Welcome!

- About the presenter:
 - Eric Fowler
 - WV3E, prior call KB3WVJ
 - Vice President NHARC 2013
 - Ham since December 2011
 - Extra since May 2012
 - PSK enthusiast since April 2012
 - Worked 40 confirmed DXCC entities on PSK in my spare time

- Professional
 - CenturyLink
 - Subject Matter Expert
 - Telephony & Data Center Power Systems
 - AC / DC / UPS / Standby Generation
- Personal
 - Married to Darlene, 21 years
 - No children, just kitties
 - Seven neices & nephews
 - Woodworking
 - Home repair
 - Tinkering

- What is PSK?
 - PSK is an acronym for Phase Shift Keying. Information is transmitted through patterns of polarity-reversals (180 degree phase shifts), hence the name.
 - Narrow-band, low-power, soundcard-generated radioteletype mode for keyboard chat.
 - Three data rates, 31, 63 and 125 baud. Bandwidth increases with rate.
 - PSK31 is the most commonly used, its data rate is close to the speed of the average typist.
 - PSK is resistant to interference but has no error control, so it's not suitable for transfer of data files.

- Hardware Prerequisites
 - Radio
 - For rig control, see the list of supported radios at:
 - http://forums.hrdsoftwarellc.com/archive/index.php/t-23332.html
 - QRP is okay, but typical operating power is up to 30 watts
 - PSK is continuous duty be kind to your finals
 - PSK can be sent and received with boat anchors, but frequency stability is an issue and it complicates automated logging
 - Antenna
 - Pretty much anything goes, the more efficient the better

- Computer Hardware
 - Recommended
 - Desktop or laptop PC
 - Dual-core processor
 - 4 GB RAM memory
 - 50 GB free disk space
 - 1920x1080 color display
 - Windows 7

- Minimum
 - Desktop or laptop PC
 - Pentium 5 processor
 - 1 GB RAM memory
 - 10 GB free disk space
 - 1024x768 color display
 - Windows XP SP3*
 *Support ends 4/8/14

• Other Hardware

- CAT, CI-V or serial cable for rig control
 - Consult your radio's User Manual for specifics
 - Steer clear of unbranded USB-serial adapters
 - Market flooded with Chinese counterfeit Prolific chips with poorly-written drivers
- Sound card interface
 - SignaLink USB http://www.tigertronics.com *this presentation is based on this product*
 - Requires an interface cable for your specific radio. See website for details.
 - Rigblaster http://www.westmountainradio.com
 - Home-brew cables using PC sound card
 - Beware of ground loops, they can cause distortion. An isolated interface is preferred.
- Not required for certain radio models with a built-in USB interface
 - Icom IC-7200, IC-7410, IC-7600, IC-9100
 - Kenwood TS-590, TS-990
 - Yaesu FTDX-3000

- Software
 - Drivers for USB to serial or CI-V adapters or USB interface for certain radio models
 - Ham Radio Deluxe http://www.hrdsoftwarellc.com
 - Version 6.0 \$99.95 yearly support subscription
 - Versions 5.24.38 and earlier **\$FREE**

- Setup
 - Install drivers for USB to serial or CI-V adapters or USB interface for certain radio models
 - Consult the User Manual for your specific equipment
 - Drivers for the SignaLink USB are included with Windows
 XP, Windows Vista and Windows 7, just plug and play
 - Install Ham Radio Deluxe
 - This tutorial is based on version 5.24.36, version 6.0 is similar.

