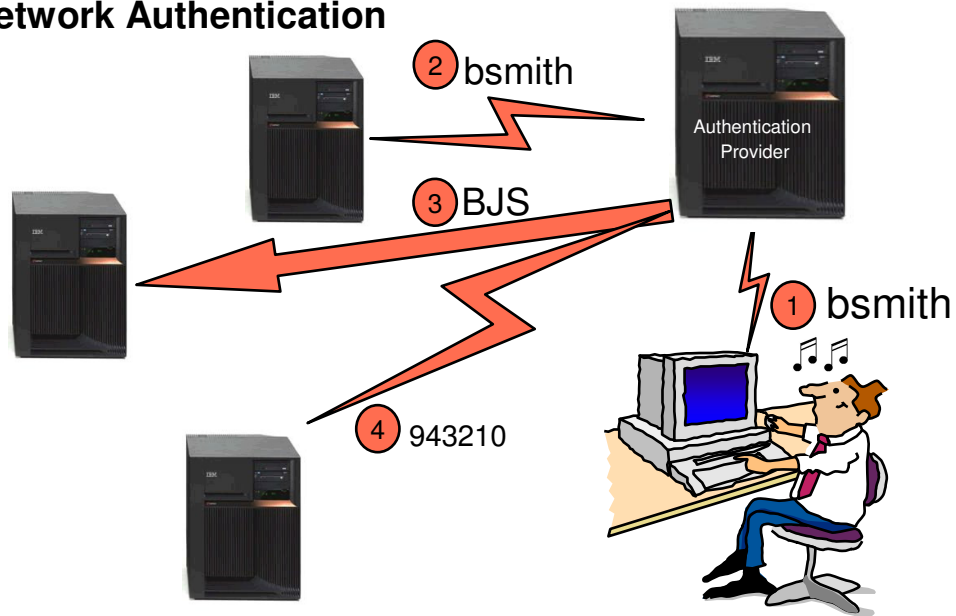


See iSeries NetServer web site for V5R2 implementation

Authentication



Network Authentication



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Network Authentication Services Support

Why should I use NAS authentication?

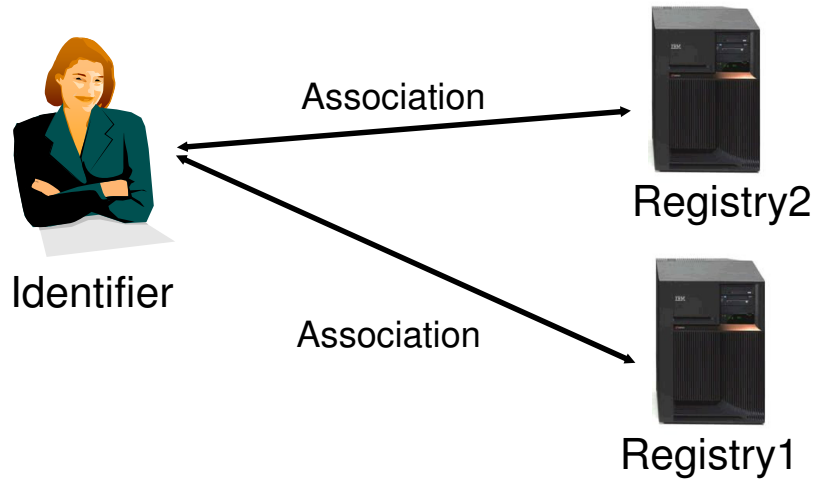
- ✓ **No need to match Windows and iSeries profile names or passwords**
- ✓ Single network signon
- ✓ Increased authentication security

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Network Authentication Services Support

EIM Terminology



Network Authentication Services Support

Understanding EIM

Employee: Jane S Doe

Company's network

System i5: mach1	zSeries: mach2	pSeries: mc3	Kerberos realm: MYCOMPANY.COM
ID: JANEDOE	ID: JSDOE	ID: JANED	Principal: janedoe@mycompany.com

Given Jane's situation, the following EIM associations could be established:

List Of EIM Associations For Jane Susan Doe			
EIM Identifier	Registry Name	Registry User Name	Association Type
Jane S. Doe	MYCOMPANY.COM	janedoe@mycompany.com	Source
Jane S. Doe	mach1	JANEDOE	Target
Jane S. Doe	mach2	JSDOE	Target
Jane S. Doe	mc3	JANED	Target

