

ASTRO-PHYSICS

Loading a License Key to Your GTOCP4

7/11/2022

Table of Contents

Introduction	2
Step 1, Purchase the license key.....	2
Step 2, Transfer the license key to your computer.....	2
Using the link to save the license key to a file (preferred)	2
Saving the attached license key to a file (alternate).....	4
The License cannot be “opened” on the computer.....	4
Step 3, Download the license key to your GTOCP4	4
Download using USB or Serial.....	5
Download using Ethernet	6
Step 4, Cycle power to the GTOCP4.....	9
Appendix I – Finding the IP Address of your Unit	10
Connection Types.....	10
Direct peer-to peer connection	10
For connections into a local network.....	10
Handy Tools to Determine IP Address	11
Use the Find_Mounts.jar Java applet.	11
For APCC Users (latest version recommended).....	11
ASCOM driver (without APCC) and serial connection (including USB)	11
Appendix II – Installing Java	12
Appendix III – Downloading and Running the Java “Applets”	13
Windows	13
Mac	13
Linux.....	14
Appendix IV – Installing FTDI Drivers	14

Introduction

Installation of the Keypad Modeling Feature License is required for all GTOCP4 control boxes to use the modeling features of the Keypad V5 firmware. All GTOCP4 control boxes with serial numbers CP4-1423 and later were programmed with this feature prior to shipment as were all GTOCP5s. No further action is needed for these control boxes. If you are unsure if your control box has this feature, skip to step 4 below to confirm.

Your GTOCP4 must have vP02-09 or later to use the modeling feature, so don't forget to update your control box. We always recommend that you upgrade to the most recent version for optimal performance. Refer to the Software Updates tab of our website.

There are four steps required to install the license key into your GTOCP4:

- 1) Purchase the license key from the Astro-Physics store on the My Commerce platform.
- 2) Transfer the license key to your local computer.
- 3) Download the license key to your GTOCP4.
- 4) Cycle power to your GTOCP4.

Step 1, Purchase the license key

If you are reading this, you may have already purchased the license key and are reading the e-mail from the MyCommerce platform which provides the license key. If so, proceed to Step 2 below. If not, use the following link to the Astro-Physics store on My Commerce:

<https://order.mycommerce.com/product?vendorid=200147898&productid=301008481&backlink=https%3A%2F%2Fwww.astro-physics.com%2Fcp4-keymodel-256>

Step 2, Transfer the license key to your computer

Once the license key has been purchased, you will receive an auto-generated e-mail from My Commerce with the license key. The license key is provided in two different forms, allowing for two different ways to transfer it to your computer.

- You may click the link shown at the bottom of the e-mail to download to your computer (preferred),
- ... or you may click the license key file attachment to download (alternate). Different e-mail servers handle file attachments differently. It is possible that your e-mail server may strip the license key out of the e-mail. Other e-mail servers may complain about the file extension. For those reasons we recommend using the link provided instead of the attachment.

Using the link to save the license key to a file (preferred)

The license key is saved on the My Commerce server for your convenience. However, unlike the e-mail attachment, it is retained only for a finite amount of time. After a while, My Commerce will delete the license key file as part of "housekeeping". Thereafter, the license key file is no longer available on the

MyCommerce server. Therefore, it is recommended to transfer the license key to your computer using the link immediately upon receiving the confirmation e-mail. The link is shown in the example below.

Delivery information for "Keypad Modeling Feature License for Astro-Physics GTOCP4 Control Box when using Ke

NoReply MyCommerce <noreply@mycommerce.com>
To: [REDACTED]

Mon 7/11/2022 4:50 PM

Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

INV_805062713_200147898_202207111149.pdf 8 KB
SN189_CP4_KEYMODEL.lic 448 bytes

Right-click or tap and hold here to download pictures. To help protect your privacy, Outlook prevented automatic d...

Alternate, see below for Preferred

Dear Mr./Mrs. [REDACTED]

Thank you for placing an order with MyCommerce, an authorized reseller of Astro-Physics, Inc.
Your MyCommerce Order Number: **805062713**

The PDF attachment to this e-mail includes an invoice for your order.

Your credit card (Other) has been debited with [REDACTED]

PRODUCT DELIVERY DETAILS

Keypad Modeling Feature License for Astro-Physics GTOCP4 Control Box when using Keypad Version 5 Software (CP4-KEYMODEL-256)

License key for unlocking the product

The product is licensed to [REDACTED]

Your license key for "Keypad Modeling Feature License for Astro-Physics GTOCP4 Control Box when using Keypad Version 5 Software (CP4-KEYMODEL-256)" is included in the e-mail attachment.

Some e-mail programs and some Internet providers have technical limitations regarding the delivery of e-mail attachments.

