



WWFIRST Certificate Install - Android

(If you require assistance, please contact daniel.delattre@wwfirst.ca)

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What is a Digital Certificate and why use it?

What is a Digital Certificate

A Digital Certificate is an electronic "password" that allows a person or organization to exchange data securely over the Internet using the public key infrastructure (PKI). Digital Certificate is also known as a public key certificate or identity certificate. It's similar to a passport or driver's license. It lets you know "officially" who each person or organization is.

Why is security needed on the Internet?

The Internet is an open communications network that was not originally designed with security in mind. If we want to use the Internet as a communication tool, users must be able to communicate securely.

What does security provide?

- Identification / Authentication:

The persons / entities with whom we are communicating are really who they say they are.

- Confidentiality:

The information within the message or transaction is kept confidential. It may only be read and understood by the intended sender and receiver.

- Integrity:

The information within the message or transaction is not tampered accidentally or deliberately with en route without all parties involved being aware of the tampering.

- Non-Repudiation:

The sender cannot deny sending the message or transaction, and the receiver cannot deny receiving it.

- Access Control:

Access to the protected information is only realized by the intended person or entity.



Why a WWFIRST Certificate Authority (CA)?

Why do I need to install a new WWFIRST Certificate Authority?

A Certificate Authority (CA) issues digital certificates that contain a public key and the identity of the owner. The matching private key is not made available publicly, but kept secret by the end user who generated the key pair.

The certificate is also a confirmation or validation by the CA that the public key contained in the certificate belongs to the person, organization, server or other entity noted in the certificate. A CA's obligation in such schemes is to verify an applicant's credentials, so that users and relying parties can trust the information in the CA's certificates. CAs use a variety of standards and tests to do so.

In essence, the Certificate Authority is responsible for saying "yes, this person is who they say they are, and we, the CA, verify that". It's similar to a passport or driver's license office.

Why create our own?

If we want to create an officially recognized Certificate to communicate with the Elegoo Smart Robot Cars, it will cost us several thousands of dollars each year. If we create our own, it's free.

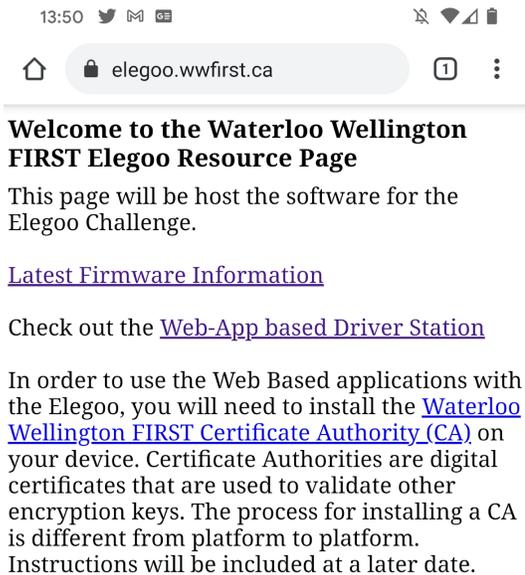
The only trust is between the Driver Station server, the Elegoo Smart Robot Car and the device you use to control the robot car. The certificates are **not** used for anything else, and we can assure that each robot car and control device communicates with the server over their own "secure channel".



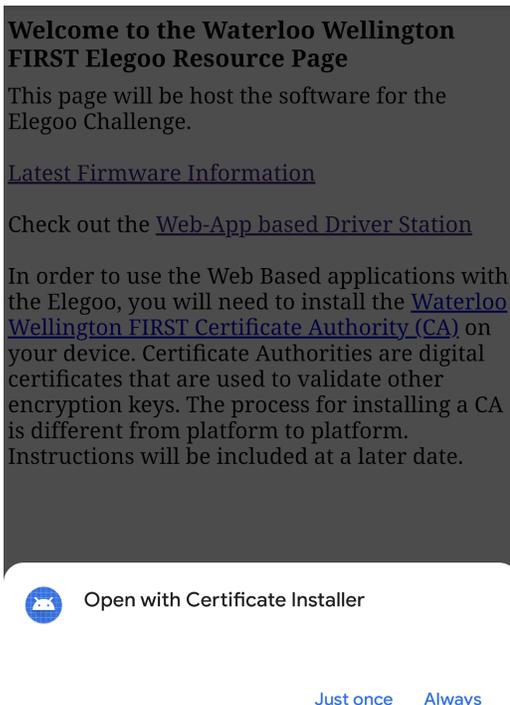
Okay, so how do I install this now?

