

# NICs NETWORK INFORMATION CONNECTION

AN ESSENTIAL SUPPORT RESOURCE FROM THE INSTITUTE FOR NETWORK PROFESSIONALS

## Leading by Example

by Darryl Alder

Good leaders push team members to their highest levels of individual performance and work to keep them there. They draw ideas from others and use the synergy of the group to get jobs done. The leader encourages the best effort of each member, works to integrate and balance the team, and gets average employees to excel. But above all these, the good leader sets a strong example.

Walter Gifford, past Chairman of AT&T, once explained this when he said, "The successful general is one under whose leadership the staff, as well as the rank and file, will work and die with enthusiasm." Napoleon was such a general. His very presence meant victory for his soldiers and defeat for his enemies. In fact, the Duke of Wellington judged Napoleon's arrival on the battlefield equal to a reinforcement of about forty thousand additional men.

But such powerful example works both ways. When the leader suffers a loss of character and lets down from a best effort, every member of the group loses. The example of the once powerful general now works in reverse.

In this leadership skill we will explore the need to maintain a strong example by helping you see the need for:

- honesty and fair dealing
- energy and drive
- control of emotions and attitude
- knowing the job and keeping on top of industry developments.



### What the Skill Can Do

About a century and a half ago, in Southwest USA, there was a striking illustration of the power of example in the life of the Native American leader Cochise, Chiricahua Apache Chief. Born in southern Arizona in the early 1800's, Cochise was one in a long line of Chiefs raised in an ancient tradition of leading by being an example for peace and war. In addition to the example of his elders, he was also affected deeply by the settlers moving west—some good and some bad examples.

Early in his childhood, Cochise was trained to hunt to help feed his people. He was also trained to be a warrior. Bravery was part of his code for life. However, the use of weapons and tracking animals was only part of his upbringing. His elders showed him the trail of leadership they had followed to become Chiefs. For Cochise, this trail would follow the twin paths of honesty and integrity. Around him would see these values betrayed by some settlers and extolled by others.

He learned to gain his people's trust by being trustworthy himself, by telling the truth and by living a life of honesty. He expected others to do the same. He held his tribe accountable for the promises they made. And though his people had already been fighting the Mexicans, and earlier the Spanish, for more than three hundred years, when settlers moved into their tribal lands, he sought peace. He promised to get along with the ranchers and protected the overland stage from attack.

This treaty worked for years, but then after being falsely accused of an attack on a rancher and finally being duped into peace talks by a flag of truce, he was taken prisoner. He learned not all men were equally trustworthy. Yet when Thomas Jeffords, a white rancher who fought against the Apaches, returned an injured boy to the Chiricahua village, Cochise felt he found an honest settler.

<http://www.inpnet.org/NICs>

## IN THIS ISSUE

1

Leadership  
Development:  
**Leading by  
Example**

4

**Net Commands  
— Back to the  
Command Line**

7

Exam  
Preparation  
**Proxy Server 2.0**

13

**Tips for  
Starting a  
Professional  
Organization  
(part 1)**

14

**Dress for  
Success**

16

**Member  
Feedback**

Our deeds still travel  
with us from afar,

An what we have  
been make us what  
we are.

*George Eliot*



In a 1998 report, the American Society of Chartered Life Underwriters & Chartered Financial Consultants, along with the Ethics Officer Association published a survey that reports:

- Nearly half of all respondents listed some technical unethical practice they used.
- Thirteen percent of respondents admitted to copying office software for home use.
- Thirteen percent use office equipment to shop for personal items online and fifty-four percent thought it was okay to do it.
- Six percent admitted to accessing private computer files without permission.
- Four percent admitted to sabotaging the systems or data of a former or current employer.

Jeffords knowing he was in hostile territory rode bravely into the village. When challenged if he had been at war with their tribe, he freely admitted he had. Cochise was convinced Jeffords was both brave and trustworthy, for surely it would have been easier to lie in this situation. With the help of Jeffords, over time the U.S. Army won Cochise's trust once again. Finally they were able to establish another treaty, which lasted until after the death of the Chief. This treaty was forged out of the example of two leaders, Cochise and Jeffords.

## Understanding the Skill

In this leadership skill, other leadership skills come into play. You will either use them to represent your team to others or use them to establish standards that work like a compass to guide the team.

From the American Heritage Dictionary we learn there are two parts to the meaning of "example":

1. One that is representative of a group as a whole.
2. One serving as a pattern of a specific kind.

## Your Example— A Representation of the Team

As leader, you are the team's standard bearer and are seen as the exemplar of the group. What people see in you, either good or bad, will be projected onto the team members as a label. This natural process places pressure on any leader—pressure for you to work at higher levels of excellence.

This means different things in every work context, but as examples consider what management thinks when they see you requiring adequate software licenses at the office or when you are privy to client information, and you keep it confidential from peers and other clients. Your good example becomes an icon of your team. Your management colleagues see your whole team filled with integrity because of your nature, values and characteristics. You become a sort of group marker.

## Your Example— A Pattern for the Team

For most teams, standards and behavior patterns develop out of corporate culture. For example, if you are leading a group of uncertified professionals, you may need to take a class or self-study course, and test out on a new certification yourself just to show

your team the way. Or if you are a sales team leader, you might start making your ten daily sales contacts first thing in the day. Once you have shown the team what is expected by your good example, it's a lot easier to expect the same of them.

Your employees look to you for standards. If you go after sales at any costs, don't be surprised when staff is not supportive of each other's sales and become fiercely territorial. Or when they hear you talking about research and development from a client, they turn around and tell a competitor what's up, costing you the contract.

But when you demonstrate integrity and work to help each other succeed in sales or that you keep non-disclosure agreements and client information confidential, your staff will treat each other and your clients with respect.

## Putting the Skill To Work

Take a moment to analyze your own responsibilities in setting the example by asking yourself these questions:

- 1- How well do you know your job?
- 2- Have you got a set of standards for work? What about for your personal life?
- 3- Do you act mature?
- 4- How do you feel about company policy?
- 5- Are you motivated to figure out what needs to be done? When do you start doing it?
- 6- Do you do things by the book? (*You decide whose book*)
- 7- Do you strive for doing your best work?
- 8- How do you show good judgement?
- 9- How is your attitude?
- 10- Do you subscribe to and live by an industry code of conduct?

