

CHALK RIVER GRAPHICS

CrgSim ComMgr

Installation and User's Guide

Chalk River Graphics

9/6/2017

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Communications Manager

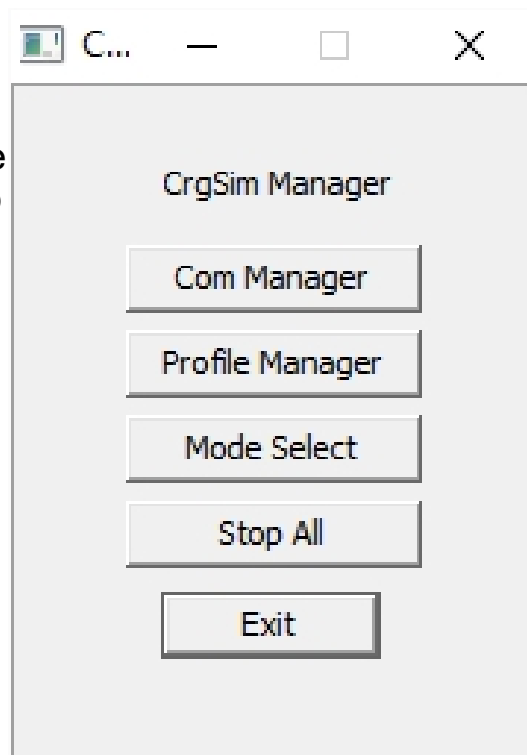
The communication manager (crgcom.exe) is the switching point for all data in CrgSim. It receives information from the FSX interface program and distributes it to all of the CRG programs that have registered with the Communications Manager. It is located in the ComMgr folder in the CrgSim distribution.

On startup the ComMgr displays a small window that provides access to the various features and functions of the Communications Manager.

It has buttons to open ComMgr info windows, to open the Profile Manager, to display a window to set the mode of other CrgSim displays, and to stop all running CrgSim programs on the local net (except the ComMgr) with a single press of a button.

Each of these components will be described later in this document.

But first we have to install the program.



Installation

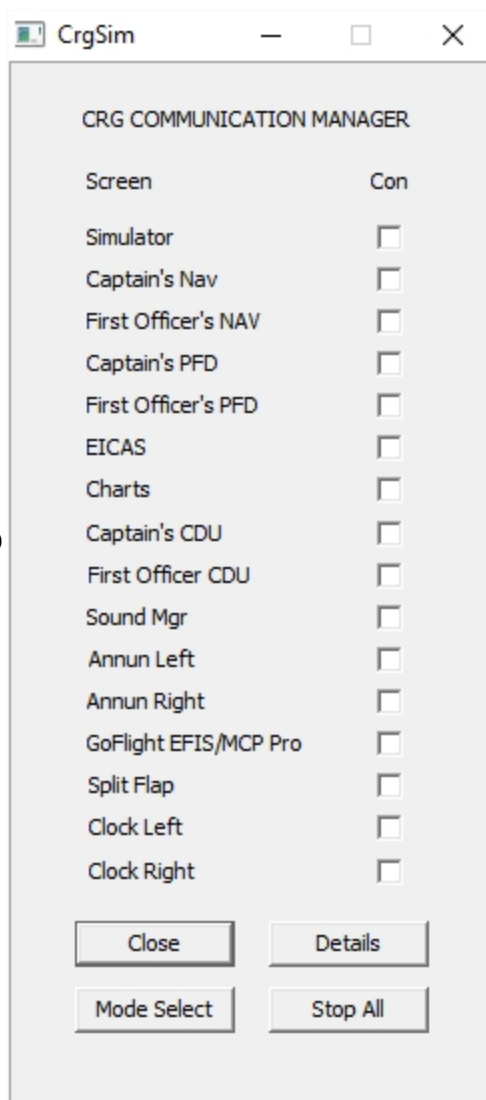
Copy the ComMgr folder to the computer that will run it. An older XP computer may be a good choice since the ComMgr does not use any DirectX graphics although a newer Win7 computer will be just fine.

Start Up

After starting up the ComMgr will listen for calls from other CrgSim instruments and modules. When it hears a call it will contact the instrument to set up a connection. The details of these connections may be viewed by clicking on the ComMgr Button.

