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Developing a replay tool
for network game sessions

Under Discreet's
3D Studio Max

Ubisoft Annecy – DL3D

By David Lanier

<http://www.dl3d.com>



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What is this tool ?

- It is a plug-in for Discreet's 3D Studio Max
- It is designed to replay online game sessions directly under 3D Studio Max and compute statistics about game features usage

<http://www.dl3d.com>



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How does it work?

- During a game session, all actions from the players are saved in a file.
- Then the tool reads the files from a directory and compute all information from them.



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What are the goals of this tool ?

Answer the following questions :

1. Do the players use all parts of a map ?
2. Which features (hidden doors etc...) of the maps are used ?
→ Level design
3. How react the players when they play a map for the first time ?
What attracts them ? (Accessibility)
4. Can we follow a specific player on several game sessions to understand its behaviour ?

Screenshot

<http://www.dl3d.com>



Top

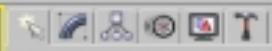
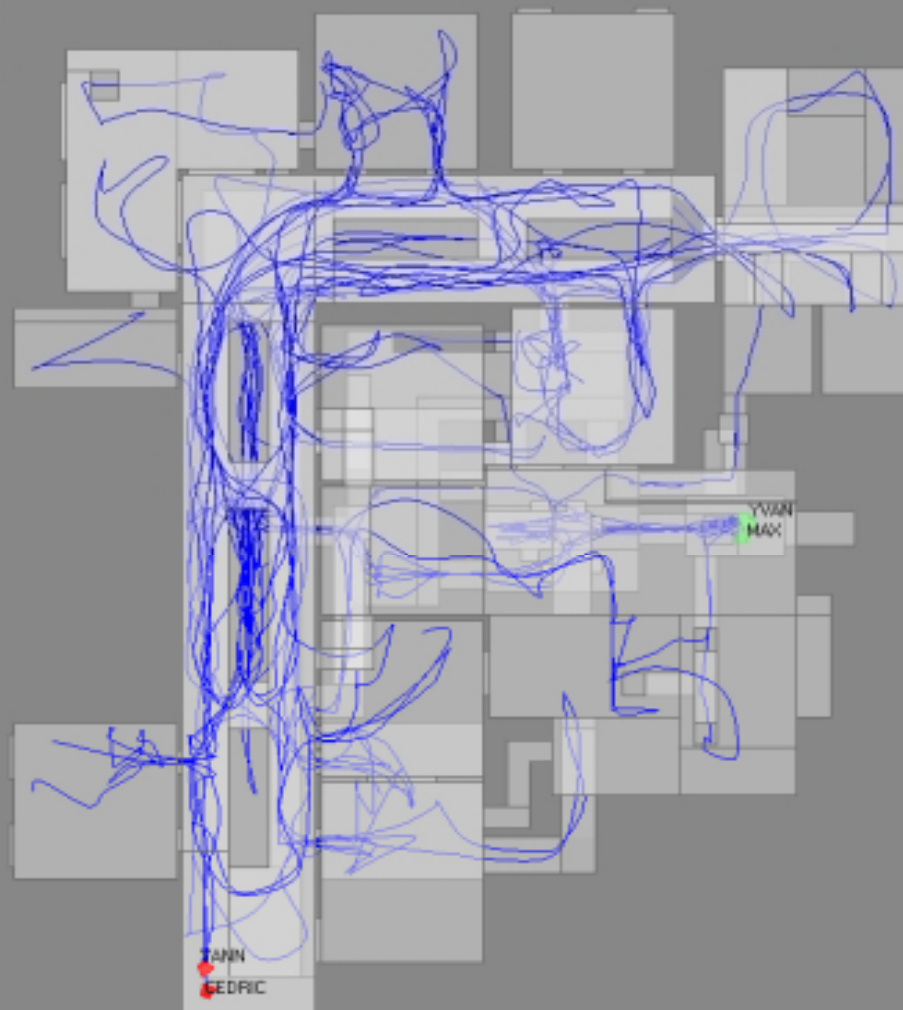
Legend:

In RED color are down the SENTRY players

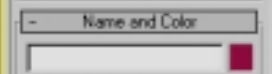
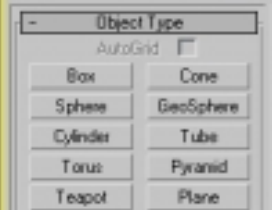
In RED color are down the SENTRIES players

Num Players : 4

Current time: 0 s

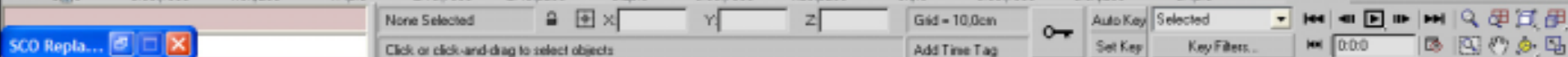


Standard Primitives



0:00 / 7:120

0:00 0:33:1600 1:6:3200 1:4:0 2:13:1600 2:46:3200 3:20:0 3:53:1600 4:26:3200 5:0:0 5:33:1600 6:6:3200 6:40:0



SC0 Repla...