How you answer each of these questions will tell you what others will likely think of your company or workgroup. Similarly, your answers will identify your team's culture, because it is your example that builds that culture.

As you reflect further on the answers to the self-analysis, you might identify training needs and values that need clarification.

Some areas of consideration could include:

- 1- **Following Instructions.** Get the latest technical training and use it. Know your company's policies and procedures. Work to understand rules and regulations; be publicly supportive of those that are good and quietly work to change the bad ones.

This doesn't mean you should surrender your common sense and intellect, but being mavericks may not get the team anywhere either.

- 2- **Try Hard.** Following instructions isn't always enough. How they are followed is just as important. Use your own motivation to energize your team.
- 3- **Show Initiative.** Do what needs to be done without waiting to be forced to act. Make yours a proactive nature that seeks to work in areas that make a difference, without worrying about things that can't be changed.
- 4- **Act Mature.** Work to have good judgment and use it. Don't farce around, unless it is play time, or others will follow suit. Work to keep the respect of others by controlling any inappropriate emotions you feel.
- 5- **Know Your Job.** This includes your technical know-how as well as your leadership skills. Keep current by reading industry periodicals and hone your skill with self-study courses, seminars, CBTs, and etc. Show what you know by getting current certifications. When you are able, earn the Certified Network Professional (CNP) designation and maintain it throughout your technical career.
- 6- **Attitude.** Your attitude is one of the clearest ways to set the example. If one of your clients is a jerk and you express such to your team, the client will remain a jerk in their eyes for a long time, even if you feel differently later on. When you take on an unpleasant chore with gusto, the team feels compelled to emulate your zest for the project.
- 7- **Code of Ethics**-Another way to help you set the example is to develop a company Code of Ethics. The essential elements relating to professional practice are:
  - A high standard of skill and knowledge.
  - A confidential relationship with people served.
  - The observance of an ethical code.
  - Public confidence in and reliance upon certifications, standards, principles, and practices.

## Summary

To set a good example you must radiate drive, industry, and energy. You need to deal honestly with all. You must develop the ideas and harness the imagination of others fairly. It is your job to think, plan, invent, direct, inspect and inspire others by knowing the job and

<http://www.inpnet.org/NICs>

## Considerations for a Technical Code of Ethics

### A HIGH STANDARD OF SKILL AND KNOWLEDGE

Work to sustain and advance the profession by

- remaining current about technological developments in our field
- contributing to the interchange of technical/professional information
- participating in educational activities as a learner and, when feasible, as a teacher or mentor.

### A CONFIDENTIAL RELATIONSHIP WITH PEOPLE SERVED

Recognize and commit to the confidential relationships that exist between professionals and their employers and/or clients

Protect from disclosure to third parties any information acquired during the practice of one's profession unless granted permission from proprietors of that information.

Comply with laws, standards and regulations governing the profession and the industry.

Provide accurate information to consumers, clients and employers about the profession and services offered.

### THE OBSERVANCE OF AN ETHICAL CODE

Promote appropriate standards of professional behavior.

Respect intellectual property rights, including copyrights, patents and trademarks.

One shall not deliberately destroy or diminish the value or effectiveness of a network computing system through acts of commission or omission.

Act with strict impartiality when purporting to give independent advice to a client or employer. In the event that the advice given is currently or potentially influential to one's personal benefit, full and detailed disclosure to all relevant interested parties shall be made at the time the advice is provided.

One shall not knowingly enter into a legal or contractual relationship with a party with whom one's own interests conflict or are likely to conflict unless that interest has been disclosed in advance to all parties involved.

Have special regard for the potential effects of network computing systems on the right of privacy of individuals.

Properly qualify oneself when expressing an opinion outside one's professional competence in the event that such an opinion could be used improperly.

### PUBLIC CONFIDENCE IN AND RELIANCE UPON CERTIFICATIONS, STANDARDS, PRINCIPLES, AND PRACTICES.

Refrain from wittingly laying claims to competence one does not demonstrably possess; professionals shall not take unfair advantage of the lack of knowledge or inexperience of others.

Exercise technical and professional competence in the areas of one's Certificate and its specialties. Disclose to the employer or client any known limitations. Do not deliberately withhold vital information from the employer or client.

One shall not attempt to obtain certification by fraud or deception. One shall not misstate a material fact or fail to make a statement of material fact in an application for certification.

keeping on top of industry developments. You anticipate problems before they arise and calm troubled waters, while controlling your own emotions and attitude. Like it or not you are one of your team's most powerful examples, so go for it.



# Net Commands – Back to the Command Line

by KeithParsons



For those of us who started back in the olden days, back when CP/M was king, back when the command line was the only interface to the operating system, back, back, back to the future. Today the command line is just as important as ever. Some things just work better when you type the command, options, and switches yourself.

I must be getting old and losing my memory, because I enjoy the drop-down menus to remind me of what I want to do. So when I'm on a command line I've become used to always using the `/?` option first to remember what I wanted to do and remind myself of the options available.

In working in the Windows NT world, especially in a TCP/IP scenario command line functions are still valuable. Below is a list of various Net commands that we have found to be useful in our consulting practice. You can learn more about the Net commands in the Microsoft Resource Kits.

Have fun returning to your roots, and practicing with a couple of these commands.

## Connecting to NetBIOS resources using DNS names or IP addresses.

Use the Windows NT 'NBTSTAT -A <ipaddress>' command, and then parse the returned name table for the NetBIOS name registered by the server service.

### To find a valid NetBIOS name to connect on the target computer:

1. Issue a NetBIOS adapter status request to the destination IP address using the Windows NT 'NBTSTAT -A <ipaddress>' command, and then parse the returned name table for the name registered by the server service (<computer name>[0x20]).
2. Try a NetBIOS session setup to the new '\*SMBSERVER' name that recent implementations support.

- a. NetBIOS name resolution (via a name server, broadcast, or static file):  
NetBIOS name query request → <←  
NetBIOS name query response
- b. A TCP connection is established:  
SYN → <← SYN-ACK ACK →
- c. A NetBIOS session is set up over that connection: NetBIOS session setup request → <← NetBIOS session setup response

## Use NBTSTAT to display client and server sessions.

Type 'NBTSTAT -S' or 'NBTSTAT -s' at the command prompt and press ENTER.

Type one of the following at the command prompt and press ENTER:

- a. NBTSTAT -S (where the '-S' option lists the remote hosts by IP address only).
- b. NBTSTAT -s (where the '-s' option lists remote hosts by the name used in the HOSTS file).

