# Orange Bytes

Newsletter of the North Orange County Computer Club

# NOCCC Meetings for Sunday October 7, 2018

**There will a consignment table every month from now on!**

# Main Meeting 1:00 PM

**Terry Dickson and Robert Strain will present an introduction to Linux followed by a more detailed look at the capabilities of the latest release of Ubuntu 18.04**

## Special Interest Groups (SIGs) & Main Meeting Schedule

**9:00 AM – 10:30 AM**

*Beginners Digital Photography ............Science 129*
Questions and Answers about Digital Photography

*Linux for Desktop Users………………Science 131*
Beginners' Questions about Linux

**10:00 AM – 10:30 AM**

*Exploratory Programming SIG ............ Science 109*

**10:30 AM – 12:00 PM Noon**

*3D Printing ...........................Hashinger Auditorium*
Questions and Answers about our new printer

*Advanced Digital Photography… ........Science 129*
Questions and Answers about Digital Photography

*Linux Administration ............................Science 131*
More topics about the Linux operating system

*Mobile Computing....................................Science 109*
We discuss smartphones, tablets, laptops, operating systems and computer related news.

*VBA and Microsoft Access/Excel........Science 127*
Using VBA code to enhance the capabilities of Access and Excel

**12:00 PM Noon – 1:00 PM**

*3D Printing.……………………………… Hashinger Auditorium*
Questions and Answers about our new printer

*PIG SIG …………………………………….. Hashinger Courtyard*
Bring your own lunch. Consume it in the open-air benches in front of the Irvine Hall. Talk about your computer and life experiences.

# 1:00 PM – 3:00 PM Main Meeting

**………………….....…….. *Hashinger Auditorium***

**A look at today's world of Linux capabilities as exemplified by the Ubuntu release version 18.04**

**3:00 PM – 4:00 PM**
Board Meeting…………………………………………*Science 129*

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**Check your membership information via this email**

membership@noccc.org

**Mark your calendars for these meeting dates**
**2018: Oct7 Nov4 Dec2**
**2019: Jan6 Feb3 Mar3 Apr7 May5**

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Coffee, cookies and donuts are available during the day in the Irvine Hall lobby.
Foods and drinks need to remain outside the Hashinger Auditorium.

# "Friends Helping Friends" since April 1976

## Table of Contents

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# The President's Report

*President's report by Ben Lochtenbergh*

Here we go again, I was out of the country during September and Jim Sanders volunteered again to do the Orange Bytes for October. Thanks to that I could focus on delivering a good Lenovo ThinkPad PC to my daughter in Mexico. I configured it with Office 2010 using the Product Key I bought with my now defunct TechNet subscription. I could not find my Office 2013 Product Key, but Microsoft still honored there older commitment. I discovered that many Product Keys, according to Microsoft, have been compromised and made public. What's a company to do? Microsoft refers legitimate users to their original retailer to resolve this issue. Depending on your hourly worth this could be **more expensive** than buying a new Office suite!

For our main meeting we got two of our guys to present the apropos subject of **Linux**. Looking forward to an exciting autumn 2018 and hoping to see many of you revisit our club.

*president@noccc.org*

# Board Meeting Minutes for August 2018

*Secretary's report by Bob Dickson*

The meeting was held in room 129 at the Chapman University Science Hall. The meeting was called to order by President Ben Lochtenbergh at 3:19 PM. Present were: Ben Lochtenbergh, Don Armstrong, Bob Dickson, Larry Klees, Dennis Martin, Gerry Resch, Jim Sanders, and Terry Dickson. Absent were: Robert Strain and Richard Miller. A member also attended.

**Secretary's report:** Bob distributed copies of the minutes for the 7/8/2018 meeting. Dennis noted that his name was misspelled as 'Miller'. It will be corrected to 'Martin'. In the Main Meeting report, at the start of the 2nd line, it was entered as "For the *July* meeting, …"; it needed to be corrected to "For the **August** meeting, …". With the noted corrections, Gerry moved to accept the minutes, Larry 2nd, approved.

**President's report:** Ben commented that he and his wife enjoyed their vacation and he was glad to be back. He thanked Jim for preparing the August issue of the Bytes and getting it printed and mailed to the members.

**Treasurer's report:** Don reported receiving $9.00 for the donuts and cookies. The cost for donuts was $19.50. The cost of the cookies was $3.96. For consignment table items he received $52.00. The cost of a new coffee urn was $60.17. Two members, Terry and Don, renewed their membership for 1 year. No income reported for the raffle, which had been canceled.

Don has received the new insurance certificate. He will get a copy to Chapman University, which needs to be named as additional insured.

Gerry moved to approve the Treasurer's report. Larry 2nd. Approved.

**Club Shirts report:** No sales this month. Richard displayed the shirts in the main hall before the meeting. The inventory was 5 new shirts and 6 older shirts. None sold. All of the shirts were returned to the cabinet at the end of the meeting.