None Selected



Click or click-and-drag to select objects

Grid = 10.0cm



Auto Key

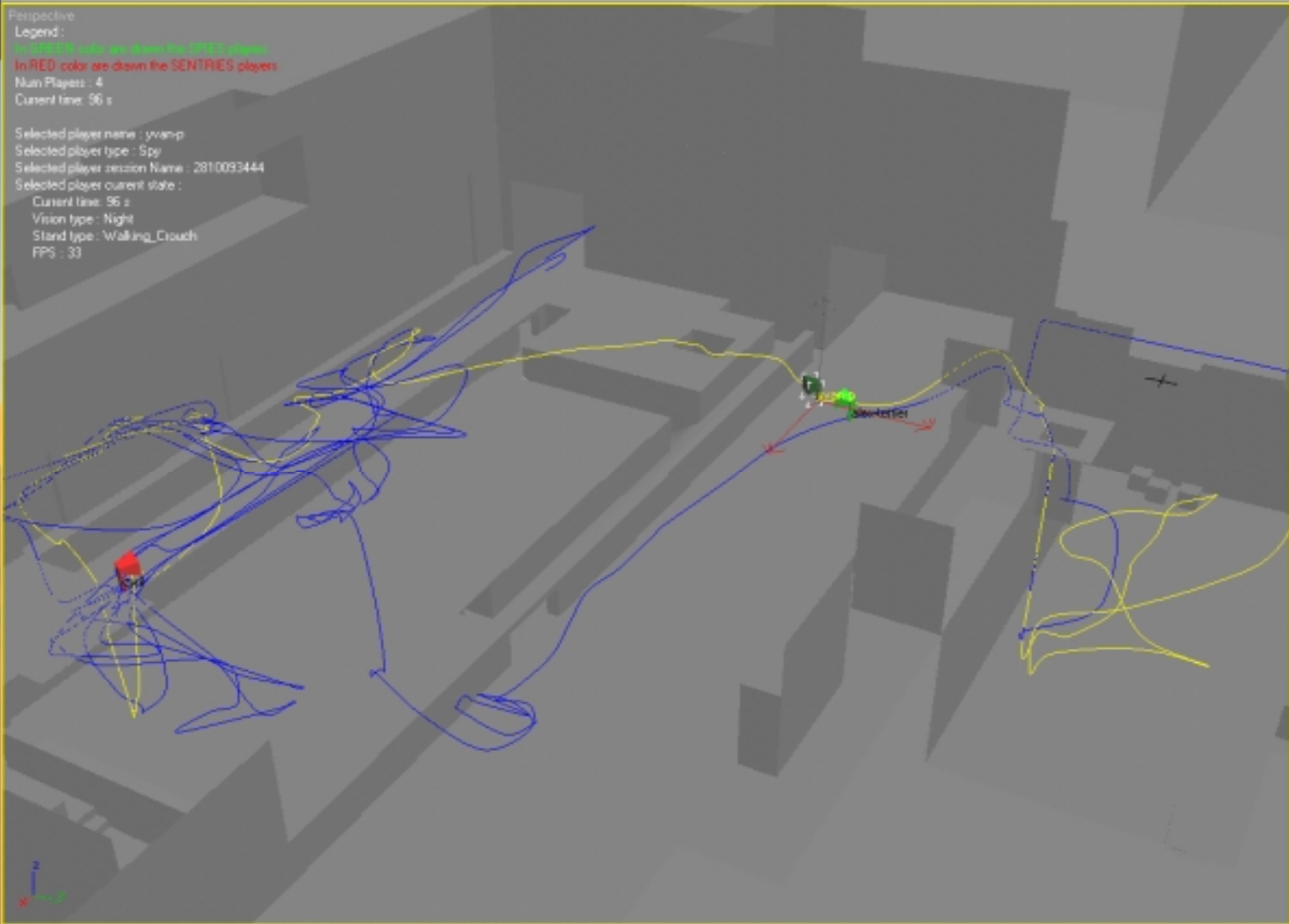
Selected

Set Key

Key Filters...



0:00



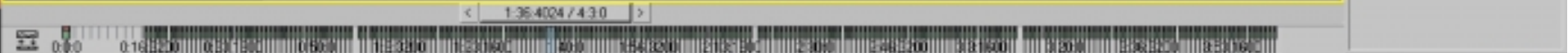
Perspective
 Legend:
 In GREEN color are down the SPYES players
 In RED color are down the SENTRIES players
 Num Players : 4
 Current time: 96 s
 Selected player name : jvranp
 Selected player type : Spy
 Selected player session Name : 2810093444
 Selected player current state :
 Current time: 96 s
 Vision type : Night
 Stand type : Walking_Crouch
 FPS : 33

Standard Primitives

Object Type	
Box	Cone
Sphere	GeoSphere
Cylinder	Tube
Torus	Pyramid
Teapot	Plane

Name and Color

SCOPlayer_jvranp [Green]





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Additional goals of this tool ?

