## **Using the Midland BBS**

#### Introduction

<b>Introduction</b> The Midland digipeater, in the past, has been a simple, TNC-based system. We the KPC-3 that ran the Midland digi had a few nice features, it was not a full BBS, and did not offer all that a BBS has to offer.		
	The KPC-3 and radio are still there, but now they are the front-end to a JNOS HamGate. For users of "normal" packet, the BBS portion of the HamGate is the most obvious. This document describes how to use that BBS.	
What do you mean by IP?	Traditional packet uses a protocol called AX.25. AX.25 is a variation of the X.25 protocol which is used for public packet-switched networks. AX.25 extends that protocol with some features that are important for radio circuits.	
	The main feature of AX.25 is that it provides guaranteed, error-corrected delivery of data packets from one end of a circuit to the other. AX.25 is a lower level protocol, and does not include any routing possibilities, although the data packets may themselves describe routes. Unfortunately, the specific routes must be defined by the user for every connection. Also, AX.25 has no knowledge of other types of protocols or transports.	
	The Internet Protocol, IP, is a "wrapper" protocol. When we use the Internet, we typically use a number of different networks, with a number of different transports. The IP protocol glues all this together. When we interface the packet network to IP, we enable IP packets to be carried across AX.25 circuits. This allows the routing capabilities of IP to be exploited for packet, meaning we can use Internet style addressing between packet stations, and most importantly, we don't have to describe every single hop as we do with plain AX.25. The various stations in the network know how to get to the next station.	
	Because other, higher-level, protocols layer on top of IP, we can now use more common, and more capable programs across packet. For example, we can use normal email clients or web browsers to access information across the packet network.	
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#### Introduction, Continued

What do you mean by IP? (continued)	Most of these capabilities are available only if you provide the interface between AX.25 and IP at your station. There are a number of ways to do this, some of them not particularly difficult. However, this document deals primarily with the BBS, which is accessible from "normal" AX.25. There are a few BBS features, however, which exploit these IP capabilities, so to use all the BBS features, you should understand the differences.	
What is a HamGate?	A HamGate is nothing more than a station that provides an interface between packet radio and the Internet. The Internet requires that portions of the Internet, called subnets, have a system responsible for routing traffic to and from the subnet. A HamGate provides this service. hamgate.midland is responsible for routing Midland county and a few adjacent counties. As those other counties install their own HamGates, responsibility for routing those counties will fall to those new HamGates. We hope to have a hamgate2.midland in the near future. When that happens, hamgate2.midland will assume responsibility for the western part of the county, and hamgate.midland will only be responsible for the eastern part.	
What is JNOS?	JNOS is a program which can function as a HamGate. Most of the Michigan HamGates use JNOS. JNOS provides not only routing, but also a BBS, and a number of Internet servers. Different HamGates may choose to enable different servers, but most implement Telnet, Ping and Finger. Midland has also chosen to implement mail (POP and SMTP), FTP and http (web).	

#### **Connecting to the BBS**

# Introduction The BBS acts like an "old-style" packet BBS. Like many BBSs, there are several SSIDs you may connect to. In addition, you may connect using Telnet, if your packet station is IP-enabled.

The SSIDs have changed, to match the Michigan standard assignments. These assignments are:

3	Digipeater
4	BBS
5	Keyboard to Keyboard
6	CONVerse bridge

Connecting to the	You may connect, using your normal packet client, to the SSID W8KEA-4. The first
BBS using AX.25	thing you will see is the cryptic line:

#### [JNOS-2.0e-BFHIM\$]

This is used to tell other BBSs the capabilities of this BBS, and is primarily of interest for "old-style" BBSs. You often see something similar on other BBSs. For example, previously when you connected to W8KEA-1 you would see [KPC3P-8.2-HM\$]. The welcome message that follows (usually after a delay) is a little longer than you used to see. Parts of the welcome message change daily. Connecting to the hamgate.midland offers a feature where a number of stations can engage in a round-**CONVerse bridge** table discussion. This can be accessed through the CONV command of the BBS, or directly by connecting to W8KEA-6. The CONVerse bridge maintains a channel for each county. The various CONVerse bridges are linked together, so you may join any county's channel. By default, you are connected to channel 56, which is Midland. Every Saturday evening at 8:00 PM there is a net for people interested in packet on channel 41, which is the Kent county channel. W8KEA-5 connects to the HamGate for keyboard to keyboard conversation. Since Connecting to the keyboard there is almost never someone at the keyboard, this connection isn't particularly useful. If your station is configured for IP, you may telnet to hamgate.midland.ampr.org. **Connecting via** telnet In this case, you will be asked for your callsign and a password. You may also telnet directly to the CONVerse bridge on port 3600. Windows comes with two telnet clients, both of which are badly broken. On the club website is a document for configuring HyperTerm which makes it useable, but still not very good. Most people use the free telnet client PuTTY.