**Club Inventory report:** Richard was not able to conduct the planned inventory of items for the Consignment Table due to illness. He had to leave early.

**Book Display report:**  Don is working on a spreadsheet that will contain the data for each of the books he has collected.  He will continue to work on entering the data of material interest on each of the books.  It will take a considerable time to enter all of the data for all of the books.

**E-Waste report:**  There was no e-waste collection.  Gerry noted that some discussions have been undertaken with prospective e-waste collectors but no arrangement has been agreed upon at this time.

**Consignment Table report:**  Bob sat out the table and Richard displayed all of the items. Some items were purchased that had been on display for a few months.  A total of $52.00 was collected for items purchased. The club will keep the entire amount as all of the items had been donated to the club.  Due to illness Richard had to leave early so no inventory of the consignment table items was taken at this time.  Bob returned the items to the storage area at the end of the meeting.  During the day Richard agreed it would be OK to set out the consignment table every month rather than just on even-numbered months.

**Web Site report:**   Jim noted that the email address of ".org" should now be used.  Ben will remove the use of the ".us" address soon.  The ".org" address has been in use for many years so it will continue to be used.

  Jim gave Ben a printed copy of the password for the Web site so that Ben could have access to it.  Jim will continue to make fixes and updates to the Web site.

**SIG Session counts:**  3D Printing, 2; Linux, 6; Photo, 4; Mobil Computing, 4; Access, 1; Main meeting, 16.

**Coffee Urn report:** Bob had purchased a new coffee urn.  The board had approved 'up to $100.00' at the July meeting.  The cost, including shipping, was $60.17.  Bob used it to prepare the coffee for the day's meeting.  It only took 35 minutes to prepare 30 cups of coffee.  The previous month with the old coffee urn required 90 minutes to prepare 40 cups of coffee.  Several people told Bob to use a little more coffee to get it to be a little stronger.

**Main Meeting report:**  The format for the meeting was to invite any member to come to the front of the room and present some info about computers or operations or developments that they felt were of special interest to them personally and would share with the members present.  A few members made some presentations.  It was a good way for the members to share personal experience with other members.

  Due to the light turnout there were only a few presentations.  Also the raffle was cancelled as there were not enough persons to buy chances to cover the cost of the items being raffled.

  For the September program, Larry volunteered to make a presentation on a special item in photography that he has been working on.  Terry said he'd consider working on a Linux presentation 'sometime' in the future.

**Orange Bytes production for August:**  Due to Ben and wife being on vacation, Jim agreed to prepare the Bytes for the August meeting.  He did work on it with the intent of 12 pages but there were some problems so he reduced it to 8 pages and sent it to the printer.  It was delayed by 3 days due to the problems but the printed version still reached the members a couple of days before the meeting.

**Membership report:**  Don agreed to take over the Membership Chairman function from Ben.  Don has to process the dues payments so it was decided it would be easier for him to both notify the member of the upcoming dues date as well as process the payment.  Ben agreed that if Don provides the name and phone number of the member whose annual membership is coming due that he'd call that person and encourage them to renew their membership.  The goal noted was to attempt to get active membership up to 100 within the year.

**Adjourn:**  Gerry moved to adjourn the meeting, Don 2$^{nd}$, approved.  Ben declared the meeting ended at 4:07 PM.

**Submitted by:  Bob Dickson, Secretary**
*The board meets in Science 129 3:00 p.m.*

# Main Meeting Review

*Main Meeting review for September by Jim Sanders*

At the September 9 meeting of the North Orange County Computer Club, Larry Klees was the Main Meeting presenter. He opened by saying that there was a problem with the presentation that he had intended to give and that he was going to have to extemporaneously present his topics. The main topic of his presentation was digital cameras and how their quality and capabilities have grown over the years. While he noted a number of interesting facts and gave some good examples, I felt like he spent way too much time telling war stories of his picture taking past. I would have preferred that he spend that time explaining the history and technology of those examples. His early history points reminded me that some 30+ years ago I was at a Softsel wholesale distribution company dog and pony show gathering in San Francisco. That annual show was being put on for the computer resellers that Softsel did business with. I happen to win one of the major door prizes at the time which was a digital camera. I remember it as an early Kodak model that had a retail price of $1000. My somewhat shaky memory of the camera resolution was 540 pixels by 400 pixels. That was less than the original VGA resolution of 640x480. Nonetheless, it was a digital camera that I could hook up to my computer and get images on the computer directly from the camera.

I lusted for a better digital camera for quite a while. The minimum picture resolution that I was willing to settle for was 1024x768. The price of that quality of digital camera was too rich for my pocketbook for 2-3 years. At some point, Fry's Electronics put the Olympus D-300L camera, that had a One megapixel sensor with 1024x768 resolution, on sale for a mere $730. After a lot of agonizing, I let my desire overcome my frugality and bought the camera. It took pretty good snapshots and it was my "good enough" camera for several years. What's that got to do with Larry's presentation? The facts of Larry's presentation brought back memories of the limitations of the D-300L camera.  While a 1024x768 snapshot can look pretty good, when I needed to crop something out of the image or zoom into it, the

quality of the image quickly fell apart with individual pixels clearly visible. A number of facts that Larry presented touched on why that was true. I decided to research some of those issues to get a better understanding of why they were true.

