



# Solid Copy

The International CWops Newsletter

January

2017

Issue No. 84



5T5TI Banc d'Arguin, Mauritania

## CWops "CWT"

Every Wednesday

Regular Tests: Full Speed

Start times: 13Z, 19Z, 03Z (+1)

1-hour each session

Exchange: name/number (members)  
name/SPC (non-members)

**(Avoid DX pileups!)**

## CWops "neighborhood"

Look for CWops on 1.818, 3.528, 7.028,  
10.118, 14.028, 18.078, 21.028, 24.908, 28.028,  
50.098

## CWops Officers and Directors

President: Mac McDonald [NN4K](#)

Vice President: Peter Butler [W1UU](#)

Secretary: Jim Talens [N3JT](#)

Treasurer: Craig Thompson [K9CT](#)

Director: Stew Rolfe [GW0ETF](#)

Director: Vidi La Grange [ZS1EL](#)

Director: Nodir Tursoon-Zade [EY8MM](#)

Webmaster: John Miller [K6MM](#)

Editor/Publisher: Rick Tavan [N6XI](#)

## Table of Contents

[President's Message](#)

[From the Editor](#)

[News & Notes](#)

[Year-End Financials](#)

[Arduino CWT Simulator](#)

[My Story – James Dingwall G4ILW](#)

[Tidra Island, Mauritania](#)

[CW Academy](#)

[How We Were – W5LA](#)

[CWops Tests](#)

[CWops Members Awards](#)

[New Members](#)

[Nominees](#)

[QTX Report](#)

[Operating Events](#)

## President's Message



First, Happy New Year to CWops members.

This is my first article as your new president and I'd like to thank you for the

opportunity to serve CWops. I'm looking forward to it and writing a monthly article is a new adventure. Rob, K6RB, has done a great job as president for several years and is commended for all he has done.

The organization is in excellent condition and as you know Rob has nurtured CW Academy with increasingly successful results. Other directors, officers and managers have contributed greatly to our organization and I'm happy they will continue on.

The results of 2016 accomplishments with CWT's, CWops Member Awards and QTX produced many medal winners and congratulations to those who will be receiving their awards soon. Now we can reset the scoreboard for 2017. For CWT activity to count toward an award you need to post your result of each session on [www.3830scores.com](http://www.3830scores.com). For the results of efforts to achieve goals with CWops Member Awards, a good way to do it is to use the software CWOPS AWARD MANAGER (CAM) by member Bill N5RR. It can be downloaded from [www.bbcyber.com](http://www.bbcyber.com) web site. A quick contact exchange during a CWT session doesn't allow us to get to know each other better but the award for QTX's encourages 20 minute plus QSOs. I have really enjoyed getting to know some of you better than a call sign exchange when we've had a QSO. You don't have to work only members, you can accumulate points by having QSOs with anyone. Just report your monthly results to John, K1ESE. Review any recent CWops Newsletter, *Solid Copy*, for more details.

Starting a new year motivates me to think about GOALS. Within CWops there are many opportunities to identify activities that goals can be designed around. For example, the weekly CWT's are at the top of my list for having an energized Wednesday. About 120 members participate in each session but there is room for more. Don't get discouraged by the QRN or QSB happening because of the solar cycle. It's a good opportunity to have fun on 160/80/40 meters as well.

A goal plan for 2017 will keep me focused if I write down a target value like how many QSOs do I want to make in the 1300Z session of CWT, etc. I have to be realistic but stretched a bit. Try applying the same idea to QTXs for a month but set the target for daily QSOs. The more we participate and record our score data, the more satisfaction of activity grows. This might be the year that you have more time available and would like to become an Advisor in the CW Academy. There is a need for more Level 1 Advisors as the demand for the training is steady. If you are interested, we have training sessions for new Advisors and Associate Advisors, so don't let that hold you back.

The members who are already active in so many aspects of CWops give our organization an attractive quality. They do it because they love CW and making friends. Operating CW is fun and more new hams would like to learn to use Morse code. I meet a lot of people at local club meetings and hamfests who want to learn Morse code. We have the means to help them with CW Academy.

Be active and have fun!

73,

**Mac** NN4K

[Back to Contents](#)

[Next article](#)

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## From the [Editor](#)



### Years Old and New

2016 has come and gone and, according to some, that is a very good thing. It was certainly a horrific year for many around the world and we can only pray for better times in 2017. But some things in 2016 were positive and impressive and you will read about some of them in this issue of *Solid Copy*. For example, several [dedicated CWTERS](#) participated in all 156 CWT sessions in 2016! That may not be as bruising as playing in 746 consecutive hockey games (Andrew Cogliano of the Anaheim Ducks, longest streak still active), but it does represent a similar kind of devotion....

It was a great year for CWops The Club, too. Our membership continues to grow, with increasing numbers of new recruits opting to become life members. We have established a reserve account with those one-time dues payments to help finance our operations into the future. Many thanks to outgoing Membership Chair Colin Jenkins KU5B who has done a great job keeping the [new member pipeline](#) flowing. As Treasurer Craig Thompson K9CT [reports](#), our finances are solid. And we continue to be one of the world's most effective resources for learning Morse Code, with [CW Academy](#) thriving and churning out new CW operators thrice yearly. If you haven't yet helped out, consider becoming a CW Academy Advisor or, if you can't make time for that, just get on 7035 some evenings, or catch some of the special, low-speed CWTs, and work some of our students. They will appreciate the code practice and you will make some new friends. Nine members earned the [QTX Award](#) for devotion to conversational CW. Our members continue to be among the most active on-the-air hams in the world. Just tracking our own QSOs among ourselves, including not only long conversations but also contest exchanges and intermediate length chats, shows as many as 903 Q's with members by AA3B in 2016 and over 6000 inception-to-date! Check out the [Member Awards](#) column for some inspiring details. Yes, we are an active club ... very active!

A 2016 milestone outside of CWops was completion of qualification events for the on-site [2018 World Radiosport Team Championship](#) to be held in Wittenberg, Germany as a contest within a contest during the July 14-15, 2018 running of the [IARU HF World Championship](#). Although qualification standings remain unofficial until all the adjudicated results are published, and there are several close races in regions around the world, it is clear that many CWops members will qualify to compete: A cursory scan through the standings suggests that members K2PO, N4YDU, W9RE, N5AW, K3PA, VE7CC, K9VV, OM2VL, DL2CC, N2NL, and CX6VM are probable team leaders while NA8V, K5WA, NP4Z, G4XUM, and E21EIC are nipping at their heels. (My apologies to anyone who deserves to be on those two quickly-assembled lists whom I may have overlooked.) Those who finally qualify will select teammates, which will certainly include even more CWops members. Go for the Gold, gang! For those who won't be competitors, consider attending the festivities in person. It's a fun, alternative sort of hamfest. And if you can't be there, at least get on the air and work as many of the WRTC stations as possible. They will have special, distinctive call signs so you can recognize them.

Our Secretary Jim Talens N3JT sends along this 70th birthday photo of himself and Nina. Happy Birthday, Jim!



Enjoy this first issue of 2017 and, as usual, keep those articles and columns coming ... and don't forget to tell me what you want to read in *Solid Copy*.

73,

**Rick** N6XI

Editor

[Back to Contents](#)

[Next article](#)

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## News & Notes

### [Jerry Weisskohl AC4BT](#)

*This is a column where members can report their activities, happenings and achievements, both radio-related and personal. Please send brief notes to Jerry AC4BT at [jweisskohl@gmail.com](mailto:jweisskohl@gmail.com).*

Best wishes for a speedy recovery to the following two CWops members:

**Jim, N7RCS # 1580:** Jim suffered two heart attacks in December. Since then he has had two stents and a triple bypass and is now recovering.

**Drew, VE3RIA #1025:** Andrew has had a bad fall and is recovering. He continues to use his station remotely.

And less dire reports from our members:

**Gary, NA6O:** At long last, I got to meet my CWops champion, Hank, W6SX. The occasion was the summer NCCC picnic held at the N6RO ranch on the hottest day of the year. Many CWops

members were in attendance. Hank has been a great inspiration to many of us, and he was the one who nominated me in the first place. I owe a lot to CWops and especially guys like Hank for helping me improve my proficiency and gain operating confidence over the last few years. Now I really know what it means to CW Exuberantly!



[Back to Contents](#)

[Next article](#)

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# Year-End Financial Report

by Craig Thompson K9CT

## Cash Balances as of 12/31/2016:

Bank of America \$6041.09

Hometown Community Bank \$5274.72

PayPal \$23,040.75

## Investment Account (Life Memberships) as of 12/31/2016:

Clark Capital Management Fixed Income Fund       \$72,775.35

## Expenses CY 2016

Marketing - Dayton, Visalia, and Tokyo Ham Fair. - \$400

Postage - \$27

Plaques and Awards - (WAE, CQWW, CWT, CWO, QTX, NAQP, ARRL DX)

    PayPal - \$3605

    Direct - \$450

PayPal Fees - \$775

Currency Exchange Fees - \$247

## Revenue CY 2016

Dues (including Life Memberships):

    PayPal - \$19,654

    Direct - \$314

No person has been compensated from our funds.

