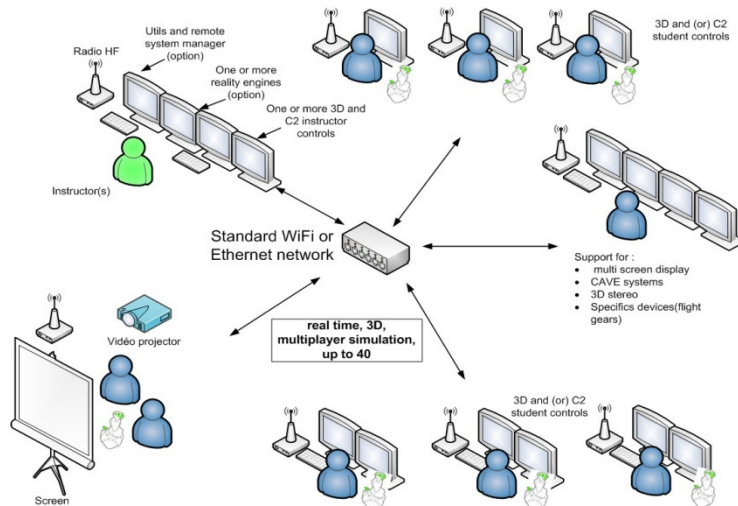


Hyresponse – Workshop I - Virtual exercises

Set up as used in ENSOSP functional training exercises :

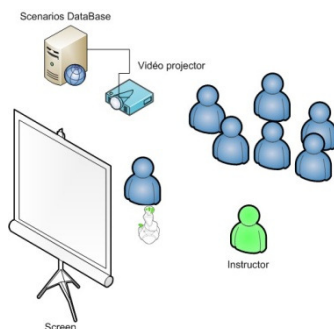
The usual Ensosp set up for fire fighters training is the following :



In this setup, many trainees are concurrently managing an emergency response. Those trainees may be fire fighters first responders, medics, or other kind of first responders (multi agency), or may be a full hierarchical deployment of first responders to IC, including media and institutions.

Ensosp provides a virtual training facility that may encompass very complex setup, like multi agency, joined forces operations, involving multiple, intricate commandment levels, from field operators up to high level commandment.

In the frame of the first Hyresponse workshop, a simple presentation set up has been provided as a tabletop exercise, where the workshop attendees played the role of H2 'Experts'. The aim of those exercises was to demonstrate the use of VR for HyResponse, and to 'ignite' a few discussions and remarks.



First exercise : A multiple car crash on a motorway involving a H2 vehicle (Symbian equipped Kangoo).

In this simple set up, the forces involved where first responders team, backed by a manned IC Post (at county crises management center). First responders had access to the virtual incidents, and were able to perform actions.

When first responders arrive on the virtual scene, they find a vehicle on fire, and they extinguish it. They manage to call police for to stop motorway traffic. Then, they're scouting the cars to search for victims and find an intricated victim in a kangoo H2 car. An helicopter, certainly medias, is turning round in the sky over the incident.

First responders refers to the central IC, and have to describe the situation, ask for more fire engine (first is empty by now). Central IC ask to 'Experts' about H2 car incident.

IC proposes to start rescue victim (rescue shears & jaws of life handling).

This is the first time experts are asked for :

- Any danger with H2 ?
- Should we enforce a safe perimeter for victims and pedestrians?
- What about an helicopter circling above ?

Here discussion started in the experts pool (workshop attendees).

Before discussion settled (a workshop could be held on safe distances metrics), a poolfire broke under the kangoo, from a conventional vehicle oil leak.

First responders reacted immediately with an urgent extraction of the victim, and evacuated the scene.

Kangoo burned, safety valve triggered, H2 was released.

Fire engines arrived on scene. Fire was extinguished.

Ex. Over

Initial conditions. Multiple car incident, fire on conventional vehicle. Several victims, two urgencies, one trapped into a H2 kangoo. Media helicopter circling above. Motorway patrol, police, fire fighters and medics on their way.



