

CHALK RIVER GRAPHICS

CrgSim Annunciator and Split Flap Panels

Chalk River Graphics

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Table of Contents

Introduction.....	3
Split Flap Two Screen Operation.....	6
Split Flap Display Configuration.....	7
Split Flap Display Operation.....	8
Split Flap Bonus.....	9
Start it up.....	9
Annunciator Configuration.....	10
Annunciator Config Keywords.....	11
Annunciator Light Colors.....	15
Annunciator Lights Status.....	16
Annunciator Lights Indices.....	17
Example Annunciator Configuration File.....	20
Contact.....	22

Introduction

The annunciator panel started life as a development aid for CrgSim. It was used to display an assortment of flight simulator variables while testing. The suggestion was made by a visitor to include it in a distribution to determine if sim pilots were interested in yet another display. Most of the information displayed on the annunciator panel is available on one of the other avionics displays so it is usually not a necessary cockpit component. For those with an empty monitor this display can probably best be classified as eye candy.

Speaking of eye candy the Split Flap display falls into this category. Even though these displays have been disappearing from train stations and airport terminals chances are you have seen at least one of these eye catching displays somewhere. The CrgSim Split Flap panel displays the status of the local AI traffic. If you are at a small airport and/or have little or no AI traffic configured then this will not be an interesting display. On the other hand if you are at a busy airport and have at least some AI traffic configured then this will be a busy display.

LOCAL GND/AIR TRAFFIC									
FLIGHT			FROM	TO	STATUS			RWY	
PACIFICA	5019		KSEF	KSLE	ENROUTE				
N9124A			2V2	KCPS	ENROUTE				
AIRWAVE	1365		KDEN	KPHX	TAXIING			34R	
PACIFICA	3836		KJFK	KDEN	ENROUTE				
WORLD TRAVEL			KDEN	KVCV	INITIAL				
SOAR			KDEN	KBDL	PUSHBACK			34R	
N6979B			KDEN	MMCU	INITIAL				
N92324			KAMN	KFTG	ENROUTE				
N83131			KHLC	KOVE	ENROUTE				
PACIFICA			KDEN	KSJT	TAKING OFF			34R	
PACIFICA			KDEN	KMIA	PUSHBACK			34R	
09:08									

Example Split Flap display awhile sitting on the runway at the t the Denver airport at 9:08 in the morning.

The active ground traffic has been assigned to takeoff on runway 34R.

The airborne traffic in the local airspace is enroute to various destinations. Pacifica 3836 is enroute to KDEN. The status for this aircraft will eventually change to LANDING and then to TAXIING. No runway has yet been assigned.

MAIN DOOR	LOGO LIGHTS	FUEL PUMP 2
CARGO DOOR	CABIN LIGHTS	FUEL PUMP 3
CABIN EXIT 3	PANEL LIGHTS	FUEL PUMP 4
APU FIRE	BEACON	FUEL VALVE 1
COM CONNECT	SEAT BELTS	FUEL VALVE 2
SIM CONNECT	NO SMOKING	VNAV ON
A/C TYPE	AUTO THRUST	VNAV ARMED
GEAR	MSTR AVIONICS	HYD PUMP 1
FLAPS	MSTR BATTERY	HYD PUMP 2
LANDING LIGHTS	PITOT HEAT	HYD PUMP 3
STROBE LIGHTS	AUTO AUTO	HYD PUMP 4
NAV LIGHTS	FLIGHT DIR	PARK BRAKES
TAXI LIGHTS	FUEL PUMP 1	SPOILERS ARMED

Example Annunciator display. The number of buttons in each row and column is configurable. Two annunciator displays are provided and each annunciator can have two different sets of buttons that change when the annunciator is click on.

Split Flap Two Screen Operation

If you have the screen space and operate out of a busy airport you may want to use the two screen split flap mode. One screen displays the status of the ground traffic and one screen displays the status of the airborne traffic in the local area. To turn on the two screen mode add the following line to the split flap configuration file

CrgSplitFlap1.cfg:

```
twoflaps yes
```

Note that if you use the two screen mode you will need a configuration file for each screen.

CrgSplitFlap1.cfg - configuration file for single screen mode (combined airborne and ground traffic) and for the airborne screen of the two screen mode.

