AITS Newsletter

DECEMBER 2024

Enjoy this brain teaser ☺

Counting for all of us is about as natural as breathing, I am sure you will agree!

When visiting my local zoo recently I counted 90 legs and 38 heads. With this information how many birds (two-legged) and how many mammals (four-legged) creatures did I see?

Computing Memories

[Abraham John, Asst VP, AITS]

As usual my "fluff" piece for this newsletter will take you back a few years in computing. Given the season and the time for reflection if affords, memories flood in about when my first contact occurred with computing technology. Note the word "computing" since we are surrounded by technology all our lives. We have had a tendency in recent times to equate technology with some sort of computing or information technology (IT). But technology is more basic. The definition of technology according to Britannica is "the application of scientific knowledge to the practical aims of human life". But I digress. If memory serves me, it was 1981 when I first used computing hardware. It was a 4-function Casio calculator. See image below of this basic computing device and not, it does not have a small solar panel since one of my staff inquired about that feature – this one pre-dated that advancement.

By current standards, this is a simple computing device but is still remarkable in terms of the functionality it provided within such a tiny package. For me it was a curiosity item and nothing more. I did not really have much use for it in the day-to-day goings on.

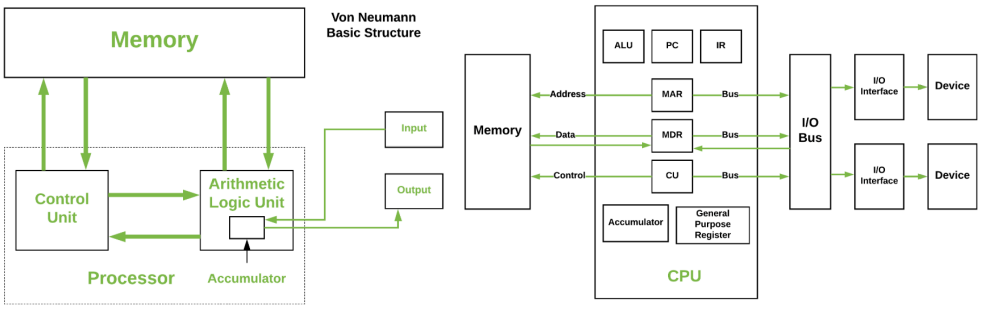
The first exposure to actual use of a computing device, i.e., one that can be used for programming, came in the very first computer information systems class (required) that I took. The class was about programming in Beginners All-purpose Symbolic Instruction Code (BASIC) and the device we used for the class was a TI-990 minicomputer. The picture to the left shows a programmers panel of a TI-990. There was a terminal that we used to access the minicomputer, and we did our work via what we today call "dumb terminals". I accessed BASIC to write the code needed for the class as I learned this programming language.

```
10 CLS
20 INPUT " Enter Your Name ", X
30 PRINT X = " YOUR NAME"
40 END
```

For those who have not seen BASIC code, here's snippet of a BASIC program. Not only was this a programming class, it was also the first time I was exposed to the von Neuman computing architecture - theory. This is still the driving force behind computing. The underlying materials, manufacturing processes, clock speeds, storage medium, etc. have changed but Von Neuman's computing architecture is still with us.

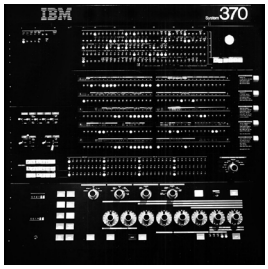
For those who are hazy about John Von Neuman's contribution to computing, here is what his architecture looks like. In Von Neuman's architecture there are 3 main parts: Central Processing Unit (CPU), Main Memory Unit, and Input/Output (I/O). These main parts have sub-parts to them that are defined within this architecture.

For those who may not have thought of this in a bit, here are a couple of diagrams illustrating Von Neuman's architecture.



Von Neuman architecture is still the leading approach to computer architecture with small deviations to the Harvard architecture for certain microcontrollers. The architecture has been added to when we consider Direct Memory Access (DMA), Memory Management Unit (MMU), and recently with the use of specialized coprocessors like Graphical Processing Units (GPU).

Moving forward, the next exposure was to the mainframe. For me this meant accessing a IBM 370 clone, via the McGill University System for Interactive Computing (MUSIC) to write programs in Common Business Oriented Language (COBOL). The image below is that of an IBM 370's control panel.



Learning and using COBOL on the IBM 370 mainframe was interesting and in a fun way, challenging. COBOL is in widespread use even to this day on many critical systems across the world and what happens on those systems affects us in our daily lives. In addition to COBOL, I also learned Job Control Language (JCL) in this mainframe computing course. To run COBOL programs, which were all run in batch, learning JCL was a requirement.

JCL was what was used to submit COBOL programs for execution on the mainframe. JCL, like COBOL, is in use to this day. Unlike languages like C that tend to be very terse, COBOL is a very verbose language. This is an advantage since a well written COBOL program is almost self-documenting.

Next came the phase of learning and working with microcomputers. The very first one that I worked with was a Tandy Radio Shack computer. The TRS-80 Model 12's

were available to students in the computer labs and we worked with applications and wrote code on these devices. The very first development I did as a student programmer was on a TRS-80 Model 16 pictured here, which was almost identical to the Model 12 with some architectural differences in that it also had a Motorola 68000 (16-bit) processor along with a Z80 (8-bit) processor while the Model 12 only had a Z80 (8-bit) processor. Given the tools available at the time all the code written was for the Z80 since Tandy did not make available a compiler for the 68000 until later. These devices were all-in-one computers of their time with 8" floppy drives. In those days of manual spelling (paper) and typing tests (on real typewriters), a couple of the first systems I wrote were for student employment where students took their spelling and typing tests on a TRS-80 Model 16 computer and the score would be copied to a database (called data files then), for addition to their student employment application. The very first student employment job matching system was also written for a TRS-80 Model 16. A dubious ability at the time with these computers was I could place my hand on the side of one of these devices, close my eyes and by the vibrations tell you if it was a read or write operation being performed. Needless to say, not the best of skills 😊.

Moving ahead to the world that may seem familiar to the readership: PC's. The first personal computer that I worked with as a student employee was an IBM PC XT

Fox Tossing was once a popular sport. Popular with Europe's elite during the 17th and 18th centuries, fox tossing involved throwing a fox as far and as high as they could!

clone that was built by our Micro-Maintenance Shop which ran at a whopping 4.77 MHz clock speed, 8086 processor and had a 20MB hard drive. The server that I managed during that time was an IBM AT with a 80286 processor running at 8MHz and had an incredibly spacious 30MB hard drive 😊. This was the very first server/network I managed, and it was an IBM Token Ring network running Novell Netware version 2.01 for the server OS.

Faster, larger, and more complicated systems followed with server advances, increases in use, need for connectivity, storage, and needs of my university. More systems development followed with work done for the Financial Aid team and development of code with IBM 370 Assembly language, COBOL, Report Generator, and the ever-present JCL for the mainframe. At the same time I developed on small systems (PC's/Servers) where I used C, C++, x86 Assembly language, dBase, R:Base, Clipper, Visual Basic, PHP, batch scripting language, and more modern scripting languages. Some of the developments also included linkages with the mainframe for data transfers.

A tangential observation about dBase and R:Base. While I used both dBase and R:Base to develop at various times, I had a special affinity for R:Base because it met the rules defined by Dr. Edgar F. Codd for relational databases. dBase and xBase offshoots would get acquired while R:Base staying true to the principles of the relational database model, is still going strong after 42 years! I know – tangent but the article is after all called "Memories" 😊

The systems developed were useful in their time and served a purpose for my university. They made the tasks easier, simpler, and faster for our students and staff. They moved departments forward in terms of technology, automation, data management, and workflow.

There was a consistent theme in my career that echoed the words of one of my professors. He said that this field is about change, i.e., the movement will be forward in hardware, software, languages, techniques, algorithms, convergence, and technology will increasingly affect all aspects of life. This is truer today than ever before. Technology engulfs all aspects of our lives. For my career, "change" in terms of technology and work done for my university has been a consistent theme! I still have his book "Cobol for the 80's" on my bookshelf 😊.

I do not know what the next bit will bring but I know there will be other systems, languages, implementations, and there will always be the joy of learning something new! There will be convergence of traditional technology into fields of IoT's, AV, and surveillance. AI will most definitely change what we as information technologists will need to learn, manage, control, and enhance our skills.

This brief look at a few things has been interesting, if not fun. Many more memories flood in but that is for later. I hope you take the time to reflect during this holiday season on your journey and where it has brought you.

As you read the articles included in this issue of our newsletter, maybe get misty eyed or are rolling in laughter by pieces like this one or use for the word "ancient" about this article 😊, and take a swing at the brainteaser, we in Administrative Information Technology Services (AITS) wish you a happy and safe holiday season.

Famous conqueror Napoleon Bonaparte was once attacked by a horde of bunnies! He had asked that a rabbit hunt be arranged. When the rabbits were released from their cages, the bunnies charged toward Napoleon and his men in an unstoppable charge.

The Building Blocks of Success

[Jesus Chavez]

During my time at UNT AITS DSA, I've gained valuable insight into the interconnected components that create a resilient and effective IT infrastructure. Growing up surrounded by LEGO, I spent hours building sets and learning how each piece fits into a larger design. Although most people think of LEGO as just creative play and tiny structures, the principles behind LEGO construction share much in common with IT. Both require careful planning, creativity, clear documentation, compatibility, and purposeful design to form strong, complex systems.

Careful planning: Building a LEGO set requires careful and specific planning to ensure each Lego piece will support the final design. Similarly, in IT each decision such as server placement, network setting configurations, IT roles and scope, as well as software deployment and implementation all have to be considered within the framework of the IT infrastructure. This cautious and careful planning can help prevent future issues and ensure resources are used effectively, allowing the organization to meet its goals. In both cases, a clear vision at the start is essential to build something that works together seamlessly.

Creativity: One of my favorite LEGO quotes is, "Building dreams one brick at a time." To me, this quote highlights how creativity comes from combining small pieces in new ways to make something meaningful, showing that each step matters in building something special. While LEGO kits come with specific instructions, LEGO enjoyers often go beyond these, combining pieces in new ways to bring unique ideas to life. In IT creativity is equally important as technical issues often occur that require IT technicians to be innovative with their solutions. IT professionals must think creatively to overcome certain challenges such as creating solutions to unique organizational needs. Just as a LEGO builder finds new uses for certain pieces, IT professionals think creatively to solve complex problems within system limits.

Clear documentation: Whenever you are building a LEGO set following the set by step instructions is vital to achieve the intended design. In the field of IT documentation, it serves the same purpose, ensuring that anyone working on the system can understand its components, configurations, and workflows. Comprehensive documentation makes troubleshooting faster and more effective, helps prevent misunderstandings, and enables smooth transitions when new team members join. Just as missing a single LEGO instruction can throw off the whole build, missing or incomplete documentation can create vulnerabilities and inefficiencies in an IT infrastructure.

