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Instruction and Operations Manual

Aviation Training Device (BATD)

Models: RSG-BG1, RSG-CG1 and RSG-CC1 (G1000 Trainer)

Version 1.3

January 18, 2023

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Product Overview

Thanks for purchasing the RealSimGear RSG-BG1, RSG-CG1 or RSG-CC1 simulator systems. The RSG-BG1, RSG-CG1, and RSG-CC1 have been designed to provide pilots with an ultra-realistic flight training environment that very closely resembles common single engine and light twin aircraft. The system is comprised of the following major components:

- Steel instrument panel with glareshield and LED lighting
- G1000 PFD and MFD display units with G1000 style Audio Panel and AutoPilot
- Switch Panel providing major electrical and landing gear operation
- Yoke, throttle, and rudder pedal controls
- Performance computer system running Windows 11 and X-Plane 11/12
- 49” Ultrawide Monitor and stand for wide viewing angles
- The simulator has been approved as an FAA BATD including the following aircraft:
    - Cessna 172
    - Cessna 182
    - Piper Archer III/TX
    - Cirrus SR20
    - Cirrus SR22
    - Cirrus SR22T
    - Diamond DA40/50
    - Mooney Ovation

NOTE: The FAA Letter of Authorization (LoA) allowing the use of this simulator as an FAA certified trainer, prohibits the installation of additional hardware, software, and add-ons. Doing so may void the LoA making any time logged on the simulator with modifications, invalid.

Power Up

Once the hardware has been unpacked, set up and connected, (see the Setup Guide) you can use the following steps to power on the system.

1. Locate the supplied power strip and ensure it is turned to the ON position
2. On the computer system, ensure the master power switch on the back of the system is turned on (next to the power plug in the computer system).
3. On the main instrument panel (RSG-BG1), turn on the power switch on the upper left corner of the front of the main instrument panel (the red LED will illuminate). If using the RSG-CC1, the power switch is found on the back of the console.
4. On the top of the computer system, press the power switch on the top of the unit. This will cause the computer system to start booting.
5. The monitor should automatically turn on, if not, ensure you press the power button on the monitor.
6. The computer system will boot up and bring you to the Windows Desktop.
7. Once started, if using Wi-Fi for network access, click on the network icon in the taskbar and connect to the appropriate WiFi network.
8. If using an iPad as the instructor station, make sure it is connected to the same Wi-Fi network as the simulator PC.

Quick Start

This section provides steps to perform a quick start on the simulator. For additional information about the X-Plane menus and options, see the next section or refer to the X-Plane user manual, which is linked via a shortcut on the Desktop. These steps assume you have performed the previous Power Up section and the system is turned on and showing the Windows Desktop.

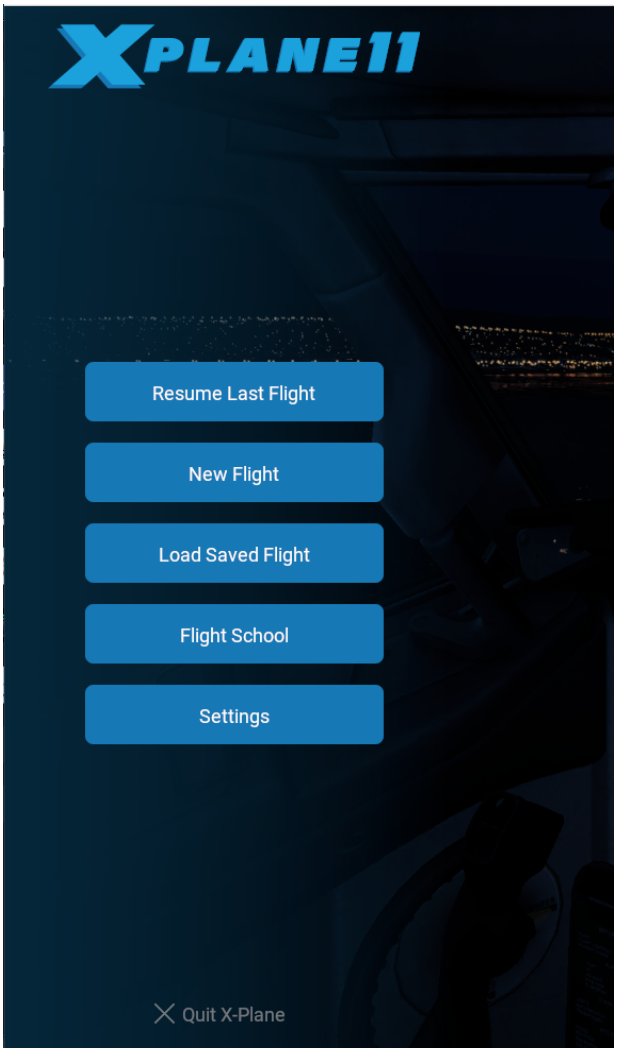
1. Locate the 'X-Plane PRO FAA'  shortcut on the Desktop, and double-click it to start X-Plane.
2. Once X-Plane loads you will see the main screen, choose 'New Flight' from the menu.
3. Select the 'Cessna Skyhawk (G1000') from the 'Aircraft' menu (it will highlight).
4. In the 'Location' box, enter the ICAO entry for the airport you would like to start at, KSEA for this demo.
    a. Select 'Customize' from the Location section
    b. Select 'GA Ramp 2' by clicking on the gray start spots or choosing 'GA Ramp 2' from the list
    c. Select 'Confirm'
5. Select 'Customize' from the 'Weather' Section
    a. Select 'VFR' from the dropdown
    b. Select 'Done'
6. Select 'Customize' from the 'Time of Day' section
    a. Select 'Track real-world date & time'
    b. Select 'Done'
7. Select 'Start Flight'

X-Plane Options

This guide will guide you through the basics of setting up a flight in X-Plane. For more details, please see the X-Plane User Guide included as an appendix to this document.

