# DIALUP ISP Connection in NetWare 4.x, 5.x and BorderManager.

Beta version 1.0, Friday, March 09, 2001 - Craig Johnson

As long as you have the MPR (multi-protocol router) modules installed for NetWare (comes with NetWare 5.x in NIAS and with BorderManager), you can configure a NetWare server to dial into an ISP and act as a router for your internal network.

Most of the configuration is done using INETCFG.NLM. You can manually force the connections up and down with the CALLMGR.NLM. You can troubleshoot using the PPPTRACE.NLM.

# **INETCFG** screens

Launch INETCFG at the server console prompt.

## BOARDS

BORDER1 - Internetworking Configuration		_ 🗆 🗵
BORDER1 📃 👳 🔸 Internetworking Configu 💌 4 🕨 🗊 🕶 🥔 🛈		
Internetworking Configuration 3.32b	NetWare Loadable	Module
Internetworking Configuration		
Boards         Network Interfaces         WAN Call Directory         Backup Call Associations         Protocols         Bindings         Manage Configuration         View Configuration         Reinitialize System         Go To Fast Setup		
Connected		rr-uerb

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Internetworking Configuration 3.32b NetWare Loadable	Module
Select A Driver	
Driver Description	
SMC9432 Standard Microsystems EtherPower 10/100B PCI Eth	er
Boar SMCPWR2 SMC EtherPower II 10/100 32-Bit ODI Driver	
PRIV SN5000 SN5000 Fast Ethernet Adapter Driver	
UPTU SYNC570 Digi International SYNC/570(i) Adapter, SYNC570.	LA
SYNCPLUS Novell Synchronous/+ Adapter, SYNCPLUS.LAN drive	r 📔
Reinit TLNKPODI 3Com TokenLink Velocity XL PCI Adapters	
Go To TOKEN IBM Token-Ring	
TOKENOSM Novell Token-King 120 OSM	
TR2K386 Microdyne IrmaTrac PCI Token Ring for NetWare 4.	11
UIANWSRU The UIA PCI 10/100Mb Fast Ethernet Adapter	
MINISTRIC ROVELL WISHING, LAN GRIVER	
elect a known driver for the new interface board.	P1-Uolo
NIER-SELECT INS-HUU NEW Driver ESC-Frevious Menu	ri-neip

Install a serial port interface by selecting the WHSMAIO driver.

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Internetworking Configuration	on 3.32b		N	etWare Loa	dable Module
Internetworking Configurati	ion				
	Configur	ed Boards			
Board Name Driver Ir PRIVATE E100ISA - PUBLIC E100ISA - VPTUNNEL VPTUNNEL -	nt IOAddr - - -	MemAddr  	<b>Slot</b> - - -	Status Enabled Enabled Enabled	Comment - - -
Reinitialize System Go To Fast Setup	d Name: MOD	EM_		]	
Name by which the interface l Valid Characters: AZ, 09,	board is to	be ident	ified.		F1=Help

Give it a board name such as COM1 or COM2 or MODEM

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	Internetworking Configuration 3.32b NetWare Loadable Module				
	Internet	working Configuration			
		Conf igured	Boards		
	Boar	WHSMAIO Board Config	guration	Comment	
	PUBL	WHSMAIO Board Name: AIO Board Name: AIO Driver:	MODEM unknown unknown	Ξ	
	Reinit	AIO Board Options:	KSelect to View>		
	100 10	First AlO Port Number: Number of AlO Ports: Driver-Specific Configuration:	0 0		
I I	Select this field to choose the AIO board configuration. ENTER=Select ESC=Previous Menu F1=Help				

You will need to configure the serial port settings next, so press Enter at AIO Board Options.

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Г	Internet	orking Configuration 3.32b NetWare L	oadable Module
	Internet	working Configuration	
		Configured Boards	
	Boar	WHSMAIO Board Configuration	Comment
	PUBL	WHS Should INETCFG automatically load the AIO driv	er ?
		AIO Yes	
	Reinit		
		First AIO Port Number: 0	
		Driver-Specific Configuration:	
K	eep the A	10 board configuration under INETCFG control.	
J E	NTER=Sele	ect ESC=Exit Menu	F1=Help

Allow INETCFG to automatically load the AIO driver. (Select Yes).

