

# VIRTUAL



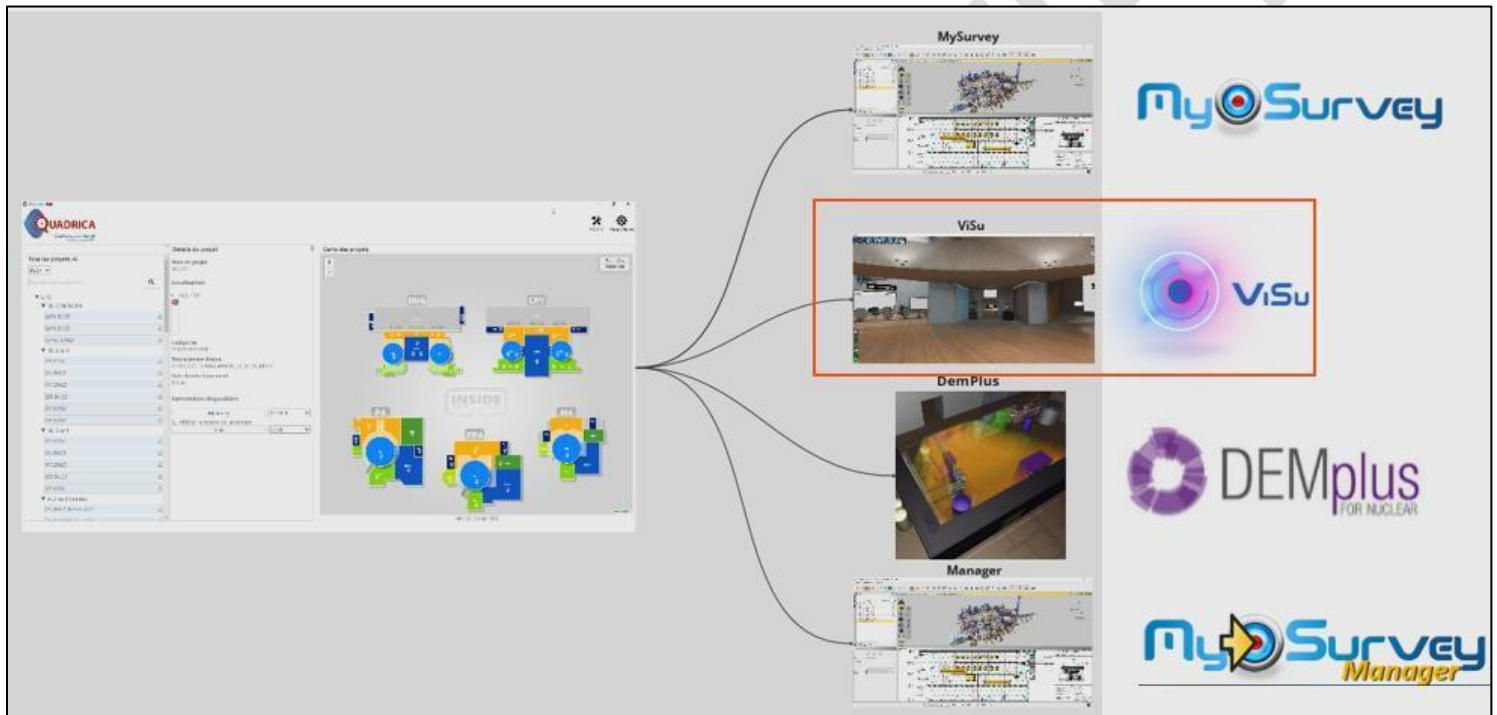
# VISU

**USER GUIDE**

## Introduction

Virtual Survey ("ViSu"), a virtual reality solution, is part of the CDS software platform.

It is a universal, easy-to-use platform that gives all stakeholders access to industrial infrastructure throughout its entire life cycle. From the design, construction, and maintenance phases to decommissioning.



Through this platform, users can work on their digital twins by complete autonomy to address their current or future needs.

This platform is aimed at large manufacturers in various sectors: energy (nuclear, oil & gas, etc.), petrochemicals, logistics (warehouses, conveyors, etc.), transportation, automotive, and more.

There are three types of software solutions:

- **HUB interface "CDS platform gateway":** Provides an overview and one-click access to digital twins.
- **Digital twin operating software:**
  - **MySurvey:** This is a software suite for operating data from 3D scans. It allows you to project yourself onto the site and gives you immediate, simple, and intuitive access to your infrastructure: virtual reality in the true sense of the word.
  - **ViSu or Virtual Survey:** Enables full-scale immersion in an industrial-scale point cloud using a virtual reality headset. ViSu aims to meet customer demands by allowing users to move freely around the virtualized environment with the most realistic rendering possible, "as if you were there."
  - **DEMplus:** This is a decision-making and intervention simulation tool for nuclear environments.
- **Digital twin design software:** CDS Manager allows users to independently manage the lifecycle of their digital twins, from design to updating.

In this document, we will focus on ViSu. If you need more information about the other software solutions, please refer to the corresponding documents.

**ViSu** intuitively allows anyone to immerse themselves and work safely, alone or collaboratively, on their industrial sites without any time or location constraints. Thanks to virtual reality, users can immerse themselves even more deeply in the environment. "It's as if they were really there."

Like all CDS software solutions, **no installation is required** (portable "USB key, hard drive" solution).

Virtual Survey can be defined in three main points:

- I. Software connection devices:** You can connect through several devices (VR headsets, desktop computers, Powerwall). See §. **Software connection devices**
- II. Selecting and launching a project:** The user selects the virtual industrial site on which they want to launch ViSu. See §. **II Selecting and launching a project**
- III. Choosing the user experience (associated features):** Once the project has been launched in ViSu, the user chooses the desired experience/use case and accesses the associated features.

Several experiences are available:

1. ViSu Home: Virtual meeting via different workspaces (meeting room, projection room, etc.)
2. Virtual tour/on-site inspection
3. Collaboration
4. Model/design review - Equipment design support module
5. Training
  - Professional development: immersive learning
  - Training: training scenarios

See §. 5 User experiences/use cases

Throughout this document, we will discuss the different parts of ViSu in detail:

- Software connection devices
- Selecting and launching a project
- ViSu interface
- The various features
- User experiences/use cases

# Summary

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# I. Software connection devices

Users will be able to connect to ViSu by choosing the device they want.

Like all CDS software solutions, **no installation is required** (portable solution "USB key, hard drive").

Several devices are compatible with ViSu:

- **VR headsets:** *all major headsets on the market (HTC, Valve, Meta, Pico, Varjo, etc.) compatible with SteamVR*



## Regarding computers:

- Minimum configuration (for undegraded VR use uncompromis)
  - Graphics card: **Nvidia RTX 2070**
  - RAM: **16 GB of RAM**
  - Processor: *I7-6700K or higher, although the processor is much less limiting than the graphics card when using the application.*
- Optimal/recommended configuration:
  - Graphics card: **Nvidia RTX 3080 or higher**
  - RAM: **32 or 64 GB of RAM or higher**
  - Processor: *I7-6700K or higher, although the processor is much less limiting than the graphics card for using the application.*
- **Desktop workstation** (screen, keyboard, mouse) 

Regarding computers: Does not require a VR-enhanced configuration because it is for desktop use.

A CAD-type PC is a plus as it will provide a smoother experience.

- Minimum configuration:
  - Graphics card: **Intel**
  - RAM: **8 GB of RAM;**
  - Processor: /

- Optimal/recommended configuration:
  - Graphics card: **Nvidia RTX 2070 or higher**
  - RAM: **16 GB RAM or higher**
  - Processor: /
- **Powerwall/Basement:**
  - **Tracking flystick + 3D glasses:** "ART" tracking
  - **3D display device:** Any type of 3D device
    - Powerwall LED
    - Powerwall projector
    - 3D TV

#### Regarding computers:

- Optimal/recommended configuration:
  - Graphics card: **Nvidia RTX 4000 ADA or higher**
  - RAM: **32 or 64 GB of RAM or higher**
  - Processor: *I7-6700K or higher, although the processor is much less limiting than the graphics card for using the application.*



- A VR/AR connection will be considered at a later date.

There are several modes in the application:

- Desktop mode
- VR Mode
- Powerwall Mode

As the interfaces differ between modes, they will be described for each mode in this document.

#### Switching between Desktop Mode/VR Mode and Desktop Mode/Powerwall Mode:

**Important:** It will be possible in the application to switch between Desktop Mode/VR Mode (Immersive) or Desktop Mode/Powerwall Mode. *See §3.6.3 Switch Desktop Mode/VR Mode*

## II. Selecting & launching a project

### 2.1. Project format

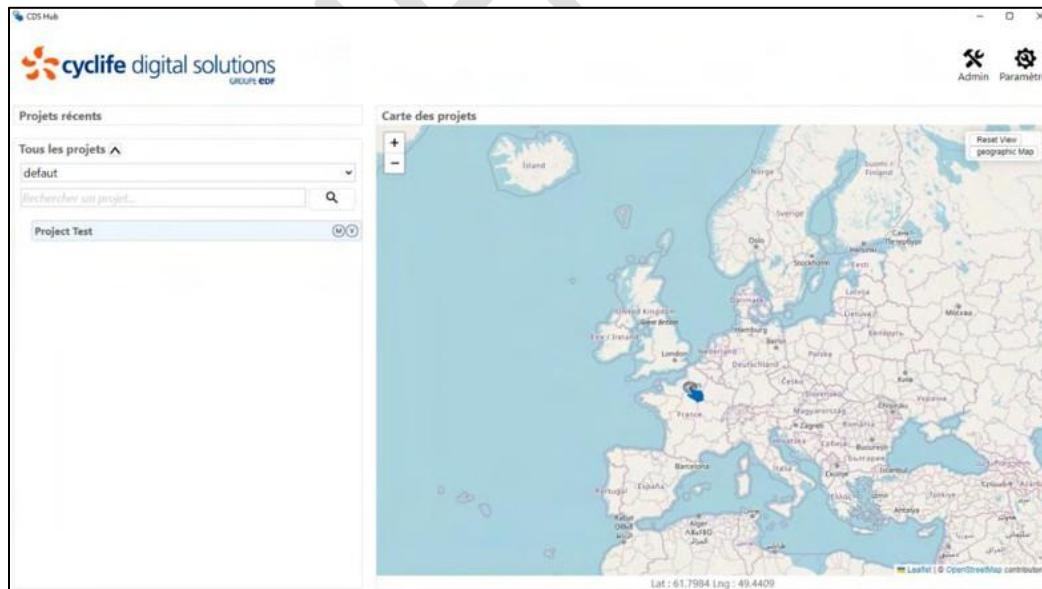
The Cyclife Digital Solutions platform features a unique project format (digital twin). This format can then be launched by the software solution of your choice.

A project can be composed of various environmental data:

- 2D plans
- Point clouds (from 3D scanners)
- 3D models (CAD)
- Ultra-high-definition (UHD) photos
- Metadata
  - IoT data
  - Dosimetry
  - Asbestos
  - Etc

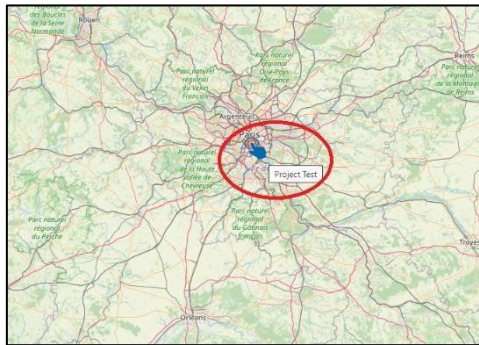
### 2.2. Choice of a project

To select a project and launch it on ViSu, you need to open the Cyclife HUB software.



There are two options for selecting a project:

- Either in the tree structure
- Or directly on the world map or image map by clicking on the project icon.

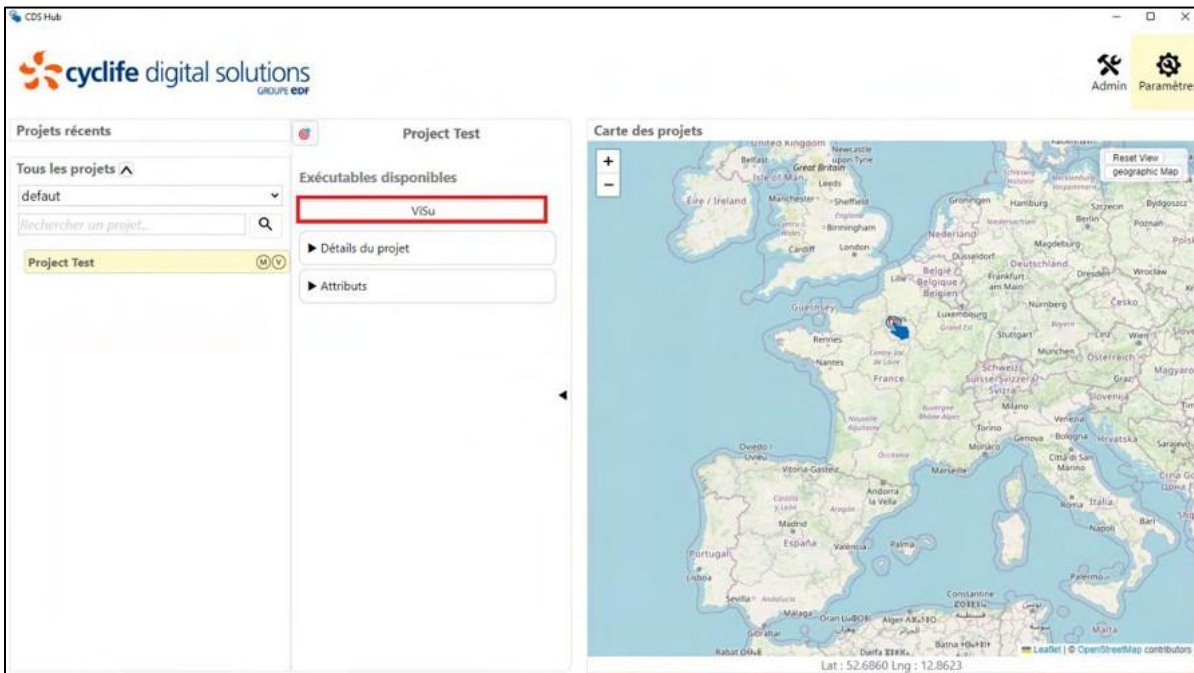


The project is then selected and a project window opens. All you have to do is open it with ViSu.

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## 2.3. Launching the project on ViSu

To launch ViSu on the selected project, press the ViSu button in the project window in the "Available executables" section.



Note: For more information on selecting and launching a project via the hub, see the "Documentation - USER HUB."

- ViSu will then launch on the selected project.

### 2.3.1. License activation

If this is your first time using ViSu, you will be asked for a license key. You will then need to enter the license key, provided by Cyclife Digital Solutions during delivery, in the license management interface.

The screenshot shows a 'Propriétés' window for license activation. It contains a table with the following fields: 'Statut de la licence' (Période d'essai expirée), 'Clé de licence', 'Date d'expiration', 'Version', and 'Type de licence'. Below the table is a text input field for the license key and an 'Activer' button.

| Propriétés           |                         |
|----------------------|-------------------------|
| Statut de la licence | Période d'essai expirée |
| Clé de licence       |                         |
| Date d'expiration    | -                       |
| Version              | -                       |
| Type de licence      | -                       |

.....

Activer

NB: If you do not have a license, a 3-day trial period is available. After this period, you will be asked for a valid ViSu license key.

The application can be used offline for 5 days. After that, you will be asked for a valid ViSu license key.

Once you have entered the license key, press activate.

Note 1: Activating the license may take a few moments.

NB2: Launching a project may take several minutes depending on the size of the project.



"ViSu is ready, enjoy!"

### III. ViSu interface

#### 3.1. Settings interface

The interface of settings appears at startup of the application. It mainly allows you to manage settings according to user preferences.

There are several ways to access it (show or hide the interface):

- Either from the button on the system options bar (*see §3.6.2 Accessing the settings interface*)
- Or via the button on the VR watch (*see §.Error! Reference source not found.Error! Reference source not found.*)
- Or via the keyboard shortcut key "H".

It can also be closed by clicking on the cross in the top right-hand

corner. It consists of several tabs:

- "Map" tab
- "User commands" tab
- "User Settings" tab
- "Display Settings" tab
- "Third-person view" tab
- "User Assistance" tab

| Paramètres |                       |                        |                        |                   |                        | X |
|------------|-----------------------|------------------------|------------------------|-------------------|------------------------|---|
| Plan       | Commandes Utilisateur | Paramètres Utilisateur | Paramètres d'affichage | Vue 3ème personne | Assistance Utilisateur |   |

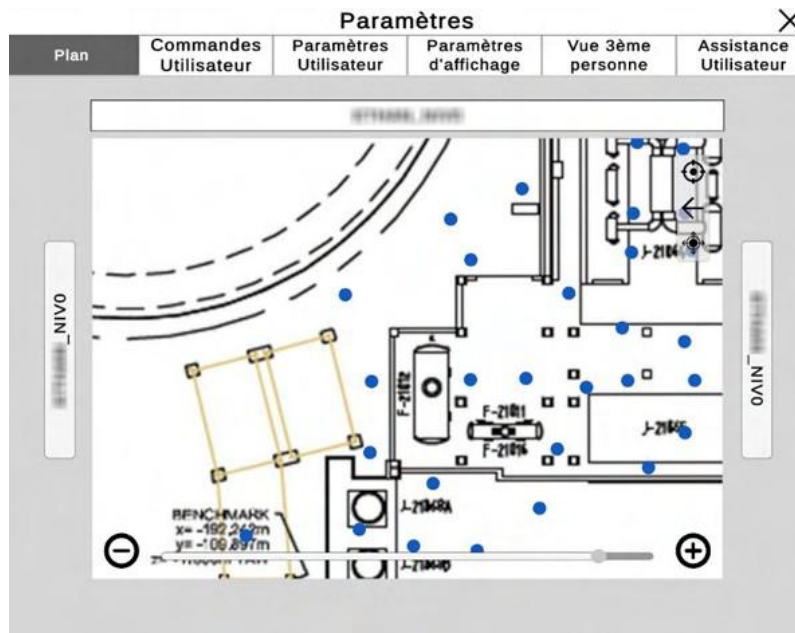
##### 3.1.1. "Plan" tab

When the application starts up, the settings window displays the "Plan" tab, for the sake of efficiency.

This is because users can directly select the location to which they want to teleport on site without having to go through Home ViSu (ViSu's home page, which consists of a set of virtual spaces for collaboration, *see 3.7 Home ViSu*).

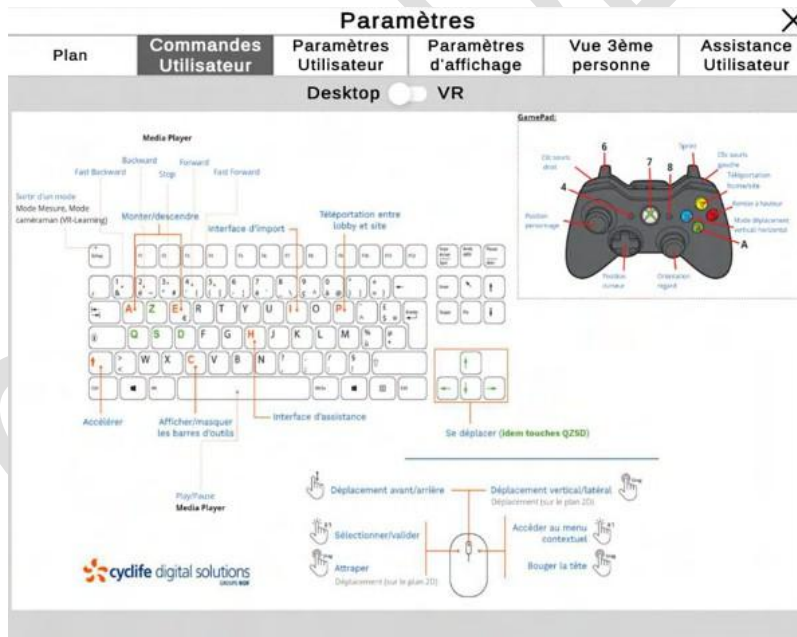
Users can change floors by clicking on the white labels (on the side). then click on a station to teleport the avatar into the project.

You can also zoom in using the zoom slider at the bottom.



### 3.1.2. "User Commands" tab

This tab displays the application commands in VR and Desktop, as well as keyboard shortcut keys.



#### 3.1.2.1. Desktop commands

This includes the keyboard and mouse movement keys in Desktop mode.

#### 3.1.2.2. VR commands

The keys are arranged according to the connected VR controller.

### 3.1.3. "User Settings" tab

This tab allows you to manage user settings according to your preferences.

| Plan | Commandes Utilisateur | Paramètres Utilisateur            | Paramètres d'affichage | Vue 3ème personne      | Assistance Utilisateur   |         |
|------|-----------------------|-----------------------------------|------------------------|------------------------|--------------------------|---------|
|      |                       | Position Utilisateur 1            | -971                   | -992                   | -1001                    | Valider |
|      |                       | Mode de Navigation 2              | Main gauche            | Navigation Horizontale |                          | Valider |
|      |                       | Vitesse de déplacement 3          |                        |                        | 3                        | Valider |
|      |                       | Vitesse de déplacement vertical 4 |                        |                        | 2                        | Valider |
|      |                       | Hauteur de marche 5               |                        |                        | 0.4                      | Valider |
|      |                       | Capteurs de Pression 6            |                        |                        | 0.4                      |         |
|      |                       | Amplitude Retours Haptiques 7     |                        |                        | 0.5                      |         |
|      |                       | Maintien automatique au clic 8    |                        |                        | <input type="checkbox"/> |         |
|      |                       | Taille de l'utilisateur (en m) 9  |                        |                        | 1.75                     | Valider |
|      |                       | Langage 10                        |                        |                        | Français                 | Valider |
|      |                       | Nombre max de collisions 11       |                        |                        | 3                        |         |
|      |                       | Passer en VR 12                   |                        |                        |                          |         |

- 1) Positioning of your avatar in the application. Option to set a desired position.
- 2) Change the movement mode for each hand.
- 3) Horizontal movement speed
- 4) Vertical movement speed
- 5) Maximum step height
- 6) Sensitivity of the joystick pressure sensor for grabbing objects
- 7) Adjusting vibration intensity
- 8) Automatically hold an object when clicked
- 9) Adjusting the size of the avatar
- 10) Adjusting the language
- 11) Maximum number of collisions before considering that the object is held in place by other elements and cannot be moved.
- 12) Switching from VR mode to Desktop mode

### 3.1.4. "Display Settings" tab

This tab allows you to manage the application's display settings according to your preferences.



- 1) Show/Hide point cloud
- 2) Show/Hide 3D models
- 3) Show/Hide stations
- 4) Interaction mode setting (Hover Mode, Manipulation Mode, Normal Mode)
  - Mode used for interacting with 3D models (*Error! Reference source not found. Error! Reference source not found.*)
- 5) Displaying blur in the underworld (world displaying hidden 3D elements, *see Error! Reference source not found. Error! Reference source not found.*)
- 6) Different display modes (*see Error! Reference source not found. Error! Reference source not found.*)
- 7) Level of detail of 3D models
- 8) Point cloud density adjustment
- 9) Reset point cloud
- 10) Enable/Disable user light optimization
- 11) Enable/Disable global lighting

### 3.1.5. "Third-person view" tab

This tab allows you to view the avatar in third person. You can adjust the camera according to your needs.

#### Possible settings:

- Camera distance
- Field of view
- Camera rotation

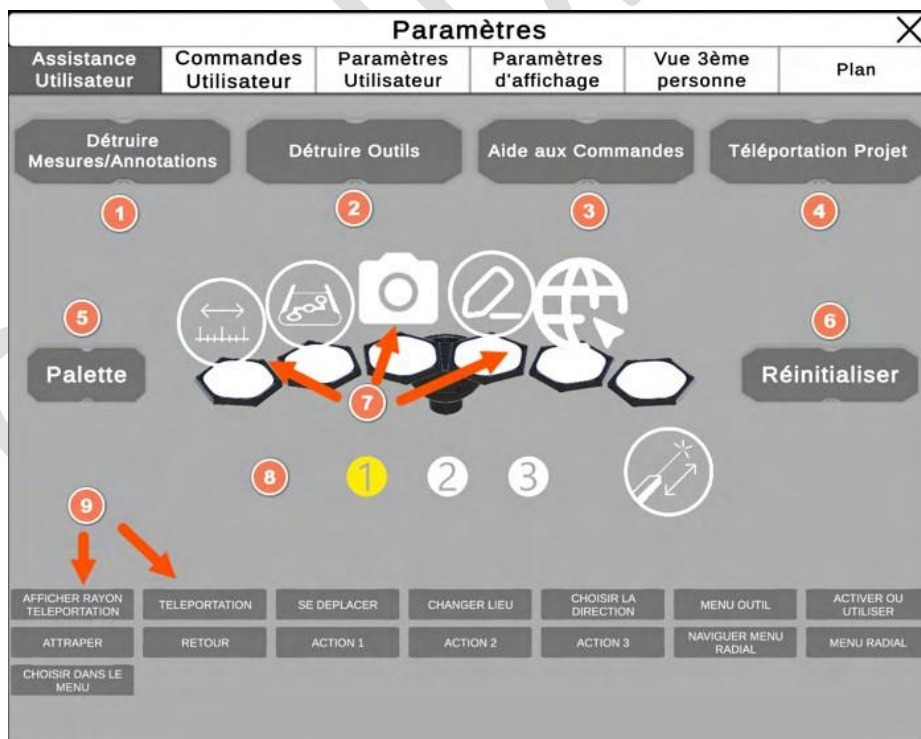
This view is useful during a demo. It prevents the direct view from the headset from being broadcast, which would allow viewers to see all of the user's head movements inside the headset. This can be unpleasant.

### 3.1.6. "User Assistance" tab

This tab allows a ViSu trainer/advisor to assist the VR user through various actions.

Below is a general explanation of the window. *Section 4.6 User Assistance* describes this *user* assistance feature in detail.

this user assistance feature.



- 1) Destroy all measures, audio annotations, and annotation icons
- 2) Destroy all tools instantiated in the world
- 3) Show/Hide all main actions on controllers
- 4) Teleport to the lobby or point cloud
- 5) Show/Hide the tool palette
- 6) Reset all tools
- 7) Allows you to create or show a tool with a simple right click
- 8) Browse, create, or display the different categories in the tool palette
- 9) Help showing an action on the controller.

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## 3.2. Navigation modes in the application

Several navigation modes are available in the application to suit user preferences. Users may also want to change the navigation mode depending on the experience chosen in ViSu.

In design review mode, users may prefer a mode that is not constrained by the environment so that they can easily move to the desired location, whereas in training mode, users will likely prefer a physical mode that is closer to reality.

**ViSu has different modes and movement options** that will be available in whole or in part depending on the connection device (VR headsets, desktop computers, Powerwall):

- **Movement mode**

- **Horizontal movement mode** (available in VR and Desktop):

When the user moves around in the application, they are constrained horizontally, remaining below the avatar's feet (default height: 1.75 m, which can be changed via the settings interface, see §3.1.3 "User Settings" tab), even if the avatar is looking in a different direction. There is no gravity in this mode.

- **Vertical movement mode** (available in VR and Desktop):

When the user moves around in the application, they can move up or down. There is no gravity in this mode.

- **Free movement/drone mode** (available in VR and Desktop):

When the user moves around in the application, they can move freely in all directions. Movement is based on the user's gaze. There is no gravity in this mode.

*For example, if the user looks diagonally, they will also move diagonally.*

- **Teleportation movement mode** (available in VR):

In virtual reality, some people frequently experience an effect known as "motion sickness," more commonly referred to as travel sickness, which occurs when the information sent to the brain is perceived differently by the eyes and the inner ear. To avoid this, we have implemented teleportation mode, which involves moving around by jumping through space. Using a beam of light, the user can choose the teleportation location and then confirm to teleport there. There is no gravity in this mode.

- **Physical movement mode** (currently being developed for VR and desktop):

This mode allows for movement that is close to reality. Gravity is activated and the user is constrained by the environment.

*For example, they cannot pass through walls, floors, etc. They naturally climb stairs as they move forward...*

- Movement option:
  - Reset to human height (available in VR and Desktop):

When the user moves around in the application, outside of physical movement mode, they have the option to return to the floor using the "return to ground level" option. This is useful, for example, after an elevation. The user's avatar's feet will be returned to the ground.

This option is based on two variables:

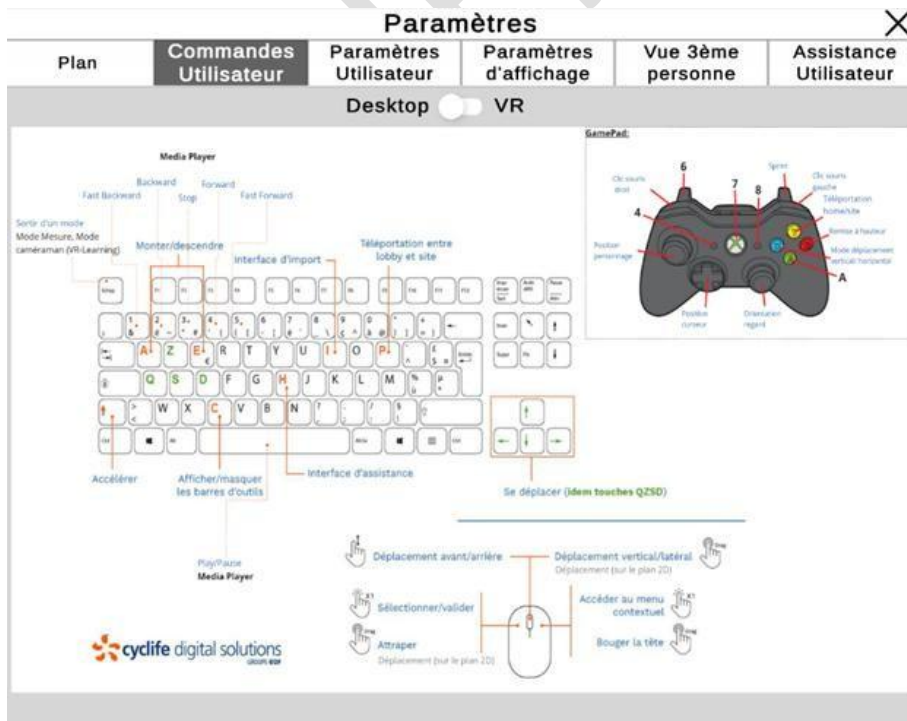
- The size of the avatar (default size: 5'9", which can be changed via the settings interface, *see §3.1.3 "User Settings" tab*)
- The 3D elements located below the user
- When this option is used, it will be based on the 3D elements located under the avatar's head, and then a height adjustment will be applied based on those elements.

### 3.2.1. On desktop

On desktop, there are several ways to move around (either using the keyboard keys or the mouse), but there are also different navigation modes (see §. **Movement modes in the application**)

Different ways to move:

- Using the keyboard keys
- Using the mouse
- Using the options interface (vertical Desktop bar)



## Moving using keyboard keys:

- **Standard movements** (forward, backward, left, right):
  - The arrow keys: allow for standard movement forward, backward, left, and right.
  - Gaming keys "QZSD": forward ("Z"), backward ("S"), left ("Q"), right ("D").
- **Vertical movement:**
  - The "AE" gaming keys: Down ("A"), up ("E")
- **Acceleration:** Press the "Shift" key
- **Teleport from the site/ViSu Home:** Press the "P" key.

## Movement using the mouse:

- **Eye control/Move head:** Hold down the right mouse button
- **Select/Confirm:** Left-click
- **Grab:** Left-click and hold
- **Access context menu:** Right-click
- **Movement:**
  - Forward/backward: scroll wheel forward/backward
  - Vertical/sideways: Click and hold scroll wheel+ e movement (vertical: forward/backward movement, sideways: left/right movement)

## Movement via the Desktop options interface:

The Desktop options interface will be described in detail in [§.3.4Options interface](#).

Here, we will only look at the movement options:



- **Return to eye level:** Click on the button
- **Vertical movement:** Click on the "+/-" buttons
- **Choice of movement mode:**
  - Horizontal travel mode
  - Free/drone movement mode



### 3.2.2. In VR

Several navigation modes/options are available in VR. These navigation modes can be accessed via:

- The watch (described in detail in §3.4.Options interface). Only movement modes will be discussed in this section.
- The settings interface

#### a. The watch:

Once you have selected a movement mode, simply use the joystick to apply it.