If you did not receive the e-mail attachment, you can download the license key at the following URL: **Preferred**
https://account.mycommerce.com/OrderDetails/DownloadBinaryKeyAnonymous?purchaseid=805062713&rno=1&md5=6e8fa894be85637d6b3f17ff5625e861&timetolife=62F2F500&name=SN189_CP4_KEYMODEL.lic

Please note that you will not receive a delivery by postal mail.

The following information is from the publisher and may be written in another language:

To transfer from the My Commerce server, just click the link, shown as “Preferred” in the example above. On most computers, the file will download automatically to the “Downloads” folder. On some computers, browsers, or e-mail programs you may be prompted to save the file, with the default folder usually being “Downloads”. If prompted, you may choose another folder to download into if you wish. Regardless of what folder the file is downloaded to, you’ll need to take note of it because you’ll need to navigate to it in Step 3 below to download it into your CP4.

If you receive the license key from MyCommerce, but you wait too long to copy to your local computer, the MyCommerce retention time will expire, and the MyCommerce server will no longer host a copy of your license key. In this case, you’ll need to save the attached license key file to a folder, see below.

Saving the attached license key to a file (alternate)

To save the attached license key, click on the attachment. Note that different e-mail programs will have slightly different behaviors when an attachment is clicked. Some require a single click, others may require a double-click, still other may require clicking an icon located to the side of an attachment icon (often a “v” symbol). On most computers, the default folder will be “Downloads”. However, your e-mail program may prompt you to navigate to any folder you prefer – the default likely being “Downloads”. Regardless of where the file is downloaded to, you’ll need to take note of it because you’ll need to navigate to it in Step 3 below, to download it into your CP4.

Some e-mail providers provide security features to disallow saving some attachments to a local file. Other e-mail providers strip attachments if the attachment has a disallowed file extension. Different e-mail providers implement different policies regarding attachments. Furthermore, these policies change over time. At the time of this writing, none of the e-mail servers tested strip the Astro-Physics license key from the e-mail. However, it is possible that this may not be the case forever, that’s why it is recommended to use the link first. If your e-mail provider has stripped the attachment, AND the MyCommerce retention period has expired, please contact Astro-Physics support.

The License cannot be “opened” on the computer

If you accidentally double-click on the license file just downloaded to your computer, you’ll likely get a prompt asking what application to use to open the file. You cannot open the license file on your computer. The license file is not intelligible to your computer, it is only intelligible to your CP4. There is no application that can be used to open the license file, it must be downloaded into the CP4. The CP4, and only the CP4, understands the license. If prompted to choose an application, click anywhere else on your computer screen to close the prompt. Or, if the prompt has a “Close” or “Quit” button, click it. Proceed to “Step 3” below.

Step 3, Download the license key to your GTOCP4

The license key is contained in a file that must be loaded into the GTOCP4 to take effect. This process is no different than the process of updating the embedded firmware. The license key is not an executable, however: the GTOCP4 automatically “knows” the difference between a license key and an executable program.

There are two ways to load the license key into the GTOCP4, just as there are two ways to update the embedded firmware. You may use Ethernet, or USB/Serial. The choice of methods is discretionary and should be chosen based on your familiarity, comfort level, and personal preferences. If you have previously updated the embedded firmware in your CP4, it is recommended to use the same method to load the license key.

If you have never updated the firmware in your CP4, it is suggested to use the same interface to download as you do for normal operation, except if your normal operational interface is Wi-Fi. Before you begin, you’ll need to make sure the CP4 has a version of firmware recent enough to support the functionality unlocked by the license key. For example, to use the Keypad Modeling function, it is necessary to have P02-09 or later. Firmware updates can be found here:

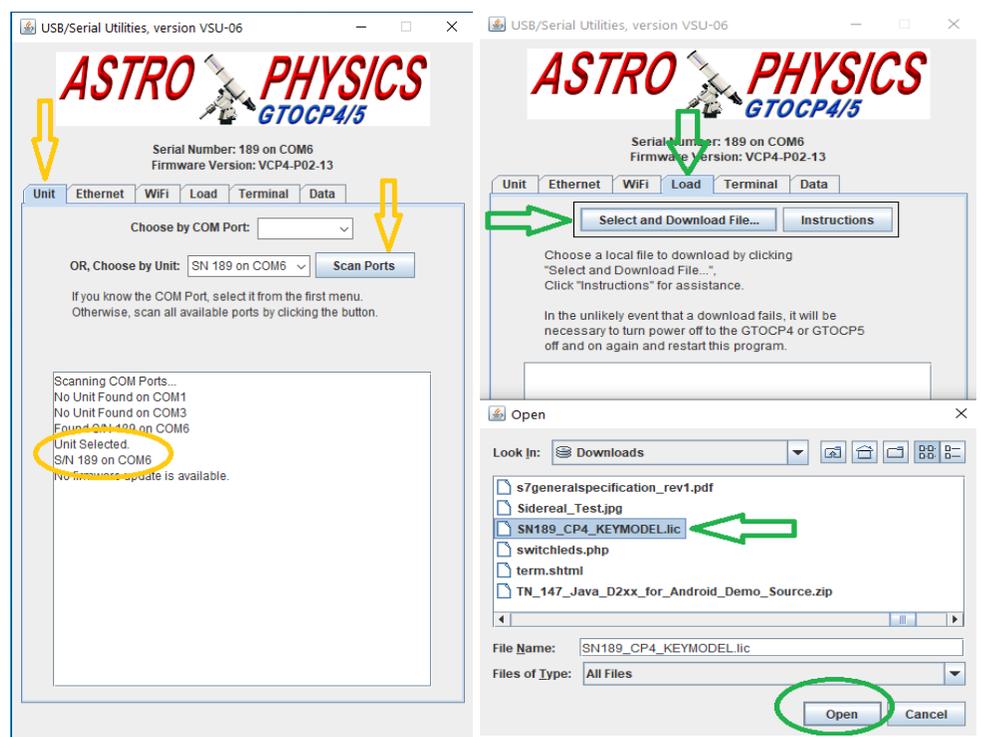
<https://www.astro-physics.com/software-updates/>