User Defined Subsystems

User Defined Subsystem Support

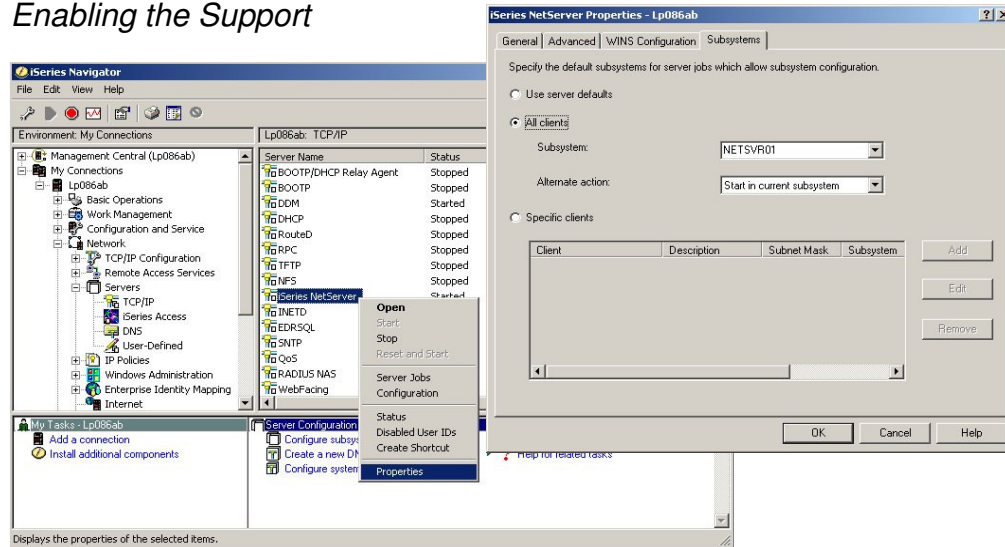
The diagram shows a table of User Defined Subsystem Support. Two callout boxes are present: 'Sales team runs here' pointing to the 'SALES_NW' row, and 'Accounting runs here' pointing to the 'ACCOUNTING' row.

Opt	Subsystem/Job	User	Type
	QSERVER	QSYS	SBS
	QPWFSEVSD	QUSER	BCH
	QSERVER	QPGMR	ASJ
	QZDASRVSD	QUSER	BCH
	QZLSSERVER	QPGMR	BCH
	ACCOUNTING	QSYS	SBS
	QZLSFILE	QUSER	PJ
	QZLSFILET	QUSER	PJ
	SALES_NW	QSYS	SBS
	QZLSFILE	QUSER	PJ
	QZLSFILET	QUSER	PJ

You decide where iSeries NetServer jobs will run.

User Defined Subsystem Support

Enabling the Support



Administration

Administration - File Sharing

- Designing a file sharing solution
- Create the directory structure
- Sharing Files and Printers
- Text conversion
- IFS directory permission considerations

Administration - Design Considerations

- **What** files and directories should be accessed ?
- **Where** will the users be when they access the data?
- **Who** needs access to files and directories?
- **How** much authority and disk space do users need ?
- Are there any special considerations ?

Administration - Print Sharing

Setting Up Print Shares

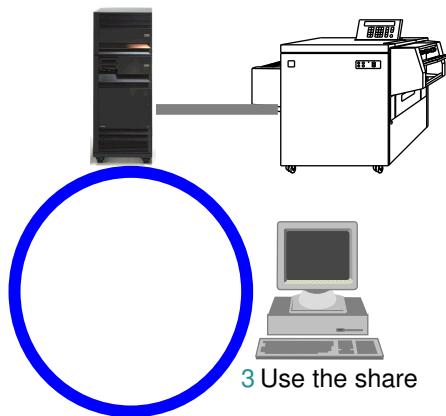
- Sharing an output queue
- Installing a network printer on the client
- Printing