Main Screen

When you first start X-Plane, you will be presented with the main screen.



Resume Last Flight - This option will load the last scenario in use, including the aircraft, weather, and location.

New Flight - Use this option to set up a new flight, select aircraft, set weather and location

Load Saved Flight - This option can be used to load previously configured scenarios, aircraft, weather and location

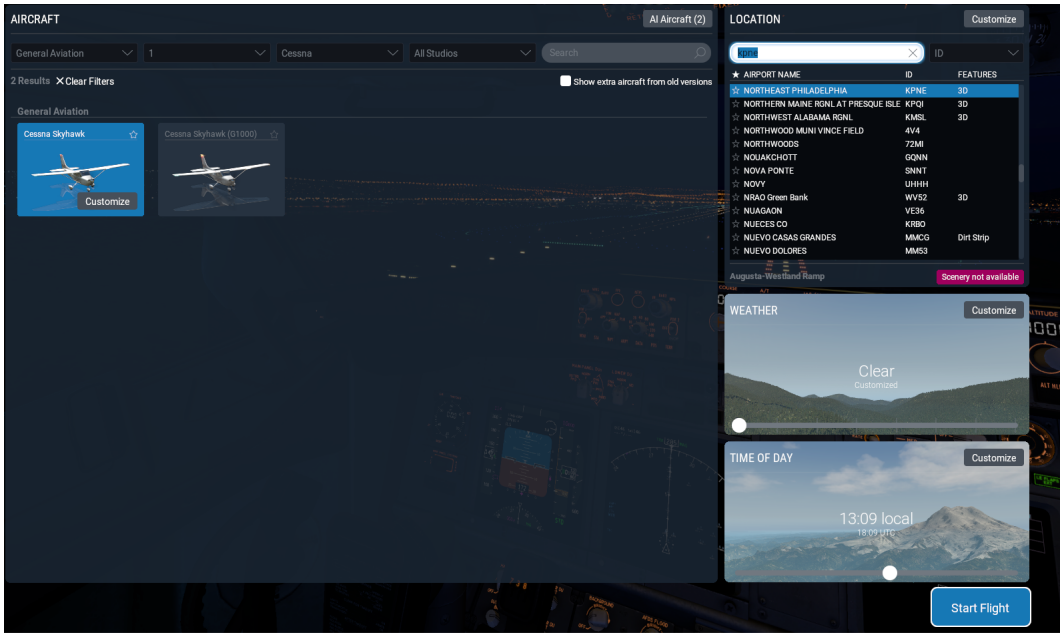
Flight School - This option provides some high level introductory lessons to be used to familiarize students with X-Plane 11 as well as aircraft systems.

Settings - This option allows you to change the simulator settings

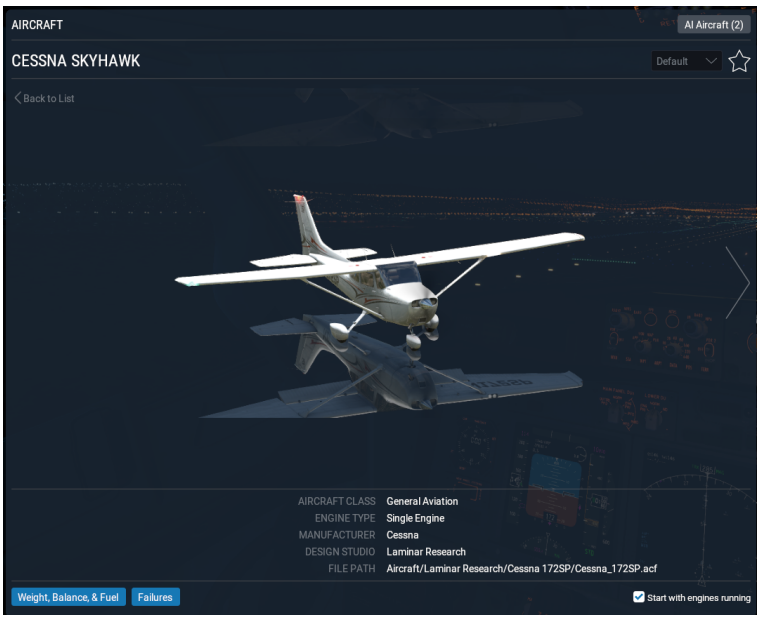
Quit X-Plane - This exits the simulator and takes the user back to the Desktop

