

DIGITAL HAPPENINGS #11

(June 2013)

By W0NAC ("Matt")

One of my favorite people was Will Rogers. His most famous quote was "*I never met a man I didn't like*". He also once said: "*There are three kinds of men. The one that learns by reading. The few who learn by observation. The rest of them have to pee on the electric fence for themselves.*" As I get older (and hopefully a little wiser), I find myself wondering which category I fall into. I'm pretty sure there are a few county hunters out there that would happily place me in the last category and they may be right! Which category do you fall into? Hmmmmmm?

Let me ask another question. Are you still having fun with county hunting? If not so much anymore, maybe you need to try digital operations, especially mobile. Sure, it is new and different, but it just might get the ol' brain cells active again (which is a good thing for us older folks!). Also, there is a world of help available just for the asking.

This month I am going to re-visit the subject of digital interfaces. This is one of the most confusing aspects of operating digital. Yes, I have discussed this topic before, but I have learned a lot over the last few months while helping others set up their digital operations using several different interfaces and different rigs. The possible combinations of software, interfaces, and rigs are astronomical! I will try and make some sense out of all this for you later in this article, but first

Challenge Department:

Last month I challenged you to solve a puzzle as stated below:

**What 6 letter English word contains NO common vowels (AEIOU), but does contain 3 Y's used as vowels.
Hint: an astronomical term.**

Maybe this was too easy. The correct answer is "SYZYGY" which means "the nearly straight-line configuration of three celestial bodies (as the sun, moon, and earth during a solar or lunar eclipse) in a gravitational system.

Four people sent in the right word very quickly. Here they are in order of receipt:

- 1) W2CC – Dave
- 2) WA4UNS – Doug
- 3) KB9VQM – Louie
- 4) AB2LS - Carol

Now, I would like to challenge you again with a number problem that you may find a bit more difficult!

What is the next number in the following sequence: -7, 0, 17, 50, 105, ??

I'll again provide the correct solution in next month's article along with a list of any that send in the correct answer. Send your solution to w@nac@comcast.net .

