MakeRwys.EXE Version 4.863

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INSTRUCTIONS

For: FS2000, FS2002, FS2004

Place the EXE into your main FS folder where the SCENERY.CFG file is located.

Double click on it to execute it. The data files will be extracted and placed in that folder. A full log of its actions will be created, called “runways.txt”.

For: FSX, FSX-SE, Prepar3D v1 to Prepar3D v4 inclusive

Place the EXE into the relevant main FS folder. For FSX Steam Edition this will be in the Steam folder, under "steamapps\common".

For Prepar3D versions 3 and 4 see the additional notes just below, before:

Double click on the MakeRwys.exe file to execute it. The data files will be extracted and placed in that folder. A full log of its actions will be created, called “runways.txt”.

MakeRunways will find the correct Scenery.CFG file automatically, based on the EXE name it finds there and its version number.

NOTE for Prepar3D versions 3 and 4

Those Prepar3D version 3 and 4 scenery installs abiding by the new L-M system for add-ons will NOT be seen by MakeRunways unless you copy the LorbySceneryExport program from the ZIP into the Prepar3D folder, to sit beside MakeRwys.exe.

MakeRunways will then automatically use the Lorby program to create a file called MakeRwys_Scenery.cfg in your P3D3 or P3D4 folder. This then lists it ALL of the scenery layers with correct layering. MakeRunways will use that file instead of the original.

The special CFG file will be left in the main P3D folder for your own reference to the priority ordering of your scenery, something difficult to do from all the XML files.

For P3Dv4, if you want to use the other excellent facilities provided, get the full AddonOrganizer for P3Dv4 from http://lorby-SI.weebly.com/downloads.html. But the included program is used by MakeRwys.

Thanks go to Lorby-SI for the use of these programs, and for making them Freeware!

LIST OF FILES PRODUCED

The files produced by MakeRwys.exe are:

Runways.txt

This is a text file showing the data analysed by the program in readable format. Use this to check on things when something odd seems to happen. you can find conflicting or overriding sceneries and so on this way. However, be warned. The file will typically grow to over 10 megabytes. You need to view it with a text editor capable of dealing easily with large files.

Runways.xml

An XML file providing a database of airports and their runways.

FStarRC.rws

This is a binary runways database used by my FStarRC program.

Airports.fsm

This is a binary airports database used by FS_Meteo, at present after re-naming to "Runways.rws".

Runways.csv

This is a comma-separated text database of all the runways, sorted, and it is in the particular format used by Radar Contact (all versionsup until the change to the following:

R4.csv

This is the same as the previous CSV file, but includes additional runway data added at the end of each line. This is used in Radar Contact 4 (before RC4.3) for more precise ATC operations.

R5.csv

This is the same as R4.csv but with runway closure indicators in an extra two fields - CL closed for landing and/or CT closed for take-off. This file is used by RCV4.3 and RC5.

R5.bin

This is a binary version of the R5.csv file, with some extra fields. Details of the format are given below.

G5.csv

This contains information about Gates, Ramps, Parking places, along with airline lists where specified. It is used by later versions of Radar contact.

T5.csv

This contains details of all taxi paths. It is used by later versions of Radar contact.

T5.bin

This is a binary version of the T5.csv file. Details of the format are given below.

F5.csv

This lists all COM frequencies and associated names, including the airport name, for Radar Contact 5 or later.

F4.csv

This lists all COM frequencies and associated names, including the airport name, for Radar Contact 4. If you want to use this with RC4 you must copy it to the Radar Contact 'data' subfolder. Make a safe copy of your original F4.CSV file first (I usually just rename it "f4orig.csv").

Note that MakeRwys matches frequencies as best it can, with thefollowing extra "fiddles" to ensure a good range of frequencies:

1. Clearance Delivery is preferably met by FS type 14 "CD", but else is met by type 7 "CLEARANCE".
2. Multicom is met by FS type 2 "MULTICOM", but failing that by type 4 "CTAF".
3. Approach is from FS type 8 "APPROACH", but failing that from a second Type 9 "DEPARTURE" if there are more than one of the latter.
4. Departure is from FS type 9 "DEPARTURE", but failing that from a second Type 8 "ARRIVAL" if there are more than one of the latter.

Centre, FSS, AWOS and ASOS frequencies aren't used for this file.

Helipads.csv

This is a list of all the Helipads found, sorted into ascending ICAO order. Details of the fields are given below.

IMPORTANT NOTES ABOUT RUNWAY INCLUSION

RUNWAYS MUST HAVE “Start Positions”

Runways are only included in any of the files (except for being logged in the Runways.txt file) if they are equipped with defined thresholds, or "start positions". Without those they may as well be omitted because the files then won't serve their purpose of assisting programs locateand land aircraft.

The whole data structure within MakeRunways, from which it produces these files, is predicated on this assumption.