New Flight Screen

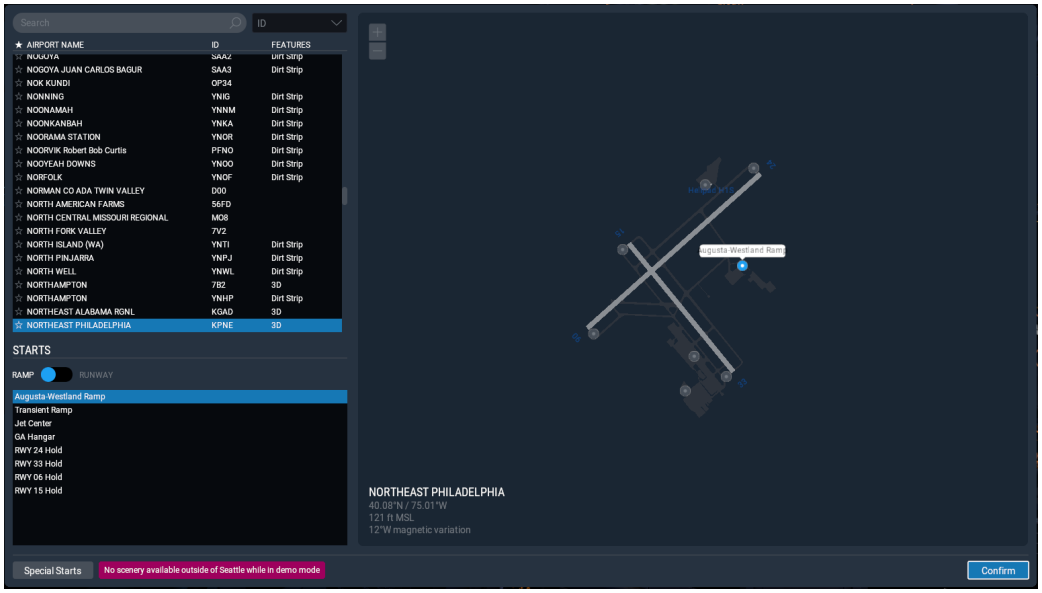
This screen allows you to build a flight scenario.



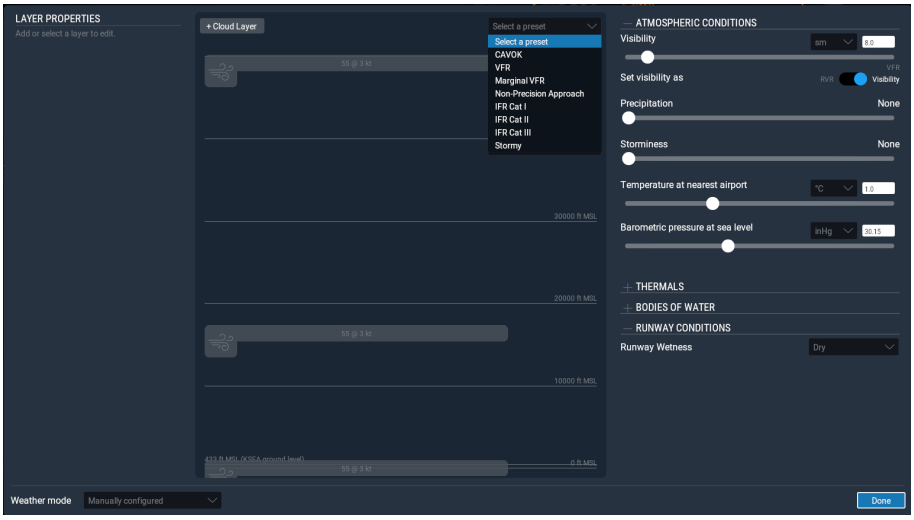
- **Aircraft** - Select one variation of the aircraft shown (Cessna Skyhawk (G1000)
    - Customize - Modify Weight, Balance, Fuel, Failures, and color scheme



- **Location** - Choose the airport
    - Customize - Choose starting location on the airport



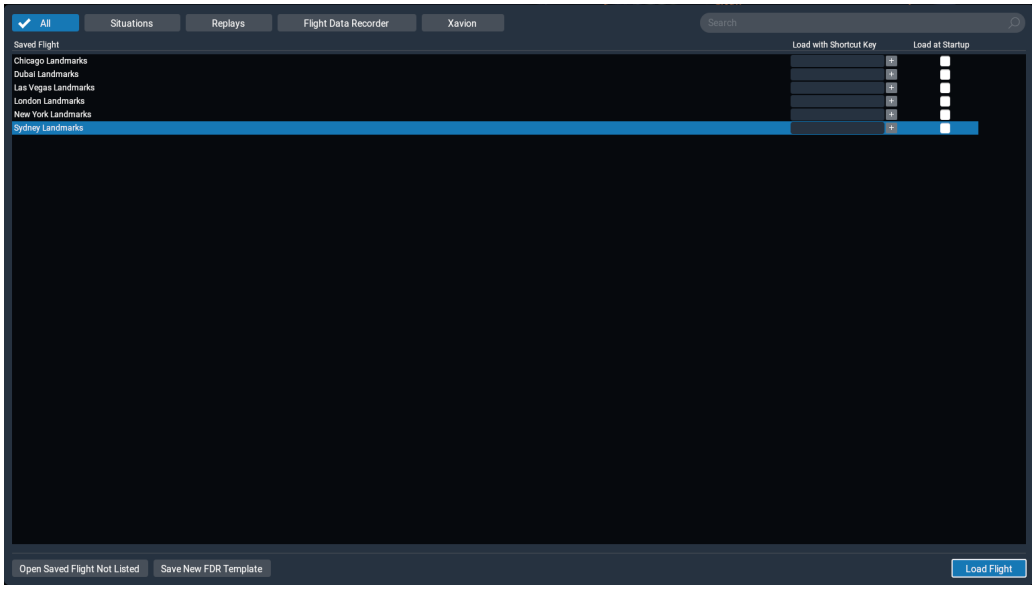
- **Weather > Customize** - Choose the weather conditions you want to use, either from preset conditions or by manually selecting wind speed and direction, cloud types/heights, visibility, precipitation, storminess, temperature, pressure, thermals, and runway conditions



- **Start Flight** - Once you have your flight configured you can choose the button