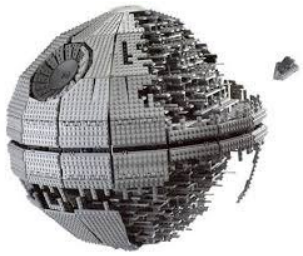
Compatibility: LEGO blocks are designed to connect universally across sets, regardless of when they were made or where they're from, allowing builders to combine different sets in infinite ways. This concept of compatibility is essential in IT as well. Hardware, software, and network

Ketchup was sold in the 1830s as medicine. In 1834, it was sold as a cure for an upset stomach by an Ohio physician named John Cook. It did not come to be used as a condiment until the late 19th century!

components need to integrate smoothly to create a functional, cohesive system. Compatibility between IT components allows for smooth communication, easier data communication, and simpler IT upgrades. Just like LEGO pieces fit together to expand a build, compatible IT parts create a flexible, scalable infrastructure.

Purposeful design to form strong complex systems: LEGO sets are crafted with specific goals, whether to create a race car, airplane or even the Death Star. Each brick serves a purpose, whether to provide stability, form or aesthetic of the end design. In IT, purposeful design means that each part of the system, from the smallest piece of software to the physical layout of a data center, has been chosen and configured to support a specific need. Purposeful design ensures that every component aligns with business goals, provides stability, and meets user needs efficiently. Whether it's the LEGO Titanic or an IT system, a strong final product results from every part serving a clear purpose within the design. "Life is like a LEGO set it's all about how you piece it together"

In both LEGO and IT, these principles bring individual pieces together into a unified, intricate structure. Through careful planning, creativity, documentation, compatibility, and purposeful design, an IT infrastructure, like a LEGO creation, becomes more than just its separate components it forms a resilient, adaptable system ready to support future growth and evolution.



Did you know Abraham Lincoln is in the wrestling hall of fame? The president had only one loss in his 300 or so contests.

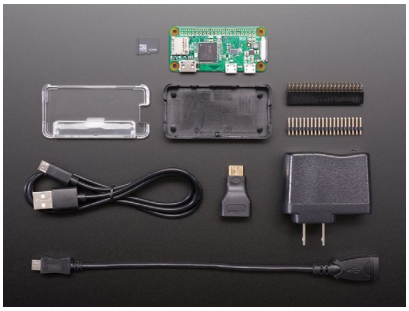
Making A Digital Photo Frame

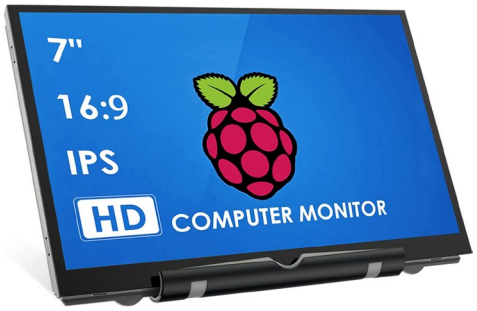
[Alexandra Martinez]

The holiday season is a time for celebration, reflection, and sharing cherished memories with loved ones. What better way to showcase your favorite memories than with a digital photo frame powered by a Raspberry Pi? This project allows you to create a customizable frame that can display festive images, play seasonal music, and even show holiday greetings. Here's how to bring your holiday spirit to life with this fun DIY project.

Materials Needed:

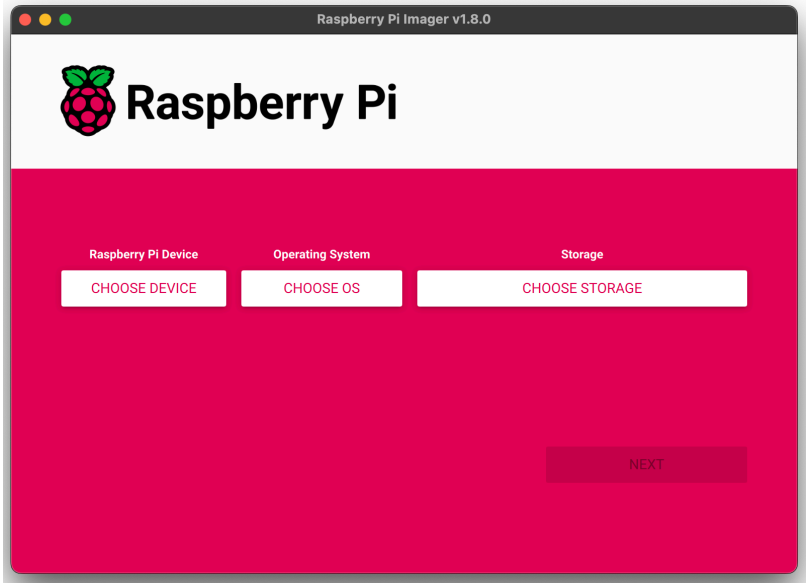
- Raspberry Pi Zero or another model: The heart of your project.
- MicroSD Card: At least 8GB for the operating system and photos.
- Power Supply: A micro-USB power supply.
- Display: A compatible HDMI screen or an LCD display.
- Case: Optional but recommended for protection.
- Wi-Fi Dongle: If your Pi Zero doesn't have built-in Wi-Fi.
- Software: Raspbian OS, a photo slideshow application (like feh), and any additional software for customization.





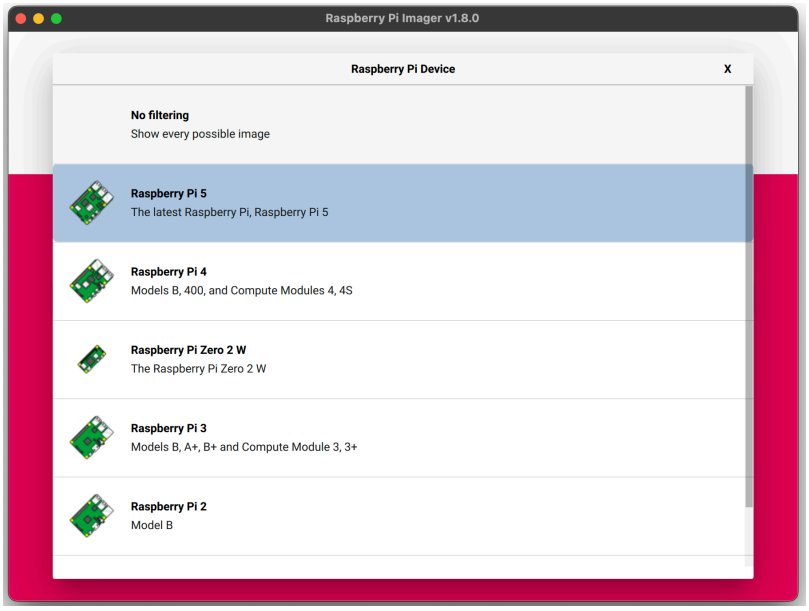
Installing Raspberry OS with Raspberry Pi Imager:

1. Download the latest version from raspberrypi.com/software and run the installer.
2. Once you've installed Imager, launch the application by clicking the Raspberry Pi Imager icon or running rpi-imager.

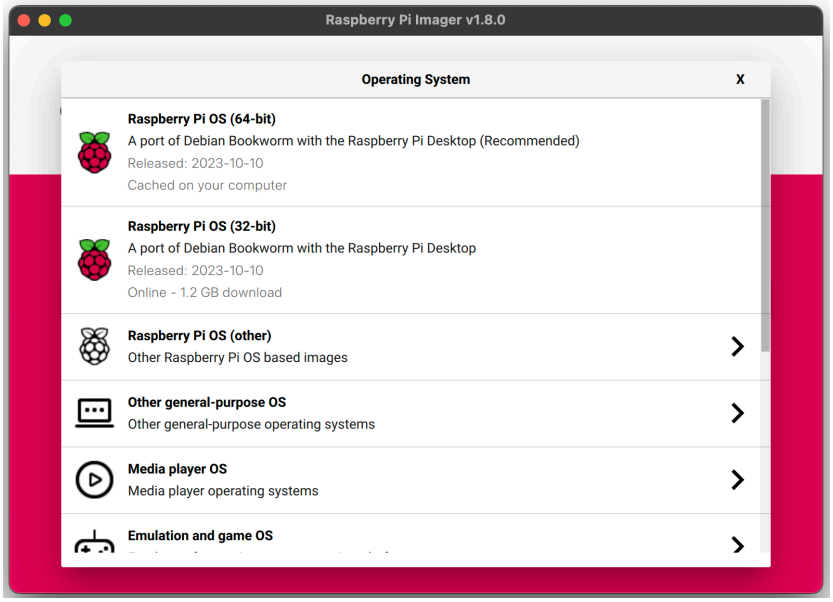


3. Click **Choose device** and select your Raspberry Pi model from the list.

George Washington had a whiskey distillery after his presidency. After his term, Washington started a whiskey distillery. By 1799, Washington's distillery was the largest in the country, producing 11,000 gallons of un-aged whiskey!



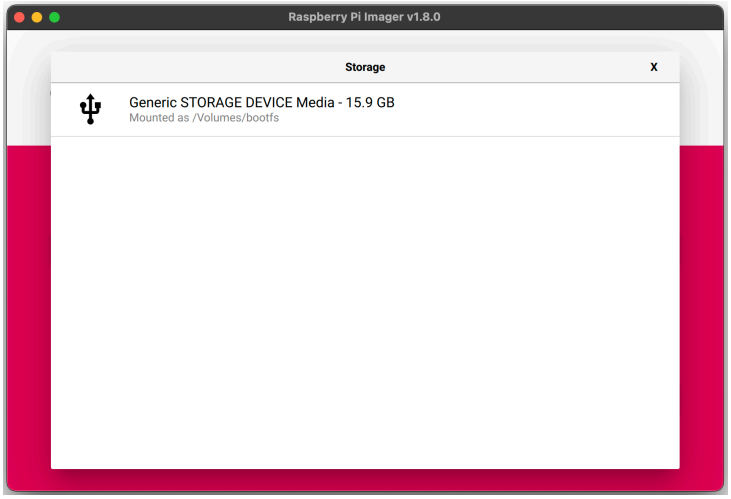
4. Next, click **Choose OS** and select an operating system to install. Imager always shows the recommended version of Raspberry Pi OS for your model at the top of the list.



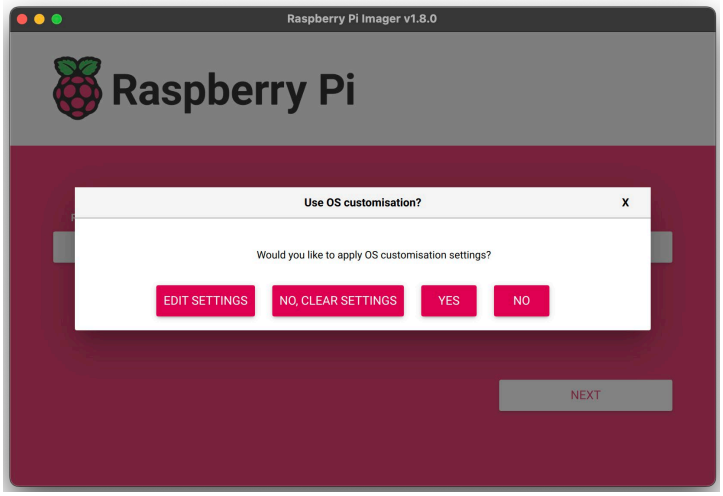
5. Connect your preferred storage device to your computer. For example, plug a microSD card in using an external or built-in SD card reader. Then, click **Choose storage** and select your storage device.