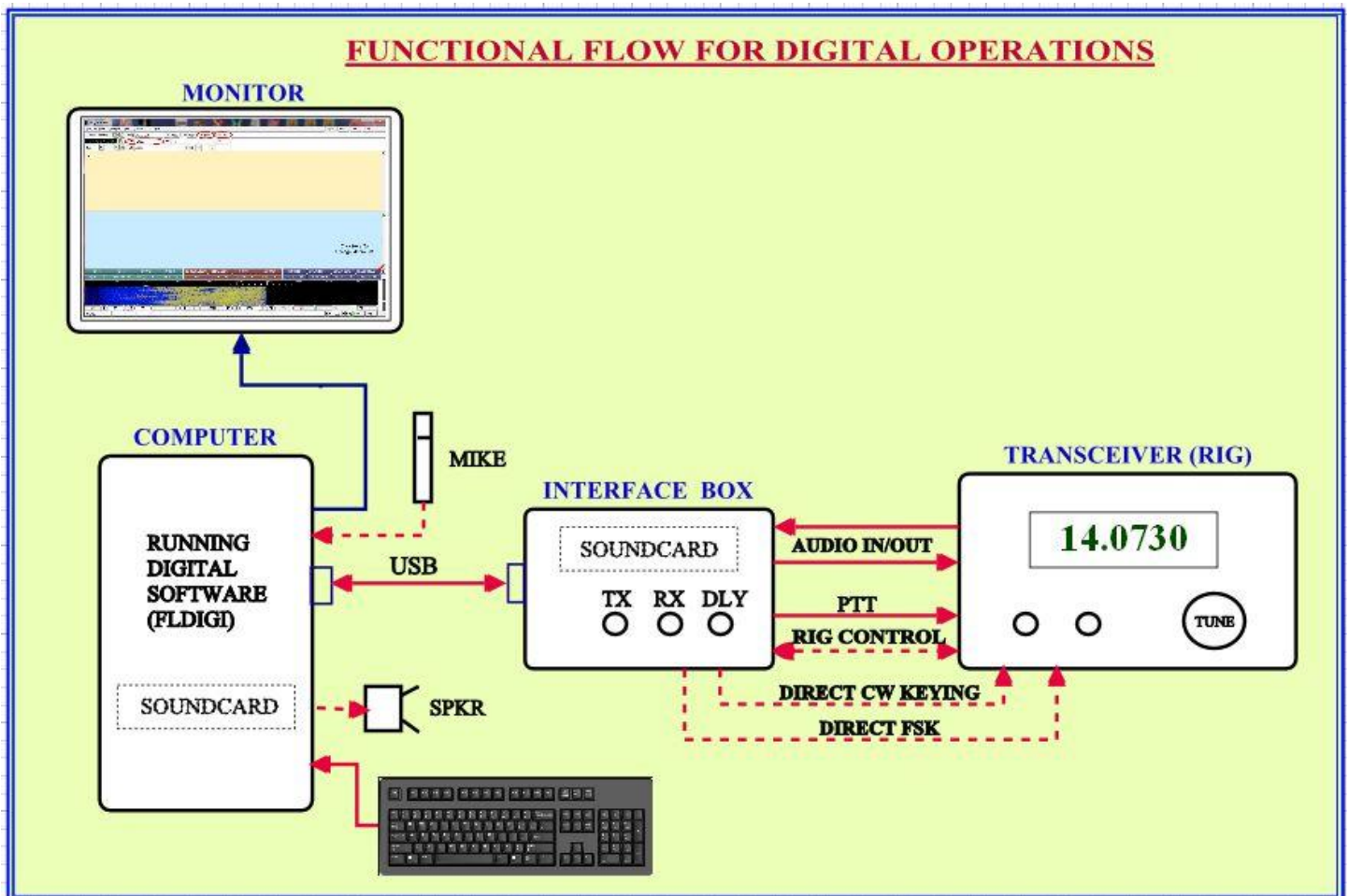
Digital Interfaces (Re-Visited):

To operate using any of the many digital modes, your system must support certain functions. Other functions are optional. A list of both is given below:

- 1) Computer - including monitor, keyboard (microphone & speakers optional) capable of running your digital software.
- 2) Transceiver – capable of operating USB on desired bands with audio input/output ports and PTT connection (these can be an 8-pin mike connector, modular mike connector, or accessory jack on rear panel). Optionally, it can also have a CW keying port and an FSK keying port.
- 3) Soundcard – This can be located inside the computer or optionally, a second soundcard can be located in your interface box.
- 4) Interface – This can range from simple direct audio connections between your XCVR and your computer soundcard to full function interface boxes that contain one or more of the following additional functions:
 - a) – Audio isolation of both Audio IN and Audio OUT (usually with transformers) to prevent ground loops.
 - b) – PTT (Push-To-Talk) to automatically toggle your XCVR between transmit and receive. Some interfaces avoid ground loops by using opto-isolators in this circuit.
 - c) – USB port connectivity to your computer with single cable. Older interfaces still use RS-232 serial port connectivity, but they are a dying breed because most modern computers no longer have RS-232 serial ports. USB connections are much easier to set up and also provide power to run the interface box.
 - d) – Rig Control (CAT) – Allows for direct control (via computer software) of almost all XCVR functions including frequency, RF gain, Audio gain, Band, Mode, etc. This function also reports back to your computer the state of these XCVR settings. For digital ops, probably the most important XCVR setting reported back is frequency.
 - e) – Direct CW keying – This function allows your computer to directly key your XCVR CW keying jack when operating your digital software in the CW mode with your keyboard.
 - f) – Direct FSK keying – If your XCVR has a direct keying FSK port available, you can use this function to produce “true” FSK RTTY. Without this function your digital software must create your RTTY signal using AFSC

(Audio Frequency Shift Keying) techniques. Use of AFSC is not necessarily “bad”, but it is more prone to producing a distorted signal if you over drive your XCVR.