[Back to Contents](#)

[Next Article](#)

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## An Arduino-based CWT Simulator

By Chuck Sanders NO5W

### Introduction

This project started off with one decidedly non-technical objective, took a detour into the technology of Arduinos, SPI interfaces, and digital pots, and ended up incorporating the original objective in a form slightly different from the original vision. I like the meet and greet nature of the CWops CWT sessions and find it an interesting challenge to try to remember the name of the other operators even before they send their exchange and without assistance from a call history. After all,

in addition to celebrating the unique art form of Morse code, CWops is a social organization, whose members happen to have a common interest in Morse. It is good to be able to greet a fellow member by first name at a hamfest or even on the air outside of the CWT. Just imagine calling CQ, looking for a casual QSO, and NO5W comes back. You would like to greet Chuck by name before he takes his turn at the paddle. So my original intent was to develop some sort of game or drill, possibly played on a PC, with CWops call signs selected at random for the player to provide the correct name and be scored at the end of the session.

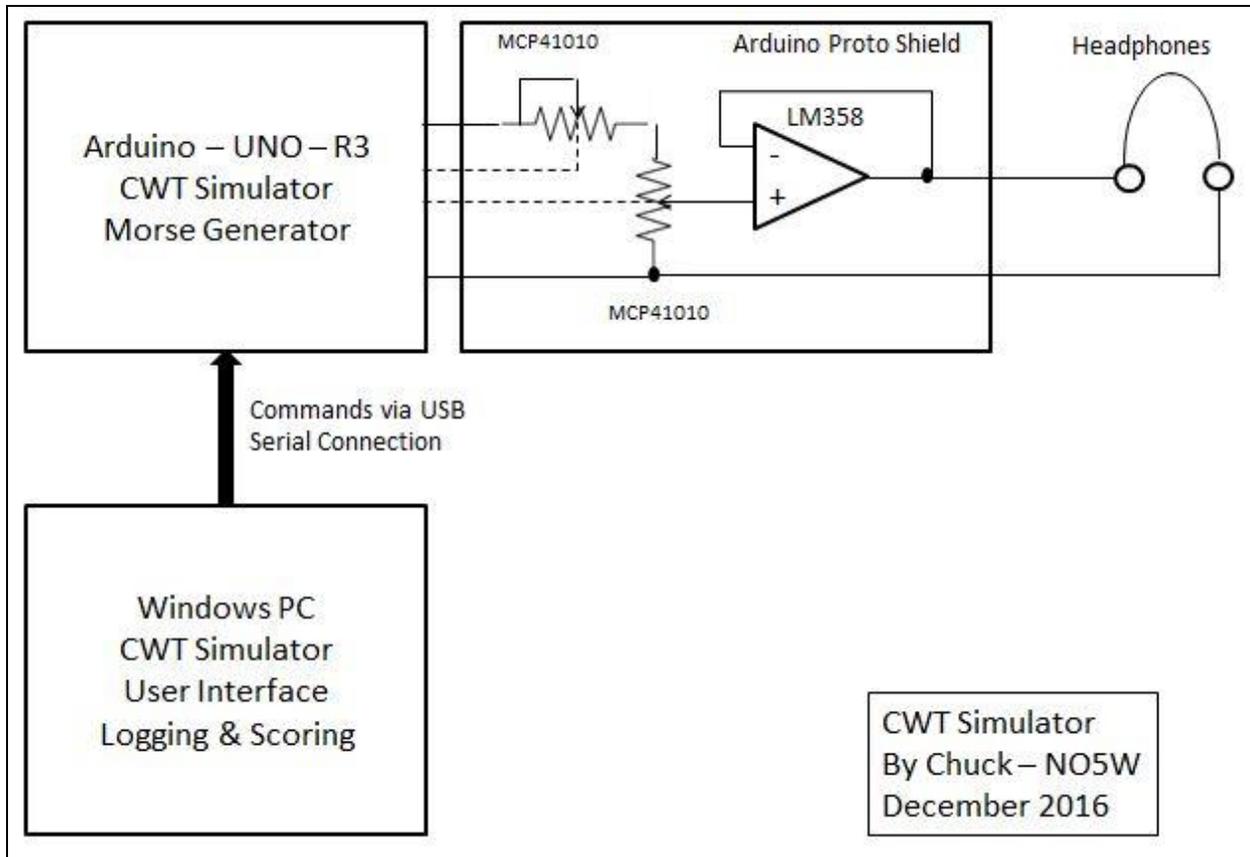
After thinking about a flash-card-on-a-PC approach, it seemed rather boring and definitely was in need of some Morse content. In addition to building up name recognition I needed something that would help my score in the real CWT, including increasing my CWT call sign vocabulary of familiar calls. The CWT sessions with their three times a week occurrence, enthusiastic participation by nearly one-hundred members who return session after session, and the intense but short time-frame are a great way to increase call sign and name recognition for a relatively small set of members. So what was needed was a simulator that would draw virtual participants from a large set of members and could be tailored by the user as a Morse exercise at or slightly above the user's comfort level with responders answering a CQ with various speeds, off-frequency calls, and signal strengths.

I knew that this could, in theory, be done solely on the PC using the sound card but from past experience I also knew that this might involve a considerable amount of head scratching while digging deeper and deeper into Microsoft goobledgook with eyes glazing over and head nodding off. The Arduino, bought a couple of years ago at the Huntsville hamfest on speculation that it might one day be useful in a project, beckoned from its dust-gathering position on the bookshelf. Here was a simple device that I had wanted to put to use and could do so with minimal hassle from the security police. It is a simple, inexpensive platform with a wide user-base, extensive open-source software libraries, and can be coded in C/C++, my native programming language. With this in mind, it seemed natural that the CWT Simulator should take the form shown in the figure below.

## **Overview of the Simulator**

As shown in the following diagram, the Simulator consists of three main parts: an application running on the PC (or Mac) which provides the logging and bookkeeping interface to the user, an application running on the Arduino that responds to commands from the PC application to generate various Morse signals, and a signal conditioning subsystem consisting of two digital potentiometers and a buffer amplifier that provides the final audio to the user headphones. The need for the digital pots came about only after I realized that controlling the volume of tones generated by the Arduino is not a simple matter – Tones are either full strength or no signal. There are software methods for controlling the volume using pulse-width modulation, but after some experimentation I decided that their use would complicate the design of the Morse part of the Arduino code. It became apparent that use of digital pots which can be controlled by the Arduino's Serial Peripheral Interface (SPI) was the way to keep the Arduino code simple.

The Arduino is essentially a microcontroller (ATmega 328) with a few peripherals including a USB interface, a Serial Peripheral Interface (SPI), and a relatively large number of digital I/O and analog inputs. An integrated development environment is freely available for download and is used to develop code using C/C++ for compiling and uploading the necessary hex code to the device over a USB interface. It has a limited amount of on board program memory (32K) and dynamic data memory (2K) and runs at a 16MHz clock rate, which is completely adequate for the generation of Morse.

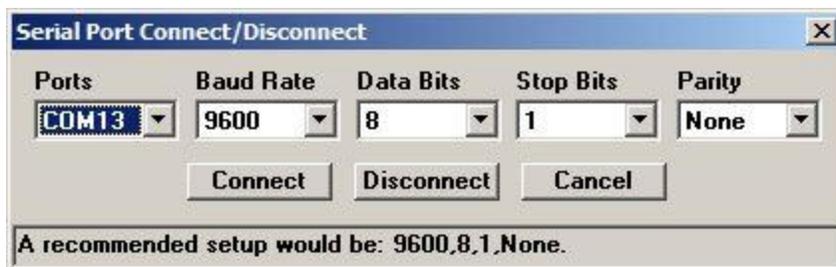


### Using the Simulator

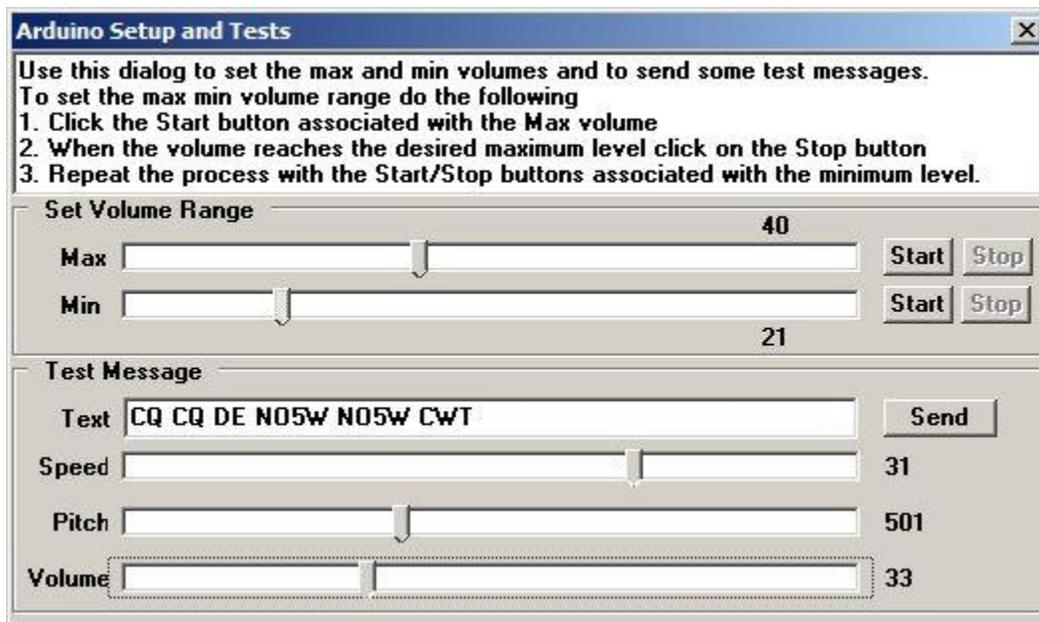
To operate the Simulator, the user performs a configuration step which involves connection to the Arduino, creation of a pool of potential callers, definition of information about the user's operation (call, name, number, etc.), and definition of the type of session the user wishes to run. All of these steps are performed from the user interface on the PC as described below.

