**PicoCTF Solutions**

This is a dump of many of our PicoCTF 2019 solutions. Most solutions included here are ones that were solved with code, though some of them were done by hand.

**Recommended tools**

Here are some recommended tools that we used to complete these challenges

**General**

* [www.google.com](http://www.google.com/) (infinite knowledge)
* [https://en.wikipedia.org](https://en.wikipedia.org/) (finite knowledge)
* Python (programming solutions)
* C# (programming solutions)
* [www.base64encode.org](http://www.base64encode.org/) (encoding/decoding base64)
* <https://www.boxentriq.com/code-breaking>
* <https://aperisolve.fr/> Image Analysis
* [www.rapidtables.com](http://www.rapidtables.com/) (converting integer bases and encodings)
* VMWare Workstation (Windows/Linux/Android virtual machines)
* VirtualBox (Windows/Linux virtual machines)
* Notepad++ (half decent text editor)
* Visual Studio Code (half decent cross-platform text editor)

**Binary Exploitation**

* Ghidra (reversing)
* IDA (reversing, patching)
* gdb (debugging)
* pwntools Python module (programming solutions)
* ROPgadget (ropchain generation)

**Forensics/Reversing**

* Ghidra (reversing)
* IDA (reversing, patching)
* HxD (hex editor)
* jd-gui (Java decompiler)
* dextools (APK to JAR converter)
* apktool (APK extractor)
* LuckyPatcher (signing recompiled APKs)
* Android Studio (android emulator)
* Android Emulator for Visual Studio (android emulator)

**Web Exploitation**

* Chrome Devtools (monitoring browser network traffic, controlling environment)
* CharlesProxy (monitoring network traffic)
* [EditThisCookie](https://chrome.google.com/webstore/detail/editthiscookie/fngmhnnpilhplaeedifhccceomclgfbg) (quickly editing cookies w/o devtools)
* JohnTheRipper (secret key cracker)
* [www.jwt.io](http://www.jwt.io/) (JWT cookie editor)