### The Prompt

Introduction	Just like when you connect to the old W8KEA, you get an "alphabet soup" prompt. However, the prompt is quite a bit longer and more imposing:		
	You have 0 messages. Area: wb8rcr Current msg# 0. SEOC,PROP,WX,?,A,B,C,CONV,D,E,F,H,I,IH,IP,J,K,L,M,O,P,PI,R,S,T,U,V,W,X,Z >		
Messages	The first line seems fairly obvious; it indicates how many messages you have waiting. The line shows the number of <u>unread</u> messages in this area. There may be messages you haven't read in other areas, and there may be messages you have already read.		
Area	Messages may be stored in a number of different areas. When you first log on, you are placed in an area containing messages addressed specifically to you. There may be other areas for special purposes. Initially, there are areas for weather information (WX) and for RACES information (RACES). In addition, there are a few areas that contain messages from packet-related Usenet newsgroups.		
Yikes!	The long list of letters might be a little imposing. The commands you had on the old W8KEA are the same; B, C, H, J, K, L, R, and S do the same thing they did before, although the syntax may be a little different in some cases.		
	The commands to the left of the ? are <i>aliases</i> . These are shorthand for other commands and are unique to this particular system. The commands to the right are the same as you will find on any other JNOS system.		
?	The ? command is perhaps the most useful. It gives you a short overview of the commands:		
	Aliases: SEOC PROP WX Mail : Area Kill List Read Send Verbose Gateway: Connect Escape Ports PIng Telnet File : Download Upload What Zap General: ?-Help Bye CONVers Finger Help Info IHeard IProute Jheard Mbox Operator Xpert		
Help	The H command is the next most handy. Typing H followed by a command will give a detailed description of the command. Often the description will be several screens long. When that happens, you will see:		
	more		
	Pressing the space bar will show you the next screen. Some packet clients won't transmit anything until you press return, so you may press the return key instead of the space bar.		

#### The Aliases

Introduction	There are three aliases defined on hamgate.midland. In the future more might be added.		
SEOC The SEOC command simply telnets to the state EOC in Lansing. This BBS so, like JNOS, it has a long alphabet soup prompt, but the prompt than JNOS. This is the same prompt you get if you connect to the Bay SEOC Trying The escape character is: CTRL-T *** connected to 44.102.104.8:telnet MSYS BBS (WC8EOC) What is your callsign? This command is an alias for t seoc.ampr.org.			
PROP	The HamGate has a number of files available for download or viewing. The PROP command lists the propagation related files. These files are updated every few hours. PROP 00files.bbs 364 8:48 10/15/06 ak.txt 1,988 14:10 11/07/06 curind.txt 1,876 14:10 11/07/06 dayevt.txt 515 14:10 11/07/06 dayind.txt 2,828 14:10 11/07/06 dayobs.txt 614 14:10 11/07/06 daypre.txt 2,511 14:10 11/07/06 predict.txt 2,117 14:10 11/07/06 wwv.txt 467 14:10 11/07/06 9 files. 1,445,593,088 bytes free. Disk size 1,617,358,848 bytes. This command is an alias for w prop.		
WX	The WX command displays the text weather forecast for Midland. This forecast is updated every few hours.		
	WX NWS Forecast for: Midland, MI Issued by: National Weather Service Detroit/Pontiac		
	This Afternoon: A 40 percent chance of rain. Mostly cloudy, with a high near 56. South wind around 7 mph.		
	Tonight: Patchy fog after midnight. Otherwise, mostly cloudy, with a low around 43. Southeast wind around 6 mph becoming calm.		
	Wednesday: Mostly cloudy, with a high near 61. Southwest wind between 7 and 16 mph, with gusts as high as 20 mph.		
	This report continues on for the entire week.		
	This command is an alias for d nws/fcast.txt.		