Most of Larry's presentation dealt with the advantages of high megapixel count sensors, HDR (High Dynamic Range) and high bit count (12-14bit compared to 8bit) Analog to Digital Converters (ADCs) for the RGB (Red, Green, Blue) numbers. The standard 8bit RGB ADC produces over 16 million distinct colors. 8 binary bits can represent a maximum count of 256. So if you take 256-R x 256-B x 256-G it actually comes out to 16,777,216 distinct colors. 14 binary bits can represent a maximum count of 16383. So if you take 16383-R x 16383-B x 16383-G, it comes out to a ridiculously large number of 4,397,241,253,887 distinct colors. How many colors can the eye discern? Most of the Google responses ranged from 1 million to a maximum of 10 million distinct colors. If you pick one of the colors in the Cyan range, you'll find that the RGB numbers are: R: 0, G: 192, B: 252. That is color number 48,384 out of  16,777,216. The odds of you being able to pick out color number 48,384 and color number 48,385 in a 10 x 10 grid of randomized Cyan colors in this range are; well let's just say not in your favor. And if the two shades of Cyan happen to be in two adjacent squares, you are likely to say they look the same.

When you want to know why you should care whether your image was recorded with a camera that "only" records 8 bit color vs 12 or 14 bit color when the human eye can't tell the difference, the answer gets very technical. There was only one reason that I thought would apply to the "average" amateur photographer. That is, one of your under exposed photographs needs the histogram expanded and the result shows color banding. There were some other post processing, computer-assisted, methods of detecting the difference between a 12 bit and a 14 bit color photo. All other aspects being identical, there might be a human somewhere that could detect the difference in the side-by-side images, but I wouldn't bet on it. Rounding a 12 bit num-

ber off to 8 bit depth improves accuracy and works pretty well.

## HDR (High Dynamic Range)

High-dynamic-range imaging is a high dynamic range technique used in imaging and photography to reproduce a greater dynamic range of luminosity than is possible with standard digital imaging or photographic techniques. [Wikipedia](#)

That could mean two different but clearly related aspects of a given digital camera. One is that the sensor itself has been engineered with technology that allows individual pixels to accurately record a wider range of light values. The other is that the camera has a setting that tells the internal computer to make use of HDR technology techniques. And of course the two are synergistic. What does that mean at a practical level? If you have a digital camera that has a HDR setting, and you take a picture of a scene that has an extreme range of lighting, the computer in the camera does a little digital magic. The magic usually consists of taking three different images of the scene at three different f-stops. One image opens up the lens to properly expose the shadow area. The next image stops down the lens to properly expose the reasonably lit areas. The third image further stops down the lens so that the extremely bright areas of the scene are not washed out. The computer then stitches the three images together using the properly exposed areas of the three photos to make one image that shows details in all three ranges. It is rather like driving west on a road when the sun is low on the horizon. The sun is so bright that you can hardly see the road. But when you block the sun with your hand or the visor, it is analogous to taking one of the HDR exposures in the camera, you can see the details again. Some HDR photos seem really strange. I think a large part of that is because my brain knows that I could never see that scene, in all that detail, with my bare eyes.

## High Megapixel count sensors

The below chart shows the difference between my ancient Olympus D300-L and the recent Nikon

D800 SLR camera that Larry used in his demonstration.

| Quick Specs | Olympus D300-L | Nikon D800 SLR |
|---|---|---|
| Body type | Compact | SLR |
| Max resolution | 1024 x 768 | 7360 x 4912 |
| Effective pixels | 1 megapixels | 36 megapixels |
| Sensor type | CCD | CMOS |
| ISO | 100 | 100 - 6400 |
| Focal length (equiv.) | 36 mm | 19MM to 1000+ |
| Max aperture | F2.8–11 | F.95 - Varies with lens |
| Screen size | 1.8″ 110,000 pixels | 3.2" 921,000 pixels |
| Max shutter speed | 1/500 sec | 1/8000 sec |
| Storage types | Internal  6MB | SDHC/SDXC - 128GB |
| Image sensor | Not specified | 35.9 x 24.0 mm CMOS |