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	Internetworking Configuration 3.32b NetWare Loadable	Module
	Select an AIO Driver	
5	Driver       Description         AIOACI       Newport Systems Solutions ACI         AIODGX       Serial Port (COM×)         AIODGXEM       Digi International C/X         AIODGXEM       Digi International Xem Driver (EISA)         AIODGXEM       Digi International Xem Driver (ISA)         AIODGXEM       Digi International Xem Driver (MC)         AIODGXEM       Digi International Xem Driver (MC)         AIODGXEM       Digi International Xem Driver (MC)         AIODGXEM       Digi International Xem Driver (PCI)         AIODGXR       Digi International Acceleport Xr 920 Driver (ISA)         AIODGXR       Digi International Acceleport Xr 920 Driver (PCI)         AIODGXR       Digi International Xr Driver (ISA)         AIODGXR       Digi International Xr Driver (PCI)         AIODGXR       Digi International Xr Driver (PCI)         AIODGXR       Digi International Xr Driver (PCI)         AIOEQNX       Equinox SST (EISA)         AIOEQNX       Equinox SST (ISA)         AIOEQNX       Equinox SST (MCA)	
E	NTER=Select ESC=Previous Menu	F1=Help

Select the AIOCOMX Serial Port driver.

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Internetworking Configuration 3.32b NetWare Loadab	le Module
AIO Board Configuration Board Name: MODEM Ivo Base: 3F8 Interrupt: 4 Speed Rating: 115200 AIODGXEM Digi Internatio AIODGXR Digi Internation AIODGXR Digi Internation AIODGXR Digi Internation AIODGXR Digi Internation AIODGXR Digi Internation AIODGXR Digi Internation AIODGXR Digi International Xr Driver (PCI) AIOEQNX Equinox SST (ISA) V AIOEQNX Equinox SST (MCA)	
ENTER-Select ESC=Previous Menu	F1=Help

Select the I/O base (3F8 for COM1 or 2F8 for COM2) and interrupt (4 for COM1 or 3 for COM2), then select a serial port speed. Without installing the COMX218.EXE patch, you should not go above about 38,400.

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Г	Internetw	orking Configuration 3.32b NetWare L	oadable Module		
	Internet	working Configuration			
		Configured Boards			
	Boar	WHSMAIO Board Configuration	Comment		
	PUBL	WHSMAIO Board Name: MODEM AIO Board Name: MODEM AIO Driver: Saue Changes 2	Ξ		
	Reinit Go To	AIO Board Optio First AIO Port Number of AIO P Driver-Specific Configuration:			
SE	Driver-Specific Configuration:         Select this field to choose the AIO board configuration.         ENTER-Select ESC=Previous Menu    F1=Help				

Press Esc and save the changes. Press Esc again to return to the INETCFG main menu.

#### **Network Interfaces**



#### Select Network Interfaces

Console				
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Internetworking Configuration 3.32b NetWare Loadable Module			Loadable Module	
Internetworking Configurat	ion			
	Network Interfaces			
Board Name Interface  MODEM MODEM_1 PRIVATE PRIVATE PUBLIC PUBLIC UPTUNNEL UPTUNNEL	Group Select A Medium PPP Routing	Media Ethernet Ethernet VPTUNNEL	Status <mark>Unconfigured</mark> Enabled Enabled Enabled	
Reinitialize System Go To Fast Setup				
Select a medium for this net ENTER=Select ESC=Cancel	work interface.		F1=Help	

Select the serial port board and you should have (only) a choice for PPP Routing, so select it.

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Interne	tworking Configuration 3.32	2b NetWare Loadable Mod	lule	
L Teter	PPP Routing Networ	rk Interface Configuration		
	Interface Name: Interface Group:	MODEM_1 (None) Enabled		
Boar  MODE  PRIU  PUBL	Framing Type: Physical Type: Interface Speed:	ASYNC RS-232 9600	ed	
UPTU   Rein   Go T	Modem/DCE Type: Modem/DCE Options: Local Telephone Number:	(None) (view-or modify) (None)		
	Authentication Options: Timeouts & Retries: Negotiation Options: Enterprise Specific Traps:	(view or modify) (view or modify) (view or modify) (view or modify)		
Physical Options:       (view or modify)         Select the type of Modem or other DCE Device attached to this interface.         ENTER=Select ESC=Previous Menu       F1=Help				

You must now select the Modem type. Hopefully your modem will be listed, but you can generally use a selection that is close to yours. Winmodems will not work!