- Horizontal movement mode: 
  - Push the joystick to move horizontally.
- Vertical movement mode: 
  - Push the joystick forward or backward to move up or down.
- Free/drone movement mode: 
  1. Look in the direction you want to move
  2. Push the joystick to move there.
- Teleportation mode: 
  1. Place your finger on the joystick, and a beam of light will appear
  2. Aim at the desired location
  3. Click on the joystick to confirm the teleportation

- Option to return to eye level:



- Teleportation Site/ViSu Home:



## b. The settings interface:

Via the settings interface, on the "User Settings" tab, you can change the navigation mode:

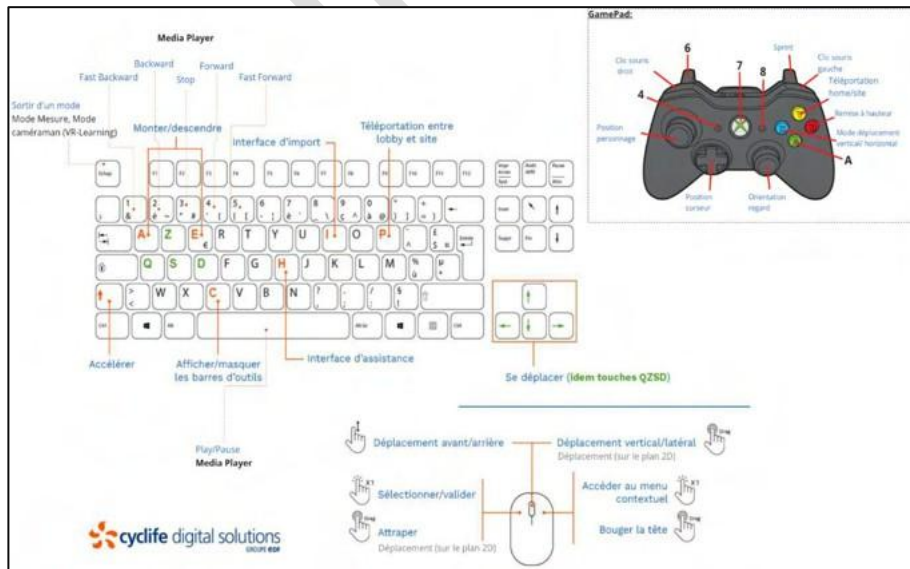
- Hand selection: In VR, each hand can have a different navigation mode
- Choice of navigation mode

| Paramètres           |                       |                        |                        |                        |                        |         |
|----------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|---------|
| Plan                 | Commandes Utilisateur | Paramètres Utilisateur | Paramètres d'affichage | Vue 3ème personne      | Assistance Utilisateur |         |
| Position Utilisateur |                       |                        | -971                   | -988                   | -1001                  | Valider |
| Mode de Navigation   |                       |                        | Main gauche            | Navigation Horizontale | Valider                |         |

### 3.2.3. Via a "GAMEPAD" type controller

There are several ways to move using gamepad-type controllers.

The keys are available in the settings interface in the "User Controls" tab.



### 3.3. Interactions in the application

In Virtual Survey, there are different types of interaction, which we will discuss in this section.

Types of interaction:

- Click/activate
- Touch
- Grab
- Hover
- Use of force
- Resizing

#### 3.3.1. Click/activate

ViSu's philosophy is to enable users to click/activate any type of UI (buttons, sliders, tabs) using either:

1. **The hand:** click on the "click/activate" button (in VR)
2. **The black interaction laser:** click on the "click/activate" button (in VR)
3. **Mouse:** Left click (on desktop)
4. **The cursor:** Right trigger click (on a gamepad)



#### 3.3.2. Touch

On some UIs, touch navigation is available via:

- The hand: Hover+ Hold down the "click/activate" button+ Move (in VR)
- The laser black interaction: Hover + hold button "click/activate" + movement (in VR)
- Mouse: Hold left click/scroll wheel+ Move (in Desktop)
- Cursor: Hold down the upper right trigger (on gamepad)

This option can be found on the following UIs:

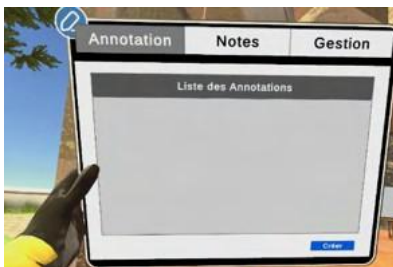
- 2D plans (described in §.4.1.2.3 2D Plan Tablet)
- The web tablet (described in §.4.1.2.6.Web Tablet)
- The document tray (described in §.4.1.2.7Document tray)

### 3.3.3. Grab

During your experience in ViSu, you will be able to grab elements in order to change their position, including tools (described in §.IV.Different features), 3D models (described in §.4.23D model exploitation features) and other elements (chairs in ViSu Home, etc.).

You can move items:

- By hand (in VR):
  1. If the "Automatic hold on click\*" option is not enabled: Hold down the "grab" button to grab the element, release the button to release the element.
  2. If the "Automatic hold on click\*" option is enabled: Click once on the "grab" button to grab the element. The element remains attached to your hand. To release it, click on the button again.



*\*NB: This option « Maintien automatique au clic » is setting in the settings interface (see §3.1.3. "User settings" tab).*

*\*NB 1: There is a visual feedback when hovering over an element: the hand closes halfway, inviting the user to grab the element.*

- With the laser tool (in VR): this is only available for moving 3D models in manipulation mode (described in §.Error! Reference source not found..Error! Reference source not found.),
- 5. With the mouse: Hold down the left click (in Desktop mode)
- 6. Cursor: Hold down the upper right trigger (in Gamepad mode)

### 3.3.4. Hover

In ViSu, you will also find hover interaction. This is visible through several user feedback:

- Color changes: elements turn green or are surrounded by green.
- Hand pose (in VR)

- Information display: an explanatory tooltip, name of a piece of equipment for 3D models

Hovering is available on several elements in the application:

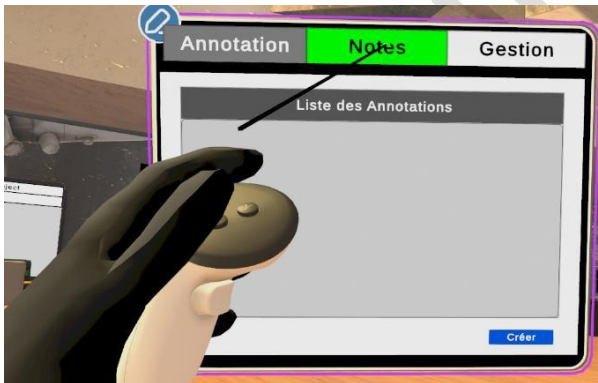
- UIs (buttons, sliders, tabs, etc.)
- Tools, tool palette (described in §. 3.5 Tool interface)
- 360° panoramic photos

There are several ways to fly over an element:

- Hand: Hover (in VR)



- Black interaction laser: Hover (in VR)



- Mouse: Hover (on desktop/gamepad)



### 3.3.5. Use of force

A little bonus available in virtual reality: to avoid bending down or getting close to an item to grab it, you can use the Force ("May the Force be with you!").

The Force is available on:

- The tools, pallet toolbox (described in §.3.5 Tool interface and IV Different features)
- 360° panoramic photos to use

the force:

1. Aim at the desired element
2. It will be surrounded by a purple halo
3. Press the "click/activate" button and the "grab" button at the same time.
4. Wait for the item to appear in your hand



### 3.3.6. Resizing

In ViSu, you will be able to resize items.

Resizing can be applied to:

- Elements (3D models, segmentations, etc.)
- Tools (tablet)

#### Resizing elements

There are two ways to resize elements (3D models, segmentations, etc.):

- Free resizing
- Resizing using a manipulator

#### Free resizing

Free resizing is only available in VR and Powerwall (when using two Flysticks). You must use both hands.

To resize, you must:

1. Grab the element with both hands
2. Then stretch it by moving your hands apart
3. The element should resize proportionally to the movement made.

The option is available via the free manipulator (§.4.2.3.6.1 Manipulation options) or via the quick manipulation option (§.3.4.1.2 Display & Interaction Options).

## Resizing via a manipulator

Resizing is also possible via the resize manipulator



(§.4.2.3.6.1 Manipulation options)

To resize, you must:

1. Open the element's properties window
2. Select the resizing handle
3. You can now resize the element

## Resizing tools

Tablets can be resized either:

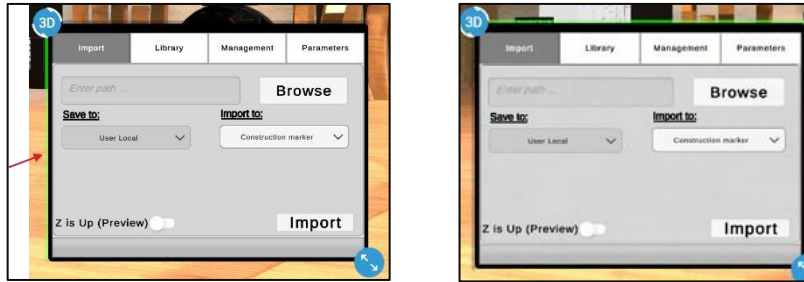
- Resizing "Zoom"
- Changing dimensions

## Resizing "Zoom":

The panels can be enlarged to better view the content. To enlarge the panels:

- In VR/Powerwall (if using 2 Flysticks):
  1. Grab the element with both hands
  2. Then stretch by moving your hands apart
  3. The tablet should expand more or less depending on the movement made.

- On Desktop:
  1. Move the mouse cursor over the top edge of the tablet or the left edge
  2. It should be highlighted in green.
  3. At this point, grab the edge with a long click and move the mouse.
  4. The tablet should enlarge or shrink depending on the movement made.



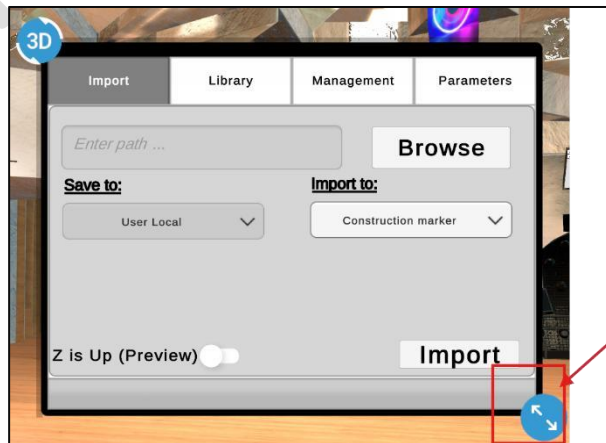
## Changing dimensions:

It is possible to modify the dimensions (width, height) of the shelves.

This feature is currently in development. It is only available on the 3D tablet (4.2.2 Importing 3D models).

To modify the dimensions of a tablet (in VR, Desktop, Powerwall):

1. Grab the icon  in the lower right corner, then move the mouse/hand away from the tablet vertically vertically and/or horizontally
2. The tablet should resize according to the movements made



### 3.4. Options interface

In this session, we will describe the interfaces used to access ViSu options. There are several types of options:

- Movement options
- Display options
- Interaction options
- Access to tool shortcuts

Interfaces have been designed to suit each connection device (VR, Desktop, Powerwall).

#### 3.4.1. In VR: the watch

The watch allows you to access various options in VR. There is one watch per hand.

To display the watch, the user must turn their wrist as if they were checking the time on a real watch. The watch then appears.



On each watch, the user can check the time at any moment. Immersed in virtual reality, the user can quickly lose track of time. Having access to the time is therefore important.

The watch has three categories:

- Options 1: General
- Options 2: Display & interactions
- Option 3: Tool shortcuts

To activate an option or enter a subcategory, the user can, as with any ViSu interface, click directly with the other hand or using the selection laser of the other hand.

For example, to set the navigation mode for the left hand, use the right hand to select a navigation mode on the left watch, and vice versa.

#### 3.4.1.1. General options



General options (from top to bottom):

- Teleportation Site/ViSu Home
- Show/hide palette (described in §. 3.5.2 In VR: Tool palette) 
- Navigation mode (described in §. 3.2 Movement modes in the application and 3.2.2 In VR):
  - A navigation mode is available for each hand. By default, the left hand is in horizontal navigation mode and the right hand is in vertical navigation mode.
- Displaying/hiding the settings interface (described in §. 3.1 Settings interface) 
- Reset to human height (described in §. 3.2 Movement modes in the application and 3.2.2 In VR) 

### 3.4.1.2. Display interaction options

This category corresponds to the display options.



It consists of:

- Displaying/Hiding Project Point Clouds 
- Display/Hide 3D models 
- Displaying/Hiding 360° photo spheres for projects 
- Display modes (see §4.2.3.4 Display mode) 
  - "Normal Visibility" world
  - "Invisible Elements" world (in red)
  - World "Visibility status (in red) and visible elements (in green)
  - World "Visualization of elements subject to collision detection" (in blue)
  - World "Visualization of elements subject to gravity" (in purple)
- Interaction mode (see §4.2.5 Interaction mode) 
  - Hover mode
  - Manipulation mode
  - Normal mode

### 3.4.1.3. Tool shortcut options

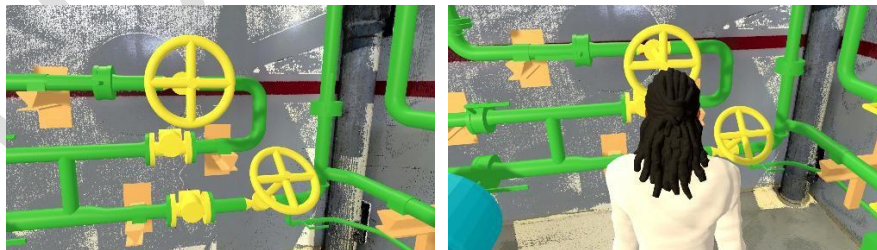
This feature is currently under development. It will allow users to organize their favorite tools for quick access.

### 3.4.2. On Desktop: Vertical options bar

The desktop equivalent of the watch is the vertical options bar. It is located on the left side of the screen.



- 1) Take a screenshot
- 2) List of emojis/animations: allows you to animate your avatar on desktop
- 3) Reset to eye level
- 4) Movement mode: Horizontal movement or free movement/drone
- 5) Movement subject to physics (4.2.3.6.5Gravity)
- 6) Different camera views: there are 3 types of camera views
  - First-person view
  - View 3 (third person) "camera"
  - 3rd person "avatar" view



- 7) Show/Hide project point cloud
- 8) Show/Hide 3D models
- 9) Show/Hide project photos
- 10) Display modes (see §4.2.4Display mode)
- 11) Interaction mode (Hover Mode, Manipulation Mode, Normal Mode) (see §4.2.5Interaction mode)

## 3.5. Tool interface

### 3.5.1. Description

During ViSu, users will have access to several types of tools enabling them to work on their virtual industrial site.

These tools will be available:

- In VR: via the watch
- On Desktop: via the horizontal toolbar

There are three types of tool categories:

- Standard tools
- Tools for working with 3D models
- Specific module tools Standard

tools:

These are standard tools that are used during virtual tours, virtual site inspections, or other more specific use cases.

All of these tools will be described in detail in §.4.1.2 Standard tools.

- **Laser tool:** Allows you to highlight or point to objects.
- **Measuring tool:** Allows you to take precise measurements in 3D.
- **2D tablet:** Allows you to find your way around your industrial site and teleport to a desired location.
- **Camera tablet:** Allows you to take photos, particularly for use in reports.
- **Annotation tablet:** Allows you to add annotations to highlight information information or warn of a change
- **Web tablet:** Allows you to search a web page or access a PLM (document database).
- **Documents tablet:** Allows you to view documents (PDFs, images, videos).

Tools for using 3D models:

These tools are dedicated to managing 3D models, particularly during design/project reviews.

All of these tools will be described in detail in §.4.2 3D Model Exploitation Features

- 3D import tablet
- 3D model properties tablet
- Creation tab
- Segmentation panel

Specific module tools:

These tools correspond to specific modules.

All of these tools will be described in detail in §.4.3 Specific modules

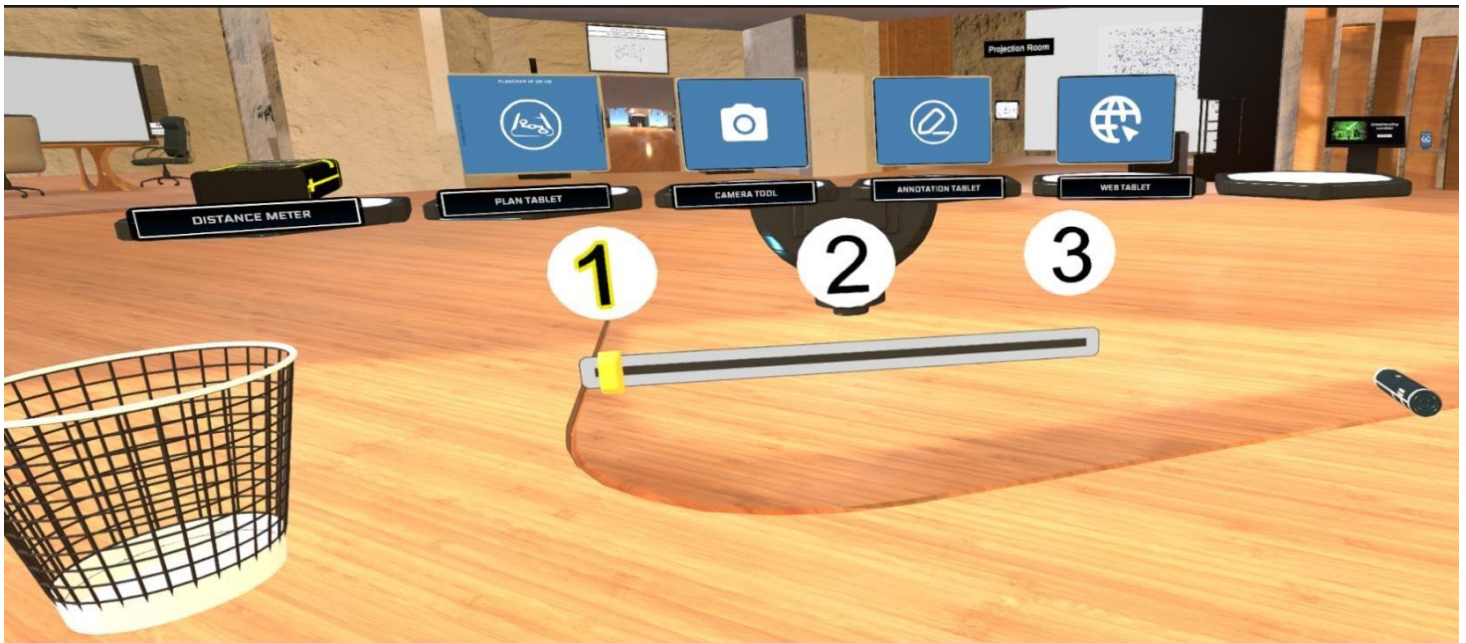
These include:

- VR-Learning tablet
- 4D Tablet
- Dosimetry Tablet
- Training Tablet
- External API Tablet

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### 3.5.2. In VR: Tool Palette

To access the tools in virtual reality, the user has a tool palette at their disposal.



This palette can be brought up in two ways:

- Via the watch
- Via the "Tool Palette" shortcut key on the controllers

It consists of three categories. These categories follow the categories mentioned in the previous section §3.5 Tool interface.

All tools created, as well as the tool palette, remain around the user.

There is no gravity. This allows the user to organize their workspace however they wish.

The tools are also resizable (see §. [Resizing tools](#))

#### Deleting tools:

To the left of the toolbar is a trash can for deleting the tools placed there.

If the user wishes to destroy them, there are two ways to do so:

- By placing them in the trash can in the toolbar



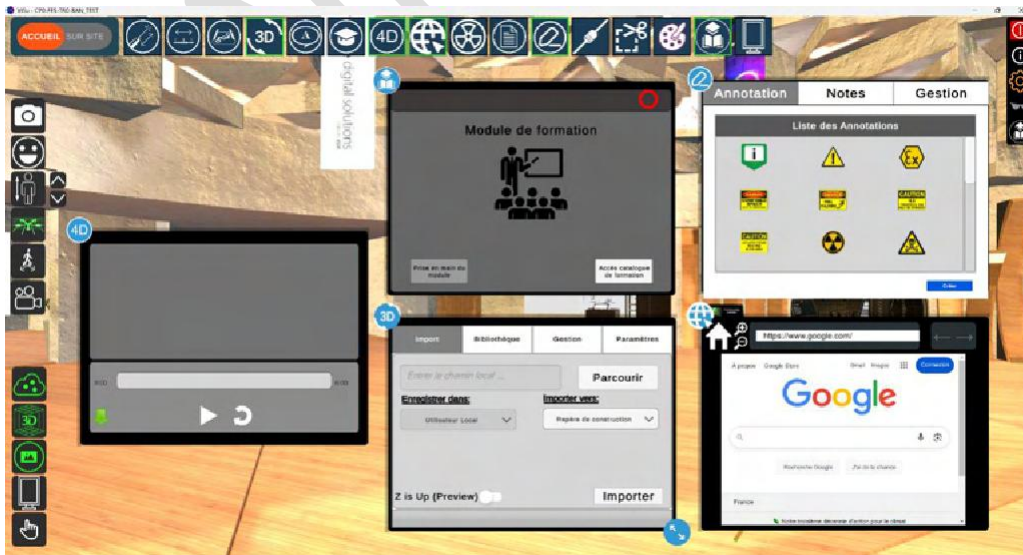
- Throwing them like a Frisbee (+ nd release the "Catch" button).

### 3.5.3. On the desktop: Toolbar

To access the tools on the desktop, the user has a toolbar at the top left of the ViSu interface.



- You can create tabs by clicking on one of the icons above.
- You can create multiple tablets (beta version) and organize them however you like, either on your desktop or in VR.



- All tablets can be resized from the desktop or VR. (see [§.Resizing tools](#))

## 3.6. System interface

This interface allows you to group all system options together. It is represented by a vertical bar on the right.

It allows you to:

- Exit the application
- Access information
- Access the settings interface
- Access the Desktop Mode/VR Mode switch option
- Access the trainer interface (see §.4.3.4.10.3.4Description of the supervision interface)



### 3.6.1. Information Interface

This interface provides a range of information via various tabs.



- General tab:

Provides information on:

- The software version
  - The project (project name, project location)
  - User folder tab: Provides access to the logs folder and the /user folder (see 3.8 User folder)
  - License tab: Allows you to manage licenses.
  - Shared Folders tab: Allows you to manage shares (§.4.6Shares)
- 3.6.2. Access to the settings interface



This button provides access to the settings interface (see 3.1 Settings interface).

### 3.6.3. Desktop Mode/VR Mode Switch



This option allows the user to skip from Desktop to VR/Powerwall mode or vice versa.

This is very useful during long virtual reality sessions, during which the user wants to take a break, put down their headset, and continue using the keyboard and mouse.

Switching to desktop mode can also be useful when typing text, as the keyboard is more ergonomic.

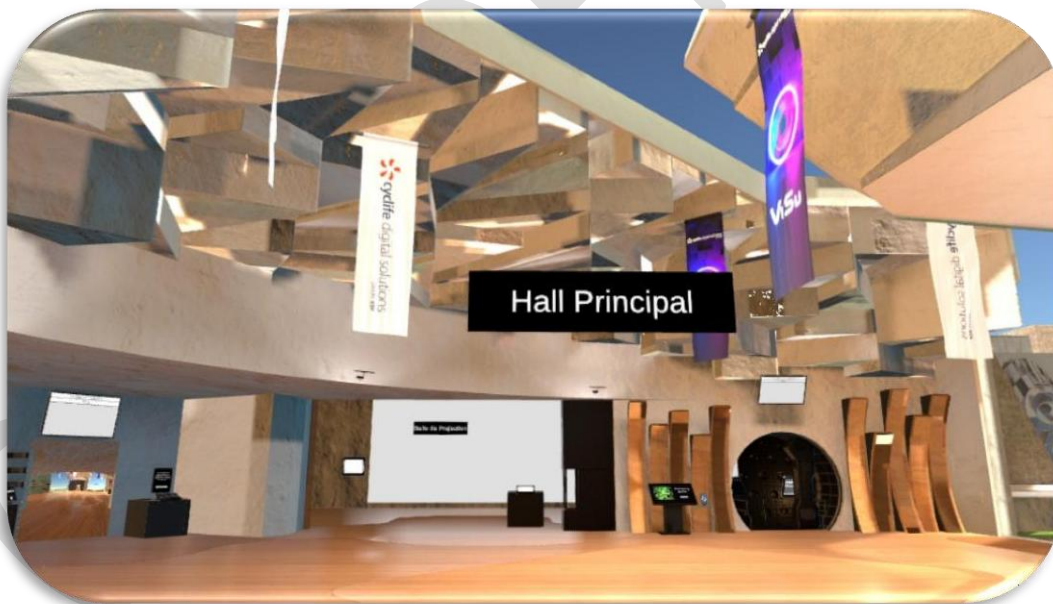
### 3.7. Home ViSu

When Visu is launched, users are transported to the ViSu welcome lobby. This lobby brings together different workspaces where users can collaborate, hold meetings (as in real life), test new features, and more.

The ViSu welcome lobby is made up of several areas:

- Central space
- Meeting room
- Collaborative area
- Projection room
- Equipment search area
- Workshop showroom space

#### 3.7.1. Central space



This central space is the starting point of the ViSu reception lobby. It will soon feature a pedestal with a miniature model of the site.

### 3.7.2. Meeting room



Allows you to hold virtual meetings in collaborative mode. You have a whiteboard for taking notes, a map of your virtual factory, and you can teleport to the site at any time.

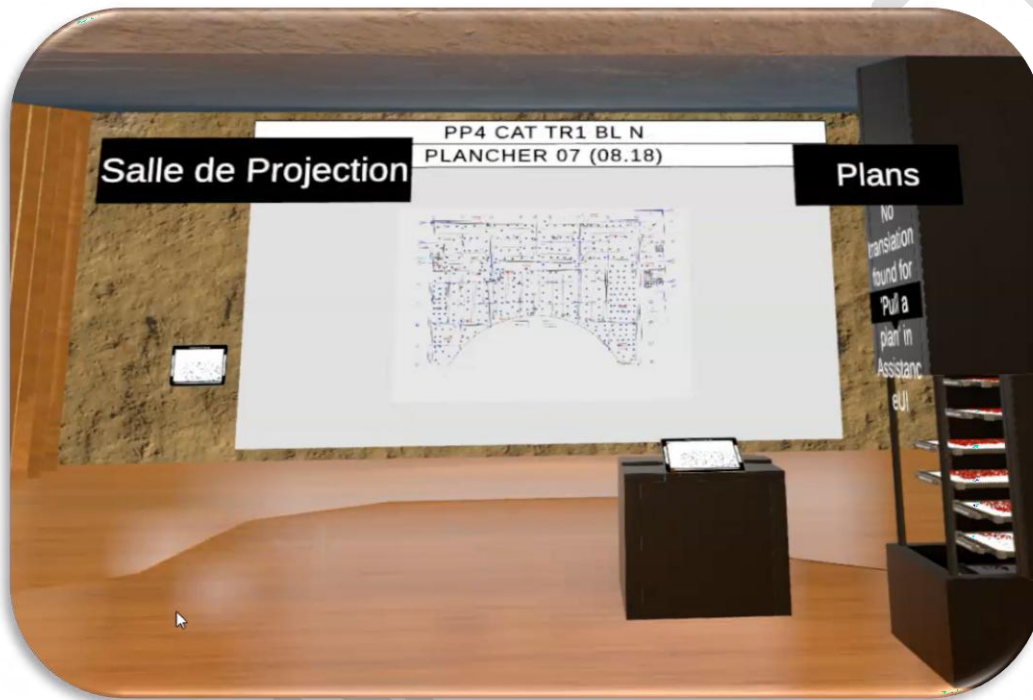
### 3.7.3. Collaborative space



This space is dedicated to collaborative mode. Here, you can modify your avatar by selecting it on the tablet on the left. When you select it, you will see a preview, and once selected, you can look at yourself in the mirror in the center.

You can also create a multi-user session so that other sites can connect and join your current session. (See ViSu Multi-user Session Documentation.docx, cf.4.5Collaborative/Multi-user Session)

### 3.7.4. Projection Room



When you open a project, your factory layout is displayed in this space.

You will find all the stations here, and if you have loaded 3D models, you will see them appear on the plan.

The small tablet allows you to change the floors you want to teleport to, or you can pull one of the floors on the far right.

### 3.7.5. Equipment search area



This area is dedicated to 3D models. You can preview your previously loaded 3D models or use the tablet to retrieve your file from your PC or networks and then import it.

You can search for items by entering their name or reference number.

### 3.7.6. Workshop/Showroom area



This area allows to make demonstrations examples of training training scenarios. (serious game) but also new features.

### 3.7.7. Dosimetry



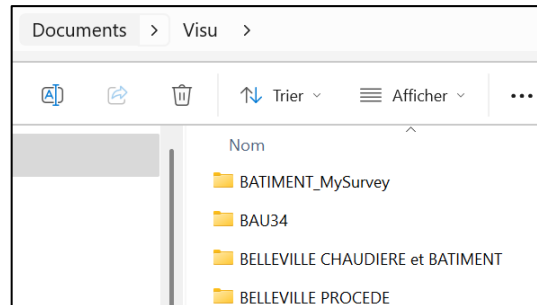
This kiosk allows you to manage and access dosimetry-related features (see §.4.3.3Dosimetry tablet)

## 3.8. User file

The user file is used to store all data generated by the user during the various ViSu sessions they launch.

Any changes made are automatically saved in the user folder (no user action required). This is so that work done during future ViSu sessions can be retrieved.

There is one user folder per project. For a user folder to be created, you must have at least opened the project once with ViSu. It will bear the name of the project.

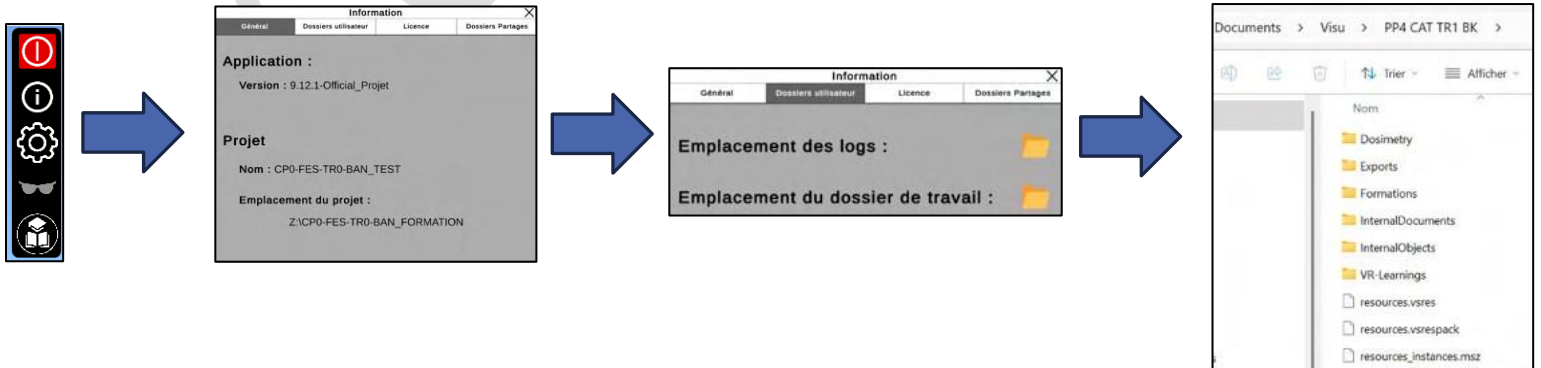


### 3.8.1. Accessibility

User folders are located in "Documents/ViSu/[ProjectName]."

To access the user folder from ViSu, you can use the vertical bar "System" vertical bar:

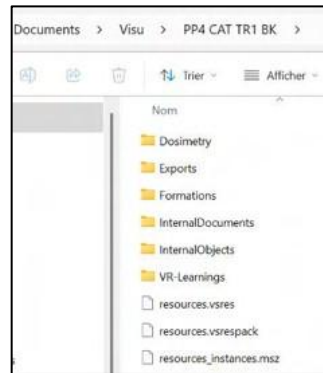
1. Press the "Information" button on the "System" bar. 
2. Click on the "User Folder" tab
3. Click on the "Working Folder Location" icon
4. The project user folder will automatically open in a Windows window.



## 3.8.2. Contents

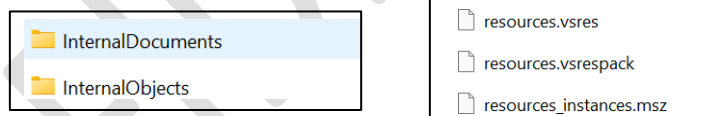
The user folder contains several data folders. Let's take a closer look at them:

- Internal ViSu folders
- Specific module folders
- Export folders



### 3.8.2.1. Internal folders & files

Some folders are internal to ViSu. They begin with "Internal..." There are also internal files.



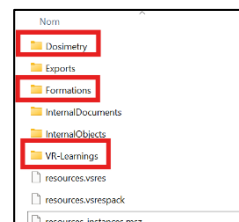
**Important:** Under no circumstances should they be modified/manipulated/deleted. Users must not modify anything, as this could damage user data. Any additions/modifications/deletions of data must be made directly via ViSu and not via Windows folders.

### 3.8.2.2. Folders by specific modules

The user folder contains folders for specific types of modules. These folders store the local data for these modules.

The following related folders can be found:

- **VR-Learning:** Stores VR-Learning created by a user locally (see 4.3.1 Learning Tablet)
- **Training:** Stores training courses created by a user locally. (see 4.3.4 Training)
- **Dosimetry:** Stores dosimetry-related data and missions locally (see 4.3.3 Dosimetry tablet)



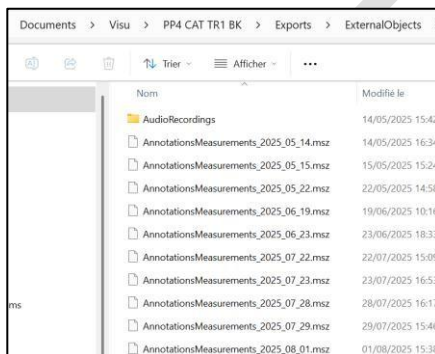
### 3.8.2.3. Export files

As the name suggests, export files contain data that can be exported and used outside of ViSu. These folders include:

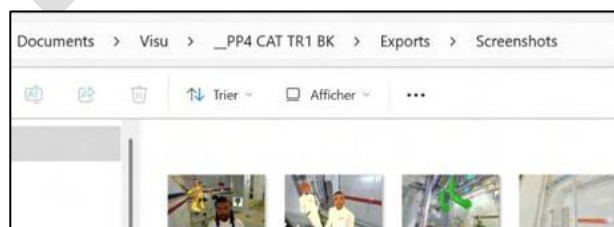
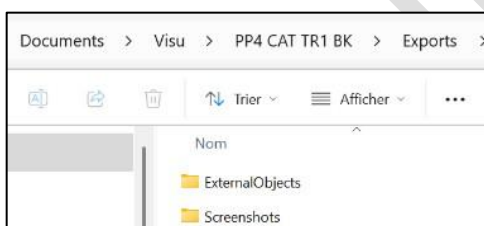
- **ExternalObjects:** Contains exported 3D files.