Print Share Example

PC printing to iSeries Printer

1 Create OUTQ on the iSeries

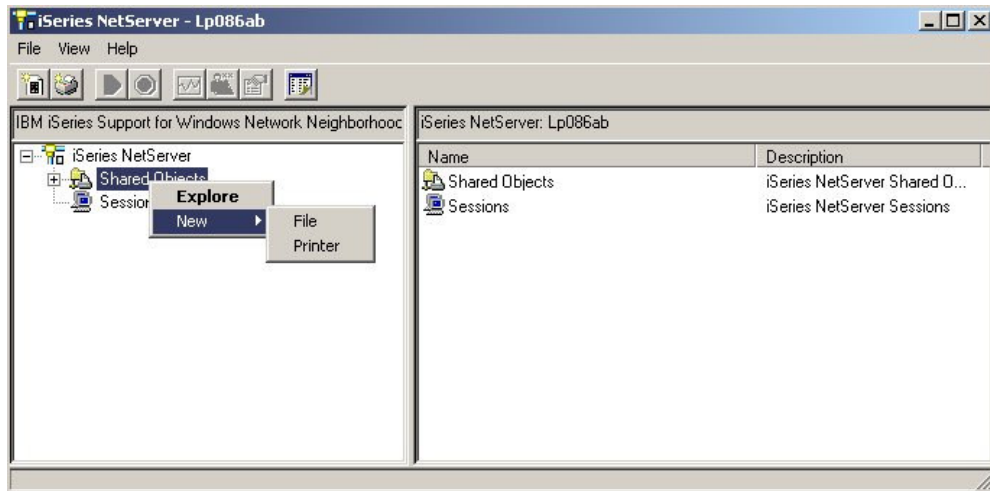
2 Share the OUTQ with "IBM AFP 3820" printer driver, *AFP spool file type



3 Use the share

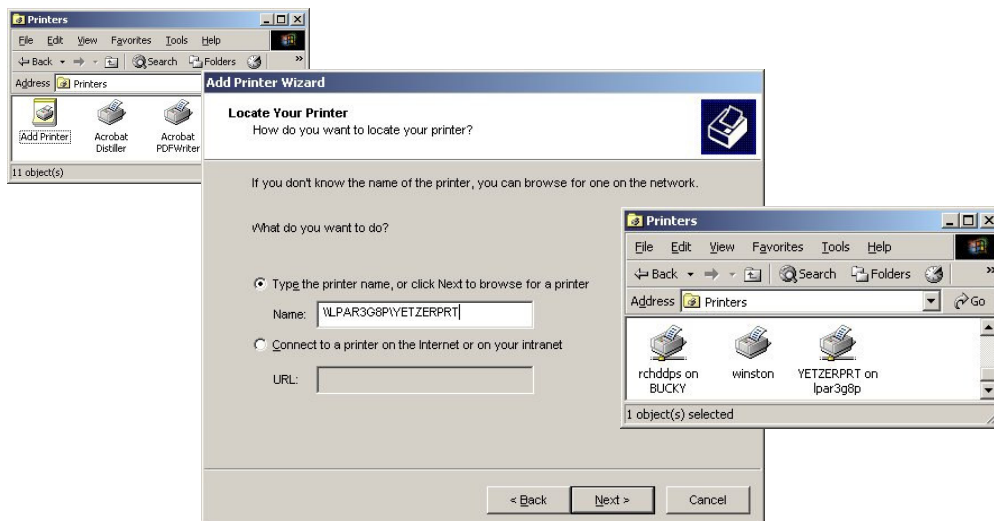
Sharing a Printer

Use iSeries Navigator to create the printer share.



Install a network printer on your PC

Connect to the print share from a client PC



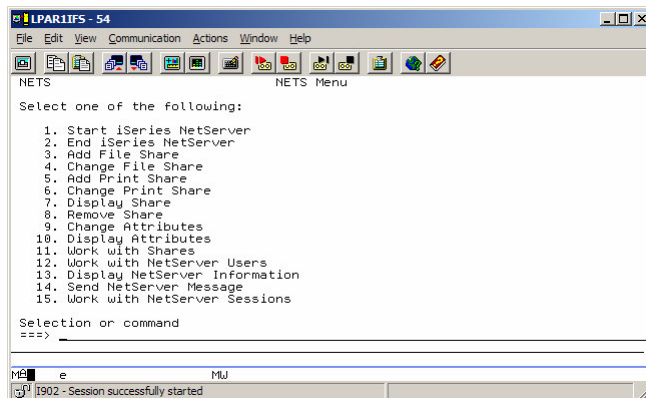
Administration - Managing Activity

- GO NETS
- DISABLED USERS
- WORKING WITH JOBS

GO NETS

Administration Power on a Green Screen

- Provides menu driven use of iSeries NetServer APIs
- Shipped in the QUSRTOOL library, 5722-SS1 Option 7.



