



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

Drone Challenge

Preparation Guide

Cyber Security Challenge 2018



**Cybersecurity Researchers of Waikato**

To return control of data to users

<b>0. Introduction</b>	<b>3</b>
<b>1. Environment preparation</b>	<b>4</b>
A. Update applications with apt	4
B. Install Java	4
C. Install net-tools	4
D. Install aircrack-ng	4
E. Install Wireshark	5
F. Download IntelliJ Community from the website	5
G. Download the incomplete CX-10W application	5
H. Install ffmpeg	5
I. Reboot your computer	5
J. Install the CX-10W mobile controller application	5

# 0. Introduction

The following software will be required for the challenge. Instructions to acquire these components will be provided below.

1. Ubuntu 16.04
2. Java
3. net-tools
4. Aircrack-ng
5. Wireshark
6. JDK and IntelliJ
7. CX-10W mobile controller application
8. Incomplete CX-10W linux controller application
9. ffmpeg
10. Android APK Decompiler (Optional)

# 1. Environment preparation

The following hardware will be required for the challenge

1. A wireless network adapter with the monitor Mode.
  - Use the command `iw list | grep -A20 "Supported interface modes"` to check if your network adapter can run in monitor Mode
  - If `monitor` is not listed, a USB network adapter with monitor functionality will only suffice if the adapter has linux drivers for your version of Linux.

A Linux operating system will be necessary as there is no equivalent of Airmon-ng available for Windows due to the different ways these operating system work.

If your computer does not meet any of the aforementioned requirements, it will be impossible to complete the challenge. As such, please do not attempt the physical drone challenge and instead opt to complete the virtual drone challenge.

We recommend updating all the software in your Ubuntu machine at the first opportunity to ensure minimal risk of technical issues. Perform the following actions on your Ubuntu machine to install updates and other required software.

## A. Update applications with apt

If prompted for approval for any components or features, select YES.

- `sudo apt update`
- `sudo apt upgrade -y`

## B. Install Java

- `sudo apt-get install default-jre`
- `sudo apt-get install default-jdk`

Later on in IntelliJ, your SDK directory will be an SDK directory under `/usr/lib/jvm/`

## C. Install net-tools

- `sudo apt install net-tools`

## D. Install aircrack-ng

- `sudo apt install aircrack-ng`

## E. Install Wireshark

- `sudo apt install Wireshark`
- `sudo dpkg-reconfigure Wireshark-common`
- `sudo gpasswd -a $USER wireshark`

## F. Download IntelliJ Community from the website

Available from: <https://www.jetbrains.com/idea/>.

Download it and follow the instructions in Install-Linux-Tar.txt. When installing, the defaults will work fine for the tasks ahead.

## G. Download the incomplete CX-10W application

Available from links in guides distributed during the event.

Extract the package in a location of your choice. Open the project with IntelliJ.

## H. Install ffmpeg

- `sudo apt-get install ffmpeg`

## I. Reboot your computer

- `sudo reboot`

## J. Install the CX-10W mobile controller application

Use the Play Store or App Store to download the application on your mobile device. The app should be named CX-10WiFi.