### Connection to the Arduino

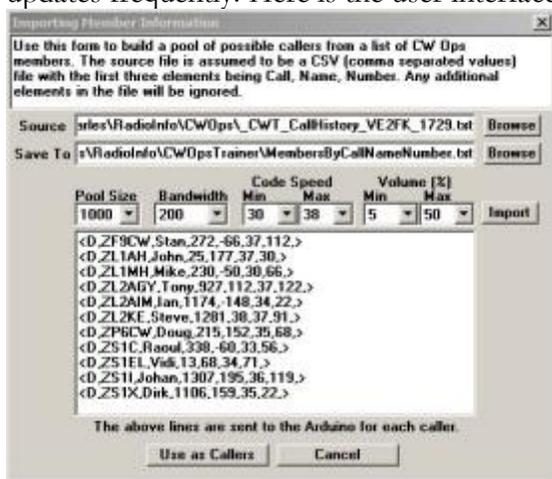
To begin a session, connect to the Arduino using the following dialog. Make sure that the com port and related parameters are consistent between the PC and the Arduino. Your com port number may vary and you may need to use Device Manager to find which of your ports is for the Arduino connection, but the other parameters shown below should not be changed.



To check the connection to the Arduino and to obtain an idea of the sound of the Simulator use the following dialog, accessible from the Setup menu:



Once satisfied that the Arduino will produce Morse with a desired range of volumes, it is time to build a pool of callers from a call history file similar to the ones that Claude VE2FK maintains and updates frequently. Here is the user interface for building the pool:



Choose a source file for the members which in the example above is a call history produced by VE2FK that contains members with numbers through 1729. The only requirement is that the file must be a CSV text file with the first three entries being the call, the name, and the member number. The file shown will be adequate for a lot of play with the Simulator but as new members are added you may want to download and use new files. Next specify the name of the file where the pool is to be saved. Then choose a pool size (1000 in the example), a bandwidth of caller frequencies (50 – 200 Hz), a range of code speeds (10-40 wpm) and a range of signal strengths or volumes in the range 0-100. Once the parameters are set, click the import button and the program will build the pool by

randomly selecting members from the source file and assigning them random bandwidths (frequency deviations about the side tone frequency of the user), code speeds, and signal strengths within the specified ranges. The resulting CSV lines shown in the above dialog are the commands sent to the Arduino each time a new caller is needed. The right-most element in the above lines is the signal strength converted to a range of 0-256 for use by the digital potentiometers.

### **Setup User and Session Information**

It is also necessary to define some information regarding your operation as well as parameters defining how the session will be run. This is done using the following dialogs which are accessible from the Setup menu. This information is mostly self-explanatory and will generally remain fixed.

A session is one running of the Simulator with parameters that are fixed during the session. It is possible to run the Simulator for a fixed duration session of from one to 60 minutes or to run it open-ended with no definite ending time.

If the **Allow Completion of QSO** box is checked, then any QSO started prior to the end of the session will be allowed to complete as long as it is completed within 30 seconds of ending the session.

If the **Give Bonus for Pre-Filled Names** box is checked, a bonus will be given for any name that is provided by the user prior to the responding station beginning his exchange. This is a “nod” to the original objective of this project. If you can remember the other operators name within the five to six seconds that elapse prior to the other station sending his name then you get a bonus.

If the **Randomize the Callers** box is checked then the callers will be chosen at random from the pool. Check this box to avoid memorization of the. On the other hand, if you are using the Simulator to run a competition you might want to uncheck this box so that each participant will be receiving calls from the same stations.

Once the parameters have been set, click on the Apply button to complete the configuration of the Session. This configuration will apply and will be loaded each time the user starts the program.

**Setting Up User Information**

User Call Sign:

User Name:

User Number:

Side Tone Pitch:

Side Tone Volume:

Sending Speed:

CQ Message:

Exchange Message:

TU Message:

Request Call:

Request Name:

Request Number:

**Configuring the Session**

Session Duration (mins):   Open-ended

Allow Completion of QSO:

Give Bonus for Pre-Filled Names:

Randomize the Callers:

### Operating a Session

A session runs from the QSO entry window shown below which shows a session that has just ended.

**CWT-Trainer de N05W: [Built: 02-Jan-17 10:27]**

File Ports Setup Scores Tools Help

**Logged QSOs**

Date	UTC	Sent ...	Sent ...	Sent...	Rcvd Call	Rcvd Name	Rcv...
2017-01-02	1728	N05w	CHUCK	311	N1TO	ED	685
2017-01-02	1729	N05w	CHUCK	311	K9DUR	RAY	1104
2017-01-02	1729	N05w	CHUCK	311	K9IG	GREG	1650
2017-01-02	1729	N05w	CHUCK	311	WA2A0G	LON	980
2017-01-02	1730	N05w	CHUCK	311	K0DEQ	BILL	1683
2017-01-02	1730	N05w	CHUCK	311	KF7GGN	SCOTT	1514
2017-01-02	1730	N05w	CHUCK	311	WA8IWK	ALLEN	1061
2017-01-02	1730	N05w	CHUCK	311	N50E	CARL	983
2017-01-02	1731	N05w	CHUCK	311	K7LV	GEORGE	800
2017-01-02	1731	N05w	CHUCK	311	R3VE7CC	LEE	139

**QSO Entry**

**The session is over**

F1-CQ      F2 - Exch      F3 - TU+Log

F5 - CALL?      F6 - NAME?      F7 - NR?      F8 - AGN      F12 - Edit Log

Type Call, Name, and Number (any order) separated by spaces and press F3 or Enter key.

**Control**      **Remain(mins:secs)**

                       **00:00**

To start the next session, press the F1 key or the Start button which will begin the session with a QRL. If you have not yet saved the log from the just completed session, a prompt asking whether to save the log is issued. Once the log is saved or the save is declined, a press of F1 or the Enter key will result in a CQ message. When a station responds, type the call into the QSO Entry window and either press the F2 key or the Enter key to send the exchange, or press F8 to request another call by the responding station. If the call has been copied correctly, the responding station will just send his exchange, but if there is an error in his call he will repeat it twice before sending his exchange. Upon copying his exchange, type it into the QSO Entry window in any order and press F3 or the Enter key. If it is necessary to ask for a repeat of his call, name, or number or to simply send AGN use the indicated keys F5-F8. As each QSO is completed it will appear in the Logged QSOs window. If it is necessary to edit a previously logged QSO, use F12 to access the logging area with the last QSO logged. If the QSO to be revised is further up the log use the cursor keys to move up to the QSO that needs to be revised and press the Enter key. This will take you to a dialog for making the desired change.

## Reviewing Your Log

Once a session is over, you can use the Scores menu item to pull up the following dialog containing an analysis of how you did. The top portion of this dialog shows your log along with an indication of any errors you made and any bonus you received.

**Viewing Your Current Log**

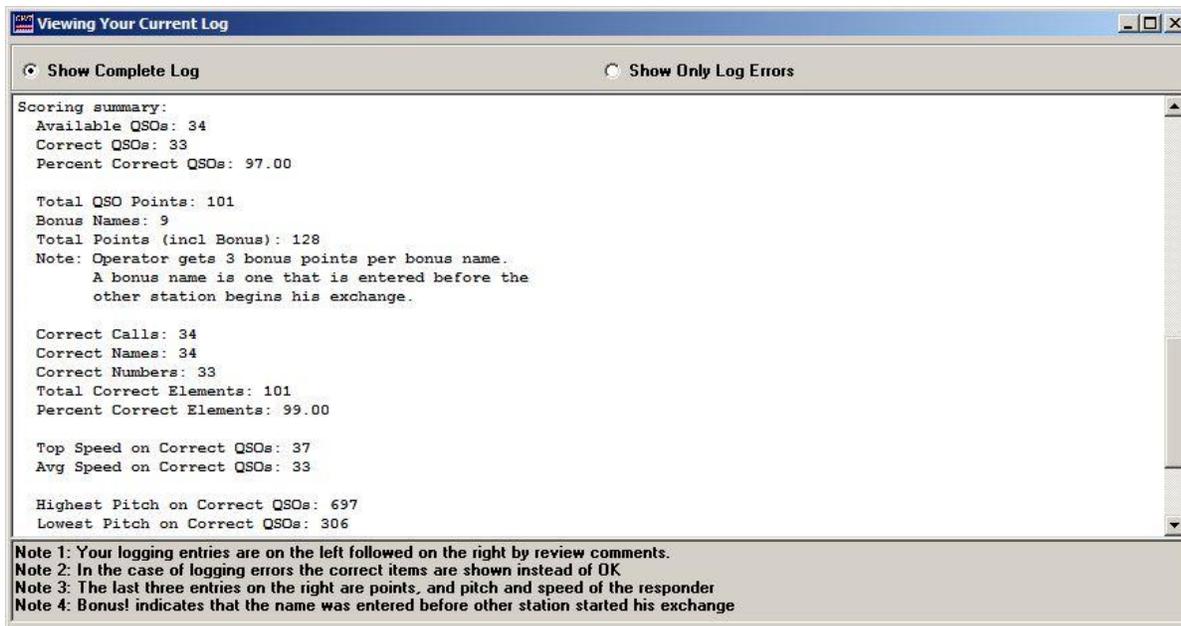
Show Complete Log       Show Only Log Errors