GO NETS

Setting up GO NETS

- Follow these steps to build the GO NETS command tool into library NETSRVCMD.
 - Create the target library. NETSRVCMD may be replaced with the library name of your choice.
 - CRTLIB LIB(NETSRVCMD) TEXT('iSeries NetServer menu and commands')
 - Expand the necessary files:
 - CALL QUSRTOOL/UNPACKAGE PARM('ALL' 1)
 - Create the installation program:
 - CRTCLPGM NETSRVCMD/TZLSINST QUSRTOOL/QATTCL
 - Call the installer to create the GO NETS tool:
 - CALL NETSRVCMD/TZLSINST NETSRVCMD
 - Add the new library to the library list:
 - ADDLIB NETSRVCMD
 - Run the tool's menu interface. From now on, you need only type this command to bring up GO NETS function.
 - GO NETS

GO NETS – Add Shares

iSeries System

File Edit View Communication Actions Window Help

Add NetServer File Share (ADDNSVFSHR)

Type choices, press Enter.

Share name NEWSHR Character value

Path /home/mudir

Text 'description' A New Share for Me

Access level *R *R, *RW

Maximum sessions *NOMAX Number, *NOMAX

CCSID for data converting *NONE Number, *NONE

Data conversion *NONE *NONE, *SIMPLE, *COMPLEX

File extension *NONE

+ for more values

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display

F24=More keys

Bottom

MA a 13/055

1902 - Session successfully started

GO NETS – Change Configuration

Series System

File Edit View Communication Actions Window Help

Change NetServer Attributes (CHGNSVA)

Type choices, press Enter.

Server name	NSNAME	
Server alias	*NONE	*SAME, *NONE, *SYSTEM
Domain name	NETSERVER	
Text 'description'	'OS/400'	
Guest profile	NETSGUEST	Name, *SAME, *NONE
Server CCSID	0	Number, *SAME
Inactivity timeout	6000	Number, *SAME
Browse interval	720	60-720, *SAME, *NONE
Logon server	*NO	*SAME, *NO, *YES
Authentication method	*PASSWORD	*SAME, *PASSWORD...
NetServer autostart	*YES	*SAME, *NO, *YES
Reset pending values	*NO	*NO, *CURRENT

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display More...

F24=More keys

MA a 10/046

[902 - Session successfully started]

GO NETS – View Configuration

Series System

File Edit View Communication Actions Window Help

Display NetServer Attributes

	Current value	Pending value
Server name	NSNAME	*SAME
Server alias	*NONE	*SAME
Server domain	NETSERVER	*SAME
CCSID	0	0
Inactivity timeout	6000	6000
Oplock timeout	600	600
Browse interval	720	720
Guest profile	NETSGUEST	*NONE
WINS information:		
Primary WINS server :	9.10.244.40	*SAME
Secondary WINS server:	9.10.244.140	*SAME
WINS proxy	*NO	*SAME
Logon server	*NO	*SAME
Authentication method :	*PASSWORD	*PASSKERB