*NOTE: The -a (-A), -r (-R), and -s (-S) switches of the NBTSTAT command are case-sensitive, and are used to perform different functions.*

## Use NBTSTAT to display NetBIOS protocol statistics.

Type the following at the command prompt and press ENTER:

```
NBTSTAT <parameters>
```

(where <parameters> define which statistics and connections will be displayed).

Type the following at the command prompt and press ENTER:

```
NBTSTAT <-a Remote Name><-A IP address><parameter>
```

(where the allowable parameters are as listed on the chart at the top of the next page).

## NET STAT PARAMETERS

<-a> (adapter status) shows the remote machine's nametable, and Remote Name is the remote host machine name

<-A> (Adapter status) shows the remote machine's name table, and IP address is the dotted decimal notation of the IP address

<-c> (cache) shows the remote name caching including the IP address

<-n> (names) shows the local NetBIOS names

<-r> (resolved) shows names resolved by broadcast and via links

<-R> (Reload) purges and reloads the remote cache name table

<-S> (Sessions) shows the session table with the destination IP addresses

<-s> (sessions) shows the session table while converting destination IP addresses to host names via the hosts file

<interval> time in seconds between screen refreshes of selected statistics Press CTRL+C to stop redisplaying.

### Use NBTSTAT to list contents and IP mappings of a NetBIOS name cache.

Type the following at the command prompt and press ENTER: NBTSTAT -c

*NOTE: The switches of the NBTSTAT command are case-sensitive, and are used to perform different functions.*

### Use NBTSTAT to list local NetBIOS names.

Type the following at the command prompt and press ENTER: NBTSTAT -n

*NOTE 1: The status 'Registered' indicates that the name is registered by broadcast (Bnode) or WINS.*  
*NOTE 2: The switches of the NBTSTAT command are case-sensitive, and are used to perform different functions.*

### Use NBTSTAT to list name resolution statistics.

Type the following at the command prompt and press ENTER: NBTSTAT -r

*NOTE 1: On a WINS server, this command displays the number of names resolved and registered by broadcast or by WINS.*

*NOTE 2: The -a (-A), -r (-R), and -s (-S) switches of the NBTSTAT command are case-sensitive, and are used to perform different functions.*

### Use NBTSTAT to list the name table of a remote computer.

Type one of the following at the command prompt and press ENTER:

- a. NBTSTAT -a <remote name> (where <remote name> is the name of the desired remote computer).
- b. NBTSTAT -A <IP address> (where <IP address> is the IP address of the desired remote computer).

*NOTE: The -a and -A switches of the NBTSTAT command are case-sensitive, and are used to perform different functions.*

<http://www.inpnet.org/NICs>

### Use NBTSTAT to reload an LMHOSTS file.

Type the following at the command prompt and press ENTER: NBTSTAT -R

*NOTE 1: All names are purged from the NetBIOS name cache prior to reloading the LMHOSTS file.*

*NOTE 2: The -a (-A), -r (-R), and -s (-S) switches of the NBTSTAT command are case-sensitive, and are used to perform different functions.*

### Use NETSTAT to display all connections and listening ports.

At the command prompt, type the following and press ENTER: NETSTAT -E

*NOTE: The '-E' option can be combined with the '-S' option to display per-protocol statistics. The correct syntax to use these options together is: NETSTAT -E -S.*

### Use NETSTAT to display IP routing and active connections.

At the command prompt, type the following and press ENTER: NETSTAT -R.

### Use NETSTAT to display per-protocol statistics.

At the command prompt, type the following and press ENTER: NETSTAT -P <protocol>

*NOTE 1: Per-protocol statistics can be displayed for the TCP, UDP, ICMP, and IP protocols.*

*NOTE 2: The '-P' option can be used with the '-S' option to show active connections on the selected protocol. The correct syntax to use these options together is: NETSTAT -S -P <protocol>.*

### Use NET VIEW to display shared resources.

From the command prompt, type the following and press ENTER:

NET VIEW \\<>computer name> /DOMAIN:  
<domain name>.

- a. To display a list of computers in the current domain, enter the following:  
NET VIEW

- b. To display a list of shared resources for a specific computer, enter the following:  
NET VIEW \\<computer name>  
(where <computer name> is the name of the computer whose shared resources you wish to display).
- c. To display a list of available computers in a specific domain, enter the following:  
NET VIEW /DOMAIN:<domain name> (where <domain name> specifies the desired domain).
- d. To display all the servers in a NetWare network, enter the following:  
NET VIEW /NETWORK:NW
- e. To display the resources available on a specific computer in a NetWare network, enter the following:  
NET VIEW /NETWORK:NW \\<computer name> (where <computer name> specifies the desired computer).

### Use NET USE command to connect to a shared resource.

From the command prompt, type the following and press ENTER:

```
NET USE <device name>\\<computer name>\<share name> <password> /
USER:<username>
```

1. To connect to a network device, type:  
NET USE <device name> \\<computer name>\<share name> (where <device name> is the assigned name of the device to connect to, <computer name> is the assigned name of the computer, and <share name> is the name of the shared resource).

EXAMPLE: To assign the disk-drive device name LPT1: to the LASER2 shared printer queue on the

NOTE: There are two kinds of device names: disk drives (D: through Z:) and printers (LPT1: through LPT3).

2. To connect to a network device as a different user, type:

```
NET USE <device name>\\<computer name>\<share name> /
USER:<username>
```

(where <device name> is the assigned name of the device to connect to, <computer name> is the assigned name of the computer, <share name> is the name of the shared resource, and <username> is the username with which to make the connection).

3. To connect to a network device that requires a password, type:  
NET USE <device name> \\<computer name>\<share name> <password> (where <device name> is the assigned name of the device to connect to, <computer name> is the assigned name of the computer, <share name> is the name of the shared resource, and <password> is the password needed to access the shared resource).

NOTE: To produce a prompt for the password type  
NET USE <device name> \\<computer name>\<share name> \*

### Use NET VIEW to display shared resources.

From the command prompt, type the following and press ENTER:

```
NET VIEW \\<computer name> /
DOMAIN:<domain name>
```

- a. To display a list of computers in the current domain, enter the following:  
NET VIEW
- b. To display a list of shared resources for a specific computer, enter the following  
NET VIEW \\<computer name>  
(where <computer name> is the name of the computer whose shared resources you wish to display).
- c. To display a list of available computers in a specific domain, enter the following:  
NET VIEW /DOMAIN:<domain name> (where <domain name> specifies the desired domain).
- d. To display all the servers in a NetWare network, enter the following:  
NET VIEW /NETWORK:NW
- e. To display the resources available on a specific computer in a NetWare network, enter the following:  
NET VIEW /NETWORK:NW \\<computer name> (where <computer name> specifies the desired computer).



