# Setting Up Internet Connection Sharing (ICS) on a Server

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# Why ICS?

Internet Connection Sharing (ICS) will enable us to build a small network and connect our client to the server.

What equipment will we need? We will want to have two Network Interface Cards (NICs) setup on the server. Their drivers should be loaded and they should be working properly.

Next, we will want to rename both NICs.

Com E	therLink 10/100 PCI For Complete PC Management NIC ? 🗙
Gener	al Advanced Driver Details Resources Power Management
Ħ	Intel(R) PRO/100 M Network Connection Properties
<u>ani</u>	General Advanced Driver Details Resources Power Management
	Intel(R) PR0/100 M Network Connection
	Device type: Network adapters
	Manufacturer: Intel
1	Location: PCI bus 1, device 12, function 0
1	Device status
	This device is working properly.
	If you are having problems with this device, click Troubleshoot to start the troubleshooter.
	▼
Us	Troubleshoot
	Device usage:
	Use this device (enable)
	OK Cancel

## Naming the External NIC

We should give the NICs identifiers that will allow us to quickly determine what they control just by reading. The card that connects the server to the outside networks can be called such names as external, Internet or outside.

To make the name alteration, we enter the Control Panel and then Network Connections. Select the Local Area Connection that joins to the Internet and right click on the name. When the submenu pops up, we select rename and type External in the new name textbox. We press the OK button to accept the change.



OK

Cancel

### Naming the Internal NIC

The card that connects the server to the inside networks can be called such names as internal, Intranet or inside.

To make the name alteration, we enter the Control Panel and then Network Connections Select the Local Area Connection 2 that joins to the Local Area Network (LAN) and right click on the name. When the submenu pops up, we select rename and type Internal in the new name textbox. We press the OK button to accept the change.



#### The External NIC

Now, we go to the Network Connection window and select the External NIC. The External NIC Status window will open and we will select the Properties button. At the External Properties window, we choose the Advanced tab on the top right of the dialogue box. At this time, we can see the Internet **Connection Sharing** checkbox. We will place a check in the box.

	S Network Connections	
	Eile Edit View Favorites Tools Advanced Help	A
	🔇 Back 🔻 🕤 👻 🏂 🔎 Search 🌔 Folders 🛛 🕼 🎲 🗙 🍤 🛄 🛨	
	Address 💊 Network Connections	💌 🄁 Go
	LAN or High-Speed Internet	
General Support	idress Vetwork Vetwork Scontected	PCI Fo
Connection	External Properties	
Status: G	eneral Authentication Advanced	
Speed:	Connect using: Lxternal Properties	? ×
opcod.	B 3Com EtherLink 10/100 General Authentication Advanced	
Activity Sen Packets: <u>Properties</u> <u>D</u> isab	This cgnnection uses the follo       Windows Firewall         Image: Stress of the second	Settings
	Notity me when this conne	

OK.

Cancel

# The External NIC TCP/IP Settings

The computer will tell us that the IP address 192.168.0.1 will be used for our system. We will continue to utilize the external IP address scheme, gateway IP and DNS IP addresses that we previously had installed on the External network interface card.

Internet Protocol (TCP/IP) Properties						
General						
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.						
O Obtain an IP address automatical	C Obtain an IP address automatically					
• Use the following IP address:						
IP address:	192.168.10.2					
S <u>u</u> bnet mask:	255 . 255 . 255 . 0					
Default gateway:	192 . 168 . 10 . 1					
C Obtain DNS server address autom	C Obtain DN5 server address automatically					
Use the following DNS server addresses:						
Preferred DNS server:	8.8.8.8					
Alternate DNS server:	8.8.4.4					
Ad <u>v</u> anced						
	OK Ca	ncel				

## Services in ICS

We can check TCP/IP services such as DNS, FTP and SMTP. When we check the box, individuals can resolve domain names, transfer files and send email through the ICS enabled external NIC.

To close this window, we press the OK button.