Warning: If you have more than one storage device connected to your computer, be sure to choose the correct device! You can often identify storage devices by size. If you're unsure, disconnect other devices until you've identified the device you want to image.

The Bloody Mary wasn't always called Bloody Mary! First, the popular brunch drink was actually called A Bucket Of Blood. After Bucket Of Blood, it transitioned to Red Snapper and, finally, settled on Bloody Mary.



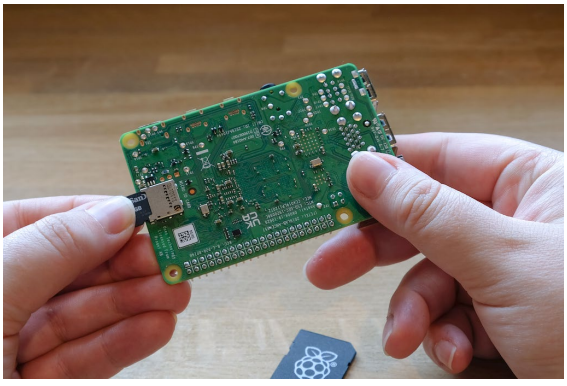
6. Click **Next**.



7. In a popup, Imager will ask you to apply OS customization. It's strongly recommended to configure your Raspberry Pi via the OS customization settings. Click the **Edit Settings** button to open OS customization.
8. If you don't configure your Raspberry Pi via OS customization settings, Raspberry Pi OS will ask you for the same information at first boot during the configuration wizard. You can click the **No** button to skip OS customization.

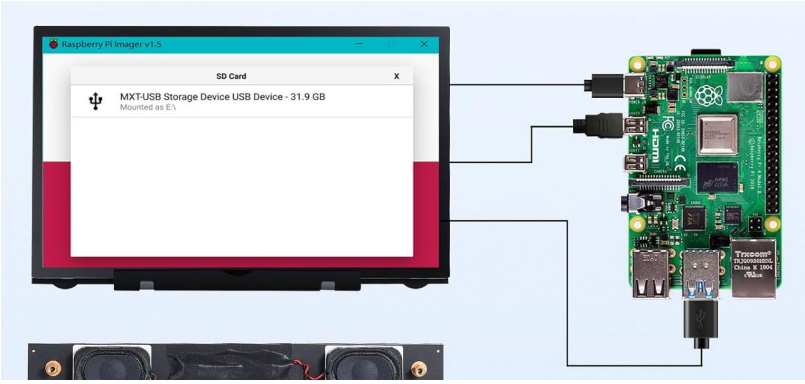
Set Up Raspberry Pi:

After installing an operating system image, connect your storage device to your Raspberry Pi.



Then, plug in any other peripherals, such as your mouse, keyboard, and monitor.

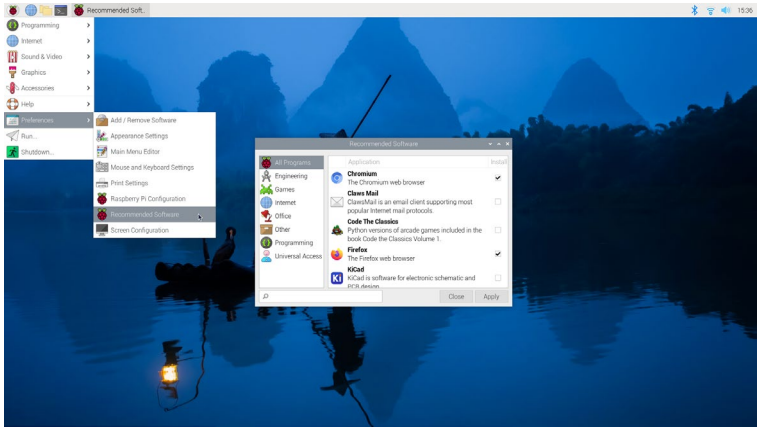
In 1386, a pig was executed in France. The pig attacked a child who would die later from their wounds. The pig was arrested, kept in prison, and then sent to court where it stood trial for murder, was found guilty, and then executed by hanging!



Finally, connect the power supply to your Raspberry Pi. You should see the status LED light up when your Pi powers on. If your Pi is connected to a display, you should see the boot screen within minutes.

Install Required Software:

1. **Select Preferences > Recommended Software** from the drop-down menu, and you'll find the package manager. You can install a wide variety of recommended software here for free.
2. Install LibreOffice

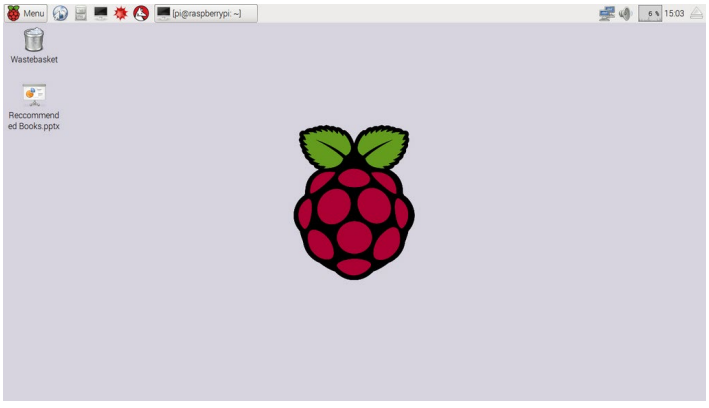


Optional 2: Install feh for displaying images

1. Open terminal
2. Enter *sudo apt-get install feh*

Slideshow:

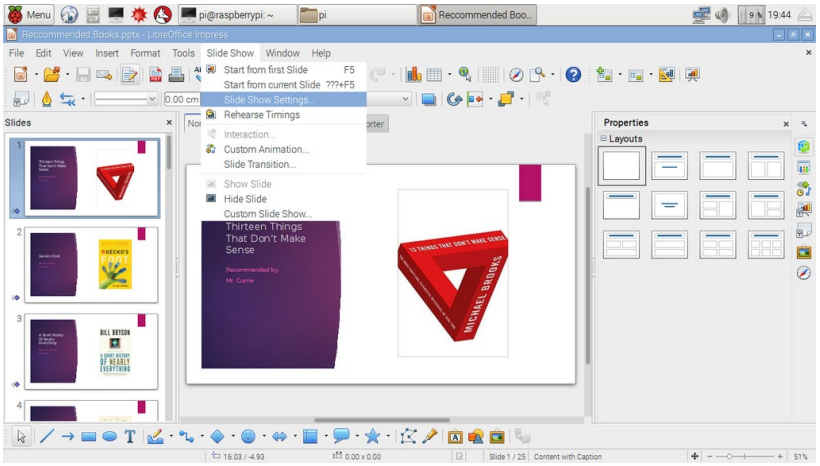
1. Create a slideshow of the items that you want to display
2. Transfer your PowerPoint file to your Raspberry Pi

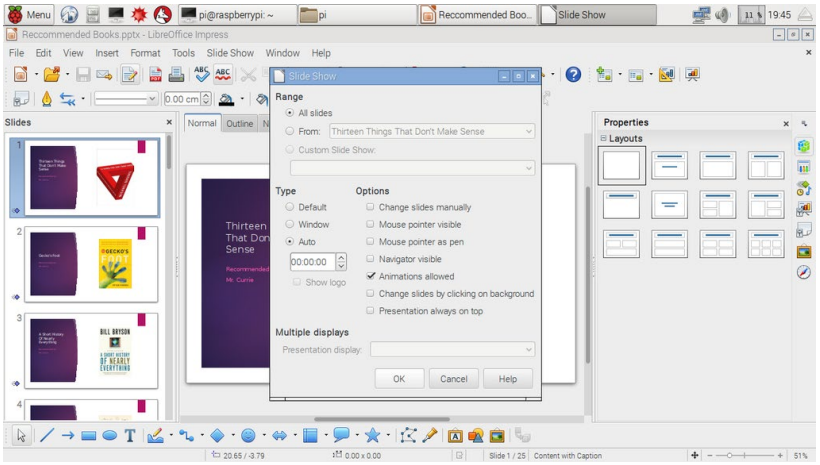


Russia ran out of vodka celebrating the end of World War II! When the war ended, street parties lasting for days took place—until all of the nation's vodka reserves ran out a mere 22 hours after the partying started.

3. Open the file

4. Go to **Slide Show > Slide Show Settings**





Optional 2: Using feh

1. Create a folder for your images, e.g., ~/Pictures/PhotoFrame.
2. Transfer your desired images to this directory using a USB drive or by downloading them directly.
3. Open terminal and use the command

   feh --slideshow-delay 5 ~/Pictures/PhotoFrame

   This command will start a slideshow that changes images every 5 seconds. You can adjust the delay as needed.

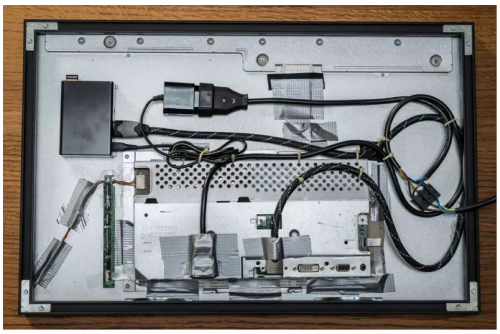
The first official Medals of Honor were awarded during the American Civil War. They were awarded to Union soldiers who participated in the Great Locomotive Chase of 1862.

Sleep Setting for Raspberry Pi:

1. Preferences > Raspberry Pi Configuration
2. At the top of the configuration window, click on "Display"
3. The bottom entry is "Screen Blanking"
4. Click on "Disable"
5. Click "Okay"

Final Touches:

Place your Raspberry Pi and display in a frame or case to give it a polished look. You can also add features like a touchscreen or buttons for manual image navigation.



Conclusion

Creating a digital photo frame with a Raspberry Pi is a rewarding project that combines creativity with technology. Not only can you display your favorite memories, but you can also customize the frame to suit your preferences. With a little effort, you'll have a unique piece of decor that brings your photos to life!

