

OTTAWA PC NEWS

Volume 43, Number 10 December 2026

HAPPY HOLIDAYS!

Installing Linux on a Smartphone – Part 1

by Alan German

As noted in an earlier article (Linux Phones, https://opcug.ca/Articles/2606NEWS.pdf), one option for installing Linux on a smartphone that is nominally applicable to hundreds of devices is postmarketOS (https://postmarketos.org). The present series of articles will reflect my experience in installing this operating system on a Motorola Moto G6 smartphone.

> Spoiler Alert – The installation process is relatively straightforward but the end result is unsatisfactory in terms of being able to use the phone as a phone (e.g. making and receiving calls and text messages.) Nevertheless, installing postmarketOS on an old Android device provides a useful learning platform.

The postmarketOS distro is based on Alpine Linux with some degree of support being listed for more than 700 devices. The distro features Stable (point release) and Edge (rolling release) channels, and offers a number of user interfaces including Phosh and KDE Plasma. Main and Community devices are generally well supported with pre-built, ready-to-install images being available. Other devices, in the Testing or Downstream categories, such as the Moto G6, require users to build installable images using software tools with source code that is specific to their devices.

One major limitation for this latter methodology is that open-source drivers for certain hardware components are not always available such that critical user features, e.g. the ability to place telephone calls and to send and receive text messages, may not be functional. This is recognized in the introductory material provided by postmarketOS that states "In its current stage, postmarketOS is for Linux enthusiasts... If you are looking for an OS that is as usable as iOS or Android, this project is currently not for you." Regrettably, this proved to be only too true for the Moto G6 variant.

If you are looking for an OS that is as usable as iOS or Android, this project is currently not for you.

There are several preliminary steps that must be undertaken before postmarketOS can be installed on the smartphone. These include unlocking the phone's bootloader, backing up (optional) the original Android system, and installing additional software on a Linux-based PC.

Unlocking the Moto G6's bootloader

The first requirement for the Moto G6 is to unlock the bootloader. Motorola provides a rather tortuous process to accomplish this with dire warnings that such an action will void the warranty and perhaps incur additional perils. Since the phone is no longer receiving support, the negation of a non-existing warranty is of no concern. Similarly, the remaining warnings are not very credible and act as no real deterrent.

The process for unlocking the bootloader of the Moto G6 is essentially the same as was followed earlier for its older sibling, a Moto G3 (see: Unlocking the bootloader of a Moto G3). The other recommended step is to create a disk image on the installed Android system using TWRP (see: Install Custom Recovery Software on a Moto G3). Installing Linux will remove the original Android operating system from the phone so the backup image may be used to restore this OS should this be deemed necessary at some point.

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Next Monthly Meeting: WEDNESDAY, December 9th, 2026

Next Meeting

Wednesday, December 9th

The Dark Web - Revealed

Speaker: Alan German, OPCUG

The Internet has multiple levels in which websites may be accessed. Hidden to most users, the Dark Web is usually considered to be dangerous territory and a hangout for hackers and criminals. However, there are some areas of the dark web that are used for more ethical purposes. Access to the dark web is restricted and requires special software to penetrate layers of security and encryption. In general, it's a scary place but, don't worry, OPCUG has you covered. We will take the chances and browse the depths of the dark web on your behalf!



Alan German has a powerhouse hardware platform and all the software tools that are required to shine a light on the Dark Web.

This meeting will be via Zoom video conference.

Join us at https://tinyurl.com/opcug-meeting. The Zoom link will be live at 7:15 pm. The meeting will begin at 7:30 pm.

Correction

There was a typo on page 6 last month. ***Photomyne*** *and its URL (https://photomyne.com/) were corrected. The online newsletter has been updated.*
If you view the newsletter in a browser, please ***refresh the page*** *to load the updated newsletter.*

Brigitte Lord
Editor

Coming Up…

18 Nov
Next weekly Q&A session

13 Jan
Touring the Web (JB Burke, President, Prescott Computer Society)

10 Feb
3D Printers (David Swain, OPCUG) (details to follow)

10 Mar
Members' Favourites Night
We'll be looking for presenters! (details to follow)

14 Apr
Virtualization (Mark Schulman, Central Florida Computer Society) (details to follow)

12 May
Linux on Phones (Alan German, OPCUG) (details to follow)

10 Jun
Annual Pizza Night (details to follow)

See all our scheduled events here.