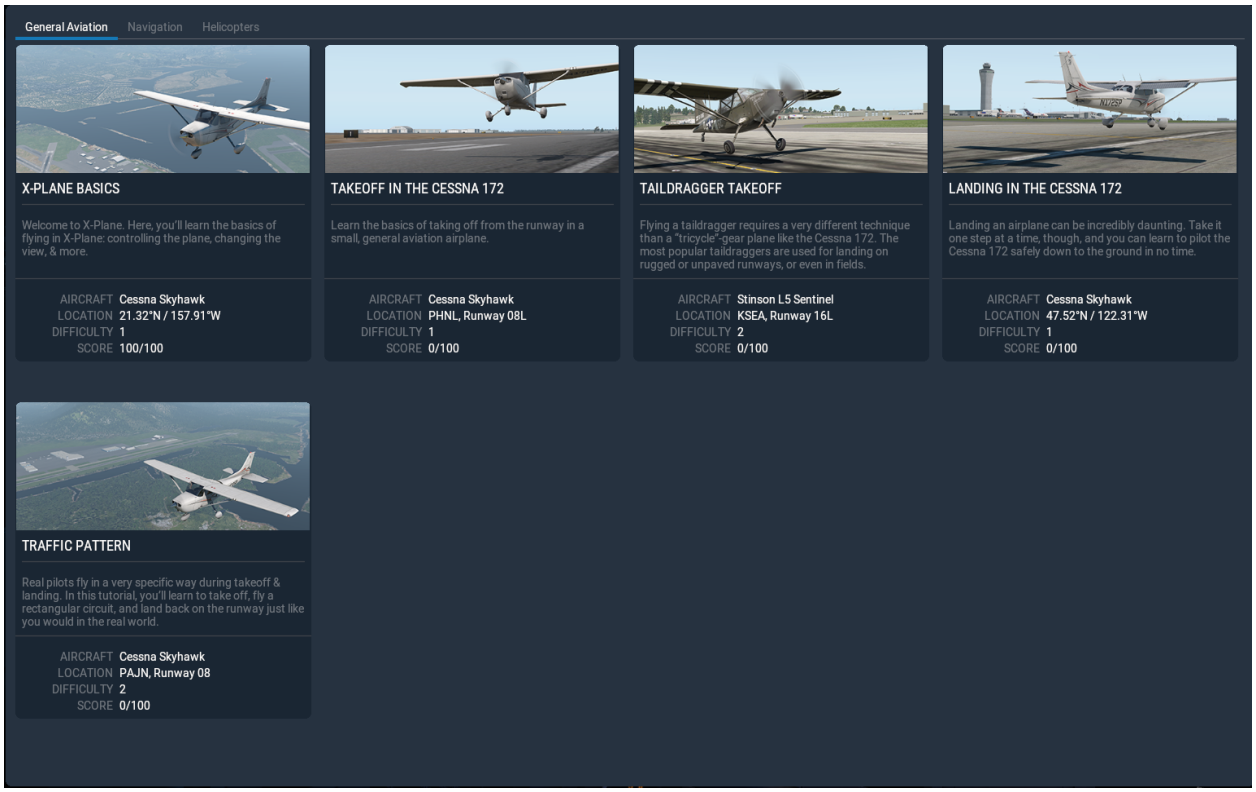
Load Saved Flight Screen

Using this screen, you can load pre-configured flight scenarios.



Flight School

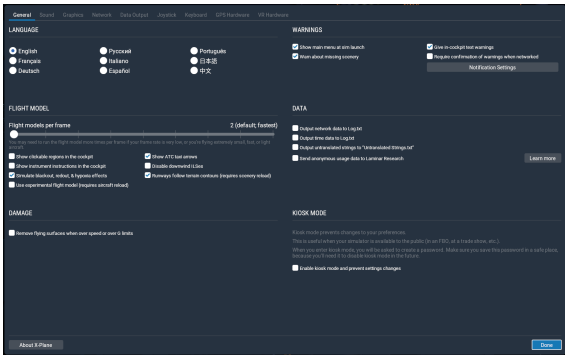
This screen allows you to choose from and run some high level instructional lessons in order to become more familiar with X-Plane and basic aircraft functions. Selecting one of the options will immediately begin the interactive lesson.

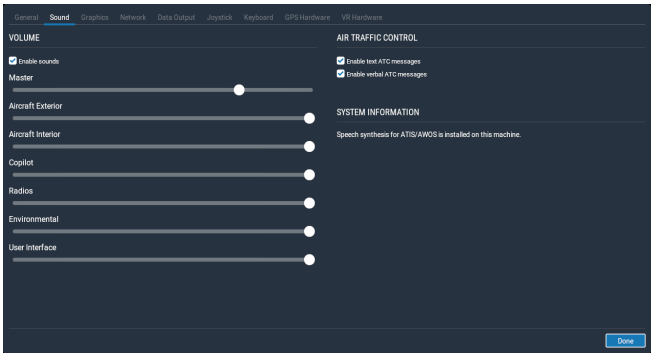


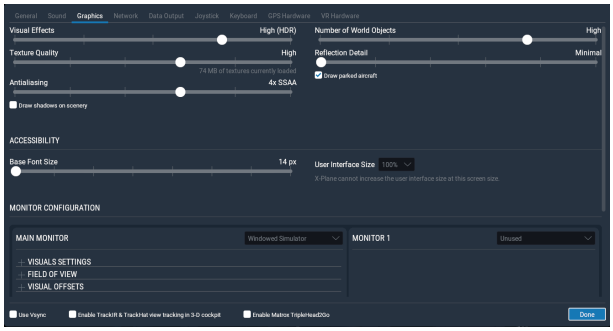
Settings Screen

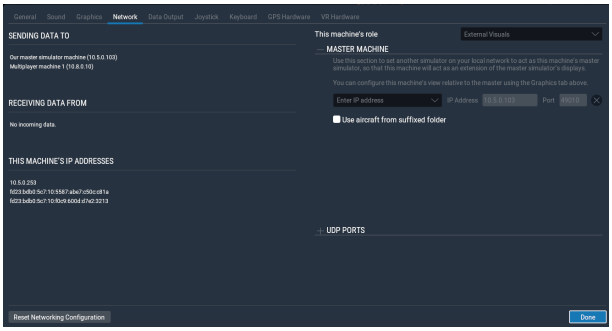
This screen allows for setting a vast array of X-Plane configuration items. RealSimGear pre-configures the optimal settings for the RSG-BG1, RSG-CG1, and RSG-CC1. This could include:

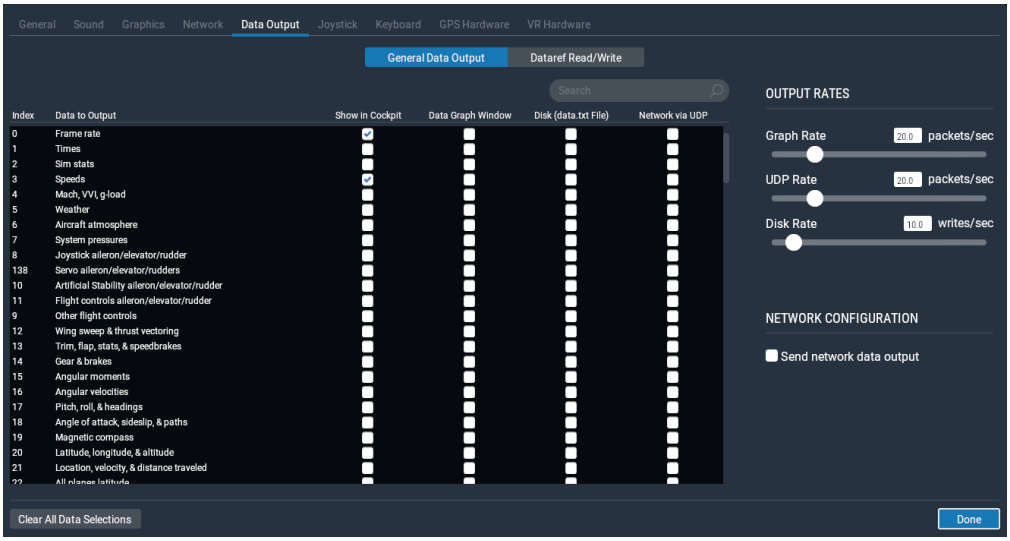
- Language Used in the Interface
- Set Sound preferences
- Set Graphics preferences
- Configure network operations (ie integration with ForeFlight)
- Configure Data Output options
- Configure Flight Controls (calibration, axis and button assignments)
- Configure Keyboard mappings
- Create and manage Control/Keyboard profiles

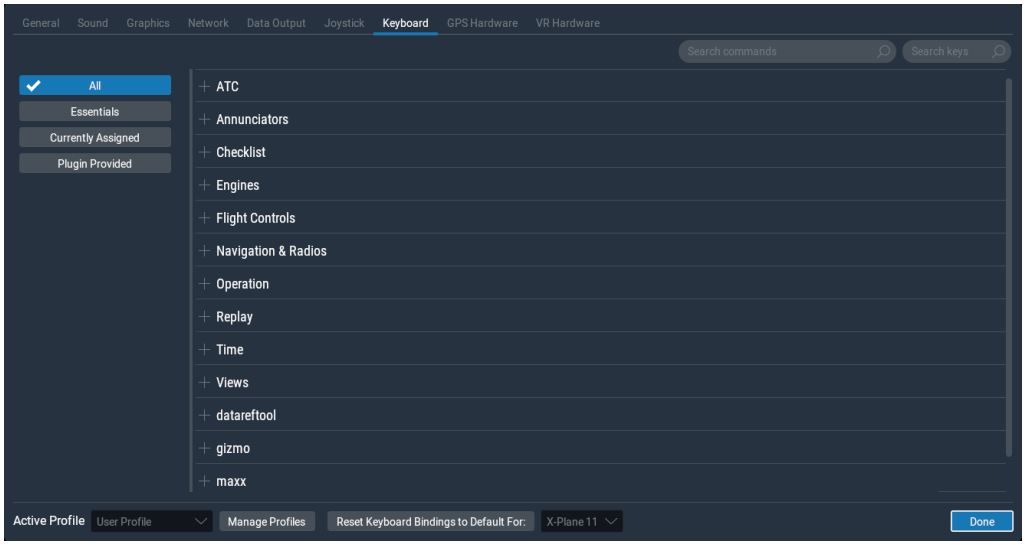









General
Sound
Graphics
Network
Data Output
Joystick
Keyboard
GPS Hardware
VR Hardware
General Data Output
Dataref Read/Write
Search
Index
Data to Output
Show in Cockpit
Data Graph Window
Disk (data.txt File)
Network via UDP
0 Frame rate
1 Times
2 Sim stats
3 Speeds
4 Mach, VVI, g-load
5 Weather
6 Aircraft atmosphere
7 System pressures
8 Joystick aileron/elevator/rudder
138 Servo aileron/elevator/rudders
10 Artificial Stability aileron/elevator/rudder
11 Flight controls aileron/elevator/rudder
9 Other flight controls
12 Wing sweep & thrust vectoring
13 Trim, flap, stats, & speedbrakes
14 Gear & brakes
15 Angular moments
16 Angular velocities
17 Pitch, roll, & headings
18 Angle of attack, sideslip, & paths
19 Magnetic compass
20 Latitude, longitude, & altitude
21 Location, velocity, & distance traveled
22 All planes latitude
OUTPUT RATES
Graph Rate
20.0
packets/sec
UDP Rate
20.0
packets/sec
Disk Rate
10.0
writes/sec
NETWORK CONFIGURATION
Send network data output
Clear All Data Selections
Done