Download using USB or Serial

Downloads performed using USB or serial are done using the Java program “USBSerial Utilities.jar”. USB/Serial Utilities can be used on any operating system that can run Java. Many people have found GTOCP4/5 upgrades very easy to do with our USB/Serial Utilities program. A similar Java loader is used for the Keypad V5 uploads.

At AP, we have tested USB/Serial Utilities on Windows 10, Windows 7, Ubuntu 20, and several Mac versions. If you do not have USB/Serial Utilities, see Appendix III. To use USB/Serial Utilities, you must first make sure to have the latest version of Java installed, see Appendix II. You must also have any adapter drivers your computer needs such as FTDI or Keyspan drivers, see Appendix IV.

Establish the connection with the Unit Tab. The Unit tab allows you to establish the serial or USB connection between the computer and CP4. If you already know the COM port of the CP4,



you can simply select the port in the Choose by COM Port dropdown. If you do not know the needed COM port number, clicking Scan Ports will detect and connect to your CP4. When multiple CP4s are detected, it will list the devices under the Choose by Unit dropdown. The text box will display relevant information, for instance, what device is connected or any COM errors.

Load the license key with the Load Tab. Before attempting to load firmware, make sure that you have saved the license key to your computer as described in Step 2. Select “Select and Download File...” and pick the license key file you need to load. You will need to navigate to the same location you stored the license key in while performing Step 2 earlier. When the file is selected, the download will begin immediately. During this time, do not interrupt the serial connection or the firmware will not load correctly. This includes disconnecting the USB or Serial cable, as well as attempting to do other tasks with the computer at the same time as performing the load. The license key is a very small file, so a progress bar may or may not have time to appear. The text box in the lower part of the window shows diagnostic information about the load and will indicate when the load has completed and whether it was successful.

Download using Ethernet

Power up the CP4, and connect the Ethernet (i.e. Cat6) cable to the CP4’s Ethernet port on one end, and to your computer or a router or network switch (port) on the other end. At this time, we do not support download over the Wi-Fi, as it is inherently more error prone. After plugging in the Ethernet cable, allow 30 seconds for the connections to be fully established.

NOTE: A USB port on your router or network switch is NOT usable as either a USB connection to the mount, or as an Ethernet connection to the mount. DO NOT connect a USB cable from the CP4 to a router!

IMPORTANT!! Disconnect ALL other cables (except power) and software from the CP4 for the remainder of this procedure. Simultaneous activity can disrupt the download. Disconnect APCC if you have it, and any other programs. Be sure that your Wi-Fi devices and programs are not connected to the CP4.

The only cables that should remain connected are the:

****Power Cable** – The CP4 will remain powered during this procedure.

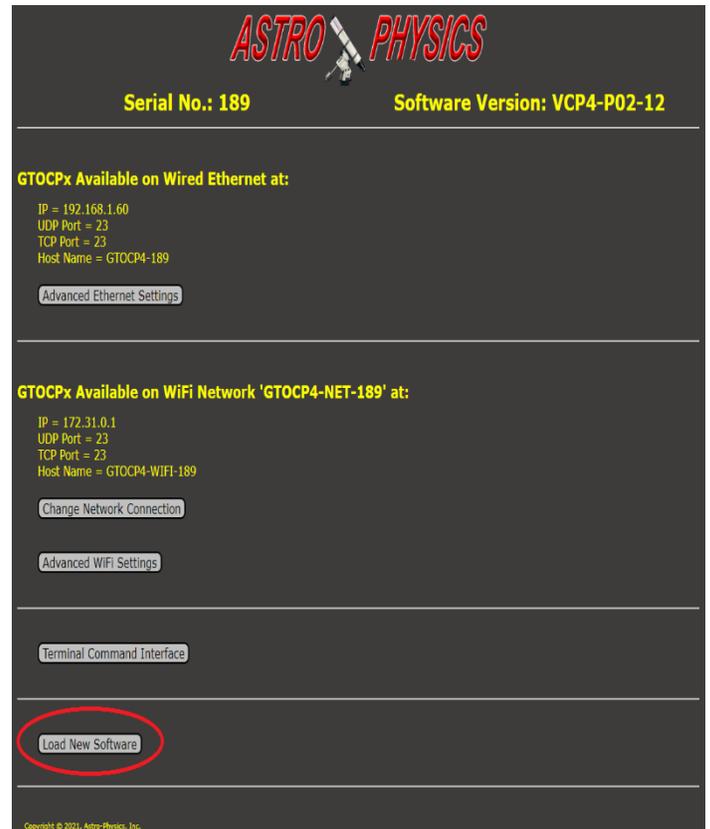
****Ethernet Cable** – The only Ethernet connection should be the CP4 webpage.

****Servo Y-Cable** – To the mount’s servo-motor gearboxes (optional – not required, but won’t hurt).

Start your browser. You may use Internet Explorer, Fire Fox, Safari, Edge, etc. If you used the E-net_WiFi_Poll program, it will open an instance of Internet Explorer for you already connected to the GTOCP4. Use of Google Chrome may be a little more difficult because Chrome is optimized for the World Wide Web, and may skip any search for local hosts.

Enter IP address or hostname. On the URL line of your browser, enter the IP address of the GTOCP4. If you don't know the IP address of your CP4, see Appendix I. Alternatively, Windows users may be able to simply enter their *Hostname* instead of the IP address. Mac and Linux users may be able to use *Hostname.local*, instead of the IP address, beginning with P02-09. The GTOCP4 will place the following page in the browser window.

The factory default Hostname is: GTOCP4-xx, where xx (or xxx, or xxxx) is the serial number of the CP4 without leading zeros. (NOTE: older CP4 units will have underscores instead of hyphens.) The hostname is user-configurable.



Click on the “Load New Software” button. The next Web page will look like the screenshot below. Note that summary instructions are also included on this Web page, but they don't show on the screenshot.

Click on the “Choose File” (“Browse” in some web browsers) button and browse to the folder where the license key was saved in Step 2.

Choose: SNxxx_CP4_KEYMODEL.lic. This file will be located in the directory you specified when you transferred to your local computer. Many operating systems will save to the “Downloads” directory unless otherwise noted.

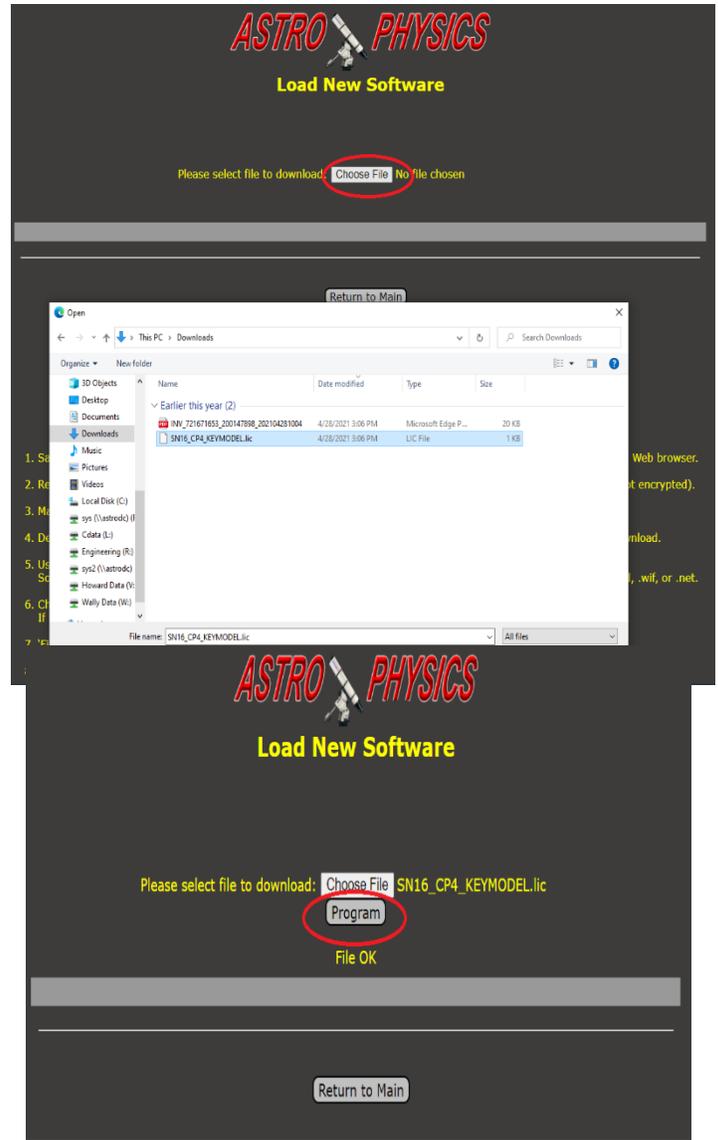
“File OK” should display in a moment or two. If it is a valid license key, and specific to your GTOCP4, the indication “File OK” will appear, as shown at the right, and the “Program” button will also appear.

