ArduPilot SITL (Tailsitter / V-BAT style) – Cheat Sheet

Session: 2025-09-28 19:12

Author: Austin (AUS\_SAC)

# Overview

This cheat sheet captures the minimal, repeatable steps to build and run ArduPlane SITL with the plane-tailsitter model on Windows + Ubuntu/WSL, plus common commands and troubleshooting.

# Prerequisites

• Windows 10/11 with WSL (Ubuntu) installed.

• X server on Windows (VcXsrv, Cygwin/X, or WSLg).

• Git + Python 3.11 recommended.

# Determine WSL Version (PowerShell)

wsl -l -v

# Start X Server on Windows

VcXsrv: Start XLaunch → Multiple windows → Start no client → Disable access control.

Cygwin/X: Run startxwin.

WSLg (Win11): Already built-in.

# Set DISPLAY (Ubuntu/WSL)

export DISPLAY=:0

If on WSL2 and :0 fails:

export DISPLAY=$(grep nameserver /etc/resolv.conf | awk '{print $2}'):0

# Build ArduPilot SITL

cd ~/ardupilot

./waf configure --board sitl

./waf plane

# Run SITL (Tailsitter)

./Tools/autotest/sim\_vehicle.py -v ArduPlane -f plane-tailsitter --map --console -N

# Manual Start (Alternative)

Terminal A: ./build/sitl/bin/arduplane --model plane-tailsitter ...

Terminal B: mavproxy.py --master=tcp:127.0.0.1:5760 --out=127.0.0.1:14550 --map --console

# MAVProxy – Quick Commands

help – list commands

status – link, mode, GPS, battery summary

mode QHOVER / mode QSTABILIZE – hover modes

arm throttle / disarm – arm/disarm sim

param show ARMING\_CHECK – read parameter

# Exiting Cleanly

In MAVProxy: type exit or Ctrl+C.

If manual: Ctrl+C in ArduPlane terminal, exit in MAVProxy.

If port stuck: ss -ltnp | grep 5760 → kill -9 <pid>

# Common Errors & Fixes

Can't open display – Start X server, set DISPLAY=:0 or <host-ip>:0

MAVProxy connection refused – Start ArduPlane first or use -N with sim\_vehicle.py

no such option: --no-terminal – Use -N in new ArduPilot versions

X windows don’t appear – Verify X server with xterm & or xclock &

Master URI typo – Correct form is --master=tcp:127.0.0.1:5760

# Version Checks

sim\_vehicle.py --version – SITL firmware version

git describe --tags – version from Git