### Know and use your member services!

					
Call 1 800 MEMBERS		877.291. 8499	BY593412 800-354-2322	T556800 800-331-1212	CDP1102230 800-654-2210

# Implementing and Supporting Microsoft Proxy Server 2.0

by RexMoffitt

## Exam Details

Exam Name: **Proxy Server 2.0**

Exam Number: **070-088**

Number of Questions: **68**

Passing Score: **735/1000**

Time to take Exam: **90 minutes**

Standard or Adaptive: **Standard with no simulations**

Certifications Exam Counts Toward: **MCSE elective, MCP, MCP+I, and MCSE+I elective**



## What to know for the exam

- Minimum requirements for installation.
- Which NT Service Pack is required prior to installation.
- Licensing options for proxy server.
- LAT.
- How to configure securities between proxy server and clients.
- Settings of caching options. Settings for active and passive caching.
- Where to define TTL.
- What MSPLAT.TXT, LOCALLAT.TXT and MSPCLNT.INI are used for.
- RAS, RRAS, PPTP and Auto-Dial.
- Understanding of DNS and WINS work.
- How to configure access for specific groups and domain members.
- Subnetting and routing.
- Proxy arrays and proxy chaining.
- Options for configuring reverse proxies.
- Settings for using JavaScript.
- Authentication methods.
- How to track performance with Performance Monitor, Network Monitor and Event Viewer.
- How to restrict access to specific URLs.
- How to deny access for SMTP on Exchange clients.
- Logging with SQL.
- How to backup and restore a proxy server.
- How UNIX clients use proxy server.
- Using IPX/SPX with Windows 3.1 and Windows 95 clients.
- How to automatically configure web browsers.
- How to control anonymous access.
- When to use Web, WinSock or SOCKS proxy.
- How distributed and heirarchical caching work.
- How to log multiple servers to one location.
- How to configure auditing.
- How to implement reverse hosting.
- How Proxy Server logs errors.
- How to configure a dual-homed proxy server.
- Ports.
- How to determine how much cache to set aside per person.

## Installation

Minimum requirements for Proxy Server 2.0:

- 486 or higher CPU
- 24mb RAM (with Intel processor)
- 32mb RAM (with RISC processor)
- 10mb free hard drive space
- 5mb required minimum free hard drive space for caching. (Although it is recommended you have 100MB + 0.5MB per client)
- NT Server 4.0 with Service Pack 3 installed. (You can use a later service pack you may get a message stating that it has not been tested. It should still work.)

You can use SETUP.EXE to install Proxy Server with different Options:

- /r – if you need to reinstall Proxy Server
- /u – if you want uninstall Proxy Server
- /k – To specify the CD Key you want to use

MPSSETUP.LOG – A log file that will display any problems found during server installation.

Proxy Server 2.0 is added into the MS Management Console as a snap-in (Internet Service Manager) administration utility.

## Client installation

Client software can be installed through the // *servername*/mspcInt share and running SETUP.EXE, or by connecting to http:// *servername*/msproxy and running the installation program.

MPCSETUP.LOG – A log file that will display any problems found during client installation.

The following items are installed with the client software:

- WinSock Proxy client application
- MSPCLNT.INI - Client configuration information.
- MSPLAT.TXT - Local Address Table.



## Cache

Recommended cache space allocation is 100mb and .5mb free disk space per client that you want to use the Proxy Server.

The default setting for cache is 100mb when the drive has at least 150mb free hard drive space.

Caching can only be performed on an NTFS partition. It cannot be performed on a FAT partition. Any partition that is grayed out and is not a choice is formatted as a FAT partition.

Connections requiring authentication or SSL connections will not be cached. Also any web page that changes often may not be cached

- Passive caching - All objects are cached. Cached objects will be removed after their TTL has expired. Objects will then be re-cached only when a client accesses that site again.
- Active caching - Frequently requested objects be retrieved from the Internet by the proxy server when the TTL of the object in cache is getting ready to expire.

Caching options:

### *Cache expiration policy*

- Updates are more important - Lowers cache performance to keep popular pages updated frequently.
- Equal importance - Balances cache performance with cache updates.
- Fewer network accesses are more important (more cache hits) - Provides best cache performance.

### *Enable active caching*

- Faster user response is more important - Saves less cache, but updates what is saved very frequently. Causes more users

to access data from the Internet rather than cache.

- Equal importance - Balances cache performance with cache updates.
- Fewer network accesses are more important - Allows least amount of Internet traffic and will not update cache as often.

To limit the size of cache objects, use expired objects in the cache, or change an object's TTL, set the proper options in the page accessed through the Web Proxy Service Properties window by clicking the Caching tab, then click Advanced.

Cache Filters - List of specific URLs that are in the cache. You can edit the cache list in the Web Proxy Service Properties window by clicking the Caching tab, Advanced, then click Cache filters.

## LAT (Local Address Table)

- LAT - Contains IP addresses of the internal network and IP address of the proxy server.
- MSPLAT.TXT - Contains the Local Address Table. The master copy of this file is stored on the server, and can be downloaded to client systems.
- LOCALLAT.TXT - Custom LAT for clients that need access to network ranges not specified in the MSPLAT.TXT

You can construct the list of internal IP addresses by clicking *Construct Table button*.

Add Internal IP ranges from your network to specify addresses of clients that will be connecting through the proxy server.

IP ranges can be changed in the individual service's properties by clicking the Local Address Table button.

## CARP (Cache Array Routing Protocol) and Multiple Proxy Servers

CARP - Multiple proxy servers are configured in an array to provide a single logical cache. These servers communicate between each other, so that each server knows the exact contents of each other. This disallows cache duplication.

Uses HTTP to communicate.

CARP can be implemented on clients using PAC - Proxy Auto-Configure file.

Proxy arrays use an array membership list. They use TTL to determine when to check for active servers, and maintain the list of active servers in the array membership list.