Session of 10 minute duration started at: 2017-01-02 1721

---DATE---	UTC	CALL	NAME	NUMBER	CALL	NAME	NUMBER	PTS	PITCH	SPEED	
2017-01-02	1721	UU5JZ	STAN	206	: OK	OK	OK	3	659	35	
2017-01-02	1722	K7MDA/4	KEY	1594	: OK	OK	OK	3	664	37	
2017-01-02	1722	N9TK	JIM	1309	: OK	OK	OK	3	314	32	
2017-01-02	1722	W3WW	DON	896	: OK	OK	OK	3	471	31	
2017-01-02	1723	K8ZZ	ED	1706	: OK	OK	OK	3	306	37	
2017-01-02	1723	KZ5D	ART	12	: OK	OK	OK	3	308	36	Bonus!
2017-01-02	1723	AD4EB	JIM	867	: OK	OK	OK	3	402	30	Bonus!
2017-01-02	1724	VE2FK/M	CLAUDE	1181	: OK	OK	OK	3	550	35	
2017-01-02	1724	W6RKC	RICK	576	: OK	OK	OK	3	475	30	
2017-01-02	1724	K5GQ	MARK	672	: OK	OK	OK	3	430	30	Bonus!
2017-01-02	1724	K4RO	KIRK	387	: OK	OK	OK	3	528	35	Bonus!
2017-01-02	1725	WA2BCK	TOM	762	: OK	OK	OK	3	516	35	
2017-01-02	1725	PA/W1NN	HAL	785	: OK	OK	OK	3	372	36	Bonus!
2017-01-02	1725	K5AB	ALAN	199	: OK	OK	299*	2	590	37	
2017-01-02	1726	RA3CQ	ICOR	20	: OK	OK	OK	3	568	31	
2017-01-02	1726	AE7I	CRAIG	875	: OK	OK	OK	3	567	37	
2017-01-02	1726	K1CX	BILL	1038	: OK	OK	OK	3	659	31	
2017-01-02	1726	W5XU	DAVID	539	: OK	OK	OK	3	584	36	Bonus!
2017-01-02	1727	K0HX	STAN	1721	: OK	OK	OK	3	658	36	
2017-01-02	1727	K1RX	MARK	1122	: OK	OK	OK	3	522	30	
2017-01-02	1727	WA2ADG	LON	980	: OK	OK	OK	3	497	30	

**Note 1:** Your logging entries are on the left followed on the right by review comments.  
**Note 2:** In the case of logging errors the correct items are shown instead of OK  
**Note 3:** The last three entries on the right are points, and pitch and speed of the responder  
**Note 4:** Bonus! indicates that the name was entered before other station started his exchange

Get a summary of the scoring results by scrolling down past the end of the log area where information like the following is presented. Although not shown in the screen shot below, each request for a fill is recorded and is summarized for the user to review.



Saved logs from previous sessions can also be reviewed using an item from the Scores menu.

## Constructing the Simulator

Building your own version of the simulator requires only a small amount of construction, primarily in the wiring of the digital pots. You will need the following software and hardware.

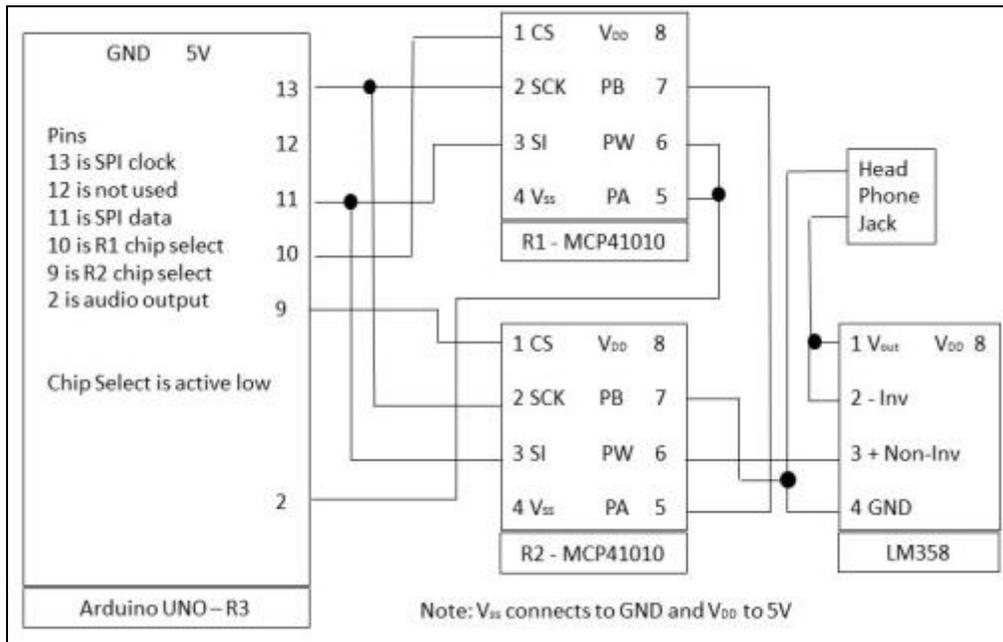
**PC Application Code:** The executable for the PC that provides the user interface and the command interface to the Arduino is available for download from the CWT Simulator page of the [NO5W website](#). This code runs on Windows XP, 7, or 10, but tests have confirmed that it will also run on a Mac under Parallels.

**Arduino Code:** The download package from the author's website also contains source code for the application that runs the Arduino Morse generator. To use this code you will need to download the Arduino IDE which is available for free from [this site](#). Using this IDE and the source code, compiling and uploading the resulting hex code to the Arduino is straightforward and is handled completely by the Arduino IDE over the USB connection.

**Arduino Hardware:** There are several versions of the pre-assembled Arduino. The one used in constructing the Simulator is Rev 3 of the Arduino UNO (UNO-R3). Since this is open-source hardware, it is available from a number of manufacturers with prices ranging between \$5.00 and \$25.00. The version I used for the prototype came from [MCM Electronics](#) and cost about \$22.00. I have since also found it available from [Adafruit](#), [Sparkfun Electronics](#), and several other vendors. During development, a version of the Simulator was also built using the Arduino Mega 2560 which is a more capable device with more memory and more I/O but of course is also more expensive (~\$50.00). For the CWT Simulator in its current form it would be overkill. It may also be possible to use other Arduino devices lower in the food chain than the UNO including, for example, the Pro-Mini, but in order to do that you would need to modify the pin definitions in the Arduino source code as well as changing the pins used in connecting to the digital pots on the proto-shield.

**Miscellaneous Parts:** Enclosures are available with cutouts pre-made for the USB and power connectors on the Arduino. One such enclosure is available from Sparkfun as part PRT-10088. You will also need a USB –AB cable for connecting between the PC and the Arduino and a headphone jack. I added a 10K manual pot between the output of the op-amp and the headphone jack for convenience as a final master volume control. The USB-AB cable and the headphone jack are available from many vendors and may already be in your junk box. Depending on how you decide to install the three 8-pin ICs on the proto-shield, you might need sockets.

**Proto-shield Construction:** Daughter boards for the Arduino are called “shields” and provide a way of adding functionality to Arduino, a reliable way to make connections to the board, and easy removal if you have other applications for the Arduino. The additional functionality needed in the Simulator consists of two MCP 41010 SPI- controlled 256-level 10K digital potentiometers and a single LM358 operational amplifier. These parts as well as the proto-shield (Sparkfun DEV-07914) were obtained from [Mouser Electronics](#). The digital pots and the op-amp were in the \$1.50 price range in single quantities and the proto-shield was about \$10. The digital pots are also available in a dual 14-pin package as MCP 42010. Some soldering is required in assembling the proto-shield and in connecting the parts. Since I did not have a ready source of sockets, I chose to use a breadboard during development and then to solder the ICs directly to a proto-board (Radio Shack 276-150) in the final assembly. An alternative to the Radio Shack board would be a Quarter-size breadboard PCB (Product 589) available from [Adafruit](#). The source code for the Arduino assumes certain pins are used for the audio output and SPI interface lines to the digital pots on the proto-shield. Here is the wiring diagram for the output section.