OPCUG Presentations at the OPL:

Saturday, 21 Nov, 2:00 pm - 3:30 pm
Restoring old photos (Lynda Buske)
Nepean Centrepointe Branch

Monday, 23 Nov, 6:00 pm - 8:00 pm
Keeping passwords safe (Chris Taylor)
Emerald Plaza Branch

Friday, 27 Nov, 2:00 pm - 4:00 pm
Keeping passwords safe (Chris Taylor)
Centennial Branch



See all our presentations with links to the OPL here.

CALENDAR

Event	Date	Time and Venue
Next Monthly Meeting	Wednesday, December 9th	7:30 pm via Zoom video conference: **https://tinyurl.com/opcug-meeting** See all our scheduled monthly meetings here.
Next Q&A Session	Wednesday, November 18th	Q&A sessions are held weekly except on monthly meeting nights. Join us most Wednesdays at 7:30 pm for weekly Q&A.
Next OPL Presentation	Saturday, November 21st	See all our presentations with links to the OPL here.

PRODUCT REVIEW

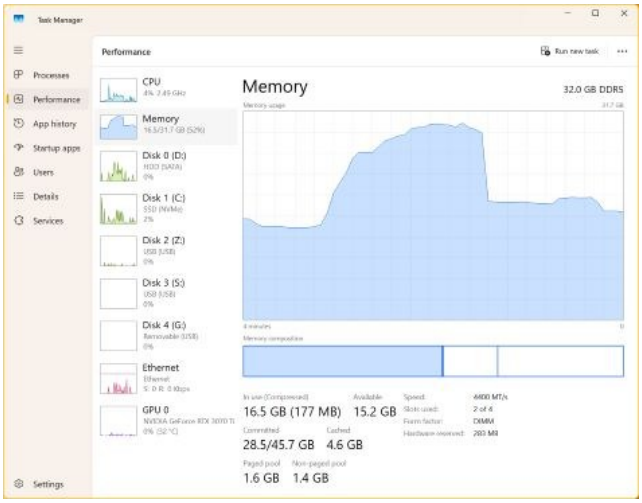
AppControl—a better Task Manager

by Chris Taylor

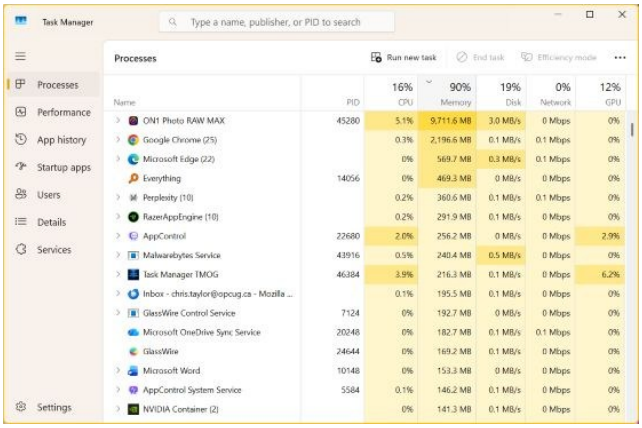
When it comes to tracking down performance problems in Windows, Task Manager has been the go-to tool for the last 30 years. Yes really, Task Manager first appeared in Windows NT 4.0, released to manufacturing August 24, 1996. It allows you to see resource usage for memory, CPU, and disk activity. It has remained largely unchanged through these 30 years.

Task Manager is great for showing:

- a rolling graph of resource usage totals over the last 4 minutes, and
- a chart with the specific processes' resource usage right now.



Aggregate resource usage over 4 minutes



Resource usage right now

Task Manager doesn't provide details about what processes were consuming excessive resources a few minutes or a day ago. This makes it much more difficult to track down short-lived performance problems.

AppControl to the rescue

Enter Jon Hundley. Jon co-founded three companies: ManyCam, maker of virtual webcam software in 2006; GlassWire, a network monitoring and firewall control program in 2014; and AppControl, which released the free namesake program in February 2026.

AppControl's main advantage over Windows Task Manager is that it keeps a rolling, per second timeline of CPU, GPU, memory, disk, and temperature activity, by process, for the last 3 days. This helps you to diagnose intermittent problems that occur while you are away—such as an overnight Windows Update, a short CPU spike, unexpected disk activity, or a high-temperature event.