Click the “Program” button. This will install the license key into your GTOCP4.

Wait a moment for “Download OK” to be displayed. This should take no more than a couple seconds. When the download begins, the status will be shown as below. The status messages will appear directly below “File OK.”

- Programming
- Download OK
- Resuming Operation

“Download OK” and then **“Resumed Operation”** will appear below the **“File OK”** message. The **“Resumed Operation”** message tells you that the file has been successfully loaded into the CP4.

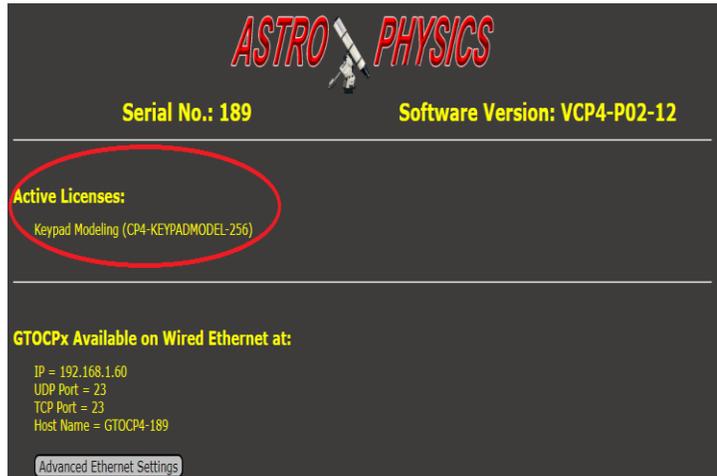


Step 4, Cycle power to the GTOCP4

Once the license key has been successfully downloaded into the GTOCP4, a power cycle is required for the license key to take effect. Power must be removed long enough for the front panel LED to extinguish completely (3-5 seconds). After power has been restored, the license key is active. This can be optionally verified in P02-09 and later using the embedded web pages or with the USB/Serial Utility:

Embedded Web Pages

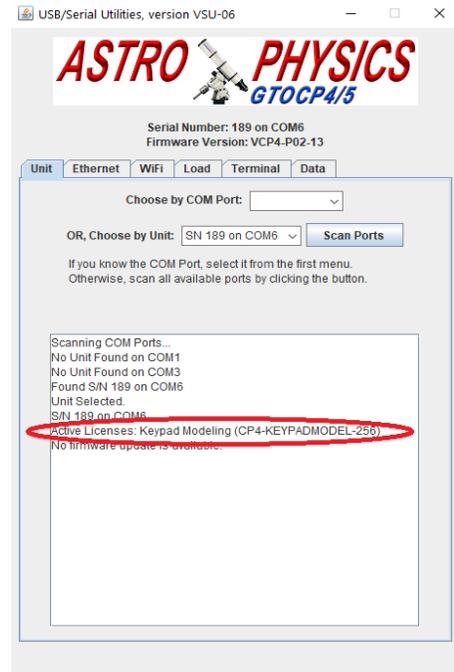
If you've used the browser to load the license key into the CP4, merely clicking "Return to Main" will display this page.



USB/Serial Utilities

Be sure your CP4 is powered and connected to your computer via serial or USB.

Select the Unit tab and Scan Ports. If your CP4 has an active license, it will display as shown on the right.



Appendix I – Finding the IP Address of your Unit

If you upload your license using Ethernet, you must determine the IP address of your unit. There are several ways to accomplish this as described below. Additional information is available in the GTOCP4 User's Manual found here:

https://www.astro-physics.info/tech_support/mounts/servo/cp4-manual.pdf

Connection Types

Direct peer-to-peer connection

A peer-to-peer connection means that the Ethernet cable runs directly from the computer to the CP4. In this type of connection, the GTOCP4 must be configured to provide an IP address to your computer, and the GTOCP4 IP address is constant. The factory default IP address is in the "Link Local Subnet", which means the IP address begins with 169.254 (unless you have already made changes). The remaining two parts of the IP address are based on your CP4's serial number, and computed using the following tool: https://astro-physics.info/tech_support/mounts/servo/latlong-ip-calculator.html

The default IP address is user configurable, but most folks do not change it. If you have changed it, use the IP address you've assigned, not the address shown in the default IP address calculator.

For connections into a local network.