Again, the possible combinations of these functions are almost limitless! In the figure below, I attempt to show what I would recommend as a “good” digital setup configuration and show how the various parts connect flow-wise:



The actual physical connections will vary considerably based on your XCVR, choice of Interface Box, and your Computer model. Since your choice of XCVR and Computer are probably givens (they are what you already have!), let's go on to choosing an Interface. However, before you make your final choice, I recommend that you consider several constraints:

- 1) Select an interface that connects to your computer with a single USB cable. I would stay away from interfaces that still use RS-232 serial connections as these are complex to set up and get very confusing. Of course, if you already have an interface that lacks USB connectivity and you can't afford to upgrade, then it can be made to “work”. Just be prepared for a lot of digging around in your various manuals and lots of frustration!
- 2) I strongly recommend that any interface you consider will support the PTT function. It's very inconvenient to manually toggle your XCVR between transmit and receive! Yes, your XCVR VOX function can be used to trigger PTT, but it is difficult to set up correctly and is not as

reliable as having your interface box trigger the XCVR PTT circuit directly. Incidentally, there are two types of PTT functions used in the various interface models. The first uses direct logic control and requires additional USB to COM Port conversion chips (read higher cost to make!). The second uses a simple VOX circuit (internal to the interface box) to trigger an external PTT line to the XCVR. This method is simpler and less expensive to make (the Signalink USB box uses this method) and works well.

- 3) I strongly recommend that any interface you buy have adjustable Transmit and Receive audio level controls on the front face of the box. Of these two, the Transmit level control is the most important as it will be your primary way of adjusting the RF power out from your XCVR. The Receive level control is less necessary as adjustments to Receive level are changed infrequently once set.
- 4) Whether or not you need any of the many other functions must be a personal choice based on your particular operating desires.

To help you make your choice, I have prepared a matrix showing many interface selections. I'm sure that I have missed some choices out there, but I have covered all that I could find. My comments and evaluation of functions on these choices are strictly my personal interpretations. You should not take these at face value, but go to the links provided (use <CTRL> Click) for more detailed information. Features change and new devices are coming out all the time, so the following table will have a very short half-life!

DIGITAL INTERFACE FEATURE COMPARISONS

#	INTERFACE	LINK	COST	Has Own Sound card?	Computer Interface	XCVR Interface	Audio Level Controls?	PTT?	CAT?	CW or FSK?	Comments
1	Signalink USB (Tigertronics)	http://www.tigertronics.com/slusbmain.htm	~ \$100	Yes	USB Cable	Acc Jack Cable or Mike Cable	Yes, Both Rx and TX	Yes VOX	No	No	Very simple & inexpensive, but works well! Neat little box! Highly Recommended!
2	Computer Mike In Front Of XCVR Speaker	N/A	Free	No	Mike Cable	Speaker	No	No	No	No	Simple way to receive and decode digital signals, but not much else. Use only to get your feet wet.
3	Homebrew Simple Interfaces	http://www.google.com/search?q=Simple+PSK+interface&sa=X&tbn=isch&tbo=u&source=univ&ei=ApvLUbuiM	Varies	Generally No	Various	Various	Varies	Most Yes	Most Yes	Most NO	This site contains a wealth of ideas on interfaces you can build yourself as well as info on some commercial products.