AppControl gives you a busy screen—necessitated by the wealth of details and control over what is shown. You can:

1 – choose the resource to monitor;

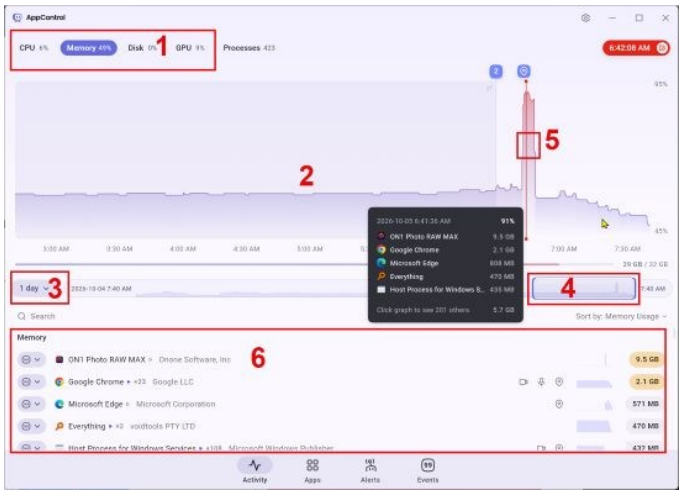
2 – see the rolling graph of resource usage over time;

3 – choose the period to display;

4 – use the slider to view resource usage not in the current window;

5 – click a time in the graph; and

6 – see processes and their resource consumption at that point in time.



The last two bullets— selecting a point of interest on the graph and displaying the resource usage at a time in the past—is what really sets AppControl apart from Task Manager.

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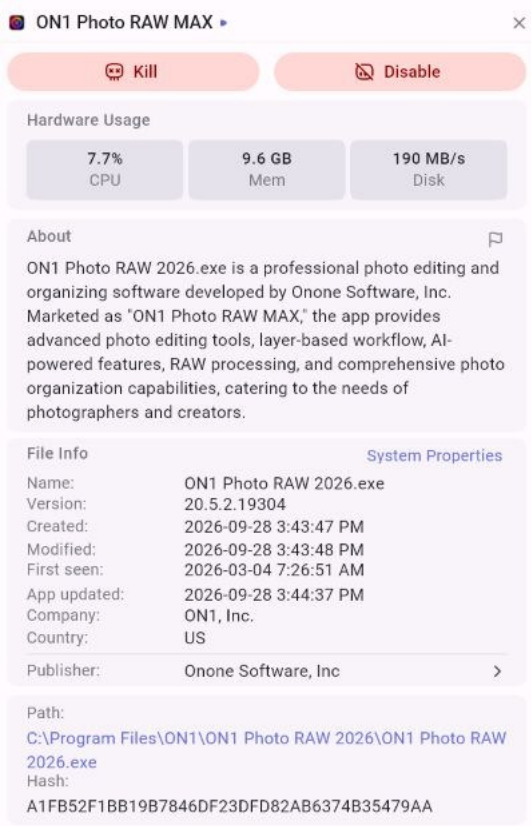
AppControl *(Continued from previous page)*

AppControl includes other significant capabilities. It can alert you to various events:

- when a program requests access to your webcam, microphone, or location;
- when a program is run for the first time;
- when a suspicious app runs;
- changes in services installed on your computer;
- when a program runs that is not digitally signed; and
- when a program silently updates in the background.

If you turn on all possible alerts, you will get a lot of pop-up notifications. Fortunately, you can choose which categories of alerts you want to have pop up. If you turn off any pop-up alerts, you can still access the complete list of alerts from within the program.

As well, you can find detailed information about any processes, which can help when it comes to unfamiliar programs.



Details about programs that have run on your computer

With AppControl, you can kill processes and prevent them from running in the future. This can be particularly useful if you get infected with malware.

