

Level Editing in Codename Eagle

Level editing in CE is divided into at least three main operations:

1. Terrain editing/creation (A world of hurt for advanced users only.)
2. Object editing. (A near lost art which makes terrain editing look straight forward.)
3. Level object placement (Very easy. CE's built-in editor works just fine and is easy to use.)

At this time this document only covers point 3 above.

Level object placement and Editing using CE.EXE built-in editor

CE has a built in editor here re point 3 above. It allows the loading of any existing CE map/level and allows the user to edit/place existing objects around the map.

Level object placement editing is only possible with CE version 1.36 (NB sometimes running ce136 results in a "ce not installed" error, just run game.exe to fix)

The level to edit must be located in a "level250" directory.

Multiplayer final level numbers must be greater than 0x80 (128)

Add this line to the levels.nfo file (level names must be <= 12 chars)

Name:MyTestMap Val:250

(Note when adding lines to the levels.nfo file put a carriage return after the last entry, otherwise a black screen results when trying to load that level)

Then just start a host game on level "MyTestMap" and you will be loaded into the 'in-game' level object placement editor.

You should now be placed somewhere you don't usually start.

You can now run around like you usually would, but you are now in map-making mode.

For example, if you wanted to edit "No mans Land", copy the contents of level128 to level250 and then run ce.exe v1.36, start a multiplayer game on "MyTestMap".

(i.e. Select Multiplayer Game => Host Game => Select your map (MyTestMap) from the list => Start Game). You can now start editing map objects.

Alternatively the following should also work (gets around the level250 restriction I believe)

Game.exe" +edit "_newlev"

where _newlev is the level's directory name.

Once inside the ce v1.36 level object editor:

Press [F12], this brings up the console. Now type "place house", and click enter.

You now have a house following you. Press [5] on your numpad, place it anywhere cause you will delete it afterwards.

Shooting placed objects with the pistol will delete them from the map.

exit to save level

Copy or rename your level to other than level250 to play test it.

Helicopters when placed in edit mode look like bomber planes, but once you re-load in ce v1.4x they will look like helicopters. You don't need any special *.scr files in your level's folder for the helicopter to work either.

Vehicles will always fall to the terrain/land when entered initially by a player in the real game. Vehicles placed above water will always be in the air where you placed them. You must have water below the building for the tank to stay on top of it.

Levels will automatically be assigned numbers and added to levels.nfo if they are copied to the ce directory with the name level_* where * a string. Its original Level_* directory name will be renamed.

A level may add textures by including a leveltex.bin file in the level directory.

TGA files

must be "run-length encoded, true-color tga image"'s

3dstudio (3ds) ver 4 or better should be used for model making.

Special Keys when editing map objects in CE v1.36

Within the ce.exe built-in object placement editor:

- Place objects by typing "place <object>" in the console ([F12]). E.g. "place house", "place plane", or "place flagbasea". Press numpad 5 to drop it and other numpad keys to adjust before dropping.

To place objects use these keys:

Key: Operation:

Numpad [9]	To move the object upwards.
Numpad [3]	To move the object downwards.
Numpad [6]	To move the object to the right.
Numpad [4]	To move the object to the left.
Numpad [0]	To reset the objects position.
Numpad [5]	To place the object.

Now to deselect the object you are holding, type "place x" or any non-existing object.

- If you place any object you wouldn't like to have, and can't seem to delete it by shooting on it, or accidentally deleted a object, open up world.dat in your "levels250" folder in a text editor, and delete the portion that says for example:

```
Name:house_01
Translation: 498.544434,156.079193,9311.277344
Dof: 0.010742 0.000000 -0.999942
Up: 0.000000 1.000000 0.000000
Right: 0.999942 0.000000 0.010742
```

NB if a level doesn't have a 'world.dat' text file then this means its using the binary equivalent 'data1.bin' file. Editing a level should create a world.dat file if there isnt one.

- Use the shift key to quickly move around the level and to increase the speed when you move objects. If you are unlucky and end of crawling on the ground, unable to select a weapon, go to some water and you should get your weapons back.

- To save your level, click escape or F10 and just simply exit Codename Eagle.

Tab-map editing

This is to adjust a tab map position within the ce.exe built-in object placement editor:

- To edit the tab-map press and hold the '~' key, then use arrow keys to adjust the position of the tab-map with respect to the actual map, then ~ + numpad 5 key to save.
- End/page down keys scale the tab map (then ~ + numpad 5 key to save)
- To fix issue of a blank tab-map, you have to be able to modify and compile red.scr in the level directory (it contains the command REFUseMapNumber(xxx); where xxx is the map number)
- To add a custom tab-map, it must be added to leveltex.bin in the level's directory, with filename mapXXX0.tga, mapXXX1.tga, mapXXX2.tga, mapXXX3.tga where XXX is a spare level ID.

Sky Texture Editing

Within the ce.exe built-in object placement editor:

- n,m keys rotate the sky left & right
- k key displays the horizon dof (direction of face) vector of the horizonRotation SunDirection for a few secs

Other misc notes

CE World coordinate system:

Land is in the x,z plane. -ve y is up in altitude
 0,0,1 looks North wrt tab-map view.
 1,0,0 looks East.