F3=Exit

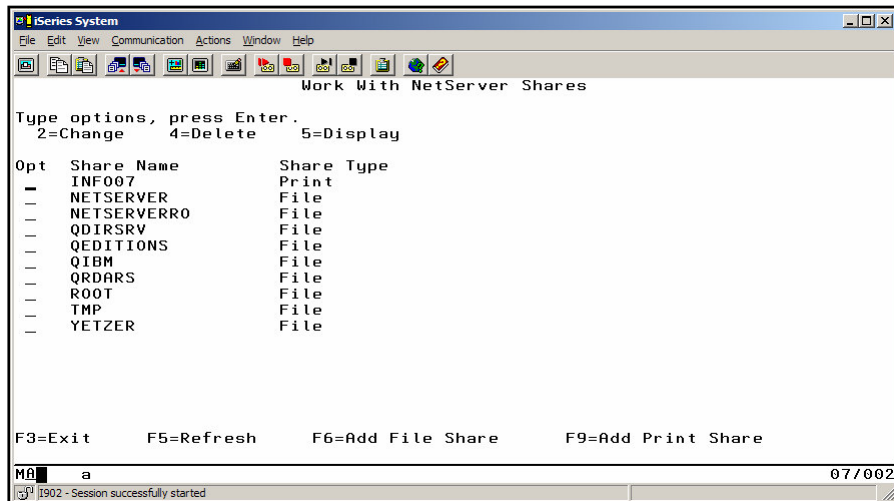
MA a 08/067

[902 - Session successfully started]

Shows pending changes

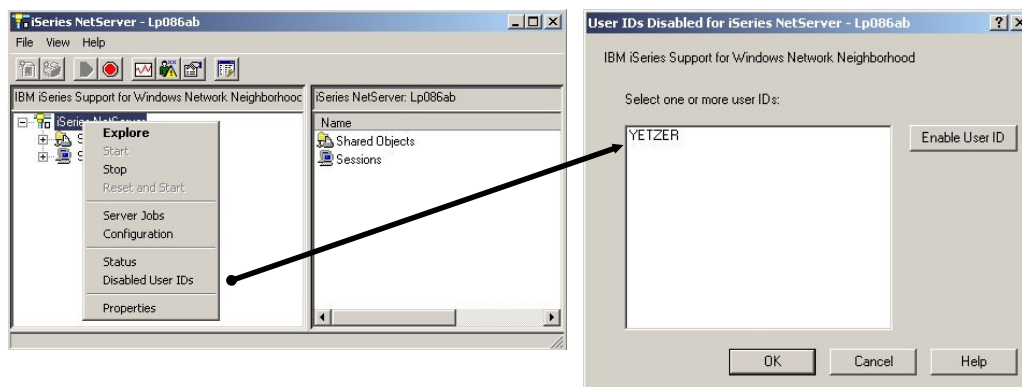
More ...

GO NETS – View List of Shares



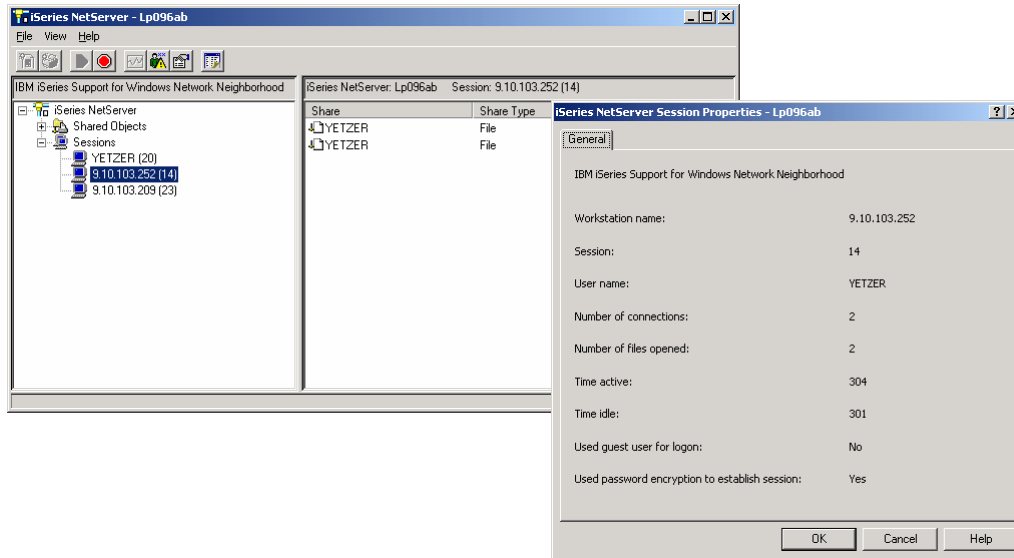
DISABLED USERS

A user is disabled for iSeries NetServer access when the number of password violations exceeds the QMAXSIGN system value.