The audio tone output from the Arduino is obtained from pin 2. During key-down it has a 5-volt amplitude and the eventual volume/signal strength produced for the user is controlled by digital pots R1 and R2 using the SPI interface from the Arduino. The SPI interface uses four pins: the clock from pin 13 connects to both of the digital pot clock inputs (SCK) to synchronously load data from pin 11 which connects to both of the digital pot data inputs (SI). The digital pot receiving a given data setting is controlled by the active-low chip select inputs from Arduino pins 9 and 10. R1

is the digital pot wired in rheostat mode and is used to set the maximum volume. R1 is fixed during a session whereas R2 is wired as a voltage divider and is used to dynamically vary the “signal strength” of the callers. R2 provides output to the user via the op-amp which is simply a buffer amplifier to isolate R1-R2 from loading by any headphone(s).

## Summary

A simulator is certainly no replacement for the real thing but it does offer some obvious advantages in situations like the following:

- The user is a newly-minted graduate of the CWA and would like to play in the CWT but finds the speeds in the normal CWTs just a bit high and the QRS sessions are not offered frequently enough for intensive training purposes. With the Simulator, the new graduate has the option of when to train and to dial down the speeds to a level just above his comfort level to develop his skill running stations.
- The user is a competent CW operator but his schedule does not permit frequent participation in the CWTs and he would like to use the simulator to become more familiar with the calls and operator names in CW Ops in order to score better when he does have the opportunity to participate.
- Or perhaps the user is already an active participant in the CWTs and just enjoys brief sessions of simulated CWTs between sessions of the real thing.

I've played the Simulator a lot during development and still find it interesting and fun. The 10 minute sessions are my favorites because they are long enough to get in a groove but not too long. The one and five minute sessions are great for just testing out the simulator and for introducing its operation to others.

If you decide to build the CWT Simulator and have questions, encounter problems, or have suggestions for additional features and/or areas of improvement, feel free to contact me using the CQ/X support email found on the [NO5W website](#).

73/Chuck/NO5W

## References

The following were found useful in the development of the CWT Simulator and may be of interest to those wishing to dig deeper into certain areas.

MicroChip, Datasheet DS11195C, MCP41XXX/42XXX Single/Dual Digital Potentiometer with SPI Interface, 2003.

National Semi-conductor, Datasheet DS007787, Low Power Dual Operational Amplifiers, LM358, October 2005.

[Back to Contents](#)

[Next article](#)

## My Story – James Dingwall G4ILW

*James recently joined CWops and submits the following:*



My Bio is mostly on my QRZ page <http://www.qrz.com/db/G4ILW>.

I got my call in 1979 when I was 21 years old and have always been 100% CW on HF. In the '80's I was very much associated with the German HSC clubs and quickly became a member of that plus all the various affiliates VHSC, SHSC, EHSC.

I lived and worked, at that time, in Newcastle, Northern UK, and had a fantastic QTH on a hill top. :-) I worked in software development and project management on some of the early Apple Mac's back in the 1980's and was lucky to find a job through that in the Apple European HQ in London (and two years in Paris). I have worked there ever since, but it took me off ham radio from about 1996. :-( Then I lost my QTH when I moved to London.

In April this year I got the “bug” again and made a concerted effort to become active. Upon returning to the bands, I initially fired up my old IC735 that had been in a box for 20 or more years and it didn't explode. But I have upgraded now to a K3S that I totally love for CW.

I got a rather specialised antenna that is a super high Q Mag loop from I3VHF. These things are built like tanks with 2” diameter welded tubing and a massive air blade capacitor at

the top. It is motor driven for remote tuning. A lot of people doubted this but it puts out a decent signal for sure and I worked a fair few countries in these last few months without much time to be QRV. Most importantly, I got away with it in what is essentially a central London apartment, less than two miles from Big Ben in the very centre of London and that is the main reason I went with this antenna. Neighbours have no idea what it is and at best guess think it is a fancy satellite dish. Due to very narrow bandwidth, there has been no TVI so far.

I am not a contest op but since joining CWops I am enjoying CWT each week and very slowly crawling up the ladder :-) I pop home at lunchtime and can make the 1300z session, London Tube Trains permitting.

I will shortly (within 2017) move out of London and back to my hometown in Newcastle. I am already planning my QTH and antennas back close to my old hill top location.

**73,**

**James G4ILW**

[Back to Contents](#)

[Next article](#)

# The CWops Award for Advancing the Art of CW

by Riki Kline K7NJ/4X4NJ

The purpose of this yearly award is to recognize individuals, groups, or organizations that have made the greatest contribution(s) toward advancing the art or practice of radio communications by Morse code.

**Criteria:** Candidates for the award may be one or more of the following:

- Authors of publications related to CW
- CW recruiters, trainers, mentors, coaches and instructors
- Public advocates of CW
- Organizers of CW activities
- Designers and inventors who advance the art or practice of CW
- Other contributors to the art or practice of CW

**Note:** The award is **not** limited to amateur radio operators and organizations.

## Nomination

Nominations may be made by anybody and are not limited to CWops members. Nominations should be emailed to [awards@cwops.org](mailto:awards@cwops.org) with a copy to [secretary@cwops.org](mailto:secretary@cwops.org). In order to be considered, a nomination must be received by April 15, 2017 and include:

- Name(s) and call sign(s) (if applicable) of nominee(s), and complete contact information including their postal address(es), email address(es), and telephone number(s).
- A detailed explanation supporting nominee qualifications according to the above criteria.
- Name, telephone number, email address, and call sign (if applicable) of the person submitting the nomination.

## Presentation of Award

A plaque will be presented at the Dayton Hamvention. If the recipient(s) is/are not present, it will be sent to them.

[Back to Contents](#)

[Next article](#)

---

## Radio in the Heart of the Banc d'Arguin by Jean Lewuillon 5T0JL, CWops1444

A radio expedition to the Banc d'Arguin, a UNESCO-protected reserve 200km north of Nouakchott, Mauritania, is a dream that started in 2004, 13 years ago, when I organized 5T0EU for the European Radio Club in Brussels. We rediscussed it when I set up 5T0CW and myself when I became 5T0JL!



Local conditions of political instability, security, health, and administrative difficulties delayed the realization of a radio expedition to this pivotal site. It was only about January, 2016 that I talked about it with the arrival here of Ahmad 9K2AI. That is also when Wladimir UA4WHX said he was interested and the three of us decided to go ahead. I took charge of the contacts and administrative procedures. With the help of Ahmad 5T2AI we obtained the "exceptional" authorization to lead a radio expedition to the heart of this UNESCO-protected reserve.

After a motorway opened in 2006, a short reconnaissance of the place became possible with 5T2AI and a person in charge of the Park. 80km of heavily sanded tracks allowed the expedition to depart on December 8, 2016 with its 5T5TI callsign for TIDRA, the main island of about twenty smaller islands for the whole park. Given the isolation and the difficulties on the spot that compelled me to live in "survival" mode, not wanting to expose myself too much considering my 89 years of age. But I had participated in the planning and I had set foot there, too, so I was satisfied with my modest performance.



My two top operators Ahmad 9K2AI for SSB and Wlad UA4WHX for CW realized from December 2 to 5, 2016 a very good score of over 12,000 radio contacts in only four days under practically primitive conditions. We used only wire antennas, a power of about 50 watts, and a computer not connected to the Internet. Batteries, solar panels, C rations, local green tea, sleeping bags, and drinking water cans were very much appreciated.

The working conditions included an IC-7300 with dipoles inclined at 45 °, one per band with separate feeders, and a telescopic mast of 12m as the upper attachment point.



For amateur radio lovers wanting to learn more about the Parc d'Arguin in Mauritania, here are some interesting links including a video to get the local atmosphere, as well as photos of 5T5TI in action. And, of course, I am available to answer questions.

A very big thanks to our two radio operators Ahmad and Wlad, as well as to Dr. Salem, Director of the Park, and his assistant Mr. Saleck, accompanying and facilitating the expedition.

<https://www.youtube.com/watch?v=1a0EUnrSCoQ>

<http://ddc.arte.tv/emission/le-banc-d-arguin-en-mauritanie>

<http://whc.unesco.org/en/list/506>

[Back to Contents](#)

[Next article](#)

---



## CW Academy

[Jerry Weisskohl AC4BT](#)

CW Academy's (CWA) winter semester, January/February 2017, has started. This is the 15<sup>th</sup> overall semester that CWA has conducted CW classes. Our very first semester was held the Spring of 2011.

This semester our mix of international students hail from the US, Canada, Romania, Australia, New Zealand, England, Scotland, The Netherlands, Italy, Belgium, Hawaii, Alaska, Germany, Portugal, South Africa and India.

The elite group of CWA Advisors continually share course material, Advisor experiences and ideas during the semester as well as between the three semesters that CWA conducts classes (January, April and September). In this manner, the CWA Advisors enhance their own skills and continually revise and strengthen the materials used for the courses.