Note: Currently, only annotations and measurements are exported. They can be reimported into MySurvey.

The roadmap for S1 2026 includes plans to enable the export of other 3D elements.



- **Screenshots:** Contains all captures image taken since ViSu (see 4.1.2.4 Camera tablet).



## IV. The various features

### 4.1. Standard features

#### 4.1.1. Viewing ultra-high-definition photos

If your project contains ultra-high-definition (UHD) photos, you will be able to open them to view the environment with great precision.

These UHD photos allow you to read equipment identifiers (RF: Functional Markers) from several meters away (more than 6 meters).

In the environment, you can access these UHD photos from their preview sphere. The names of these photos are displayed above the preview sphere. Generally, the name contains the name of the room.



To open a UHD photo:

1. Go to a preview sphere.
2. Then click on it to open it (in VR/Powerwall, you can grab it and bring it closer towards the headset/3D glasses: "eat the photo" action)
3. You should find yourself in the UHD photo.

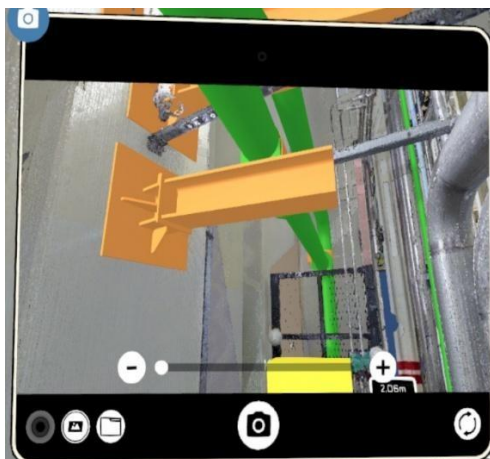


In a UHD photo, you cannot move around, only rotate 360°.

To exit a UHD photo, you can either:

- Click on the "Exit panorama" button on Desktop
- Moving around: gradually returning to the 3D environment

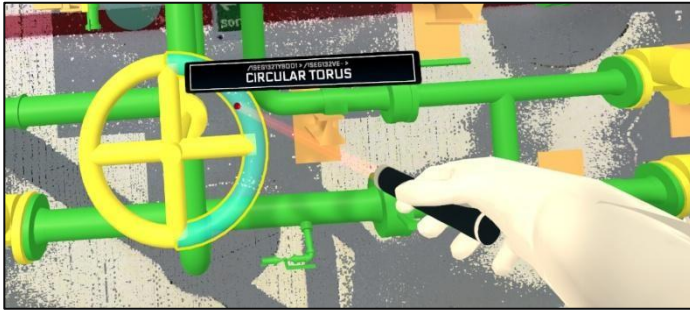
In these photos, using the camera (see 4.1.2.4 Camera tablet) allows you to zoom in and display zoom thumbnails for high-precision viewing.



## 4.1.2. Standard tools

### 4.1.2.1. Laser tool

Allows you to point in ViSu to show a location or element to your colleagues. The laser also allows you to point to an element from a distance, select it to access information about it, or modify it.



#### 4.1.2.1.1. Accessibility

There are several ways to access the laser depending on the device used

##### In VR/Powerwall:

Open the tool palette, then grab the laser in front of you with one of your hands. to the right of the latter.



##### On Desktop:

On the toolbar, click on the "laser" icon, the first one on the left.



#### 4.1.2.1.2. Usage

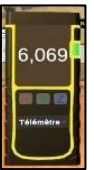
Once you have it in your hand, you can point it at the desired location to draw attention to it.  
.

The laser also allows you to select an item. To do this, simply aim at an item, it will be highlighted, then click on it.

The element will then be selected. You can view this information or modify it. For more information, see §Window/Properties tab :)

#### 4.1.2.2. Measuring Tool

Allow you to take measures. This is very useful for taking measurements in your virtual installation without having to visit the actual site.



#### Several options are available:

- Free or constrained measurements
  - Free measurements: allows you to take a measurement without constraints in 3 dimensions.
  - Constrained measurements: allows you to constrain the measurement according to the x, y, z axes or according to the xy, xz, yz planes.

*Example: Measure the height of a support relative to the ground by activating the z constraint.*

- Tape measure or rangefinder mode:
  - Rangefinder mode: allows you to take a measurement by snapping to a physical data.

*Note:*

- In this mode, when placing the <sup>first</sup> measurement point, the screen will display the distance between the target point and the rangefinder.
- In this mode, if there are no objects (clouds, 3D models, etc.) in front of the meter, it is not possible to take measurements.

- Tape mode: allows you to take a measurement without having to attach it to a physical data. Equivalent to a DIY measuring tape.
- Single or multiple measurements
  - Single measurement: a measurement that takes a single dimension between two points.
  - Multiple measurement: a measurement that consists of several dimensions. This allows you to create polylines.  
*Example: creating lines.*

By default, the measuring tool has the following configuration:

- Free mode
- Rangefinder mode
- Simple measurement

A context menu is available to perform actions on the measurements created. It allows you to:

- Delete a measurement point or the measurement
- Modify a measurement point
- Insert a point
- Extrude the measurement to simulate piping

#### 4.1.2.2.1. Access

There are several ways to access the meter depending on the device used.

##### In VR/Powerwall:

Open the tool palette, then grab the measuring tool in the first category with one of your hands, followed by the first tool on the left.



## In Desktop:

On the toolbar, click on the "measuring tool" icon, the second one on the left.



### 4.1.2.2. Use

Once you have it in your hand or are using it, the measuring tool will allow you to take measurements as desired.

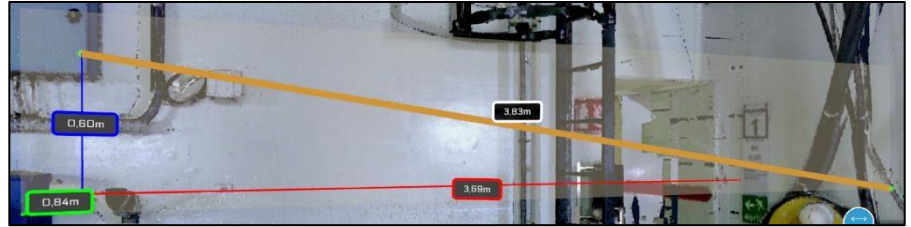
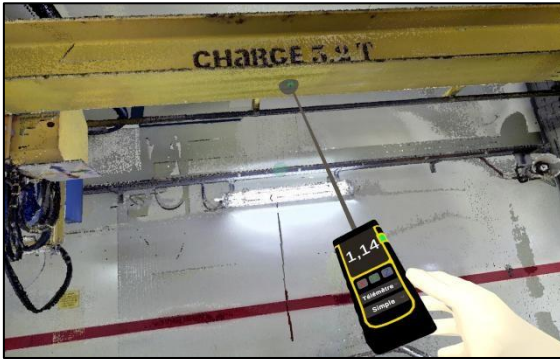
We will now look at how to use it and interact with the measurements created.

#### Creating a measurement:

##### a) Default (free, rangefinder, simple)

To take a measurement, you must:

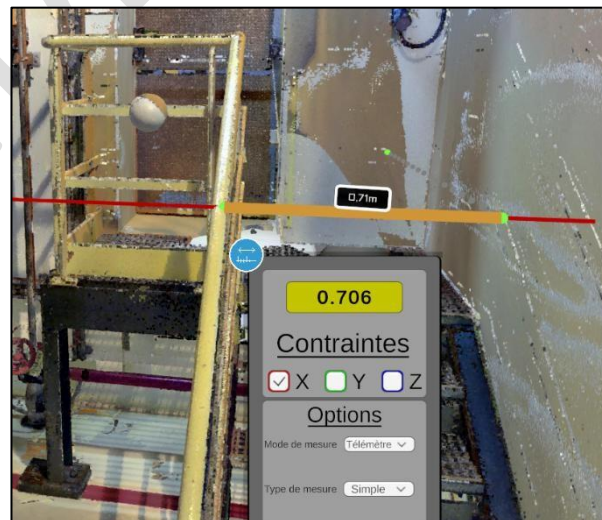
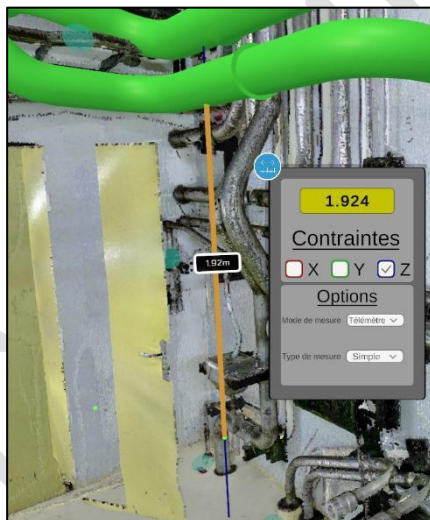
1. Aim at the desired location to start measuring using the green dot at the tip of the measuring device's black laser. The distance between the measuring device and the point will be displayed on the screen in real time.
2. Once you have chosen the location, click on the "Select/Confirm" button to set the first measurement point.
3. Move your hand/mouse to place the second measurement point. A segment with the measurement value will appear between the point you have set and the future point. The X (red), Y (green), and Z (blue) components of the measurement should also appear.
4. Once you have chosen the location, click on the "Selected/Validated" button to set the second measurement point.
5. The measurement is taken, and you should see a segment connecting the two points with the value displayed above.
6. You will have the option to start a new measurement.
7. To stop the measurement:
  - In VR/Powerwall: release the meter
  - On desktop: Disable the measuring tool by clicking on its icon in the toolbar.



## b) Constrained measurement

### Constrained measurement on an axis:

1. To constrain a measurement on an axis, activate one of the X, Y, or Z constraints from the measuring tool before or during your measurement.
2. Then simply follow the standard measurement instructions by setting the 1<sup>st</sup> and then the 2<sup>nd</sup> point.
3. Depending on the target location, the second point should be constrained and projected onto the chosen.



Example: Height of a pipe relative to the ground (left image), width of a stairwell (right image).

### Constraint measurement on a plane:

1. To constrain a measurement on a plane, activate 2 constraints (XY, YZ, or XZ) from the measuring tool before starting or while taking your measurement.

Note: It is not possible to activate all three constraints at the same time.

2. Then take a standard measurement by placing the first and then the second point.

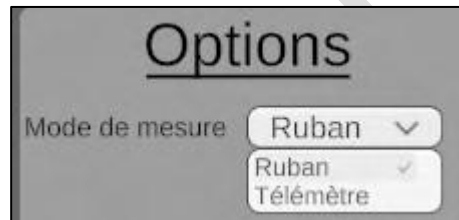
- Depending on the target location, the second point should be constrained and projected onto the selected plane.



Example: Door dimensions.

#### c) Measurement in tape mode

- To activate tape mode, use the "Measurement mode" selector and select tape mode
- Once selected, simply follow the instructions for a standard measurement.



Reminder: This mode allows you to take measurements without being attached to physical data (a measurement can be taken in "empty space," see "DIY" measuring tape).

#### d) Multiple measurement

- To activate multiple mode, use the "Measurement Type" selector and select "Multiple."
- Once selected, simply follow the instructions for a standard measurement.
- Once the two points for the <sup>first</sup> measurement have been placed, in this mode you can continue taking measurements by creating the other points of a polyline.



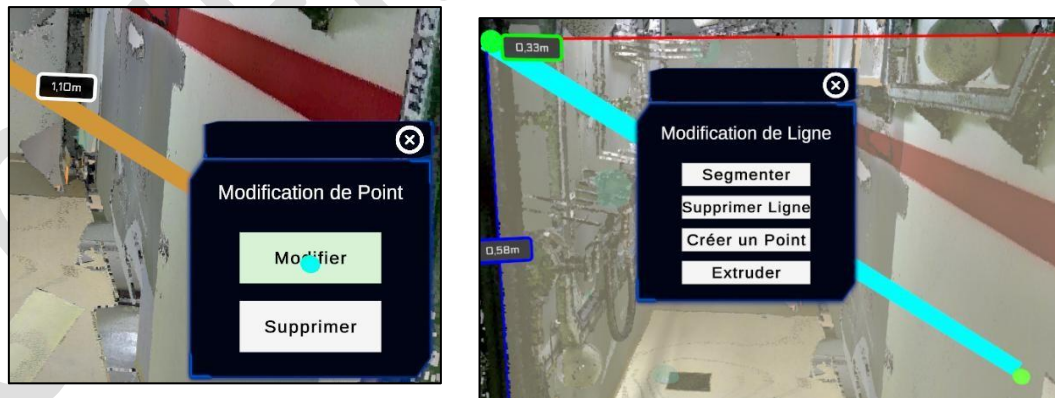
Note: In this mode, for each new measurement point, you can:

- Activate constraints
- Change measurement mode: "Tape" or "Rangefinder"

Multiple measurements can be used to trace piping, cable routing, etc.

### Selecting a measurement:

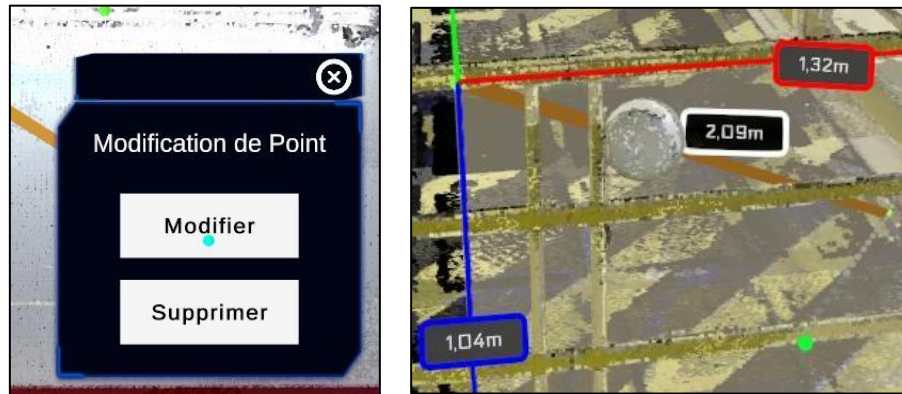
1. To select a measurement, you can either select it:
  - From a point:
    - On the desktop: Right-click on the point
    - In VR/Powerwall: either single-click with the hand or click with the measuring tool on the point.
  - From the line between two points:
    - On desktop: Right-click on the segment
    - In VR/Powerwall: either single-click with the hand or click with the measuring tool on the segment of the measurement
2. Once selected:
  - The measurement context menu will appear. The options available will differ depending on the selection:
    - If the point:
      - Edit Point
      - Delete
    - If line:
      - Segment (Insert a point)
      - Delete line/polyline
      - Create a point: New measurement from the selected point
      - Extrude
  - The X, Y, and Z dimensions of the measurement will be displayed.



### Editing a measurement:

#### a) Editing a point

1. Select the point
2. In the context menu, click on the "Modify" option
3. You will be able to modify the position of the point, then click to confirm.



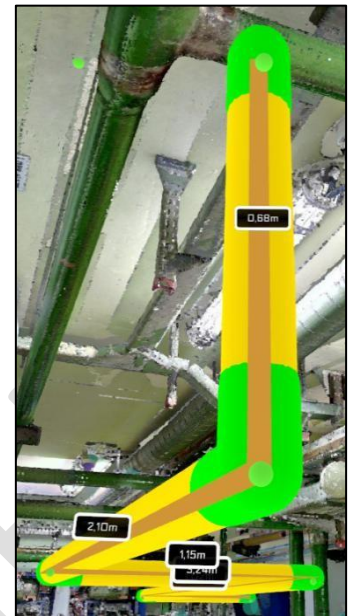
#### b) Inserting a point

1. To insert a point, open the context menu for the measurement at the location where you want to insert a point.
2. In the context menu, click on the "Segment" option
3. The point will then be inserted and will segment the measurement into two.



#### c) Extrude a measure

1. Select the measure from the line.
2. In the context menu, click on the "Segment" option.
3. The point will then be inserted and will segment the measure into two.



### Deleting a measurement:

#### a) Deleting a point

1. Select the measure from a point.
2. In the context menu, click on the "Delete" option
3. The point will then be deleted.

*Note: If it is a single measure, the entire measure will be deleted.*

#### b) Deleting a measure

1. Select the measure from the line.
2. In the context menu, click on the "Delete line" option.
3. The measurement will then be deleted.

### 4.1.2.3. 2D Plan Tablet

The 2D Plan tablet allows you to locate yourself in the virtual factory. You will see your position is updated in real time on the site maps. In collaborative mode, you will also see other users.



This 2D map tablet also allows you to display overlays:

- Imported or created 3D models
- Measurements taken

Several options are available:

1. Display of a desired floor/level
2. Real-time visualization of the user's position
3. Moving around the map
4. Teleportation to a desired location
5. Zooming in/out
6. Refocus on user position/current floor plan/project

#### 4.1.2.3.1. Accessibility

There are several ways to access the 2D plan depending on the device used.

##### In VR/Powerwall:

Open the tool palette via the watch, then grab the plan tablet with one of your hands. it is in the <sup>first</sup>category and then the second tool from the left.

##### On desktop:

On the toolbar, click on the "Plan Tablet" icon, the third from the left.



#### 4.1.2.3.2. Use

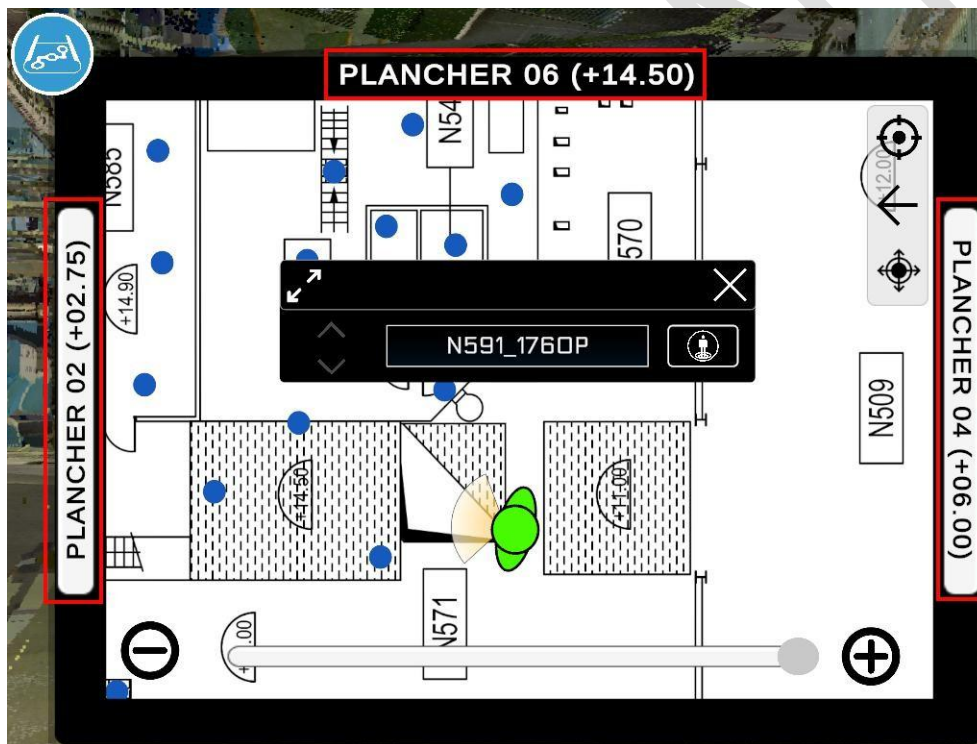
Once you have it in your hand or are using it, let's see how to use this tablet.

Several options are available:

1. Displaying a desired floor/level
2. Real-time visualization of user position
3. Moving around the map
4. Teleportation to a desired location
5. Zoom in/out
6. Refocus on user position/current map/project

### **1. Display a desired floor/level**

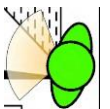
If your virtual installation contains several levels/floors, you can change floors by clicking on the labels on the left or right. The current floor is indicated at the top and center of the tablet.



### **2. Real-time visualization of the user's position:**

A colored avatar appears on the plan with a cone indicating the direction of gaze.

Its position is updated in real time. In multi-user mode, each avatar will have a different color.



### 3. Moving around the map:

Just like on a real tablet, you can move around the map using touch controls, either with your finger or a laser pointer in VR/Powerwall, or by holding down the left mouse button on a desktop.

### 4. Teleportation to a desired location

The Plan tablet allows you to teleport to any location you wish, either:

- Anywhere on the map
- To a station marker
- To a piece of equipment/3D model

To do this, simply:

1. Click on the desired location, which will bring up a tooltip.
2. Then click on the "Teleport" icon. 
3. You will then be teleported to the desired location.



### 5. Zoom in/out

You can also zoom in on the map using the zoom bar by:

- Clicking on the "plus" or "minus" buttons
- Moving the zoom slider



## 6. Recenter on the user position/current map/project

There are three refocus buttons available in the Plan tablet option bar:

- To refocus the map on the avatar, click on this button
- To return to the current floor, click on this button
- To refocus on the project, click this button



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#### 4.1.2.4. Camera tablet

This tool allows you to take screenshots in the application and then integrate them into a report or email, for example.

It is very useful if the photos are in Ultra High Definition, allowing you to zoom in on elements and read their identifiers (functional markers).



*As a bonus, this tablet allows you to take selfies to immortalize your design reviews.*

##### 4.1.2.4.1. Accessibility

###### In VR/Powerwall:

Open the tool palette, then use one of your hands to grab the camera in the <sup>first</sup> category then the <sup>third</sup> tool from the left.

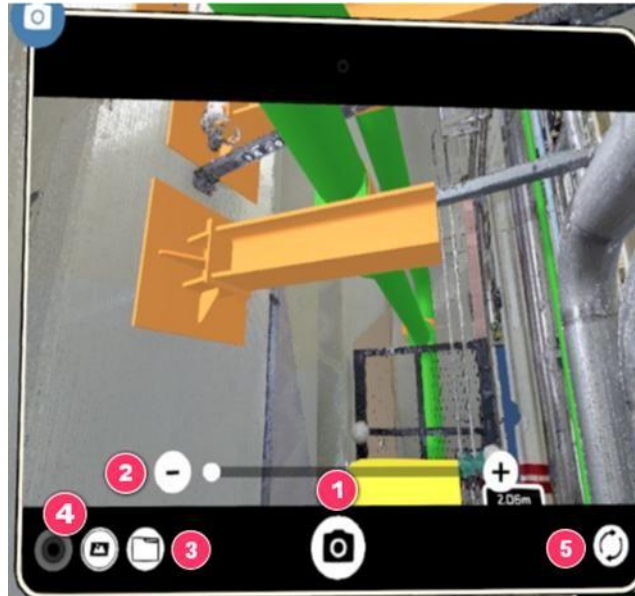
###### On Desktop:

There is no dedicated tool. The "Screenshot" option is located in the vertical option bar, 1st icon at the top.



#### 4.1.2.4.2. Use

Once you have it in your hand, or have used it, we will see how to use this tool.



Several options are available:

1. Taking a screenshot:
2. Zoom in/Zoom out
3. Open the "screenshot" folder in the user folder
4. Hide photo previews
5. Camera selection: Rear/Front

##### **1. Take a screenshot:**

Allows you to take a screenshot (On desktop, click on the screenshot option).

The screenshot is automatically saved in the user folder, in the Exports/Screenshot folder.

It is named as follows: [Floor name if available] \_ [Room name if available] \_[screenshot\_Date\_time]

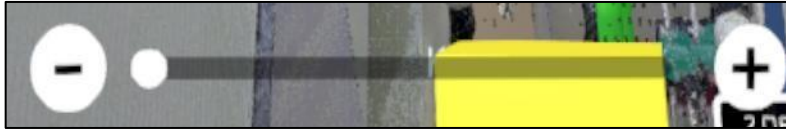
A notification appears indicating the location where the screenshot will be saved.

When you take your <sup>first</sup> screenshot of a ViSu session, a notification will prompt you to open the "Screenshot" folder, if desired.

## **2. Zoom in/Zoom out**

Allows you to zoom in/out on the map using the zoom bar by:

- Clicking on the "plus" or "minus" buttons
- Moving the zoom slider



## **3. Open the "Screenshot" folder in the user folder**

Allows you to open the "screenshot" folder.

This folder is located in: Documents/ViSu/[Project name]/Exports/Screenshots

## **4. Hide 360° photo previews**

Allows you to hide previews of 360° photos

## **5. Camera selection: Rear/Front**

Allows you to switch cameras: rear or front (for taking selfies).

#### 4.1.2.5. Annotation tablet

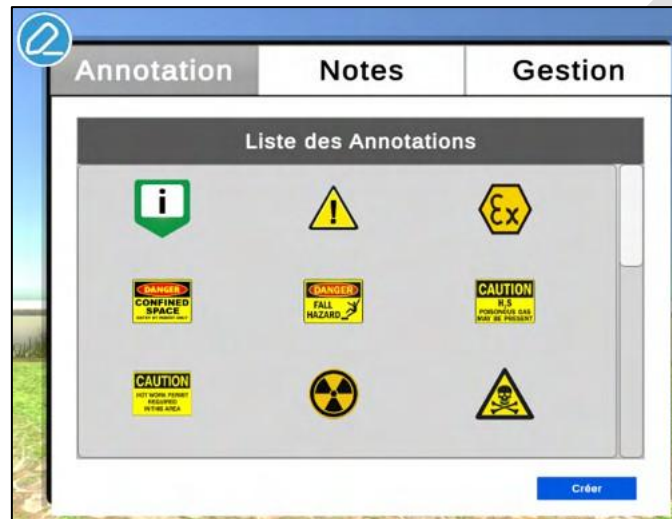


The Annotation tablet allows you, as its name suggests, to place annotations in the environment.

There are several types of annotation:

- Icons
- Notes/Tickets

These will be shared, if present, during a multi-user session.



##### 4.1.2.5.1. Accessibility

###### In VR/Powerwall:

Open the tool palette, then grab the annotation tablet with one of your hands in the 1<sup>st</sup> category then the 4th tool from the left.

###### In Desktop:

On the toolbar, click on the "Annotation tablet" icon, the 6<sup>th</sup> from the right.



#### 4.1.2.5.2. Usage

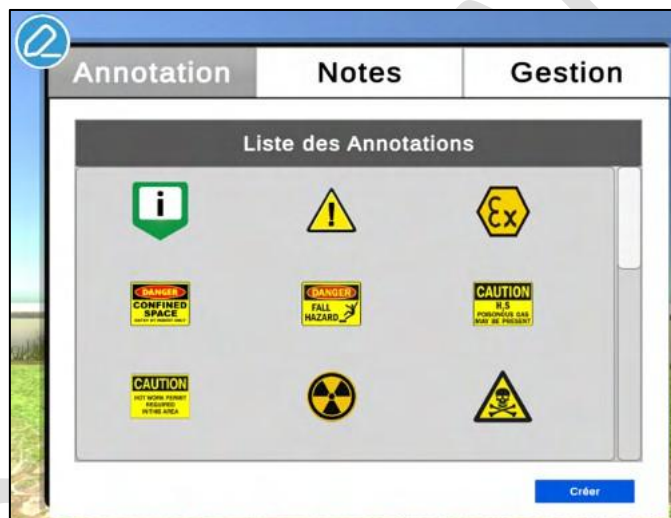
Once you have it in your hand or are using it, we will see how to use this tool.

The tablet consists of three tabs:

- **Annotation tab:** List of annotation icons
- **Notes tab:** Allows you to create notes/tickets that are useful during reviews
- **Management tab:** Allows you to view the list of annotations that have been created.

##### 4.1.2.5.2.1. Annotation tab:

In the Annotation tab, you will find a list of icons. (These are default icons, but it is possible to add more. Contact your Cyclife Digital Solution Platform administrator).

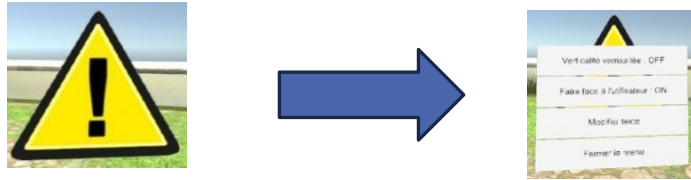


To create one and position it in the environment:

- On desktop:
  1. Select the icon and then click the Create button.
  2. The icon should appear in front of you.
  3. All you have to do is grab it with your mouse and position it where you want it.
- In VR: You can either:
  - Either do as you would on a desktop, by selecting it and then clicking on the Create button
  - Or grab an icon directly with your hand and position it where you want it desired location.

Once the icon is in place, you can access options from its context menu.

To display the menu, click on the icon. It contains the following options:



- Enable/Disable vertical annotation locking
- Enable/Disable the icon always remaining visible to the user.
- Add/edit the text under the icon
- Close the menu.

Annotations can be deleted from the tablet management tab (detailed below).

*NB: In VR, annotations can be deleted using the trash can in the tool palette.*

#### 4.1.2.5.2.2. Notes tab

The Notes tab allows you to create either:

- Free notes in the form of sticky notes
- Tickets (with priorities) useful for project/design reviews

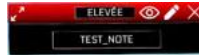
A note consists of several properties:

- 1) Note title
- 2) Note comment
- 3) Choice of note category

- Note
- Ticket

#### 4) Set priority

- High (red background)



- Medium (yellow background)

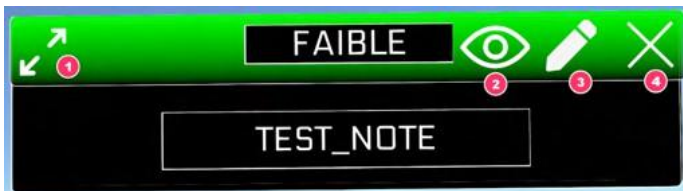


- Low (green background)



Once you have filled in the fields, click on "create" and the note will appear in the environment. You can then position it where you want.

Several options are available for the note:



- 1) Allows you to expand the note to see the comment.

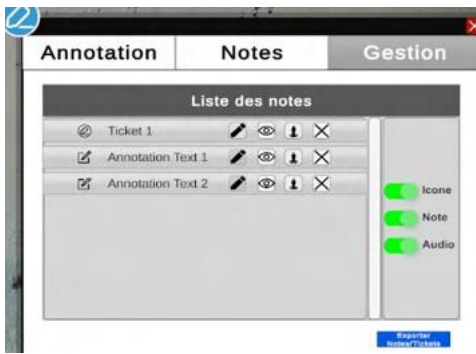


- 2) Shows/hides the note.
- 3) Allows you to edit the note's properties (title, comment, priority, type).
- 4) Deletes the note.

#### 4.1.2.5.2.3. Management tab:

This tab is dedicated to managing notes/tickets and icons. As with any "Management" tab for a tablet in ViSu, this tab lists the items that have been created of the same type as the tablet. Here, the list displays all the annotations that have been created.

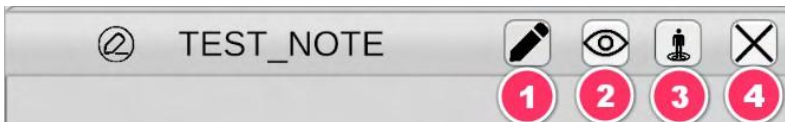
The list of all your items will be displayed in the box below.



You can filter them by category.



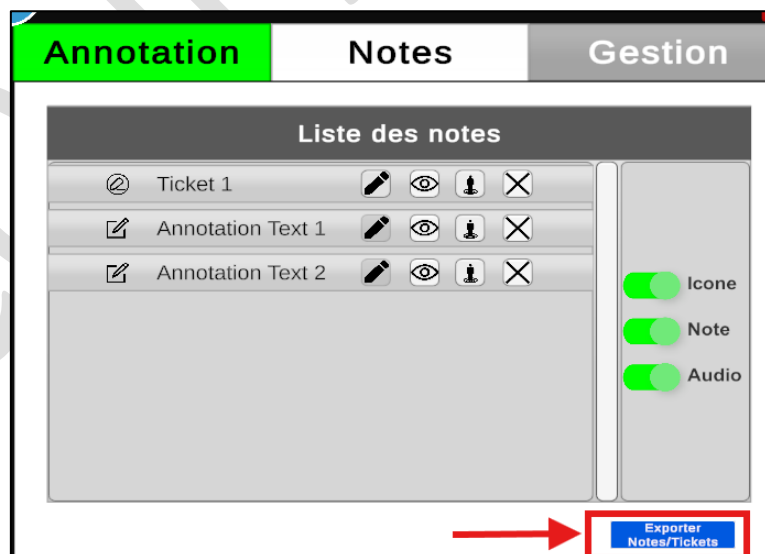
Various options are available for each annotation from this tab:



- 1) Edit annotation
- 2) Show/Hide annotation
- 3) Teleport to annotation
- 4) Delete annotation

After a project review, you can use this button to export the notes/tickets that have been created

and find them in CSV format to process them outside of ViSu.



#### 4.1.2.6. Web tablet



The web tablet allows you to browse the internet, just like any web browser ( ), directly from ViSu.