WORKING WITH SESSIONS – V5R4

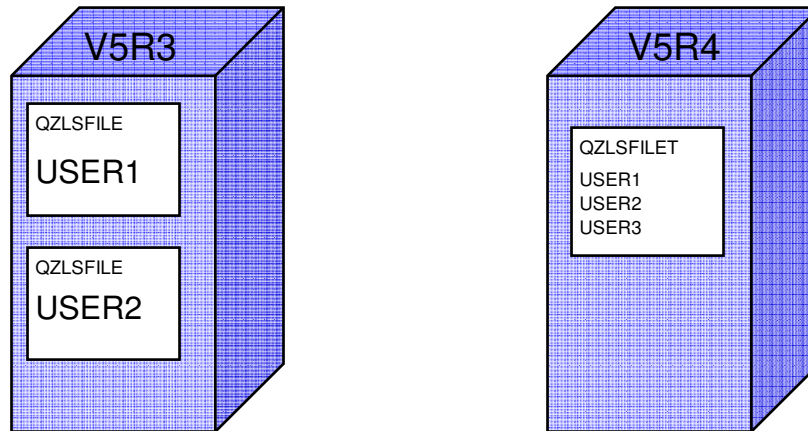
NetServer Sessions : Managing the active connections



iSeries NetServer – V5R4

- Improved Scalability and Performance
 - Multi-threaded Support
 - Opportunistic Locking support
 - Significant improvement in throughput and response time
- Message Authentication
- Windows-style messages
- New Trace support

Multi-threaded support



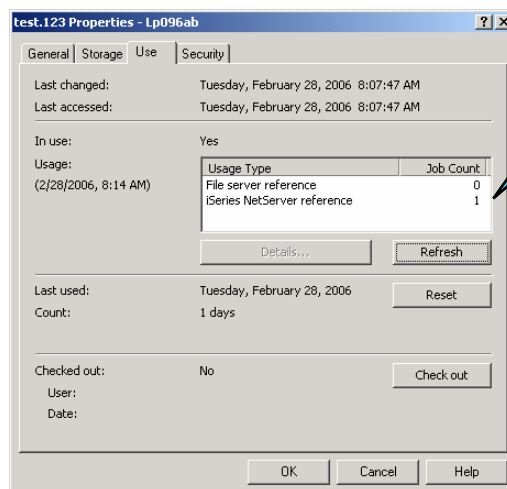
Multi-threaded support

- V5R3 and older releases
 - 1 QZLSFILE job per client/user
 - Demands many resources on the server
- V5R4
 - 1 QZLSFILET job in QSERVER subsystem for all clients
 - Configuration allows for QZLSFILET jobs in other subsystems.
 - Non-thread safe activity requires QZLSFILE jobs
 - QDLS file system activity
 - QSYS.LIB access to SAVF and DEVD
 - Access denied errors for non-thread safe activity in QZLSFILET job

Multi-threaded Support

- To run in pre-V5R4 mode, end QZLSFILET job
 - RMVPIE SBSD(QSYS/QSERVER) PGM(QSYS/QZLSFILET)
- When running threaded it is not an option to end the file server job in order to end a client session.
 - Ending QZLSFILET to end all sessions
 - Use iSeries Navigator to end a specific session.
- QIBM_QPWFS_FILE_SERV exit point changes
 - ADDEXITPGM THDSAFE parameter also determines if server runs threaded
 - THDSAFE(*UNKNOWN) or THDSAFE(*NO) forces iSeries NetServer to run a client session non-threaded (in a QZLSFILE job)
- iSeries NetServer references on IFS Properties page