Array manager is used to maintain the array membership list. List includes TTL until next check, URL to receive array information for a remote manager and load factors for each server.

The proxy server will query array for a new table when TTL expires.

- Hierarchical routing - Requests are forwarded from a downstream proxy or array to an array of upstream proxies when they cannot be serviced. One hop is performed in each array before being forwarded to the next level.
- Distributed routing - One member of the array will answer a request received by another member of the array, when it is determined that they are the highest scoring proxy (through hash-based routing).
- Hash routing - Computes list of available servers and the URL to determine which proxy server in the array to use.

Array members contain a script, written in JavaScript, which tells clients how to connect to the array.

To view the array membership table, input the following URL into your browser:

<http://servername/array.dll?Get.Info.v1>

The list you will receive will resemble the following:

```
server1 190.165.3.50 80 http://
server1:80/array.dll MSPProxy/
2.0 7521 Up 100 150

server2 190.165.3.25 80 http://
server2:80/array.dll MSPProxy/
2.0 7521 Up 100 150
```

Table below lists information for server 1:

Information for Server 1	
Server name	server1
IP Address	192.168.0.1
Port number	80
URL for array.dll	http://server1:80/array.dll
Version of Proxy Server	MSPProxy/2.0
Number of seconds in current state	7521
Current state (up or down)	Up
Load factor of server	100
Cache size	150

Under the Routing tab of the proxy's properties, you can configure Upstream routing to automatically forward client requests to the Internet or to another proxy server or array.

Under the Routing tab of the proxy's properties, check the Enable backup route box and insert the proper parameters to automatically forward requests to the Internet or another proxy server or array in case the first upstream choice is unavailable.

Routing within array can be enabled to resolve proxy requests within the array prior to routing the client to an upstream server or array. This allows load balancing within the array.

### Administration

Proxy Server can be administered through the Internet Service Manager or using the command line.

Proxy Server installs counters into the Performance monitor to enhance the ability to troubleshoot more efficiently.

To remotely administer Proxy server, you must have the same version of client software installed on your system as the server you are connecting to.

Command line utilities that can be used:

- REMOTMSP - Used to remotely configure and administer Proxy Server, including starting and stopping services, backing up and restoring proxy information, and managing server arrays.
- WSPPROTO - Used to remotely edit service protocol definitions.

To stop/start services from the command line:

- NET STOP|START W3SVC – START|STOP the Web Service
- NET STOP|START WSPSRV - START|STOP the WinSocks service
- NET STOP|START W3SVC or use Remotmsp.exe - START|STOP The SOCKS service

### Backup and Restoration

Proxy server parameters are backed up to a text file in the C:\MSP\CONFIG directory, unless otherwise specified.

To perform a backup, go to the Properties field of any proxy service, click the *Service* tab, then click *Server Backup*. Select the directory you would like to backup to and click *OK*.



To perform a restoration, go to the Properties field of any proxy service, click the *Service* tab, then click *Server Backup*. Select whether to perform a Partial or Full Restore, then specify the directory that the backup was placed in and click *OK*.

- Partial Restore - Method is a non-computer specific restore; Items such as array membership and logging information will not be restored.
- Full Restore - Method is a computer specific restore; All items are restored.



## Security

To prevent unauthorized access to your network from external users:

- Disable IP forwarding in TCP/IP section of the Control Panel/Network configuration screen.
- Do not add external addresses to the LAT.
- Deny listening on inbound service ports.

Authentication Type:

- Anonymous - Any user is able to access the site.
- Basic - Login and Password are necessary to access the site.
- Windows NT challenge/response - Uses current login information to allow/disallow access to site. Only available in same or trusted domains.

Challenge/response will only work properly with IE 3.0 and later. When a non-IE browser accesses a challenge/response site, access will be denied.

## Web and Winsock proxy

Within the Web proxy and WinSock proxy properties screens, you can choose which users/groups are able to access the Internet through particular protocols. Permissions must be assigned separately to each protocol.

Web proxy covers only FTP, Gopher, Secure and Web protocols. The web protocol covers HTTP and HTTPS protocols. The secure protocol covers protocols setup to use secure ports.

WinSock proxy covers many protocols including HTTP, HTTPS, FTP, Telnet, Gopher, IRC, RealAudio, POP3, SMTP, and others.

Once users have been assigned permissions to a protocol, they then have access to the Internet through those specified ports. For example, when a user is assigned permission to use HTTP, they then have access to the Internet through port 80.

To assign or revoke permissions for users to other protocols, highlight the user and click *Copy to* or *Remove From*, select the proper protocol, and click *OK*.

WinSock proxy allows *Unlimited Access* to be specified. This allows all users full access to all ports on that defined in the WinSock proxy service.

WinSock proxy protocols can be edited, or new protocols can be added, to customize or create ports that are needed for certain application communications. Protocols can also be defined to only allow outbound or inbound access.

## Socks proxy

Socks proxy uses the Identification protocol and IP addresses to authenticate clients.

Socks proxy service depends on the Web proxy service to be running. If the Web proxy service stops, the Socks proxy service also stops.

Socks proxy does not support IPX/SPX.

Socks permissions can be moved change the orders of the listed permissions.

Custom Socks permissions can have functions matched to specified port numbers:

Socks Port Setting Determiners	
EQ	Equal to
NEQ	Not equal to
GT	Greater than
LT	Less than
GE	Greater than or equal to
LE	Less than or equal to

Socks can be set to deny or allow access from specific IP ranges, domain names, or all users. Options for this can be set to:

- Allow or deny access to these clients only to a certain destination.

- Allow or deny access to these clients' for certain port numbers/ranges.

Socks port settings are defined by the following determiners:

For example, you can choose to deny access to any port greater than 80 by specifying *Deny* in the Action box, *GT* in the Port box, and *80* in the Port number field.

This allows all clients from geocities.com to access anything in cramsession.com through port 80.

Identification (Identd) protocol - Provides a false user name to servers that block MS Proxy clients, to allow them to access the server's services. Is installed by running IDENTD.EXE —INSTALL. Is run through the NET command: NET START|STOP IDENTD.

## Domain Filtering

Domain filtering is used to grant or deny client access to certain domains/IP addresses.

Click the checkbox next to *Enable Filtering* to allow filtering.

Options:

- Grant - Grants access to all domains except the domains that are specified.
- Deny - Denies access to all domains except the domains that are specified.