*Note: Some sites may be blocked depending on your company's policy.*

##### 4.1.2.6.1. Accessibility

###### In VR/Powerwall:

Open the tool palette, then grab the web tablet located in the 1st category then the 5th tool from the left.

###### In Desktop:

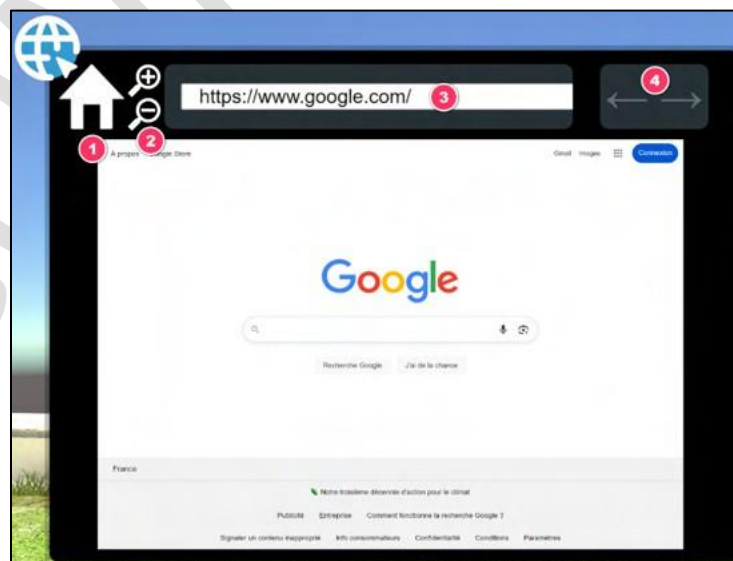
On the toolbar, click on the "Web tablet" icon, the 8<sup>th</sup> from the left.



##### 4.1.2.6.2. Usage

Once you have it in your hands, or are using it, we will see how to use this tool.

The web tablet contains several options that we will go through together:

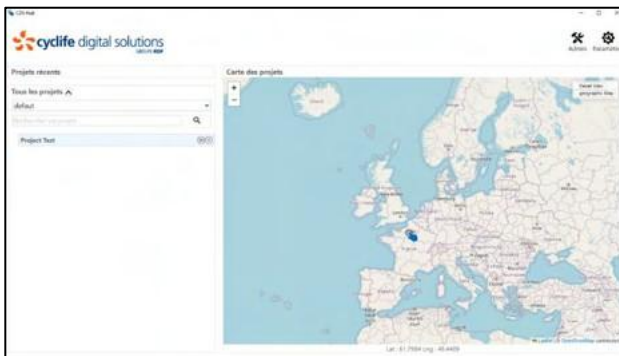


## 1) Home

By default, the home page is set to the Google search engine.

This page can be modified via the Cyclife Cyclife HUB. Request your Cyclife Digital Solutions Platform administrator.

*NB: It may be useful to include the URL of your company's PLM document database.*



Paramètres Utilisateur

Choix du mode de navigation :  
HORIZONTAL

Vitesse de déplacement (m/s) :  
1

Coefficient de sprint à l'appui de la gâchette index :  
3

Taille de l'utilisateur :  
1.75

Vitesse de déplacement vertical (m/s) :  
0.75

Langue à afficher au démarrage de Visu :  
ENGLISH

URL par défaut du navigateur :  
https://www.google.fr

Annuler Appliquer les valeurs par défaut Confirmer

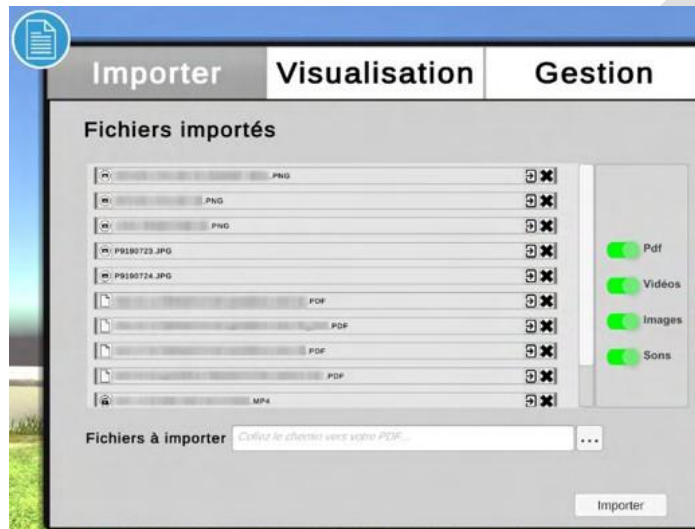
- 2) Zoom in or out
- 3) Address bar
- 4) Go back one page / Go forward one page

#### 4.1.2.7. Document tablet



This tablet allows you to import your documents, images, PDF files, videos, and sounds as desired. Once imported, you will be able to view them on the tablet and use them during presentations in your virtual meetings.

You will also be able to remove a document from the tablet and place it in a desired location on your industrial site. This can be done for purposes such as re-documentation, documented visits, etc.



##### 4.1.2.7.1. Accessibility

###### In VR/Powerwall:

Open the tool palette, then use one of your hands to grab the document tablet in the first category and then the first tool on the right.

###### In Desktop:

On the toolbar, click on the "Document Tablet" icon, the 7<sup>th</sup> from the right.



#### 4.1.2.7.2. Usage

Once you have it in your hand or are using it, we will see how to use this tool.

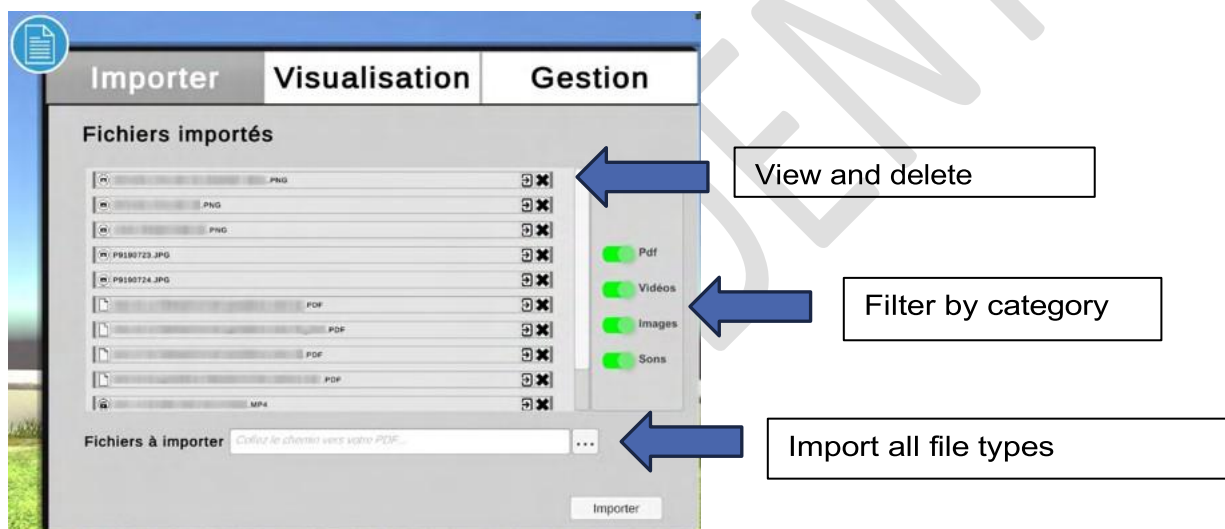
The document tablet has three tabs:

- Import tab
- View tab
- Management tab

##### 4.1.2.7.2.1. Import tab

This tab allows you to import documents and view the list of imported documents.

It allows you to view a list of all imported documents, filter by document type, and delete documents.



To import a document:

1. Click on the file explorer button "..."
2. Select the file(s) to import
  - a. Images: .jpg, .png
  - b. PDF
  - c. Videos: .avi, .mp4
  - d. Audio: .mp3, .wav
3. Once selected, press "Add" and then the "Import" button.
4. The documents should appear in the list.

The documents are imported and copied to your user folder in the "ImportedDocuments" folder.

The path is as follows: Documents/ViSu/ImportedDocuments

Note: You can copy and paste into the folder. When opened, ViSu will read them.

Several options are available in this tab:

- You can delete an imported document using the "Cross" associated with the document.
- Filtering documents by type
- View: detailed below



Multi-selection is also available:

1. Enable multi-selection by clicking the dedicated button:
2. Select the desired documents by checking their boxes  
(You can select or deselect all items using the checkbox checkbox next to the multi-selection activation button)
3. Once selected, press the "... " next to the multi-select activation button
4. A context menu appears with several options available:
  - a. Delete
5. Select your option and apply it.



#### 4.1.2.7.2.2. Preview tab

This tab allows you to preview the selected document: image, video, PDF.

You will also be able to export/create the document to position it in the environment.

To do this, simply:

1. Click on the Create button.
2. The document will appear in front of you.
3. Simply position it where you want it (it will remain in that location even when ViSu restarts, unless it is deleted).



Once the document is positioned, you can access options from its context menu.

To display the menu, click on the document (document outline). It contains the following options:



- Enable/Disable vertical locking of the document
- Enable/Disable the document always remaining visible to the user.
- Display as thumbnail/Original size
- Add/edit text below the document
- Close the menu.



Documents can be deleted from the tablet's management tab (detailed below).

#### 4.1.2.7.2.3. Management tab

This tab is dedicated to document management. As with any "Management" tab for a tablet in ViSu, this tab lists items that have been created of the same type as the tablet. Here, the list displays all the documents that have been created.

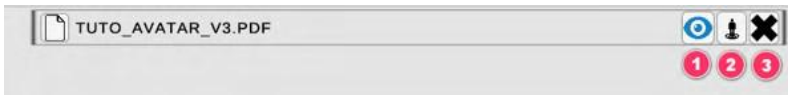
The list of all your items will be displayed in the box below.



You can filter them by category.



Various options are available for each document from this tab:



1. Show/Hide document
2. Teleport to document level
3. Delete the document

Multi-selection is also available:

1. Enable multi-selection by activating the dedicated button:
2. Select the desired documents by checking their boxes  
(You can select or deselect all items using the checkbox checkbox next to the multi-selection activation button)
3. Once selected, press the "... " next to the multi-select activation button
4. A context menu appears with several options available:
  - a. Delete
  - b. Show/Hide
5. Select your option and apply it.



## 4.2. 3D Model Utilization Features

Several features allow you to use 3D models from the import phase, through use in ViSu (creation, manipulation, information viewing), to export.

In this section, we will explore them in detail:

- I. Import
- II. Using 3D models
  - Creation
  - Viewing information
  - Navigating a tree structure
  - Display modes
  - Interaction modes
  - 3D model options
    - Manipulation
    - Rendering modification
    - Cross-section view
    - Saving states
    - Gravity
    - Collision
    - Segmentation
- III. Export

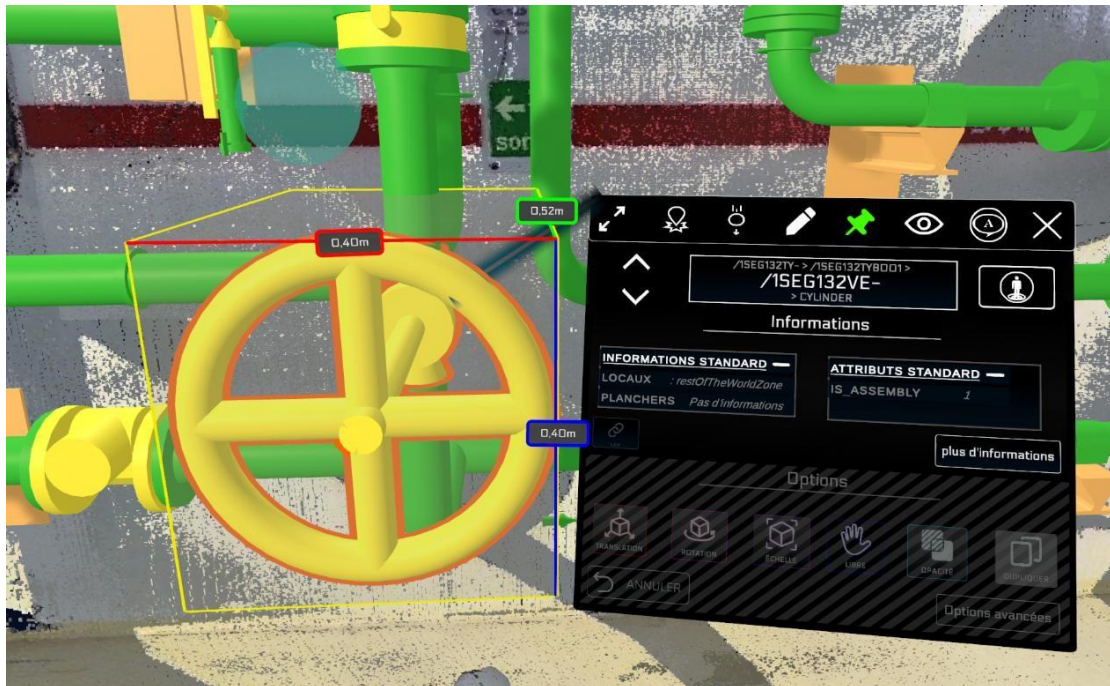
To cover these features, different tools/tablets and options are involved:

- Tablets
  - 3D import tablet
  - Properties tablet
  - Segmentation panel
  - Creation panel
- Options
  - Gravity
  - Collision
  - Display mode
  - Interaction mode

### 4.2.1. Properties window/tab:

Before exploring the various features, let's take a moment to discover the Properties Window/Pane (also known as "Tooltips").

This panel is one of the most important for 3D models. It is linked to them.



It plays a dual role, allowing you to:

1. Consult the information on the 3D models: properties, notes attached, metadata, etc.  
⇒ This section will be discussed in more detail below. §.4.2.3.2Viewing information
2. Modifying 3D models: Manipulation (translation, rotation, scale), rendering, cross-section view, gravity behavior, etc.  
⇒ This section will be explained in more detail below. §.4.2.3.63D model editing options

## Different displays of the properties window/tablet:

The properties window/tablet has several display/rendering options in ViSu. It all depends on the context of use.



1. **Properties label** (left image): Provides information (name and parents of the element) and shortcut options (show/hide, edit, etc.). This display corresponds to the collapsed mode of the properties window.
2. **Properties window** (middle image): Expanded mode. This display allows you to access information about the selection and access editing options. Note: The window remains next to the selection. If you want to perform significant manipulations (translation/rotation moving the object several meters), it is preferable to switch to tablet mode. In this mode, the properties tablet will remain next to you.
3. **Properties panel** (right image): Equivalent to the properties window, with the advantage that it is displayed in a panel. A panel follows the user regardless of their movements.

The properties panel allows you to access several selections at the same time. Thanks to its management tab, you can switch to another selection.

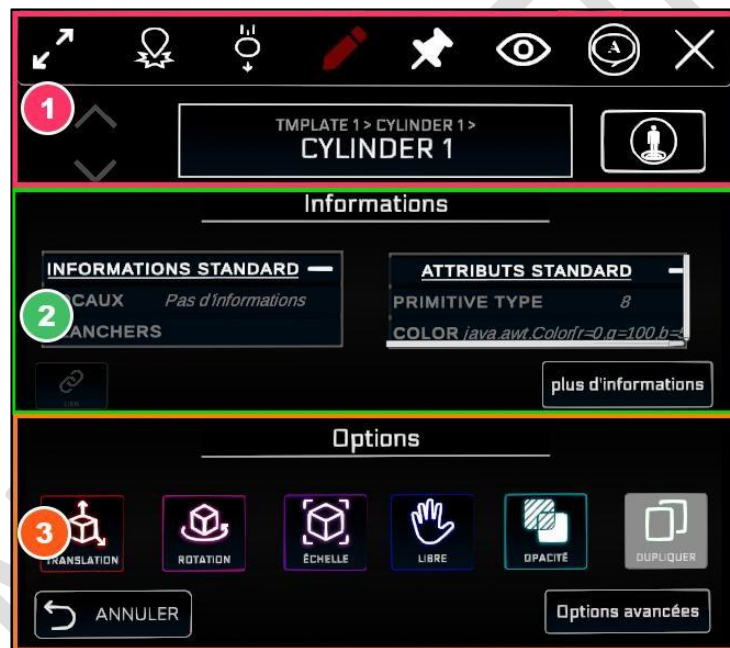


## Properties window accessibility:

The properties window is accessible:

- On hover: When hovering over a 3D model (mouse, VR hand, laser), the properties window will appear in the form of a label. It disappears when the object is no longer hovered over.
- When selected: Click on the object (mouse, VR hand, laser), and the properties window will appear for 5 seconds.

## Description of the properties window/tablet:



The properties window is divided into 3 parts:

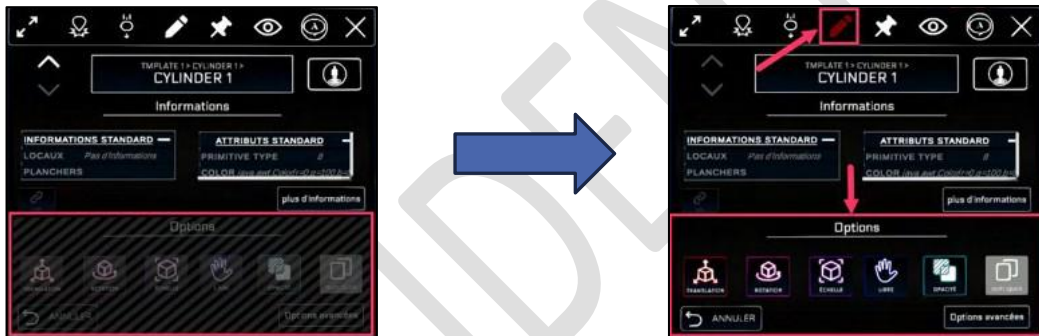
1. The header: Contains shortcuts +, display of the selection name
2. "Information" section
3. "Modification options" section

## 1) The header

Contains mainly shortcuts and displays the name of the selection.



1. **Expand/Collapse the properties window**
2. **Enable/Disable collision visibility on the selection** (§.4.2.2.6.6Collision)
3. **Enable/Disable gravity on the selection** (§.4.2.3.6.5Gravity)
4. **Enable/Disable edit mode:**
  - Edit mode allows you to unlock options that modify the properties of the selection (movement, color changes, etc.)



5. **Pin/Unpin the properties window:** If the properties window is not pinned, it is displayed for 5 seconds and then disappears. Pinning prevents it from disappearing.
6. **Show/Hide selection**
7. **Switch the properties window to properties panel mode**
8. **Close the properties window**
9. **Move up/down in the tree structure** (§.4.2.3.3.2Tree structure from the properties window/tablet): allows you to
  - Move up and select the parent group of the current selection
  - Move down and select the child element of the current selection
10. **Display the name of the selection** as well as the name of the parent & grandparent group and the name of the child element.
11. **Teleport to selection**

## 2) "Information" section

As its name suggests, the "Information" section provides information about the current selection (attached floor, dimensions, position/rotation, notes, metadata, etc.).

This section will be described in more detail below. §.4.2.3.2 Viewing information

It has two displays:

4. Standard information display
5. Advanced information display

## 3) "Modification options" section

The "Modification options" section allows you to modify the properties of the selection using various options (manipulation, color change, cross-section view, etc.), which will be described in more detail below. §.4.2.3.6 3D model modification options

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## 4.2.2. Importing 3D models

To import 3D models into ViSu, you must use the 3D model import tablet. 3D models can be small modifications or 3D models on the scale of a building.



### Different workspaces

In ViSu, 3D models can be imported from different workspaces:

- **Importing local 3D models:** Any ViSu user can import their own 3D models via this tablet.
- **Project 3D model import:** These are 3D models that are linked to and intrinsic to the project. Only project administrators can add 3D models to a project. They are loaded automatically when the project is launched.

There are two types of project 3D models:

- **Project 3D model:** 3D models linked to the project. These are not necessarily 3D models on the scale of a building. They can be small 3D modifications.
- **Level Design:** essentially 3D models representing at least the civil engineering aspects of buildings.

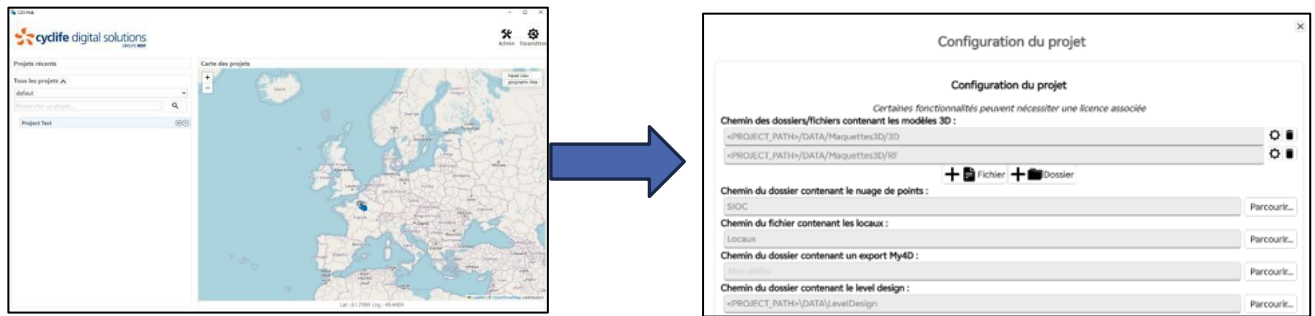
This environment will then be used in ViSu **to enable realistic movement** (gravity and collision with the environment). Collision masks will be calculated automatically. Users will then be able to move around as they would in reality.

For more information on realistic movement, see §.4.2.3.6.5Gravity

Ex: Climbing stairs, not walking through walls, falling if there is no floor, bending down to pass under a low ceiling, etc.

**Note:** If there is no level design, the realistic movement function cannot be activated!

To add 3D Project models (3D project mock-ups or level designs), ask your Cyclife Digital Solution Platform administrator to do so from the Cyclife HUB interface.



- **Importing shared 3D models:** These are 3D models located in shared/work folders to which the user is subscribed. All 3D models in the various shared/work folders to which the user is subscribed will be loaded automatically.

## 3D model format types

Several types of 3D model formats are accepted. For those who are familiar with MySurvey, the formats are the same as the latter:

- Aveva E3D: .RVM (+ATT)
- Revit: .IFC
- .Step, .Stp
- Solidworks: (.sldpart, .sldasm)
- .FBX
- .OBJ
- .MSZ/ .VSZ

Using this tablet, users can import 3D models themselves:

- Either from a file explorer
- Or via a library of 3D models.

All imported 3D models are saved in the user folder.

#### 4.2.2.1. Accessibility

##### In VR/Powerwall:

Open the tool palette, then grab the 3D model import tablet with one of your hands in the 2nd category then the 1<sup>st</sup> tool on the left.

##### In Desktop:

On the toolbar, click on the "3D Import Tablet" icon, the fourth one on the left.



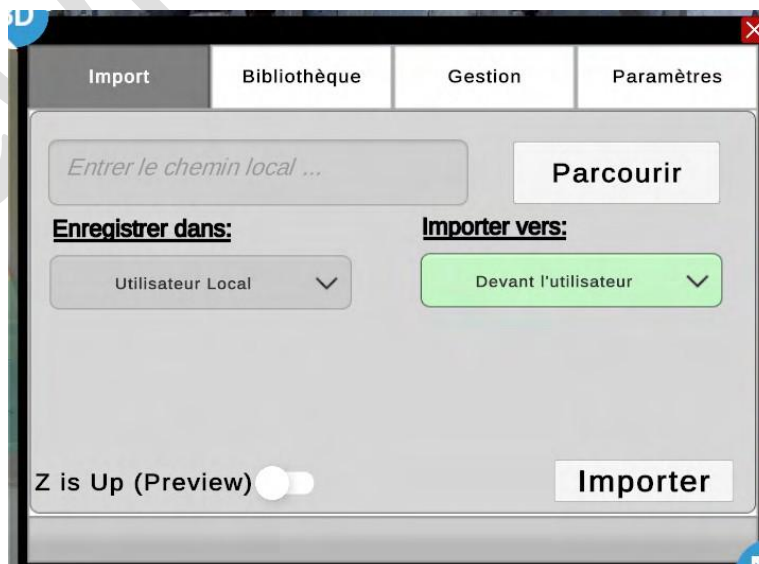
#### 4.2.2.2. Usage

The 3D model import tablet has four tabs:

- Import tab
- 3D Library tab
- Management tab
- Settings

##### 4.2.2.2.1. Import tab:

The Import tab allows you to import 3D models (see list of supported 3D formats above) from a file explorer.



### Available options:

- Import to:
  - Either the construction reference (the location where the object was modeled)
  - Or in front of the user
- Z is Up: allows you to define the Z of the file as UP before importing



### To import a 3D model:

1. Click on the "Browse" button
2. In the file explorer that opens, select the 3D models you want to import and click the "Select" button

Note: In VR, you can switch to the desktop interface for greater comfort when searching for files to import. To do this, click on the "Switch to Desktop Interface" button at the bottom left of the window.



3. Once selected, before pressing the "Import" button, you can change the "Import to" option or the "Z is Up" if necessary.
4. All you have to do now is press the "Import" button.

The files will then be imported, after first undergoing a conversion phase into the proprietary "MSZ/VSZ" format.

Once the import is complete, the 3D models will appear in the world and can be managed in the "Management" tab of the tablet (detailed below).

#### 4.2.1.2.2. Library tab:

The Library allows you to import templates 3D from 3D model libraries already available in ViSu.



#### Various options:

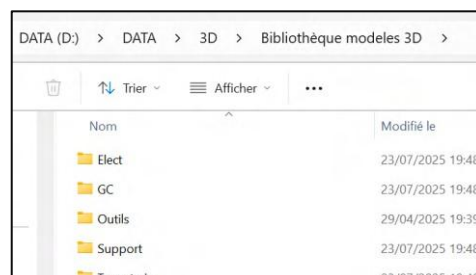
1. Zoom in/out: Allows you to display more or fewer folders/3D models on the panel
2. Return to Home 3D Library: Allows you to return to the root/home of the 3D library
3. Go up to parent: Allows you to go up to the parent folder

The first folder ("3dlibrary") corresponds to the 3D model library intrinsic to ViSu. Add 3D model libraries:

You can also add other 3D library folders dedicated to your company infrastructure from the Cyclife HUB interface. To do this, contact your Cyclife Digital Solutions Platform administrator.



Visu replicates the same tree structure as the 3D library folder



## Navigating 3D library folders:

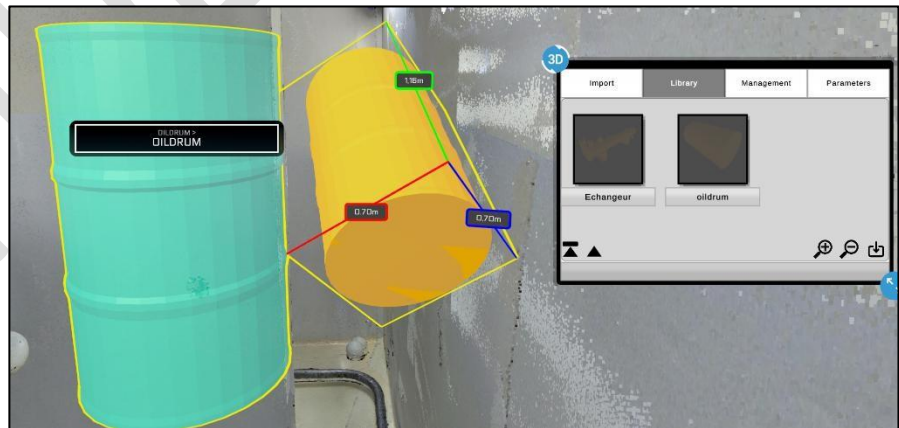
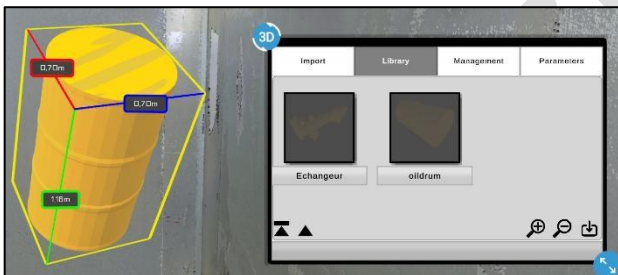
To navigate through the 3D model folders:

- Go down through the folders: by clicking 
- Go up one level: 
- Go back to the root: 

## Create a 3D model from the 3D library:

To create a 3D model from the 3D library:

1. Select the 3D model by clicking on it
2. A 3D preview will appear next to the tablet (this is not the final 3D model). It can be grabbed/rotated, and its dimensions are displayed.
3. To create it, press the "create" button 
4. The 3D model should appear in front and can be managed in the "Management" tab of the tablet (detailed below).



#### 4.2.1.2.3. Management tab:

This tab is dedicated to managing imported 3D models, whether they are:

- Locally imported 3D models
- Imported Project 3D models
- Imported shared 3D models

In this tab, you will find three sub-tabs: one for each type of workspace:

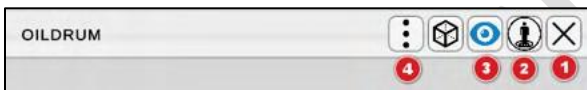
- "Local" tab
- "Project" tab
- "Shared" tab (See §.4.6Sharing)

Each tab displays the list of associated 3D models and allows you to manage them.

In the "Project" tab, icons are used to distinguish whether the 3D project models are:

- 3D project model 
- Level Design 

Various options are available for each 3D model:



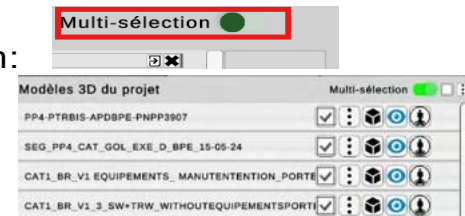
- 1) Shortcut: Delete the 3D model
- 2) Shortcut: Show/Hide the 3D model in the world
- 3) Shortcut: Teleport to the 3D model
- 4) Access to the 3D model context menu:



- a. Show/Hide the 3D model
- b. Teleport to the 3D model in the world
- c. Delete the 3D model
- d. Show/Hide the 3D model on the 2D plan
- e. Add the 3D model to a shared folder (See §.4.6Sharing)
- f. Apply gravity: On/Off (See §.4.2.3.6.5Gravity)

Multi-selection is also available:

1. Enable multi-selection by activating the dedicated button:
2. Select the desired documents by checking their boxes  
(You can select or deselect all items using the checkbox next to the multi-select activation button)
3. Once selected, press the "... " next to the multi-select activation button
4. A context menu appears with several options available:
  - a. Show/Hide 3D models in the world
  - b. Show/Hide 3D models on the map
  - c. Submit to gravity: On/Off (See §.4.2.3.6.5Gravity)
5. Select your option and apply it.

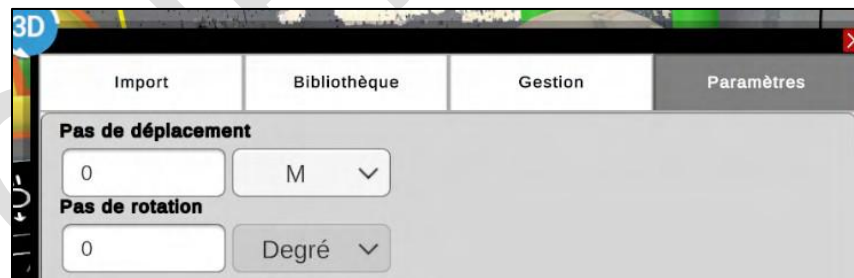


#### 4.2.1.24. Settings tab:

This tab will be useful when we look at manipulating 3D models  
(see §.4.2.3.6.1 Manipulation options).

This panel allows you to define the movement steps when moving a 3D model using the manipulators (translation, rotation, scale).

This option will be explained in more detail in (See §.4.2.3.6.1 Manipulation options).



### 4.2.3. Using 3D models

#### 4.2.3.1. Creating 3D models

In ViSu, you can create 3D elements using simple shapes, as well as make 2D/3D sketches to explain your ideas before implementing them.

A creation tablet is available for this purpose. It has

three tabs:

- **Shapes tab:** Allows you to create simple shapes
- **Drawings tab:** Allows you to create 2D/3D sketches/drawings
- **Management tab:** Allows you to view the list of simple shapes and 2D/3D drawings created.

##### 4.2.3.1.1. Accessibility

#### In VR/Powerwall:

Open the tool palette, then use one of your hands to grab the creation tablet in the second category and then the <sup>third</sup> tool from the right.

#### In Desktop:

On the toolbar, click on the "Creative Tablet" icon, the third one on the right.



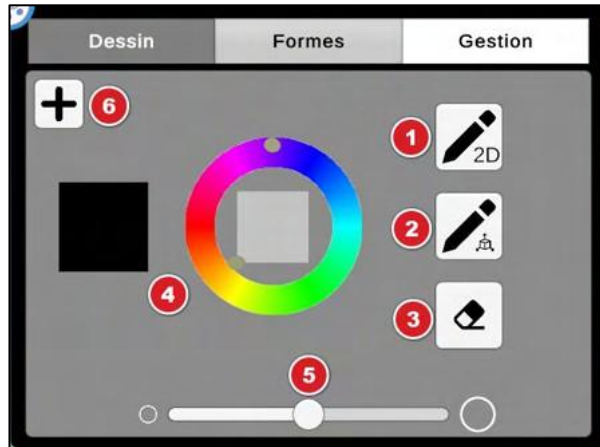
##### 4.2.3.1.2. Creating simple shapes

This feature is in the roadmap. It is scheduled for **S1 2026**.