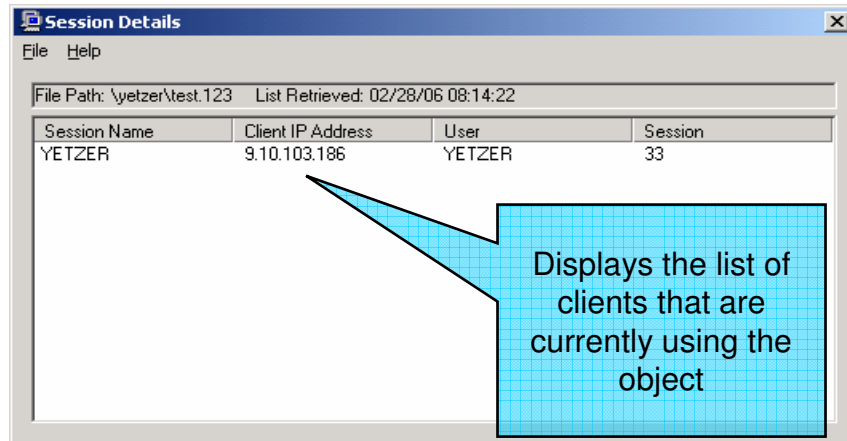
iSeries NetServer References



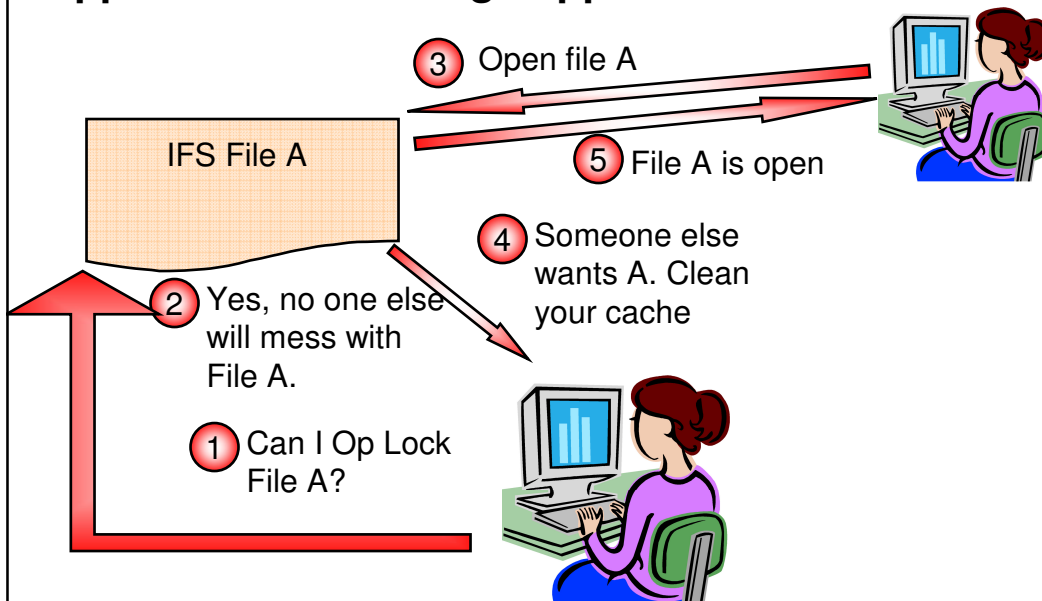
Indicates
NetServer usage
of files, folders or
objects.

Added in V5R4 iSeries Navigator

iSeries NetServer References - Details



Opportunistic Locking support



Opportunistic Locking support

- CIFS protocol mechanism for client-side caching of file data.
- Client locks the file - server breaks the lock if another client wants to use the file.
- Server notifies original client when it needs to break the lock.
- New “Opportunistic Locking” parameter on iSeries NetServer configuration.

Opportunistic Locking - Configuration

iSeries NetServer Advanced Next Start - Z1014p33

IBM iSeries Support for Windows Network Neighborhood

Coded character set ID: 0 - Use iSeries NetServer CCSID [Browse...]