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Internetworking Configuration 3.32b NetWare L	oadable Module
PPP Modem/DCE Device Types tion	
Inter Inte ↓USRobotics Sportster 28800 U.34+U.FC	
Inte USRobotics Sportster 28800(C) Inte USRobotics Sportster 33.6 + Voice + FAX	
Boar USRobotics Sportster 33.6 Faxmodem USRobotics Sportster 56k Fax (x2)	ed
PRIV Phys USRobotics Sportster 9600/14400 (UK) PUBL Inte USRobotics Sportster 9600/14400 V42bis <sup>n</sup>	
VPTU Mode USRobotics Sportster V.34 28.8K Mode USRobotics Sportster V.34 28.8K (UK)	
Rein Loca USRobotics Sportster U.34 28.8K (UK2) Go T USRobotics U.32/U.32bis	
Auth USRobotics U.32/U.32bis (UK)	
Nego U-Fast 144/144 Entel Uep-Tel 9600 Plus/Plus II	
Phys Ven-Tel Pathfinder "	
Select from the list of supported Modems and DCE Devices.	F1 =He ly

Select a suitable modem. Many selections will probably work.

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Interne	tworking Configuration 3.32	2b NetWare Loadable Mo	dule
	PPP Routing Netwo	wk Intenface Configuration	1
Inter	III houring herwor	The frace sont ign action	
	Interface Name: Interface Group:	MODEM_1 (None)	
	Interface Status:	Enabled	
Boar   MODE	Framing Type:	ASYNC	ed
	Physical Type:	RS-232	
VPTU	Modem/DCE Type:	USRobotics Sportster 33.6 Faxmodem	
	Modem/DCE Options:	(view or modify)	
Go T	hocal felephone Mamber.	887-8125_	
	Authentication Options:	(view or modify)	
	Negotiation Ontions:	(view or modify) (view or modifu)	
	Enterprise Specific Traps:	(view or modify)	
	Physical Options:	(view or modify)	
Enter t	e local phone number to use	for this connection.	
ENTER=Se	elect ESC=Previous Menu	P:	1=Help

Select Local Telephone number and type in the number for your ISP.

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Interne	tworking Configuration 3.32	2b NetWare Loadable Mo	dule
	PPP Routing Networ	rk Interface Configuration	
	Interface Name: Interface Group:	MODEM_1 (None)	
Boar  MODE  PRIU  PUBL  UPTU	Framing Type: Physical Type: Interface Speed: Modem/DCE Type:	ASYNC RS-232 9600 USRobotics Sportster 33.6 Faxmodem	ed
Rein Go T	Authentication Options: Authentication Options: Timeouts & Retries: Negotiation Options: Enterprise Specific Traps: Physical Options:	(view or modify) 889-0123- (view or modify) (view or modify) (view or modify) (view or modify) (view or modify)	
Select t ENTER=Se	co view or modify inbound ca. Plect ESC=Previous Menu	ller authentication options.	1=Help

Select Authentication Options and press Enter.

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Internetworking Configuration	3.32b NetWare Loadable Module
r	etwork Interface Configuration
PPP Inboun	d Authentication Options
Interface Name:	MODEM_1
Inbound Call Processing: Inbound Authentication: Local System ID for CHAP: Authentication Database Name: Authentication Database:	Enabled Either PAP or CHAP BORDER1 PPP-AUTH (view or modify)
Go T Authentication Options Timeouts & Retries: Negotiation Options: Enterprise Specific Tr Physical Options:	:: (view or modify) (view or modify) (view or modify) vaps: (view or modify) (view or modify) (view or modify)
Select the inbound authenticati ENTER=Select ESC=Previous Menu	on protocol required on this interface. F1=Help

You may be able to use the defaults. If your modem dials the ISP, connects, then disconnects after a few seconds, it may be that the password is not being recognized. You may then want to try a selection of just CHAP, or PAP.

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Interne	etworki	ng Configuration 3.32b	NetWare Loadab	le Mo	dule
		PPP Routing Network Interface	e Configuration		
Inter	Inte	PPP Negotiation O	ptions	]	İ
Boan	Inte	Interface Name:	MODEM_1		
	Fram	MRU Optimal Size:	1500 (bytes) 1500 (butes)		ed
PUBL	Inte	MRU Minimum Size:	572 (bytes)	en	
I Rein	Mode	Async Control Character Map: PPP Header Compression:	000A0000 Disabled	CIII	
GoT	Auth	PPP Data Compression: Preferred Compression Algorithm	Enabled Predictor II		
	Time	iation Ontions: (view or m	difu)	1	
	Enter	prise Specific Traps: (view or mo cal Options: (view or mo	odify) odifu)		
Enter t	ne smal	lest acceptable Maximum Receive	Jnit (MRU) size (in h	utes)	-
ENTER=Se	elect E	SC=Previous Menu		F	1=Help

Under negotiation options, it might help to reduce the MRU Minimum Size to 572 bytes.