One of our Advisors, Joe N3HEE, manages the CWA Spotter (<http://cwa.noip.me/>). At the start of each semester, N3HEE loads the current list of students and the CWA Spotter becomes a tool

that the students use to quickly locate other CW Academy students for a live QSO on the Ham Bands.

While CW Academy is a great resource for the aspiring CW ham, there are still those hams whose busy schedule may not allow for the time commitment of formal classes. To address this, many CW Academy Advisors and CWops members make themselves available in the local evening hours for QSO practice opportunities. You can find them around 7.035. Try calling CQ on 7.035 if you are looking for a CW QSO.

In the planning stages, CW Academy is preparing to start Slow CW (around 15 – 20 wpm) and Fast CW(around 25 wpm) weekly nets as another service to CW hams to get on the air with proficient CW operators in a friendly atmosphere. Stay tuned to this column for more information about the upcoming nets.

If you love CW and want to join us in our mission to ensure that CW remains relevant and continues to prosper, please consider joining the Academy's elite team of Advisors. All it takes is a love of CW and a desire to help aspiring students learn to use CW. It's fun and rewarding and you will make many new life-long friendships at the same time!

More information about becoming a CWA Advisor can be found at the CWops website ([www.cwops.org](http://www.cwops.org)). The link for the sign up form for becoming a CWA Advisor is:

<http://cwops.org/cwa-advisor-su.html>.

73,

***Jerry*** AC4BT

CW Academy Manager

[Back to Contents](#)

[Next article](#)

---

## How We Were – W5LA

by [Hank Garretson W6SX](#)

Jim Ragsdale, W5LA, as a 15 year old in 1961, operating as WN4BAC in Gadsden, Alabama. Still loving the hobby and CW, but equipment has improved greatly.



Please send YOUR *How We Were* Photos to [w6sx@arrl.net](mailto:w6sx@arrl.net)

[Back to Contents](#)

[Next Article](#)

---

## CWops Tests

by [Rich Ferch VE3KI](#)

It's time to tally up the CWT participation results for 2016: We had 156 CWT sessions. North American stations who submitted scores to [3830scores.com](http://3830scores.com) with 10 or more QSOs in 120 or more sessions qualified for a gold medallion. A silver medallion goes to those with 80 or more qualifying sessions, and bronze to those reporting 50 or more sessions. The qualifying levels for European stations were 90 for gold, 60 for silver and 36 for bronze. For members in other continents, the number of QSOs required for a session to qualify was 5 instead of 10, and the number of sessions needed was 60 for gold, 40 for silver and 24 for bronze.

At the top of the list is Gary N5PHT, who didn't miss a single session – that's the CWT version of a "clean sweep," all 156 CWTs in 2016! Right behind him was Rudy UR5MM. Rudy actually entered all 156 sessions as well, but was unable to make the 10 QSO level in one of the 0300Z sessions, so he ends up with a score of 155. Wayne N4FP and Chas K3WW both entered scores in 155 sessions, although one of Chas's scores missed the 10 QSO cutoff so he is credited with 154. Mac NN4K entered 154 sessions as well.

In total, there were 41 members who reached the gold medal level. Besides N5PHT, UR5MM, N4FP, K3WW and NN4K, the others were: F6JOE, SM3CER(SF3A), F6HKA, K3WJV, K7SV, W9CC, IT9MUO, WJ9B, K0TC, KA7T, VE3KP, K1DW, N2WW(UA6HZ), VE3KI, VE5SDH, N0TA, WA9LEY, DJ1OJ(EA8OM), W1UU, SM0OY(SM0Y), K1GU, N5RR, KJ9C, N4ZZ, AF5DM, W6SX, W0XE, SM5ALJ(SE5L), K6RB, NS8O, K5IX, W6NS, K4AFE(KM4OIX), NA8V, W9ILY and KW7Q.

There were also 41 silver medal winners. At the top of the list were G4NVR and I5EFO, both of whom would have been above the number of sessions required for a gold medal except that they each had several sessions that didn't make the 10 QSO level. The other silver medal winners were AD8J, N8BJQ, KM4FO, N3JT, VE2FK, SM6CUK(SA6G), K3SEN, N5ZO, N5AW, K1RO, OH2BN, K1ESE, SM7CIL(SM5CIL), JF2IWL, KG5U, N4DW, SM5BKK(SI5Y), K7AZT, W4VQ, K4RO, NW2K, VE9AA, AA2ZW, VE2BZO, K1BG, KE4S, N0KQ, VE3MV, W1RM, WN4AFP, K4JAZ, K4RUM, AE1T, IT9VDQ, NT2A, W7OM, WQ3E, NN5O(WB5EIN) and SM4DQE(SE4E).

The list of bronze medal winners is even longer, at 55: K9MA, N4AF, K5AX, K1EBY, KC4D, KI7Y, W4TTM, K1DJ, K3MD, VE3MGY, WU6X, VE3TW, N0AC, W6TN, K1SM, N3QE, N3RS, NA6O, AD5A, K4ITV, NO5W, N5IR, PA3DBS, K5CM, US0MF, AB5OR, N3AD, K4HR, AC4CA, K1SX, N5TOO, WB5BKL, NN6T, W2VM, WA6URY, K8CMO, N3RD, NS9I, DL8PG, GW0ETF(GW4J), HB9ARF, KM0O, W1QK, IN3FHE, K4HQK, K8BZ, K5WK, K9OM, N4KS, W4ER(WA8HSB), N3HEE, W4AU, W7ZRC, IK0YVV and 9A7R.

That's quite a list of CWT regulars.

Here are some other statistics: During 2016, there were 18596 CWT scores submitted to 3830scores. That's an average of over 119 entries a session; the per-session numbers varied from 89 to 154. Adding up the total number of QSOs reported to 3830scores, the total is 920877. Of course, each QSO is counted twice in this total, so in the 156 1-hour sessions there were over 460000 QSOs, or an average of about 2950 QSOs made in each session.

On a per-person basis, that comes out to an average score of 49.5 QSOs per entry. The highest number of QSOs reported by anyone in a single session was 190, and the highest number of multipliers (different call signs contacted) was 139; both of these were from Bud AA3B. *Breaking news - Bud broke both of those records (twice each, no less!) in the January 4-5, 2017 CWTs!*

Of course, the most important thing is not the numbers, it's the fun we are having. Based on the continuing participation and its growth, I think it's fair to say there are a lot of us having a good time in the CWTs. I hope you all continue having a good time in CWTs in the New Year!

73,

**Rich,** VE3KI

[Back to Contents](#)

[Next Article](#)

---

## CWops Member Awards

[Pete W1RM](#) and [Peter W1UU](#)

*The Annual Competition Award (ACA) is based on the number of members worked each calendar year. You get one point per member worked, once per year. It resets to zero at the beginning of each year. The Cumulative Member Award (CMA) is based on how many members you've worked since January 3, 2010 on each band and continues to grow in perpetuity. The CWops Award Manager (CAM) software, available at no cost, will help you keep track of your ACA and CMA totals.*

In the table below, members whose call sign is in **RED** have achieved a milestone: 100 DX entities, 40 WAE entities, 50 states (WAS). Members who wish to track their totals for these awards can use the CAM software developed by N5RR. It's available at no cost here: <http://www.bbcyber.com/cam/>.

Call	ACA	CMA	Call	DX Total	Call	WAS	Call	WAE	Call	WAZ
AA3B	903	6135	<b>W1RM</b>	<b>174</b>	<b>N5RR</b>	<b>50</b>	<b>W1RM</b>	<b>48</b>	W1RM	38
W1RM	839	4590	<b>F6HKA</b>	<b>160</b>	<b>W1RM</b>	<b>50</b>	<b>F6HKA</b>	<b>45</b>	F6HKA	38
F6HKA	774	4359	<b>W4VQ</b>	<b>142</b>	<b>W4VQ</b>	<b>50</b>	<b>N5RR</b>	<b>43</b>	W4VQ	37
VE3KI	749	4066	<b>G4BUE</b>	<b>125</b>	<b>F6HKA</b>	<b>50</b>	<b>G4BUE</b>	<b>43</b>	G4BUE	37
K6RB	667	3658	<b>N5RR</b>	<b>118</b>	<b>W1UU</b>	<b>50</b>	<b>VE3KI</b>	<b>42</b>	N5RR	36
N8BJQ	628	4124	<b>VE3KI</b>	<b>112</b>	<b>VE3KI</b>	<b>50</b>	<b>OK1RR</b>	<b>42</b>	VE3KI	35
N5RR	621	4098	<b>OH2BN</b>	<b>112</b>	<b>G4BUE</b>	<b>50</b>	<b>EA8OM</b>	<b>42</b>	N5PHT	33
K1ESE	586	2505	<b>EA8OM</b>	<b>111</b>	<b>EA8OM</b>	<b>50</b>	<b>W4VQ</b>	<b>41</b>	IK0YVV	32
K5AX	541	2160	<b>N8BJQ</b>	<b>109</b>	<b>W0EJ</b>	<b>50</b>	<b>N8BJQ</b>	<b>41</b>	VK7CW	28
G4BUE	522	3209	K1ESE	99	<b>F6JOE</b>	<b>50</b>	<b>OH2BN</b>	<b>40</b>	JF2IWL	25
W0VX	513	2796	AA3B	94	<b>W6KY</b>	<b>50</b>	<b>AA3B</b>	<b>40</b>	DL6KVA	23
N5PHT	494	1952	SM6CNN	93	<b>N1EN</b>	<b>50</b>	SM6CNN	37	W6NS	19
IT9MUO	483	1432	OK1RR	93	<b>N5PHT</b>	<b>50</b>	IT9MUO	36		
N1DC	440	1432	EA1WX	92	<b>F5MNK</b>	<b>50</b>	F6JOE	36		
IT9VDQ	432	1066	W9ILY	89	<b>K5IX</b>	<b>50</b>	K1ESE	35		
AD5A	420	1071	W0VX	89	<b>K3SEN</b>	<b>50</b>	W1UU	34		
W9ILY	413	2799	N1EN	86	<b>AD1C</b>	<b>50</b>	W0VX	34		
W4VQ	409	2474	F6JOE	84	<b>AB7MP</b>	<b>50</b>	KZ5D	34		
NA6O	398	1508	IT9MUO	83	<b>AA3B</b>	<b>50</b>	KR3E	34		
NN4K	362	1279	AD1C	81	W9ILY	49	EA1WX	34		
KE4S	353	1084	PA7RA	79	W0VX	49	W9ILY	33		
K3SEN	348	1037	KZ5D	78	VK7CW	49	N1EN	32		
W1UU	347	2042	DL8PG	78	N8BJQ	49	IT9VDQ	32		
VE3MV	342	664	N5PHT	77	N1DC	49	F5MNK	32		
K8AJS	340	552	W1UU	75	KT5V	49	PA7RA	31		
F6JOE	336	2631	K5AX	75	K6RB	49	DL8PG	31		
DL8PG	305	1714	KR3E	73	K6DGW	49	IK0YVV	30		
K6DGW	305	1635	N1ZX	70	K5AX	49	NN6T	29		
VK7CW	300	1088	F5MNK	68	K1ESE	49	K5AX	29		