This is done slightly differently in each Operating System, but we will guide you step by step with as many screenshots as possible.

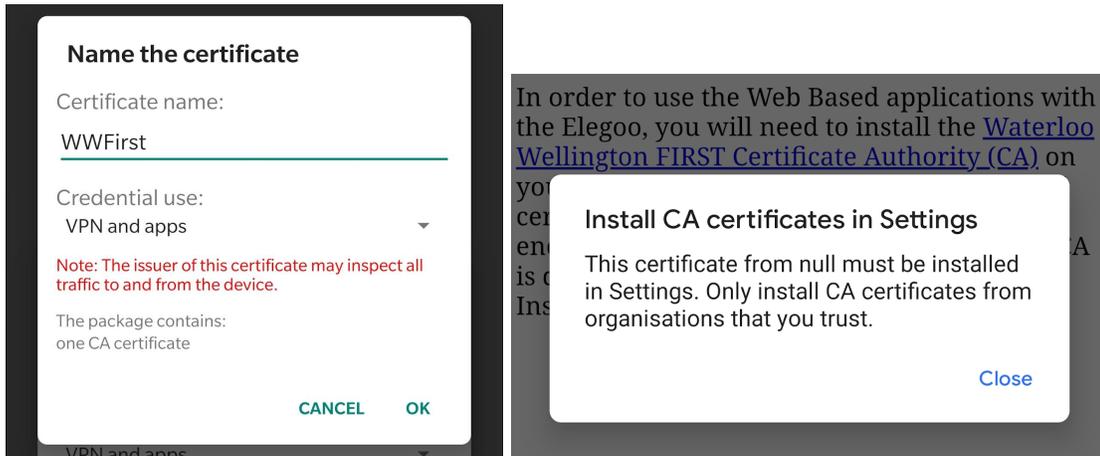
1. Navigate to the <https://elegoo.wwfirst.ca> site



2. Click on the Waterloo Wellington FIRST Certificate Authority link and open with Certificate Installer.

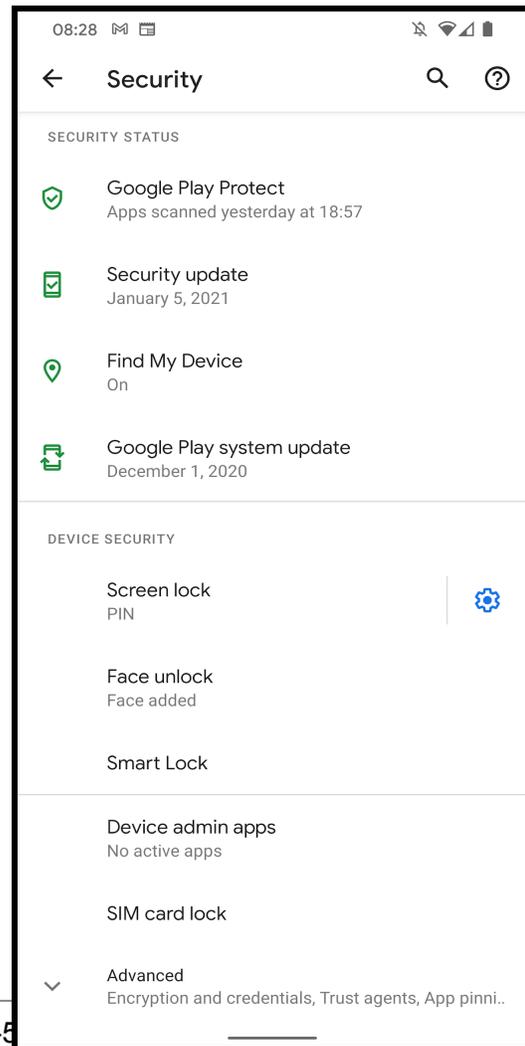
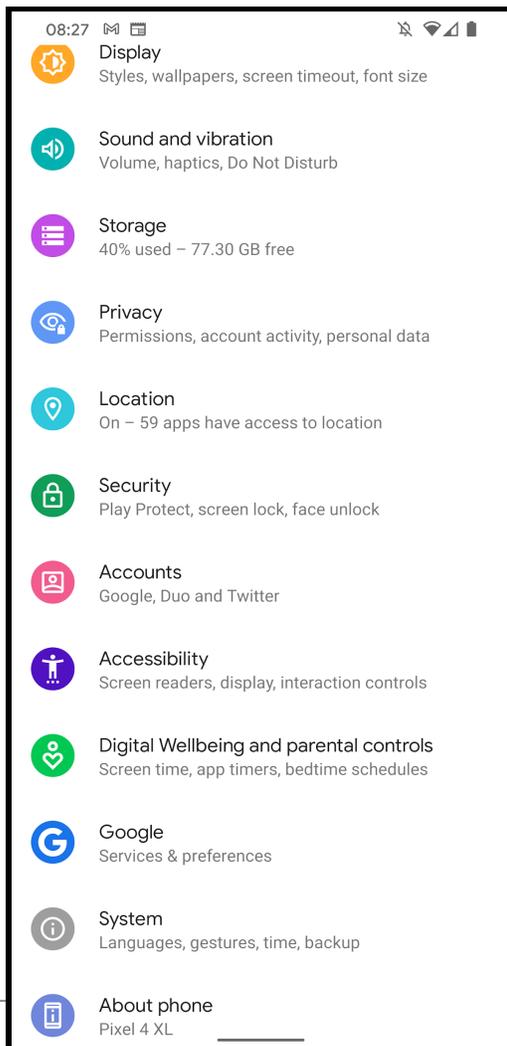