CrgSplitFlap2.cfg - configuration file for the ground traffic screen of the two flap mode.

Split Flap Config Keywords

- flapcolor - used to choose the color of the flap letters. Can be either white or yellow.
- Twoflaps - yes or no. Used to select between a combined airborne/ground traffic screen and separate screens for airborne and ground traffic.

```
flapcolor yellow (or)
```

```
flapcolor white
```

Split Flap Display Configuration

If you have only one split flap display the configuration file name is:

`CrgSplitFlap1.cfg`

If you select two split flap displays (see above) the name of the second configuration file is:

`CrgSplitFlap2.cfg`

The Split Flap display has the usual configuration parameters of size and location. The two additional parameters are the color of the letters on the split flaps and whether one or two screen mode.. You can choose white or yellow. The line below shows the choice of yellow letters:

`flapcolor yellow`

Note that when changing the size of the display the text will become distorted. Once you have reached the desired size and pressed F3 followed by F2 the display will restart and the letter size will become corrected.

Split Flap Display Operation

The Split Flap display appearance on start up depends on your aircraft location, simulator AI traffic setting, and time of the simulation day. It will usually start up by showing the status of local airborne traffic. Then ground traffic will slowly come to life. Once the limited number of Split Flap display lines are filled all other AI traffic is ignored. For a single split flap display ground traffic has priority over airborne traffic.

The status of the Split Flap panel will not be displayed on the Communications Manager windows at this time. It is expected to be added by the next release.

On start up the flaps will advance at a fast pace. It will take the program about a minute to be able regulate the speed of the flap advance at the predetermined rate.

Split Flap Bonus

Some sim pilots have asked for the ability to show a second set of split flap displays that are used for screens external to their sim. These screens are typically used to entertain visitors.

If you would like a second set please do the following:

- Copy the entire distribution split flap directory. Rename the copy to something like SplitFlap2 (or what ever you like).
- In the new directory create an empty file called "SecondProg.txt". The name must exactly match.
- In the new directory rename CrgSplitFlap1.cfg to CrgSplitFlap3.cfg
- In the new directory rename CrgSplitFlap2.cfg to CrgSplitFlap4.cfg
- In the new directory change the name of CrgSplitFlap.exe to something else (CrgSplitFlap2.exe)
- If you have a directory c:\CrgSimConfigs the new config files should be placed there. Otherwise they are OK in the new directory.

This extra set of split flap displays should run on any computer in the flight simulators local network as long as the computer supports DirectX10. If the computer gets loaded down the flaps will flip at a slower rate than expected.

Start it up.

Annunciator Configuration

The left annunciator configuration file name is:

`CrgAnnunLeft.cfg`

The right annunciator configuration file name is:

`CrgAnnunRight.cfg`

The annunciator panel is highly configurable. The button size, number of rows, number of columns, and button selection can all be configured. Unlike other instruments the size of the annunciator panel is determined by the number of rows, number of columns, and size of each button. To change the size of the annunciator panel change the size of the buttons. The size will change according to the change in button height or width times the number of rows or cols. For example a display with 8 rows will change in height by 8 pixels for every 1 pixel increase or decrease in button height.

Annunciator Config Keywords

- rows - number of rows in the panel
- cols - number of columns in the panel
- buttonwidth - pixel width of each button
- buttonheight - pixel height of each button
- verticalcentering - a number used to touch up legend vertical centering. Some combinations of button height and font sizes will need a slight touch up with this number to center the annunciator light legend.
- fontsize - font size of the legend. Used to make the legend text proportional to the button size.
- sound - on or off, Prevents or allows double beep sound on button status change.
- sndon - a sound file name to play when the annunciator button is turned on.
- sndoff - a sound file name to play when the annunciator button is turned off.
- annun - this keyword is followed by a number indicating which type of annunciator is to be displayed. The annun keyword is used to select the order and type of annunciator buttons displayed. The listing below contains the reference numbers for each type of display variable.