Press Esc, save changes and press Esc as needed to return to the INETCFG main menu.

## **WAN Call Directory**



Select WAN Call Directory

Press Insert

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Internetworking Configuration	3.32b		NetWare Loadable Module
Internetworking Configuratio	n ]		
Configu	red WAN Ca	all Destinatio	ons
Call Destination M UPTUNNEL@4-3-2-250 I	edia P Relay	Interface VPTUNNEL	Interface Group
Call Destination	: MINDSPRI	NG_	
Enter a name for the Call Dest Valid Characters: AZ, 09,	ination yo -, _, @	ou wish to add	d. Fi=Help

Type in a name for the ISP connection you are configuring.

If you have multiple ISP's to call, you will need to set up more than one here, with one used as a primary, and others used as backups.

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Internetworking Configuration 3.32b	NetWare Loadable Module
Internetworking Configuration	
Configured WAN Call Destinati	ons
Cal Choose a Supported Wide Area Medium VPT PPP Routing	Interface Group
Select a supported WAN medium for the new Call Desti ENTER=Select ESC=Cancel	nation. F1=Help

You should have an option for PPP Routing for the serial interface. Select it.

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Inter	networking Configuration 3.32b NetWare Loadable Modu	ıle
	PPP Call Destination Configuration	
	Call Destination Name: MINDSPRING	
	Interface Group: (None)	
UPT	Interface Name: (None) Telephone Number: (None)	
	Idle Connectio Outbound Authe Call Type:	
	Password: Local System I Remote System Permanent (active continuously)	
	Call Retry Options: (view or modify) ISDN Pawametews: (view or modify)	
	Multilink Configuration: (view or modify) Special Options: (view or modify)	
Select ENTER=	the connection establishment and maintenance mode. Select ESC=Previous Menu F1:	-Help

Set the Call Type. If you want the server to maintain a continuous connection, select Permanent. Otherwise select On Demand.

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Auto		
Inte	rnetworking Configuration 3.32b NetWare Loadable Modu	le
	PPP Call Destination Configuration	
II Int	Call Select a PPP Network Interface	
Cal	Inte MODEM_1	
VPT	Telephone Number: (None) Idle Connection Timeout:	
	Outbound Authentication: Either PAP or CHAP Password: (None)	
	Local System ID: BURDERI Remote System ID: (None)	
	Call Retry Options: (view or modify) ISDN Parameters: (view or modify)	
	Multilink Configuration: (view or modify) Special Options: (view or modify)	
F2=Coj ENTER:	py F3=Rename F4=Assign Group F5=Mark F6=Sort By Group =Select ESC=Exit F1=	Help

Move to Interface Name and press Enter. Select your serial port.

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Inter	networking Configuration	3.32b NetWare Loadable Modu	le
	PPP Call	Destination Configuration	
	Call Destination Name: Call Type:	MINDSPRING Permanent (active continuously)	
Cal UPT	Interface Group: Interface Name: Telephone Number: Idle Connection Timeout:	MODEM_1 889-0123	
	Outbound Authentication: Password: Local Sustem ID:	Either PAP or CHAP (None) BORDER1	
	Remote System ID:	(None)	
	Call Retry Options: ISDN Parameters: Multilink Configuration:	(view or modify)	
	Special Options:	(view or modify)	
Enter ENTER=	<mark>the remote peer telephone</mark> Select ESC=Previous Menu	number to use for this connection. F1=	Help:

Enter the Telephone number, and select PAP or CHAP, CHAP only or PAP. (Try PAP or CHAP, and choose another option only if you cannot get authenticated to the ISP).

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Inter	networking Configuration	3.32b NetWare Loadable Modu	le
Lat	PPP Call	Destination Configuration	
	Call Destination Name: Call Type: Intenface Crown:	MINDSPRING Permanent (active continuously)	
Cal  VPT	Interface Name: Telephone Number:	MODEM_1 889-0123	
	Outbound Authentication: Password: Local System ID:	Either PAP or CHAP <your_password> <your hserid=""></your></your_password>	
	Remote System ID:	(None)	
	ISDN Parameters: Multilink Configuration:	(view or modify)	
	Special Options:	(view or modify)	
Select ENTER=	to view or modify option: Select ESC=Previous Menu	s like Login Script and Inbound Authenticat F1=	ion. Help

Enter your dial-up password for Password, and your dial-up user ID for Local System ID.