- If you get the message on the left. Type in WWFirst as the name and tap OK. You're done. If you get a message saying that you can only install from trusted organizations, you'll need to install the certificate manually. Go to the next step.



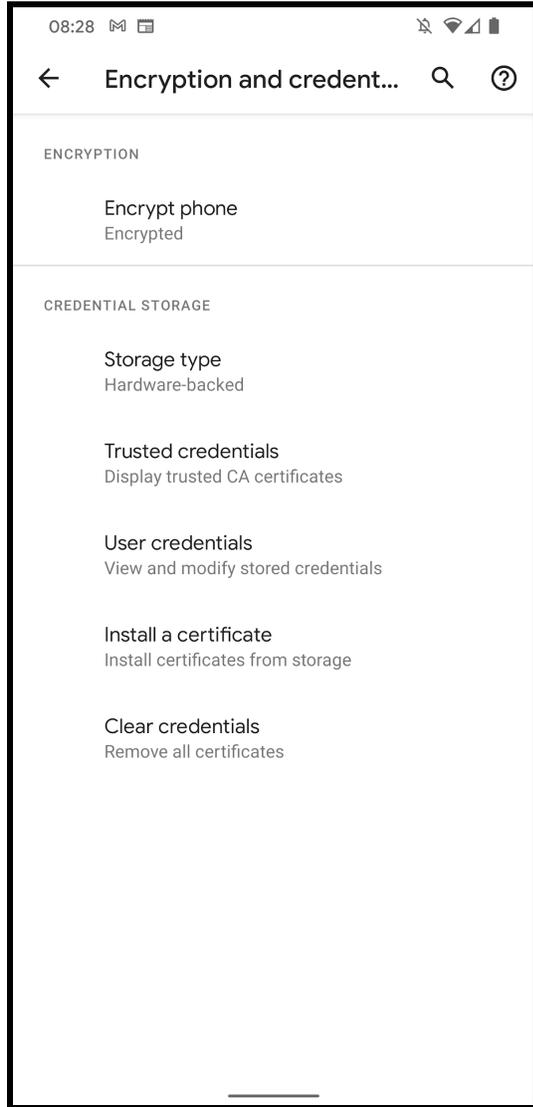
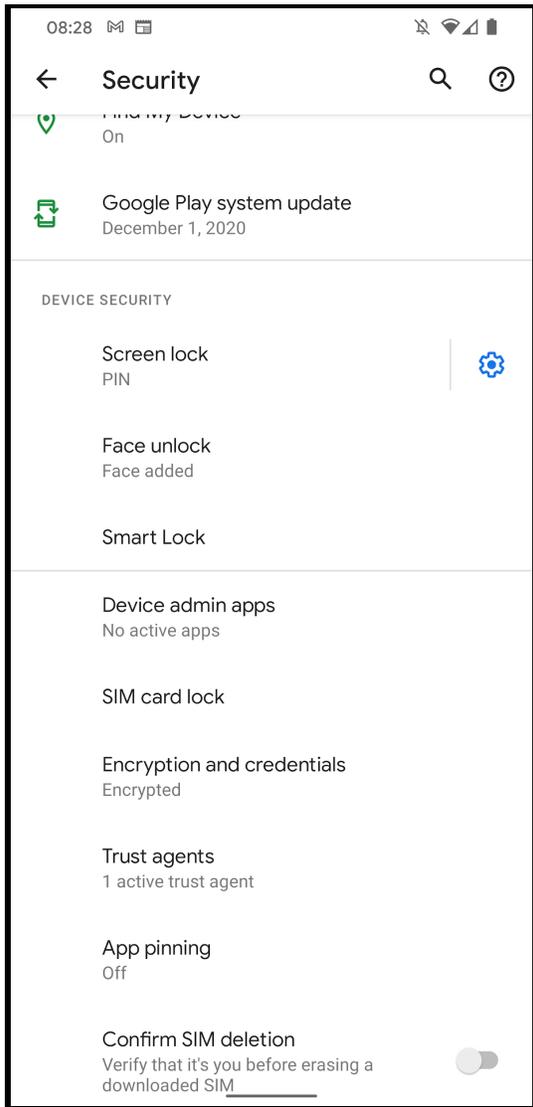
Let's install the certificate manually.