- Connecting the Rig Control Cable
 - CAT, CI-V or serial cable between the rig and the PC





- Installing the SignaLink Jumpers
 - Configures SignaLink for rig-specific interface cable
 - See the manual or http://tigertronics.com/sl_wire.htm



- Connecting the SignaLink
 - Rig-specific cable between the radio and SignaLink





- Connecting the SignaLink cont'd
 - USB cable between the SignaLink and PC
 - Drivers are inculded with Windows and will install automatically







New	Preset Serial Ports	Help	
Company:	Kenwood 👻	Status	
Radio:	TS-2000 -		
COM Port:	Auto-detect 🔹		
Speed:	Auto-detect		
Flow con	rol / Interface power		

- Start Ham Radio Deluxe
 - The first time HRD is started the *Connect* window appears
 - Select your rig's make and model
 - Auto detect will scan all COM ports and standard baud rates
 - Set the checks at the bottom however you prefer. Logbook and Digital Master are both needed for digital modes
 - Click Connect. When HRD finds the rig it will connect automatically and open the rig control window

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Upon successful connection the rig control window displays the VFO frequencies and available controls for your radio model

My Station				X
Values				
	Automatically Co	pv Profile #1 into 0	Contest Mode Log entries.	
W3EXW	2 3 4	5 6	7 8 9	10 Guest
Callsign:	W3EXW	SIG:		
Owner:	NHARC	SIG info:		
Operator:	WV3E	Locator:	EN90xn 🔶 🕂	
Name:	Eric	Latitude:	40.573446	
Street:	P.O. Box 15333	Longitude:	-79.961547	
City:	Pittsburgh	CQ zone:	5 ITU: 8	
County:	Allegheny	Power:	100	Watts
State:	PA	IOTA:	-	
ZIP:	15237	Country	United States	
Equipment:	Kenwood TS-2000			
Antennas:	Folded Diploe, Budd	lipole		
Club:	North Hills Amateur	Radio Club http:///	www.nharc.org	

- Set up HRD Logbook
 - Open HRDLogbook
 - Select Configure...My Station
 - Configure as desired, at the minimum, enter your callsign
 - Explore the other options under the *Configure* menu

Getting Started

1-2-3-4-GO

This help text is displayed because you do not have a callsign defined in your tags window

(1) Tags (Callsign, Name, ...)

T	ags	C
	About Me	
	Callsign	hb9drv
	Name	Simon
	Age	49
	Locator	jn46pt
	QTH	Laax
	E-Mail	simon@hb9drv.ch
	HomePage	www.hb9drv.ch
	Clubs	EPC 1114
Li Yi d	ocator our locator, this istance and bea	s is used in the World Map, rring calculations
	Macros Tag	Modes

Click here to display the Tags window.

Enter values in the Tags window, these values are used in macros (shortcuts which save you entering the same text every time you have a QSO). The values are saved automatically.

Put your own callsign in the About Me: Callsign field.

(2) Soundcard



Click here to select your soundcard or press F8 to display the Program Options (or select Program Options from the Tools menu) and select the Soundcard page.

- Set up Digital Master 780
 - Open DM780. Upon first run, the Getting Started screen is displayed
 - This screen includes links to the minimum configuration options required to use DM780

Appearance	QSO Tags			
Callsign (My Info)	C About Ma			_
Clock	- About Me	1005200	Contract of the second seco	M
Logbook	Callsign	W3EXW	Callsign [*] field.	
Modes + IDs	Name	Eric (WV3E)	Enter values in the Tags window, the	se \
PTT	Age	50	are used in macros (shortcuts which	sav
Radio	Locator	EN90xn	entering the same text every time yo	u h
OSO	QIH	Allison Park, PA	Q30).	
Soundcard	E-Mail	nharc@nharc.org	The values are saved automatically.	
Sounds	HomePage	www.nharc.org		
Storage	Clubs	NHARC		
Sumar	My Equipme	ent de la companya de		
Supersweeper	Radio	Kenwood TS-2000		
Waterfall	Antenna	Folded dipole, Buddipole		
	Power	30		
Alarms	Computer	Core 2 Duo		
Favorites	Interface	Signalink		
Macros	Accessories			
Modes	Other			
Navigator	Temperature			
	Weather			
Audio Recorder	Other 1			
PSK Reporter	Other2			
Soundcard Calibration	Other3			
Time Synchronisation	Other4			
	Computer			
	Mada			