☒ Allow inactive sessions to time-out
Time-out period: 21600 seconds

☒ Send browse announcements
Announcement interval: 720 seconds

☐ Allow administrative alerts
Minimum message severity: 30

☒ Allow opportunistic locking
Lock time-out: 30 seconds

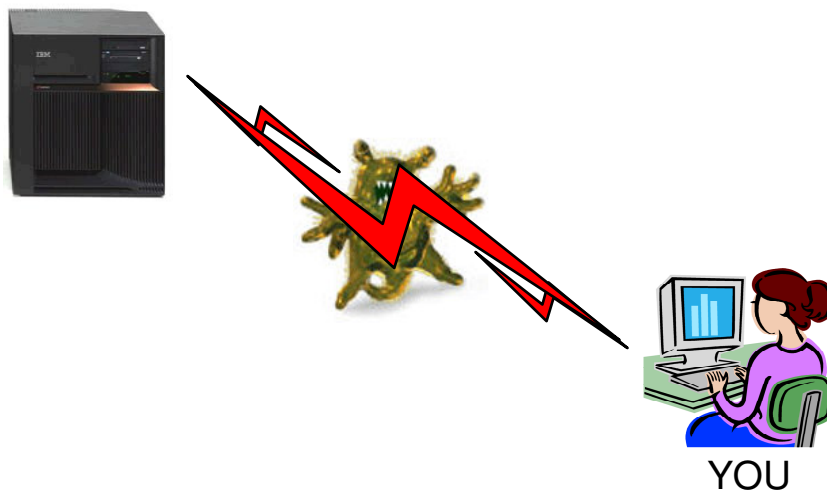
[Reset to Current]

[OK] [Cancel] [Help] [?]

NetServer Scalability and Performance Improvement

- When running in V5R4 mode (QZLSFILET jobs) significant improvements are possible
 - 30% improvement in throughput
 - V5R3 2way vs V5R4 2way
 - 20% improvement in response time
 - V5R3 2way vs V5R4 2way

Message Authentication



Message Authentication

- CIFS mechanism for protecting data transmissions between clients and servers (no data encryption).
- Requires equivalent support on clients
- 3 Configuration settings available
 - No – Message authentication will not be used
 - Optional - Based on client preference
 - Yes - Required authentication

Message Authentication - configuration

iSeries NetServer Security Next Start - Z1014p33

IBM iSeries Support for Windows Network Neighborhood

Guest user ID:

Authentication method:

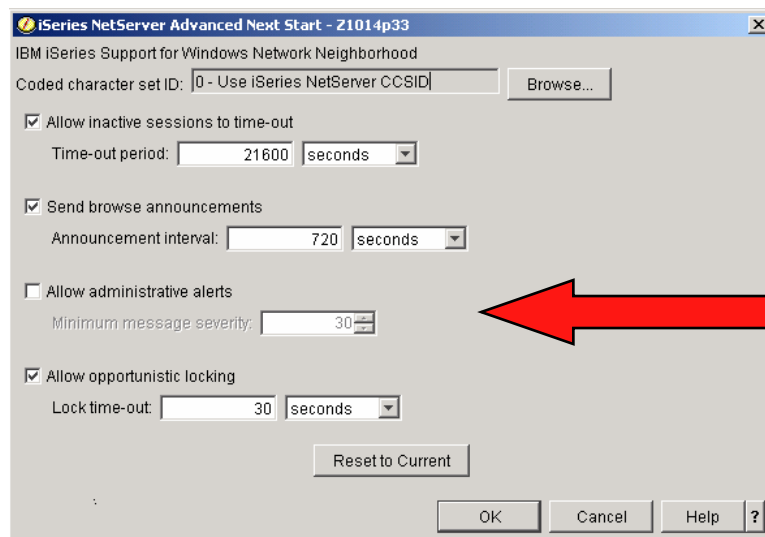
☐ Allow authentication with LAN Manager password hash

Require clients to sign requests:

Windows-style Messages

- iSeries NetServer can automatically send informational messages to users.
 - Password about to expire
 - Access is denied
 - Impromptu messages
- Supported since V5R2
- Navigator configuration added in V5R4
 - Administrative Alerts Yes/No
 - Minimum Message severity
- Messenger Service must be started on client

Windows-style Messaging - Configuration



V5R4 Tracing Support

- New components added to STRTRC command
 - *FILESVR
 - *NETSVR
- Contains detailed data required by development for problem isolation.
 - STRTRC SSNID(IBMTRC) JOBTRCTYPE(*TRCTYPE)
TRCTYPE((*NETSVR *INFO))

Additional Resources

- ***iSeries NetServer Web Site:***

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

- ***Introduction Articles and Presentations***
 - ***What's New?***
 - ***Information APARs***
 - ***Links to Technical References***
 - ***Operations Navigator Instructions***

- ***iSeries Infocenter***

- <http://publib.boulder.ibm.com/infocenter/series/v5r4>

- ***The AS/400 NetServer Advantage Redbook: SG24-5196***

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