Links to Materials:

- CanaKit Raspberry Pi Zero W (Wireless) Complete Starter Kit - 64GB
- Raspberry Pi Zero W Budget Pack - 8GB
- 7 Inch Raspberry Pi Screen

Raspberry Pi Documentation:

- Install an operating system
- Recommended software
- Prevent Your Raspberry Pi From Sleeping
- How to Make a Raspberry Pi Slideshow!
-

Other Raspberry Pi Projects:

- Raspberry Pi tutorials
- How to build a super-slim smart mirror
- How to play retro games on your Raspberry Pi with RetroPie
- 3D RGB Xmas Tree for Raspberry Pi
- Raspberry Pi Halloween Pumpkin Programmable Kit

In 18th century England, pineapples were a status symbol. Those rich enough to own a pineapple would carry them around to signify their personal wealth and high-class status. In that day and age, everything from clothing to houseware was decorated with the tropical fruit.

Securing Santa

[Adam Newman]

As the holidays approach every year, so does Santa's busy season. Starting this year, he wants to make life easier for himself. The elves are busy stringing up long-term lights around the North Pole, and Santa has an idea to try something new. He's tired of popping outside the workshop in the cold to plug in and unplug the lights. As Santa considers his options and tradeoffs, we can use them to demonstrate several IT concepts.

Five Nines and Failure Modes

Santa's first plan is to use an old school mechanical timer with his current lights. This solves his problem of going outside, but during the dead of winter when it's extremely cold the timer might freeze and fail. Santa wants the system to be simple and might be willing to tolerate some disruption, but should he consider *high availability or five nines*? How reliable should the lights be, and how much money does he want to spend on a better timer with higher uptime? Consider the following table.

Availability %	Downtime per year	Downtime per month	Downtime per day (24 hrs)
99% ("two nines")	3.65 days	7.31 hours	14.40 minutes
99.9% ("three nines")	8.77 hours	43.83 minutes	1.44 minutes
99.999% ("five nines")	5.26 minutes	26.30 seconds	864 milliseconds

Additionally, Santa considers how the system should work when his mechanical timer breaks should it *fail open* or *fail closed*? Should it leave the lights on or off?

If this was related to health and safety (such as a heater for the reindeer stables) Santa might want to weigh uptime more heavily or consider how it the timer would fail differently, but since the lights are for decoration only a timer that's 99.9% reliable is good enough along with a failure leaving the lights open(on).

Smart Devices/Internet of Things(IoT), & Linked Services/Accounts

Spring comes again the following year and some new neighbors have moved in, along with their decorations. Santa sees the penguins next door using their smart RGB lights year-round, while changing the color each holiday. He quickly decides to order some new lights and tasks the elves with setting them up, but what type of lights should he get?

Santa first considers a smart/*internet of things(IoT)* system that works with its own app on a tablet he has. It lets him change the light colors and schedule, along with letting Mrs. Claus make changes too. This seems like a win but creates a new vulnerability at the workshop, but creates a new vulnerability when one of the elves guesses the password and logs on from home, changing the color scheme to green on green on white. Santa resets his password to change the lights back to red, green, and blue.

Santa next considers buying a smart home hub from his favorite shopping website

Tablecloths were originally designed to be used as one big, communal napkin. When they were first invented, guests were meant to wipe off their hands and faces on a tablecloth after a messy dinner party.

and a *linked account* with his light system. He can talk to and get a response from the hub, even when he misplaces his tablet. Santa appreciates the convenience, right up until the system announces the arrival of his third Blu-ray copy of "The Santa Clause". He's embarrassed he keeps losing his favorite movie.

Convenience is great and tempting when you consider a purchase or device in your home. It's always worth considering the trade-offs though, in terms of simplicity, privacy, and where or how the system could fail and a good example of how IT approaches these topics.

Before alarm clocks and before smartphone alarms, there were people called knocker-uppers whose job was to literally knock on people's windows to wake them up in time for work. Up until the 1970s, knocker-uppers used a long stick, soft hammers, rattles or even pea shooters to reach their clients' windows!

You Wouldn't Download a Car

[Michael Garcia]

Roses are red,
Why won't servers share,
You wouldn't download a car—
But torrents are there.

Pieces and peers,
Bits everywhere,
If cars came in seeds,
I'd drive without care.

What are torrents?

Torrents let people share files by downloading and uploading pieces of a larger file directly from each other's computers with a torrent client program. Rather than depending on a single server, torrents split the file into smaller parts and distribute it across multiple users, which takes the load off any one server. This approach makes downloading faster and more efficient for many types of files, both big and small, since having more people sharing will speed things up.

How do they work?

Torrents were created by Bram Cohen (pictured below) in 2001, with the goal of making file sharing faster and more efficient, especially for large files which are still to this day hard to host on centralized servers due to size and bandwidth constraints. Rather than relying on a single server, torrents break files into small pieces, and users (called peers) download and upload these pieces from each other. The more people sharing the file, the quicker everyone can download it and the more reliable the network surrounding that file is. To get started, you download a small file called a "torrent," which when placed in a torrent client connects you to the right pool of peers and from there you are now downloading and uploading that file within that pool. After the file has finished downloading, you are then uploading (seeding) the files to others in the pool until the torrent process is terminated in the client. A torrent can only survive as long as at least one active client is hosting the complete file within the pool, otherwise the torrent is effectively dead.

Aren't they bad?

A common opinion on torrents when someone mentions them is that they are probably used for pirating content or that they're dangerous because of security issues like viruses with the way the files are hosted, that and the legal troubles they could bring. But really, torrents are just another efficient way to share big files by splitting them into decentralized redundant pieces. A lot of people use them for legal purposes like any other tool, like downloading open-source software or freeware, so it's not all bad.

The technical stuff though?

It starts with the ***torrent file*** itself, well assuming you have a client to handle it already such as qbtorrent (open source!). The torrent file contains metadata about the file being shared, including the names, sizes, and structure. It also includes the address of the trackers, which helps peers find each other.

The ***tracker*** data is loaded which then points to the tracker's server that helps coordinate the peers (seeders and leechers) by maintaining a list of who has which

For over 30 years, Canada and Denmark have been playfully fighting for control of a tiny island near Greenland called Hans Island. Once in a while, when officials from each country visit, they leave a bottle of their country's liquor as a power move.

pieces of the file. The tracker itself does not host the file itself but manages connections between peers in the pool.

If all checks out, the ***peer discovery*** process begins as it connects to the tracker (or uses DHT, a decentralized method) to find other peers who are downloading or uploading the file.

Once viable peers are tracked down within the pool, ***piece distribution*** takes place by breaking large file into many smaller pieces, typically a few megabytes each, which are downloaded and uploaded in parallel. Each peer can download different pieces of the file from other peers and upload the ones they have to others and that's what makes this process unique compared to a single pipeline source, it's a tik-for-tat system. By creating this mutual sharing ecosystem, it maximizes download speed while ensuring availability.

Once a peer has downloaded the entire file, they can "***seed***," meaning they continue to upload the complete file to help other peers download it, paying it forward if you would. More seeders, better download speeds and overall, a healthier torrent. Once all pieces have been downloaded, the torrent client assembles the file from the downloaded pieces and verifies its integrity (usually via hash checks). The user can then choose to continue seeding, or the torrent may be removed from the client which would define the user as a "***leecher***", a hit and run with have given the bare minimum to other peers in the pool. Now yes, there are no true negative consequences to leeching, so maybe not as comparable to a hit and run in a parking lot, it's more like returning your shopping cart for the next person or the poor minimum wage worker not having to fetch it across the lot in triple digit heat.

To return the ***shopping cart*** is an easy, convenient task, and one which we all recognize as the correct and appropriate thing to do under normal circumstances, even when raining. To the return the shopping cart is objectively right although it is not illegal to abandon your shopping cart. So, the shopping cart presents itself as a peak example and judgment of character whether a person will do what is right without being forced to do so. No one will punish you for not returning your shopping cart, you won't get fined nor arrested, you won't be hurt. You gain nothing on your own for returning the shopping cart. You must return the shopping cart purely out of the goodness of your heart. You must return it because it is the right thing to do, because it is correct. To return the shopping cart is to seed in your pool of peers, to be a good member of society, do return the cart.

The torrent becomes a ***dead torrent*** when there are no more peers or the file is no longer being shared, the torrent is effectively "dead." Users will have to find the file they are looking for either in another torrent or other means, this is not to say a seeder with the full file can return to the pool thus reviving the torrent to normal operations.

In conclusion

Torrents enables efficient, distributed file sharing, where multiple peers collaborate to download and upload parts of a file until it is fully available to everyone. Where this becomes dicey and questionable, being as anyone can share their own files through a torrent, is when the file should not be shared such as an episode of game of a thrones or the hit game elden ring, the creators of elden ring named the horse you ride "torrent" so when users search for "elden ring torrent", you get results of the spectral steed instead.

The tallest married couple ever recorded was Anna Haining Swan, who was 7'11", and Martin Van Buren Bates, who was 7'9". When she gave birth, Swan's baby was 22 pounds.

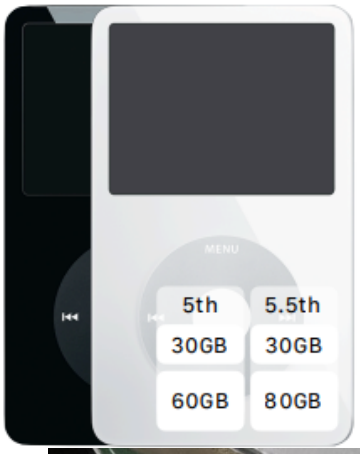
Behind the Click

The landscape and community of iPods in 2024

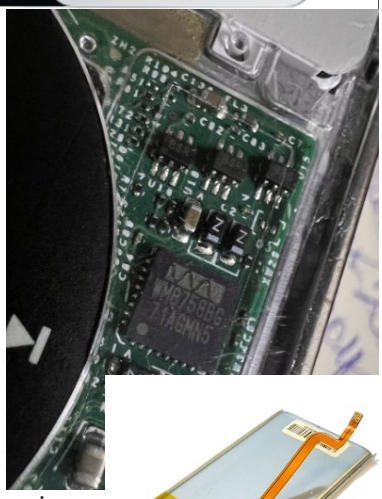
[Skyler Dixon]

Whether it's rising subscription costs, manufacturers eliminating headphone jacks on phones, or efforts to reduce screen time, the appeal of owning and using a dedicated music device becomes more enticing each year. However, instead of discussing the reasons why you might consider switching to an iPod, this piece will focus on the niche modifications and buying tips for those who decide to dive into the world of vintage iPods.

Model:
While there are various form factors and sizes to choose from, the 5th-generation iPod Video stands out as the best overall for usability and ease of modification. Not only does it feature the largest screen of any iPod Classic, but its plastic front screen—while less premium than the metal construction of the 6th and 7th generations—makes it easier to access the internals. Additionally, because of its plastic design, these models are often listed at lower prices. For example, my personal 5th-gen iPod was purchased for around $30.



Sound:
Within the iPod lineup, there are two main camps when it comes to sound quality, corresponding to the two types of DACs (digital-to-analog converters) used: the Wolfson DAC and the Cirrus DAC. It is often argued that the Wolfson DAC offers a superior listening experience, thanks to its warmer soundstage, while the Cirrus DAC is known for its more neutral and tight sound. Ultimately, the choice comes down to personal preference. However, since the last iPod to feature the Wolfson DAC was the 5th-generation model, you might want to consider purchasing that one if sound quality is your primary concern along with customisation.