Advanced Settings	? ×
Services	
Select the services running on your network that Internet users of access.	an
Services	
<ul> <li>DHCP (67)</li> <li>DHCP (68)</li> <li>DNS</li> <li>FTP Server</li> <li>Internet Mail Access Protocol Version 3 (IMAP3)</li> <li>Internet Mail Access Protocol Version 4 (IMAP4)</li> <li>Internet Mail Server (SMTP)</li> <li>Post-Office Protocol Version 3 (POP3)</li> <li>Remote Desktop</li> <li>Secure Web Server (HTTPS)</li> <li>Telnet Server</li> <li>Web Server (HTTP)</li> </ul>	
A <u>d</u> d Edi <u>t</u> D <u>e</u> lete	
OK Cano	el

## The Internal NIC

Now, we will setup the Internal network interface card. We double click on the Internal card and the Internal NIC Status window will open and we will select the Properties button. At the Internal Properties window, we double click on the TCP/IP Internet Protocol. We can type our own IP address scheme in for the Intranet IP of 192.168.1.1. The subnet mask will be 255.255.255.0. We leave the gateway and DNS IP addresses blank.



## Setting Up a Client Computer

Now that the server is setup for Internet **Connection Service** (ICS), we can connect a client computer to the server. On the client computer, we connect to the server's Internal NIC through a switch or we can just use a lap link network cable. We double click on the local area connection to manipulate the IP addresses.



# Setting Up the Client's IP Address

Now, we will setup the client's network interface card. We double click on the local area network connection and the Local Are Connection Status window will open and we will select the Properties button. At the Local Are Connection Properties window, we double click on the TCP/IP Internet Protocol. We can type our own IP address scheme of 192,168,1,2. The subnet mask will be 255.255.255.0. The gateway and DNS IP address is the server's internal NIC IP of 192.168.1.1. Press OK to exit the windows.

🔟 Local Area Connection Status 🔗 🔀							
General Support							
Connection	🔟 Local Area Connection Properties 🛛 🕐 🔀						
Status:	General Advanced						
Duration:	Connect using:	Internet Protocol (TCP/IP) Prop	erties 🛛 🛛 🔀				
Speed:	👜 Intel(R) PRO/100 VE Ne	General					
Activity	This connection uses the follow           Image: Second sec	You can get IP settings assigned aut this capability. Otherwise, you need to the appropriate IP settings.	omatically if your network supports o ask your network administrator for				
	🗹 🐨 Internet Protocol (TCP	Obtain an IP address automatic	ally				
Packets:	Install	<ul> <li>Use the following IP address: –</li> <li>IP address:</li> <li>Subnet mask:</li> <li>Default gateway:</li> </ul>	192.168.1.2         255.255.255.0         192.168.1.1				
Properties (	network.	Obtain DNS server address auto	omatically				
	Sho <u>w</u> icon in notification are	Use the following DNS server a					
		Alternate DNS server:					
			Ad <u>v</u> anced				
			OK Cancel				

## Setting the Internet Options

We continue to setup the client computer by opening the Internet Options window. We should pick the LAN settings button and in the Local Area Network Settings window, we check the automatically detect settings checkbox. We then press the OK buttons to close the dialogue boxes.

Internet Options	? 🗙	
General Security Privacy Content Connections	Programs Advanced	
To set up an Internet connection, click Setup. Dial-up and Virtual Private Network settings	Local Area Network (LAN) Settings Automatic configuration Automatic configuration may override manual settings. To ensure use of manual settings, disable automatic configuration.  Automatically detect settings Use automatic configuration script Address	the
Choose Settings if you need to configure a proxy server for a connection. Never dial a connection	Proxy server         Use a proxy server for your LAN (These settings will not apply bidial-up or VPN connections).         Address:       192.168.1.1	:o
O Always dial my default connection     Current None     Local Area Network (LAN) settings	Bypass proxy server for local addresses	
LAN Settings do not apply to dial-up connections. Choose Settings above for dial-up settings. OK Can	LAN settings	

#### Browse the Internet on the Client Computer

At this time, we will open Internet Explorer and type <u>www.worldclasscad.com</u> in the address bar.

The client computer can now browse the Internet through the server.