You can grant or deny access to:

- Single computer - Must specify the IP address of a specific system. Can click the ellipsis button next to the IP field, and specify a DNS name. It will then return the IP address of that DNS name.
- Group of computers - Must specify the IP address and subnet mask of the systems.
- Domain - Must specify the domain name to grant or deny access to.

## Packet Filtering

Must have an external network interface before this can be enabled. If using a modem or ISDN adapter as the external network interface, you must have RAS Auto Dial setup. Only the external network adapter will provide packet filtering.

Provides filtering on packets, addresses and spoofs/attacks.

All packet types will be blocked, except for those specified in the Exceptions list.

<http://www.inpnet.org/NICs>

## Alerts

Proxy server can send alerts for events through the Event Viewer log files or email.

Alerting can only be enabled when packet filtering is enabled.

Alerts can be sent for:

- Rejected packets - Notifies you when numerous packets are being rejected in high rates. Rates can be set to alert you when rejected packets occur at a certain frequency. High frequency rates can mean an attack is taking place.
- Protocol violations - Notifies you when packets or frames are dissimilar from the typical protocol structure.
- Full disk drive warnings - Notifies you when disk drive that holds the service or packet log is full.

## Reverse Proxy Servers

A reverse proxy server services requests made to an internal web server. It will serve as a "firewall" by only letting visitors through one port to retrieve the information.

Reverse hosting can be enabled to allow multiple web servers to be contacted through the reverse proxy server.

To enable reverse proxy support, under the Publishing tab of the proxy service property panel, click the Enable Web publishing box. There are three options available:

- Discarded - All web server requests will be discarded.
- Sent to the local web server - All requests will be sent to the default web server.
- Sent to another web server - All requests are sent to a specific web server.

To create a reverse host route, click Add. In the Path field, insert the URL to be routed. In the URL field, insert the URL of the internal web server that will service this request.

## Logging

Log files are stored in the C:\WINNT\SYSTEM32\MSPLOGS\ directory by default.

- W3filename.LOG - Web Proxy service log
- WSfilename.LOG - WinSock Proxy service log
- SPfilename.LOG - Socks Proxy service log



- PFilename.LOG - packet filters  
Filename = yymmxx; yy=year, mm=month, xx=day/week/month of log.

Logging to a text file takes considerably less resources than logging to database.

An ODBC driver must be installed on the proxy server to be able to log to a database.

A DSN (Data Source Name) must be added to describe which server or database file you are writing to.

·MPKLOG.EXE - Included with Proxy Server. Tool to create SQL tables for proxy server logging.

### Proxy Clients

Proxy Server does not support IPX on Windows 3.x clients.

Windows 3.x clients cannot use the WinProxy service, but can use the Socks and Web services.

Windows 95 clients must have the Novell Client 32-bit IPX stack installed in order use IPX through the proxy server.

The default URL for clients to get the array routing script is `http://servername/Array.dll?Get.Routing.Script`

To prevent Exchange clients from connecting to Internet POP3 servers, put `DISABLE=1` under the `[EXCLNT32]` header in the `MSPCLNT.INI`.

Clients with the WinSock proxy client application download the `MSPCLNT.INI` file every time the client system is restarted and every six hours after the last refresh.

`WSPCFG.INI` - Contains server proxying information pertaining to the local client. The server will never overwrite it. This file contains application-specific settings for each WinSock application.

### RAS (Remote Access Services)

RAS is capable of using the following connection protocols:

- SLIP
- PPP
- RAS

RAS supports call back security to either the calling number or to a specified, non-changing number.

RAS for NT 4.0 supports multilink (the use of more than one modem to achieve higher transmission speeds). Multilink *cannot* be used with callback security *unless* there are two (or more) ISDN modems configured on the same phone number.

RAS uses NetBEUI as the default network protocol, but can also use TCP/IP and IPX/SPX. TCP/IP will need to be used if you are using programs that utilize the Windows Sockets (Winsock) interface over the RAS services.

### RAS encryption settings

1- Allow any authentication including clear text

This will allow RAS to use a number of password authentication protocols including the Password Authentication Protocol (PAP) which uses a plain-text password authentication. This option is useful if you have a number of different types of RAS clients, or to support third-party RAS clients.

2- Require encrypted authentication

This option will support any authentication used by RAS except PAP.

3- Require Microsoft encrypted authentication

4- This option will only make use of Microsoft's CHAP (Challenge Handshake Authentication Protocol). All Microsoft operating systems use MS-CHAP by default.

5- Require data encryption

This option will enable the encryption of all data sent to and from the RAS server.

RAS will write to a log file that can be used for troubleshooting RAS services. In order to enable RAS to write to the log, you have to enable it in the Registry.

Auto Dial is used to automatically dial-up to the Internet when a client is attempting to gain Internet access through the Proxy Server with RAS Auto-dial capabilities.

A RAS phonebook entry to your ISP will need to be created to allow Auto Dial to work. Credentials can be setup to set the user name and password used to connect with the ISP.

When Auto Dial is configured for the first time, or if settings are cleared the services will need to be restarted before settings can take effect.

### Computer name resolution

- DNS (Domain Name Services) - Used to resolve DNS host name to an IP address.
- WINS (Windows Internet Naming Service) - Used to resolve NetBIOS computer name to an IP address.
- HOSTS - File, which contains mappings between DNS host names and their IP, addresses.
- LMHOSTS - File, which contains mappings between NetBIOS computer names and their IP, addresses.

Common Port Numbers	
FTP	21
Telnet	23
SMTP	25
Gopher	70
HTTP	80
POP3	110
PPTP	1723



# Running a Successful Group of Network Professionals (part 1)

By EdKrach, CNP

Running a successful group of network professionals is not a hard job. It takes motivation, the ability to express enthusiasm, and the desire to do the job. If you have those traits, you can benefit immensely from the experience and professional exposure you'll receive by leading a successful group.

## Communications.

Professional organizations offer communicating with their members on a regular basis. First you need to know who your members are and how to communicate with them. The two most cost effective ways are email broadcasts and having an up-to-date web site.

## Email

Email works very well and there are several tools available to make your job easier. You can find many of them on past Technical Resource CDs. Calypso Mail (Q1 98 issue) makes use of blind lists very well. WorldMerge (Q2 98 issue) allows you to create "Mail Merge" emails which can be personalized for each member. We use WorldMerge for all Institute member announcements.