AppControl 1.2

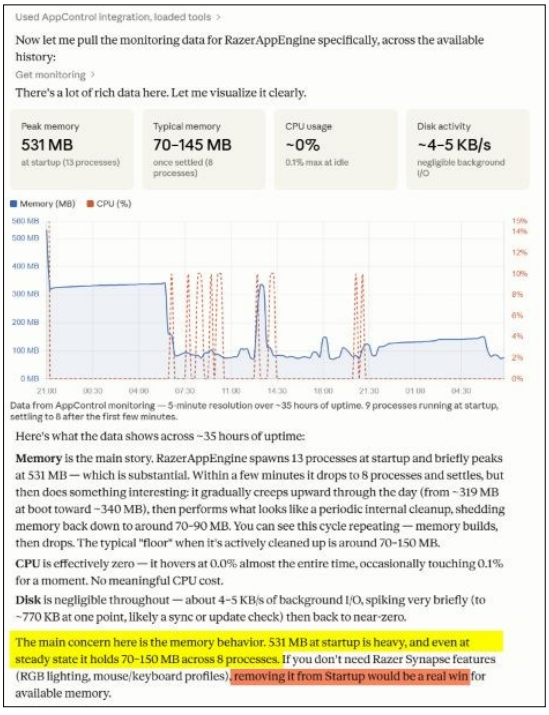
Released in April 2026, AppControl 1.2 added a significant new capability—connecting AI agents like Claude AI, Cursor, Windsurf, and Gemini directly to resource history gathered by AppControl. I found the integration with Claude AI relatively straight-forward. Detailed instructions are at https://www.appcontrol.com/mcp/.

I can now ask Claude AI questions about performance issues and events that have been happening on my computer. Just some examples:

- When I unlocked my idle PC just now, the temperature of my PC was hot. What was going on?
- What apps accessed my webcam in the past 24 hours?
- What programs were updated recently on my computer?
- What apps currently auto-starting with Windows should I remove from auto-starting to speed up Windows and only start when I need them?
- Brother ControlCenter4 is auto-starting with Windows. What is the resource usage impact including memory, CPU, and disk?
- Give me a PowerShell script to list all scheduled tasks from Lenovo on my computer, sorted by last run.

Sometimes, queries provide an incredible level of detail. For example

- RazerAppEngine.exe is auto-starting with Windows. Query AppControl to find the impact on system performance over time including CPU and memory.



Resource usage analysis of a program over time

(Continued on page 7)

APCUG ARTICLE

BATTERY UNIVERSITY AND LITHIUM-ION BATTERY LIFE

The BatteryUniversity.com (BU) Website, provided by the CEO and founder of a battery testing company, provides useful info about lithium-ion batteries. Learn how to understand an important BU graph on battery longevity.

By John Krout, Potomac Area Technology And Computer Society (www.patacs.org)

Introduction

A website called Battery University came to my attention via an article republished in our user group newsletter article during 2024. I was interested to read how another tech writer reached conclusions about charging Lithium-ion batteries to maximize useful life.

Like I did in 2021, that writer offered a recommendation for a low level limit and a high charge level limit. The author obtained his recommendation from another article published by a different author. I have not been able to locate that other article.

The author of the article I read did say the earlier author cited the website of **Battery University** as his source material. So, I spent some hours reading the material on that website pertaining to Lithium-ion batteries.

How lithium-ion batteries behave

All lithium-ion batteries charge on an S curve, with three sub-ranges.

Note the discussion below of heat during charging. Heat is the mortal enemy of lithium-ion batteries, and does a lot to shorten the battery life.

Charging from 0% to about 20%, the lower sub-range, takes a long time and generates a lot of battery heat. The curve of accumulated battery charge per time unit increases slowly. Compared to the next sub-range, the graph of charging over time for this subrange can be called flat. Charging in this sub-range also shortens battery life.

Charging from 20% to about 80%, the middle range, delivers almost the entire power of the charger to the battery and generates far less battery heat. That curve of accumulated battery charge per unit of time is quite steep.

The upper sub-range, from 80% to 100% of battery capacity is quite flat, and does not affect the voltage available in the battery. It does add energy in the form of current by delivering electrical current to the battery and, like the 0% to 20% range, generates a lot of heat in the battery. Some battery makers now indicate the end of the middle range and start of the high range is 85%, not 80%. However, that 85% appears to be a minority opinion.

Avoid heating the battery

Avoiding battery heat while charging helps keep your battery healthy for a long time. Charging only in the middle range achieves that goal.

Also, charging only in the middle range takes less time than charging from 0% to 100%. Charging only in the middle range means you charge more frequently than if you allow the battery to reach say 0% before charging and 100% during charging. However, the duration of charging across the full range is much greater because the lower sub-range and upper sub-range portions are much longer per unit of time than charging in the middle sub-range.

During my January 2024 presentation on **Extending Smartphone Battery Life**, I recommended charging and discharging in the middle range, where the danger of heat is avoided. I call that the 80-20 rule. That advice applies to every lithium-ion battery, from a tiny smartwatch battery to a fairly big battery of an electric bicycle and a giant battery in an Electric Vehicle.