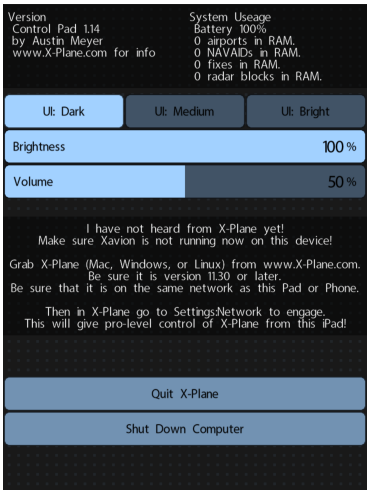

General
Sound
Graphics
Network
Data Output
Joystick
Keyboard
GPS Hardware
VR Hardware
Search commands
Search keys
All
Essentials
Currently Assigned
Plugin Provided
ATC
Annunciators
Checklist
Engines
Flight Controls
Navigation & Radios
Operation
Replay
Time
Views
datareftool
gizmo
maxx
Active Profile
User Profile
Manage Profiles
Reset Keyboard Bindings to Default For:
X-Plane 11
Done

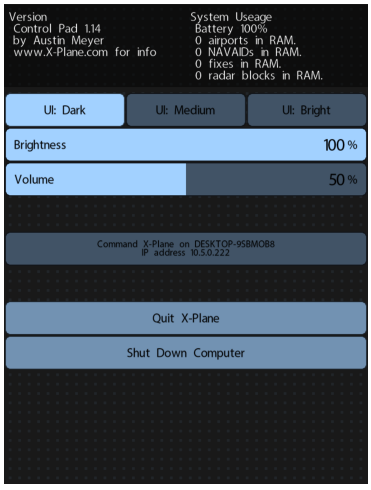
Instructor Station

The RSG-BG1, RSG-CG1, and RSG-CC1 have the ability to use an Apple iPad as an instructor station (iPad not included with system purchase). If you choose to use this option, you will need to source an iPad separately and install the interface application called 'Control Pad'. This application is used to interface with the simulator software, X-Plane, and provide Instructor functionality such as setting time, weather, location, as well as control aircraft failures and track aircraft progress.

iPad Instructions

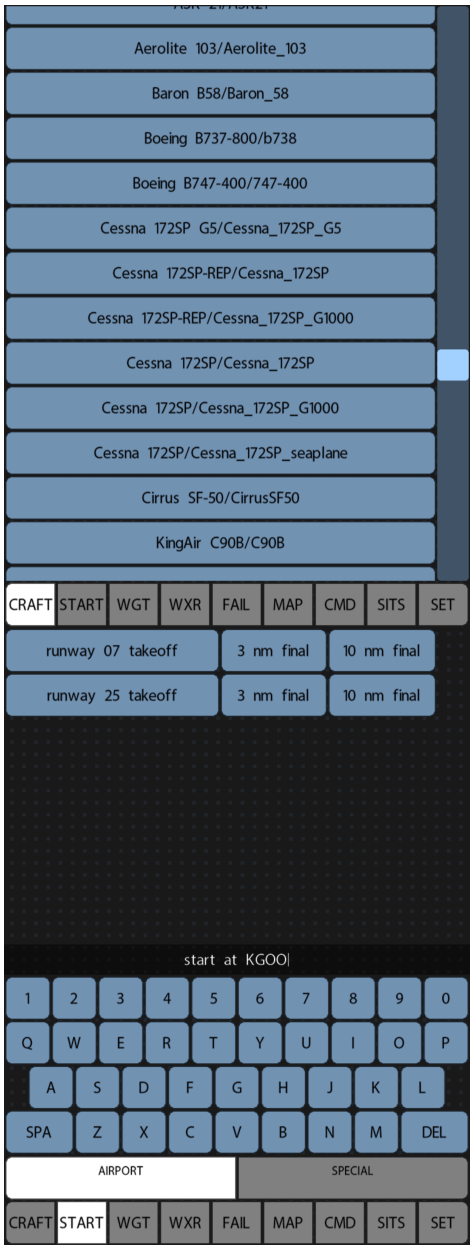
1. Power on the iPad by holding down the power button located on the top right side of the iPad
2. iPad is booting when the Apple logo is displayed, and will boot to the iPad home screen when finished
3. Once the iPad has finished booting, make sure the iPad is connected to the same network as the simulator computer system.
4. Ensure X-Plane is running on the simulator computer system Find and open the 'Control Pad' application from the iPad desktop
5. Choose the UI settings you are comfortable with
6. Once Control Pad connects to X-Plane, you will have a button in the middle that says "Command X-Plane on ….", select that button to take control of that system





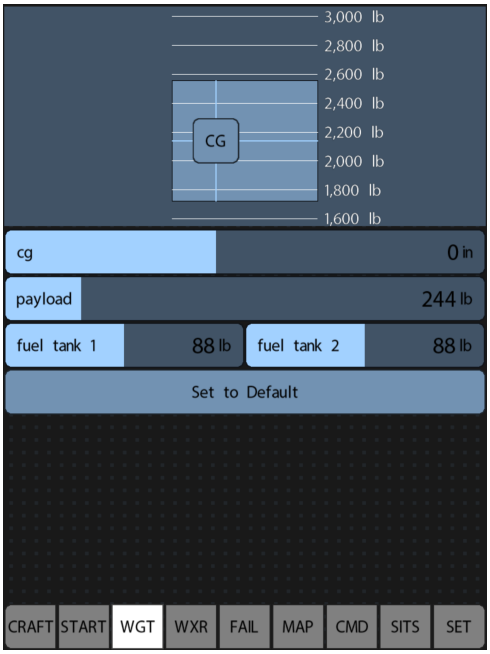
Once the Control Pad is connected to X-Plane, the Instructor can use 'Control Pad' to manipulate the flight parameters.