Once you have a current list and the software, you'll want to email meeting announcements 4 times before the meeting at the following intervals:

- 2 weeks out.
- 1 week out.
- 3 days out.
- 1 day out.

It may sound extreme, but it works. We're all very busy and need to be reminded all the time. This works and gets people to the meetings.

## Group Web Site

Having an up-to-date, professional looking web site will do wonders for your group's image. It will go a long way in helping attract new members as well as industry vendors who can host meetings.

I recommend that you register your own domain name with the InterNIC. Once you've registered, find a local ISP and explain who you are and that your group's web site is looking for a home. Then explain how you'll give credit to the ISP on your web page as a sponsor and

host of the web site. Encourage your members to support your ISP sponsor as well and you'll soon be on your way to developing a fine relationship with your web site host.

## Marketing Your Group

When you have that done, give out your URL and advertise it to everyone. It should be on every flyer you produce to hand out at NAEC's and ATEC's. You are promoting your group at local education centers, right?

Have some GROUP business cards made up for all members to use to pass out to any interested party. The card should list your officers and contact info as well as the URL to your web site. You can even go so far as to put the day your group meets with directions on the back side. Get a couple dozen members passing out those cards and you'll see your membership role grow.

## Monthly Meetings

It's very important to have regular monthly meetings at least 10 times a year. Some groups take August off because of summer vacations and such. During the year end holiday season try holding a social instead of a meeting.

## Meeting location

The meeting location makes a huge difference in the success or failure of your group. I was involved with the NPA as early as 1993 as a Chapter President in Germany and more recently, I served as the President of the Utah Association of Network Professionals. In both cases, we held meetings at a hotel.

Why a hotel you ask? Well, for a couple of reasons. Our middle name is Professional and I keep that in mind in what ever I do. A hotel is simply the most professional setting to hold a meeting of network professionals. It's very impressive to vendors who host them as well as visitors who come and see your group's name on the meeting board of the hotel.

Hotels provide everything you need to do the meeting right. They will handle many tasks that can take up large amounts of your time. They do meetings daily and usually know their stuff.



*Next issue Ed will tell you how to plan and fund meetings for your professional organization*

# The Interview for That Perfect Job

by Deni Berger

The day has finally come. Your resume made it past the desk of the HR department and it is finally time to take part in your first interview. If you're anything like the rest of us, your stomach is in knots and you're waiting in anticipation because you don't know what to expect. Contrary to what you may already think, there are ways that you can prepare for your interviews. Here are a few tricks to help you out.

## Learning About the Company

Many employers are looking for a candidate who has done their research. Of course it is important to know the answers to regular questions but in general, the more impressive candidate will know what the company does, their product lines, and so on. Take the extra time to browse the web, read magazines, find company related information, and go the extra mile. To be sure know the technical jargon of the company, try reading a book like *Ace the Technical Interview*. The author, Michael Rothstein, has collected sample questions with terminology unique to that aspect of the IT industry. If you want to be impressive, take the time and effort to make yourself impressive.

## Practice Makes Perfect

Many of us have been told by our parents and those around us that practice makes perfect. You know the spiel, "Watch yourself in the mirror." We laugh at ourselves when we find that we're rehearsing in the mirror only to see the mirror talking right back at us. Do practice interviews. Record them and have others that you are close to critique you. Spend the time that you need preparing. You will find that you are much better in the long run.

## Just What Have I Done

Yeah, yeah, we all know that you were the star football player, or the lead in a play in high school, but what does that have to do with the job you are seeking? Take the time to ponder what experience you do have and what it has to do with your job. How do the things you do and the things you have done relate to what

your future will become? When you are thinking about all of those wonderful things, think of ways that you can explain them. If you ran into problems through your experiences, what did you do to overcome them? The more you know about yourself, the better off you will be.



## Be Punctual

It is 8:00am and you had a late night. All you can do is think of how tired you are. You know your interview is at 9:00am but your potential employer will understand once you tell them your sob story, right? Wrong! Not only does being late show that you pay little attention to details, it also shows that you are irresponsible and unprofessional. BE ON TIME!

When you know that you have an interview with a potential employer do all you can to ensure a flawless appointment by allowing yourself enough time for everything you have to do before hand. If you give yourself enough time, you will be relaxed and your interview will go much smoother.

## Appearance

The saying goes, "You only have one chance to make a good first impression." Sometimes impressions say more than we want, so have a professional appearance and come to the interview with a smile.

Since dressing and looking good is important, find out the company's dress standard ahead of time. Then dress to it or even slightly better just to be sure. Don't wait until the morning of to pick out your attire. Find something in

### Things Not to Do In a Job Interview:

- Bad mouth your present workforce/management.
- Bad mouth your present company.
- Complain or show a negative attitude.
- Go into the interview unprepared.
- Brag.

*Cramsession Website  
(see URL in next next page)*

## Interview Tip Links:

Career Builder [http://www.careerbuilder.com/gh\\_int\\_htg.html](http://www.careerbuilder.com/gh_int_htg.html)  
CF Staffing: <http://www.cfstaffing.com/interviewtips.html>  
Cramsession: <http://www.cramsession.com/articles/career/interview.htm>

advance to wear. Make sure your selected clothing is pressed and your shoes are shined.

Be well groomed. If you need a haircut, be sure to get one. Don't go into your interview with your hair slicked back to hide a raggedy look. Remember that first impression says a lot.

## In the Interview

The single most important thing that you should remember when you are in an interview is **be honest**. Don't try to hide your mistakes. If you are asked questions that require you to explain disasters that you might have had at your last job, be honest. Tell the interviewer what you learned and what you would do to prevent such things from happening again.

Be assertive. This interview is a key way in helping you decide if this job is for you. Don't try to talk to fast. Relax and let the answers flow. You have worked hard to get to this point you don't want to blow it now. Speak clearly so that you are understood and don't be afraid to ask questions.

You may want to ask questions such as: Will I have the opportunity to voice my own opinions? How often are performance reviews given? Does the job require travel? These questions and many more are stepping stones in helping you decide if you want to accept this job if an offer is made.

## Finally, Be Prepared

Being prepared for your interviews will help you so that you will not have the jitters. Before going to the interview, know what the company and the job are about. Be prepared with questions to ask the interviewer about the job. The day prior to and the day of the interview should be used to mentally prepare yourself for the interview.