# The Gateway Commands

Introduction	The gateway group of commands allows connecting to other stations.
Ports	The <b>P</b> orts command shows the ports available on the BBS. Currently there is only one radio connected, but in the future, we hope to add additional ports. Ports may be named anything, but the convention in Michigan is to name the ports by their frequencies, although not all BBSs follow this convention: <pre>     P     Available AX.25 Ports:     145.09 : 145.09 - 1200 baud port     Available HFDD Ports: </pre>
Connect	The <b>C</b> onnect command allows you to make an AX.25 connection to another station within radio range. Because the system could have more than one port, you must specify the port. For example:
	C 145.09 WB8FYR-4
	You may also specify a station or stations to use as digipeaters. You do not need to specify the word VIA:
	C 145.09 K800L W8LSS-3
PIng	The <b>PI</b> ng command allows you to test the time to reach another station. It sends a packet to an IP node and measures the time to get a response. Because this is an IP command, you use Internet-style addressing instead of an SSID. The station <i>does not</i> need to be within radio range.
	PI hamgate.kent.ampr.org Resolving hamgate.kent.ampr.org pinging [44.102.128.1] [44.102.128.1] rtt 2404 ms
Telnet	The <b>T</b> elnet command allows you to make an IP connection to another station. Like the <b>PI</b> ng command, it uses Internet-style addressing and the station need not be within radio range:
	T hamgate.washtenaw.ampr.org Trying The escape character is: CTRL-T *** connected to 44.102.1.1:telnet
	JNOS (HamGate.Washtenaw.AMPR.org) For login {callsign) & your name for password.
	login:
Escape	Sometimes you need a way to escape from a session. The escape key is how you do this. The escape key defaults to Ctrl-T. The Escape command allows you to see the current escape key, or to change the escape key.

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#### The File Commands

Introduction	The BBS has a number of files which are updated frequently. There are four commands for dealing with the files.		
What	The What command performs a directory listing. The files are organized into a number of folders, so simply typing W will list the folders:		
	W ares/ 9:18 10/15/06 nws/ 15:22 11/07/06 prop/ 15:10 11/07/06 switch/ 10:13 10/15/06 4 files. 1,445,613,568 bytes free. Disk size 1,617,358,848 bytes.		
	W followed by a folder name will list the files in that folder:		
	W ares 00files.bbs 139 8:51 10/15/06 d3hosts.txt 2,529 5:25 11/05/06 mspcoord.txt 1,202 11:12 9/27/06 3 files. 1,445,613,568 bytes free. Disk size 1,617,358,848 bytes.		
	Each folder contains a 00files.bbs file, which describes each of the other files.		
Download	The <b>D</b> ownload command simply copies the file to the screen. The assumption is that the file is text and your packet client can somehow save the file. This is also a convenient way of seeing the file without screen breaks:		
	<pre>D prop/dayevt.txt :Product: Space Weather Event Reports dayevt.txt :Issued: 2006 Nov 07 0248 UTC # Prepared by the US Dept. of Commerce, NOAA, Space Environment Center # Product description and SEC contact on the Web # http://www.sec.noaa.gov/wwire.html # Space Weather Event Reports #</pre>		
	" :Energetic_Solar_Events: 2006 Nov 06 #Begin Max End Rgn Loc Xray Op 245MHz 10cm Sweep 1743 1746 1806 C8.8 73 97 II 2035 2035 2035 120		
	The DU command does the same, except it uuencodes the file before sending it. If you have the uudecode program you can then translate the file back to binary. This is how you can get the weather radar images over an AX.25 circuit.		
	DU nws/dtx_wx.jpg		
Upload	The Upload command allows files to be uploaded to the BBS. Only a few people have permission to upload files.		
Zap	The <b>Z</b> ap command allows a file to be deleted. Like the Upload command, only a few people have permission to delete files.		
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### The File Commands, Continued