1. On the RSG-BG1, RSG-CG1 or RSG-CC1, start a new flight, choose the aircraft and location you want to use.
2. On 'Control Pad', choose options from the bottom menu to modify the in-simulator settings
    a. CRAFT - This allows the instructor to change the loaded aircraft. It is recommended this is done within the RSG-BG1, RSG-CG1, or RSG-CC1 instead of via 'Control Pad'. When using 'Control Pad', these changes can take some time and it may appear X-Plane is hung.

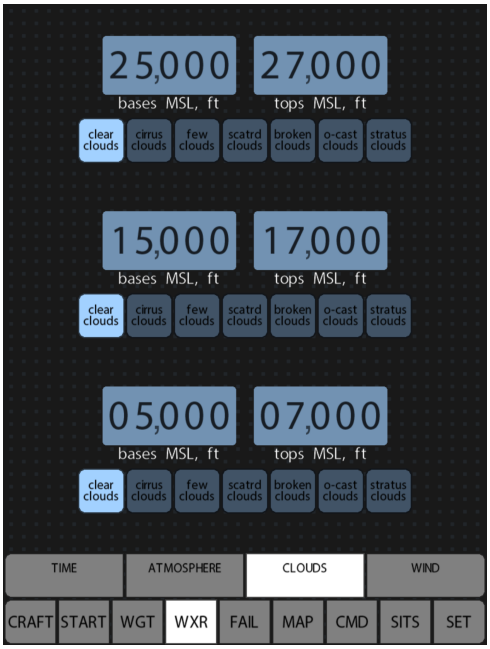


    b. START - Select the airport and starting position. It is recommended this is done within the RSG-BG1, RSG-CG1, or RSG-CC1 instead of via 'Control Pad'. When using 'Control Pad', these changes can take some time and it may appear X-Plane is hung.

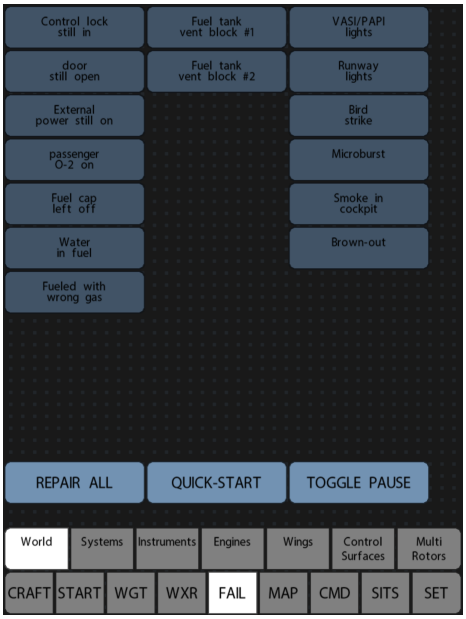
c. WGT - Set the weight and balance parameters for the aircraft



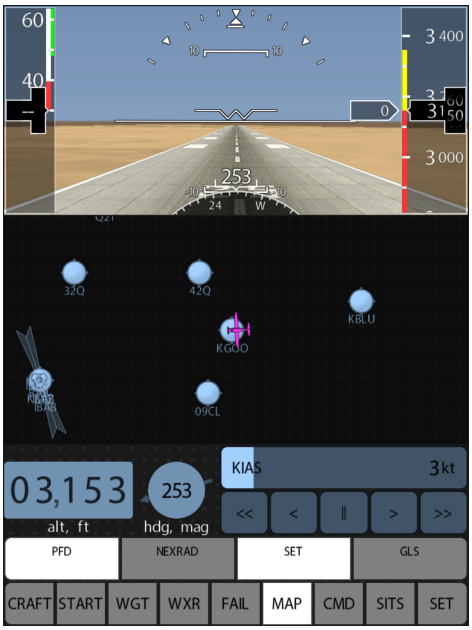
d. WXR - Manually set the weather conditions for the flight



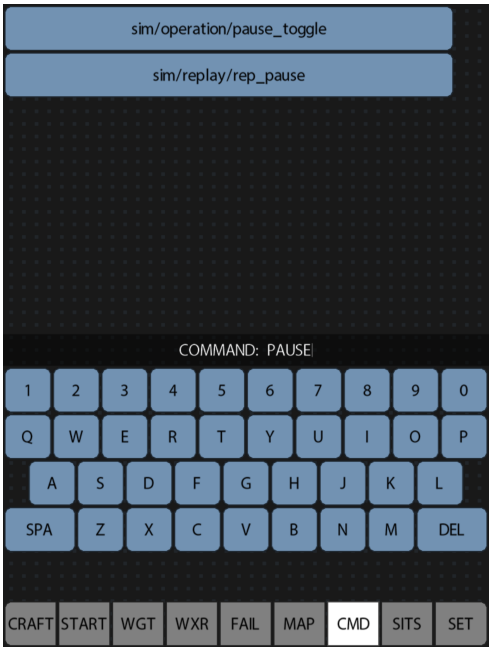
e. FAIL - Create immediate failures for the aircraft