- fuellowtot - total fuel in gallons at which the annunciator light turns yellow.
- fuelcrittot - total fuel in gallons at which the annunciator light turns reg
- fuellowright - right fuel tank gallons at which the annunciator light turns yellow
- fuelcritright - right fuel tank gallons at which the annunciator light turns red.
- fuellowleft - left fuel tank gallons at which the annunciator light turns yellow
- fuelcritleft - left fuel tank gallons at which the annunciator light turns red
- on - this keyword is followed by the color to be used when the annunciator light is ON. Available colors are gray, red, blue, green, and yellow. For a more colorful display you can also select violet, sienna, and orange.
- Off - this keyword is followed by the color to be used when the annunciator light is OFF. Available colors are gray, red, blue, green, and yellow. For a more colorful display you can also select violet, sienna, and orange.
- legend - each annunciator button has a default legend. The legend can be over ridden with a custom legend. For example: "Exit Door 1" could be renamed "Main Door".
- Panel - an optional keyword to identify either "panel a" or panel b" buttons if you want to have one panel display two sets of annunciator buttons

- annunsounds - the directory name that contains all of the sounds used by the annunciator. If both annunciators are run on the same computer then one directory can hold the sounds for both annunciators. If you have the annunciators split between two different computers AND you want to keep the sounds in a special directory then it is necessary to have an annunciator sound directory on each computer.
- flashon - if the annunciator button state changes from off to on then flash the button for about 5 seconds.
- Flashoff - if the annunciator button state changes from on to off then flash the button for about 5 seconds.
- Flashwhileon - continue to flash the button as long as the state is on.
- Flashwhileoff - continue to flash the button as long as the state is off.

The example below is the configuration for a button to display the status of “Exit 76”

annun 67

legend Main Door

sndon “dooropensound.wav”

sndoff “doorclosesound.wav”

flashon

flashoff

off green

on yellow

The configuration above would change the legend for button 67 from “Exit # 1” to “Main Door”, play the specified sounds then the door is opened or closed, flash the light when the door status changes, and show a green button when the door is closed and a yellow button when the door is open.

The sound files would be supplied by you and must be present in the same directory as the annunciator executable file or in the directory specified by the “annunsounds” keyword.

Annunciator Light Colors

Use of the on/off keywords allow the customization of the annunciator light color. Most of the annunciator lights that have an on/off status can be customized. A few are not customizable such as “Engine Fire” and the lights to indicate connection to CrgSim components.

A error message will not be generated if an attempt is made to change the colors on the few non-customizable annunciator lights.

The following lights have a fixed color scheme:

- Engine Fire
- Connection to Com Manager
- Connection to Simulator
- Connection to Interface
- Model Name
- Latitude
- Longitude
- The various fuel lights
- V1, V2, and Vrotate
- The spoiler lights
- The blank light (always gray)

To change the colors of a light add the on/off keywords after the “annun” keyword:

```
annun 11  
on yellow  
off green
```

In the example above the “logo light” (annunciator # 11) annunciator will turn yellow when switched on and will turn green when switched off.

Annunciator Lights Status

When the annunciator panel is not connected to the simulator the status of the annunciator lights is not valid except for the three lights identifying the connection status of the panel.

When the panel is not connected to the simulator all of the annunciator lights will be gray except for the three connection status lights.

When the panel connects to the simulator the annunciator lights will show the status of the variable (gray, green, yellow, or red) and some of the lights will display a value (gallons of fuel, voltage, ...).

In general a light will be gray if it is OFF. If the function being monitored is ON and in a safe state the light will be green. If the status should be brought to the attention of the crew it will be yellow and if there is a malfunction or a danger the light will be red.

For example:

- if the Auto Thrust switch is OFF the light will be gray. If the Auto Thrust switch is ON the light will be green.
- If the spoilers are armed the Spoilers Armed light will be yellow. If not armed the light will be gray.
- If Cabin lights are on the annunciator light will be green, otherwise the light will be gray.
- The Engine fire lights will be green (signifying they are operational) is all if OK. Otherwise they will be red.