		pDy8ASExIDwBg&ved=0CCwQsAQ&biw=1100&bih=664									
4	US Navigator Interface	http://navigator-interface.com/	\$200 ? (Only available used.)	Yes	USB Cable	Cables To ACC Jack/Mike, Key	Yes, Both Rx and TX	Yes	Yes	Yes	Extremely competent box with all the bells and whistles! Setup is complex. No longer made. Will have to find used.
5	MFJ-1275	http://www.mfjenterprises.com/Product.php?productid=MFJ-1275	\$110	No	RS-232 Serial Cable	Cable To 8-Pin Mike Jack	No	No	No	No	Inexpensive, but very dated box. Still uses serial interface. Not Recommended.
6	MFJ-1279M	http://www.mfjenterprises.com/Product.php?productid=MFJ-1279M	\$140	No	RS-232 Serial Cable	Cable To 8-Pin Mike Jack	No	No	No	Yes	Has Direct Keying Jack for keying Radio in CW or FSK. Still uses serial interface. Not Recommended.
7	TIMEWAVE PK-232SC Interface	http://www.timewave.com/support/PK-232/PK232SC.html	\$600	Yes	USB Cable	Various Cables	Yes	Yes	Yes	Yes	Very Expensive, but this is probably the "Cadillac" of interfaces. It has almost everything you could wish for.
8	West Mountain Radio RIGblaster Pro	http://www.westmountainradio.com/product_info.php?products_id=pro_comp_usb	\$300	No	RS-232 Serial Cables plus many audio cables	Variety of Cables	Yes, TX Only	Yes	Yes	Yes	A bit outdated. Still uses RS-232 Serial interface. Very complex to set up. Not recommended.
9	West Mountain Radio RIGblaster Advantage	http://www.westmountainradio.com/product_info.php?products_id=rb_adv	\$200	Yes	USB Cable	Cable To 8-Pin or Modular Mike Jack	Yes, Both Rx and TX	Yes	Yes	Yes	Very nice box! Kind of like a SignalLink USB, but includes Rig Control which SignalLink lacks. Recommended.
10	West Mountain Radio RIGblaster Plus II	http://www.westmountainradio.com/product_info.php?products_id=rigblaster_plus2	\$160	No	USB Cable	Cable To 8-Pin or Modular Mike Jack	Yes, TX Only	Yes	Yes	Yes	Updated model to USB Interface, but has NO internal sound card. Not recommended.

Essentially all commercial interface manufacturers make their hardware so that you can properly connect to almost all common brand or model transceivers, but you will still need to carefully study both your transceiver

manual and the instructions that come with your interface. If you have done all this and are still confused, I can probably help you. My phone number is 303-799-3658.

June Activities:

Digital Activities during June seem to have slacked off a bit. About the only digital mobile I have heard running counties this month is **W5QP** (Rick). He put out several counties in OK using **BPSK-63**. We (**W0NAC/N0LXJ**) put out our home county (Douglas, CO) using **MFSK-32**, **RTTY 75N**, and **BPSK-63** on June 15th. Sharon and I will be putting out a lot of digital counties on the way to and from the National in Deadwood. I will publish our trip plan soon. The results of our trip will be listed in Digital Happenings #12.

Support calls related to digital setup, etc. have also slowed (maybe everyone is on vacation?). As always, I stand ready to help anyone who has problems or wishes to get started with digital operations. Just email me or call me on the phone. My email is w0nac@comcast.net and my home phone number is 303-799-3658. Call any time.

Table 3 (below) has again been updated from last month. I updated several people using files they sent in to me. Please check your status in the table, and if you believe that your numbers are not right, please drop me a quick email and include your correct stats, if you know them. If you haven't the "foggiest" idea what your stats are, please attach zipped copies of your most current Logger call sign database (two if you are a team), and your Common database and I can extract your stats from these. For example, our databases file names are "**County Hunter – W0NAC.mdb**", "**County Hunter – N0LXJ.mdb**", and "**County Hunters – Common.mdb**". These files can normally be found in the folder: "**C:\Logger Data**". Again, please "ZIP" these files as my email provider won't pass files with an "mdb" file extension.