Press Esc and save your changes. Press Esc again to return to the INETCFG main menu.

# PROTOCOLS

In the Protocols section, you set up the DNS resolver configuration so that your server can resolve URL's. This feature is necessary if using BorderManager proxies on the server, but is not really necessary if using the server only as a router to the Internet.

You also enable or disable filtering support in this menu section.

Unlike a routed connection, you do NOT set the default route here if you are using a dialup interface with a dynamically-assigned IP address. That selection is done under Bindings.



Select Protocols, TCP/IP.

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	Internetworki	ng Configuration 3.32b	NetWare Loadable Module
	T-t	TCP/IP Protocol (	Configuration
	Boar	TCP/IP Status: IP Packet Forwarding:	Enabled Enabled("Router")
	Netw WAN Pro Back App Prot IPX	RIP: OSPF: OSPF Configuration:	Enabled Disabled (Select to View or Modify)
	Bind Sou Mana Sou View TCP Rein Use	LAN Static Routing: LAN Static Routing Table:	Enabled (Select For List)
		SNMP Manager Table: DNS Resolver Configuration:	(Select For List) (Select to View or Modify)
		Filter Support: NAT Implicit Filtering: Expert Configuration Options:	Enabled Disabled (Select to View or Modify)
	Enable or disa ENTER=Select E	<mark>ble Server as a TCP/IP router.</mark> SC=Previous Menu	F1=Help

Be sure that IP Packet Forwarding is Enabled.

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Internetwork	ing Configuration 3.32b NetWare Loadable Module
Interneture	TCP/IP Protocol Configuration
Incernetwor	TCP/ DNS Resolver Configuration
Netw WAN Pro Back App Prot IPX	IF F         Domain Name:         bjhome.com           RIP:         Name Server #1:         192.168.10.250           OSPF         Name Server #2:         192.168.10.254           OSPF         Name Server #3:         183.22.11
Mana Sou View TCP Bein Use	LAN Static Routing: - Enabled LAN Static Routing Table: (Select For List)
	SNMP Manager Table: (Select For List) DNS Resolver Configuration: (Select to View or Modify)
	Filter Support: Enabled NAT Implicit Filtering: Disabled Expert Configuration Options: (Select to View or Modify)
Enter the nam ENTER=Select	e or IP address of the DNS name server to access. ESC=Previous Menu F1=Help

Select DNS Resolver Configuration.

If you have your own DNS domain, you can enter it here, or you can make on up, or you can leave the setting for Domain Name blank.

Enter the IP addresses for at least two DNS servers on the Internet. Use the ones at your ISP.

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	Internetwork	ing Configuration 3.32b	NetWare Loadable Module	
	Tatanatuan	TCP/IP Protocol	Configuration	
	Boar	TCP/IP Status: IP Packet Forwarding:	Enabled Enabled("Router")	
	WAN Pro Back App Prot IPX	RIP: OSPF: OSPF Configuration:	Enabled Disabled (Select to View or Modify)	
	Bind Sou Mana Sou View TCP Rein Use	LAN Static Routing: LAN Static Routing Table:	Enabled (Select For List)	
		SNMP Manager Table: DNS Resolver Configuration:	(Select For List) (Select to View or Modify)	
		Filter Support: NAT Implicit Filtering: Expert Configuration Options:	Enabled Enabled (Select to View or Modify)	
I	Select "Enabl ENTER=Select	ed" to activate TCP/IP. ESC=Previous Menu	F1=He	lp

If you want to use BorderManager filtering with the dial-up connection, be sure Filter Support is Enabled. You will have to change the default filter exceptions to call out the modem interface instead of an IP address, but filtering will work. Otherwise, consider disabling filtering support.

NAT Implicit Filtering should be enabled (if you have this option). It might not be enabled if you have a fixed IP address and want to make some BorderManager proxy available from the Internet.

Press ESC and save your changes.

Press ESC again to return to the INETCFG main menu.

# Bindings

In this menu selection, you set up the modem to accept a dynamically-assigned IP address.

If you use a dynamically-assigned IP address, you also set the default route here.