Files on the BBS	Initially a number of files are available on the BBS. The files are organized into t directories according to the subject; nws, ares and prop. Many of the files are updated frequently.			
nws	The nws files have weather-related information. The file fcast.txt contains a text weather report. This is downloaded from the National Weather Service on an hourly basis. NWS updates the file as needed, so the data could be older than one hour.			
		g, dtx_wx.jpg, grr_wx.jpg and mqt_wx.jpg contain radar images gan radars. These files are downloaded from the NWS every		
		tains the current hazardous weather outlook for Midland if such a Typically this file is empty.		
ares	listing of the Michig each of the districts.	two files in the ares section. The mpsccord.txt file contains a gan State Police coordinators and their contact information for This file is updated when new versions are received from the sts.txt lists the IP nodes registered in District 3. This file is ay night.		
ргор	downloaded from N	ntains a number of propagation related files. These files are OAA every hour, but NOAA updates these files at various times. re interesting from an HF propagation perspective.		
	ak.txt	Daily A and 3-hour K indices from a number of stations		
	curind.txt	Current space weather indices		
	dayevt.txt	Energetic solar events for the day		
	dayind.txt	Daily space weather indices (sunspot numbers, flux numbers, estimated mid-latitude and planetary K indices)		
	dayobs.txt	Summary of space weather observations for the day		
	daypre.txt	Detailed predictions for A and K indices, as well as predicted flux and flare probabilities		
	predict.txt	Predicted sunspot numbers and flux for the next two weeks		
	wwv.txt	Geophysical alert message including summary indices		

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#### The Mail Commands

Introduction	Like the old W8KEA-1, you can leave messages for other amateurs on hamgate.midland. However, there are many more options, as you might expect.		
Mail addressing	Like the old W8KEA-1, you can address a message to a call sign. Normally, the message would then be held on the BBS until that person comes to pick up the mail.		
	However, sometimes hamgate.midland knows that a particular call hangs out on some other BBS. In that case, the message may get automatically forwarded to the other BBS. For example, if you leave mail for KC8BGK, the BBS knows he doesn't hang out here, and it will forward the message to BAYBBS.		
	You can also use Internet style addressing. If you, for example, address mail to <u>w8lss@w8lss.ampr.org</u> the mail will be sent to Bob's home JNOS system. The target host doesn't have to be reachable by radio, either. Mail to the Section Manager can be addressed to <u>wa8efk@bbs.n8kuf.ampr.org</u> . hamgate.midland will send the message over the Internet to hamgate.monroe, who will then connect to bbs.n8kuf on 220 to deliver the message. You only need to know the address; it is the network's problem to understand the path.		
	In fact, you can even send email to some Internet addresses. However, they won't be able to respond. Because of the problem of commercial messages, nodes on the ampr.org network are very picky about who they accept messages from. With very few exceptions, ampr.org nodes are not reachable from the Internet, although they can reach out into the Internet.		
List	The List command displays the unread messages waiting. L Mail area: rec.radio.amateur.packet 19 messages - 1 new		
	St. # TO FROM DATE SIZE SUBJECT > N 19 Libertyb Sep 28 1365 Pk-232 question.		
	The LA command lists both read and unread messages LA Mail area: rec.radio.amateur.packet 19 messages - 1 new		
	St. #TOFROMDATESIZE SUBJECTY1k0rmMar 282617 WinFBB on Windows 2000?Y2reedpark Apr 191680 APRS news groupY3rmcconne Apr 191527 Re: APRS news groupY4kc2ltoApr 201585 Packet Communication ProtocolsY5k0rmMay 172194 BPQ "Returned to Node"Y6k8cpaJun 51561 FA: My items on E-BayY7Jun 191805 acarsd or winaprs?Y8Jun 281725 MSK modem		
	Continued on next page		