#### 4.2.3.1.3. Creating 2D/3D sketches/drawings

Get your pens ready! To create 2D/3D sketches/drawings, go to the "Drawing" tab on the creation tablet.

You will be able to create different drawings. By default, a drawing is available at the start of each ViSu session (empty at the beginning).



Various options are available:

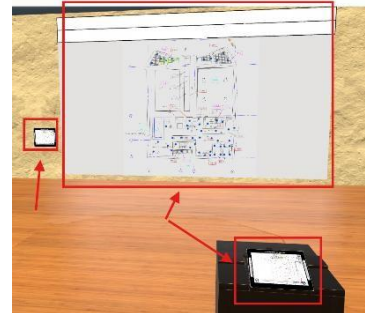
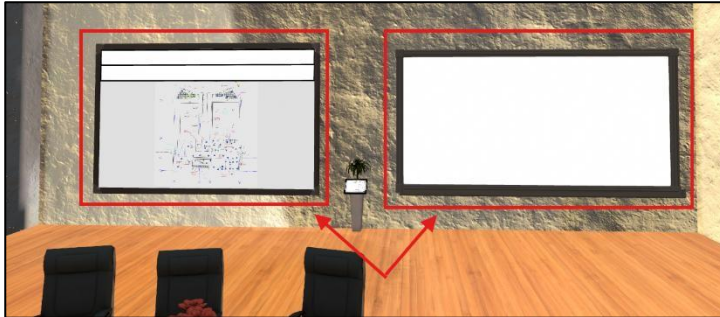
1. Creation of a 2D sub-drawing
2. Creation of a 3D sub-drawing
3. Delete
4. Choice of color
5. Choosing the line thickness
6. Creating a new drawing

Drawings are automatically saved in the user folder. They will therefore be available the next time the project is opened.

This feature is available during a collaborative session or when recording VR-Learning.

#### 4.2.3.1.3.1. Creating a 2D sub-drawing

In ViSu, it is possible to create 2D drawings. For the moment, 2D drawings can only be made in the lobby on the whiteboard and on the various screens: in the meeting room and in the projection room.

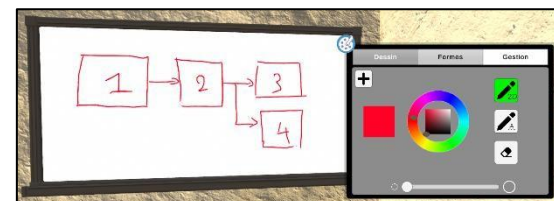
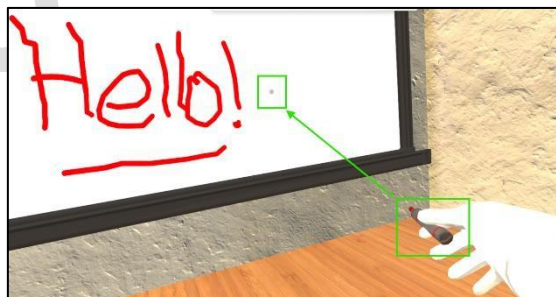


#### To create a 2D drawing:

1. Move closer to the interface (whiteboard, screens) on which you want to draw.
2. On the "Drawing" tab, click on the "2D drawing" option.
3. Choose your preferences: color, line thickness. 
4. Select the tool and draw (a cursor will appear on the surface).
  - On the desktop: click on the surface.
  - In Powerwall/VR: Grab the pen and click to draw (it is possible to draw remotely).

NB: Each time a line is drawn (click pressed then released), it is added to a drawing. By default, it is added to the drawing created at the start of each new ViSu session.

You can create other drawings and choose to complete them. See below, §4.2.3.1.3.5 Creating a new drawing



#### 4.2.3.1.3.2. Creating a 3D sub-drawing

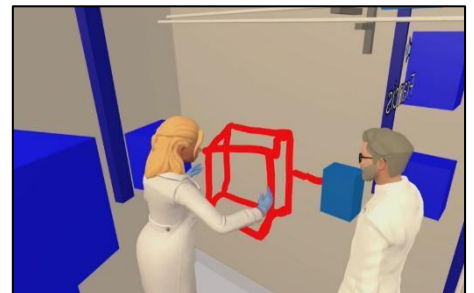
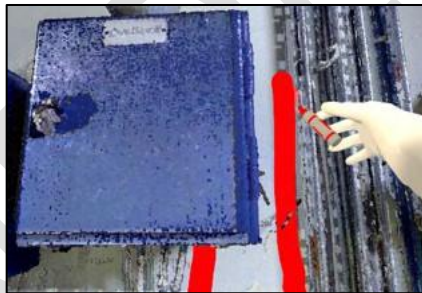
In ViSu, it is possible to create 3D drawings. These drawings can be created anywhere in space. They are very useful for making explanatory sketches (e.g., drawing the location of a new electrical box in 3D, drawing the passage of a hydraulic cable on a robotic arm).

##### To create a 3D drawing:

1. On the "Drawing" tab, click on the "3D drawing" option. 
2. Choose your preferences: color, line thickness
3. Select the tool and draw.
  - In desktop: click on the surface (a cursor will appear in place of the mouse)
  - In Powerwall/VR: Grab the pen and click on the "Activate" button to draw

NB: Each time a line is drawn (click pressed then released), it is added to a drawing. By default, it is added to the drawing created at the start of each new ViSu session.

You can create other drawings and choose to complete them. See below, §.4.2.3.1.3.5 Creating a new drawing



#### 4.2.3.1.3.3. Delete

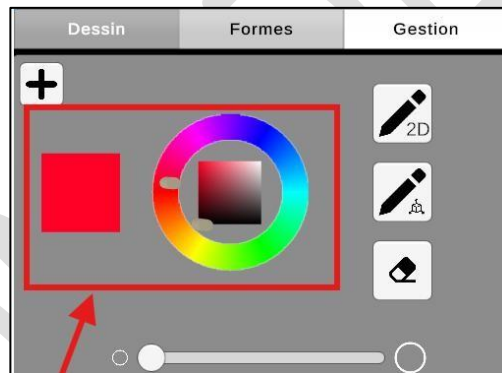
##### To erase sub-drawings:

1. On the "Drawing" tab, click on the "Eraser" option 
2. Aim or place the cursor on the lines to be erased, then click (a long click also works).
  - On desktop: place the eraser on the lines you want to erase, then press.
  - In Powerwall/VR: Grab the eraser with your hand, place it on the lines you want to erase, then click the "Activate" button.

#### 4.2.3.1.3.4. Choosing the color and thickness of the line

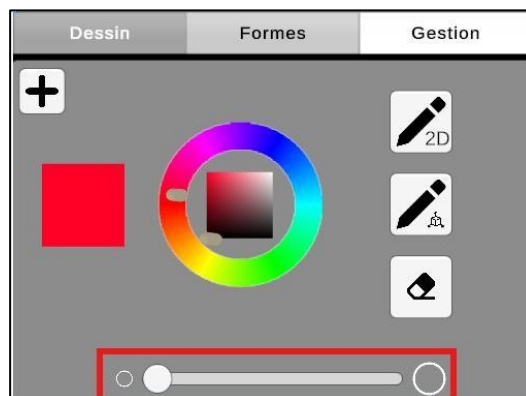
##### To choose the color:

1. On the "Drawing" tab, choose your color from the circle.
2. Refine the contrast with the central rectangle.
3. You now have the desired color.



##### To choose the line thickness:

1. On the "Drawing" tab, use the line thickness slider
2. Line thickness is set.



#### 4.2.3.1.3.5. *Creating a new drawing*

As briefly mentioned above, ViSu allows you to create new drawings.

A drawing contains all the lines drawn (click and release). The user can choose which drawing to complete. A drawing can contain 2D and 3D sub-drawings.

##### Creating a new drawing:

1. On the "Drawing" tab, click the "+" button 
2. This will automatically switch the tablet to the "Management" tab.
3. You will be able to rename the drawing
  - In desktop:
    - Click on the name and a cursor will appear
    - Change the name, then click outside the text field to confirm the name
  - In Powerwall/VR:
    - Click on the name, and a cursor will appear with the keyboard
    - Change the name and then confirm by pressing the key on the keyboard
4. The drawing automatically becomes the selected drawing
5. Return to the "Drawing" tab to add lines/sub-drawings. Any new 2D/3D lines drawn will automatically be added to this drawing.

#### 4.2.3.1.4. "Management" tab

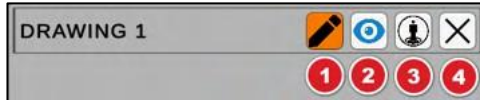
Other options are available for drawings (teleportation to the drawing, show/hide, delete, modify the selected drawing), which can be found in the "Management" tab.

This tab is dedicated to drawing management (soon to include simple shapes). As with any "Management" tab for a tablet in ViSu, this tab lists the elements that have been created of the same type as the tablet. Here, the list displays all the drawings that have been created.

The list of all your drawings will be displayed in the box below.



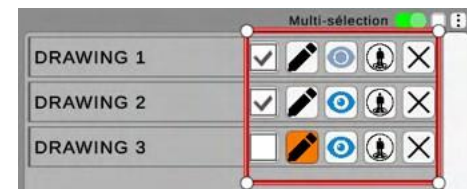
Various options are available for each drawing from this tab:



1. **Define the selected drawing:** Simply click on the icon, which will turn **orange**. The drawing will then become the selected drawing. Any 2D/3D line/sub-drawing drawn via the "drawing" tab will be added to this drawing.
2. **Show/Hide drawing:** allows you to show/hide all 2D/3D lines/sub-drawings belonging to this drawing.
3. **Teleport to the drawing level:** allows you to teleport to the box encompassing all the lines in the drawing.
4. **Delete the drawing:** Deletes all the lines in the drawing.

Multi-selection is also available:

1. Enable multi-selection by activating the dedicated button:
2. Select the desired drawings by checking their boxes **Multi-sélection** (You can check or uncheck all boxes using the checkbox next to the multi-selection activation button)
3. Once selected, press the "... " next to the multi-selection activation button
4. A context menu appears with several options available:
  - a. Delete
  - b. Show/Hide
5. Select your option and apply it.



### 4.2.3.2. Viewing information

In ViSu, you can access and view information about 3D models. As we saw briefly above, this information can be viewed in the properties window/tab in the "information" section.

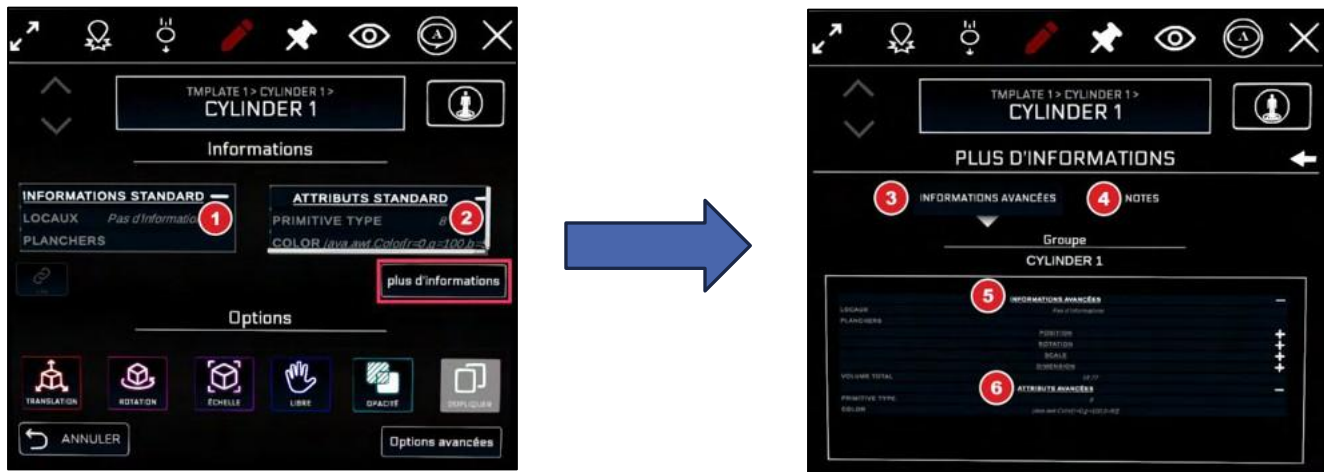
Several types of information may be available:

- **Standard information:**
  - Location to which the 3D model is attached
  - Floor to which the 3D model is attached
  - Group
- **Advanced information:**
  - Position of the 3D model
  - Rotation of the 3D model
  - Scale of the 3D model
  - Dimension of 3D model
  - Encompassing volume of the 3D model
- **Notes:** Comments that can be entered from MySurvey
- **Attributes:** These meta data are read if they are available when importing 3D models (via .Ifc, .RVM +.ATT files)
- **Attached documents:** (coming soon)

This section has two displays:

1. Standard information display : main information
  - Standard information
  - Standard attributes
2. Advanced information display
  - Advanced information
  - Advanced attributes

To access advanced information, press the "More information" button.



#### 4.2.3.3. Navigating a tree structure

In ViSu, there are several ways to navigate the 3D model tree structure. Types of tree structure navigation:

- Tree structure from the search wheel (lobby)
- Tree structure from the properties window/tablet
- Tree structure from the 3D tablet: Planned for 2026.

##### 4.2.3.3.1. Tree structure from the search wheel (lobby):

The search wheel allows you to navigate through the model tree in order to:

- View information
- Preview all or part of the 3D models
- Teleport to 3D models in the world

For more details, see section §.3.7.5 Equipment search space.

##### 4.2.3.3.2. Tree structure from the window/tablet

:

To navigate the tree view from the properties window/tablet:

1. Display the properties window for an object (see §. [Accessibility properties window:](#))
  2. Use the up/down arrows to navigate through the model tree
- 3D:

The properties displayed are updated according to the selection

Warning: For security reasons, if you are in edit mode, the tree navigation function is disabled. You must first exit edit mode in order to access this feature.



#### 4.2.3.4. Display mode

In ViSu, we have implemented different display modes/worlds on the 3D models. We call them "Underworlds."

These display modes/worlds allow you to highlight the status of a particular property. When a mode/world is activated, only 3D models with that status on the property are highlighted/displayed.

This allows you to see spatially (in 3D) whether the objects around the user have the correct status on the property highlighted by the selected world. If this is not the case, the user can easily identify the objects that do not have the correct status and modify it via the properties window.

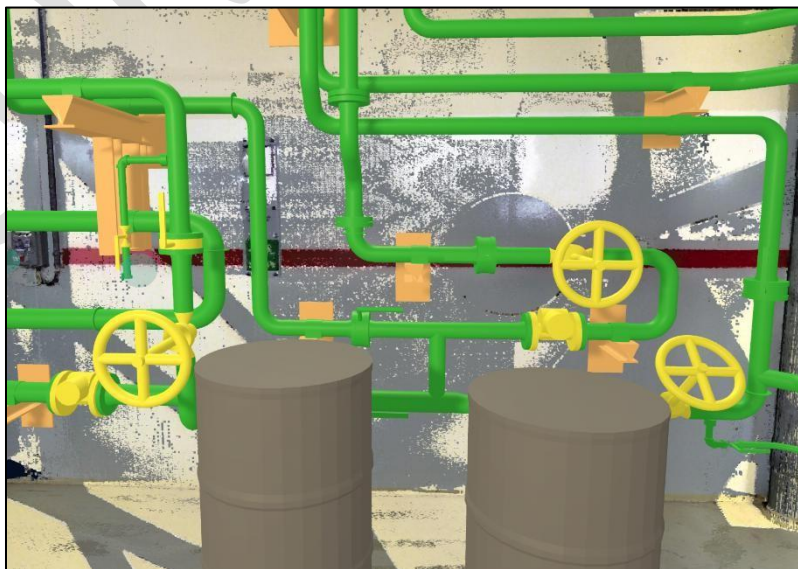
To change the display world in VR/Powerwall (via the watch) or Desktop (via the vertical options bar), see §3.4 *Options interface*.

Note: In underworlds, the world has an artistic blur, which is intentional. This allows the user to see that what they are viewing is not the real world. It is possible to disable/reduce this artistic blur (particularly for taking screenshots) via the settings interface, see 3.1.4 *"Display Settings" tab*.

There are several "Underworld" modes/worlds:

- **"Normal Visibility" World:** Display all objects with a visibility state of "Visible" visibility status.

Color of objects in this world: True colors are preserved.



- **"Invisible Elements" world:** Only objects with a visibility status of "Invisible" are displayed.

Color of objects in this world: Elements with a visibility status of "Invisible" are **red**. The others are hidden.

E.g.: In the image on the left, framed in red, elements that have been hidden (the valve). In the underworld "Invisible elements," we see the valve in red.



- **"Visibility status" world:** Display of all objects regardless of their visibility status

Color of objects in this world:

- **Green:** Elements with a visibility status of "Visible"
- **In red:** Elements with a visibility status of "Invisible"

Example: In the image on the left, framed in red, elements that have been hidden (the valve). In the underworld "Visibility status," the valve is shown in red (visibility status set to "invisible"), while the others are shown in green because their visibility status is set to "Visible."



- **World "Visualization of elements subject to collision detection":** Elements subject to collision detection are highlighted.

Color of objects in this world: Elements subject to collision detection appear **in blue**, the others are gray.

Example: In the image on the left, the blue box shows elements that have been subject to collision detection. In the "Visualization of elements subject to collision detection" underworld, the two valves that have been subject to collision detection are shown in blue, while the others are gray because they do not have this behavior.

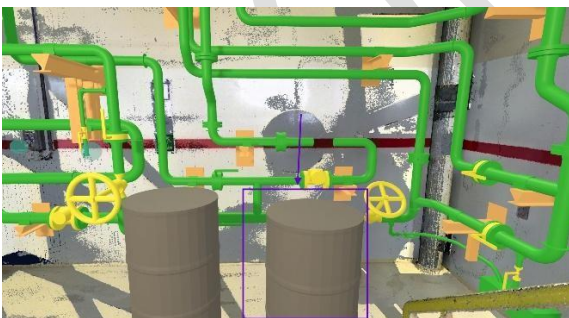


- **World "Visualization of elements subject to gravity":** Highlights elements subject to gravity.

Color of objects in this world: Elements subject to gravity **are purple**, others are gray.

Example: In the image on the left, framed in purple, the barrel on the right has been subjected to gravity. In the underworld

"Visualization of elements subject to gravity," we see the barrel in purple that has been subject to gravity, while the others are gray because they do not behave in this way.



### 4.2.3.5. Interaction mode

In ViSu, we have implemented different interaction modes. This interaction mode allows you to interact differently with 3D models depending on the user's needs.

To change the interaction mode in VR/Powerwall (via the watch) or Desktop (via the vertical options bar), see §3.4 *Options interface*.



There are three interaction modes:

- "Normal" mode: In this mode, no interaction is possible between the mouse (on desktop) /hand (in VR/Powerwall) and the 3D models. The object cannot be selected or moved.

Note: This prevents the display status of hovered objects from changing (semi-transparent + cyan color).

- Mode "Hover": In this mode, when the mouse (on desktop) /main (in VR/Powerwall) hovers over an object, it enters a hover state:
  - The object becomes cyan and semi-transparent.
  - A label displaying its name
  - It can be selected=> Properties window appears

It cannot be moved (unless using the properties window)



- "Manipulation" mode: In this mode, objects can be hovered over and moved directly. This is the quick move mode, no need to go through the properties window

properties window.

In this mode, hover state is also enabled on objects.

Fast movement is also enabled on the red laser (useful for moving items from a distance).

NB: Please note that this mode can be risky, as it moves elements when they are grabbed.

#### 4.2.3.6. 3D model modification options

Several options are available in ViSu for modifying 3D models. In this session, we will explore them.

##### Different 3D model modification features:

1. Manipulation
2. Rendering modification
3. Cross-section view
4. Saving reports
5. Gravity
6. Collision
7. Segmentation

As seen previously, let's return to the properties window/tab, which is one of the key interfaces for 3D models.

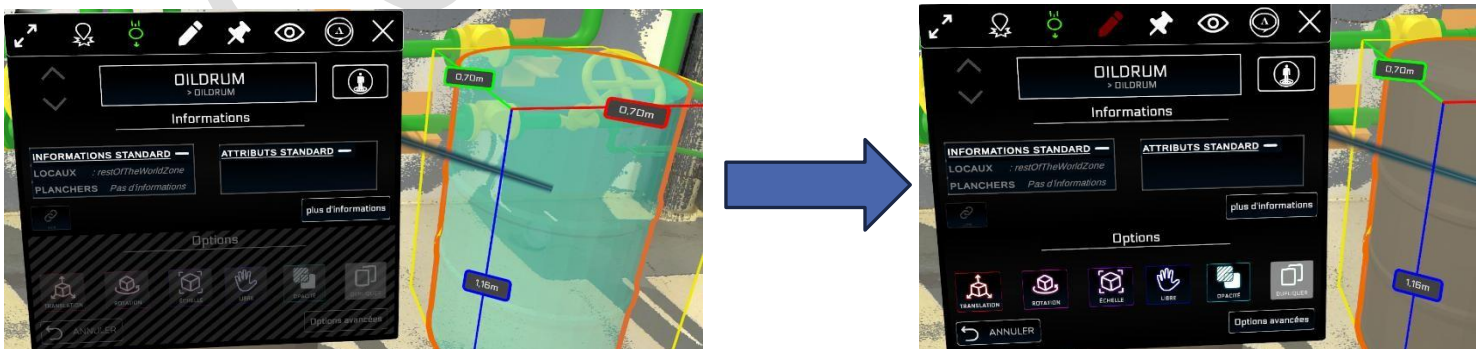
We have seen that it allows you to view information about 3D models (see §.4.2.3.2 Viewing information).

We will now look at the section that allows you to modify the properties of a 3D model 3D model.

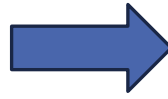
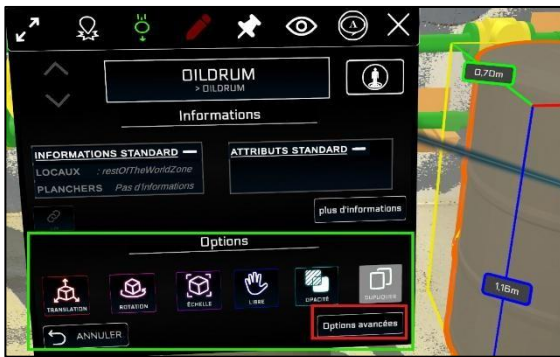
This section has two displays:

1. Shortcuts to modification options
2. Access to advanced options

Remember, to access the modification options, you must switch to "edition" in pressing on the button  Next button:



To access the advanced options, press the "Advanced Options" button.



In the advanced options, there are 3 categories of options:

- Movements
- Rendering
- Other:
  - Cut plan
  - Saved states

#### 4.2.3.6.1. Manipulation options

Let's start with the 3D model manipulation options. There are four types of manipulators:

-  **Translation manipulator:** allows you to move a 3D model along the XYZ axis or along the XY, XZ, and YZ planes.
- **Rotation manipulator:** allows you to rotate a 3D model along the XYZ axis  .
- **Resize manipulator:** Allows you to resize a 3D model uniformly (   ) (only cylinders and cubes can be resized along the XYZ axes).
- **Free manipulator:** Allows free manipulation.  

In VR/Powerwall, it is possible to grab the object with your hands/red laser and position it as desired. It is also possible to resize the object by grabbing it with both hands and spreading them apart.

In Desktop, you can only move it freely.

NB: The quick manipulation interaction mode (see §4.2.3.5 Interaction mode) is equivalent to free manipulator mode. It is a shortcut.

The manipulators are located in the center of the selection/3D models.

A miniature manipulator is also available, located next to the properties window/tablet. This makes it easier to move the object remotely.

**Tip:** When manipulating an object, it is advisable to switch the properties window to tablet mode. The tablet follows the user, making it easier to move objects.

#### Modifying the steps of the manipulators:

Via the "Settings" tab of the 3D import tablet, it is possible to modify the manipulator steps of the manipulators (see 4.2.1.2.4Settings tab:)



- Movement step: Allows you to choose the movement step between each movement of the translation manipulator
- Rotation step: Allows you to choose the movement step between each movement of the rotation manipulator

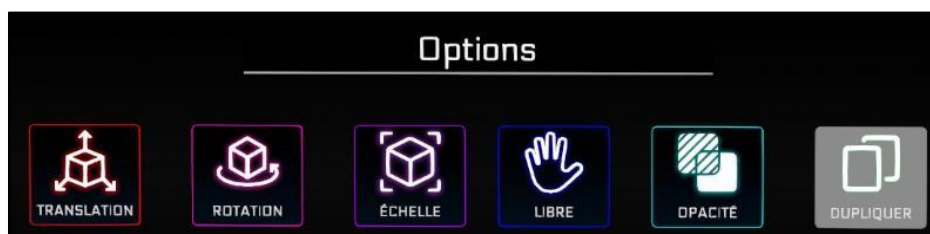
Note: If the step value is "0," this means that there is no step.

As with all ViSu features, the manipulation options are organized as follows: Basic options to expert options:

- Manipulation shortcuts
- Standard manipulation options
- Advanced manipulation options

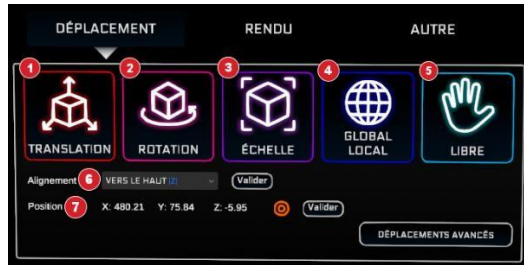
#### Manipulation shortcuts:

The shortcuts include the four manipulators. These are used very frequently.



## Standard manipulation options:

The standard manipulation options include options for novice users.



1. Translation manipulator
2. Rotation manipulator
3. Resize manipulator
4. Switch between local/global coordinates: allows you to manipulate the object either in world coordinates or in the object's local coordinates.
5. Free manipulator
6. Automatic alignment around axes: allows you to perfectly align the object according to global axes (up, down, left, right, front, back).



7. Position via picking: allows you to select a location via a target, then confirm to teleport the center of the object to the selected position.



## Advanced manipulation options:

The advanced manipulation options are intended for more experienced 3D users, offering the possibility to refine manipulations digitally.

To access advanced movements, press the "advanced movements" button.



## Different options:

- **Absolute manipulations** (orange section, right image):

- Numerical absolute movements
- Numerical absolute rotations

⇒ Enter the X, Y, and Z values, then confirm.

- **Relative numerical manipulations**

- Relative numerical movements: enter the value, unit, and axis, then confirm
- Numerical relative rotations: enter the value, axis, then confirm
- Relative numerical resizing: enter the value, then confirm

- Display the object's reference frame
- Switch between local/global coordinates

### 4.2.3.6.2. Modify rendering

Now let's learn how to modify the rendering of 3D models.

These options are located in the advanced options of the properties window, in the "Rendering" tab.



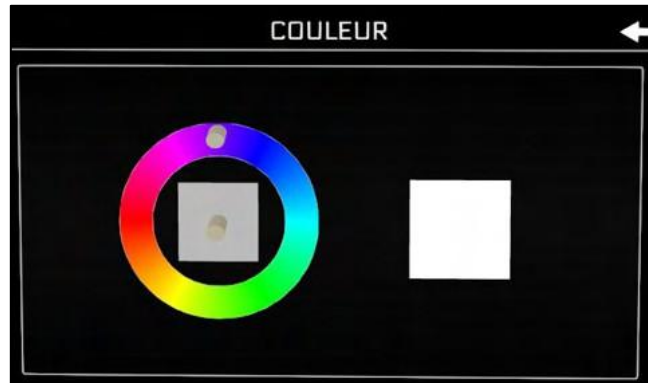
There are currently two options:

- **Color modification:**



1. Click on the "Color" button

2. A color picker will appear. Choose your color from the circle, then adjust the contrast using the central rectangle.



3. Once you are finished, click on the back arrow.



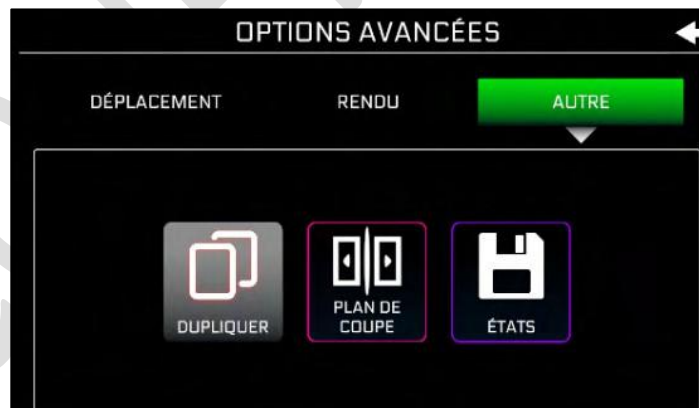
- Changing the opacity: Allows you to switch between opaque and semi-transparent modes



#### 4.2.3.6.3. Cross-section views

For structural review purposes, ViSu offers the option of creating cross-sectional views of 3D models.

This option is located in the advanced options of the properties window, in the "Other," "Cut Plane."



As with displacements, there are two levels of cross-section views:

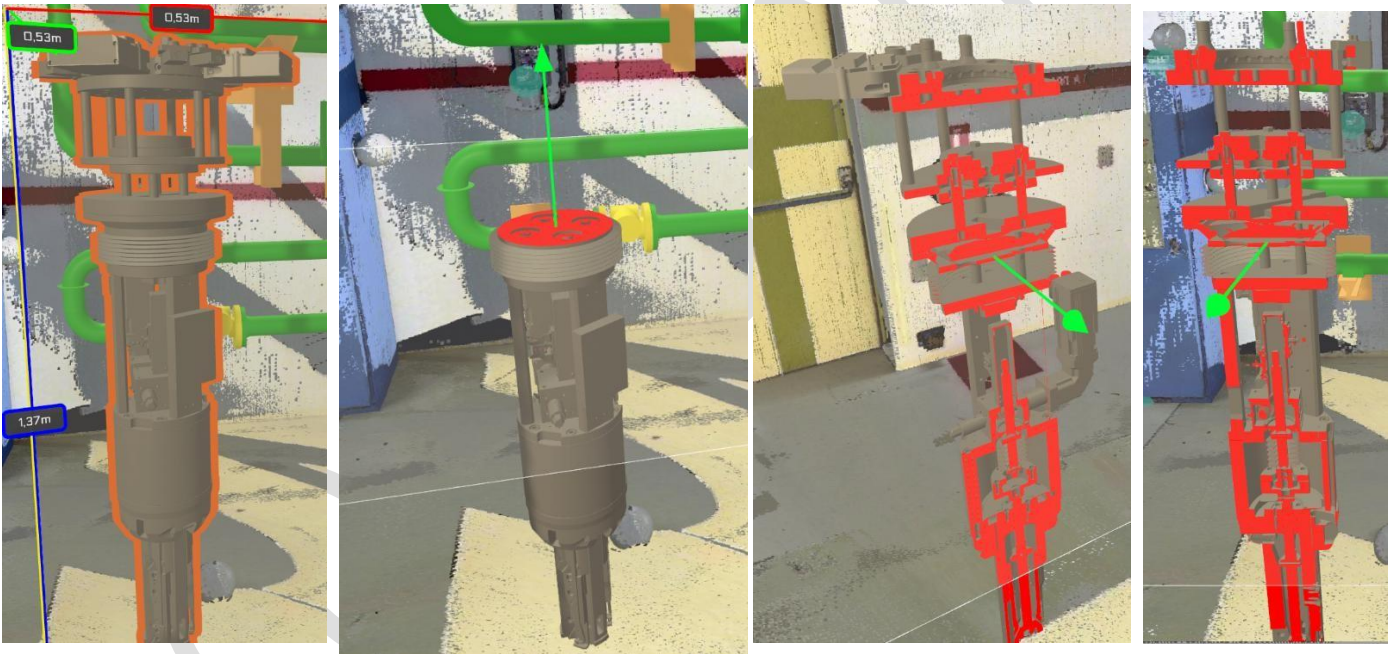
- Standard cross-sections: intended for beginners
- Advanced cross-sections: intended for more experienced 3D users with the Possibility of digitally refining the cutting plan.

## Standard cross-sectional views:



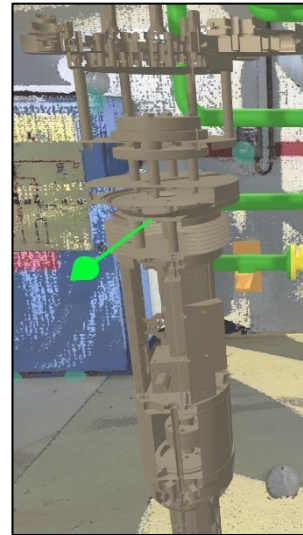
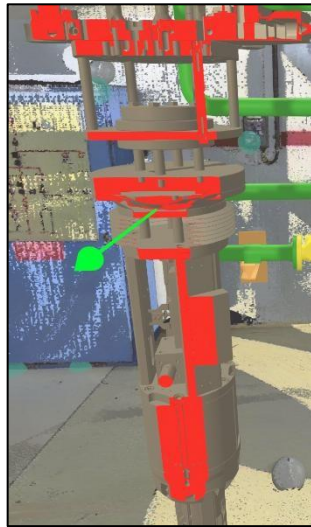
Several options available.