## If you are traveling for the interview double check:

1. Know the name, title, business address, and phone number of the person you are to meet with.
2. Be sure to follow up with the airlines you have your tickets through to be sure you still have your flights reserved.
3. Bring any necessary documents: car rental documents, hotel confirmations, plane tickets, extra copies of your resume, maps, schedule, etc.
4. Information on how to get reimbursed for your expenses.

## Conclusion

While we cannot cover every detail it is important to know that you must prepare early for your interviews. Start finding out about the company that you are interviewing for. Know as much as you can about them. Practice your interview with family members or friends. There are many sites on the web that have practice questions. You might also want to purchase a job-searching magazine. There are often tips in the magazines that will help you prepare. Know what you have done in your life. Your knowledge about relevant experience will be a great plus. Finally, be on time and be prepared. Nothing can help you more. Happy hunting. ✚

<http://www.inpnet.org/NICs>

# NICs

## NETWORK INFORMATION CONNECTION

is published by the Institute for Network Professionals

**Prices** Domestic \$100/yr (\$8.50 each)  
Outside US \$120/yr (\$10.00 each)

**Phone** US 801 223 9444  
Fax 801 223 9486

**Address** Please send tips, special requests, change of address, subscriptions, fulfillment questions, requests for group subscriptions, and other correspondence to:

NICs  
1372 South 740 East  
University Office Park  
Orem, UT 84097-8083

or contact us via Internet E-mail at:  
NICs@inpnet.org

**Postmaster** Periodicals postage paid in Provo, UT.

Postmaster: Send address Changes to:

NICs  
1372 South 740 East  
University Office Park  
Orem, UT 84097-8083

**Copyright** © 1999, Institute for Network Professionals. NICs is an independently produced publication of the Institute for Network Professionals. All rights reserved. Reproduction in whole or in part in any form or medium without express written permission of the Institute for Network Professionals is prohibited. The Institute for Network Professionals reserves the right, with respect to submissions, to revise, republish, and authorize its readers to use the tips submitted for personal and commercial use.

Microsoft, Windows, Windows NT, and MS-DOS are registered trademarks of Microsoft Corporation. NetWare is a registered trademark of Novell, Inc. All other product names or services identified throughout this journal are registered trademarks of their respective companies.

**Staff** Editor-in-Chief **KeithParsons**  
Technical Editor **EdKrach**  
Managing Editor **DarrylAlder**  
Testing Editor **DeniBerger**  
Tech Support Editor **ToddHindmarsh**  
Test Prep Editor **RexMoffitt**

**Back Issues** To order back issues, call Customer Relations at 801 223 9444. Back issues cost \$8.50 each, \$10.00 outside the US. You can pay with MasterCard, Visa, or American Express or visit our archive at <http://www.inpnet.org/nics>.

*The Institute for Network Professionals makes resources and support accessible for networking professionals with the objective of enhancing their member's technical knowledge, skills and professionalism. The Institute continues to serve more than 40,000 network professionals world-wide with products, training, events and through alliances with industry suppliers and other organizations.*



1372 SOUTH 740 EAST  
OREM, UT 84097-8083  
801 223 9444-801 223 9486 FAX  
WWW.INPNET.ORG OR INFO@INPNET.ORG



## Member Feedback

Today I received the CD. The content !!!!!  
Oh... it is really very interesting. Keep up  
the good work and wish you the best.

*Ahmed Kamar-eddine  
Diplomatic Quarter Network Engineer  
Yanbu Al-Sinaiyah, Saudi Arabia*

The CD is very useful. As a matter of fact I  
never leave office without it. I find the  
updates very helpful as I have solved a few  
problems using both the Netware and the  
Microsoft versions. Sometimes I may use  
the antivirus to clean a customers hard  
drive (just to solve another problem) and  
then I remove same (advising them to  
purchase their own, of course). I some-  
times use the pinout diagrams to solve  
serial port mismatch wiring (especially the  
new clone motherboards with the bracket  
mounted ports). I use lot of the trial and  
licensed software especially to make  
specific recommendation to customers ( we  
also do consultancy) and would say they  
are a very big help. Please keep up that  
aspect also of the CD.

*Gerald Cameron  
Managing Director, Data Link Corporation  
Ltd, Kingston, Jamaica*

Just wanted to drop you a line and let you  
know how handy I find your CD organizer  
you sent out a year ago. I like the size  
because it has room for papers in the front  
folder and room for notes in the back. I  
keep all of my troubleshooting CD's in there  
and it works great. My only problem now is  
that I don't have any room for more CDs.

*Scott Blanck  
IS Specialist, CNE, MCPS  
Corporate Environments, Atlanta*

The CD's ... are a marvelous resource for  
all of my students - from the most ad-  
vanced to the relative network novice.

*Bruce MacKay, MCNI  
Halifax, Canada*

I enjoyed Brainshare '99 immensely. This  
was my first Brainshare Conference, and I  
was really "hopping" to go! If it were not for  
the Institute discount, I may not have made  
it. The discount was significant enough to  
allow me to pay my own way to the  
conference. The company I currently work  
for did not intend to send me or help me  
pay for it in anyway. Therefore, I had to  
come up with my own twist on how to get  
there. The discount was a lifesaver. Thanks

*Karen J. Hunt, CNE  
Morehouse School of Medicine  
Lithonia, Georgai*

The CD has already proven its worth since I  
received it. I work for an ATEC/NAEC in  
Phoenix and consult on the side. The day  
after I received the CD, a client of mine  
called up worried about their NetWare 4.11  
server being Y2K compliant. They wanted  
me to make sure their server and all their  
software was compliant. After perusing the  
CD I noticed the intraNetWare Service  
Pack 5 and the Y2K patches were right  
there. I applied the patches and came away  
with a pleased customer. ... The licensed  
software is wonderful. You guys have  
included so many useful tools for the guy  
who's a one - two man consulting shop. I  
can't afford to go out and buy all the  
Symantec products just to play with them.  
NovaStor and BackupExec are expensive.  
So it's nice to be able to test-bed this stuff  
in the lab and provide clients with educated  
and informed opinions about these pack-  
ages. ... Anyone not using it daily to solve  
problems and troubleshoot is missing the  
boat.

*Paul R. Amador, CNE, CNI  
netRx Incorporated, Phoenix, AZ*

I was able to use the rental car coupon in  
the Network Professional Toolkit—it saved  
me \$45 this past weekend.

*Ken Guymon, MCSE Student  
Orem, Utah*