The article in our newsletter provided a recommendation to use a portion of the middle range, specifically **80% to 40%**. No reason was given. I looked specifically for that charging range on the Battery University website. I found nothing on the website to support that recommendation. Maybe the 40% number was a typo.

I did find a very useful way to compare the test results provided by Battery University.

The middle range is linear for both charging and discharging

Within the 20% to 80% charge range for lithium-ion batteries, both charging and discharging is **linear**, or so nearly linear that it is useful to think of it as linear. The charging rate and the discharging rate are unlikely to be the same, but both can be thought of as linear. This linear characteristic provides a good way to directly compare results of various tests.

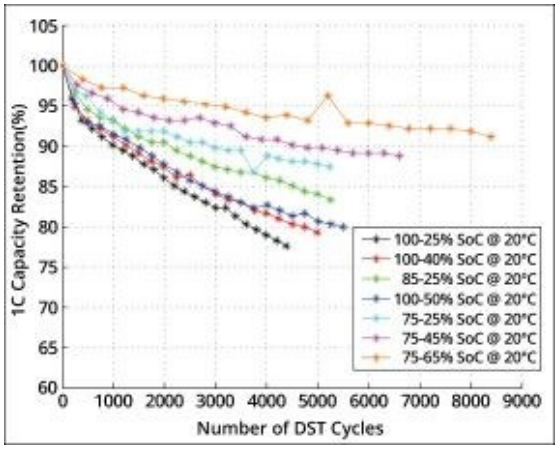


Illustration 1

The various tests results are reported by Battery University in a graph (**Illustration 1**). Many involved sub-ranges of the 20% to 80% linear range.

(Continued on next page)

Battery Life *(continued from previous page)*

A few involved charging all the way to 100%, which the graph shows leads to a steep decline in battery capacity.

The graph originally appeared on the following Web page: https://batteryuniversity.com/article/bu-808-how-to-prolong-lithium-based-batteries

The linear discharge and charging behavior of lithium-ion batteries in the 20% to 80% middle range, plus graph info about some tested sub-ranges of the middle range, enable us to reach some very useful conclusions.

During the tests, the charging and discharging cycles were repeated many times. The graph depicts the decline of battery capacity over those repetitions. However, the graph does NOT show the time required to do one cycle of charging and discharging, and that time varies a lot depending on the sub-rage width.

More about the graph

On the Battery University graph, ***the 80% to 40% portion was not tested***. *A sub-range of 75% to 25% was tested.*

Discharge rate can vary. Sometimes I use my Windows 10 laptop to do almost nothing. I find that the discharge rate is about 1% per 8 minutes. When I am running a complex application such as watching YouTube videos using a Web browser, the discharge range grows to about 3% per 8 minutes. Nonetheless, for a given level of use, the discharge rate is also linear.

There are two acronyms in the graph. **SoC** stands for State of Charge. That means the point at which battery charging stops (the high end) and when it starts again (the low end). The combination of the top and low ends I call a sub-range. The Web page defines **DST** as Dynamic Stress Tests. I believe that means repeated charging and discharging cycles of a Lithium-ion battery through the identified States of Charge.

The horizontal axis is the number or DST Cycles, meaning repetitions. The vertical axis shows the battery capacity percentage during each test. All the tests show that battery capacity declines as the DST cycles are repeated.

Clearly, the graph by itself has no time axis.

Note the color key in the graph. The yellow line represents the 10% wide sub-range test. The light blue line shows results of the 50% wide sub-range. I will use those two as examples.

Charging and discharging times are linear

Since my interest involves time, and the graph does not incorporate the time duration, I decided to find a way to understand the graph in terms of relative time.

Assumptions lead to duration comparisons

We can make a simple assumption and derive useful battery behavior duration info from the graph.

The first key is to use the relative duration ratio of each sub-range cycle. In the middle range, a 10% wide cycle should last only one-fifth the time of a 50% wide cycle subrange cycle.

The second key is the number of repetitions of the cycles indicated in the graph for each sub-range.

The yellow line represents the number of charge/discharge cycles using the 10% wide sub-range. On its face, that appears to involve the least battery capacity decline. About 8,400 cycles were done, and the battery capacity declined by 8%, from 100% to 92%.