- Automatic alignment according to the local axes of the XYZ object: most commonly used option
  - Select the desired axis
  - Then confirm



Example:

- Left: original object
- Middle left: vertical cutting plane (Z)
- Center right: Y-axis cutting plane
- Right: X-axis cutting plane
- Move the cutting plane using the three manipulators (translation, rotation, free).
- Displays the plane reference frame
- Show/hide the model reference frame: local reference frame of the object.
- Show/hide the cut section:
  - Left: section display, right: section hide



### Advanced section views:

To access advanced section views, press the "advanced movements" button.



The additional options are numerical parameters for refining the cutting plan:

- Numerical translation: enter the value, unit, and axis, then confirm
- Numerical rotation: enter the value, axis, and then confirm

Note: Once you have finished with the cutting planes, when you press the back arrow,  the 3D model is no longer cut.

For design review purposes, ViSu offers the ability to save equipment statuses equipment states.

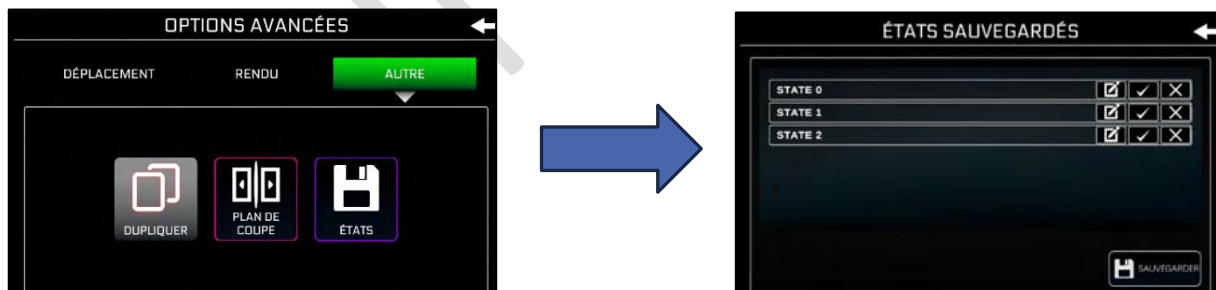
Once the states have been saved, this feature is useful for comparing, for example, the placement of new equipment in different rooms and determining which placement is most appropriate.

But this is just one example among many. Saved states not only save positions, but also all the properties of a 3D model and the properties of its sub-elements.

#### Saved elements:

- Position
- Rotation
- Scale
- Visibility status
- Subject to gravity status
- Collision status
- Color
- Opacity

This option is located in the advanced options of the properties window, in the "Other," "States."



#### Creating a saved state:

1. Press the "Save" button
2. Enter a name: optional, a default name is assigned.
3. Confirm, and the report will be created

#### Options available for saved reports:



- Edit name 
- Apply a saved status 
- Delete a saved report 

### **Applying a saved state to a 3D model:**

1. Press the "Apply" button 
2. Then confirm, and the 3D model will return to the selected state

Note: It is possible to apply saved states to different levels of a 3D model's tree structure.

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How about we talk about gravity? Hold on tight. Yes, ViSu also supports this feature.

ViSu allows you to activate gravity on 3D elements as well as on the user.

Would you be willing to take the plunge and challenge your senses? Let's dive into this feature in more detail.

**Important to know:** before you start, in order for gravity to be activated, the project must be a "Level Design"; without this, the feature will not be available.

As a reminder, a level design mainly represents the civil engineering of buildings (walls, ceilings, floors, etc.). For more details, see §.4.2.2 Different workspaces.

ViSu will use this to calculate collision masks. This is a safety feature; if this data were not present, the user and elements subject to gravity could fall indefinitely if there were no ground.

### **Defining elements subject to gravity:**

There are two ways to define elements subject to gravity:

- Via the equipment properties window/tablet
- Via the 3D import tab

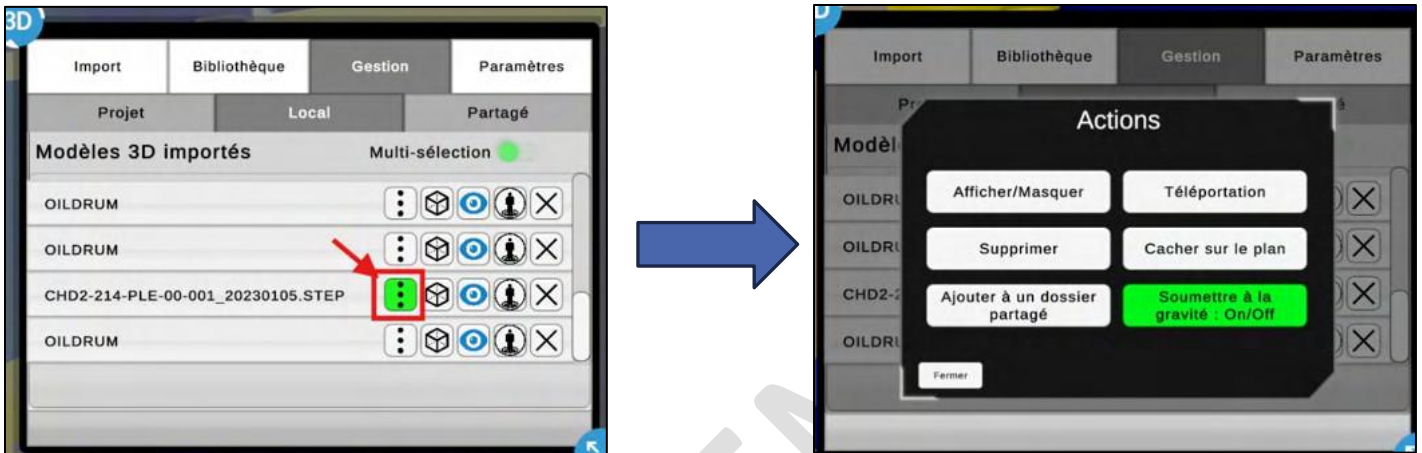
#### **Via the properties window/tablet of a piece of equipment:**

1. Click on an item to bring up the properties window.
2. Press the "Apply Gravity" button.
3. The item is subjected to gravity.



### Via the 3D import tablet:

1. Open the 3D import tablet
2. On the desired item, press the "..."
3. A context menu appears, press "Submit to gravity" on/off
4. The element is then subject to gravity.



**NB:** You cannot subject a sub-part of a piece of equipment to gravity. This applies to the entire piece of equipment (file). If you subject a sub-part to gravity, this will automatically be applied to the entire piece of equipment. ViSu interprets the equipment as a single piece.

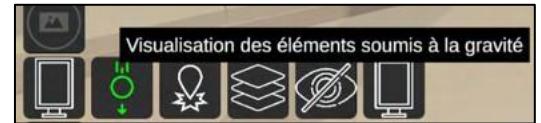
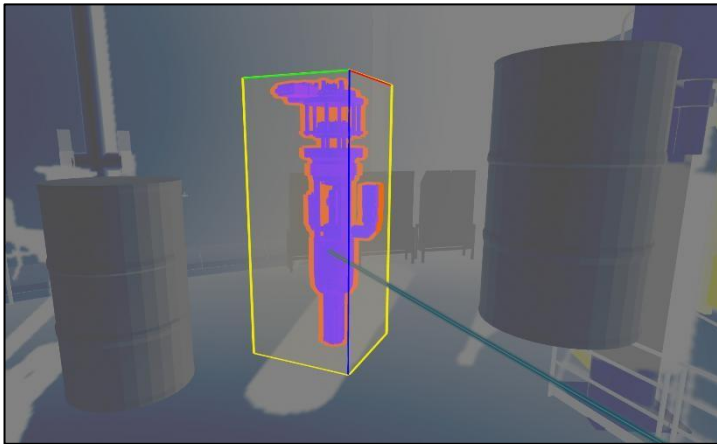
### Identifying elements subject to gravity:

There are two ways to check whether an element is subject to gravity:

- **From the properties window:** To check that the submission to gravity has been taken into account, open the properties window on the equipment (which now behaves as a single part).



- From the "Subject to gravity" underworld: this can be activated via the different display modes (see 4.2.3.4 Display mode). It will highlight all elements subject to gravity in purple.



### **Activating/deactivating gravity:**

Once the elements have been prepared and subjected to gravity, we will now see how to activate gravity.

To do this, you need to use the "activate physics" option. There are three levels:

- 1<sup>st</sup> level: Collisions and gravity
- 2<sup>nd</sup> level: Collisions but no gravity
- Level 3: No collisions, no gravity



For gravity:

1. Click on activation of level 3.
2. If there is a level design, all elements subject to gravity, as well as the user, will fall according to the environment.

#### 4.2.2.6.6. Collision

ViSu also allows you to view and manage collisions on 3D models. In this chapter, we will take a look at this new feature.

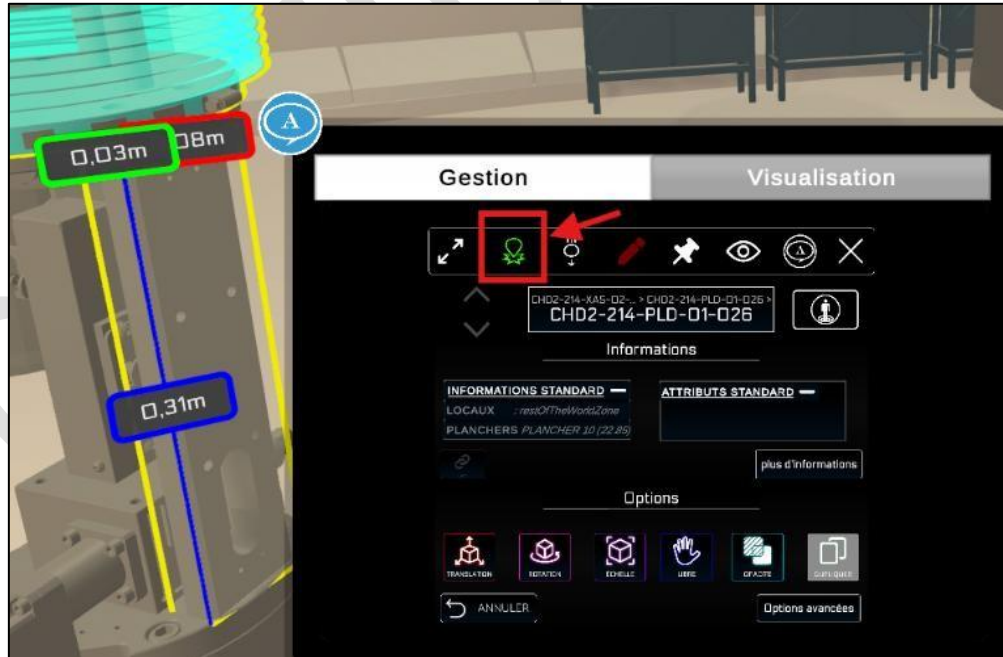
This feature is useful, for example, in the context of:

- Handling large equipment to visualize and manage collision points between the equipment and the environment.
- Maintenance on equipment, check whether my tool will fit to tighten/loosen a bolt.

#### **Define the visibility of collisions on elements:**

To define collision visibility on elements, use the window/tab properties window/tab.

1. Click on an element to bring up the properties window.
2. Press the "activate collision visibility" button.
3. Collision visibility has been enabled on the element



### **Identifying elements with collision visibility enabled:**

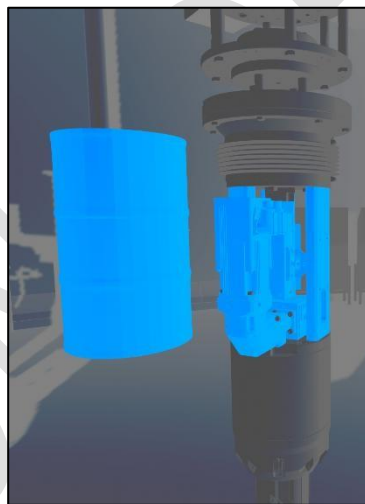
There are two ways to check whether collision visibility is enabled for an element:

- **From the properties window:** To check that collision visibility has been enabled taken into account, open the properties window on the equipment.

Check that the collision visibility icon is enabled.



- From the underworld "Collision visualization": this can be activated via the different display modes (see 4.2.3.4 Display mode). It will highlight all elements subject to gravity in blue.



### **Collision visualization:**

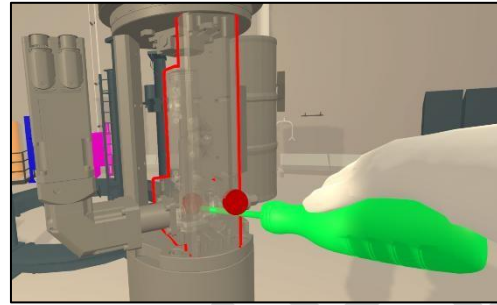
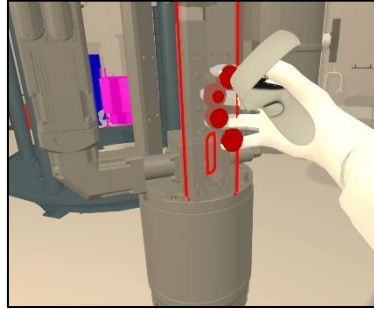
Once you have configured the elements on which you want to visualize collisions, you can test and identify the collision points.

Collisions can be visualized between objects subject to collision visibility and:

- The user's body (hands, heads, bodies)
- Tools held in the hands (e.g., a screwdriver)

Example: Below

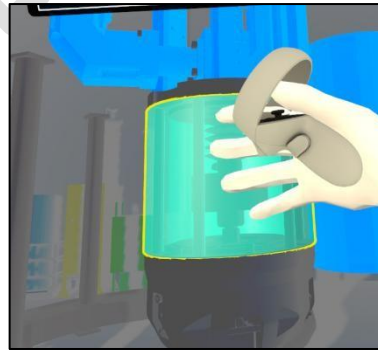
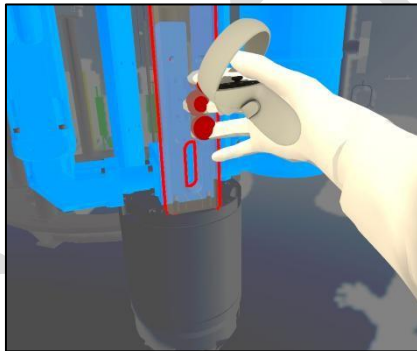
- On the left image: visualization of collisions between the hand and an element with collision visibility enabled.
- On the right image: visualization of collisions between a screwdriver in the hand and an element with collision visibility enabled.



Collisions are only visible on elements with collision visibility enabled. Collision points are not displayed on other elements.

Example: Below, we are in the "Collision Visualization" underworld, highlighting elements with collision visibility enabled in blue.

- In the image on the left: we can clearly see the visualization of collisions between the hand and an element with collision visibility enabled (shown in blue).
- In the image on the right: there are no collision points visible between the hand and the element (it is not blue: collision visibility is not enabled).



Another special case: Objects created and controlled by an external simulator via the API module are, by default, objects subject to collision visibility.

The simulator sends kinematics to update the position of the equipment (e.g., kinematics of a robotic arm in a confined environment).

This allows collisions between these objects and the environment to be visualized. Collisions are also transmitted to remote simulators so that they can adjust these cinematics accordingly.

For more information on this external API module, see §.4.3.5 External API Tablet

### **Enabling blocks/collisions:**

By activating blocks/collisions with 3D models, you will achieve much greater realism.

You will be able to visualize collision points, but your hand or the tools you are holding will also be physically blocked by the structure being studied (with haptic feedback).

⇒ Just like in real life.

To activate collisions/blocking, you need to use the "activate physics" option, accessible from the VR/Powerwall watch, from the vertical toolbar vertical toolbar in Desktop, and activate level 1 or level 2 (left or middle icon).



The difference between level 1 and level 2 is that with level 1, gravity will also be activated.

For more information on activating physics, see §.Activating/deactivating gravity:

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#### 4.2.2.6.7. Undo

When manipulating 3D models, it is possible to go back if there has been a manipulation error.

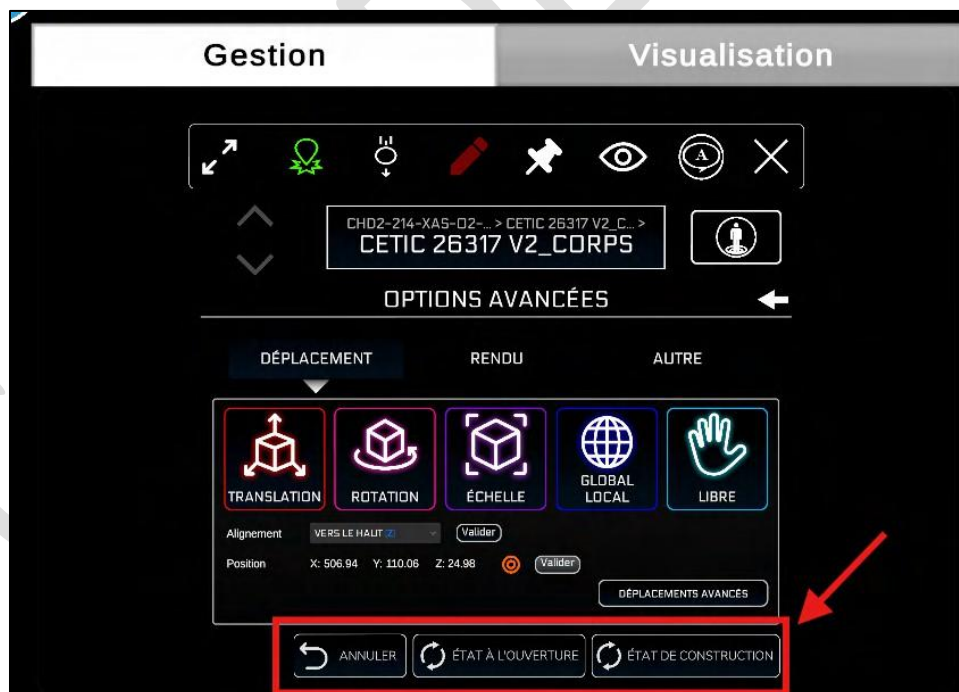
There are three types of undo:

- **Undo:** Returns to the previous action.
- **Open state:** Allows you to return to the state in which the 3D selection was when the ViSu session was opened.
- **Construction state:** Returns the 3D selection to its construction state (as written in its file).

These undo actions can be applied to a complete 3D model (file) or a sub-part of a 3D model.

These options can be found in the properties window/tablet of a piece of equipment.

To apply them, simply click on one of them and confirm for the options that request it.

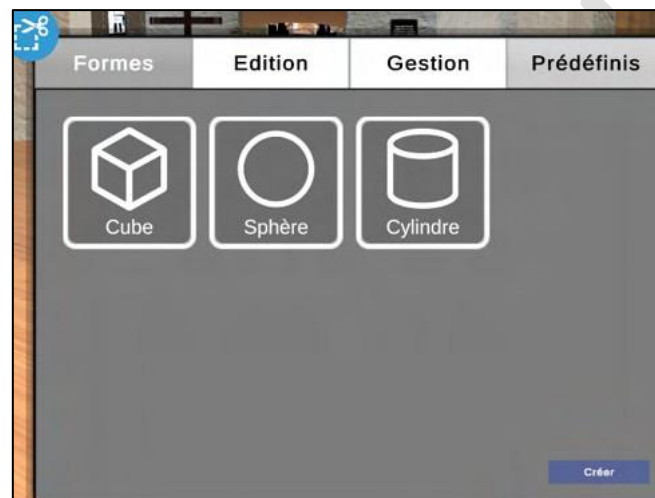


#### 4.2.2.6.8. Segmentations

Would you like to simulate a hole in a wall during a demolition phase, remove a hopper before installing equipment, or simulate the replacement of equipment in a cloud without having to remodel it?

Thanks to its segmentation tablet, all this is possible in ViSu, whether in a point cloud environment, a 3D model, or both.

In this section, we will look at how to perform segmentation, including the step of creating a segmentation envelope, and the different options available.



Before getting into the details, let's define segmentation:

A segmentation is simply a cutting envelope of different shapes (shapes that we will create below) with cut-out content (cloud or 3D model), empty when created.

This envelope behaves like any other element in ViSu and can be manipulated using the various options in §.4.2.3.6.1 Manipulation options

The various options for this segmentation will be detailed below.

#### 4.2.2.6.8.1. Accessibility

##### In VR/Powerwall:

Open the tool palette, then grab the segmentation tablet in the 2nd category with one of your hands, then the 3rd tool from the left.

##### In Desktop:

On the toolbar, click on the "Segmentation tablet" icon, the fourth from the right.



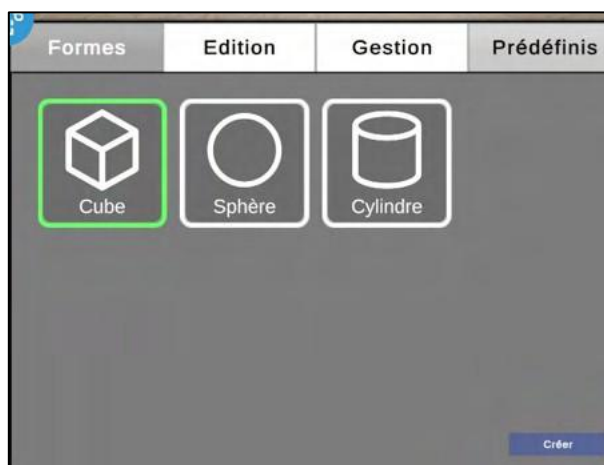
#### 4.2.2.6.8.2. Usage

Once you have it in your hands, or have used it, we will see how to use this tool. The tablet consists of three tabs:

- **Shapes tab:** Allows you to create the envelope that will be used for segmentation
- **Edit tab:** Allows you to define the various segmentation options
- **Management tab:** Allows you to view the list of segmentations and manage them.

##### 4.2.2.6.8.2.1. Shapes tab/Creating the segmentation envelope

We will look at the <sup>first</sup> step in segmentation: creating the envelope.



There are three types of envelopes:

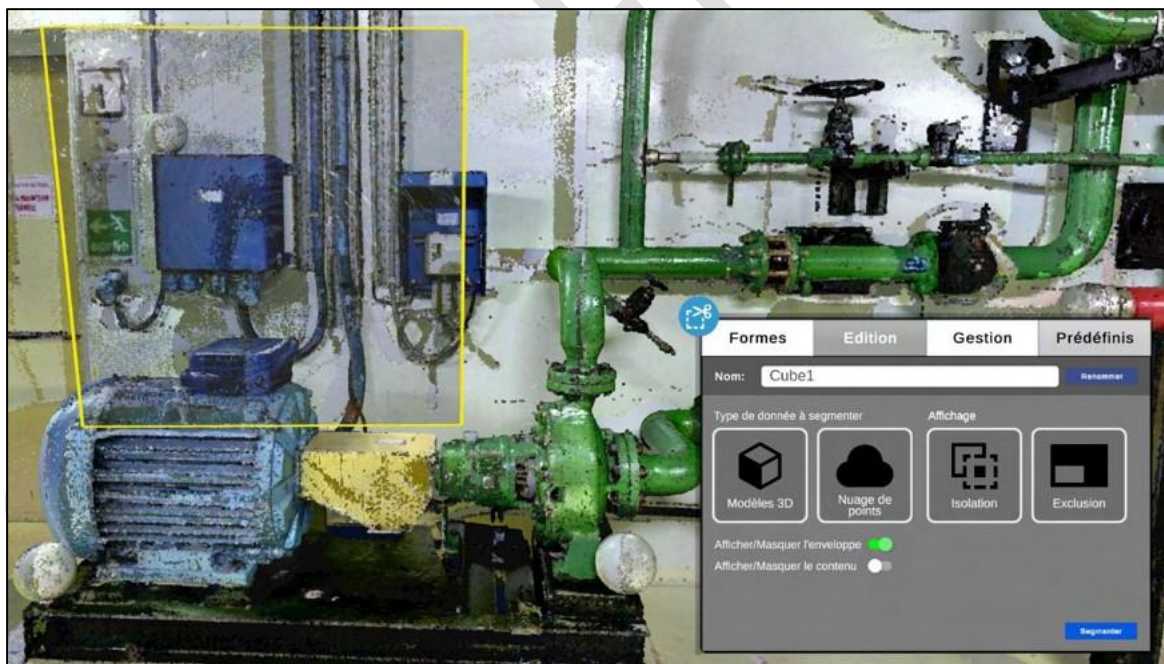
- Cube
- Sphere
- Cylinder

Each envelope can be used depending on the desired use case.

For example, to simulate laser cutting, the cylinder would be the most appropriate. Since lasers are cylindrical in shape. To cut equipment, a cube would be a better choice in order to encompass it.

To create an envelope:

1. Select the desired envelope, which will appear as a semi-transparent blue thumbnail next to the tablet (this is not the final envelope).
2. Once you have made your selection, confirm by clicking on the "Create" button.
3. The segmentation envelope, semi-transparent and grayed out, is then created.
4. The tablet automatically switches to the "Edit" tab. We will look at this configuration section in the next paragraph.



Once created, move the envelope to the desired location (area to be cut out).

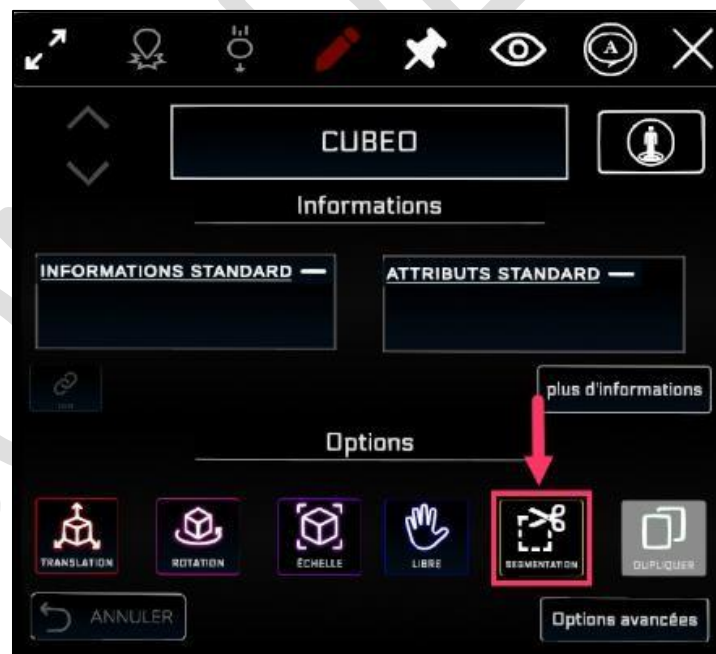
As a reminder, a segmentation envelope behaves like a 3D element. You can use the properties window/tab to manipulate it with all the options available in ViSu (see §.4.2.3.6.1 Manipulation options).

To do this:

1. Click on the envelope to bring up the properties window, which will already be in edit mode.
2. Move and resize it to create your cutout area.
3. Once you have finished, we will look at the different options available in the next section.

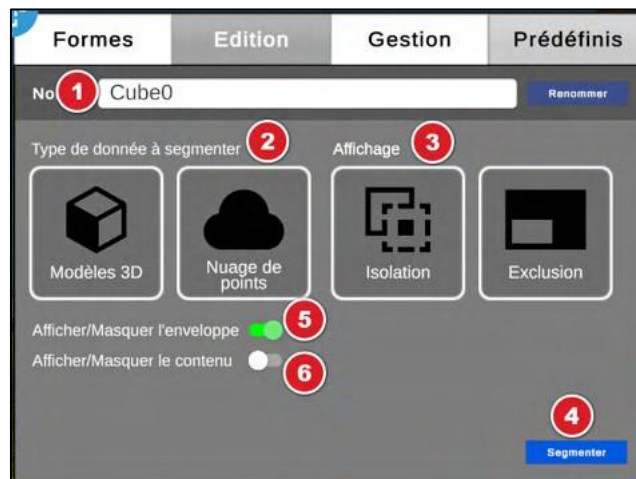


NB: A Note, in the shortcuts of the window of properties, an option is available "segmentation." By clicking on the latter, the segmentation tablet will open on the "Edit" tab on the manipulated envelope.



#### 4.2.2.6.8.2.2. Edit tab/Segmentation options

We will now look at how to segment and what the different options are.



There are several segmentation options:

1. **Name:** Change the name of the segmentation
2. **Type of data to segment:** Define which data should be segmented => Cloud, 3D models, or both.
3. **Display:** Different display modes for a segmentation
  - Normal display (no isolation or exclusion) only cut out.
  - Isolation: Display only the contents of the envelope. The rest of the environment is hidden
  - Exclusion: Masking of the envelope content. The rest of the environment is displayed.
4. **Segment/Desegment:** Allows you to start or stop a segmentation.
5. **Show/Hide envelope**
6. **Show/Hide content To**

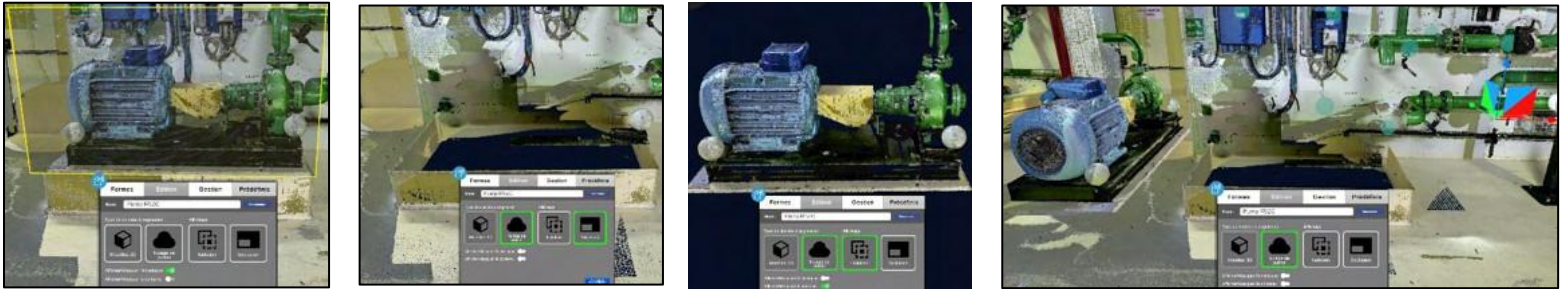
#### perform segmentation:

1. Once the envelope has been created, in the associated "Edit" tab
2. Select the various options you want (change the name, type of data to segment, display type)
3. Once you have made your selection, click on the "Segment" button
4. The segmentation will be calculated, a time completed, you will obtain your segmentation with the selected options.
5. It will be added to the "Management" tab, which we will look at in detail in the next section.

*Note: It is possible to move a segmentation.*

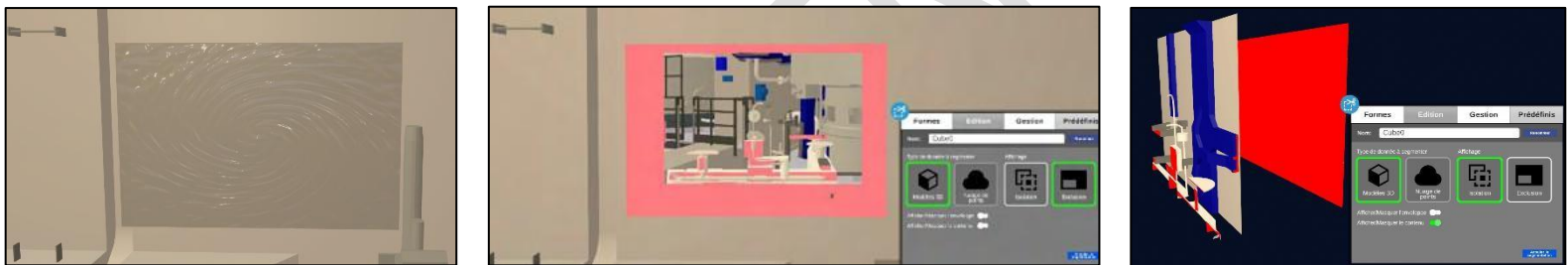
Below are various segmentation results:

- Segmentation on cloud



- Image on the left: Envelope only segmented
- Middle left image: Segmented envelope with exclusion, envelope masking
- Middle right image: Segmented envelope with isolation, envelope masking
- Image on the right: Segmented envelope with displacement, envelope masking.

- Segmentation on a 3D model



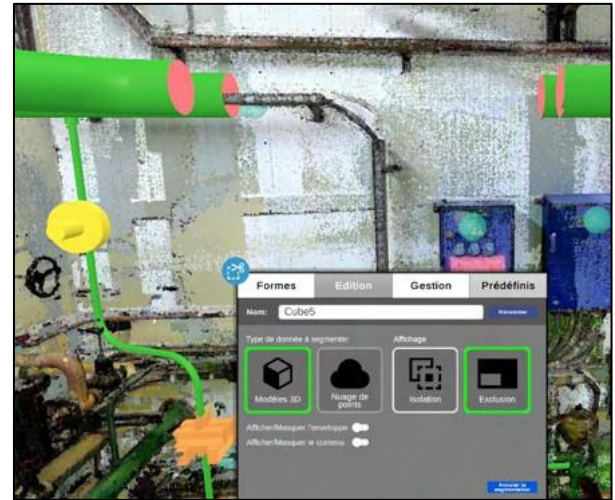
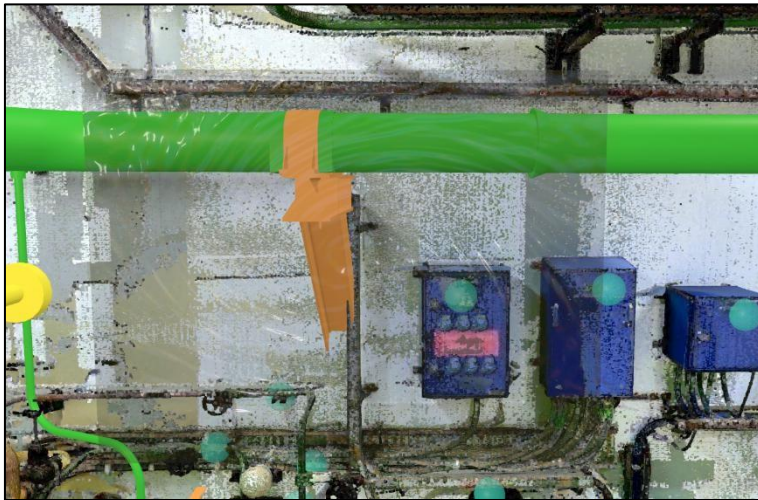
- Image on the left: Segmented envelope only
- Middle image: Segmented envelope with exclusion, envelope masking
- Right image: Segmented envelope with isolation, envelope masking

- Segmentation on cloud and 3D model



- Left image: Segmented envelope only
- Middle image: Segmented envelope with exclusion, envelope masking
- Image on the right: Segmented envelope with insulation, envelope masking

- Segmentation of the 3D model and not the cloud



- Image on the left: Envelope segmented only
- Image on the right: Segmented envelope with exclusion, envelope masking (the segmented 3D model is visible and the cloud is unaffected because it is not selected in the options).