- Go to your phone settings and click on Security, then click on advanced at the bottom.

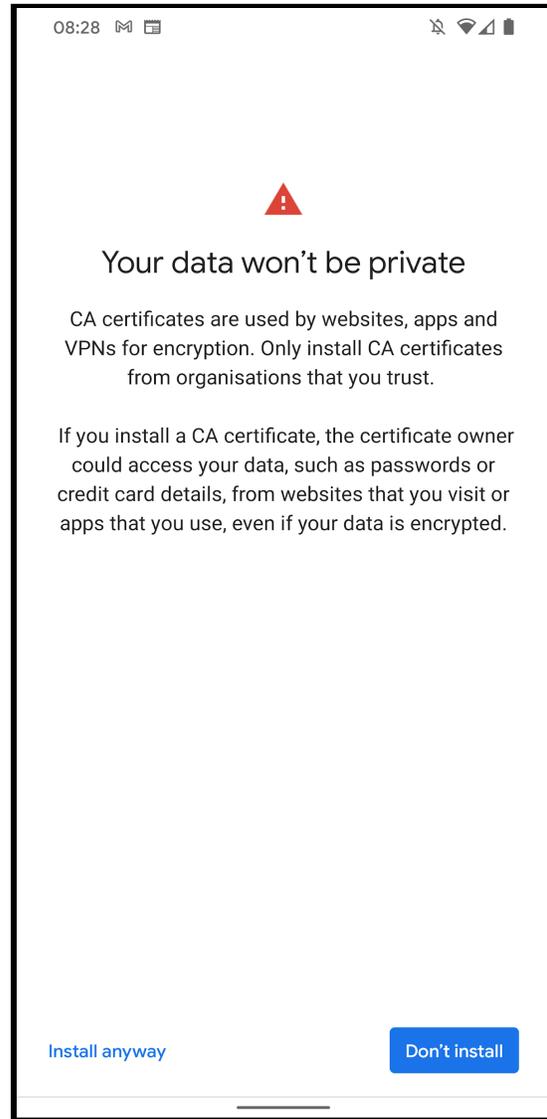
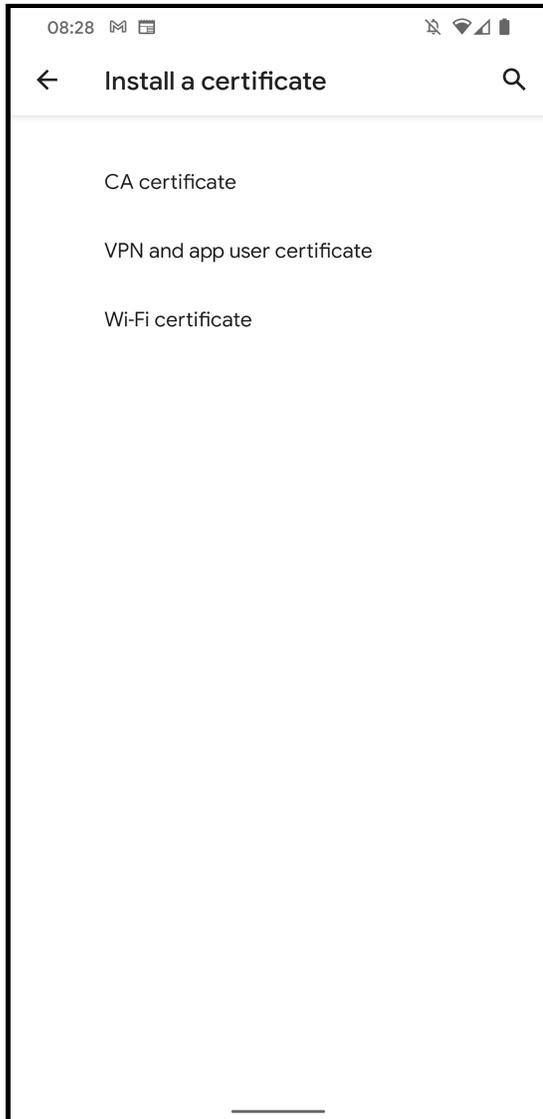