- Getting started with DM780
 - Configure Tags
 - Callsign, name, age, Maidenhead, QTH, email, home page, club affiliation
 - Radio, antenna, transmit power, computer, interface, accessories
 - Wx, etc

Appearance	Soundcard	
Callsign (My Info) Clock	Input (Receive)	Input (Pacaiva)
Logbook Modes + IDs	Device: Microphone (3- USB Audio CODEC)	Device: Select the soundcard used for receiving signals, the line in is connected to the audio output from
Radio		your radio.
QSO	Output (Transmit)	Source: Select the input source - usually Line in. This fader is shown
Soundcard	Device: Speakers (3-USB Audio CODEC.)	in the soundcard's RX pane, use it
Sounds		to adjust the input level. Not all soundcards have input sources - for
Storage		example the SignaLink USB does
SuperSweeper		not have any user-selectable input sources.
Waterfall	Output (Transmit)	
Alarms		Output (Transmit) Device: Select the soundcard used
Favorites		for transmitting signals, the speaker
Macros	Show estable at a main status har	input on your radio. This is normally
Modes	_ Show sample rate in main status bar	the same as the input device.
Navigator	Show Supported Formats	Source: Select the output source -
		usually Wave. This fader is shown in
Audio Recorder	Soundcard Calibration	adjust the output level.
Soundcard Calibration	For recording and playback of wave files see: Recording	Output Attonuction
Time Synchronisation	to recearly and physical or hard ned doe, noderling	If your radio is very sensitive apply output attenuation here, it makes use of the faders much easier.
		Show sample rate Shows the current effective sample

- Getting started with DM780
 - Configure Soundcard
 - Set input device to Microphone (USB Audio Codec) for SignaLink
 - Set output device to Speakers (USB Audio Codec) for SignaLink

5			l
	HRD User Interface	Connect to HRD User Interface	-
Address:			
Port:	7809	Ham Radio Deluxe:	
	Automatically connect	1 The connection uses TCP/IP - you must have TCP/IP started.	
▼ М	ode RX Filter	2 Make sure Ham Radio Deluxe (HRD) is started and connected to a radio (you must use build 1317 or later).	
▼ Quic ▼ Va	k Mem 🔍 Split	3 In HRD select IP Server from the Tools menu, make sure the IP Server is started (DM780 will connect to the IP Server).	
		Configure Radio Pane:	
 TX ···· ···· ···· 		1 Address - the address or name of the computer where the HRD User Interface is running, localhost (or 127.0.0.1) can usually be used to connect to the local computer, the actual network address is shown in the IP Server window.	
		Do NOT enter the address of the HRD Remote Server, always use the HRD User Interface address. Even if HRD is connected t a remote radio, you always connect to the HRD User Interface.	:0
		2 Port - the default port is 7809, use the same por selected in the IP Server window.	rt
 		3 Always connect to HRD - if checked an attempt is made to connect to HRD when the program starts even if not connected when the previous	is
-		A	

- Getting started with DM780
 - Configure Radio Interface
 - Use the default Address and Port for HRD on your PC
 - Check the Automatically Connect box
 - Click *Connect* to test the connection
 - HRD must be running and connected to a radio or in demo mode
 - Click Save