### The Mail Commands, Continued

Read	The <b>R</b> ead command displays a message. Typing R only displays the current message, but you may display a particular message number:
	R 19 Message #19 From: Mike Burch <libertybell7@mchsi.com> Subject: Pk-232 question. Date: Thu, 28 Sep 2006 04:50:37 GMT</libertybell7@mchsi.com>
	Hi Fella's
	Is the data cable between the Pk-232 and the printer port a standard 25 pin male to male printer cable? I tried one tonight which I thought was a regular printer cable but several lamp started to glow very dimmly and then the internal fuse opened. I sure hope nothing got damaged.
	Thanks in advance
	Mike Burch \ Apache Junction, AZ
Verbose	The Verbose command is like Read, but it displays all the message headers:
	<pre>V 19 Message #19 From Mike Burch <libertybell7@mchsi.com> 1159419064 Received: by wb8rcr.ampr.org with NNTP</libertybell7@mchsi.com></pre>
Kill	The Kill command deletes a message. You must supply a message number: L Mail area: wb8rcr 1 message - 1 new
	<pre>st. # TO FROM DATE SIZE SUBJECT &gt; N 1 wb8rcr wb8rcr Nov 7 819 Test message to delete Area: wb8rcr Current msg# 1. SEOC,PROP,WX,?,A,B,C,CONV,D,E,F,H,I,IH,IP,J,K,L,M,O,P,PI,R,S,T,U,V,W,X,Z &gt; K 1 Msg 1 Killed.</pre>
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### The Mail Commands, Continued

Send	The Send command sends a message. You must follow it with an address, either a callsign, or an Internet-style email address:			
	S w8lss@w8lss.ampr.org Subject: Test for document Enter message. End with /EX or ^Z in first column (^A aborts): Bob,			
	This is simply sample text to be used in a user guide for the Midland Hamgate.			
	McD /EX Msg queued			
Area	The Area command switches areas. A alone lists the areas. Area: wb8rcr Current msg# 0. SEOC,PROP,WX,?,A,B,C,CONV,D,E,F,H,I,IH,IP,J,K,L,M,O,P,PI,R,S,T,U,V,W,X,Z > A rec.radio.amateur.packet rec.radio.amateur.packet: 19 messages - 0 new. Area: rec.radio.amateur.packet Current msg# 1. SEOC,PROP,WX,?,A,B,C,CONV,D,E,F,H,I,IH,IP,J,K,L,M,O,P,PI,R,S,T,U,V,W,X,Z >			
	Sometimes when switching areas, you may get the message "Mail file is busy". When this happens, simply wait a few minutes.			

#### **The General Commands**

Introduction	These commands aren't nearly so "general" as they are not related to other commands.						
Bye	The <b>B</b> ye command logs off the BBS.						
eXpert	The eXpert command toggles the alphabet soup prompt on and off. Once you know the letters, it can be tedious waiting for them to be transmitted over packet						
	<pre>Area: wb8rcr Current msg# 0. SEOC,PROP,WX,?,A,B,C,CONV,D,E,F,H,I,IH,IP,J,K,L,M,O,P,PI,R,S,T,U,V,W,X,Z &gt; X Area: wb8rcr (#0) &gt; X Area: wb8rcr Current msg# 0. SEOC,PROP,WX,?,A,B,C,CONV,D,E,F,H,I,IH,IP,J,K,L,M,O,P,PI,R,S,T,U,V,W,X,Z &gt;</pre>						
Operator	The <b>O</b> perator command pages the operator. Since there is almost never an operator, this is fairly useless.						
Info	The Info command lists some key information about the BBS. This information is largely static.						
Mbox	The <b>M</b> box command shows who is currently logged on. The <b>ML</b> command shows who has logged on since the system was booted:						
	ML Past users: User Logins Time since last User Logins Time since last wb8rcr 10 0:00:32:48 : wb8i 1 8:16:42:37						
Jheard	The Jheard command shows AX.25 stations that have been heard, just like the J command on other BBSs. If more ports were available, you could specify the port and thus see the Jheard list for only one port. If you leave off the port name you will see all the ports.						
	J 145.09 Interface Station Time since send Pkts sent 145.09 W8KEA-3 0:00:00:03 7012 Station Time since heard Pkts rcvd : Station Time since heard Pkts rcvd W8KEA-3 0:00:00:03 5881 : W8KEA-8 0:00:01:37 12852 WB8RCR-3 0:00:01:38 17685 : WB8RCR-4 0:00:02:51 4792 W8KEA 0:00:03:56 3152 : W8LSS-4 0:00:08:40 1472 W8LSS-3 0:00:09:10 1806 : W8KEA-4 0:00:14:38 1085 WB8RCR-15 0:06:41:26 82 : W8KEA-1 0:06:48:33 39 K8DLB-15 8:11:40:17 6 : W8KEA-6 10:06:12:00 13 N8NVL 10:06:13:40 12 : K800L-15 11:08:01:10 7 N8WUR-15 12:13:53:03 22 : W8LSS-15 14:08:42:44 11 Continued on next page						