Each 50% wide cycle takes five times as long as a 10% wide cycle. The test of that 50% sub-range is shown in the light blue line. About 5,300 cycles were done, and the battery capacity declined by 13%, from 100% to 87%.

I decided to compare the ***time-based*** *impacts of each duty cycle test* ***by using a variable N*** *to describe the number of cycles per day for the 10% wide sub-range.*

For example, **assume N=10 cycles per day for the 10% wide sub-range**. The 8,400 cycles would be completed in 8,400/N days or 840 days, or 2.3 years. The rate of battery decline for the 10% wide cycle is 8% /840 per day or **3.48% per year**.

Because each 50% wide cycles takes five times longer than a 10% wide cycle, the 5,300 cycles would take 5,300/(N/5) days, or 2,650 days or 7.2 years. Again, assuming N=10, the rate of battery decline per day is 13% /2,650, or **1.8% per year**.

In the table below, I provide those two analyses, as well analyses of two other subranges tested by Battery University and reported in the graph.

No matter the value of N in real life, the time-oriented results shows that the lowest reduction of battery capacity per year is achieved using the sub-range of 25% to 75%.

Sub-Range width	Graph Color	Number of cycles in graph line (approx.)	Battery capacity at graph line end point (approx.)
10% (75-65)	yellow	8,400	92%
30% (75-45)	purple	6,500	89%
50% (75-25)	light blue	5,300	87%
60% (85-25)	green	5,200	83%

Table 1

(Continued on next page)

Battery Life *(Continued from previous page)*

I think the battery capacity loss per year is very valuable info. The lowest loss per year is when using the 50% wide sub-range for charging and discharging.

Some conclusions

In the real world, battery experience varies. Ambient temperature variance plays a role.

Nonetheless, I am glad that the closest tested range (75%-25%) to what I recommended in January 2024 (80% to 20%) does provide a very low rate of battery capacity decline per year.

The battery capacity does decline over time, but is not even close to dead at the end of the test cycles conducted by Battery University.

Wrong things to do

Leaving your laptop or other battery-powered device plugged into the charger all the time can lead to a disastrous result. Learn from my personal mistake.

I did constant changing of my laptop battery for a bit more than 3 years with my current laptop. That battery did lose capacity almost 20% of its capacity.

When I delivered a presentation on a Windows laptop battery capacity history report for PATACS, one of the audience members mentioned that he kept his laptop battery on its charger constantly. His laptop battery not only lost capacity but ***also expanded its size,*** *which ultimately bent the entire laptop and risked destruction of its expensive components.*

Battery expansion too is a real risk of charging heat. I replaced my laptop battery to avoid that issue.

Now, when I am not using my laptop, I shut down the laptop and disconnect the charger.

Don't leave your portable digital devices in the sun. Never connect your smartphone to an air vent holder in a car in the winter. The vent heat will ruin the smartphone battery.

ABOUT THE AUTHOR:

John Krout is a retired software developer. He has been writing about and delivering presentations on interesting uses of personal computers since the early 1980s. In the 21st century, as digital tech became more powerful and widespread, he has also been writing and delivering presentations about interesting uses of smartphones, tablets, digital music, digital photography, Electric Vehicles (EVs) and Pluggable Hybrid Electric Vehicles (PHEVs). He lives in Arlington Virginia.

♦♦♦

AppControl *(Continued from page 4)*

It's worth noting that a free Claude AI account provides relatively few queries per day. While this can be a bit annoying…it is free.

It's important that a program monitoring resource usage be, itself, nimble. AppControl shines in this regard. When its graphical window is closed, it consumes almost no resources. When you open it, CPU and/or GPU use can increase somewhat because it is drawing graphs.

Bottom line:

AppControl
https://www.appcontrol.com/
Price: Free
System requirements:
Windows 10 or greater

*(read all OPCUG reviews **here**)*



BOGO Membership Drive *(visit https://opcug.ca/join-or-renew/)*

Let's grow the OPCUG

Once again, the Board of Directors has decided to offer a "two for one" special to new members. Sign up for a $20 membership by March 31st, 2027 and get an additional year at no additional cost. Please spread the word and help the OPCUG grow.

As well, the OPCUG finances remain in excellent shape and membership renewal dues are being waived. All members in good standing on March 31st, 2027 will have their membership expiry date extended by an additional year at no additional cost (if you do not know your membership expiry date, please contact the membership chair at membership@opcug.ca before sending payment).