Appearance	PTT			
Callsign (My Info)	COM Port	A Ham Radio Deluxe	Radio Operations C	enter
Clock			Let ROC key the	•
Logbook	Via Serial (COM) port	via Ham Radio Deluxe - DM/80 must be connected to HRD	radio via interfac	e.
Modes + IDs	Port: COM3 🗸		- Nana	
PTT	On TY: W Set DTP (data terminal made)	Configure HRD connection	via soundcard	
Radio	Grink. Set DTK (data-terminaready)		PTT or radio VO	X
QSO	Set KTS (request-to-send)	See notes below	l	
Soundcard				
Sounds	COM Port			
Storage	To use a COM port for PTT:			
SuperSweeper	Select via Serial (COM) port			
Waterfall	 Select the COM parts this music 	ist pat ha is use by spathag preasant	-	
	 Select the COM port; this hid Select OTP_OTF on OTP and 	ore	n,	
	Select DTR, RTS or DTR and	RTS.	n,	
Alarms	Select the COM port, this must be select DTR, RTS or DTR and When you switch to TX DTR and/or R	RTS. TS are set (raised), when you retur	n, n to RX they are	
Alarms Favorites	Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared.	<i>RTS.</i> <i>TS</i> are set (raised), when you retur	n, n to RX they are	
Alarms Favorites Macros	Select the COM port, this hid Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and	TS are set (raised), when you return	n, n to RX they are st be available for	
Alarms Favorites Macros Modes	 Select the COM port, this hit Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. 	RTS. TS are set (raised), when you retur other program such as HRD - it mus	n, n to RX they are st be available for	
Alarms Favorites Macros Modes Navigator	 Select the COM port, this hid Select DTR, RTS or DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. 	RTS. TS are set (raised), when you retur other program such as HRD - it mus	n, n to RX they are st be available for	Ш
Alarms Favorites Macros Modes Navigator	 Select the COM port, this hid Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. Ham Radio Deluxe 	RTS. TS are set (raised), when you retur other program such as HRD - it mus	n, n to RX they are st be available for	
Alarms Favorites Macros Modes Navigator Audio Recorder	 Select the COM port, this hid Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be on the company. 	RTS. TS are set (raised), when you retur other program such as HRD - it mus connected to HRD:	n, n to RX they are st be available for	
Alarms Favorites Macros Modes Navigator Audio Recorder PSK Reporter	 Select the COM port, this hid Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be on the View many colort Radio. 	RTS. TS are set (raised), when you retur other program such as HRD - it mus connected to HRD:	n, n to RX they are st be available for	
Alarms Favorites Macros Modes Navigator Audio Recorder PSK Reporter Soundcard Calibration	 Select the COM port, this hid Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be of In the View menu select Rad In the Radio pane press Con 	RTS. TS are set (raised), when you retur other program such as HRD - it mus connected to HRD: <i>lio</i> <i>figure</i> and read the instructions!	n, n to RX they are st be available for	111
Alarms Favorites Macros Modes Navigator Navigator Audio Recorder PSK Reporter Soundcard Calibration Time Synchronisation	 Select the COM port, this hid Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be of In the View menu select Rad In the Radio pane press Con The Radio must be able to su 	RTS. TS are set (raised), when you retur other program such as HRD - it mus connected to HRD: lio figure and read the instructions! upport the TX command in it's CAT of	n, n to RX they are at be available for control.	
Alarms Favorites Macros Modes Navigator Audio Recorder PSK Reporter Soundcard Calibration Time Synchronisation	 Select the COM port, this hit Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be of In the View menu select Rad In the Radio pane press Con The Radio must be able to su 	RTS. TS are set (raised), when you retur other program such as HRD - it mus connected to HRD: lio figure and read the instructions! upport the TX command in it's CAT of for PTT and you connect the audio of	n, n to RX they are t be available for control.	
Alarms Favorites Macros Modes Navigator Audio Recorder PSK Reporter Soundcard Calibration Time Synchronisation	 Select the COM port, this hit Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be of In the View menu select Rad In the Radio pane press Con The Radio must be able to su Note: If you use Ham Radio Deluxe to one connector (not the microphone connector) 	RTS. TS are set (raised), when you retur other program such as HRD - it mus connected to HRD: lio figure and read the instructions! upport the TX command in it's CAT of for PTT and you connect the audio v ector) make sure your radio will acc	n, n to RX they are st be available for st be	III
Alarms Favorites Macros Modes Navigator Audio Recorder PSK Reporter Soundcard Calibration Time Synchronisation	 Select DTR, RTS or DTR and Select DTR, RTS or DTR and When you switch to TX DTR and/or R cleared. Note: this port cannot be used by and exclusive use by DM780. Ham Radio Deluxe To use HRD the radio pane must be of In the View menu select Rad In the View menu select Rad In the Radio pane press Com The Radio must be able to su Note: If you use Ham Radio Deluxe f connector (not the microphone connerear connector when using PTT via a 	TS are set (raised), when you retur other program such as HRD - it mus connected to HRD: <i>lio</i> <i>figure</i> and read the instructions! <i>upport the TX command in it's CAT o</i> for PTT <i>and</i> you connect the audio v ector) make sure your radio will acc software command, some radios su	n, n to RX they are st be available for scontrol. via a rear lept audio via the uch as the TS -	