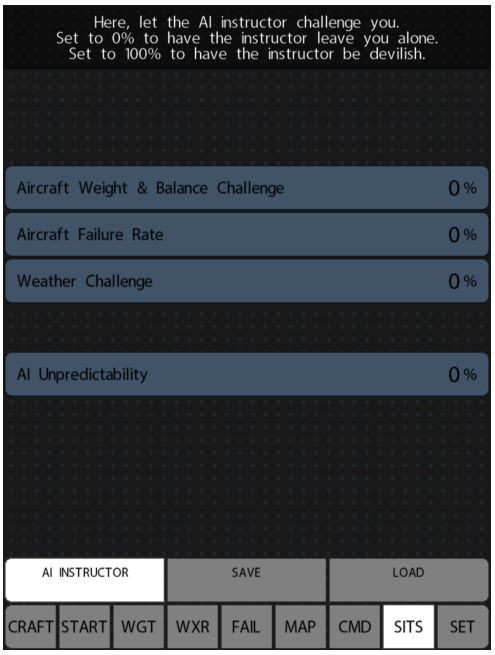
f. MAP - View a moving map, vertical profile, airspeed, altitude, and attitude for the aircraft and flight



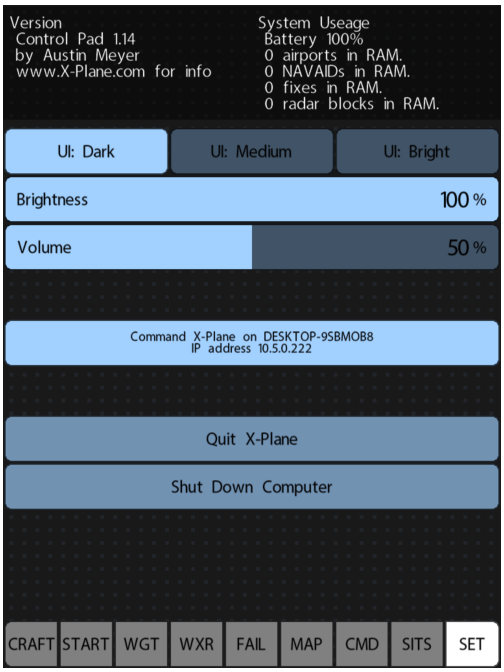
g. CMD - Manually execute X-Plane commands. Start typing a command and ‘Control Pad’ will search for matching commands



h. SITS - Select pre-built situations to fly



i. SET - Main screen that allows setting UI parameters in ‘Control Pad’, select the X-Plane instance to control and Quit X-Plane.
    i. Note “Shut down the Computer” is INOP.



Additional Documentation

For additional information related to X-Plane Pro or using the X-Plane G1000 suite, please refer to the X-Plane documentation by clicking on the shortcut on the computer system Desktop for ‘X-Plane Instructions’. The actual location of this documentation is typically at:

‘C:\X-Plane 11\Instructions’ or ‘C:\X-Plane 12\Instructions’

Maintaining the Simulator

The RSG-BG1, RSG-CG1, and RSG-CC1 do not require much maintenance once assembled, but the following are recommended:

- When not using the simulator, please ensure the master power switches on the main simulator panel and the computer system (or the power strip) are turned to the off position. This will ensure all equipment is powered down when not in use.
- When not using the simulator, it is advisable to cover the simulator panel, computer system, and monitor with a lightweight cloth to simply protect against dust. If the system becomes soiled, use a damp cloth to clean.
- Periodically Windows may update, you may need to approve these updates

Troubleshooting

The RSG-BG1, RSG-CG1, and RSG-CC1 are very robust simulation platforms and will provide you years of trouble-free operation. However there are some things that can go awry at times, what follows are some troubleshooting steps for some issues.

System will not turn on

The RSG-BG1 and RSG-CG1 have two primary power supplies, one for the simulation panel itself, the other for the computer system. The RSG-CC1 has three primary power supplies, one for the simulation panel itself, one for the computer system, and one for the Yoke. These connections should be powered via a power strip when possible; ensure the power strip is turned on. Both the simulation panel and computer system have master power switches, please ensure both are turned on. Finally, to turn on the computer system, ensure you have pressed the power button located on the top/front of the computer system.

System powers up, but the buttons on the hardware do not register in the simulator

The RSB-BG1, RSG-CG1, and RSG-CC1 hardware are all driven via USB connections on the back of the main simulator panel. If the hardware buttons do not work, please ensure the USB cable is securely attached between the back of the simulator panel and the computer system. Also ensure the power switch on the back of the simulator panel is turned on.

The simulator software (X-Plane) crashes for an unknown reason

X-Plane PRO, when configured as an ATD, is typically very stable. If for any reason you experience a crash to desktop (CTD), please locate the 'Log.txt' file in the 'C:\X-Plane 11' or 'C:\X-Plane 12' folder, and contact RealSimGear support, providing that file, for assistance.

The Instructor Station iPad will not connect to the simulator

Ensure that the computer system and iPad are both connected to the same network, either via WiFi or Ethernet.

Contact RealSimGear

In the event you experience any issues and need to contact RealSimGear, you can do so via the following methods:

- Phone - 858.263.0087 - Monday - Friday, 9:00am - 9:00pm, EST
- Email - support prosupport@realsimgear.com
- Website - http://help.realsimgear.com
- Intercom - Choose the Intercom icon from any of our website pages 

Our mailing address is:

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San Diego, CA 92111