- 5. Click on Encryption and Credentials to see the Trusted credentials; and click Install a certificate (or Install from storage and possibly skip the next step).

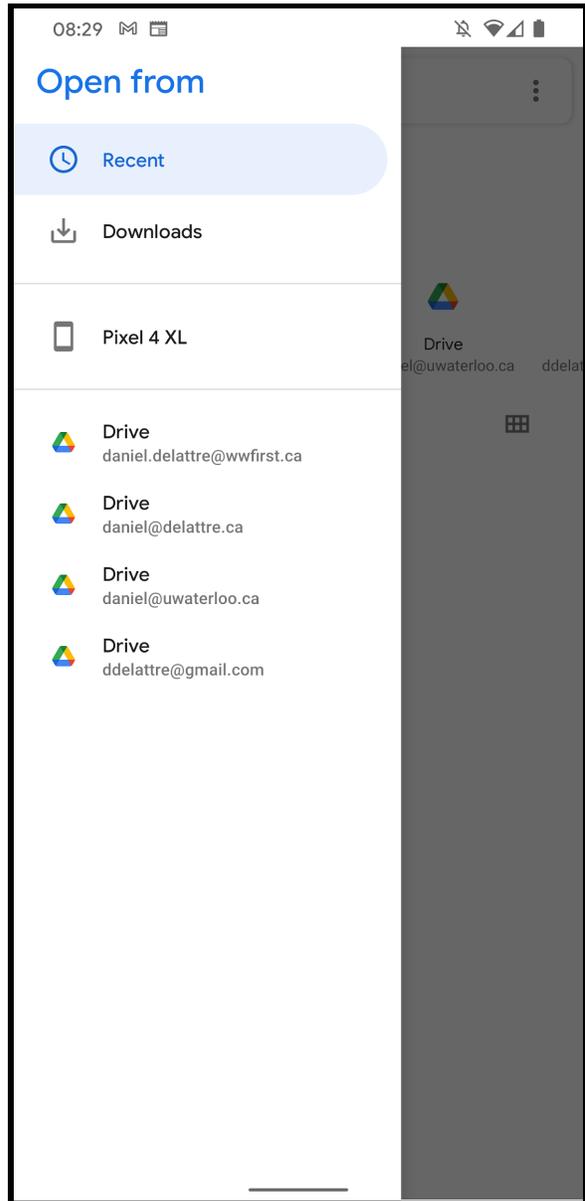
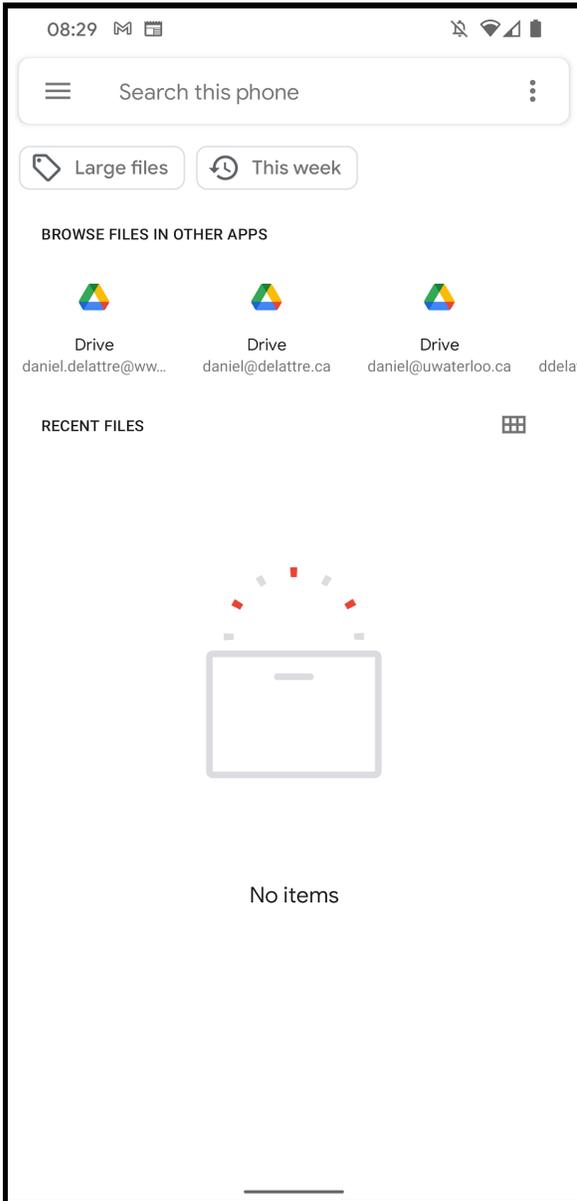