The latest version of Logger (4614) will still only report your status for the **USA – Digital Award** (go to "View/Edit/Book/USA-Digital/All") and for fully completed counties for the **5 - Mode Award**. A fix is still in the works that will report on the status of 1, 2, 3, and 4 completed counties. In the meantime, your only options are to manually count them (from a Logger printed 5-Mode report) or, as mentioned above, send your data files to me for manual extraction.

Establishing an interactive web site for digital matters is still in the works, but has been held up by more pressing matters. One of the functions I hope to have on the site is an interactive way for digital folk to input their status so I can update the table. I have a server and a domain name, but still need to develop the software for the site. It will probably be several more months before the site is up and functional.

The updated Table 3 is given below. It now has 2 new columns – **Total 5 - Mode** contacts for Modes 1 - 5, and **% Completed for the 5 - Mode Award**.

It is interesting to note that of those reporting, 2 people (**N0KV** and **W0NAC**) have completed over 50% of the **5 - Mode Award**. 9 other people have completed over 40% of the **5 - Mode Award**. Maybe the **5 - Mode Award** is not as difficult to finish as some people might have thought when it was originally proposed?

Table 3 - Active Digital County Hunters Award Status

#	CALL	NAME	STATUS* (M,F,I)	USA - DIGITAL Counties (of 3077)	(1 MODE)	(2 MODES)	FIVE MODE COUNTIES (3 MODES)	(4 MODES)	(5 MODES)	TOTAL	% 5-Mode Completed	LAST UPDATED
1	AA8R	Randy	F	1000+	-	-	-	-	-	0	0.0%	9/30/2012
2	AC0B	Cliff	F	205	-	-	-	-	-	0	0.0%	12/10/2012
3	AD1C	Jim	F	-	-	-	-	-	-	0	0.0%	
4	K0DEQ	Bill	F	-	-	-	-	-	-	0	0.0%	
5	K0PVW	Rob	F	-	-	-	-	-	-	0	0.0%	
6	K0WJ	Lou	F	-	-	-	-	-	-	0	0.0%	
7	K4PBX	Jim	F	106	2575	84	6	0	0	2665	17.3%	10/15/2012
8	K5GE	Gene	F	-	-	-	-	-	-	0	0.0%	
9	K5SF	Dick	F	-	-	-	-	-	-	0	0.0%	
10	K5WAF	Bill	F	599	3044	?	?	?	?	3044	19.8%	5/2/2013
11	K7REL	Tom	F	-	-	-	-	-	-	0	0.0%	
12	K8QWY	Ed	F	-	-	-	-	-	-	0	0.0%	
13	K8ZZ	Ed	F	-	-	-	-	-	-	0	0.0%	
14	KA8IQP	Pamela	M/F	-	-	-	-	-	-	0	0.0%	
15	KC3X	Hollis	F	-	-	-	-	-	-	0	0.0%	
16	KC6AWX	Bob	F	450	3077	1592	264	59	14	5006	32.5%	5/7/2013
17	KC7YE	Jack	F	-	-	-	-	-	-	0	0.0%	
18	KD5YUK	Billy	F	-	-	-	-	-	-	0	0.0%	
19	KD7KST	Bill	M/F	1792	-	-	-	-	-	0	0.0%	9/30/2012
20	KG5RJ	Greg	F	557	3048	2062	496	147	34	5787	37.6%	5/2/2013
21	KM1C	Bill	F	-	-	-	-	-	-	0	0.0%	
22	KM6HB	Mark	F	714	3077	2936	694	87	1	6795	44.2%	2/3/2013