Annunciator Lights Indices

- 1 - Connection to Com Manager. (green = good, yellow = none)
- 2 - Connection to Interface (green = good, yellow = none)
- 3 - Connection to Simulator (green = good, yellow = none)
- 4 - Model name (model name of sim aircraft)
- 5 - Landing gear (down, up, in transition)
- 6 - Flaps position (percentage)
- 7 - Landing lights (on/off)
- 8 - Strobe lights (on/off)
- 9 - Nav lights (on/off)
- 10 - Taxi lights (on/off)
- 11 - Logo lights (on/off)
- 12 - Cabin lights (on/off)
- 13 - Panel lights (on/off)
- 14 - Beacon lights (on/off)
- 15 - Seat belt light (on/off)
- 16 - No smoking light (on/off)
- 17 - Auto thrust (on/off)
- 18 - Avionics switch (on/off)
- 19 - Battery switch (on/off)
- 20 - Pitot heat (on/off)
- 21 - Auto pilot (on/off)
- 22 - Flight director (on/off)
- 23 - Latitude
- 24 - Longitude
- 25 - Nav 1 localizer
- 26 - Nav 2 localizer

- 27 - LNAV (on/off)
- 28 - LNAV armed (on/off)
- 29 - VNAV (on/off)
- 30 - VNAV armed(on/off)
- 31 - V1 (knots)
- 32 - V2 (knots)
- 33 - Vrotate
- 34 - Brake
- 35 - Park brake (on/off)
- 36 - Spoilers Armed (on/off)
- 37 - Spoiler right position
- 38 - Spoiler left position
- 39 - Total fuel remaining
- 40 - De-ice (on/off)
- 41 - Over Inner Marker
- 42 - Over Outer Marker
- 43 - Over Middle Marker.
- 44 - Engine # 1 fire
- 45 - Engine # 2 fire
- 46 - Engine # 3 fire
- 47 - Engine # 4 fire
- 48 - Gallons in right fuel tank
- 49 - Gallons in left fuel tank
- 50 - Auto Brake
- 51 - APU voltage
- 52 - APU is running
- 53 - APU switch is on
- 54 - APU fire
- 55 - GPS/Nav switch position
- 56 - Blank annunciator light (Gray)

- 57 - Fuel Valve 1
- 58 - Fuel Valve 2
- 59 - Hydraulic Pump 1
- 60 - Hydraulic Pump 2
- 61 - Hydraulic Pump 3
- 62 - Hydraulic Pump 4
- 63 - Fuel Pump 1
- 64 - Fuel Pump 2
- 65 - Fuel Pump 3
- 66 - Fuel Pump 4
- 67 - Exit # 1
- 68 - Exit # 2
- 69 - Exit # 3
- 70 - Exit # 4
- 71 - Stall Warning
- 72 - Over speed Alarm
- 73 - Anti ice # 1
- 74 - Anti ice # 2
- 75 - Anti Ice # 3
- 76 - Anti Ice # 4

Example Annunciator Configuration File

The following configuration specifies a display with 3 rows and 3 columns. Each button is 180 pixels wide and 37 pixels high. The font size is 20, and the double beep sound on button status change is turned off. The buttons selected in order are:

VNAV status (29),
LNAV status (27),
Brake (34),
Taxi Lights (10),
Logo lights (11),
Latitude (23),
Longitude (24),
Com Connection (1),
Seat belt light (15).

The buttons selected as inserted into a configuration file would look like the following:

```
Rows 3
cols 3
buttonwidth 180
buttonheight 37
verticalcentering 15
fontsize 20
sound off
annun 29
annun 27
annun 34
annun 10
annun 11
annun 23
annun 24
```

annun 1
annun 15
winx 100
winy100

This unusual collection of indicator lights will produce the following display located at 100,100.

VNAV ON	TAXI LIGHTS	LON: 104.821W
LNAV ON	LOGO LIGHTS	COM CONNECT
BRAKES	LAT: 38.834N	SEAT BELTS

Additional keywords can be added after each of the “annun” statements in the example above. For example adding:

flash
on green
off yellow
sndon “vnavon.wav”
sndoff “vnavoff.wav”
legend XNAV

after the “annun 29” line would cause the VNAV annunciator button to show yellow when off, green when on, play the respective sounds when on or off, flash when the state changes, and display “XNAV” instead of “VNAV”.

It may be possible to display non-english legends using the “legend” keyword but this has not yet been tested. Legends that require unicode will not work at this time.

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.