6. Now click on the CA certificate and a warning will pop up. Click Install anyway to continue the installation process.

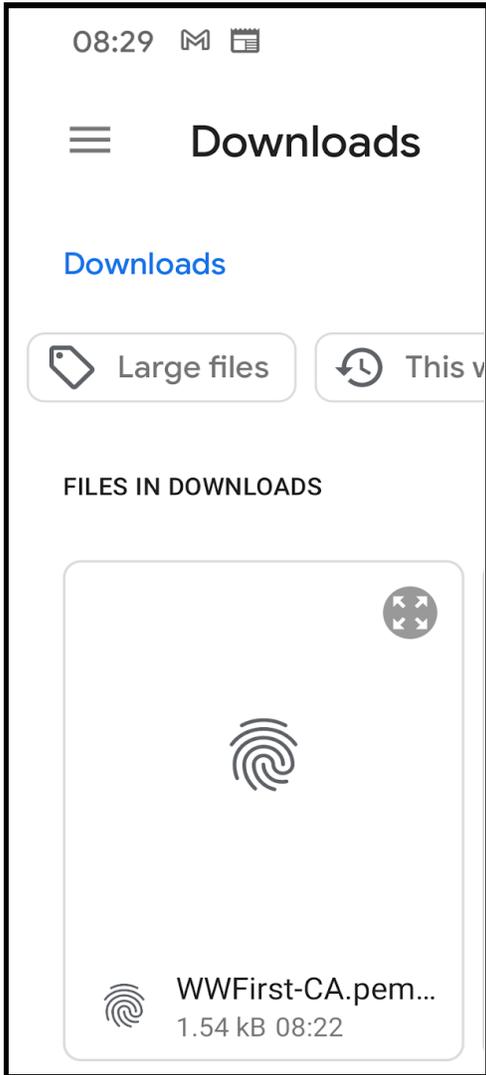




7. Browse your phone for the file and click on recent to find it!



8. Click on the WWFirst-CA.pem file and the certificate will install. You will notice a message at the bottom of the next screen "CA certificate installed"





9. You can now navigate to the online Driver Station.



That's it.