As the above chart shows, my ancient D300-L had a one megapixel sensor using CCD technology and Larry's Nikon D800 has a 36 megapixel sensor using CMOS technology (comparing CCD and CMOS technology is a whole separate discussion). While I couldn't find a specification for the physical size of the sensor in the Olympus D300 camera, my guess is that it would be about 1/6 the size of the sensor in Larry's Nikon. The CMOS sensor in Larry's Nikon is referred to as a full image sensor. Basically that's because it is the same size as a 35mm film negative. There are a number of technical reasons why a sensor that size (or bigger) is desirable. I will touch on those in a bit.  You'll notice in the chart that the physical dimensions of the Nikon sensor are presented in millimeters. Most consumer grade cameras and most all cell phone cameras that I have seen use a different method of expressing the size of the sensor. For instance, the new Samsung Galaxy S9 main camera sensor size is expressed as: "Sensor size: 1/2.55" ." My first reaction, decades ago, when I saw one of those size specifications was "What the hell does that mean ?" My research found that it relates to even more decades old television camera vidicon imaging tube sizes. My impression was, that it is a means of being truthful while at the same time being very misleading and confusing. It is about as useful as being told what you weigh in stones. (An ancient English measurement of weight.

As a point of interest, one pound is officially 0.45359237 kg, 150 pounds equals 10.7143 Stones or 68.0388555 kg)

To be fair, Samsung additionally lists the physical size of the sensor in the Galaxy S9 as 5.5 x 4.1 mm. I think that is a case of, in today's high-end expensive cell phones, with lots of online detailed reviews, Samsung would be excoriated if they did not provide the information. Not that they want to. As
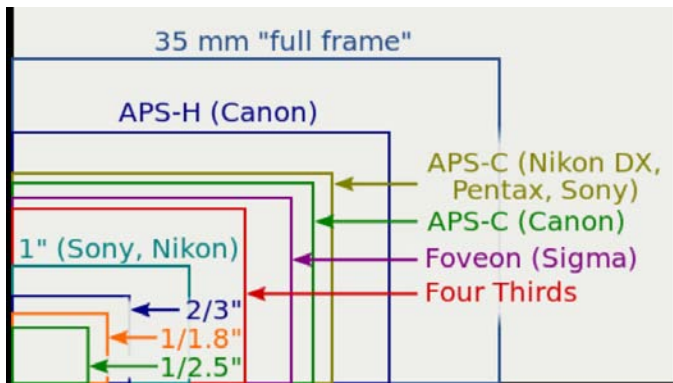


you can see in the size comparison chart, a 1/2.5" sensor represents a very small percentage of the full frame 35mm sensor. However, it crams 12 megapixels into that small area. A number of engineering technological improvements in the fabrication of sensors has improved the quality of image that can be obtained from these small sensors. One article that I read compared it to trying to lose weight. It noted that there are all kinds of different diets that improve the way in which pounds may be shed. But there is only one dieting fact that is universally true. That is, if you burn more calories than you eat, you lose weight. When it comes to sensors, there are several technical tweaks, including back lighting, that improve a small sensor's performance. The universal sensor truth is; the larger the surface area of a pixel, the more photons will strike it during a given amount of time. The more photons captured by the pixels, the better the quality of the picture. Larry demonstrated that by taking a picture of the audience with his Nikon D800 camera using a shutter speed of 1/4000 of a second. The resulting picture was underexposed and grainy, but the people in the picture were recognizable. If you were able to force a cell phone to take the same photo at 1/4000 of a second, the resulting image would be mostly black.

## So what does all of that mean?
Improvements in technology have allowed the manufacture of high pixel count sensors that are small enough to stay within the laws of optics, fit the depth available in modern cell phones, and take surprisingly good pictures as long as there is a reasonable amount of light. But if you want to take really good photos under a wide range of conditions and enjoy the versatility of zoom lenses, you need a traditional style digital camera with a physically large, as well as high pixel count sensor. More detailed explanations of these topics, with links to yet many more, can be found here: https://en.wikipedia.org/wiki/Image_sensor_format#Table_of_sensor_formats_and_sizes

# August Main Meeting Report

*Main Meeting report for August by Ben Lochtenbergh*

At the Main Meeting, we experimented with a new format the "Extended Random Access" event where any attendees can present short computer stories about what they think worth sharing. One person was disappointed because I think it was not meeting his expectations. I thought there was **great variety** like showing an innovative way to keep earbuds tangle free, which took only seconds and watching Jim demonstrating an image viewer program like Picasa and Windows Photo Viewer taking about 15 minutes. From my SIG I connected a Google Home Mini to the University Wi-Fi, running on external battery power to ask, "What is Pi?" The smart speaker responded, "**Tell me when to stop**" and then proceeded to speak "3.14159265358979323846264643 etc." When that became boring, I asked someone to say, "Wake word stop." Attendees gave spontaneous commands for about five minutes for our education and entertainment. We kept the device working and a several times we used it it to answer a question.

On my PC, I demonstrated a brand new feature of Windows 10. The merging of tiles into a single binder. This can free up screen space for users who have too many tiles taking about 2 or 3 minutes.