23	NOKV	Barry	M/F	412	3077	2996	2064	249	24	8410	54.7%	8/26/2012
24	NOLXJ	Sharon	M/F	1334	3077	2237	1164	423	201	7102	46.2%	6/28/2013
25	N1API	Al	F	313	3077	519	128	22	6	3752	24.4%	4/10/2013
26	N3HOO	Ed	F	-	-	-	-	-	-	0	0.0%	
27	N4JT	Jim	F	572	3077	3058	575	99	55	6864	44.6%	10/30/2012
28	N5MLP	Ron	M/F	391	3077	409	54	37	9	3586	23.3%	5/19/2013
29	N6PDB	Dennis	M/F	375	3077	2633	413	138	115	6376	41.4%	3/28/2013
30	N8CIJ	Dick	F	481	3077	2971	393	117	109	6667	43.3%	1/21/2013
31	N8HAM	Jim	I	0	3077	0	0	0	0	3077	20.0%	4/2/2013
32	N9WNN	Steve	F	0	2180	0	0	0	0	2180	14.2%	2/24/2013
33	NA8W	Darl	F	535	2993	?	?	?	55	3048	19.8%	4/6/2013
34	NF0N	Mike	F	785	3077	3077	915	108	50	7227	47.0%	12/31/2012
35	NN9K	Pete	F	816	3077	859	78	1	0	4015	26.1%	3/23/2012
36	NT2A	Gene	F	-	-	-	-	-	-	0	0.0%	
37	NU4C	Paul	F	-	-	-	-	-	-	0	0.0%	
38	NW6S	Jim	F	-	-	-	-	-	-	0	0.0%	
39	NX4W	Lloyd	M/F	1128	3077	1211	329	176	88	4881	31.7%	5/31/2013
40	W0NAC	Matt	M/F	1773	3077	2806	1932	999	357	9171	59.6%	6/28/2013
41	W3DLM	Don	F	-	-	-	-	-	-	0	0.0%	
42	W4IHI	Garv	F	-	-	-	-	-	-	0	0.0%	
43	W4SIG	Kerry	F	-	-	-	-	-	-	0	0.0%	
44	W4YDY	Dave	F	752	3077	3077	921	213	46	7334	47.7%	3/6/2013
45	W5QP	Rick	M/F	138	3077	2362	137	57	46	5679	36.9%	5/30/2013
46	W6RK	Risto	F	-	-	-	-	-	-	0	0.0%	
47	W6RLL	Joe	F	-	-	-	-	-	-	0	0.0%	
48	W7IN	Larry	F	-	-	-	-	-	-	0	0.0%	
49	W7QQ	Bill	M/F	-	-	-	-	-	-	0	0.0%	
50	W9IR	Rich	F	90	3077	1674	44	0	0	4795	31.2%	10/31/2012
51	W9SUQ	Larry	F	-	-	-	-	-	-	0	0.0%	
52	WA4EEZ	Leslie	F	1034	3075	1257	483	69	6	4890	31.8%	6/4/2013
53	WA4UNS	Doug	F	-	-	-	-	-	-	0	0.0%	
54	WA6OCV	Susan	M/F	328	3077	328	320	130	10	3865	25.1%	3/28/2013
55	WA7JHQ	Sterling	F	-	-	-	-	-	-	0	0.0%	
56	WB0M	Jeff	F	-	-	-	-	-	-	0	0.0%	
57	WB2ABD	Paul	F	-	-	-	-	-	-	0	0.0%	
58	WD4OIN	Jack	F	395	3077	3065	410	67	8	6627	43.1%	3/3/2013
59	WQ7A	Terry	F	158	3077	3011	163	96	81	6428	41.8%	5/26/2013
60	WY4D	Bennie	F	-	-	-	-	-	-	0	0.0%	

Possible topics for the coming months include –

“How To Log Your Digital Contacts In Logger”

“Macros – Revisited”

“New Digital Awards?”

“Digital Software Installation – Revisited”

“Award Difficulty Index”

“Additional Digital Mode Test Results”

“Digital Software Choices”

So long again.....Please email me with your comments/suggestions at w0nac@comcast.net and don't forget to send me your counties worked status on the **USA – Digital** and **5 - Mode Awards** so I can update the Digital County Hunter Status List again next month.

73's and we hope to see you at the National Convention in Deadwood. Please plan on attending the first “Digital” meeting at 11:00 AM Saturday.

Matt – W0NAC