Battery:
Due to being nearly two decades old, many of the once long-lasting batteries in older iPods begin to fail, losing their ability to hold a charge and some times swelling, which can even destroy the device in the process. This issue is particularly common in unibody, all-metal iPods like the Nano series, where the "black spot of death" often serves as an early warning sign of battery swelling. The swelling pushes the screen into the glass, making it impossible to repair, as most iPods slide out rather than pop out. Fortunately, this is less of an issue with iPod Classics, as they are larger and feature smaller batteries. Even so, battery replacement is relatively easy, and many enthusiasts opt for upgraded batteries with capacities of up to 3000 mAh, allowing for playback measured in weeks rather than hours.

Cars weren't invented in the United States! The first car was actually created in the 19th century when European engineers Karl Benz and Emile Levassor were working on automobile inventions. Benz patented the first automobile in 1886.

Storage:
Storage has always been one of the iPod's strong suits. The base model of the iPod 5, with its 30GB of storage, is plenty for most people. However, I'm not "most people," and those buying iPods in 2024 likely aren't either. The small spinning hard drive inside the iPod is surprisingly reliable due to its compact form factor and age, but it's also quite battery-intensive. This makes flash storage an ideal upgrade. There are several ways to upgrade the storage on an iPod. One option is to go the more expensive route and buy an iFlash card adapter, which costs around $30 for the solo version and $80 for the quad version (which supports up to four SD cards, allowing for up to 2TB of storage). However, keep in mind that the stock iPod firmware can only shuffle around 28,000 songs with the 30GB model, which has 32MB of RAM. The 80GB model, with 64MB of RAM, can shuffle around double that. These upgrade solutions are mostly plug-and-play, but be careful not to make the same mistake I did. I opted for a cheap $5 CF storage card adapter, only to find that it didn't work properly. Trust me—don't waste hours of your life troubleshooting a budget adapter that's just not going to cut it.

Software:
For many people, the best part about buying an iPod in the early 2000s was iTunes. However, that's no longer the case today. Fortunately, you can still use iTunes on Windows, though Apple recently integrated it with Finder on macOS, which makes managing iPods a bit more challenging. As an alternative, you can flash a new operating system called "Rockbox" onto your iPod. This OS allows you to drag and drop music directly onto the iPod, bypassing iTunes altogether. The benefits of Rockbox are significant: it supports true .FLAC files, which iTunes doesn't, as iTunes only supports AAC (Apple's proprietary lossless format). Rockbox also offers customizable themes, so you can personalize your iPod, plus it includes games and emulators for PC ports of old titles that can be run on the iPod. The downsides are minimal, aside from the learning curve and a slightly higher battery drain compared to the stock OS. But in my opinion, the trade-offs are well worth it for the ease of adding and deleting files without the need for iTunes.

In conclusion, despite the rise of smartphones, there are still clear advantages to using a dedicated music device like an iPod. The ability to modify, customize, and upgrade older iPods—whether through replacing batteries, expanding storage, or installing alternative operating systems—offers a level of flexibility that smartphones simply can't match.

For a more indepth guide please vist
https://tinyurl.com/yckdp8ty

King Henry VIII of England had servants who were called "Grooms of Stool," whose job was to wipe his bottom after he went to the bathroom. During his reign, he had all four knighted.

Why Do We Need a VPN

[James Taylor]

Introduction

Over the course of the past several years, we have seen a general trend when it comes to the computer hardware used by faculty and staff: more and more people are using laptops, rather than desktop workstations, as their primary computing device. A need for mobility and flexibility in how we work, especially since the onset of the COVID-19 pandemic, has driven this change but it comes with one big problem: how do we ensure secure, confidential data communication when we are working away from campus?

The Problem (and a solution)

When we are on campus, we can dock our laptops and physically connect to the UNT network with Ethernet, or we can connect wirelessly to the UNT or Eaglenet Wi-Fi networks. We are then directly connected to the UNT network, and we can easily access the shared drives, servers, applications, or other technological resources that we have been granted access to. The UNT network is monitored and safeguarded by our university IT teams and we can be reasonably confident that we can conduct business safely. However, when we are working from home, a hotel room, a coffee shop, or anywhere else away from campus, we must first connect to the local network before we can access the Internet. These networks are not always secure, and you cannot be certain that a bad actor isn't monitoring your network traffic. The solution to this problem, within the context of conducting university business, is to connect to the UNT VPN.

What is the UNT VPN?

The UNT VPN, or Virtual Private Network, allows us to extend the UNT network and make it accessible beyond its wired, physical boundaries (making it virtual). We achieve this by connecting to the UNT VPN server and establishing a point-to-point, encrypted tunnel between it and our device (making it private). Once the connection has been established, the computing resources protected behind the UNT firewall are now accessible and any data transmitted between the device and the VPN server is encrypted. Those of us that work with confidential student or institutional data have a responsibility to ensure that it isn't accessed by unauthorized third parties. With an encrypted connection to the UNT network, even if the Wi-Fi network traffic at your favorite coffee shop is being intercepted and scrutinized by a malicious individual, the data you send and receive will be completely unintelligible to them.

Conclusion

While to some, it may at first seem to be a trivial, unnecessary hindrance to performing remote work, we can now see that signing into the UNT VPN is a crucial part of ensuring the security and integrity of the UNT network and the valuable work we conduct on behalf of the university.

The ancient Romans often used stale urine as mouthwash. The main ingredient in urine is ammonia which acts as a powerful cleaning agent. Urine became so in demand that Romans who traded in it actually had to pay a tax!

Enhancing Online Privacy with Technology

[Jacob Flores]

This article will expand upon the August 2022 edition of the AITS Newsletter where I gave a primer for increasing your online privacy in this digital age. While functional privacy measures, such as controlling what information you share, are of foremost importance, leveraging technology can help bolster your privacy defenses. This article explores various technology-based options to help you safeguard your online presence.

Decentralization

Consider for a moment the following scenario: out of convenience, you exclusively use Google products (Gmail, Chrome, Search, Maps, Calendar, etc). If you "keep all your eggs in one basket," an attacker need only get defeat a security measure once to gain access to a plethora of personal information to be used against you.

The first step: simply becoming comfortable with utilizing various independent technologies will help impede an attacker's nefarious plans.

In 1644, English statesman Oliver Cromwell banned the eating of pie. He declared it a pagan form of pleasure. For 16 years, pie eating and making went underground until the Restoration leaders lifted the ban on pie in 1660.

Web Browsers

Most popular web browsers take seriously the topic of security, but using a browser for sake of privacy is a different matter. Web browsers that help block trackers will prevent companies from building detailed profiles on you. Additionally, consider using a browser that isn't from the same company you use for other technologies discussed later.

Recommendation: Firefox, Brave Browser, DuckDuckGo Browser, Firefox Focus
Advanced Alternative: LibreWolf, Mullvad Browser, Tor/Onion Browser

Search Engines

Traditional search engines often track your searches and browsing habits to serve targeted ads. Privacy-focused search engines do not track your activities or build profiles based on your habits. This can also lend to receiving neutral search results to get a more object view of information available online.

Recommendation: DuckDuckGo, Brave Search, StartPage
Advanced Alternative: Searx

Password Managers

Consider the fact that you keep record of a password for a service while the service provider also keeps a [hopefully] hashed record of that same password to compare against yours while logging in. You may do all you can to secure that password, but news coverage reveals that service owners aren't immune to hackers retrieving millions of passwords after a single successful breach.

Using a password manager reduces the risk of password reuse across accounts and simplifies the process of [re]creating strong passwords and storing them securely.

Some password managers don't even store passwords but will instead generate secure passwords based on a combination of the site you're using, your username, your "master" password, and a counter (to account for password changes).

With the theme of decentralization, I recommend using a password manager that isn't tethered to your web browser of choice. For convenience, instead opt to integrate that password manager via browser extension.

Recommendation: Bitwarden, LessPass
Advanced Alternative: KeePass, pass

Text, Voice, & Video Communication

End-to-end encrypted messaging services ensure that only you and the recipient are privy to the contents – meaning that neither the owner of the service you're using, nor a nefarious hacker, can decipher any intercepted content. Consider encryption the baseline requirement. Non-tracking and/or anonymized services that can't build profiles from meta-analysis are valuable but do depend on your contacts also using that service which means privacy-protecting options here are more difficult to adopt.

Recommendation: iMessage/FaceTime, Signal, encrypted RCS, Brave Talk
Advanced Alternative: Element, Session, Briar, Jitsi Meet

File Storage

Where and how you store your personal files is of particular importance. If you followed my previous recommendation of reducing, or even not storing, personally identifiable information within your online accounts, but keep copies of personal files in "the cloud" for convenience, that personally identifiable information may now be at risk. What do you do?

No matter the solution, opt for encrypted storage. Next, consider what files might benefit from presence in the cloud. Do you really need that copy of your tax return accessible 24/7 from anywhere in the world? In contrast to cloud-hosted options, I'm a proponent of self-hosted solutions which can still be internet accessible.

Self-Hosted: NextCloud, Syncthing
Cloud-Hosted: Proton Drive, Cryptomator + Google Drive/DropBox /etc.

Content Blockers

There are two schools of thought on this front: try and block all content that could lead to companies building accurate profiles about you or feed those companies random data where they build an inaccurate profile about you.

The safe/majority opinion is to simply block all that you can. I, too, would recommend this route to you. However, since companies will try to fingerprint you either way, I personally adopt the subversive route so that any real data that slips by is combined with fake data. I also like that by not blocking all advertising content (but instead loading ads and automatically hiding them via CSS), the site owners who host the information I consume still get revenue for showing me said ads.

Subversive Route: AdNauseaum, TrackMeNot
Blocking Route: uBlock Origin

Operating Systems

I've left this topic for last as you may not find adjusting your operating system a worthwhile venture since the effort expended is more involved than switching search engines or web browsers. However, you can still take measures to increase your privacy without upending your existing workflow.

Microsoft - left in its default state, Windows is not seen as the most privacy respecting option. There are free and open-source utilities out there that help simplify the process to increase your privacy on Windows. Privacy tools like UnderGroundWires found on GitHub don't require install and allow you to easily configure the operating system to respect your privacy a bit more.

Windows: https://github.com/undergroundwires/

Apple - of the mainstream operating systems available, macOS and iOS do lean toward being more privacy respecting than others. This is likely because - for the time being - Apple doesn't monetize your data, but rather is funded when you

The South African railway once employed a baboon. He was a pet and assistant of a double leg amputee signalman named James Wide. Jack was lawfully empoyed signalman for the Cape Government Railway. name wasIn his eight years of service, he never made a single mistake.

purchased the Apple hardware on which macOS and iOS run. Apple offers a discount on Apple hardware for education partners. UNT's link is below.

macOS / iOS: http://store.apple.com/us_edu_45469/

Linux - if the thought of switching to Linux has historically been intimidating, I get it - but modern-day Linux distributions are far more user-friendly than in decades prior. I would encourage you to at least give it a try, and you can do so without needing to go all-in: many Linux distributions offer "Live" images where you can boot your existing computer into Linux without installing anything. Similarly, installing Linux in a local virtual machine (VM) can be a non-destructive way to test things out beforehand.