Bob Dickson presented what he normally would at his SIG, **an innovative idea** having to do with the hide command in Excel. He showed a spreadsheet that was too long to print on one page. With the hide command activated on certain columns containing detail cells he said he could disappear these columns and resulting in a sheet small enough to print on one page. Great idea but unfortunately Excel failed on the demo PC! Another spreadsheet program was used instead, one touted as free. Unfortunately, that application did not have the hide function. Therefore, **we had to imaging** what that one page could have looked like. This took about 15 minutes.

A moral of this story "one has to pay for seldom used features." **Businesses understand this** and are willing to pay so their workers will not lose productivity, but we hobbyists always want **free** solutions! We have enjoyed the free ride when the computer industry wanted to grow, but now with the industry maturing and companies like Microsoft belatedly trying to profit from what their employees programmed. Users increasingly must strike a balance between what they want and what they are willing to pay for.

<span style="color:red">Note! Bill Gates 2018 net worth only, 98.3 Billion - Google</span>

## Linux SIG Report

*Linux report for August by Dennis Martin*
No SIG report submitted for this issue.
<span style="color:blue">*This SIG meets in Science 131 from 9:00 a.m. to 12:00 p.m.*</span>

## Mobile Computing SIG

*Mobile Computing report by Ben Lochtenbergh*

It was nice to see attendance back to the decent number of ten in September.
I got to talk about and played an .mp4 file created with a $39.95 device that can record Over-The-Air TV programs to an USB thumb drive. Perhaps better known as OTA DVR. A dirty trick in my opinion was that I could get 10% back if I give them 5 stars. I don't participate in such but who polices things like that?

During the meeting we discussed the usefulness of Windows Print Screens going to Microsoft OneDisk. The consumer retail market is growing IoT (Internet of Things) faster than the industrial sector.

I'm disappointed about **Android 9 Pie** not going to be available on my Nexus 5X device. Prompting me to search for phones excluding Google phones. We discussed different smartphone brands and features on the market today and promised for the future. Google says 20% of all searches are voice searches. 43 million Americans now own a smart speaker. China is the fastest-growing market for smart speakers. We talked about the ranking of 343 databases before we ran out of time...

My daughter in Tulum took to her Home Mini and Chromecast Ultra connected to her TV like a fish to water. After returning home I ordered a replacement Chromecast Ultra for myself $69 minus 10% plus tax free shipping from the Google store.

Thinking about Mexico a cleaning lady bought 3 Google Home Minis at Costco after I demonstrated some of what this device can do. When I let her say Hey Google and a Spanish artist name it started to play a song in Spanish promptly. She said she wanted one too!

In October we'll be talking about Windows 10 with features to be eliminated and the pushing of users to newer 'improved' apps.

<span style="color:blue">*This SIG meets in Science 109 from 10:30 a.m. to 12:00 p.m.*</span>
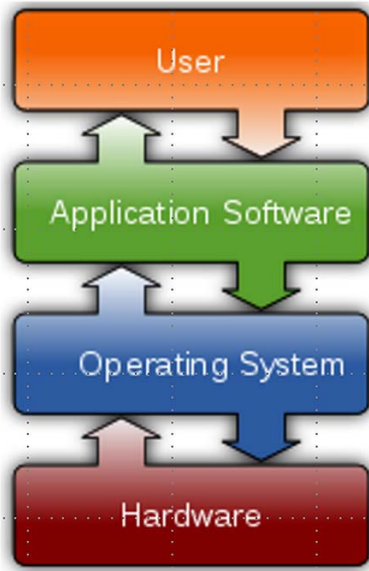
## Programming SIG

*Attempt to rekindle the Programming SIG by Ben Lochtenbergh in memory of Rudy Lauterbach's same topic and classroom.*

It was as expected, the attendance for this exploratory SIG was only two.
We went through the steps of creating our first program with paper and pencil.

As it turned out I did most of the talking using erasable ink on a white chalkboard.
There were questions that direct me in better directions, I used long names to avoid compiler reserved words and added a constant not realizing that this was using a compile generated value.

I explained why a simple batch program like this wouldn't work properly in an online multi-user environment. Then the ½ hour SIG was over.

We are going to continue to program without a computer. The October assignment is creating the programming logic for finding all prime numbers under 100. Hint: know the four properties of a divide.

# 3D Printing SIG Report

*3D Printing SIG report by Jim Sanders*

There was very little to report about the use of the club's 3D printer during the last month. A number of other pressing requirements at home last month preempted my spare time. Two people showed up at the SIG and we discussed a few aspects of 3D printing. One of the questions that I repeatedly hear is: "OK, the art stuff is cute, but if I bought one, is there any real life practical thing that I could do with it?" There is no 'one answer that fits all' response to that question. It depends on what you are doing in life and want out of life. Creating a design on the computer and having the 3D printer create the real life object is an end unto its self for some. It doesn't matter if it is a 3D mechanical-engineering CAD object or a 3D artistic CAD object, It is the journey that is important. Expanding their horizons by learning how to use their preferred CAD software, learning how a 3D printer works so that it can make their design into a real object.

