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# Acknowledgements

# Overview

CONDOR is a set of programs and scripts designed to evaluate the performance of rotorcraft, size them for a given mission, and develop data sets of rotorcraft performance figures across a large design space. It is written in Python, and requires some manual editing of the scripts in order to customize its use to a particular scenario, and output the desired data. For this reason a basic knowledge of Python is recommended, but not required.

## Installation

The current code is available at https://github.com/quantumlemur/CONDOR from which it can be downloaded as a zip archive. This can be extracted to any desired location. It requires Python as well as three additional libraries, all of which are available online. For a Windows installation, these can be downloaded from the following websites and installed.

* Python 2.7: http://www.python.org/
* NumPy: http://www.numpy.org/
* SciPy: http://www.scipy.org/
* MatPlotLib: http://matplotlib.org/

If using Linux or MacOS, these should all be available through your distribution’s package manager. For example, to install all the dependencies under Debian or Ubuntu, open a console and type:

sudo apt-get install python python-numpy python-scipy python-matplotlib

## Running

Once the dependencies are installed, the various scripts included in CONDOR can be run by opening a command prompt or terminal, navigating to the containing directory, and running them. While they can be run outside of a terminal, it is not recommended, as you will lose any visible debug information when the program closes.

Configuration is specified in various .cfg files, located in the Config/ directory. The particular configs to use is hard-coded into the various scripts, so it is needed to edit the script to switch configs. These are specified at the top of each of the scripts, in the script configuration block.

## File Locations

The scripts to be run are all located in the root CONDOR/ directory. Configuration files (missions, vehicles, and c81 tables) are located in the CONDOR/Config/ directory. One-off vehicle output is written out to CONDOR/Config/output.cfg. Data set output goes to CONDOR/Output/ and can then be consolidated in CONDOR/Output/ConsolidatedDesignSpaceFiles/. Graphical output is stored in CONDOR/Output/Figures/. Finally, runfiles and control files for the use of designSpaceGenerator can be found in CONDOR/Output/RunFiles.

# Configuration

The configuration details are specified in the configuration files, located in the Config directory, and ending with the .cfg extension. The particular config files to be used are specified in the top of each script, in its script configuration block. Some scripts have additional configuration in this block, which will be detailed in the Code Layout section of this document.

## Vehicle Configuration File

## Mission Configuration File

## Airfoil c81 Tables

# Code Layout

## rf

## vehicle

## BEMT

## designSpaceGenerator

## consolidateDesignSpaceFiles

## parameterSweep

## payloadRangeCurve

## makeFigures