Linux: Debian, Fedora, Pop_OS!, Linux Mint

Closing Words

Enhancing your online privacy includes a combination of functional practices and technology-based solutions. By incorporating tools like privacy respecting web browsers, search engines, messengers and more, you can significantly reduce your exposure to privacy risks. Remember, while perfect privacy is unattainable, each step you take towards protecting your data is a step in the right direction.

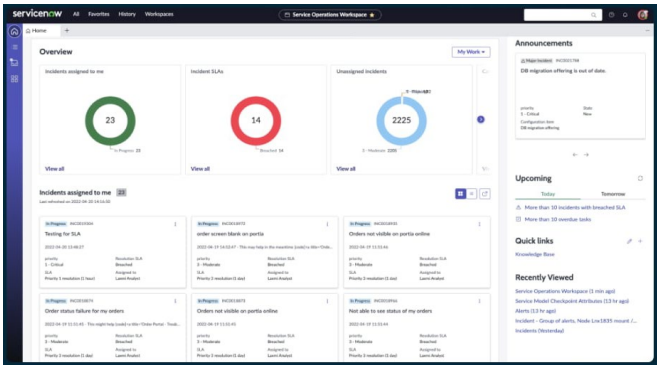
46 BC was 445 days long and is the longest year in human history. Nicknamed the year of confusion this year had two extra leap months inserted by Julius Caesar. This was in order to make his newly-formed Julian Calendar match up with the seasonal year.

Enhancing IT Management with ServiceNow's Service Operations Workspace

[Sharukh Mithani]

IT Staff - Have you ever wished you had a better way to keep track of your work in ServiceNow, prioritize what's important, and quickly find the information you need? The ServiceNow Service Operations Workspace (SOW) is designed to do exactly that. This new workspace is a tool that helps you manage Interactions, Incidents, and Tasks in a smarter and more organized way.

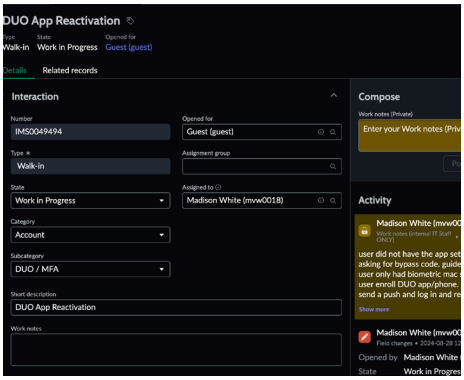
SOW Home Page



The new home page in the Service Operations Workspace provides a streamlined view of your work, making it easy to see everything you need at a glance. Here, you'll find a clear overview of your assigned Incidents, TASKs, SLA statuses, and more. The home page also includes announcements about ongoing changes or outages and a personalized section where you can add important links for quick access.

For Managers and Team Leads, the "Your Team's Work" view allows you to see all active tasks for your team in one place, enabling you to stay up to date on current workloads and make quick adjustments as needed.

Interaction Records



The Leaning Tower of Pisa was never straight. Known for its four-degree lean, this Italian bell tower was constructed in the 12th century. When construction on the second story started, the tower started to lean due to the unstable ground it was built on.

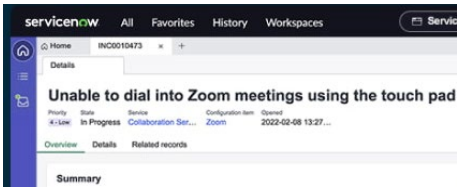
Iceland has the world's oldest parliament in history. Called the Althing, it was established in 930 and has stayed as the acting parliament of Iceland since then.

At the core of SOW is the Interaction Record, a new feature that replaces CALL records as ServiceNow's standard for logging and managing customer interactions. Interaction Records allow IT staff to document customer interactions seamlessly, whether the communication happens over the phone, through ServiceNow chat, Teams, email, or other channels.

These records do more than simply track customer interactions—they make it easy for staff to escalate issues as needed by creating Incidents or Requests directly from the Interaction Record. Additionally, Interaction Records support multiple Incidents and/or Requests for a single interaction, which is especially helpful when customers reach out with more than one issue.

At the UNT Helpdesk, we use an email listener that converts all emails sent to our team to Interaction records, allowing us to take necessary actions directly within ServiceNow.

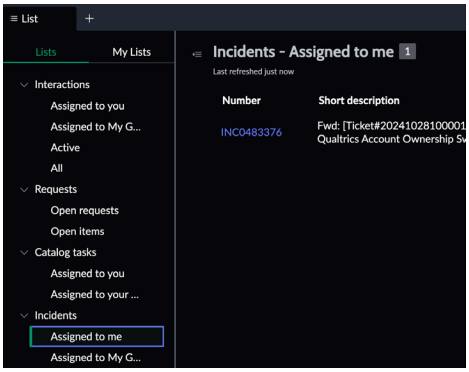
Tabbed Interface



The SOW home page provides an organized, tabbed interface that makes it easy to navigate between different types of tasks and information. With dedicated tabs for individual records, IT staff can quickly access the specific areas they need without clutter or confusion. This streamlined setup allows IT staff to stay focused and efficiently manage their workload, with everything needed just a tab away.

Additionally, related records will open in nested tabs within the main interface (for example, TASK records within an RITM), allowing you to keep work segmented and easily accessible without losing track of your primary tasks.

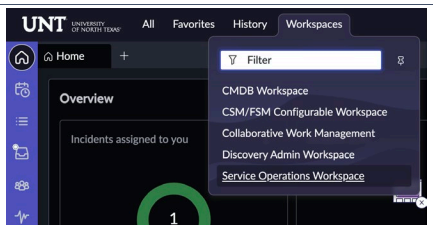
List View



For those who prefer a more traditional way of viewing records, the SOW offers a list view that feels familiar and intuitive. The list view is also customizable, allowing users to create multiple lists, adjust filters, change sorting, and add/remove columns to suit their specific needs. Additionally, customized lists can be easily shared with other users, making it simple to collaborate with your team.

Getting Started with the Service Operations Workspace

Interested in getting started with the Service Operations Workspace? Simply log into ServiceNow, click "Workspaces" at the top, and then click "Service Operations Workspace".



Whether you're a team lead keeping an eye on the big picture or a technician handling day-to-day tasks, SOW has tools that make managing tickets a little simpler. Give the SOW a try, test some if the features, and see how it can help you get things done. And remember, I'm always here if you have questions or need a hand getting started—just reach out! You can contact me via email (Sharukh.Mithani@unt.edu) or on Teams.

The System IT ServiceNow team can help you setup your email listeners or live chat – please submit a ticket on ServiceNow

The 7.62mm rifle bullet was created 129 years ago. The AK47 ammo was developed by the Russian Empire in 1891. Originally designed for the Mosin-Nagant bolt-action rifle, this ammunition is still in use today.

Bluetooth
[William Branch]

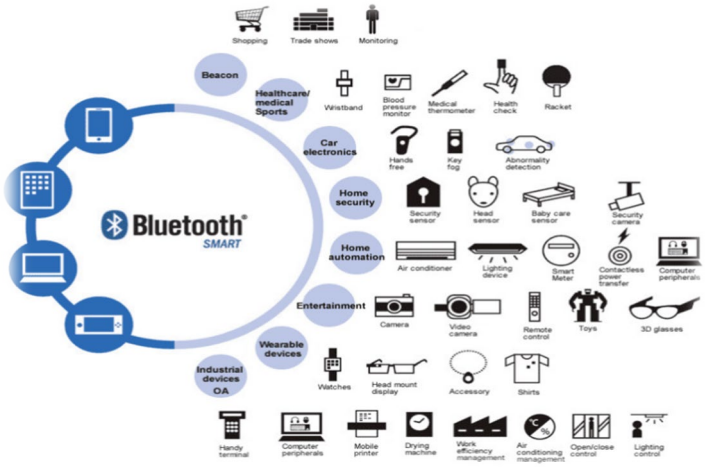
Imagine a scenario where you want to reduce cable clutter and optimize your port usage on your personal computer (PC), so you purchase a wireless keyboard and mouse to replace your existing wired ones. You power on your new wireless peripherals and peruse the accompanying user manual to figure out how to connect these devices to your PC. While scanning the document, your eyes land on the word 'Bluetooth'. You learn more about the pairing process then successfully secure a solid device handshake allowing untethered communication between devices. Now you can wirelessly point, click, scroll, and type through the wonder of Bluetooth technology!

What's so cool about Bluetooth technology is that the benefits and capabilities of this illustrious tech extend across various industrial, scientific, medical, and retail settings. So, how does it work?

Short-range/ Low interference

Bluetooth is primarily utilized in short range (~ 10 to 110 meters) point-to-point communication between devices and exists in two forms:

1. Bluetooth Classic – 79 channels, 2.4 GHz spectrum band for wireless speakers, headphones and car entertainment systems, and
2. Bluetooth LE – 40 channels, 2.4GHz spectrum band for proximity sensing/detection, broadcasting, faster image and data transmission (up to 4x) and improved frequency hopping.



Everything from wearable technology (e.g., smart watches/rings with built-in pedometers and blood pressure/oxygen level monitoring); medical devices; and large-scale automation and mesh networks – such as lighting and temperature controls, inventory tracking, and occupancy sensors – are all optimized and improved through Bluetooth. Bluetooth's reliable data transmissions, advanced security protocols, and low power usage give developers more flexibility and versatility in developing day to day business solutions and consumer products. So, where did it get its name?

Origin of the Name

In 1996, industry leaders from Intel, Ericsson, and Nokia came together to standardize short-range radio technology, or Personal Area Networks (PAN) in a bid to connect different products throughout different industries. Naturally, they needed a name with some pizzazz. Something as catchy or ubiquitous as 'Windows 95' or 'Yahoo'. 'PAN' and 'RadioWire' were the front-runners, but trademark searches showed multiple instances used across the world-wide web, however another name, complete with an interesting backstory and historical figure was used as a placeholder until a trademark was filed.

Turkeys were once worshiped as Gods. The Mayan people believed turkeys were the vessels of the Gods and honored them with worship.

Harald Bluetooth by Daniel-McCloskey/ CC BY

Enter the story of King Herald Gormsson (911 – 985). Who, in 958, united Denmark and Norway which soon became Scandinavia. Furthermore, Herald had a dead tooth. Dark blue/ grey in color. This physical feature led to the nickname "Bluetooth". King Herald's story served as a fitting analogy, so the nickname served as a placeholder – at least until marketing came up with something cooler.

Unfortunately, the trademark filing for the desired name, RadioWire, proved too arduous. 'Bluetooth' became the official name and a ubiquitous method for untethered/wireless connection between electronic devices.