For those that require an example of a real-life useful object, they can do it the easy way or the hard way. Learning the design software is hard. Downloading a file from thingiverse.com is easy. There are a number of files on thingiverse.com that fall into the real-life practical category. If you happen to own a Dremel tool kit, you already know what a useful tool, in so many different ways, it is. One very useful, already designed, object you can download from thingiverse is a drill bit sharpening adaptor that holds the bit at the correct angle.
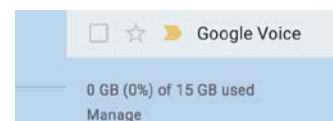
# Help! My Google Mail Stopped Working!

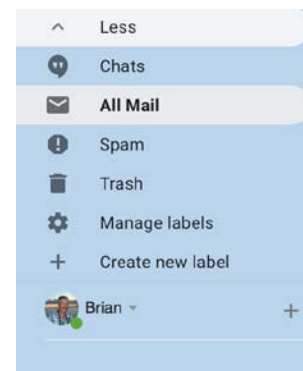*Help! My Google Mail Stopped Working! By Brian Corr, SCA Computer Club*

By Brian Corr, SCA Computer club

In recent months I have had at least 3 house calls with members having problems with their Gmail. The reported problem is "I haven't been able to send or receive mail since last week. I tried deleting the account and reentering it in my mail program but I still can't receive or send mail. I can't send or receive on my iPad or iPhone either and they were all working before this happened last week". Ok everyone think about this and see if you can guess what is going on and how to fix it.

Some of you may have guessed the answer, but for those who haven't it is a matter of running out of storage space on the Google mail server. This is rare because Google gives you 15 GB of storage and you can tell how much you have used by looking at the bottom of the page when you have Gmail open in your browser. As you can see here I don't use my Gmail account for very much and it is reporting 0 GB of 15 GB used. In all of the recent cases of Gmail not working the number was on the order of 17 GB of 15 GB and the corresponding percentage was over 100%. The next step to take is to look at the mailbox called "All Mail", you may have to click on the option for "More" to see the mailbox. Once you have clicked on it you will see the number of messages you have in "All Mail". As a simple explanation of what this mailbox is, it is, as its name implies, all the messages you have on the server whether they show up in your inbox, trash, deleted or any other mailbox you may have created. In my case you see I have only 30 but if I

go to every mailbox I have I can't actually find all 30 so apparently Gmail has some hidden in a mailbox I don't see on the list.  Using your mail program (Mac or Windows) and deleting all the messages you find and then emptying the trash should delete all the messages but I have never been successful in truly deleting all the messages that way, but if you use your browser and go to Gmail and log in you can delete all the messages in the "All Mail" mailbox and feel assured that you have deleted them all. Doing this sounds easy but unfortunately you can only select one page of messages at a time to delete so if you have over 25,000, like members I spoke of earlier, there has to be a better way and there is.

Here are some of the tricks I have learned in cleaning up old Gmail messages collected over many years and never deleted. If you start in the "All Mail" mailbox you can use the search capability to select up to 2 years' worth of old messages by clicking in the search field at the top of the window and then clicking on the pull-down arrow on the right side of that field. Near the bottom you will get the option to select "Date within" and select from a list of options that runs right up to 1 year. (See figure on the next page). You can then select the date so that you will be searching for messages up to 1 year prior and 1 year after that date or 2 years total. I like to use January first so that I will be selecting 2 calendar years. After you have done the search, in the
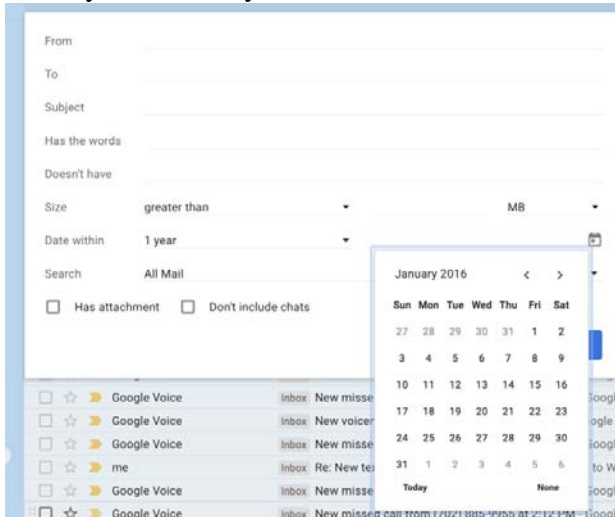


upper right corner it may have something like 1-60 of 2500 which indicate that it found 2500 but only 60 are showing on the current page. If you click in the select box on the top left it will only be selecting the current page's 60 messages and clicking on the trash can icon will only delete 60 but you will see a message at the top of the messages window with a link that says "Select all conversations that match this search" and clicking it and then clicking the trash can icon will delete all the messages that matched the criteria instead of just one page worth