### To stop segmentation:

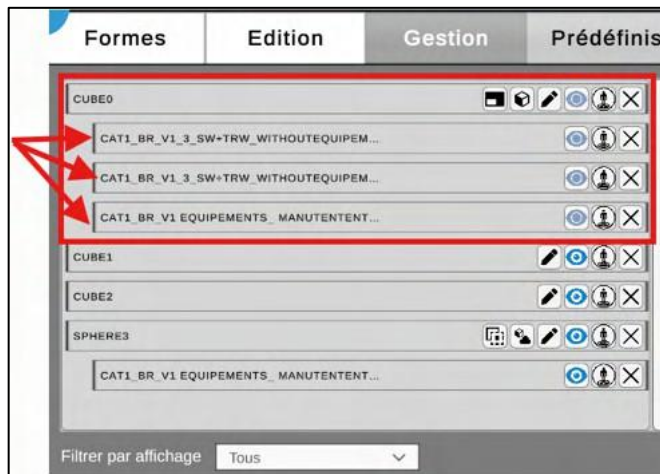
1. In the "Edit" tab of the segmentation panel
2. Click on the same button that was used to segment.
3. Segmentation is stopped.



#### 4.2.2.6.8.2.3. Management tab

This tab is dedicated to segmentation management. As with any "Management" tab for a tablet in ViSu, this tab lists the items that have been created of the same type as the tablet. Here, the list displays all the segmentations that have been created.

In this list, for each segmentation, you can view the items that are affected.



NB: It is possible to remove an element so that it is not taken into account by the segmentation. The segmentation will then be recalculated. To do this, click on the cross next to the element to be removed, then confirm.

Icons indicate the different options enabled for a segmentation:



#### 1. Display

- Isolation 
- Exclusion 

#### 2. Segmented data type

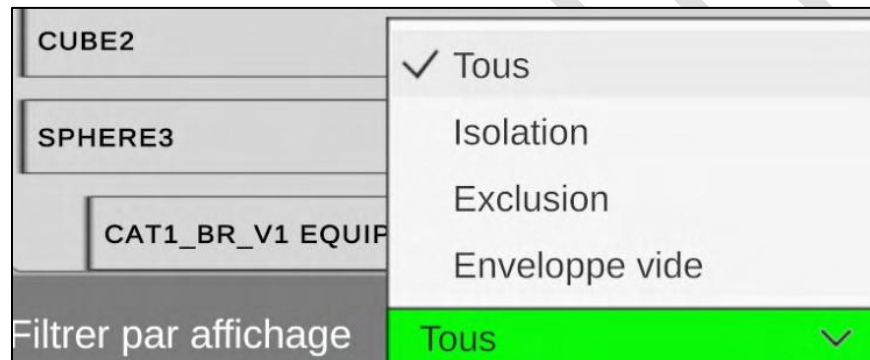
- Cloud 
- 3D models 
- + cloud 3D models 

Various options are available for each segmentation from this tab:

3. **Edit:** allows you to modify the options related to the selected segmentation.
5. **Show/Hide segmentation** (+ v e l o p e content)
6. **Teleport to the segmentation level**
7. **Delete the segmentation**

Various filters are also available:

- All: displays all segmentations
- Isolation: Displays only isolated segmentations
- Exclusion: Displays only exclusion segmentations
- Empty envelope: Displays only segmentations that have not yet been segmented



#### 4.2.4. Exporting 3D models

Currently, 3D models cannot be exported outside of ViSu.

This is planned for S1 2026.

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## 4.3. Specific modules

ViSu has other business expertise modules that enable trainers, experts, project managers, etc. to simulate, test, and de-risk their activities.

We will look at these modules in detail:

- Learning Module
- 4D Module
- Dosimetry Module
- Training Module
- External API Tablet & Screen Tablet Module

### 4.3.1. Learning Tablet

ViSu has a professional development module that allows trainers or subject matter experts to share their knowledge independently and easily through interactive learning modules.

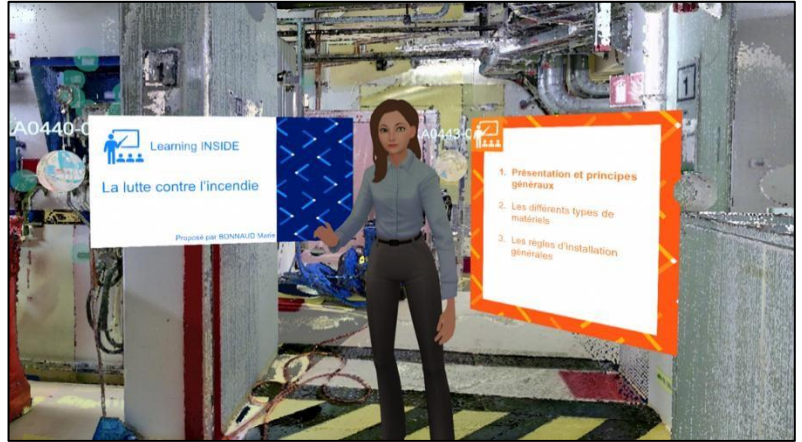
This module is appreciated for its ease of use, both for those creating the interactive content as well as those who will view it:

- For content creators:
  1. First, create your personalized avatar (see 4.4 Avatars).
  2. Put on the VR headset and press the recorded button on the tablet. 
  3. Action! You are now ready to play your role. All your actions, gestures, and voice are recorded and captured by the headset.

Your actions and the tools you use are also recorded (e.g., use of the laser pointer, 3D drawing, taking measurements, images/posters, etc.).

4. It's up to you. Create your content independently and easily!

- For the learner:
  1. Select the interactive content you want to learn about.
  2. Then launch it
  3. There there you go, transported into the VR-Learning in 3 dimensions, in the environment used, with the expert's avatar. Enjoy your training!



#### 4.3.1.1. Accessibility

There are several ways to access the VR-Learning tablet depending on the device used.

##### In VR/Powerwall:

Open the tool palette via the watch, then grab the VR-Learning tablet with one of your hands, with the VR-Learning tablet located in the 3rd category and then the 1<sup>st</sup> tool on the left.

##### On Desktop:

On the toolbar, click on the "VR-Learning Tablet" icon, the sixth from the left.



### 4.3.1.2. Description

VR-Learning is interactive content consisting of several episodes.  
Each episode lasts an average of 5 minutes maximum.

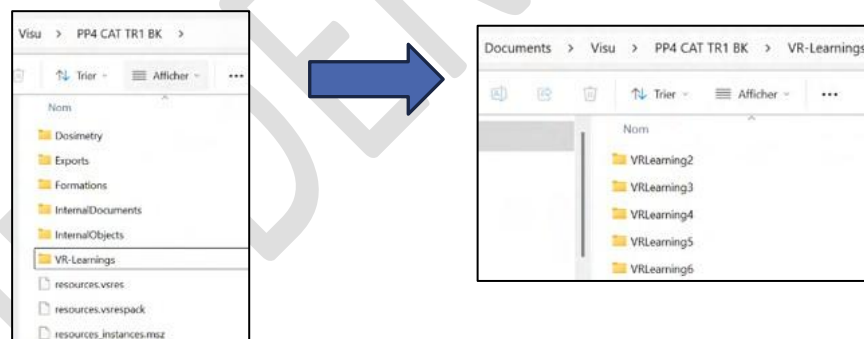
Note: Episodes can be longer if desired, but this is not recommended. Interactive content that is too long will struggle to hold learners' attention. It is better to split the episode into two parts.

#### 4.3.1.2.1. Different workspaces

In ViSu, VR-Learning can come from different workspaces:

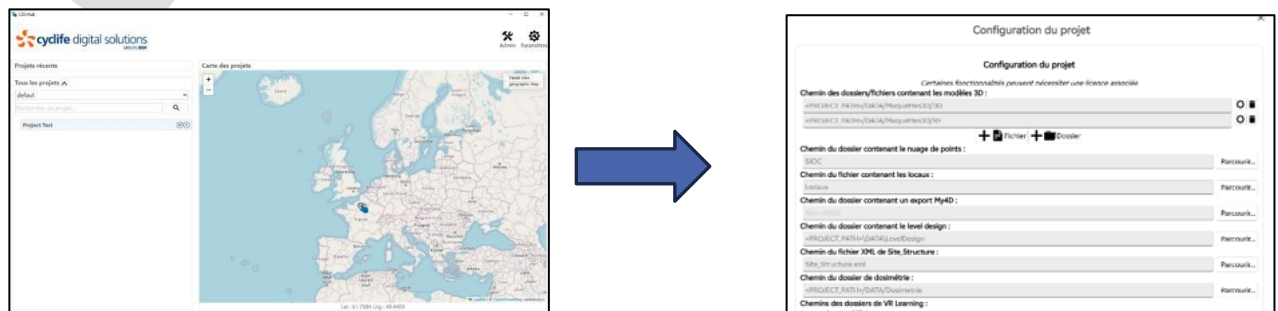
- **Local VR Learning:** Any ViSu user can create their own VR Learning content using this tablet.

They will be stored in the user folder in the "VR-Learning" folder. To access the user folder, see §.3.8User folder



- **"Project" VR-Learning:** These are VR-Learning modules that are linked to and intrinsic to the project. Only project administrators can add VR-Learning modules to a project. They are loaded automatically when the project is launched.

To add Project VR-Learning, ask your Cyclife Digital Solution Platform administrator  
Cyclife Digital Solution administrator to do this from the Cyclife HUB interface.

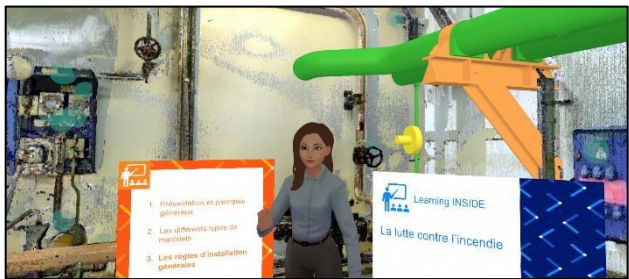


#### 4.3.1.2.2. Data recorded in VR-Learning

During an episode, a trainer/subject matter expert can record themselves while giving their presentation. During this recording, various elements will be recorded. A VR-Learning module is self-contained and contains all the recorded data.

##### Recorded elements:

- **Avatars:** The trainer/expert will be able to customize the avatar that will represent them during their VR-Learning (see 4.4 Avatars) with a recording of:
  - Voice (captured via the VR headset)
  - Movements: head, arms, movements (captured via the VR headset)
- **Images/Posters:** To accompany their presentation, the trainer/expert can position images/posters (slides in the 3D environment).



- **2D/3D drawings:** The trainer/expert can also make sketches/drawings to support their presentation.



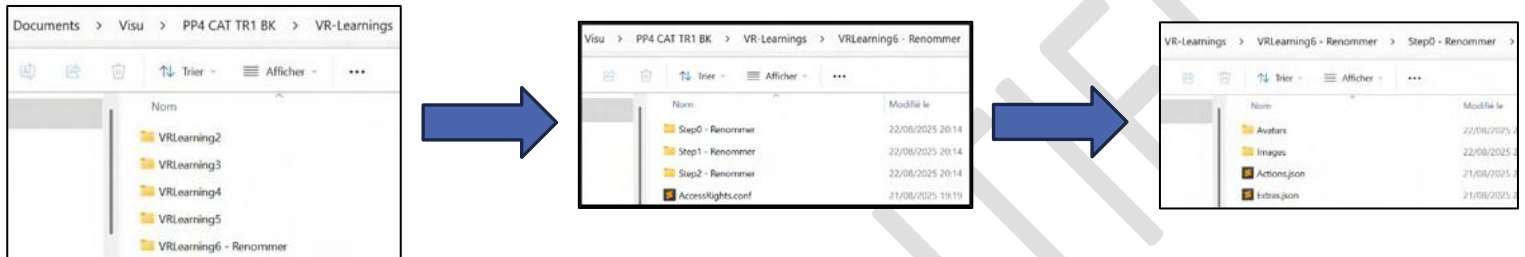
- **Annotations/tickets/notes:** During a design review explanation, annotations/tickets may be used.

NB: In S1 2026, it is planned to record other types of elements in VR Learning (video, PDF, 3D models, etc.).

#### 4.3.1.2.3. Structure of a VR-Learning folder

The structure of a VR-Learning folder consists of:

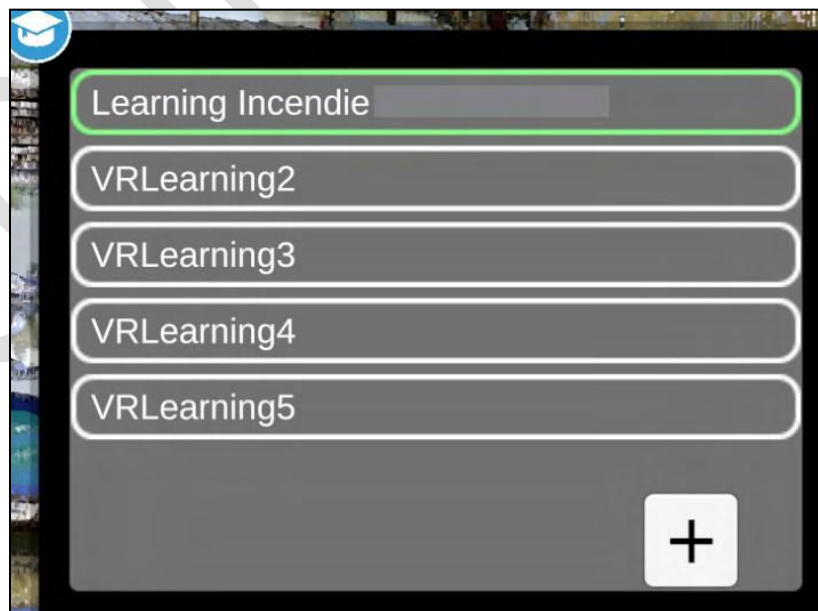
- A folder with the name of the VR-Learning
  - Subfolders representing the episodes and bearing the names of the episodes displayed in ViSu
    - In each episode, the data related to it.



#### 4.3.1.3. List of VR-Learning

When you open the VR-Learning tablet, you will see a list of available VR-Learning programs. At present, there is no visual distinction between "local" and "Project" VR-Learning programs.

Note: A redesign of the VR-Learning interface is planned for S1 2026.



#### 4.3.1.4. Creating a Learning/episode

##### Creation steps

Now let's look at how to create a VR-Learning/episode.

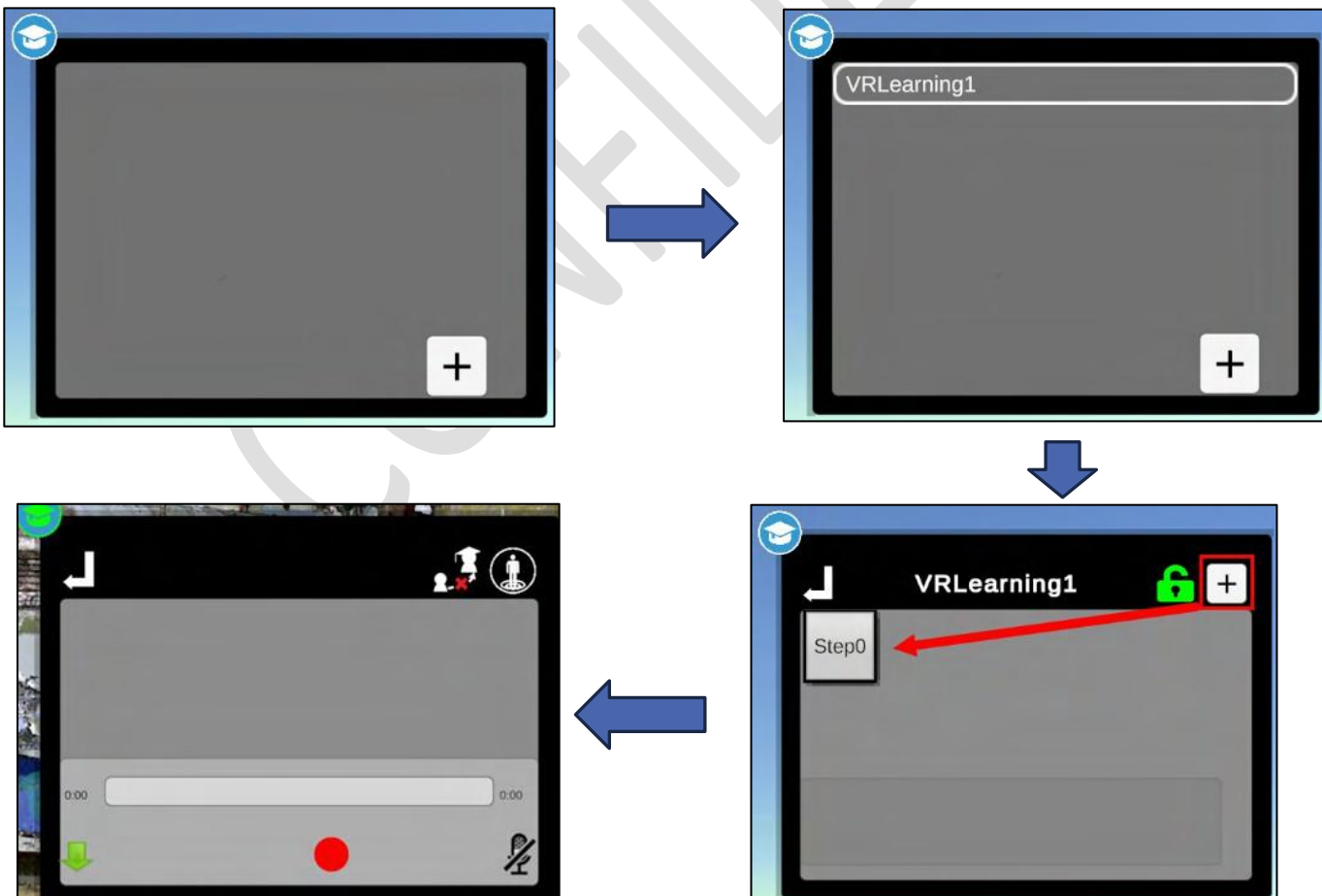
Reminder: Before creating a Learning:

- Choose your avatar
- Prepare your data: Place the images/posters, 2D/3D drawings that you want to have available before start of recording.

To create a new VR Learning session:

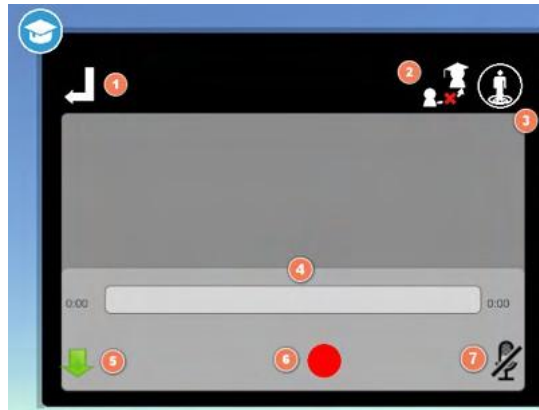
1. Press the "+" button at the bottom right of the tablet
2. Click on the thumbnail of the Learning that has been created to open it
3. You will see a list of episodes. Click on "+" at the top right to create the <sup>first</sup> episode of the VR-Learning
4. Then click on the "Step0" thumbnail that has been created to access the episode interface.
5. You have created a VR-Learning with one episode (currently empty).

NB: To create other episodes, simply press the "+" button again in the top right-hand corner.



Let's take a moment to describe the episode interface before starting a recording.

The interface consists of various options:



1. **Return to the episode list**
2. **Activate camera mode:** Enables automatic camera tracking. Useful for capturing VR-Learning videos without having to manually control the camera movements. For more details, see below.
3. **Teleport to the VR-Learning avatar**
4. **Recording progress bar**
5. **Minimize the tablet:** By clicking on the green arrow  , the tablet is minimized and positioned at the bottom of the screen. When recording starts, it will automatically be in minimized mode.

You can return to "Non-minimized" mode by simply pressing the green arrow



on the minimized interface.



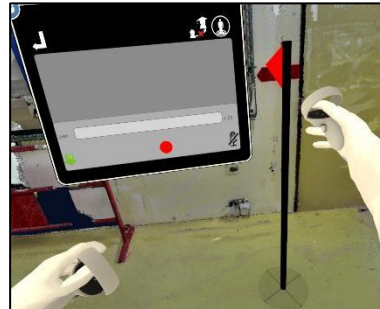
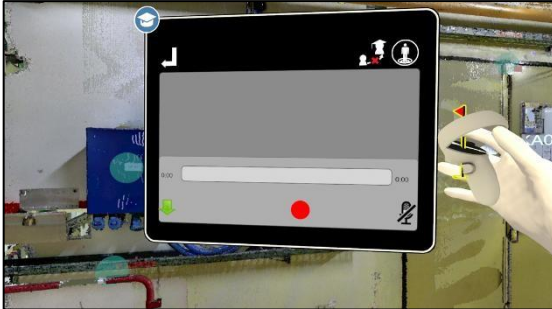
6. **Learning recording:** This button starts recording the episode.
7. **Turn microphone on/off**

### Set the learner's starting point

You can set the starting point where the learner will be placed to follow the VR-Learning episode. When the learner clicks on the "teleport" button  , they will be taken to the starting point of the VR-Learning.

To set it:

1. When you are in an episode, grab the miniature flag on the right side of the tablet with your hand.
2. It should automatically enlarge.
3. Place it where you want it and then release it (the flag is forced into a vertical orientation).
4. You have now set the starting point.



## Start recording.

Now, let's see how to start recording the episode.

As a reminder: just like a PowerPoint presentation or a film, prepare the elements you want to record recorded (avatars, images/posters, etc.).

To start recording:

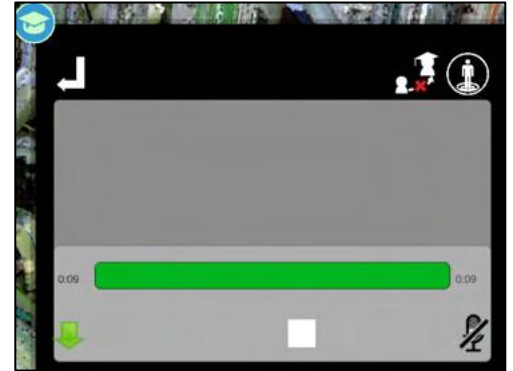
1. In the episode interface, press the "record" button. 
2. A message will tell you which items will be recorded. Accept to continue.
3. A 3-second countdown will appear, giving you time to get ready.  
Place before the start of recording.



4. Recording will begin and you can start your presentation.

Note: Remember to turn on your microphone if you want to record your voice. You can draw, add images/posters/tickets/notes, etc. live,  
draw, add images/posters/tickets/notes, etc.

5. Once you are finished, press the "Stop" button.



## Overwrite and redo an episode

To overwrite and redo an episode:

1. Open the desired episode
2. Press the "Overwrite" button
3. A confirmation message will appear; confirm your choice  
**Warning: The previous episode will be overwritten.**
4. A message indicating the items that will be recorded will appear. Accept to continue.
5. The countdown will begin, followed by recording.

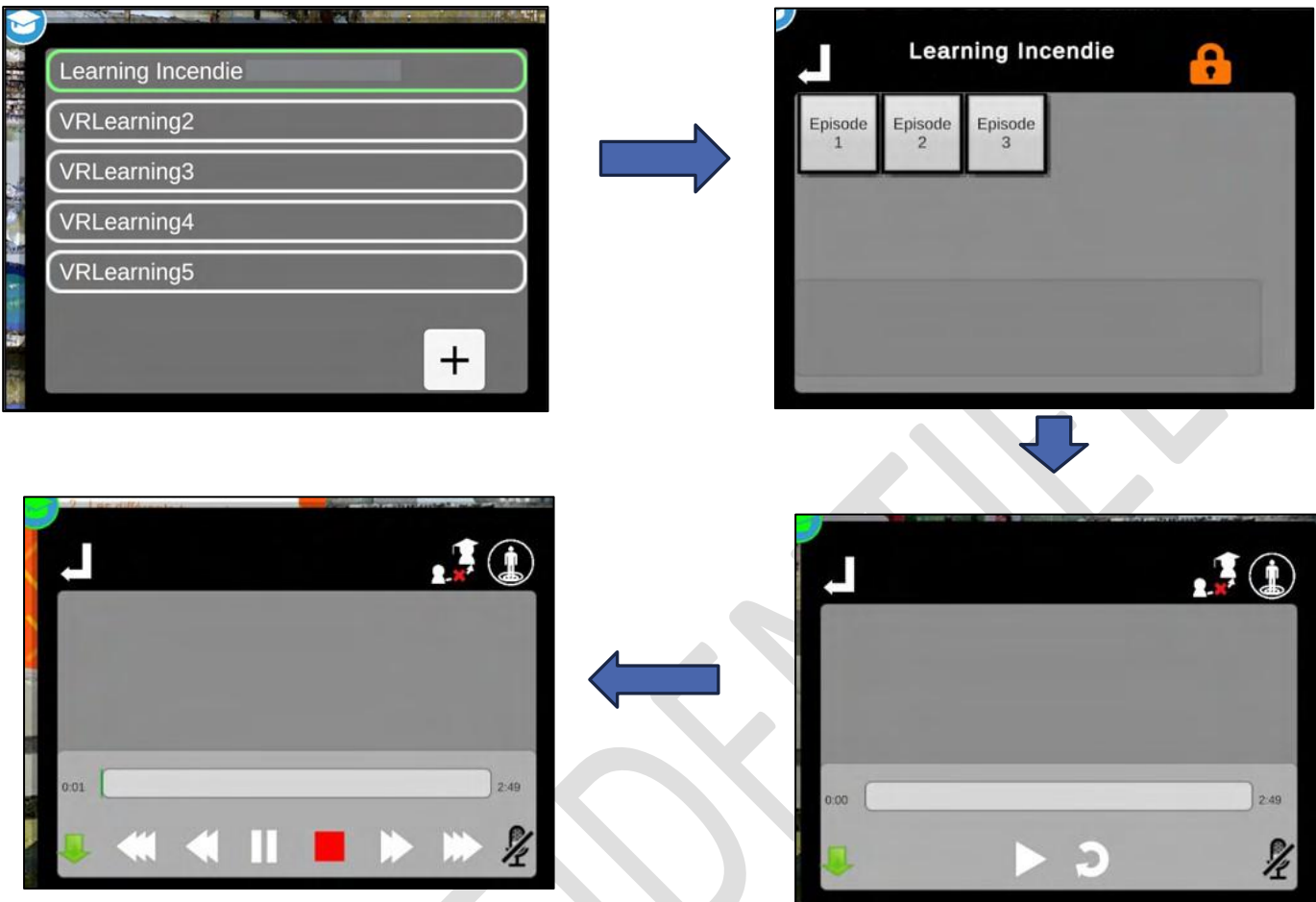


### 4.3.1.5. Playing a VR-Learning episode

In order for a learner to play and follow an episode of VR-Learning, they must:

1. In the VR-Learning tablet, select the desired VR-Learning
2. Then select the desired episode
3. Press the "teleport" button to go to the starting point 
4. Finally, press "Play" 

5. They will now be able to follow the episode.



#### 4.3.1.6. Renaming a VR-Learning/episode

Let's take a look at how to rename a VR-Learning or episode. For the time being, renaming cannot be done in ViSu; you must go through the VR-Learning folder using Windows File Explorer.

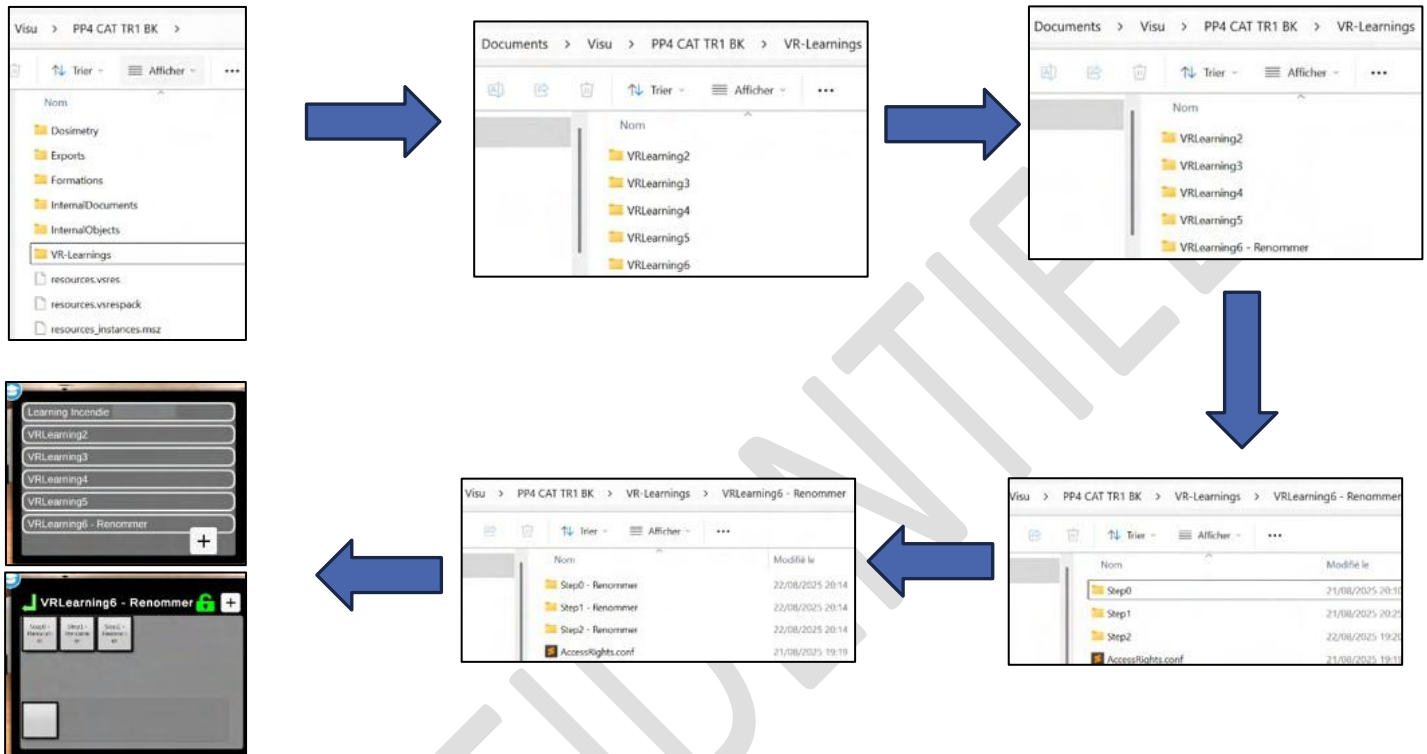
Note: The VR-Learning tablet is scheduled for an overhaul in S1 2026, at which point it will be possible to rename from ViSu.

Let's take a look at how to rename a VR-Learning/episode:

1. First, access the VR-Learning folder locally. Go to your user folder
  - a. Press the button 
  - b. Click on the "User Folder" tab
  - c. Click on the "Working Folder Location" icon. 
2. Once inside, open the "VR-Learning" folder



3. Select the VR-Learning file you want to rename
4. You can rename it directly via Windows
5. Open VR-Learning to access the episodes, which you can also rename.
6. Once renamed, restart ViSu and open the VR-Learning tablet
7. The VR-Learning and episodes should now have been renamed



#### 4.3.1.7. Delete a VR-Learning/episode

We will now look at how to delete a VR-Learning course or episode. At present, deletion cannot be performed in ViSu; you must go through the VR-Learning folder using Windows File Explorer.

Note: The VR-Learning tablet is scheduled for an overhaul in S1 2026, at which point it will be possible to delete items from ViSu.