Call	ACA	CMA	Call	DX Total	Call	WAS	Call	WAE	Call	WAZ
W6NS	292	1090	NN6T	67	GW0ETF	49	N1ZX	28		
K5IX	292	750	GW0ETF	67	WB9G	48	GW0ETF	28		
W6KY	271	1966	VK7CW	65	W6NS	48	DL6KVA	28		
DL6KVA	268	415	IT9VDQ	63	SM6CNN	48	AD1C	28		
KT5V	252	1088	DL6KVA	62	NN6T	48	JF2IWL	25		
I5EFO	252	353	IK0YVV	57	NN4K	48	K6RB	24		
K3WJV	238	882	K6RB	56	NA6O	48	G4DRS	24		
EA8OM	235	2758	W6KY	55	N1ZX	48	KE4S	23		
NU7Y	232	479	NA6O	50	KZ5D	48	I5EFO	23		
W5ASP	231	1018	JF2IWL	50	KE4S	48	HB9ARF	23		
G4DRS	214	496	4Z1UF	50	IK0YVV	48	VK7CW	22		
AD1C	209	1919	G4DRS	49	DL8PG	48	N5PHT	21		
K0DTJ	207	742	WB9G	48	AD5A	48	N1DC	21		
N1EN	200	1928	KE4S	47	VE3MV	47	4Z1UF	21		
G4NVR	198	277	NN4K	43	NU7Y	47	K2ZC	20		
KM4FO	160	721	N1DC	43	KR3E	47	G4NVR	20		
JF2IWL	153	916	KT5V	41	K0DTJ	47	WB9G	19		
EA1WX	146	1724	HB9ARF	41	JF2IWL	47	NN4K	18		
4X6GP	119	994	K3SEN	39	WX7SJ	46	K8AJS	18		
K2ZC	112	767	I5EFO	39	KG5U	46	G3YJQ	18		
G4HZV	100	120	W6NS	38	IT9MUO	46	AD5A	18		
AB7MP	90	628	K6DGW	38	G4DRS	46	W6KY	17		
KZ5D	0	3239	K2ZC	37	EA1WX	46	NA6O	17		
IK0NOJ	0	3093	W0EJ	36	K3WJV	45	KG5U	17		
SM6CNN	0	2477	KG5U	35	K2ZC	45	K3WJV	16		
N2UU	0	1774	AD5A	35	IT9VDQ	45	K3SEN	16		
OK1RR	0	1618	K8AJS	32	PA7RA	44	KT5V	14		
NN6T	0	1577	G4NVR	31	OK1RR	44	W6NS	12		
GW0ETF	0	1451	K0DTJ	29	K8AJS	44	VE3MV	12		
KG5U	0	1322	G3YJQ	27	KM4FO	43	K6DGW	12		
PA7RA	0	1200	K3WJV	25	HB9ARF	43	W0EJ	10		
KR3E	0	1136	K5IX	24	OH2BN	42	G3XLG	10		
F5MNK	0	1111	VE3MV	23	I5EFO	40	K5IX	8		
PA4N	0	955	NU7Y	21	NV9X	38	W5TM	7		
N1ZX	0	940	AB7MP	21	DL6KVA	38	G0DJA	7		
WB9G	0	888	G3XLG	18	G3YJQ	37	K0DTJ	6		
IK0YVV	0	767	WT2P	14	4Z1UF	36	AB7MP	6		
W0EJ	0	754	W5TM	11	WT2P	34	KM4FO	5		
HB9ARF	0	723	KM4FO	10	G4NVR	34	WT2P	4		
WX7SJ	0	610	G0DJA	10	W5TM	32	NV9X	1		
WT2P	0	574	NV9X	4	G3XLG	31				
OH2BN	0	530	KE6K	4	KE6K	17				
N7WY	0	403			G0DJA	8				
W5TM	0	235								

Call	ACA	CMA		Call	DX Total		Call	WAS		Call	WAE		Call	WAZ
G3YJQ	0	234												
G3XLG	0	201												
NV9X	0	149												
KE6K	0	116												
4Z1UF	0	50												
G0DJA	0	23												
PA1FOX	0	5												

73,

*Pete* W1RM

CWopsCAMScores@comcast.net

[Back to Contents](#)

[Next Article](#)

## New Members

### [Colin Jenkins KU5B](#)

With great pleasure we welcome the following new members to CWops:

1730 K7AJM\* Jim  
1731 W9XS\* Ron  
1732 IK0NOJ\* Dany  
1733 K7BV Dennis  
1734 AF4K Bry  
1735 VE3PVI\* Tom  
1736 K0MP\* Bill  
1737 SM0CUH Ola  
1738 KT4XN Tom  
1739 G0HKC Keith  
1740 N4DT\* Danny  
1741 K1AR John  
1742 W3YQ\* Tim  
1743 N8DNA\* Mike  
1744 N0AX Ward  
1745 NA2N Greg  
1746 I0YQX Italo  
1747 AG5M\* Rich

\* = Life Member

[Back to Contents](#)

[Next Article](#)

---

## Current Nominees

As of January 13, 2017:

**Need Sponsors:** KB4RGC, AB6XG, W8RF, LA6CF, K6PO, K4QS

**Invitations Extended:** K9ZO, N2IC, W5OV, W2RQ, N3ATQ, N9SZ

For more details about nominees and up-to-date status, check the “Members Only” pages on the Website: [www.CWops.org](http://www.CWops.org).

For information about joining CWops, check the Website under “Membership.”

[Back to Contents](#)

[Next Article](#)

---

## QTX Report

### Enjoying the Art of Conversational CW

by [John Huffman K1ESE](#)

*QTX is a way of counting conversational CW QSOs. One point is awarded for each QSO of 20 minutes or longer. We have two ways to recognize QTX activities - the QTX Plaque and the QTX Achievement Medal.*

Here's the latest tally of this month's CW conversations of 20 minutes or longer. Remember, you can work anyone, anywhere, as many times as you like. They all count for QTX.

This is also the year-end report for 2016. It was a very good year for QTX!

### QTX Monthly Standings

Below find the December QTX reports received:

<u>Call</u>	<u>Dec</u> <u>2016</u>
N5PHT	170
N5IR	84
KCOVKN	69
K5KV	62
K1ESE	52

KI4XH	42
K5YQF	31
K4AHO	25
K6HP	18
KB6NU	17
HB9CVQ	15
WA8IWK	10
W0GXA	9
K0DTJ	8
K8UDH	5
W3WHK	2
I5EFO	2
K3GHH	1

Gary N5PHT outdid himself. After being the consistent QTX leader for months, he set a new one month record with 170 QTX points. There are not enough superlatives to describe his achievements. Bill N5IR, Joe KC0VKN, and Benny K5KV all turned in what would have been winning monthly scores last year. Gary is in a different league from the rest of us.

Reports were up this month to 18. QSOs were also up at 622

Personal bests for the year were submitted by N5PHT, N5IR, and KC0VKN. It is impressive to set a personal best this late in the year.

### **QTX Medal Standings**

We award QTX medals for the following year-end totals -

- Gold Medal - 400 QTX points
- Silver Medal - 300 QTX points
- Bronze Medal - 200 QTX points

Well, it's all over and here's the results.