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Internetworking Configuration 3.32b	NetWare Loadable Module				
Internetworking Configuration					
Boards Network Interfaces WAN Call Directory Backup Call Associations Protocols Bindings Manage Configuration Uiew Configuration Reinitialize System Go To Fast Setup					
Connect a particular protocol to a particular ne ENTER=Select ESC=Exit Menu	twork interface. F1=Help				

# Select Bindings

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Internetworking Configuration 3.32	NetWare Loadable Module				
Binding TCP/IP to a WAN Interface					
Network Interface: Interface Group:	COM2_1				
Remote Router will Dynamically Assign the IP Address: Yes					
WAN Network Mode:					
Local IP Address: Subnetwork Mask of Connected Network: WAN Call Destinations:	(Select For List)				
RIP Bind Options: OSPF Bind Options: Expert TCP/IP Bind Options:	(Select to View or Modify) (Select to View or Modify) (Select to View or Modify)				
Configure WAN call destination database. ENTER=Select ESC=Previous Menu	F1=Help				

Select your modem board and select Yes for Remote Router will Dynamically Assign the IP Address.

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Internetworking Configuration 3.32 NetWare Loadable Module									
Binding TCP/IP to a WAN Interface									
Net	Configured WAN Call Destinations								
	Destination Name	Type Putomatic	Remote IP Address						
	en mindsrking Hutomatic Not Specified								
Loc									
Sub WAN	network Mask of Connecte Call Destinations:	(Select For List)							
RIP	Bind Options:	(Select to View or Modify)							
Exp	pert TCP/IP Bind Options:	(Select to View or Modify)							
List of currently configured WAN call destinations. ENTER=Modify INS=Insert DEL=Delete ESC=Exit F1=Help									

Then select WAN Call Destinations, and select your ISP, as configured earlier.

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Int	Internetworking Configuration 3.32 NetWare Loadable Module					
	Binding TCP/IP to a WAN Interface					
Net	Configured WAN Call Destinations					
		De	WAN Call Destination To	IP Address Mapping Configuration		
WAN		"	WAN Call Destination: Type:	MINDSPRING Automatic		
Loc Subnetwo WAN Call RIP Bind OSPF Bin Header Compression: Disabled						
		LAN:				
			Header Compression:	Disabled		
Exp	ert		Static Routing Table: RIP Bind Options:	<mark>(Select For List)</mark> (Select to View or Modify)		
Sele ENTE	Select to view or modify static routes.ENTER=Select ESC=Previous MenuF1=Help					

Select Static Routing Table.



Select Default Route. This setting allows the server to route packets to the Internet using the board interface even if a dynamically-assigned IP address is present. (If you have a fixed IP address, you would set a standard default route under INETCFG, Protocols, TCP/IP, LAN Static Routing.)

Press ESC and save the settings. Return to the INETCFG main menu and select Reinitialize System. The modem should dial out and connect to the ISP.

# TROUBLESHOOTING

If your modem is not connecting, use the following utilities on the server to try to see what is happening.

## CALLMGR

Load CALLMGR at the server and press Insert. You should see the option for your ISP (your WAN Call Destination). CALLMGR can be used to select the WAN Call Destination and force a connection as needed. You can also use CALLMGR to disconnect calls in progress.

## PPPTRACE

Load PPPTRACE at the server. This utility allows you to look at, capture and play back PPP sessions so you can try to debug the connection. While it is quite cryptic, it can yield some clues as to what is going on with the modem connection.



Real-Time Monitor is the option you want to use, and sometimes Playback.

The Real-Time Monitor shows you all the communications going to and from the serial port, and it has an option to capture the data to a file. Once captured to a file, the connection can be replayed so you can study the connection process as desired.

The Real-Time Monitor can tell you the following:

- 1. If you are sending valid commands to the modem
- 2. If the modem is responding to the commands
- 3. If the modem is replying with an error message
- 4. If a connection is established
- 5. Depending on the setup strings sent to the modem, the connection speed
- 6. Password problems If you see 3 instances of a PAP or CHAP packet being sent from the ISP to you, it is an indication that your password was not accepted. That may be an indication that you need to reconfigure the settings to use CHAP, or PAP. A typical indication is that the connection is made, packets are exchanged, and then the ISP sends packets to the modem that get no response. After about 30 seconds, the connection is dropped by the ISP.

## **TCP IP DEBUG**

Use the command SET TCP IP DEBUG=1 at the server to see IP packets. This can help determine routing issues.

## CONFIG

Use the command CONFIG at the server (not LOAD CONFIG) to see what the assigned addresses are. This will tell you if the connection was successfully established to the point that the ISP assigned you an IP address at the modem.