For more information on Bluetooth, the technology that makes it possible, and various real-world applications check out the following links:

"Definition of Bluetooth Versions." PCMAG, www.pcmag.com/encyclopedia/term/bluetooth-versions.

Shivaune Field. "Hedy Lamarr: The Incredible Mind behind Secure WiFi, GPS and Bluetooth." Forbes, 8 Mar. 2018, www.forbes.com/sites/shivaunefield/2018/02/28/hedy-lamarr-the-incredible-mind-behind-secure-wi-fi-gps-bluetooth/.

"Frequency Hopping." Www.wirelesscommunication.nl, www.wirelesscommunication.nl/reference/chaptr05/spreadsp/fh.htm.

AumRaj. "New IoT Platform for Wireless Device- Bluetooth Low Energy." Aumraj, 16 Nov. 2022, https://aumraj.com/new-iot-platform-for-wireless-device-bluetooth-low-energy/

Bluetooth. "Origin of the Name | Bluetooth Technology Website." Bluetooth Technology Website, 2019, www.bluetooth.com/about-us/bluetooth-origin/.

An ancient text called the Voynich Manuscript still baffles scientists. Hand-written in an unknown language, the Voynich Manuscript has been carbon-dated to roughly 1404–1438. Hundreds of cryptographers and master codebreakers have tried to decipher it over the years, with none succeeding in grasping its meaning or origin.

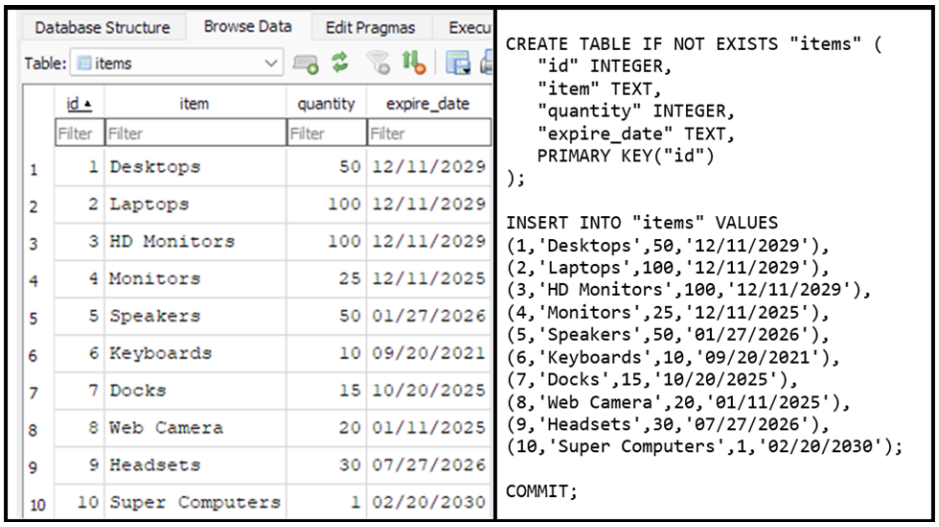
The SQL SELECT Statement

[Matthew Trammell]

It has been a bit since my last article! I hope that you are doing well. Recently, I have been learning SQL, or Structured Query Language. I updated our asset inventory so that I can better query our data and plan for future hardware upgrades. I moved our database from Microsoft Access to Microsoft SQL Server 2022 Express, however; I started with an open-source tool called DB Browser for SQLite (DB4S). Both programs are completely free to download and use. I feel that DB4S is a great tool to begin your journey in SQL. It is easy to create a database structure and jump right in to executing SQL queries that can create records and update fields. Additionally, there is a Browse Data section that allows you to quickly view data within your table and edit fields individually. Once I switched to Microsoft SQL Express, I learned that the data types in DB4S are basic – the supported data types are INTEGER, TEXT, BLOB, REAL, and NUMERIC. Microsoft SQL Express has 35 or so data types! Instead of TEXT, VARCHAR(N) is the preferred data type, where N represents the maximum number of characters that the field can have. There are also data types available for storing dates. I primarily switched to Microsoft SQL Express to make the transition to Microsoft SQL Server easier. My long-term goal is to make a database available online and allow multiple users to update it, query it, and generate reports. My goal today is to introduce you to the SELECT query statement. This is a nondestructive statement that allows you to grab useful data quickly.

Since 1945, all British tanks are equipped with tea-making facilities. Having 30 tanks destroyed by the Germans while English soldiers were taking a 15-minute tea break, British high command realized if tank crews could make a brew on the go, then they wouldn't be susceptible to being caught with their pants down and their kettles out by the enemy.

Before we begin, you can download DB Browser for SQLite from https://sqlitebrowser.org/. Microsoft SQL Server 2022 Express is available here: https://www.microsoft.com/en-us/download/details.aspx?id=104781. In this article I will use DB4S, and the data shown below left. If you would like to follow along in DB4S, you can type the SQL code, pictured below right, in the Execute Query section (right of Edit Pragmas) to create the database structure and data.



THE FIRST TWO COMPONENTS

The SELECT statement has multiple components to it. In this article, I will only highlight three. For a more comprehensive guide, please refer to https://www.sqlite.org/lang_select.html concerning SQL Lite. For Microsoft SQL Server, please reference https://learn.microsoft.com/en-us/sql/t-sql/queries/select-transact-sql. Each version of SQL that you work in may have different keywords and syntax, so it is important to consult the documentation. The first two, primary components answer the "What?" and "From?" questions. Here is the basic syntax for the SELECT statement:

```
SELECT <fields> FROM <table>;
```

Note: SQL is not case sensitive, however; it is common practice to type keywords in ALL CAPS and everything else in lowercase. This primarily makes your SQL code more readable. And it is more fun to YELL!

Moving on, let us walk through some example queries.

Example 1: Select All Fields from Table

```
SELECT * FROM items;
```

Note the asterisk character. This tells SQL to select all fields. Therefore, Example 1 will return a list of all items in the items database.

	id	item	quantity	expire_date
1	1	Desktops	50	12/11/2029
2	2	Laptops	100	12/11/2029
3	3	HD Monitors	100	12/11/2029

etc.

Example 2: Select Specific Fields from Table

```
SELECT item, quantity FROM items;
```

Victorian women wore jewelry made from live beetles, fastened onto pins.

Maybe, I do not want to select all fields. I am only interested in the item and quantity of each item that I have in stock. SQL will still return all items from the table because I am not specifying the third component. I am only looking at the item and quantity fields.

	item	quantity
1	Desktops	50
2	Laptops	100
3	HD Monitors	100

etc.

THE THIRD COMPONENT

The third component to the SELECT statement answers the "Where?" question. This is how you limit the number of items that you want to show.

Example 3: Select All Fields Where Quantity is under 50

```
SELECT * FROM items WHERE quantity < 50;
```

Suppose that I am concerned about items that are low in stock, where the quantity is under 50. The above query answers that question for me.

	id	item	quantity	expire_date
1	4	Monitors	25	12/11/2025
2	6	Keyboards	10	09/20/2021
3	7	Docks	15	10/20/2025
4	8	Web Camera	20	01/11/2025
5	9	Headsets	30	07/27/2026
6	10	Super Computers	1	02/20/2030

THE FINAL COMPONENT

The final component that I would like to discuss is ORDER BY. I like the above query. However, it is confusing and less readable when the quantities are not in order. I can fix that by adding ORDER BY to my statement.

Example 4: Sort Select All Fields Where Quantity is under 50

```
SELECT * FROM items WHERE quantity < 50 ORDER BY quantity;
```

By default, SQL will order the results in ascending order. However, you can add the keywords ASC or DESC to sort items in the direction that you prefer.

	id	item	quantity	expire_date
1	10	Super Computers	1	02/20/2030
2	6	Keyboards	10	09/20/2021
3	7	Docks	15	10/20/2025
4	8	Web Camera	20	01/11/2025
5	4	Monitors	25	12/11/2025
6	9	Headsets	30	07/27/2026

The 1938 radio broadcast of "War of the Worlds" caused widespread panic among listeners who believed it was a real news broadcast.

One final tip to share! Throughout this article, I have been able to keep the SQL statements to one line. However, SQL statements can get longer and more complex. Fortunately, you can split SQL statements over multiple lines and use commas. Remember the image on Page 1, the commas in Example 2, and lastly this rewrite of the SQL statement from Example 4:

```
SELECT *
FROM items
WHERE quantity < 50
ORDER BY quantity;
```

Once I migrated our assets database to SQL and started creating queries, I quickly realized that the possibilities for displaying useful data and generating reports are limitless. I hope that you have found the above information helpful and equally inspiring! To review, the SELECT statement answers the basic questions "What?", "From?", and "Where?". Remember that the SELECT statement is not destructive. Overall, SQL code is very readable. It is like asking your database questions. As I typed this article, I thought of adding additional fields such as cost and the additional SQL queries that I could run having that information. Before we leave, I have a challenge question for you. Good luck!

Challenge question: The code on Page 1 of my article works great in SQLite. However, if you run it in Microsoft SQL Server, it will error out. What is wrong with the code?

References

- DB Browser for SQLite Download: https://sqlitebrowser.org/
- Microsoft SQL Server 2022 Express Download: https://www.microsoft.com/en-us/download/details.aspx?id=104781
- SQLite: https://www.sqlite.org/doclist.html
- Microsoft Transact-SQL: https://learn.microsoft.com/en-us/sql/t-sql/language-reference

How Your Computer Lab Is Managed: Understanding Unified Write Filter & Autologon

[Olivia Cantrell]

Introduction
In our computer labs around campus, we use a combination of tools to ensure that each system is secure, stable, and ready for use. Two critical technologies that help us manage the lab environment are **Unified Write Filter (UWF)** and **Autologon.** In this article, we'll focus on how UWF works to maintain consistency and security across the labs, and briefly explain the role of Autologon in streamlining the login process.

What is Unified Write Filter (UWF)?
Unified Write Filter (UWF) is a security feature that ensures the lab computers remain in a clean, stable state, regardless of what happens during your session. When UWF is enabled, any changes you make—whether installing software, changing settings, or creating files—are stored temporarily in memory, not on the system's hard drive. This means that once the computer is restarted, all changes are erased, and the system is restored to its default configuration. The result is a consistent experience for every user, with no lingering issues from previous sessions.

The Australian military waged war against emus in the 1930s.

How UWF Works
UWF operates by redirecting all write operations (such as software installations or file creations) away from the actual disk and into a temporary memory overlay. Since this overlay exists only during the session, any changes are automatically discarded upon reboot. This not only ensures that the system remains clean and secure but also minimizes the risk of malware or accidental changes affecting future users. Additionally, UWF can be configured in different modes, such as **Enabled Mode** (where all changes are discarded), **Bypass Mode** (for maintenance), and **Persistent Mode** (for allowing specific changes to persist). This flexibility makes UWF an essential tool in maintaining the integrity of the lab systems.