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#### The General Commands, Continued

IHeard	The IHeard command is like the Jheard command except that it shows IP stations							
	rather than AX.25 stations:							
	IH							
	Tcp/Ip systems h	eard	:					
	Address		Port	Since	Pkts			
	44.102.200.17		145.09	0:00:21:05	270			
	44.102.1.250		145.09	0:00:46:48	4702			
	44.102.1.1		145.09	0:02:30:25	3			
	44.102.200.19		145.09	0:02:33:41	16			
	44.102.128.1 44.102.104.8		145.09 145.09	0:02:36:52	1 22			
				0:02:56:39				
IProute	The IProute command shows the public IP routes. Note that some stations, especially							
	HamGates, may have a large number of routes that are not public:							
	IP		_					
	Destination		Interface	-		P Timer	Use	
	192.168.218.0	24		44.102.200.18	1	man	0	
	192.168.56.0 44.102.200.0	24		44.102.201.18	1	man	0	
	44.102.200.0	24	145.09 145.09		1 1	man man	797 0	
	192.168.65.0			44.102.200.19	1	man	0	
	192.68.0.0		tun0	11.102.200.19	1	man	997	
	44.0.0.0			44.102.200.17	1	man	3977	
	default	0	tun0	192.68.0.6	1	man	5858	
Finger	<b>F</b> inger is an old Internet protocol for getting information about users. Finger will provide some limited information about a user. You may Finger a callsign, or a callsign at an IP node. For example:							
	<pre>F wb8rcr@wb8rcr.ampr.org Trying The escape character is: CTRL-T *** connected to 44.102.200.17:finger John, wb8rcr, last connected via TELNET on Fri Nov 3 17:18:18 2006 Home BBS: WB8RCR-3 Internet: wb8rcr@arrl.net There are also a number of "special" user names for a JNOS system that return</pre>							
	conf			ence bridge /WH				
	links			ence bridge /LI	NKS			
	mbxinfo			in mailbox'				
	mhold			noldlocal'				
	mstat			mailstat'				
	mpast		'mbox y	•				
	users usersdat			r x' forall use	re in vee	re dat		
	mailfor		-	mailfor'	LIS III USE	⊥b.ual		
	info		'info'					
	ax25		'ax25 s	stat'				
	aheard		'ax25 l	_				
	iheard		'ip hea	ard'				
	memstat		'mem st	tat'				
	gogleot		Igoglad	- 1				

'socket'

'asystat'

'tcp view bytes'

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socket

tcpview asystat

### The General Commands, Continued

CONVerse	The <b>CONV</b> erse command connects to the converse bridge. This system allows round table discussions over packet. There is a converse channel set up for each Michigan county. If you connect to the converse bridge from hamgate.midland, your default channel will be 56, Midland. When in the converse bridge, anything you type will be seen by everyone else in the channel. Hello Ian <kc8wrv>: Hello John, what's up?</kc8wrv>						
CONVerse Commands	ere are a number of commands for the converse bridge. All the commands begin in a / character. Other stations do not see your commands. Some of the basic inmands are:						
	$/\mathbf{H}$ – Display help						
	$/\mathbf{B}$ – Leave converse bridge and back to BBS						
	/C – List some channels						
	/C <channel number=""> - Switch to another channel. Example:</channel>						
	/C 10 *** Now on channel 10 (Benzie).						
	W L – List stations on the bridge and other information. Example:						
	/W L *** Tue Nov 7 19:22:44 2006 User Host Via Channel Name Time Personal kc8wrv ALCONA MIDLAND 81 Washtena 19:20 Ian in Empire wb8rcr MIDHG telnet 10 Benzie 19:14 John in Midland ***						
	<b>/VERBOSE Y</b> – Show when other stations join or leave the channel. Example:						
	/VERBOSE Y *** 19:44 kc8wrv@ALCONA signed on.						
	There are a number of other commands, but typically the ones above are the most commonly used.						