.
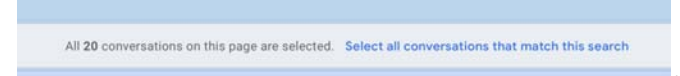
After you have done this you will have to go to the trash and select "Empty Trash" along the top of the window. In all of these actions that involve large numbers of messages, you must be patient as the action you are performing on your machine actually need to be accomplished on the server so the speed of your connection will affect how quickly they are accomplished

# September Raffle Report

*September Raffle Report By: Dennis Martin*



Membership Drawing September 9, **2018**

| #1 | Electronic Fly Swatter | Jeffery Glassman |
|---|---|---|
| #2 | Pocket Light | Robert Strain |
| #3 | Battery Lantern | Jerry Resch |
| #4 | 3 Outlet Power Strip | Bob Dickson |
| #5 | Mini Smart Socket | Jim Sanders |
| #6 | 4 Port USB Hub | Bruce Jones |

General Drawing September 9, **2018**

| #1 | Electronic Fly Swatter | Jerry Resch |
|---|---|---|
| #2 | 3 Outlet Power Strip | John Szary |
| #3 | Pocket Light | Jerry Resch |
| #4 | 2 pack USB 2.0 Thumb Drives | Robert Strain |
| #5 | Mini Smart Socket | Dennis Martin |
| #6 | 12V heated coffee cup | Ben Lochtenbergh |

# Home Brew Computer Club

*A little 43 year old computer club history. Home Brew Computer Club Newsletter Number Three May 10, 1975 edition*

## DESIGN NOTES by Terry Lee, Consulting Engineer
### Temar Electronics

Anyone, from time to time, could really use a design consultant to help out with those unreasonably sticky wickets and for finding that "unfindable" information but the price, $200 to $1000/day, neatly eliminates the amateur from the scene. To help solve this problem the HomeBrew Computer Club Newsletter will publish in each issue "DESIGN NOTES". Topic which I intend to discuss in future issues include 4k RAMS, CCD's, interface standards, acoustic coupler circuits, micro computer designs, head read/write amplifiers, power supply design, tape disc and drum controllers, data transmission, interface equipment, and lots more. In addition to a main topic I will also include a question and answer section. Anyone having a question should mail it to T. Lee 2400 Geary Blvd # 6, San Francisco, Ca. 94115. (Please make your questions as complete as possible, also be sure to include your return address). Questions that are of general interest will be included in the question and answer section. I also invite your comments and suggestions with reference to the topics discussed in "DESIGN NOTES".

## HOW ABOUT SART?
### (SLOPPY ASYNCHRONOUS RECEIVER TRANSMITTER)

Almost everyone knows that the transmission and error free reception of serial asynchronous data is not as simple as it sounds. The LSI UART is a gaint step in the proper direction, however there are some problems, primarily with respect to the need for accurate clocks (this is a big hitch when reading tapes). Well anyway, how about the SART? This design is an Asynchronous receiver transmitter that will handle long term variations of the data rate up to ±50% and short term variations (bit to bit) of ±20%. The data is phase encoded and word grouped, each word having a start and stop bit. The start bit is very important in that it is used by the receiver for a time base reference. Time base errors do not accumulate as the word is read because the time base operation is synchronized by incoming data. Note that the data request and data ready signals are negative going edges. The transmit enable signal is active low. The parts cost of this SART is $15.00.

Well, let's get to the nits and the grits: IC6 is the transmitter clock, its frequency should be equal to the desired BAUD rate. I have included on the drawing typical values for R, however things will go a lot easier if a 100 kΩ trim pot is used, this way device variations can be tweeked out. Once this clock is set about right, there is no need to mess with it further, unless you change data rate, because the receiver will take out alot of slop.

IC8 is the word detector. This one shot retriggers on incoming data; the pulse width should be equal to 6/BAUD. Here I have included typical values. This pulse is not very critical but here again if you intend to change data rates I would recommend replacing Rx with a trim pot, 50 kΩ in series with a 4.7 kΩ resistor. A word of caution, the 4.7 µf capacitor must be low leakage.

IC9 is the receiver clock, it operates at two frequencies 16·BAUD when IC10 pin 5 is logic 1. I have given typical values here, however, modifying this one is a bit tricky. If RA = RB <50 kΩ then Rc = 4.7 kΩ and C can be selected to give the proper frequency. F (in Hertz) = 77/C (in µf) when RA = RB = 10 kΩ and IC10 pin 5 is logic 0. If selecting capacitors is not your liking try replacing Rc with a 20 kΩ trim pot in series with a 1.5 kΩ resistor, RB with a 100 kΩ trim pot and make C equal to .01 µf.

Enough chatter for this issue. Let's hear from you people, don't let this chance for some free consulting get away.

