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N2003 LP tutorial

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Joined: 19 Feb 2003
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Message

Posted: Wed Apr 20, 2005 3:53 pm Post subject: N2003 LP tutorial
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This will be another one of those mutual tutorials. If you have some info (and have worked on lp files), please feel free to join in. I'll move this to the tutorials areas when we're finished.

I'll start, I wrote the original .lp file tutorial for N2/N3, and quite a bit of it is the same.

.lp files are what control the AI for Papyrus NASCAR Racing games. Here are the files and what they do (assuming a clockwise running track, see notes below):

limp - this is after an AI car has been damaged and must come to the pits

raceline - the line shown while driving as the best driving line

race - the line that the AI take as their best driving line, may differ from raceline

maxpanic - defined as the outermost driveable surface for an AI racecar (the edge of the track)

maxpit0 - the the outermost driveable area for a car that is in the MAIN pits

maxpit1 (if present) - the the outermost driveable area for a car that is in the SECONDARY pits (for 2 pit roads)

maxrace - defined as the outermost raceable area for AI race cars

minpanic - defined as the innermost driveable surface for an AI racecar (the edge of the track)

minpit0 - the the innermost driveable area for a car that is in the MAIN pits

minpit1 (if present) - the the innermost driveable area for a car that is in the SECONDARY pits (for 2 pit roads)

minrace - defined as the innermost raceable area for AI race cars

pit0 - the primary groove used on a lap when pitting (coupled with the merge from and merge to pit long values, you can alter the pit approach etc. The 0 indicates the primary pit entrance

pit1 (if present) - the secondary pit entrance (if there are two pit roads on the track)

pace.lp - the line used by the pacecar for yellow laps and pre-green flag

(Anders)

Note:

Max is inner (left side)

Min is outer (right side)

Other info

The pace car follows the pit0.lp line (see note below)

On an oval track running counter-clockwise, max is always on the inside and min on the outside.

The race.lp file is for the ideal line can be viewed with the "r" key during the race, the raceline.lp is the same line but for AI's cars.

AI's car stay always between minrace and maxrace lines. On a double file start or restart, thes lines are used by AI for inside line and outside line. Try to insure enough distance is between the two that the AI don't "bleed" over to one line.

Max and min panic lines are used by AI when there is a big one on the track. These are escape lines.

Track.ini controls AI pit speed

When creating .lp files, insure that the start position and the end position are the same, otherwise the AI will think they need to make a sharp turn and slow considerably for the S/F line.

More Tips

(Jay Taylor) Once you have the line tool enabled, hit alt + r to turn on stashing.

- 1) drive the line you want
- 2) use the / to save the line to the temp working line
- 3) turn off stashing by hitting alt + r again
- 4) use ctrl ~ to view the line (it will be the orange line, anything in yellow was recorded after you hit the / key and wont be part of the saved line)
- 5) if you are satisfied with the line, hit ctrl / to save it.
- 6) Go to your track folder, it will be named reflap0.lp. Rename it to the line you wanted to replace.

(Kenschr36) I usually turn "off" stashing while I am still rolling around the track in the groove I am looking to record. Then I save from the temporary work area using '/'. You just have to be careful to intersect your previously driven line correctly - or there will be a funny jump in the line. The best way to do this it to turn on the view of some of the other lines on the track to use as a reference point.

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Last edited by Jan Kohl on Thu Apr 21, 2005 2:35 pm, edited 1 time in total



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Jan Kohl
US Pits Crew

Posted: Wed Apr 20, 2005 4:00 pm Post subject:





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Reflap Tool

documentation by Papyrus (thanks to Grant and Jay for the information)

As the car is driven around, reflap information about the current car position and speed is stashed into the "temporary" reflap. When you are happy with a whole lap, or part of a lap, that whole or part lap can be copied or spliced into the "working" reflap. You can continue driving and splicing parts of a lap into the working reflap, until you are satisfied with the whole working reflap, then the working reflap can be saved to disk. You can work on lines that already exist by copying them into the working reflap.

Turning On/Off Reflap Functionality

In a debug build, the reflap creation stuff will be enabled by default. In a release build, the reflap creation stuff will be disabled by default. You can turn the reflap creation stuff on or off using ctrl-alt-shift-` (the key to the left of 1). Note that the right shift key may not work.

Displaying Lines

It is generally helpful to be able to see the temporary and working reflaps, when you are trying to splice or copy pieces of them around. The temporary reflap and the working reflap can be made visible by pressing ctrl-` (the key to the left of 1), and both lines will be displayed. The temporary reflap is displayed with yellow triangles, while the working reflap is displayed in orange.

The other AI lines can be turned on or off with the keys ctrl-0 through ctrl-9.