The Role of Autologon
While UWF focuses on system integrity, **Autologon** simplifies the login process. This feature automatically logs users into a predefined account, bypassing the need to manually enter login credentials. Autologon speeds up access to the computers, ensuring that users can get to work quickly without delays. However, it doesn't impact the functionality of UWF; the system is still protected and reset after each session, regardless of how users log in.

How UWF Protects Against Malware and System Corruption
One of the most interesting aspects of Unified Write Filter is its ability to protect against **malware infections** and **system corruption.** Since UWF redirects all changes to a temporary overlay instead of writing them to the disk, any unwanted modifications made by malicious software are instantly wiped away the moment the system is restarted. For example, if a user inadvertently downloads malware or a harmful program during their session, the infection won't have the chance to permanently alter the system. Once the session ends, the system resets to its pristine state, as though the malware was never there.

This makes UWF an invaluable tool for **preventing long-term damage** caused by accidental or intentional changes to the system. Even if a virus or ransomware encrypts files or modifies system settings during a session, a reboot ensures that those changes are erased, maintaining the system's security and integrity without the need for complex recovery or re-imaging processes. In environments like computer labs, where many users interact with the systems daily, this automatic rollback feature is a critical safeguard against potentially damaging software and user errors.

What Should You Know as a User?
As a user, it's important to remember that any changes made during your session

(including downloaded files or installed software) will be lost after a reboot. If you need to keep anything, make sure to save it to a cloud drive, USB stick, or another external storage device. If you experience any system issues, a simple reboot usually resolves most problems, as UWF ensures the system resets to its default state. Always log off properly when you're done to ensure your session is securely closed.

A con artist named Victor Lustig "sold" the Eiffel Tower for scrap metal—twice.

The Future of UNT Bulkmail

[Richard Sanzone]

For decades, the UNT Bulkmail system has provided mass emailing capabilities to the UNT community but the long-term future of the current Bulkmail system is uncertain. Critical data resource dependencies and a legacy codebase create a need to consider the evolution of UNT Bulkmail with an updated system or an equivalent replacement.

What is UNT Bulkmail?

UNT Bulkmail was created by UNT employees back in the 1990s and has been maintained and operated by a small group of UNT information technology employees ever since. The key feature of Bulkmail is the ability to dynamically create a very specific set of recipients based on real-time organizational and academic status. Many UNT professors, department chairs, and even deans use Bulkmail to communicate with a selected audience of UNT students. Examples of recipient groups are [all Marketing majors] or [all freshmen in the College of Engineering]. Bulkmail creates the recipient groups on-the-fly by querying live data in the UNT EUID directory in combination with academic hierarchy information. This method of identifying recipients means that pre-configured address books and email groups are not necessary, and it also ensures that recipient members are up to date with live data.

Bars In Turkey Used To Hire People To Carry Drunk Customers Home In Baskets.

Why is UNT Bulkmail reaching end-of-life?

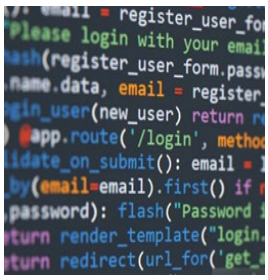
The existing UNT Bulkmail system is rock-solid and continually operates with little maintenance and support. However, UNT Bulkmail has a *critical* dependency on specific data hierarchy in the UNT EUID directories. This data is imported into the EUID systems from EIS and is structured specifically for Bulkmail operations. The long-term availability of the EUID hierarchy data is uncertain given the industry trend to move towards enterprise cloud-based directories such as Azure. UNT Bulkmail will require a massive overhaul of core processes *if* the underlying directory data availability is changed.

Furthermore, the core codebase of Bulkmail is solid but it can be difficult to update due to the legacy design. Future supportability may largely depend on availability of expertise in the technology methods used by Bulkmail processes.

What will replace UNT Bulkmail?

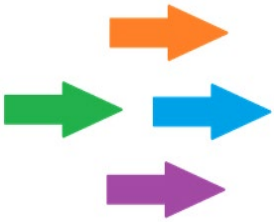
There are several potential approaches to replacing the UNT Bulkmail system:

A. **Build**. The UNT Bulkmail team could build a replacement system. The technology resources are currently available at no cost. This would likely involve a virtual server and heavy use of open-source programming resources such as PHP and Python. The complexity of the project is well within the skillset of the current Bulkmail support team. The time commitment during the initial build project would be the greatest limitation but could be accomplished using spare time spanning several calendar months. However, this approach is highly dependent on the future state of UNT data directory resources (LDAP, Azure, EIS, etc).



B. **Buy**. Utilize a commercial product. There may be products or services in the IT marketplace that could provide similar functionality to UNT Bulkmail. These products could very likely involve a recurring annual license fee and could require an implementation project of uncertain complexity. There is currently a group at UNT that utilizes a commercial communication production that could theoretically provide some dynamic bulk emailing services, but the product would need a much more expansive implementation and would require active data imports that currently do not exist. Furthermore, expanding the implementation of that existing commercial product would involve an increase in the recurring licensing fee.

C. **Disperse**. Utilize a combination of existing resources to perform some UNT Bulkmail equivalent functions. This approach would likely involve a collection of services that can be used piecemeal depending on the specific needs of the message sender. Other services available at UNT, such as Canvas, Exchange, Emma, and Salesforce have communication capabilities that could potentially serve as UNT Bulkmail alternatives. However, this decentralized approach could possibly add support overhead and an inconsistent user experience for both the senders and recipients of messages.



What happens now?

UNT Bulkmail will remain operational and will continue to function until further notice. There are no firm timelines established for any major changes to the underlying UNT systems that Bulkmail uses to operate. Any major change to any of those core systems would likely involve extensive planning which could provide some time to decide on the next steps for Bulkmail. The Bulkmail team is studying possibilities and will be ready for whatever happens next. Who knows – perhaps email will be irrelevant by the time UNT Bulkmail reaches end of life. Social media platforms such as X, Instagram, and Teams are becoming extremely popular methods for mass communication. How about UNT BulkTube or BulkTok?

"Mercy Dogs" Were Employed During World War I To Comfort Wounded And Dying Soldiers.

To AI, or not to AI, that is the question….

[Chirstopher Horiates]

We hear about it all the time. Every company has its own version of it. We are convinced that it will take over our lives, our jobs, and our planet. Of course I am talking about AI, also known as Artificial Intelligence.

Unbelievably, AI is not new. In fact, the earliest AI models started in the 1970's and 1980's. The concepts and foundations went as far back as the 50's and 60's. Of course, those AI models were limited to what they could do and what they could ingest and therefore output. There was really no internet as we have today. Computing power was very limited. Remember that we have more technology on our cell phones than the entire Apollo Mission's Saturn 5 Rocket. From there the 1990's and 2000's brought about Neural Networks and Deep Learning.
Where we are at today is built on all the technologies that predates it. Computing power and the internet make it more powerful. The possibilities are endless with the AI of today and the models and technologies that drive it grow exponentially fast as they learn more and are used daily.

Have you used AI? Have you been fooled by AI? Deep fakes? Read an article completely written by a computer and had no idea? These things are happening, and people are rightfully concerned. As with any technology or product it can be used for good or evil. Unfortunately our society and found it more useful to ruin others lives with AI. From creating fake pornographic images of people to defrauding people for money, AI is unfortunately here to stay.

Jack Black's Mother Was A NASA Engineer Who Helped Save Apollo 13.

Now there are good sides to AI. Personally, I use Copilot which is Microsoft's version of AI. I have it for both my personal account and I was given access to the UNT Copilot to evaluate it. Copilot uses the internet, ChatGPT, Large Language Learning models and other backend technologies to make it a powerful tool.

I have used it to make or start ideas for various personal items for my Cub Scout Pack. I have had it help write speeches or talking points for events. It helped create PowerPoint presentations too. I have it help me make songs, graphics, plan our camping trips and other events. Around the house I have used it to cook, make up recipes with food items, proper mowing, and yard maintenance for my Bermuda grass and so on. One thing I did recently was I used it to take pictures of my Grandfather's WW2 medals and documents we found, and it helped me identify what I had. I was able to learn about historical items that before would have been impossible to do or taken much longer. I was able to tell his story and put it all together.

For work I have used it to write some code and check the code I wrote to make it cleaner. I have used it to generate emails, messages, PowerPoints and bring me up to speed on what I miss in my emails and Teams chats from being out. I am still learning how to use that part, and I still do not trust it to catch everything, and I would rather still look on my own and determine what is important to me.

While I agree that AI can take away from the human touch and a person learning, it really comes down to what you want it to do and what you will let it do. Will it write and entire document for you? Sure, it will. Will it sound like you wrote it? Well, that depends on who might be reading it. For better or worse AI is here to stay. We as a society must decide how much we will let into our lives. Will it replace some jobs? Yes, but to what extent is still unknown. Below you will find this entire article I wrote rewritten using Copilot with a professional tone. Which one do you prefer?

Artificial Intelligence (AI) is a topic of constant discussion in today's world. Every company has its own iteration of AI, leading many to believe it will significantly impact our lives, jobs, and society as a whole. Although AI may seem like a recent innovation, its origins trace back to the 1970s and 1980s, with foundational concepts emerging even earlier during the 1950s and 1960s. Early AI models were limited by the available technology and lacked the extensive internet resources we have today. Remarkably, modern cell phones contain more advanced technology than the Saturn V rocket used in the Apollo missions. The 1990s and 2000s

witnessed the development of Neural Networks and Deep Learning, which set the stage for the sophisticated AI technologies we utilize today.

Today's AI capabilities are built on preceding technologies, enriched by present-day computing power and internet connectivity, making them increasingly powerful. As AI models continue to evolve rapidly, their potential applications grow exponentially. Many people have interacted with AI, often without realizing it. From deep fakes to articles generated entirely by computers, AI's influence is widespread, raising valid concerns. Like any technology, AI can be used for both beneficial and malicious purposes. Unfortunately, some individuals exploit AI to harm others, creating fake images or committing fraud.

Conversely, AI offers numerous positive applications. For instance, I have employed Microsoft's Copilot, an AI tool, to assist me in various personal and professional tasks. Copilot integrates the internet, ChatGPT, Large Language Learning models, and other technologies to provide robust support. Personally, I have used it for ideation in projects related to my Cub Scout Pack, writing speeches, creating PowerPoint presentations, composing music, generating graphics, planning events, and identifying historical artifacts such as my grandfather’s World War II medals. Professionally, AI has helped me write and refine code, generate emails, compose messages, create presentations, and summarize important communications from emails and Teams chats. While I am still learning to fully trust AI in certain aspects, I find it a valuable tool for improving efficiency.

AI does pose challenges, particularly concerning the potential reduction of human touch and learning. Ultimately, its impact depends on how individuals choose to utilize it. AI can certainly draft entire documents and might convincingly mimic an individual's style, depending on the audience. Regardless of these concerns, AI is here to stay, and society must determine the extent to which we integrate it into our daily lives. It is likely that AI will replace some jobs, but the full scope of this change remains uncertain.

Calvin Graham Enlisted In The U.S. Navy During World War II — At The Age Of 12.