QTX Totals for 2016:

<b><u>Call</u></b>	<b><u>2016</u></b>
N5PHT	978
K5KV	750
N5IR	640
KI4XH	640
K1ESE	599
K5YQF	500
K4AHO	287

KC0VKN	267
KB6NU	254
AC4BT	240
K6HP	185
NN6T	180
K6RB	146
HB9CVQ	119
W3WHK	87
I5EFO	59
NN4K	47
KE6OIO	47
WA8IWK	41
K0DTJ	39
N1ZX	39
N9SE	27
K8UDH	18
K6DGW	18
K3TN	17
WC5W	17
W5JQ	10
W0GXA	9
N5LB	2
AB7MP	2
K3GHH	1

Gold Medal Winners -

N5PHT  
K5KV  
N5IR  
K14XH  
K1ESE  
K5YQF

Silver Medal Winners -

NONE

Bronze Medal Winners-

K4AHO  
KC0VKN

KB6NU

AC4BT

Congratulations to all the medal winners!

Also, congratulations to all the stations that participated this year. We had 32 members, who submitted 241 total reports, listing 6,761 total QTX contacts. Each and every one of you gave significant support to promoting conversational CW. That is the true purpose of QTX.

Now it is time to start promoting CW for 2017.

Thanks to all for your participation.

73,

**John KIESE**, CWops #792, *QTX Manager*

*QTX – Encouraging Conversational CW*

[Back to Contents](#)

[Next Article](#)

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## Upcoming CW Operating Events

by [Joe Staples W5ASP](#)

*This list of operating events is intended to provide members with options for using and improving their CW skills in not only the more popular contests but also in other, more casual, on-the-air activities.*

The North American CW QSO Party is always a very popular event for CW operators. Possibly the most "fun" of all CW events, it's certainly is one of the high points of the month. Unfortunately, many operators miss out on one of the key features of this contest, the team competition. What's special is that there are no distance or club requirements ... just two to five single operator stations combining their scores to give added interest to the affair. You might want to gather up a few other CWops and see how well your team can do. Teams should be pre-registered at:

<http://www.ncjweb.com/cwnaqpteamreg>.

The CQ 160 Meter contest is regarded as the premier "top band" contest of the year. The number and variety of DX stations active in the contest offer an excellent opportunity to exercise your station and operating skills in digging out the elusive ones. The propagation changes accompanying the declining sun spot cycle should provide an interesting arena for operating. Only time will tell.

The North American Sprint is regarded by many CW contesters as the ultimate test of their proficiency. Fortunately, it is not necessary to run in the "fast lane." The key is to understand and follow the exchange rules and focus on accuracy. A good way to start is to visit N6TR's Sprint Survival Web Page at <http://www.kkn.net/n6tr/sprint.html>.

Don't overlook the state/province QSO parties. They usually provide enough activity to justify some of your operating time. And do submit your log. It encourages the sponsors to put their efforts into making these events worth while.

If you really want a change of pace try the Novice Rig Roundup. This event lasts nine days and covers two weekends. The idea is to use rigs from the 1950-1980 era, especially those crystal controlled. Commercial rigs built after 1979 are allowed but at a markedly lower point credit. If you were active in those days, it's a bit of nostalgia. If you weren't, it's a real eye opener to the challenges Novices faced in those days. Give it a try!

### DECEMBER / JANUARY EVENTS

North American QSO Party, CW <a href="http://www.ncjweb.com/NAQP-Rules.pdf">http://www.ncjweb.com/NAQP-Rules.pdf</a>	1800Z, Jan 14 <sup>th</sup> to 0559Z, Jan 15 <sup>th</sup>
CQ 160-Meter Contest, CW <a href="http://www.cq160.com/rules.htm">http://www.cq160.com/rules.htm</a>	2200Z, Jan 27 <sup>th</sup> to 2200Z, Jan 29 <sup>th</sup>
North American Sprint, CW <a href="http://ncjweb.com/Sprint-Rules.pdf">http://ncjweb.com/Sprint-Rules.pdf</a>	0000Z-0400Z, Feb 5 <sup>th</sup>
ARRL Int'l. DX Contest, CW <a href="http://www.arrl.org/arrl-dx">http://www.arrl.org/arrl-dx</a>	0000Z, Feb 18 <sup>th</sup> to 2400Z, Feb 19 <sup>th</sup>
ARRL School Club Roundup <a href="http://www.arrl.org/school-club-roundup">http://www.arrl.org/school-club-roundup</a>	1300Z, Feb 13 <sup>th</sup> to 2359Z, Feb 17 <sup>th</sup>
Montana QSO Party <a href="http://fvarc.org/sites/default/files/library/2016%20MT%20QSO%20Party%20Rules.pdf">http://fvarc.org/sites/default/files/library/2016%20MT%20QSO%20Party%20Rules.pdf</a>	0000Z-2400Z, Jan 28 <sup>th</sup>
Minnesota QSO Party <a href="http://www.w0aa.org/docs/mnqp/MNQP%20Contest%20Rules.pdf">http://www.w0aa.org/docs/mnqp/MNQP%20Contest%20Rules.pdf</a>	1400Z-2400Z, Feb 4 <sup>th</sup>
Vermont QSO Party <a href="http://www.ranv.org/vtqso.html">http://www.ranv.org/vtqso.html</a>	0000Z, Feb 4 <sup>th</sup> to 2400Z, Feb 5 <sup>th</sup>
British Columbia QSO Party <a href="http://www.orcadxcc.org/bcqp_rules.html">http://www.orcadxcc.org/bcqp_rules.html</a>	1600Z, Feb 4 <sup>th</sup> to 0400Z, Feb 5 <sup>th</sup>
New Hampshire QSO Party <a href="http://www.w1wqm.org/nhqso/NEW_HAMPSHIRE_QSO_PARTY_RULES.pdf">http://www.w1wqm.org/nhqso/NEW_HAMPSHIRE_QSO_PARTY_RULES.pdf</a>	1600Z, Feb 11 <sup>th</sup> to 2200Z, Feb 12 <sup>th</sup>
FISTS Winter Slow Speed Sprint FISTS Winter Unlimited Sprint <a href="http://fistsna.org/operating.html#sprints">http://fistsna.org/operating.html#sprints</a>	1700Z-2100Z, Feb 4 <sup>th</sup> 1700Z-2100Z, Feb 11 <sup>th</sup>
NCCC Sprint Ladder	0230Z-0300Z, Jan 13 <sup>th</sup>
NCCC Sprint Ladder	0230Z-0300Z, Jan 20 <sup>th</sup>
NCCC Sprint Ladder	0230Z-0300Z, Jan 27 <sup>th</sup>
NCCC Sprint Ladder	0230Z-0300Z, Feb 3 <sup>rd</sup>
NCCC Sprint Ladder	0230Z-0300Z, Feb 10 <sup>th</sup>

NCCC Sprint Ladder <a href="http://www.ncccsprint.com/rules.html">http://www.ncccsprint.com/rules.html</a>	0230Z-0300Z, Feb 17 <sup>th</sup>
SKCC Weekend Sprintathon SKCC Sprint SKCC Weekend Sprintathon <a href="http://www.skccgroup.com/operating_activities/weekday_sprint/">http://www.skccgroup.com/operating_activities/weekday_sprint/</a>	1200Z, Jan 7 <sup>th</sup> to 2400Z, Jan 8 <sup>th</sup> 0000Z-0200Z, Jan 25 <sup>th</sup> 1200Z, Feb 11 <sup>th</sup> to 2400Z, Feb 12 <sup>th</sup>
NAQCC CW Sprint NAQCC CW Sprint <a href="http://www.naqcc.info/">www.naqcc.info/</a>	0130Z-0330Z, Jan 19 <sup>th</sup> 0130Z-0330Z, Jan 25 <sup>th</sup>
AGCW Straight Key Party <a href="http://www.agcw.org/index.php/en/contests-and-cw-activities/straight-key-party-htp">http://www.agcw.org/index.php/en/contests-and-cw-activities/straight-key-party-htp</a>	1600Z-1900Z, Feb 4 <sup>th</sup>
AGCW Semi-Automatic Key Evening <a href="http://www.agcw.org/index.php/en/contests-and-cw-activities/semi-automatic-key-evening">http://www.agcw.org/index.php/en/contests-and-cw-activities/semi-automatic-key-evening</a>	1900Z-2030Z, Feb 15 <sup>th</sup>
Asia-Pacific Spring Sprint, CW <a href="http://www.hornucopia.com/contestcal/contestedetails.php?ref=248">http://www.hornucopia.com/contestcal/contestedetails.php?ref=248</a>	1100Z-1300Z, Feb 11 <sup>th</sup>
CQC Winter QSO Party <a href="http://www.hornucopia.com/contestcal/contestedetails.php?ref=257">http://www.hornucopia.com/contestcal/contestedetails.php?ref=257</a>	0100Z-0259Z, Feb 13 <sup>th</sup>
Novice Rig Roundup <a href="http://novicerigroundup.com/">http://novicerigroundup.com/</a>	0000Z, Feb 18 <sup>th</sup> to 2400Z, Feb 26 <sup>th</sup>

[Back to Contents](#)