Stashing Into The Temporary Reflap

Stashing defaults to being enabled each time a track is entered. Whenever the car is driving forwards, reflap information about the current car position is being stored into the temporary reflap. This information is not stashed when the car is moving in a backwards direction around the track. Stashing can be turned on or off with the alt-r command. When stashing is turned off, the last few seconds of reflap information will be smoothed into the information of your previous lap, to try to prevent sharp discontinuities in reflap information. The distance over which the smoothing is applied is based in an amount of time, the "smoothing time", which is displayed in the top left corner on the status line, ie: "smooth 3.0s" meaning 3.0 seconds.

The status of reflap stashing is displayed in the top left corner of the screen. If information is being stashed, "Reflap info stashed for %d" is displayed, where %d is the current reflap index. When stashing is turned off, "Reflap stashing turned off" is displayed.

Copying And Splicing From The Temporary Reflap Into The Working Reflap

Splicing a section of the temporary reflap into the working reflap is done by setting start and end splice points, and then the specified section can

be spliced into the working reflap. Copying the whole temporary reflap can be done by clearing the start and end splice points. By default the start and end splice points are not set.

To copy the whole of the temporary reflap into the working reflap, press the / key, with no start and end splice points set. If the reflap information is being stashed, smoothing will be applied to eliminate a discontinuity. Then the whole of the temporary reflap will be copied to the working reflap. If the start and end splice points are set, you can clear them by pressing the \ key.

To splice just a part of the temporary reflap, first you must set the start and end splice points. Once you've driven the part of the track in question better than was in the working reflap before, then turn off stashing with alt-r, and drive the car back to the area in question. Looking at the visible temporary and working reflap triangles, get the car to a point where you want to start copying temporary reflap information into the working reflap, and set the start splice point by pressing the [key. A white triangle will appear where the car is to mark this spot. Also, the yellow triangles of the temporary reflap will become white from this spot backwards for "smoothing time" number of seconds, to indicate the area of the reflaps that will be smoothed into the working reflap to prevent discontinuities. Then move the car to the end of the area you want copied, and set the end splice point by pressing the] key. A black triangle will appear where the car is to mark this spot. Also, the yellow triangles of the temporary line will turn black from this spot forward for "smoothing time" number of seconds, to indicate the area of the reflaps that will be smoothed together to prevent discontinuities. You can re-set the start and end splice points until you are happy with where they are, and the area that will be smoothed. If you find that the area to be smoothed is too long, you can adjust smoothing time in increments of 0.5 seconds, from 0.5s to 5.0s, by pressing the ctrl-"-" and ctrl-"=" keys. The display of smoothing time in the top left corner will change, and the area of white and black triangles in the temporary reflap will also change, to reflect the new time. Once you are happy with these settings, you can apply the splice by pressing the / key.

On the right side of the status line is a time, which represents the current calculated laptime for the current working reflap. Thus as you load a line into the working reflap or start splicing chunks from the temporary reflap into the working reflap you can see what the AI's auto line speed calculation code thinks the laptime of that line is. Thus you can use this as a measure of determining if your new line is an improvement over the old one.

Working On A Line That Already Exists

If you want to alter a line that already exists in the game, this can be done by copying the line in question into the working reflap. In the top left corner on the status line beside the "smoothing time", is displayed the currently selected line for copying. By default it is set to none. Using the ctrl-[and ctrl-] keys will cycle up and down through the

available loaded reflag lines. Once you select the line you want to copy, then press the ctrl-\ key to copy this line into the working reflag.

Saving The Working Reflap To Disk

Once you have a satisfactory working reflag, this can be saved to disk by pressing the ctrl-/ key. This reflag will be saved into the current track directory, under the name of "reflap%d.lp" where %d is an incrementing number from 0. Then you can rename this file to the name of the lp file you want to replace.

Quick Reference Keys

Enable/Disable reflag editing [ctrl-shift-alt-`](#)
 Toggle stashing [alt-r](#)
 Save working reflag to disk [ctrl-/](#)
 Splice/copy to working reflag [/](#)
 Set start splice point [\[](#)
 Set end splice point [\]](#)
 Clear splice points [\](#)
 Decrease smooth time [ctrl-'"](#)
 Increase smooth time [ctrl-'"](#)
 Select previous AI line [ctrl-\[](#)
 Select next AI line [ctrl-\]](#)
 Copy from AI line [ctrl-\](#)
 Toggle temp/work lines [ctrl-`](#) yellow/orange
 Toggle AI race line [ctrl-0](#) green
 Toggle AI min race line [ctrl-1](#) dark green
 Toggle AI max race line [ctrl-2](#) dark green
 Toggle AI pit0 line [ctrl-3](#) red
 Toggle AI min pit0 line [ctrl-4](#) dark red
 Toggle AI max pit0 line [ctrl-5](#) dark red
 Toggle AI pit1 line [ctrl-6](#) blue
 Toggle AI min pit1 line [ctrl-7](#) dark blue
 Toggle AI max pit1 line [ctrl-8](#) dark blue
 Toggle AI min/max panic lines [ctrl-9](#) purple

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StrtRacrZ

Legendary Driver



Joined: 20 Jul 2003

Posts: 3048

Location: Grafton /
Cedarburg, WI

Posted: Wed Apr 20, 2005 9:09 pm Post subject:

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That's the rule of thumb I use. Also, I have never seen the pace.lp work for me. At CCMS, if I have that line go thru the infield to the stall, at the moment it's supposed to break from the race.lp -> pace.lp, it breaks to the pit0.lp. So then when it's 10m away from stall...it turns hard left and drifts acrosss the grass and then drifts (in the direction) right into the stall.