We can also see where players have :

- Died
- Stopped several seconds



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Additional goals of this tool ?

We can also see if the game design features are used :

- Gadgets (traps, grenades, mines..)
- Visions (Night, Snipe, EMF, Thermal...)
- Player states (Running, Walking, Crouch, Hanging, Hacking...)



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Additional goals of this tool ?

Compute *statistics* about usage of game features for hundredth of network game sessions

Screenshot

<http://www.dl3d.com>



Folder to collect data :

C:\3dsmax5\SCO



Load replay

Maps

Sessions and Players

Load/Save

Select...

Unselect All

Statistics

Players trajectories

Show

Options

- Show Players
- Show Splines
- Show Deaths
- Show Stops
- Show spy cam

krauser

MHO

MUSEUM2

MUS

Schermerhorn

Mount_Hospital

DefTech_test

MUSEUM

DefTech_Belew_2

FLE_HM

Sewer

Lobby

DefTech_Belew

+ Schermerhorn - NP : 4 - Session :2810105946

+ Schermerhorn - NP : 4 - Session :0210113548

+ Schermerhorn - NP : 4 - Session :0210121541

+ Schermerhorn - NP : 4 - Session :0210135726

+ Schermerhorn - NP : 4 - Session :0310160730

+ Schermerhorn - NP : 4 - Session :0310162841

+ Schermerhorn - NP : 4 - Session :0310164536

+ Schermerhorn - NP : 4 - Session :0310165233

+ Schermerhorn - NP : 4 - Session :0310170724

+ Schermerhorn - NP : 4 - Session :0610111811

+ Schermerhorn - NP : 4 - Session :0610113452

+ Schermerhorn - NP : 4 - Session :0610115209

+ Schermerhorn - NP : 4 - Session :0610120150

+ Schermerhorn - NP : 4 - Session :0810120016

+ Schermerhorn - NP : 4 - Session :0810120950

+ Schermerhorn - NP : 4 - Session :0910112001

+ Schermerhorn - NP : 4 - Session :0910115833

+ Schermerhorn - NP : 4 - Session :0910121745

+ Schermerhorn - NP : 4 - Session :1010103936

+ Schermerhorn - NP : 4 - Session :1010112218

+ Schermerhorn - NP : 4 - Session :1310101222

+ Schermerhorn - NP : 4 - Session :1310105133

+ Schermerhorn - NP : 4 - Session :1310111045

+ Schermerhorn - NP : 4 - Session :1310113225

Horiz. pipe : ~0 s (0.0 %)

Vert. pipe : ~0 s (0.0 %)

Zipline : ~0 s (0.0 %)

Rolling : ~0 s (0.0 %)

Back2Wall : ~0 s (0.0 %)

On Ladder : ~1 s (0.3 %)

Hanging : ~0 s (0.0 %)

Hacking : ~0 s (0.0 %)

Vision

Normal vision : ~292 s (94.8 %)

EMF vision : ~8 s (2.5 %)

Move vision : ~8 s (2.7 %)

Snipe vision : ~0 s (0.0 %)

Torche : ~89 s (29.1 %)

Torche Laser : ~54 s (17.7 %)

Gadgets

NumFreezeBulletLauncher : 0

NumMineLaserLauncher : 32

NumProxLauncher : 61

NumLSDBulletLauncher : 0

NumFragGrenade : 29

NumPiegeSpyLauncher : 0

NumTazerLauncher : 0

NumFlareLauncher : 20



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Why is this information important ?

- Game developers want to have a feedback about their maps during the playtests. So they can keep what the players like and remove what they don't like/use.



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Drawbacks of this tool

- Game developers need naming conventions to retrieve the maps & the players during several thousands of game sessions
- Analysing the results takes a lot of time



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Why to develop the tool under 3D Studio Max ?

- It is the best application to quickly develop this tool. (=> splines, animation and cameras already available).
- Ubisoft can re-use this tool for others offline/online projects.

<http://www.dl3d.com>



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The future...

This tool could easily be extended for :

- Offline games (racing, strategical, ...)
- Online games
- When to use it : between FP and FPP



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The future...

This tool could also be used to :

- Detect where players died / stopped
- Know which equipment they use ?



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Summary

Tool to :

- Show players trajectories, behaviour and state
- Show the map « highways » and « lost places »
- Show places where players died or stopped
- Replay in real time a game session
- Check the accessibility of the game
- Compute statistics about game features usage

<http://www.dl3d.com>



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Thank you for your attention !
Any Questions ?

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