ComMgr connection information is available in summary or in detail form. The summary ComMgr window is the window to the right of this paragraph.

When the CrgSim components connect to the ComMgr a check mark will appear in the “Con” column.



Clicking on the “Details” button will replace this window with the expanded ComMgr window (below) that provides additional detail on the CrgSim networked components such as IP address and port of each registered component, total messages received by component, and percent of good messages received. (There will always be at least one message missed due to serial number syncing).

The screenshot shows the 'CRG COMMUNICATION MANAGER' window. It contains a table with columns: Screen, Con, IP, Port, Msgs Received, Msgs Missed, Percent Received, and Version. The table lists various components like Simulator, Captain's Nav, First Officer's nav, Captain's PFD, First Officer's PFD, EICAS, Charts, Captain's CDU, First Officer's CDU, Sound Mgr, Annun Left, Annun Right, GoFlight EFIS/MCP Pro, Split Flap, Clock Left, Clock Right, and DB Manager. The 'Con' column has checkboxes, some of which are checked. The 'IP' and 'Port' columns show values for the checked components. The 'Msgs Received' and 'Msgs Missed' columns show counts, and the 'Percent Received' column shows percentages. The 'Version' column shows the version number for each component.

| Screen | Con | IP | Port | Msgs Received | Msgs Missed | Percent Received | Version |
|-----------------------|-------------------------------------|--------------|------|---------------|-------------|------------------|----------|
| Simulator | <input type="checkbox"/> | | | | | | |
| Captain's Nav | <input type="checkbox"/> | | | | | | |
| First Officer's nav | <input type="checkbox"/> | | | | | | |
| Captain's PFD | <input checked="" type="checkbox"/> | 192.168.0.92 | 9023 | 16 | 1 | 93.75 | 1.170828 |
| First Officer's PFD | <input type="checkbox"/> | | | | | | |
| EICAS | <input type="checkbox"/> | | | | | | |
| Charts | <input type="checkbox"/> | | | | | | |
| Captain's CDU | <input checked="" type="checkbox"/> | 192.168.0.92 | 9035 | 24 | 1 | 95.83 | 1.170906 |
| First Officer's CDU | <input type="checkbox"/> | | | | | | |
| Sound Mgr | <input type="checkbox"/> | | | | | | |
| Annun Left | <input type="checkbox"/> | | | | | | |
| Annun Right | <input type="checkbox"/> | | | | | | |
| GoFlight EFIS/MCP Pro | <input type="checkbox"/> | | | | | | |
| Split Flap | <input type="checkbox"/> | | | | | | |
| Clock Left | <input checked="" type="checkbox"/> | 192.168.0.92 | 9039 | 20 | 1 | 95.00 | 1.170828 |
| Clock Right | <input type="checkbox"/> | | | | | | |
| DB Manager | | 192.168.0.92 | 9019 | | | | 1.170906 |

Buttons: Close, Summary, Stop All

Last Message

| | | |
|--------------|---|------------|
| 20:11:23:265 | IP: 192.168.0.92 | Port: 9023 |
| 20:11:23:249 | Register request from PFD L. Ver 1.170828 | |
| 20:11:08:030 | IP: 192.168.0.92 | Port: 9039 |
| 20:11:08:015 | Register request from CLK L. Ver 1.170828 | |
| 20:10:51:280 | IP: 192.168.0.92 | Port: 9035 |

The image above is the “Details” screen for the Communications manager. Click on the “Summary” button to go back to the summary screen.

Windows Batch Start Up File

Each instrument is run as a separate program, necessary to allow complete flexibility as to the directory and the computer the instrument executes on. Most systems will have the majority (if not all) of the instruments run on one computer. In this case it is possible to start everything up with one windows batch file.

A sample batch file (StartCrgSim.cmd) is included in the CrgCom directory. You can use this file as an example to build a start up file customized to your system. The “set” command at the top defines the top level directory and the “Delay” set command sets the time delay between the start up of the next program. The delay smooths out the load on the computer during start up.

You will need one start up command for each computer that runs CrgSim instruments. Starting up your system this way is not a requirement, just a convenience.