If you have connected via Wi-Fi in the past, make that connection now and then open the CP4's web page in whatever browser you use by entering the Wi-Fi IP address in the browser's address bar. This can also be done from a Smart Phone (like iPhone) or a Tablet (like iPad).

The Main page of the CP4 Web page will show you the cabled Ethernet IP address that your router has assigned.

NOTE: In most cases, the cabled IP address will begin with the same values as the Wi-Fi IP address if you connect to your wireless network. This will not be the case if you connect with the CP4 as a Wi-Fi access point.

If you have the CP4 configured as a "Server", meaning you are configured for peer-to-peer connection, but you are now connecting through your local network, you may need to click the button to open the Advanced Ethernet Settings window to reset the DHCP Mode to either "Client" or "Both." A power cycle of the CP4 will then be required for the change to take effect – power OFF – wait a few seconds – power ON.

Handy Tools to Determine IP Address

Use the Find_Mounts.jar Java applet.

FindMounts.jar is executed as described in Appendix III. Download from the link on this webpage: <https://www.astro-physics.com/software-updates/>

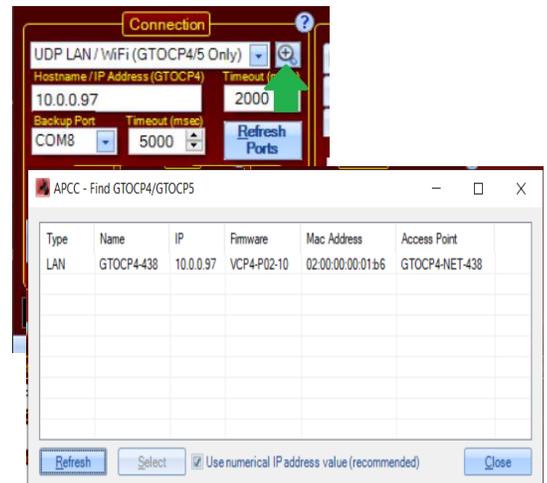


For APCC Users (latest version recommended)

In the Connection group box, select from the top dropdown list:

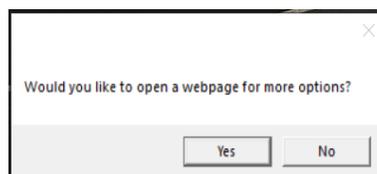
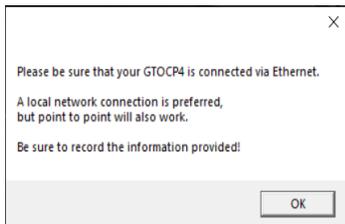
- TCP LAN/WiFi (GTOCP4 Only) or
- UDP LAN/WiFi (GTOCP4 Only)

Click the small button to the right of your selection. This will open a list of available GTOCP4s. Get the IP address from this list. Be sure to select the LAN IP address – not the WiFi IP address.



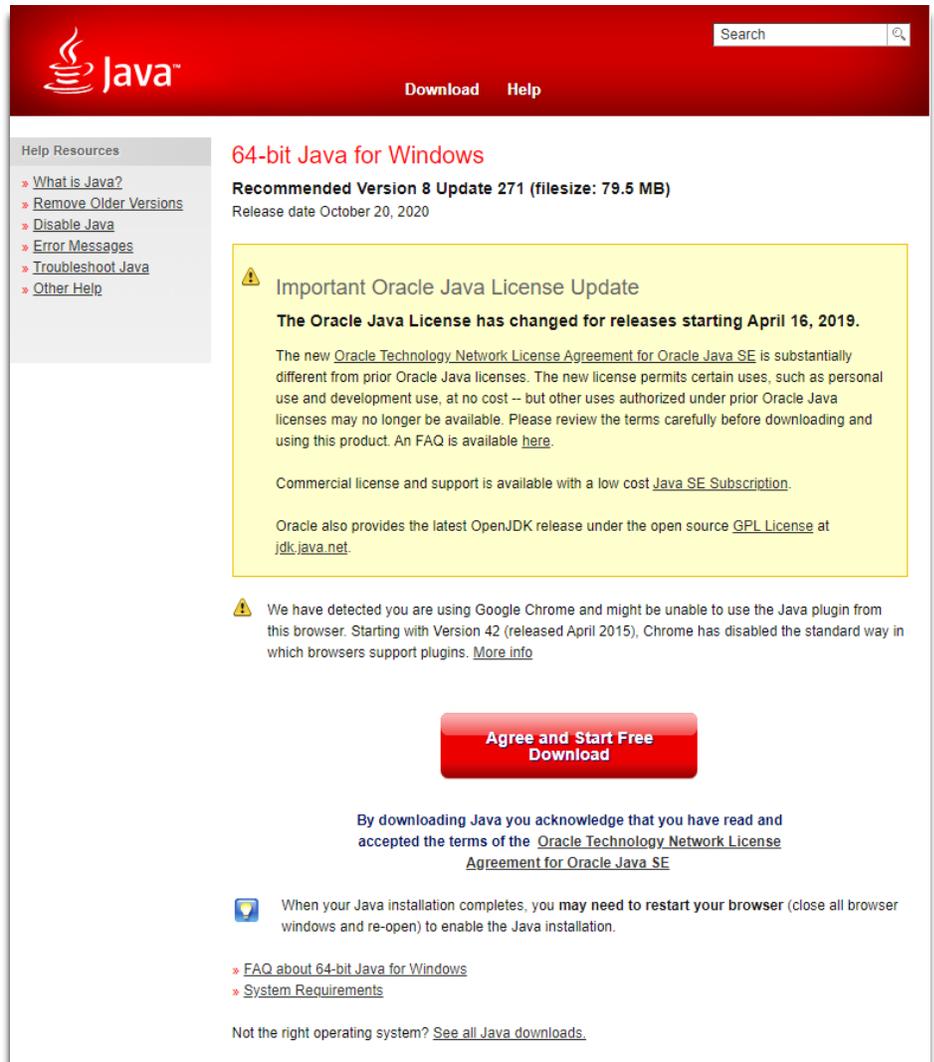
ASCOM driver (without APCC) and serial connection (including USB).