Also, if you have butter_'s effect in place, remember the splines will be closer together than normal, since the racing surface is farther away from the CL. Means a

lot: ie: less grip, ai will basically ram into you in the corners sometimes...


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Judson
Crew Chief

 Posted: Thu Apr 21, 2005 9:36 am Post subject: Re: N2003 LP tutorial

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Joined: 30 Jul 2004
Posts: 25
Location: France

Jan Kohl wrote:

The pace car follows the pit0.lp line.

Only to enter and exit the pits (just like the AIs) but not during the pace laps.

Jan Kohl wrote:

AI's car stay always between minrace and maxrace lines. On a double file start or restart, thes lines are used by AI for inside line and outside line. Try to insure enough distance is between the two that the AI don't "bleed" over to one line.

I do not think AI uses minrace and maxrace on double file restarts. They will be inside those lines, not necessarily over the limits of the lines. Of course if the lines are too close that will restrict where AI can be and they will fight themselves for the same line. I believe the line "ai_dlat_pad" in the track.ini is the distance they will stay side by side if that distance is not bigger than the distance between the min and max race lines.

Jan Kohl wrote:

When creating .lp files, insure that the start position and the end position are the same, otherwise the AI will think they need to make a sharp turn and slow considerably for the S/F line.


Also make shure the lines are as smooth as possible to have good racing. If the LP have a sharp turn in the exit of a corner for example, AI will slow down considerably there.

Judson Santiago
Santiago-Racing.com

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DiFool6
Champion Driver

 Posted: Thu Apr 21, 2005 6:01 pm Post subject:

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Joined: 25 Apr 2003
Posts: 276

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Traveller

Champion Driver



Joined: 03 Mar 2003
Posts: 776

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DiFool6

Champion Driver



Joined: 25 Apr 2003
Posts: 276

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Traveller

Champion Driver



Yeah Jan. One thing which you have to watch out on roadies is that they tend to run wide, and the faster they go (*ahem* GTP *ahem*), the wider they run, and they also move up from the apex too towards the wall. Hence the lines MAY need to be redrawn lower, clipping the curb at the apex and leaving a buffer on the outsides of the turn so that they will run the correct line.

Another conundrum which I am still working on is their tendency to play "chicken" when approaching a corner which MUST be taken one-wide. Narrowing the lines at that point often causes them to merge and crash, not to yield (they'll yield to a human but will merge with another AI car). You see this at worst effect at Schottenring with all the swerves and curves-beware passing an AI when approaching a fast curve there...

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Posted: Sat Apr 23, 2005 12:30 am Post subject:

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For the more technically oriented, a detail of the LP file structure itself would be nice to have and would probably complete the info. Though that may be straying in to taboo territory these days. I have a breakdown of the structure and the values used, but I don't have as full of a understanding as some do.

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Posted: Sun Apr 24, 2005 5:13 pm Post subject:

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Actually I have a couple of questions:

Creating a new race.lp (NOT raceline.lp) creates a continuous black line on the track surface. Since I've seen other tracks which don't have that (just gets dark in braking zones), how is this remedied?

And AI shift points: the AI in TA mode (lines drawn in TA mode) rapidly shifts from 4 to 5 to 6 at a certain speed: will this prove to be merely cosmetic or will it affect... Wait-aren't the shift points based on the .fast default setup? Seems I read that once somewhere...

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Posted: Sun Apr 24, 2005 6:04 pm Post subject:

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If you don't have any LP's at all, then you'll have a black "groove" line directly on the centerline of the track. Is that what you're referring to? Anyway, the groove intensity is based on the speed values between successive records in the LP files. I believe that the groove boundary and intensity is generated by the MinRace and MaxRace LP's.

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Posts: 776

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mobius1
Legendary Driver



Joined: 17 May 2004
Posts: 1199
Location: Michigan

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Posted: Sun Apr 24, 2005 9:35 pm Post subject:

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i believe you can just make raceline.lp a renamed copy of race.lp
that how i did it i think.

Jan Kohl is my hero

Online name: Mobius12

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Posted: Mon Apr 25, 2005 12:18 am Post subject:

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that all depends if you want the AI to run the same line as you. At some tracks, if you give the AI a preferred line (the raceline.lp that you should run), as their race.lp, you may never get to pass them.

Work-around: make the race.lp slightly wider in the turns so you can get under them.

steve b
Sim Racing Connection

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