BO GO **Buy One, Get One Free!**

Join OPCUG before March 31st
Pay $20 for one-year's membership
We will give you an additional year's membership at no further cost!

Already an OPCUG Member?

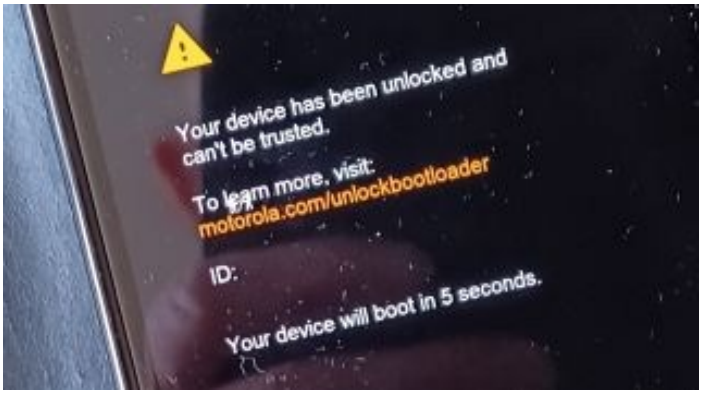


Do not renew your membership !

Your membership expiry date will be extended by another year at no cost

Linux on Smartphone *(Continued from page 1)*

The net result of unlocking the bootloader is yet another "badge of honour" being displayed when the phone is rebooted. In this case, the warning message is: "Your device has been unlocked and can't be trusted."



Software requirements

The postmarketOS website has considerable information about the distro, multiple references to installation instructions, and some specific details for the Moto G6 (codenamed motorla-ali.) In particular, for the Moto G6, custom image files for postmarketOS must be built using the pmbootstrap software which requires installing git. In addition, adb and fastboot are required in order to flash the postmarketOS images to the phone.

Install Git, clone the pmbootstrap repository, and install pmbootstrap

Git is a distributed, open-source, version-control system that was developed by Linus Torvalds in 2005. The code base for postmarketOS, including pmbootstrap, is maintained in a git repository. We need to install git and then clone the pmbootstrap repository to our computer's hard drive using the following commands:

```
sudo apt install git
sudo git clone https://gitlab.postmarketos.org/
postmarketOS/pmbootstrap.git
```

Having started from the home directory, git will clone the repository to a folder named pmbootstrap. We can now install pmbootstrap using:

```
cd pmbootstrap
 mkdir -p ~/.pmbootstrap
 cp -r "$PWD"/* ~/.pmbootstrap/
 mkdir -p ~/.local/bin
 ln -s ~/.pmbootstrap/pmbootstrap.py ~/.local/bin/
 pmbootstrap
```

Note that this creates a hidden folder named .pmbootstrap in the home directory that pmbootstrap uses to store its configuration and scripts. A second hidden folder named .local/bin is used to store the user-level executable files that will be generated in the build process.

The symbolic link (ln) created above allows the Python script, pmbootstrap.py, to be run simply by using the command pmbootstrap; however, we also need to add /home/toaster/.local/bin (where toaster is my username) to the path variable in order to facilitate this.

The environment variable is modified by editing the bash configuration file, scrolling to the end of the file, and adding the path to the folder as follows:

```
xed ~/.bashrc
export PATH="/home/toaster/.local/bin:$PATH"
```

We can now save the changes to the file, exit from the editor, and then apply the changes immediately and verify that the path includes the .local/sbin folder by running:

```
source ~/.bashrc
echo $PATH
```

The final step is to verify that pmbootstrap has installed correctly and is ready for use. At the time of writing, the command:

```
pmbootstrap - -version
```

returns 3.9.0 indicating that the current version of the software is installed on the system.

Install ADB and fastboot

If the Android Debug Bridge (ADB) software is not already available on the PC (it would have been required to use TWRP for backup purposes), it can be installed using the Software Manager. At the time of writing the current release is Version 1.34.0.4-1build3.

Similarly, if necessary, fastboot can be installed on the PC using the command:

```
sudo apt install fastboot
```

Next steps

Having completed the above-noted preliminary steps, we are now ready to build the postmarketOS images on out Linux PC and then flash them to the Moto G6 smartphone. The next post will provide the details for these processes.