Use the E-net_WiFi_Poll_2016-0711.exe program downloadable from: <https://www.astro-physics.com/software-updates/>



Appendix II – Installing Java

Download Java from www.java.com and run the exe file. Installation takes just 3 clicks.



The screenshot shows the Java website's download page for 64-bit Windows. The page features a red header with the Java logo and navigation links for 'Download' and 'Help'. A search bar is located in the top right corner. On the left, there is a 'Help Resources' sidebar with links to 'What is Java?', 'Remove Older Versions', 'Disable Java', 'Error Messages', 'Troubleshoot Java', and 'Other Help'. The main content area is titled '64-bit Java for Windows' and highlights 'Recommended Version 8 Update 271 (filesize: 79.5 MB)' with a release date of October 20, 2020. A prominent yellow warning box contains an 'Important Oracle Java License Update' notice, stating that the Oracle Java License has changed for releases starting April 16, 2019. The notice explains that the new Oracle Technology Network License Agreement for Oracle Java SE is substantially different from prior licenses, allowing for personal and development use at no cost, but restricting other uses. It also mentions that commercial licenses are available through a Java SE Subscription and that OpenJDK is available under a GPL license. Below the license notice, a warning icon indicates that Google Chrome users might be unable to use the Java plugin due to browser updates. A large red button labeled 'Agree and Start Free Download' is centered on the page. Below the button, a disclaimer states that by downloading Java, users acknowledge they have read and accepted the terms of the Oracle Technology Network License Agreement for Oracle Java SE. A small icon and text note that users may need to restart their browser after installation. At the bottom, there are links for 'FAQ about 64-bit Java for Windows' and 'System Requirements', and a link to 'See all Java downloads' for users with different operating systems.

Java™

Download Help

Search

Help Resources

- » [What is Java?](#)
- » [Remove Older Versions](#)
- » [Disable Java](#)
- » [Error Messages](#)
- » [Troubleshoot Java](#)
- » [Other Help](#)

64-bit Java for Windows

Recommended Version 8 Update 271 (filesize: 79.5 MB)
Release date October 20, 2020

Important Oracle Java License Update

The Oracle Java License has changed for releases starting April 16, 2019.

The new [Oracle Technology Network License Agreement for Oracle Java SE](#) is substantially different from prior Oracle Java licenses. The new license permits certain uses, such as personal use and development use, at no cost -- but other uses authorized under prior Oracle Java licenses may no longer be available. Please review the terms carefully before downloading and using this product. An FAQ is available [here](#).

Commercial license and support is available with a low cost [Java SE Subscription](#).

Oracle also provides the latest OpenJDK release under the open source [GPL License](#) at jdk.java.net.

Warning: We have detected you are using Google Chrome and might be unable to use the Java plugin from this browser. Starting with Version 42 (released April 2015), Chrome has disabled the standard way in which browsers support plugins. [More info](#)

Agree and Start Free Download

By downloading Java you acknowledge that you have read and accepted the terms of the [Oracle Technology Network License Agreement for Oracle Java SE](#)

Warning: When your Java installation completes, you may need to restart your browser (close all browser windows and re-open) to enable the Java installation.

- » [FAQ about 64-bit Java for Windows](#)
- » [System Requirements](#)

Not the right operating system? [See all Java downloads](#).

Appendix III – Downloading and Running the Java “Applets”

You must have Java installed on your computer to use either FindMounts or USB/Serial Utilities. See Appendix II for installing Java on your computer. Most computers already have Java installed.