- Getting started with DM780
 - Configure PTT
 - SignaLink USB provides soundcard PTT, use the *None* option
 - Other options are available for different hardware

- Working with macros
 - Macros are scripts for common tasks such as calling CQ, making a signal report, and bidding farewell
 - Macros use stored variables and commands to automate common tasks
 - Macros can be used in conjunction with the keyboard for ragchewing
 - Macro text can be edited 'on the fly' before it is transmitted
 - Macros simplify routine contacts
 - Macros are useful for contesting

- Personalizing the macros
 - The default macro set cannot be edited
 - Copy the defaults to one of the other available sets, then rename and edit the set to suit your taste
 - Up to eight different sets of custom macros can be made for different operating scenarios

Macros Manager			
Image: Image	← 🗎 🍞 🗁 🚽 Down Import - Defaults Load Save	ls	
Set 3 -			
	Macros set: Set 3	Set Title	•
	Ena Gro T Tool Mo	Definition	
		- Macros Pape	- First Name
	Toolbar: O Buttons O Popups	Organise by group	Send his first name only
	Icons: Send Immediately	Show macro set title	(the his:hame tag)
	Radio Control		
OK Cancel			

- Editing Macro Set 3
 - Set 3 is initially empty
 - Click Import
 - Select Replace 'Set 3' with 'Default'



🚰 Macros Manager *		🛛
New Copy Edit Delete	→ 😭 🍞 🗁 🛃 Down Import - Defaults Load Save As	
Call CQ Reply Info Closing	Macros set: Normal	Set Title
Call CQ	Ena Group Title Toolbar Image: Coll CQ CQ x 2 CQ x 2 Image: Coll CQ CQ x 3 CQ Image: Coll CQ QRZ QRZ Image: Coll CQ RE Him de Me	Mo Definition * CQ CQ de <my:callsign> <my:callsigr< td=""> * CQ CQ de <my:callsign> <my:callsigr< td=""> * CQ CQ de <my:callsign> <my:callsin=<my:callsign> <my:callsign> <my:callsign> <</my:callsign></my:callsign></my:callsin=<my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsign></my:callsigr<></my:callsign></my:callsigr<></my:callsign>
Reply Image: Constraint of the set o	Image: Market of Ma	
QTH 4) Station Info	Appearance Macros Pane Toolbar: Buttons Popups Icons: Send Immediately Erase TX Window	by group cro set title
OK Cancel	I Radio Control	

- Editing Macro Set 3 cont'd
 - Set 3 is now populated with the defaults
 - Click Set Title, then enter a new name
 - Edit and Enable macros as desired



- Working contacts with macros
 - Calling CQ
 - Ctrl+1 = call twice
 - Ctrl+2 = call three times
 - Ctrl+3 = QRZ?
 - Answering a call
 - Ctrl+4 = Him de Me (useful for ragchewing)
 - Ctrl+5 = Him de Me Pse K

- Working contacts with macros cont'd
 - Reports
 - Ctrl+6 = signal report, name, QTH, location
 - Ctrl+7 = station information
 - Info
 - Ctrl+8 = weather
 - Closing
 - Ctrl+9 = BTU (useful for ragchewing)
 - Ctrl+0 = 73 (sign with the station and add the contact to the log)

Demo time, let's make some contacts!



Questions and Answers



Thank You!