(Continued on next page)

Linux on Smartphone *(Continued from previous page)*

References:

postmarketOS - The Linux distribution for mobile devices and beyond…
https://postmarketos.org

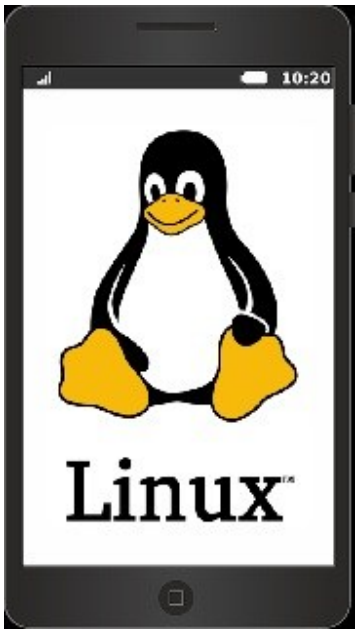
postmarketOS Wiki - Installation
https://wiki.postmarketos.org/wiki/Installation

postmarketOS Wiki - Devices
https://wiki.postmarketos.org/wiki/Devices

Motorola Moto G6 (motorola-ali)
https://wiki.postmarketos.org/wiki/Motorola_Moto_G6_(motorola-ali)

postmarketOS Wiki - Installation/Using pmbootstrap
https://wiki.postmarketos.org/wiki/Installation/Using_pmbootstrap

Git
https://git-scm.com



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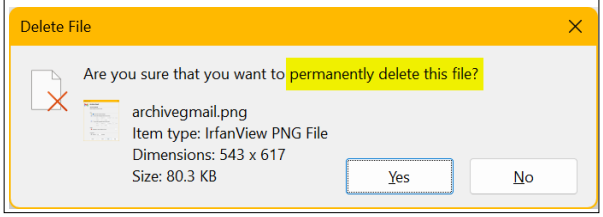


Quick Tip 85: Permanently delete files

by Chris Taylor

When you delete a file or folder in Windows File Explorer, it goes to your Recycle Bin, where it continues to consume disk space.

If you know you will never want to recover the item, hold down the shift key while deleting it. You will get a prompt to make sure you want to permanently delete the file or folder. Select *Yes* and the item is gone, bypassing the Recycle Bin.



Nominations for OPCUG Board for 2027

Once a year, the OPCUG holds elections for the 9-member Board of Directors.
We are once again coming up to this annual event.

We encourage all members to consider running for a board position or getting involved in some other manner in the operations of the OPCUG.

If you want more information about what is involved, please talk to me or any current or past Board member. Names are listed in the Newsletter and on the web site.

Nominations can be submitted via email to Lynda Buske, Election Chair, at **nomintions2027@opcug.ca**.

Nominations must be received by midnight, December 31, 2026.

Please get involved. Please help the OPCUG continue in its role of ***Users Helping Users*** *!*

Lynda Buske
Election Chair

OTTAWA PC NEWS

Ottawa PC News is the newsletter of the Ottawa PC Users' Group (OPCUG), and is published monthly except in July and August. The opinions expressed in this newsletter may not necessarily represent the views of the club or its members.

Member participation is encouraged. If you would like to contribute an article to Ottawa PC News, please submit it to the newsletter editor (contact info below).

To receive the monthly newsletter by email, send an email to:
opcug-newsletter+subscribe@googlegroups.com (leave subject and body fields blank)
You do **not** need to create a Gmail or Google Groups account.

To subscribe to other OPCUG Google Groups member services, go to:
https://opcug.ca/google-groups-how-to/

Group Meetings

The OPCUG holds its regular monthly meetings on the second Wednesday in the month via video conference (details at https://opcug.ca/venue/).

OPCUG Membership Fees:	$20 per year (**https://opcug.ca/join-or-renew**)	
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Q&A IS ON-LINE! Weekly!

Since the pandemic, the OPCUG has been holding weekly Q&A sessions in Zoom video-conferences.

Join us every Wednesday (except on regular monthly meeting nights) at 7:30 pm to discuss computer issues. Questions (and answers) on any computer-related issue are welcome. Or, do you have a favourite computer program or topic that you would like to share with the group? Send your questions, answers, or the details of what you would like to share to: SuggestionBox@opcug.ca

Everyone is welcome to attend Q&A sessions and to ask questions about their specific computer-related problems. Join us at: https://tinyurl.com/opcug-meeting (if you use the Zoom client, the meeting ID is **924 9556 0898** and the password is **opcug**).