MINIMUM RUNWAY LENGTH

By default MakeRunways imposes a minimum runway length of 1500 feet, otherwise runways are omitted from the data files. This is to eliminate so-called "ghost" runways being included -- very small runways provided only to allow AI Traffic to be directed better for landings and takeoffs.

If necessary you can override this value. Just use a command line parameter in the form:

/>n

where n gives the number of feet to be considered the maximum for exclusion. Take care not to make this too small for fear of including those "ghosts", but if you really do want to see all, you can set />0.

WATER RUNWAYS

The runway lists will normally not contain any water runways. If you need these included just add this command line parameter:

/Water

If you want files containing ONLY water runways use

/WaterOnly

FLAGGING JETWAYS

Since version 4.85 there is an option to flag those gates with Jetways defined in Airport Facilities Data bgl files. The flag is simply “Jetway” in an extra field in the G5.csv file. See the format details below. Enable this option by:

/Jetway

On the command line.

UPDATING RADAR CONTACT's TRANSITION ALTITUDES FILE

If you are a user of Aivlasoft's EFB program for FSX/P3D, then part of the updated data you will have is a file with the correct Transition Altitudes for most airports in the world. MakeRunways can now automatically use that file to update Radar Contact's list too.

In order to do this, you must copy RC's "M4.CSV" file into the root FS folder, next to MakeRunways. Don't worry about EFB -- if that is correctly installed then MakeRunways will find it.

To tell MakeRunways to update M4.CSV add a command line parameter:

/+T

(It is “T” for “Transition Altitude”).

When MakeRunways has finished simply copy the M4.CSV file back into RC's Data folder.

GATES FOR AIRLINE FILE

There is also an optional file, listing all the Gates for a specifically selected airline. To obtain this for your preferred airline, run MakeRwys.exe with a command line parameter such as (e.g.)

/BAW

for the airline code BAW (British Airways).

If you are also using the />n and/or /+T parameters, those must come first.

The gates are listed in sorted order of Airport, but not of Gate name or number -- the Gates are in their scenery file order. The file produced will be an ordinary text file named <airline code> Gates.txt. e.g.

BAW Gates.txt

in the above case.

ASSUME “MakeRwys_Scenery.cfg” FILE ALREADY GENERATED

Programs other than AddonOrganizer may pre-generate this CFG file (SimStarterNG for example). To prevent AddonOrganizer being called upon to do it again, or to simply assume it isn’t needed, use this command line option:

/SSNG

VALUES PROVIDED IN EACH CSV FILE

Note: Values marked with * have extra formatting detail described in the Notes below.

RUNWAYS.CSV (ORIGINAL RUNWAYS FILE -- for very old versions of RC):

ICAO, Rwy*, Latitude*, Longitude*, Altitude*, HeadingMag, Length*, ILSfreq*

R4.CSV (RUNWAYS FILE for RCV4, until 4.3):

ICAO, Rwy*, Latitude*, Longitude*, Altitude*, HeadingMag, Length*, ILSfreq*, Width*, MagVar, CentreLatitude, CentreLongitude, ThresholdOffset*

R5.CSV (RUNWAYS FILE for RCV5):

ICAO, Rwy*, Latitude*, Longitude*, Altitude*, HeadingMag, Length*, ILSfreqFlags*, Width*, MagVar, CentreLatitude, CentreLongitude, ThresholdOffset*,Status*

R5.BIN see below

RUNWAYS.XML (Airports and runways for "It's Your Plane")

For each Airport:

> ICAO id, ICAOName, City, Longitude, Latitude, Altitude (feet), MagVar, Source BGL filepath, Scenery layer title.

And, within each Airport section, for each runway, all this, as available:

> Runway id, Len (feet), Hdg (Magnetic: add MagVar for True), Def (surface), ILSFreq (nnn.nn), ILSHdg (Mag), ILSid, ILSslope, Lat and Lon of threshold/start, Lat and Lon of FS's "Start" point (which may be to the side of the runway), ClosedLanding (TRUE or FALSE) and ClosedTakeoff (TRUE or FALSE), EndLights (NONE, LOW, MEDIUM or HIGH), CenterLights (NONE, LOW, MEDIUM or HIGH), CenterRed (TRUE or FALSE), Threshold offset, ILS name (first 31 chars only), VASI lights, VASI values (X/Z/Spacing/Pitch), Approach lights, Pattern direction and altitude.

G5.CSV (GATES for RCV5):

Without the /Jetway command line option:

> ICAO, GateName*, GateNumber, Latitude, Longitude, Radius*, HeadingTrue, GateType*, AirlineCodeList ...

With the /Jetway command line option there is an extra field between the GateType and the AirlineCodeList (if one is present). The field is either empty, or contains the word “Jetway”.