The Find_Mounts.jar and USB/Serial Utilities.jar files can be downloaded as .zip files from the following link: <https://www.astro-physics.com/software-updates/>

Windows

On Windows, download the zip file for the latest version and save it to a convenient location. Extract the zip file to a new folder, by right clicking the zip file and selecting **Extract All**. You will be given the option to select a destination, with the default destination being your downloads folder. Simply click **Extract** and Windows will unzip the file.

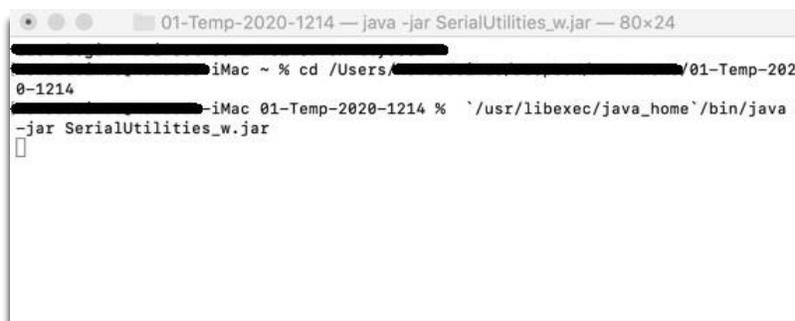
Next, open the unzipped folder and find the **USBserialUtilities.jar** file. It is an Executable Jar File.

Double click the executable to run the USB/Serial Utilities program. If USB/Serial Utilities fails to run, you might be missing Java. See Appendix II to install Java.

Mac

On Mac, download the utility zip file. Extract the zip file to a new folder, by double clicking the zip file. This should create a folder of the same name in the directory.

Next, open the unzipped folder and find the executable USBserialUtilities.jar. It should be labeled as an Executable Jar File. Double click the file, and the program should open. If the program does not open, then you will need to run the executable from the command line, as shown below. First open terminal, then proceed to the folder that holds the **KeypadLoader** file with the cd command. Then, type **'/usr/libexec/java_home'/bin/java -jar USBserialUtilities.jar** and the program should run.

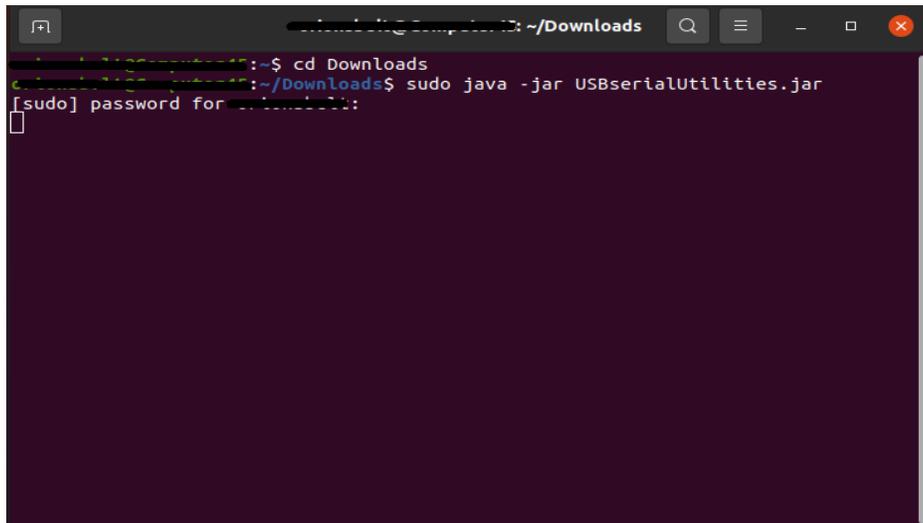


```
01-Temp-2020-1214 — java -jar SerialUtilities_w.jar — 80x24
iMac ~ % cd /Users/01-Temp-2020-1214
01-Temp-2020-1214 % '/usr/libexec/java_home'/bin/java -jar SerialUtilities_w.jar
```

Linux

On Linux, download the utility zip file. Extract the zip file to a new folder by clicking the zip file and then clicking **Extract** in the upper corner of the window.

Next, open Terminal and use the **cd** command to get into the extracted folder. Finally, type **sudo java -jar USBserialUtilities.jar** to run the program, as shown in the screenshot. Enter your password if needed. The keypad loader must be run as root, to have access to the serial ports.



```
terminal@kali: ~/Downloads
:~$ cd Downloads
:~/Downloads$ sudo java -jar USBserialUtilities.jar
[sudo] password for terminal:

```

Use of the Java applet is the same on each operating system and will follow the same routine regardless of whether it is a Windows, Mac, or Linux.

Appendix IV – Installing FTDI Drivers

If you are using the USB port on the GTOCP4, you must have the FTDI driver installed. A download link for the FTDI driver can be found at www.astro-physics.com/software-updates.