This is what "Friends Helping Friends" looked like 43 years ago. When newbees didn't know what an IC was, much less which end was which!
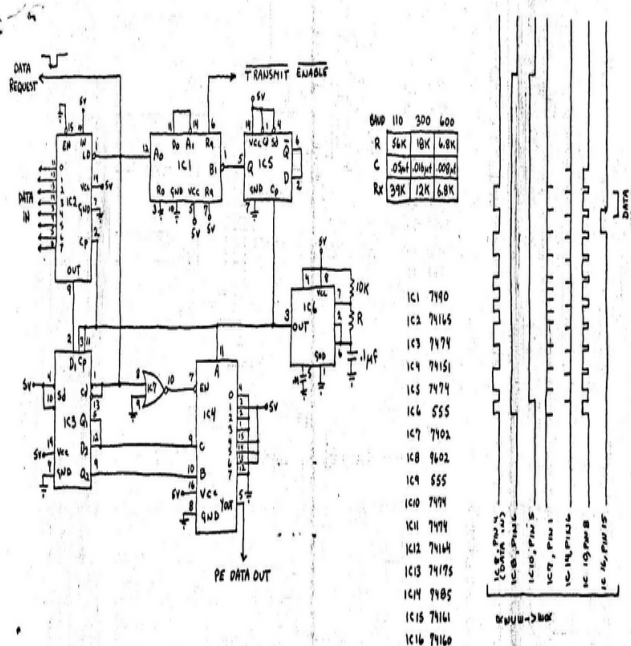


SART — PARALLEL TO SERIAL TRANSMITTER
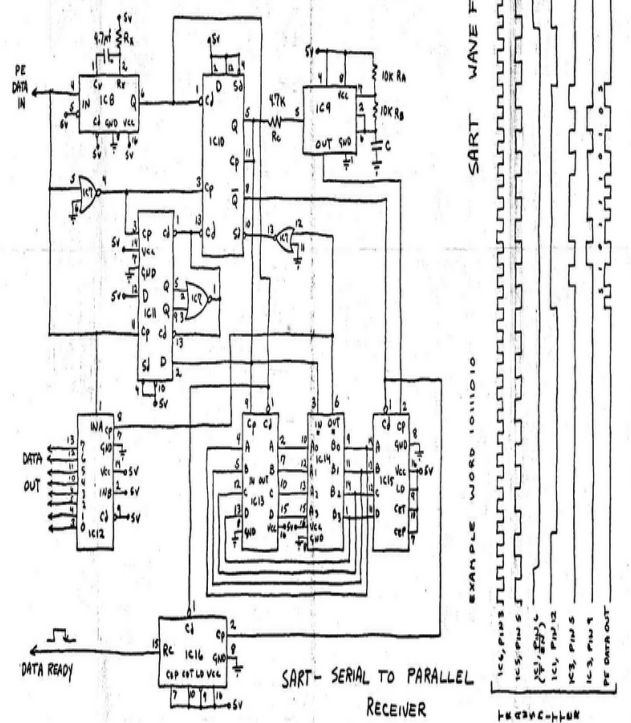
SART — SERIAL TO PARALLEL RECEIVER

**North Orange County Computer Club**
**PO BOX 5841**
**Fullerton, CA 92838-0841**

**To All Members:**

**The line above your mailing address now shows your join date. Please use your join month to choose when to renew your membership.**

# Dated Material – Please deliver by October 7, 2018

### Directions to the NOCCC meeting location

| Membership Level ($) | 1 Year | 3 Years |
| --- | --- | --- |
| **Individual Member** | 35 | 90 |
| **Each Additional Family Member** | 15 | 40 |
| **Full-Time\* Enrolled College Student** | 20 | |
| **Enrolled High School Student** | 15 | |
| **\*Minimum 12 Semester Hours** | | |
| **Business Member + Ad (Business Card)** | 180 | |
| **Business Member + Ad (¼ Page, ½ Page)** | 465, 800 | |
| **Business Member + Ad (Full Page)** | 1,475 | |
| | | |
| **Contributing Member** | 75 | |
| **Supporting Member** | 100 | |
| **Advocate Member** | 250 | |
| **Patron Member** | 500 | |

## Directions to NOCCC from John Wayne-Orange County Airport (SNA) 12 miles:

Enter CA-55 N (Costa Mesa Freeway) crossing Interstate 5 toward Anaheim/Riverside for 9 miles. *Notice freeway and street signs stating "Chapman University."* Exit toward E Chapman Ave. Turn right onto N Tustin St. Turn left onto E Walnut Ave.

| | |
| --- | --- |
| 1) Turn left past N. Center St. for the **best place to park** in the underground parking structure (Lastinger under the sports field). Pay the small fee ($2) to park Ask members or help@noccc.org about parking details, restrictions, and our price break! | 2) Turn left onto N Center St. On the right is the Hashinger Science Center, 346 N Center St. Orange California. Parking on the University side is free. Parking on the residential side is a city violation that may cost you a tow away and a ticket! |