You may even have separate batch start up files to use for different configurations.

Checking for Newer Versions

On startup crgcom.exe will make one attempt to check if a newer version exists. If you do not want the program to check for new versions start the program with:

```
crgsim.exe -nochk
```

The ComMgr.log will contain an entry confirming the new version check choice.

Profile Manager

CrgSim aircraft profiles contain information about many of the default FSX aircraft. The profiles contain:

- Speeds for V1, VR, V2, and VRef.
- Positions for each of the flap positions
- Max and Min speed values (“bricks”)

These values are used by the PFD to determine where to put the “Vees” next to the speed tape and by the EICAS to determine how to display the flaps box.

The communications manager builds and maintains aircraft profiles. There are default profiles for the default Boeing 737, Boeing 747, Cessna 172, Grumman Goose G21, Beachcraft Baron 58, Airbus A321, Beechcraft King Air 350, Douglas DC3, Bombardier CJ700 and the Ultralight trike.

If you are satisfied with the included aircraft profiles then there is no need to read further in this section. If you decide to modify some of the profile values then please refer to the definitions below.

Aircraft Profile Contents

Most of the values contained in the aircraft profile depend on a number of factors such as fuel load, passenger load, ambient temperature, altitude, and barometric pressure. Many are determined by the flight computer based on values entered by the flight crew. The profiles included in the distribution are static values. If you want to set up a different set of parameters for a specific condition feel free to create your own set of the profiles and then edit the flight values to those more to your liking or conditions. You can create a number of different profiles for an aircraft under different loading conditions and then load the most appropriate one before take off.

Aircraft profile variables include:

- modelname - the name of the aircraft as reported by FSX. This name must be exactly the same of the FSX name and is case sensitive.
- V1 - maximum speed at which a rejected takeoff can be initiated.
- VR - rotation speed
- V2 - minimum speed that needs to be maintained up to acceleration altitude.
- Fuhi - full flaps up do not exceed speed.
- Fdlo - full flaps down do not exceed speed
- Fulo - full flaps up minimum speed
- Fdlo - full flaps down minimum speed
- Vref - landing reference speed at a point 50 feet above the landing threshold. VRef is indicated to the right of the speed

tape by “RF”.

- Maxclimb - when climbing this is the value CrgSim will send to the MCP. Most of the values are extra conservative to prevent stalling on climb out.
- Maxdescend - when descending this is the value CrgSim will send to the MCP. This must be a positive value.

Creating a Profile

If the aircraft you fly has a default CrgSim profile and you want to change just a few of the variables create a new aircraft profile and include only those variables that you want to change.

The file “B738-V1.crgpro” is an example of a profile that changes three of the variables used in the CrgSim default aircraft profile for the 737.

It contains a line with “modelname B738” to indicate the aircraft, and a line for “V1”, “maxclimb”, and “maxdescend” with new values for each. To use these new values load this profile with the Utilities program and selecting “Load Profile”.

The aircraft profiles, both the ones created by the communications manager and the one you create, help the PFD, Nav, and EICAS displays to more appropriately display aircraft information.

Fly the ultralight trike and you will see VR on the PFD and hear “rotate” as you reach the rotate speed. On the way down you will also get altitude call outs even for the ultralight trike.

Profile Flaps

The flaps portion of the EICAS display operates similar to the real EICAS display. When a new flap setting is set by the pilot the setting bar moves to the new location on the flap display and the bar and target flap detent name turn to magenta. As the flaps move to the target setting FSX provides a continuous stream of flaps percentage numbers that show the progress of the flaps to the new value. The EICAS screen uses these numbers to move the flaps “thermometer type of display”. When the actual flaps percentage reaches the target percentage the flap setting bar and flaps detent name change to green.

If the percentage flaps is not set correctly for a given detent then the percentage as reported by FSX will never reach the target percentage specified in the EICAS configuration file and the setting bar and detent name will never turn green and indicate that the flaps have reached their target setting.

Creating Custom Flaps Settings

How to load flaps settings:

To add flaps settings to your custom profile (or to modify a default profile) add the line “flapsinfo start” to your custom profile.