Conventional car fire extinguished, medics scouting, H2 vehicule discovery, jaws of life use attempt, fire engine leader asks for experts advice :



Pool fire outbreak under conventional vehicle, and progresses towards Kangoo, emergency victim extraction, evacuation starting:



Fire extends to Kangoo itself, still evacuating :



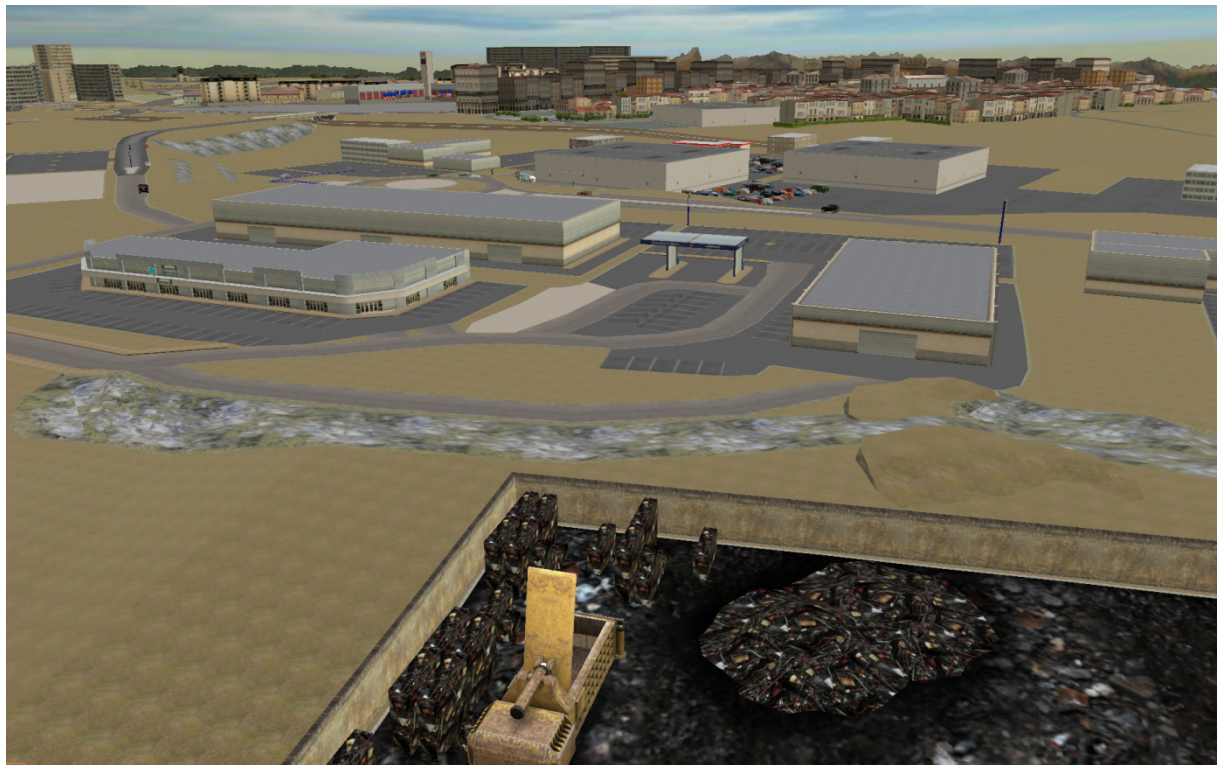
H₂ release (note vertical plume of Kangoo fumes oxydised by otherwise invisible H₂ flame). Loud hiss burning sound. Evacuation not terminated yet.



Second exercise : liquefied H2 trailer incident.

In this simple set up, the forces involved where first responders team, as well as a specialised chemical team unit. First responders had access to the virtual incidents, and were able to perform actions.

Initial conditions : 5 PM, Saturday afternoon in a commercial area. A Chalugaz trailer incident near a store. The trailer contains liquefied H2 and is lying on the side off the road, leaned against the shop wall.



Initial conditions seen from the ground. No leak – no sound, no cryogenic whitish fumes. Driver is extracted. Trailer danger notices confirm content : liquid H₂.



Workshop attendees are discussing about evacuation perimeter, whether to lift the truck back on road, or to empty it (opening valves), or transboarding contents into another trailer.

Decision is taken to trigger specific French procedure, involving the help of hydrogen industry experts. Decision to burn the H₂ locally is taken, a special torch is delivered by helicopter.

Torch deployed, connected, lit up (invisible flame), loud hiss burning sound.



Kangoo screenshots :



After crash.





Burning :



Releasing (conventional fumes tint H2 flame):



Jaws of life opened



Cooled down ...



Recycled 😊