Level 7 is actually "A daring rescue" despite what levels.nfo says.

To edit an existing level it must have the file world.dat. If only data1.bin is present then convert dat1.bin to world.dat with the converter program.

To move the flags in a level start editing an existing level and place 2 new flag bases 'flagbase' where you want. then save and test-play the level. You will end up with a data1.bin. Then using a hex editor cut and paste the flagbse entries over the existing entries in the original data1.bin. (...probably easier way to do this.)

Using the MAPMAKER.exe program

This program can extract/re-package CE textures.

I confirm editing a compiled level works and it opens _newlev for editing with ce.exe v1.42 and the tabmap even works!

CE game textures:

The majority of ce.exe game textures are in 24bits\textures.dat

27 more textures are located in 24bits\texsec.dat

Texture file format:

entires E = bytes 0...3 to get byte offset = $E \times 16 + E = 17 \times E$

8.3 Filename(0) = bytes 3...12

length File(0) = 4 bytes

...

8.3 Filename(n) = bytes 3...12

length File(n) = 4 bytes

Check if game can run without textures in dat file and just use the extracted tga's....no it cannot

leveltex.bin

Each level may add its own textures by including a leveltex.bin file in the level directory.

currently only levels 133, 248 have this file

Extract / repack (edit->rip) ce textures files using mapmaker\mapmaker151.exe program.

CE tga textures are not normal. They look like they are verically flipped.

This is why mapmaker151.exe provides the option of extracting ce textures in their raw CE format or their proper tga format.

This means when creating new textures for ce (and tab maps) you have to convert/pack the tga file into the format CE likes for they wont work in game.

mapmaker151.exe can do this I beleive

CE TGA files

must be "run-length encoded, true-color tga image"'s

texsec.dat file contents FYI (I think texsec was added to the game in later versions of ce e.g helicopter support)

12,306 Airbot2.tga

12,306 Aireng2.tga

49,170 Airpbjb2.tga

12,306 Airpbot2.tga

16,402 BOATROP.tga

49,170 bshipipe.tga

196,626 Carnew2.tga

12,306 Feng2.tga

12,306 FLARE0.TGA

786,450 Helicopt.tga -- new helicopter texture

16,402 HeliSh.tga

16,402 HeliShad.tga

262,162 INTERFC1.tga -- in game interface icons; face pain icons / inventory items

196,626 load0.tga -- main lvl load screen

196,626 load1.tga

196,626 load2.tga

196,626 load3.tga

196,626 load4.tga

196,626 load5.tga

49,170 MC.tga

49,170 MC2.tga

196,626 Siml2.tga

12,306 simwing.tga
12,306 TBOATLOG.tga
16,402 visare.tga
12,306 Wing2.tga
12,306 Wingljb2.tga

tab maps

mapmtx.dat (binary) file exists in each lvl dir

This file represents a 9x9 matrix of floats which is used for transposing world objects (player and flag positions for example) onto the flat plane that of the tab map

Extract From \error.log for loading level 1:

```
3D init 0.000001 seconds!  
map mtx:  
0.021  0.000  256.000  
0.000  -0.021  278.000  
0.000  0.000  1.000
```

The matrix for a level can be created/adjusted from with ce.exe internal level editor.
(see separate document on this editor)

The tab map textures can either be in the level's directories leveltex.bin file. e.g. lvls 133 248, or they can also be in the primary game textures file 24bits\textures.dat (this is where all other level's tab map are located)

Four tga files make up a tab map.

Their filenames (4) will be map<lvlnum>0.tga, map<lvlnum>1.tga ...map<lvlnum>3.tga
An alternative map number for a level can be set via the ce script API function

```
REFUseMapNumber(111.0);
```

This function could be used for when a level name/directory is not the usual 'levelx' format (where x is the level number). It is typically used in ce.exe single player level to update tab map level objectives. ie so the tab map can be changed during single player levels

For example:

```
mainscr.scr.c lev 248 - fever valley  
REFUseMapNumber(111.0);  
nb lev 248 - fever valley's texture filenames are map1110.tga ... map1113.tga
```

lev133 - fortress level is odd however...

```
mainscr2.scr
```

```
REFUseMapNumber(128.0); ?????? i don't think this script file is actually
```

used

leveltex.bin as it shows map files are named:

```
map3330.tga ... map3333.tga (always 4 files)
```

```
???I cant explain these level numbers given the lev num is 133...maybe  
ce.exe doesnt use the first digit
```

```
REFUseMapNumber()
```

This func is only called for lev133 and lev248.

All other levels use the level's level number so this func does not need to be called.

Multiplayer tab maps for the below are in the main game's 24 bit texture pack.
CE\24bits\textures.dat

Files are named as per the level number as expected

Name:No mans land Val:128
Name:Breakpoint Val:129
Name:The palace Val:130
Name:Carrier war Val:131
Name:The airbase Val:132