F5.CSV (COMMS FREQUENCIES for RCV5)

ICAO, CommsType*, Frequency, "name of facility"

(with an entry for Airport Name with CommsType=0 and Frequency=0)

F4.CSV (COMMS FREQUENCIES for RCV4)

ICAO, Airport Name, ATISfreq, CDfreq, GroundFreq, TowerFreq, UnicomFreq, MulticomFreq, ApproachFreq, DepartureFreq

T5.CSV (TAXIWAYS for RCV5):

ICAO,TaxiwayName,MinimumWidthMetres,PointList ...

where PointList is a sequence of: Latitude,Longitude,TaxiType*,WidthMetres

T5.BIN see below

HELIPADS.CSV

ICAO, Latitude, Longitude, Altitude(ft), HeadingTrue, Length(ft), Width(ft), SurfaceType*, Flags*

DEFINITION OF VALUE FORMATS

Surface type is a number 0-23, see list below.

Concrete	0	Dirt	12
Grass	1	Coral	13
Water	2	Gravel	14
(Unknown)	3	Oil-treated	15
Asphalt	4	Mats	16
(Unknown)	5	Bituminous	17
(Unknown)	6	Brick	18
Clay	7	Macadam	19
Snow	8	Planks	20
Ice	9	Sand	21
(Unknown)	10	Shale	22
(Unknown)	11	Tarmac	23

Flags is a numerical value made up of one of these "types":

NONE	0
H	1
SQUARE	2
CIRCLE	3
MEDICAL	4

plus optionally 16 for "Transparent" and/or 32 for "Closed".

Rwy is nnn for runway number, then 0, 1=L, 2=R, 3=C, 4=W (water)

Runways designated N, NE, etc are denoted by runway numbers over 36, as follows:

37 = N-S	45 = N
38 = E-W	46 = W
39 = NW-SE	47 = NW
40 = SW-NE	48 = SW
41 = S-N	49 = S
42 = W-E	50 = E
43 = SE-NW	51 = SE
44 = NE-SW	52 = NE

Latitude is of the threshold, or AFCAD's "runway start"

Longitude is of the threshold, or AFCAD's "runway start"

Altitude is in feet

Length is in feet

ILSFreq is given as nnnnn for nnn.nn, or just 0 when no ILS

ILSFreqFlags are ILSFreq then optional B (backcourse), D (DME) G (Glideslope) equipped

Width is in feet

ThresholdOffset is in feet

Status is CT for Closed for Takeoff and/or ,CL for Closed for Landing

Radius is in metres

TaxiType is

0 = unknown
1 = Normal
2 = Hold short
3 = unknown
4 = ILS hold short
5 = Gate/Park

GateName is either omitted or one of

Dock
Park
PkN
PkNE
PkE
PkSE
PkS
PkSW
PkW
PkNW

GateType is:

0 = none
1 = Ramp GA
2 = Ramp GA Small
3 = Ramp GA Medium
4 = Ramp GA Large
5 = Ramp Cargo
6 = Ramp Military Cargo
7 = Ramp Military Combat
8 = Gate Small
9 = Gate Medium
10 = Gate Large
11 = Dock GA

CommsType is:

0 = Special entry with airport name, zero frequency
1 = ATIS
2 = MULTICOM
3 = UNICOM
4 = CTAF
5 = GROUND
6 = TOWER
7 = CLEARANCE
8 = APPROACH
9 = DEPARTURE
10 = CENTRE
11 = FSS
12 = AWOS
13 = ASOS
14 = CLEARANCE PRE-TAXI
15 = REMOTE CLEARANCE DELIVERY

BINARY FILE FORMATS

R5.BIN: binary format Runways file

Record format:

```
struct {
        char chICAO[4];
        unsigned short wRwyNum;
        char chDesig; // L, C, R or space
        char chStatus[3]; // CT, CL, CTL or all zero
        unsigned short wSurface; // 0-23 as in New BGL format
        float fLatThresh;
        float fLongThresh;
        float fLatCentre;
```

```
        float fLongCentre;
        float fAltitude; // feet
        float fThrOffset; // feet
        float fHdgMag;
        float fMagVar;
        float fLength; // feet
        float fWidth; // feet
        float fILSfreq; // zero if none
        char chILSflags[4];
        float fILShdg;
        char chILSid[8];
        float fILSslope;
} rbin;
```

T5.BIN: binary format Taxiways file

Record format:

```
struct {
        DWORD dwNumPts;
        char chICAO[4];
        char chName[8]; // zero if not named
        float fMinWidth;

} tbin;

followed by dwNumPts x

struct {
        float fLat;
        float fLon;
        float fType;
        float fWidth; // to next point, =0 for last point

} tpt;
```

RUNNING MAKERUNWAYS SILENTLY

If an application wishes MakeRunways to run without any progress dialogue then it can start it with the command line parameter

```
/+Q
```