Then for each of the flap settings you will need the flap setting name (usually different for each aircraft), the flap extension (decimal number between 0.0 and 1.0), and a velocity number (the not to exceed speed for the flap setting).

Usually not every flap setting has a “not to exceed” speed. Just enough so it provide useful information by the side of the speed tape. Look at the file 737default.crgpro in the Utilities directory to see how the velocity numbers are used for each of the 737's flap positions.

To determine the flaps settings for your aircraft, load the aircraft into the simulator and start the simulator interface `crgsim.exe`.

Then select the simulator interface window (it is a command line window) and press the 'F' key. You will see a constant stream of information in the window. It consists of the simulator name for the aircraft (the 737 is displayed as B738), the number of flap positions, the current flap position, and the flap extension amount as a number between zero and one.

Note: Ignore the number at the beginning the line. It just cycles through a count to show that the flap information is still streaming.

In FSX cycle through each flap position writing down the “flap position index” (an aircraft with 4 flap positions will have indexes of 0, 1, 2, and 3), “flap position name”, and the flap extension that you see on the SimInterface display. Be sure to let the extension number settle down to a constant value before using that value.

When you are finished you should have 2 values for each of the current aircraft flap positions: the flap position name, and the flap position extension. Determine which of the flap position you want to show up by the speed tape as a do not exceed amount (the number is in knots). Use a zero for flap positions that are not to show up by the speed tape.

Press the 'F' key to turn off the stream of information in the Simulator interface window.

737 Flaps Settings Example

Using the 737 file as an example we would now have:

```
flapsinfo start
0      0.00      0
1      0.025     235
2      0.050     0
5      0.125     215
10     0.250     0
15     0.375     195
25     0.625     0
30     0.750     0
40     1.00      0
flapsinfo end
```

Now the PFD, the EICAS, and the Nav Display will all show the correct information when you are flying your plane.

The aircraft profile for the Boeing 737 is included in the Utilities directory (737default.crgpro) as a guide in case you want to modify or create your own aircraft profile.

Remember, you do not have to make an aircraft profile if one exists in the system and you are happy with it.

The flaps settings here are static. In the real world they change based on a number of different variables.


Mode Select

The mode select window was created to be used as an internal development aid. It can be used when you do not normally view the default MCP and EFIS on screen and do not want to make them visible to change some of the instrument settings (Nav Display Range, Nav Display Mode, show airports, show waypoints, show nav aids) . There are also some settings unique to CrgSim that you can change while you fly. These changes can be made with the Mode Select window.

| | |
|-------|---|
| Clock | toggle display from Zulu to local time. |
| Nav | Toggle declutter mode |
| | Toggle advance declutter mode |
| | Toggle show labels at 80 NM range |
| | Toggle show nav frequencies instead of ID |
| PFD | Toggle barometer Hg or Inches of mercury |
| MAPS | Select level of map detail. |

Try out the declutter modes if your Nav Display gets crowded.

The buttons on the Mode Select screen are large enough to allow use on a touch screen tablet.

 CrgSim
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Enter Key Or Use Mouse To Select Instrument

| | | |
|----------------|---------------------|---------------|
| M - Maps Left | N - Nav Left | P - PFD Left |
| A - Maps Right | O - Nav Right | R - PFD Right |
| C - Clock Left | K - Clock Right | E - EICAS |
| | Q - Quit | |

TAB - Done

Selected Instrument - Nav Left

| | |
|--------------------------|--------------------------|
| A - Show Airports | D - Declutter Normal |
| E - 80 NM Labels | F - Display Nav Aid Freq |
| S - Show Nav Aids | W - Show Waypts |
| Z - Declutter Advanced | |

Arrow Keys

| | |
|-----------------------|---------------------|
| UP - Increase Range | DN - Decrease Range |
| Right - Previous Mode | Left - Next Mode |

Stop All

The button has the same function as the **Stop All** button on the ComMgr summary and ComMgr details window.

Contact

You can contact us at sim30@[crgsim.com](mailto:sim30@crgsim.com). We are especially interested in your comments, any problems you might have with the programs, and things that you like (or don't like) about them.

After spending a large amount of time removing non-flight sim posts (drugs, counterfeit boots, ... for sale) we reluctantly had to convert the web site to read only.