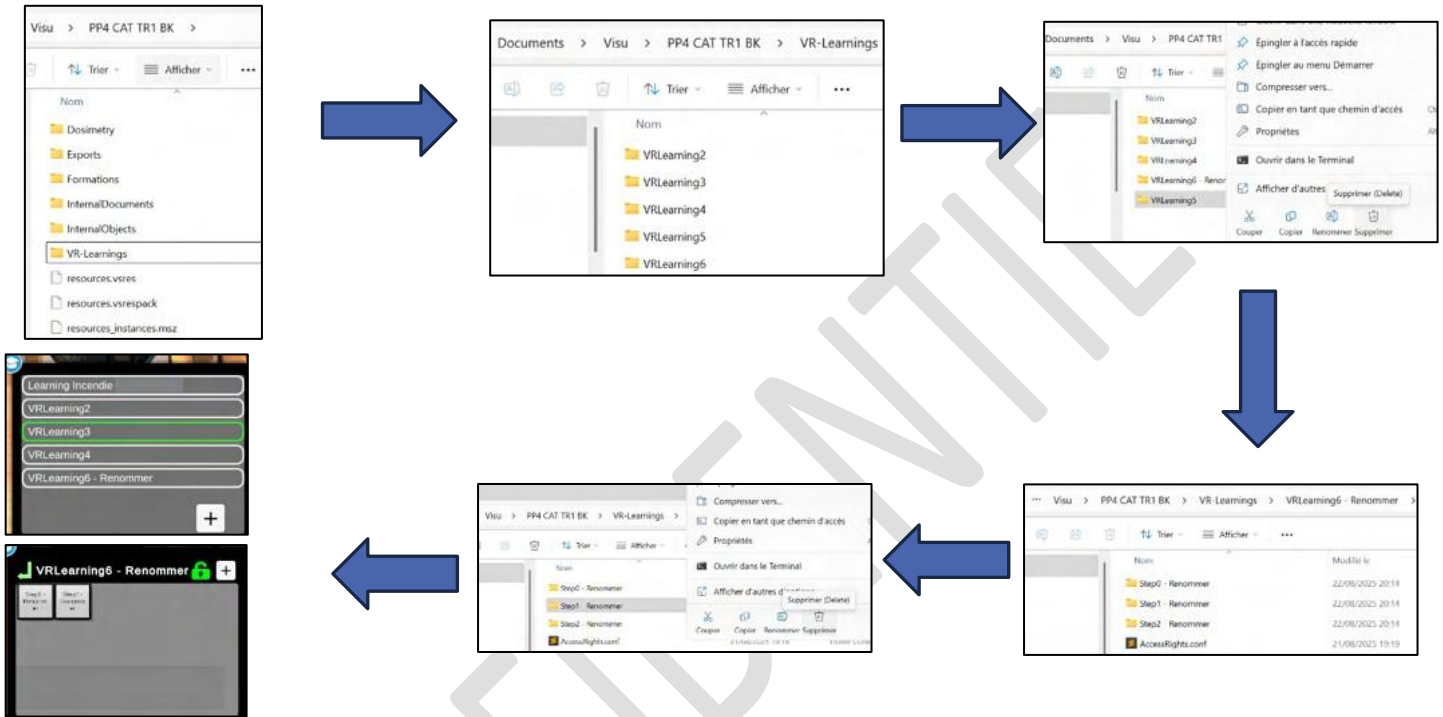
Let's take a look at how to delete a VR-Learning/episode:

1. First, access the VR-Learning folder locally. Go to your user folder
  - a. Press the button 
  - b. Click on the "User folder" tab
  - c. Click on the "Working Folder Location" icon 
2. Once inside, open the "VR-Learning" folder
3. Select the VR-Learning you want to delete, then delete it.



4. You can do the same if you want to delete an episode.
5. Open VR-Learning to access the episodes, which you can also delete.
6. Once deleted, restart ViSu and open the VR-Learning tablet
7. The VR-Learning and episodes should now have been deleted

In the example below, VR-Learning 5 has been deleted, and "step 1 - rename" from episode 6 – Rename has been removed.



#### 4.3.1.8. Protecting a VR-Learning/episode

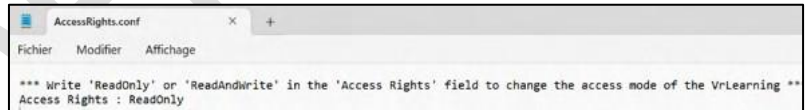
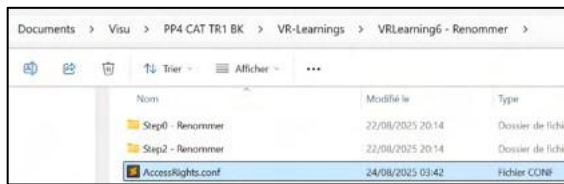
It is possible to protect a VR-Learning/episode so that it cannot be modified once published.

To find out whether a VR-Learning is protected or not, there is a visual indicator   on the tablet.



To lock a VR-Learning, do the following from the VR-Learning folder using Windows File Explorer:

1. First, access the VR-Learning folder locally. Go to your user folder
  - a. Press the button 
  - b. Click on the "User Folder" tab 
  - c. Click on the "Working Folder Location" icon. 
2. Once inside, open the "VR-Learning" folder
3. Select the VR-Learning you want to protect, then open the folder
4. In the folder, open the "AccessRights.conf" file
5. This file allows you to protect a VR-Learning program and its episodes. You have two options to choose from:
  - ReadOnly: Read-only access, protected
  - ReadAndWrite: Read access and the ability to modify. Unprotected.
6. Once the "readOnly" option has been set, restart ViSu, and the VR-Learning should be protected.



#### 4.3.1.9. Import a VR-Learning/episode

At present, it is not possible to import VR-Learning locally from an interface in ViSu.

Note: A redesign of the VR-Learning tablet is planned for S1 2026, at which point it will be possible to import from ViSu.

For the time being, to work around this lack of functionality, you can do so via Windows by copying and pasting the folder of an existing VR-Learning into your user folder and then launching ViSu.

Use cases: View, locally, the VR-Learning created by a colleague who has sent it to you.

To do this:

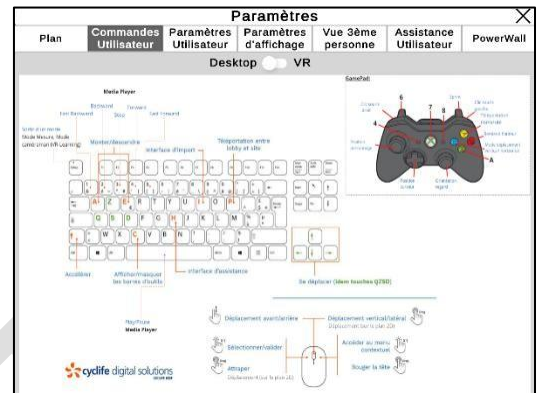
1. First, access the VR-Learning folder locally. Go to your user folder
  - a. Press the button 
  - b. Click on the "User Folder" tab 
  - c. Click on the "Working Folder Location" icon 
2. Once inside, open the "VR-Learning" folder
3. From there, copy and paste your colleague's VR-Learning folder.
4. You can do the same thing if you want to add an episode to a VR-Learning file in your user folder
5. Open VR-Learning to access the episodes, then copy and paste your colleague's episode folder.  
your colleague's episode folder.
6. Once copied, restart ViSu and open the VR-Learning tablet.
7. VR-Learning and the episodes should appear.

#### 4.3.1.10. Shortcut keys

Shortcut keys are available on VR-Learning. You will find these shortcuts in "User commands" in the "Settings" interface.

##### Media Player keys:

- Key "1": Fast rewind
- Key "2": Playback "Rewind"
- Key "3": Stop VR-Learning
- Key "4": Fast forward playback
- "5" key: Fast forward playback
- Space bar: Pause



Other shortcuts related to camera mode/tracking mode will be detailed in the dedicated section.

#### 4.3.1.11. Camera mode/Follow mode

Have you ever dreamed of playing the role of a filmmaker/film director like Steven Spielberg? With the cameraman/follow mode option, this is possible.

##### Description

When playing a VR-Learning module, you can activate this mode. As its name suggests, "camera operator" mode behaves like a camera operator and automatically follows the VR-Learning avatar in translation and rotation without you having to touch the keyboard or mouse. This is achieved with a smooth camera tracking shot.

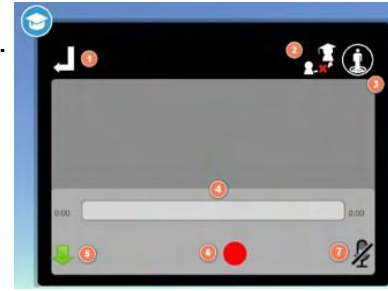
Note: This mode is only available on desktop.

Tip: This mode is very useful when you need to capture video. In manual mode (keyboard/mouse), camera movements are often jerky. Here, control is automatic, with adjustments that can be made manually.

All you need to do is launch video capture software such as OBS or similar, and your video will be of good quality. For even better quality video, and to prevent the capture software from slowing down your computer by creating latency in ViSu, you can use an external video capture card. This will give you a very professional result.

This mode is activated via the "  " option on the VR-Learning tablet.

To deactivate it, press the "  " option on the VR-Learning tablet or the "Esc" key, as activating it will hide all ViSu interfaces (including the VR-Learning tablet).



## Activating camera mode/tracking mode

When this mode is activated:

1. The entire ViSu interface is hidden, as well as the mouse cursor, in order to enable video capture.
2. The ViSu view will be automatically controlled to follow the avatar.

NB: You can use the media player shortcuts to control playback.

§.4.3.1.10 Shortcut keys

The interface will reappear at the end of the episode. There are several other ways to redisplay it:

- **Shortcut key "C"**: Allows you to show/hide the ViSu interface
- **Shortcut key "3"**: Stops the episode
- **Shortcut key "Esc"**: Allows you to exit cameraman mode



## Manual control

During "camera operator" mode, you can take control to make adjustments:

- **Camera position adjustments** (using the keyboard keys)
  - The arrow keys "forward/backward" and "Z/S" keys: Allow you move closer to/further away from the avatar
  - The "left/right" and "Q/D" arrow keys: Allow you to turn around the avatar
  - The "A/E" arrow keys: Allow you to see the avatar more or less down/up

- **Camera rotation adjustments** (using the mouse): You can take control of the ViSu view at any time to show a specific location. When you release the view, it will gradually return to the avatar.

## Options

There are options in camera mode:

- **Enable/Disable head rotation tracking** (using the "I" key to lock): You can enable/disable automatic tracking of the avatar's head movement.

Note: This sometimes allows you to avoid excessive camera movement and only follow the avatar in position. If this mode is not disabled, you will only see the avatar from behind. It therefore depends on your use case.

### 4.3.1.12. VR Learning creation process

In this section, we will look at the main steps involved in creating VR learning, from the preparation and recording phase to the publication phase.

We will only cover the main steps. For more details, Cyclife Digital Solutions offers a dedicated VR-Learning training course. If you are interested, please contact us.

To create a VR-Learning course, here is the process:

1. Learning preparation phase
  - a. The plan/script
  - b. Site preparation: Placement of elements (images, posters, videos, etc.)
2. Recording/creation of the learning program
3. Publication

Note: This is equivalent to preparing a PowerPoint presentation:

1. Preparation of the plan
2. Preparing the various slides with illustrations
3. Making the presentation



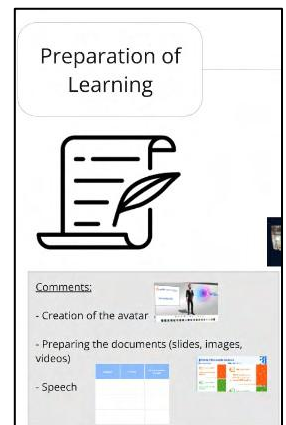
## Learning preparation phase

### *a. The plan/script*

In this phase, the content creator will prepare all the elements before creating the learning module:

- Create your personalized avatar
- Prepare the script/plan
  - The different locations of the learning on the virtual site (steps, transitions between steps)
  - The associated speeches and tools used (laser pointer, 2D plan, view a UHD photo for more details, draw in 3D, etc.)
  - Documents (images/posters/slides, videos, PDFs, etc.) used to accompany the speeches and to be placed on the site in 3D.

### *b. Preparation of the site: Placement of elements (Images, posters, videos, etc.)*



Once the script/plan has been prepared, the content creator can move on to the preparing the environment.

In fact, in the various locations where the learning will take place, they will be able to place the various illustrative elements:

- Images/posters/slides
- Videos
- PDF
- ...

These elements will be used during the presentation.



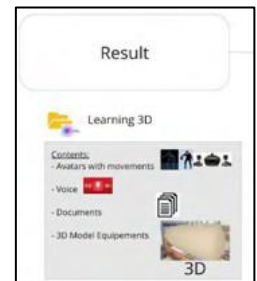
### Recording/creation phase of the learning module

We are now in the key phase: everything is ready, the learning has been prepared, the script/plan has been written, and the illustrative elements have been placed in the environment.

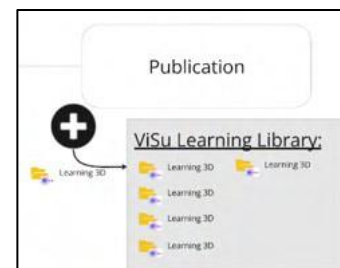
The creator of content can, now launch the recording. See §.Start of the recording

Once saved, it retrieves a Learning folder with all the elements that constituent elements.

### Publication phase



In the final phase, the content creator can rename the VR-Learning, protect it (see 4.3.1.6 Renaming a VR-Learning/episode, 4.3.1.8 Protecting a VR-Learning/episode), and then make it available.



#### 4.3.1.13. Handmade VR-Learning vs. Studio VR-Learning

We will look at the difference between "Hand-made" VR-Learning and "Studio" VR-Learning.

##### Hand-made VR-Learning

The creation process described above is that of "Hand-made" VR-Learning. In this case, you are independent in all stages of learning creation.

For "handmade" VR learning, you need a high-quality microphone, as there is no voice processing available.

Once created, VR learning can only be played back in ViSu via various devices (desktop, VR, Powerwall).



##### "Studio" VR-Learning

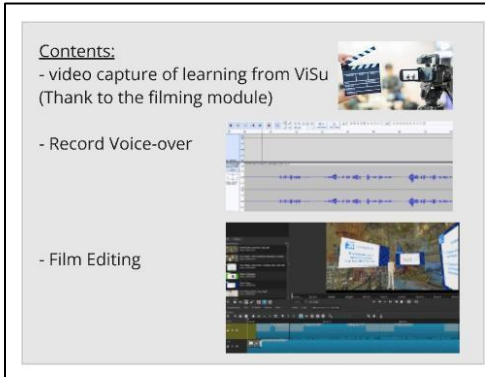


VR-Learning "Studio" is a "hand-made" VR-Learning program in which, as in film or music shoots, we apply post-processing to achieve a professional finish.

For VR-Learning "Studio," two services are provided:

1. **Voice-over:** The voice recorded during the "handmade" VR-Learning is reworked/redone to achieve high-quality audio. This is then reinserted into the VR-Learning.
2. **Production of a learning video:** A professional VR-Learning video is created using editing software. This video will include intro and outro pages, text overlays, subtitles, etc.

This provides a professional medium that can be easily distributed and viewed outside of ViSu (e.g., on a SharePoint, tablet, phone, etc.).



**Important:** There are two options for creating a "Studio" VR-Learning video:

- **If you want to do it yourself:** We offer a dedicated training course explaining the different steps involved in creating this type of learning material. Please don't hesitate to contact us to arrange this training.
- **If you would like to work with us:** We have a dedicated VR Learning "Studio" creation service. Please feel free to contact us for this service. We will support you from the creation phase of a "hand-made" learning program to the completion of the "Studio" part.

#### 4.3.1.14. VR Learning use cases

Here are a few identified use cases related to VR-Learning (there may, of course, be many ):

- Transmission of technical knowledge
- Transfer of business knowledge
- Transfer of knowledge about buildings
- Transfer of knowledge about construction site experience
- Learning to explain a call for tenders to bidders: record once and then Share the video. Avoid explaining everything each time.
- Learning to explain an intervention: integrate the VR-Learning video into a PowerPoint presentation. Visualization of the expert's avatar in the environment explaining the intervention/project. It's visual! No interpretation issues.
- ...



#### 4.3.1.15. Going further: Upcoming features

VR-learning could evolve and cover new features in 2026:

- Multi-user session recording
- Non-player character (NPC) recording: to create coactivity on a site or bots for tutorials, for example.

### 4.3.2. 4D tablet



The module 4D module play cinematic installation or dismantling equipment.

This module is currently in Beta.

This module is linked to the 4D/trajectory module in MySurvey. In MySurvey, a dedicated module allows you to create trajectories/kinematics for a selection.

For more information on this MySurvey module, please contact Cyclife Digital Solutions.

The ViSu 4D tablet will import these trajectories/kinematics for visualization.

#### 4.3.2.1. Accessibility

There are several ways to access the 4D tablet depending on the device used.

##### In VR/Powerwall:

Open the tool palette via the watch, then grab the 4D tablet with one of your hands, the 4D tablet located in the third category then the second tool from the left.

##### On Desktop:

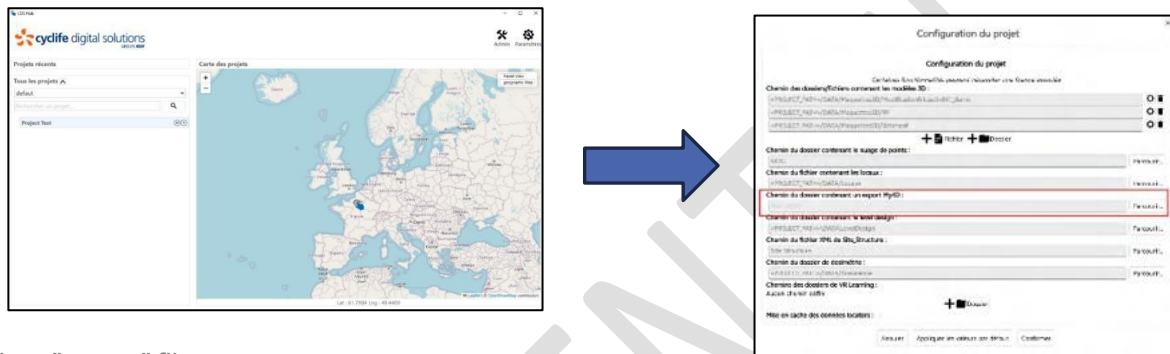
On the toolbar, click on the "4D Tablet" icon, the 7<sup>th</sup> from the left.



### 4.3.2.2. 4D Data

The 4D data read by ViSu is currently project data. This data is linked to and intrinsic to the project. Only project administrators can add data to a project. It is automatically loaded when the project is launched.

To add 4D data, ask your Cyclife Digital Platform administrator.  
Solution administrator to do so from the Cyclife HUB interface.



The file type is a ".scnvr" file.



### 4.3.2.3. Module 4D/Trajectory MySurvey

As stated above, using the 4D/Trajectory module in MySurvey, you will be able to create kinematics/trajectories on equipment.

Once created, simply export it to integrate it into the project's 4D data.

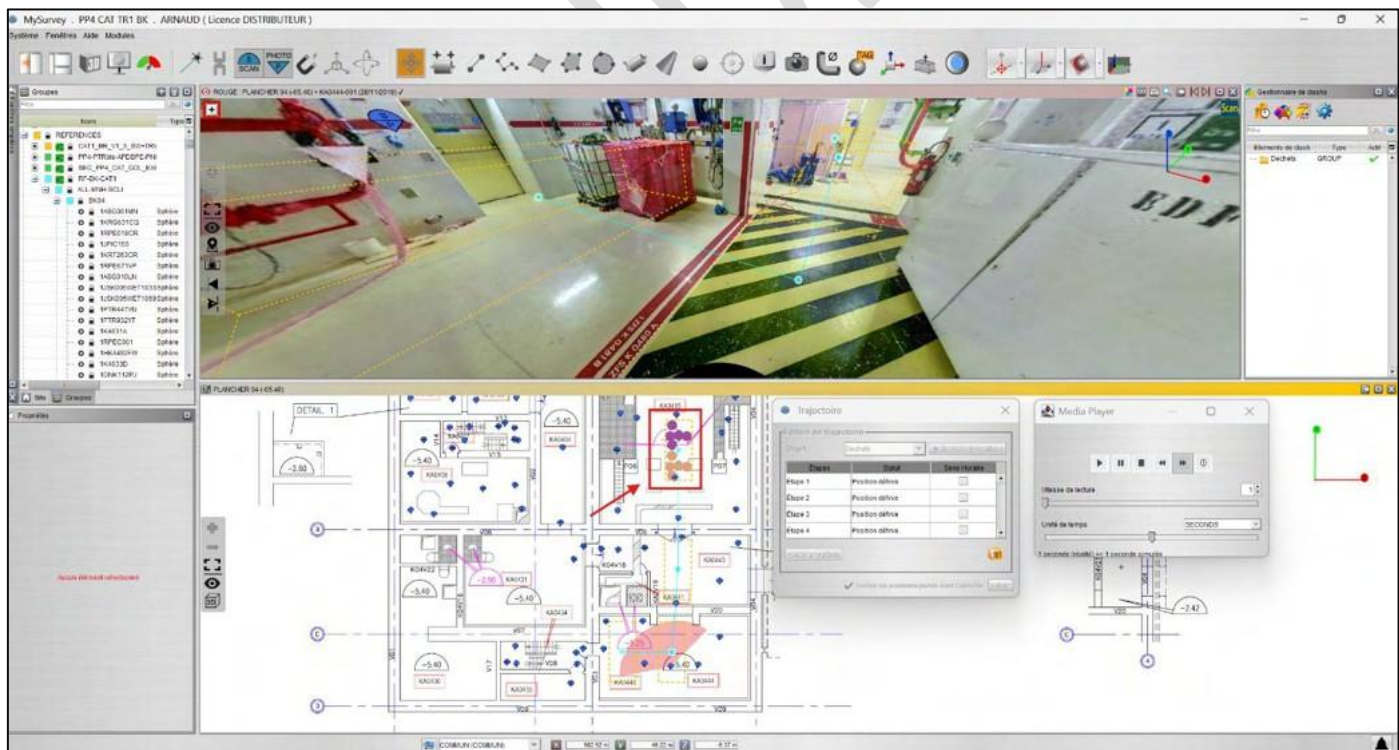
ViSu will then be able to play them.

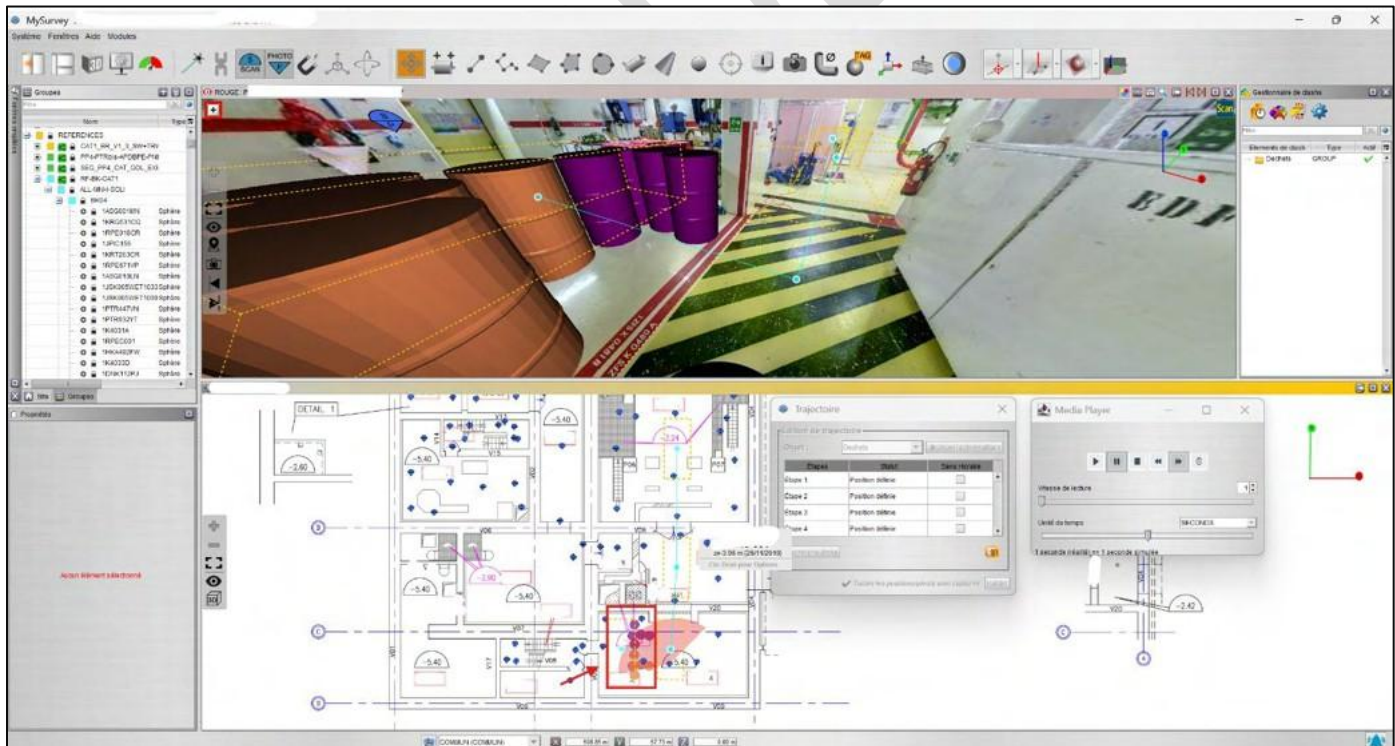
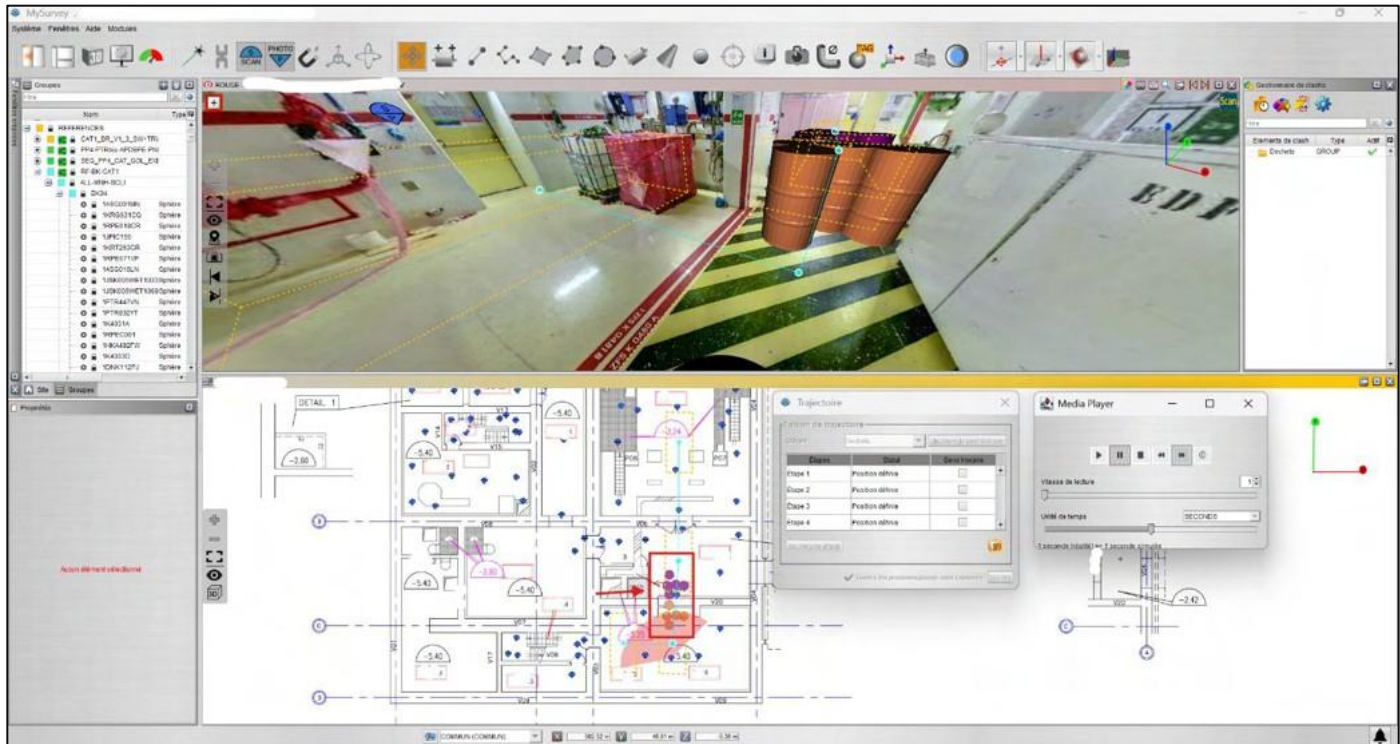
For more information on this MySurvey module, please contact Cyclife Digital Solutions.

Using this module, you can create the different stages of the kinematics by setting parameters (translations, rotations, pivots).

In the example below, the animation consists of storing waste drums in another room:

- Waste
- The trajectory and its stages displayed on the 2D plan





#### 4.3.2.4. Using the 4D ViSu tablet

To play a 4D project in ViSu, you need to use the 4D tablet:

1. Open the 4D tablet
2. Check the 4D scenarios you want to play
3. Then press "Play"
4. The 4D scenario should play.



### 4.3.3. Dosimetry tablet

The dosimetry module adds more realism with the addition of radiological data in the virtual environment.



It allows you to see in real time the dose taken during a site visit, simulate cumulative doses, and view hot spots and Alara ("As Low as Reasonably Achievable") zones.

This is the first version. It will evolve over time. For ideas on how it will evolve, see §.4.3.3.5. , see §.4.3.3.5. Going further: Upcoming features.

Let's take a closer look at this module

In the dosimetry module, there are two interfaces:

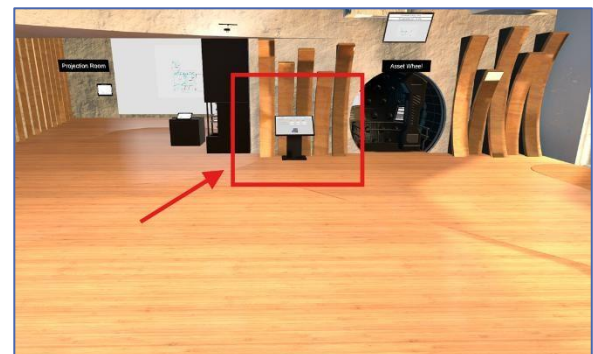
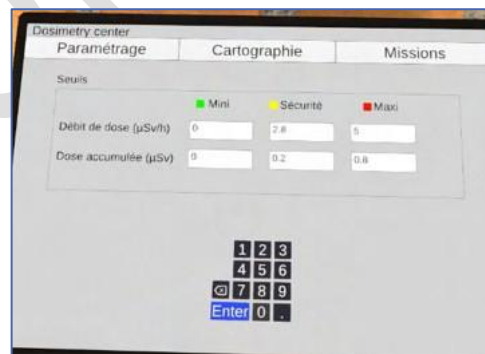
- Kiosk
- The radiometer/dosimeter

#### Kiosk

The kiosk is located in the ViSu reception lobby in the central room. It provides access to several features, which we will discuss in more detail below.

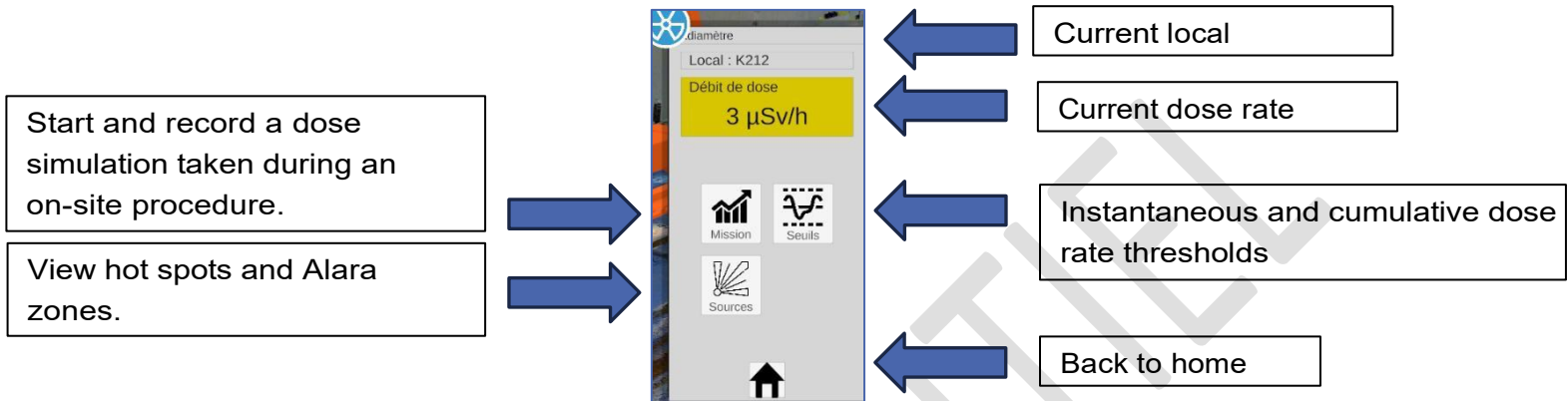
It has different tabs:

- Settings tab: Allows you to set the thresholds for the dosimeter/radiometer
- Mapping tab: Displays the average dosimetry per location (values and on the 2D map)
- Missions tab: Allows you to view the radiological missions carried out. Simulation of the accumulated dose rate during an intervention. Viewing of graphical reports.



## Radiation meter/dosimeter

The radiometer and dosimeter have been integrated into a single "dosimeter" tool. It can be accessed from the tools (see below).



### 4.3.3.1. Accessibility

#### In VR/Powerwall:

Open the tool palette, then use one of your hands to grab the dosimetry tablet in the <sup>third</sup>category, then the <sup>third</sup>tool from the left.

#### In Desktop:

On the toolbar, click on the "Dosimetry Tablet" icon, the 9th from the left.



### 4.3.3.2. Radiological data

Currently, the dosimetry module manages the following data:

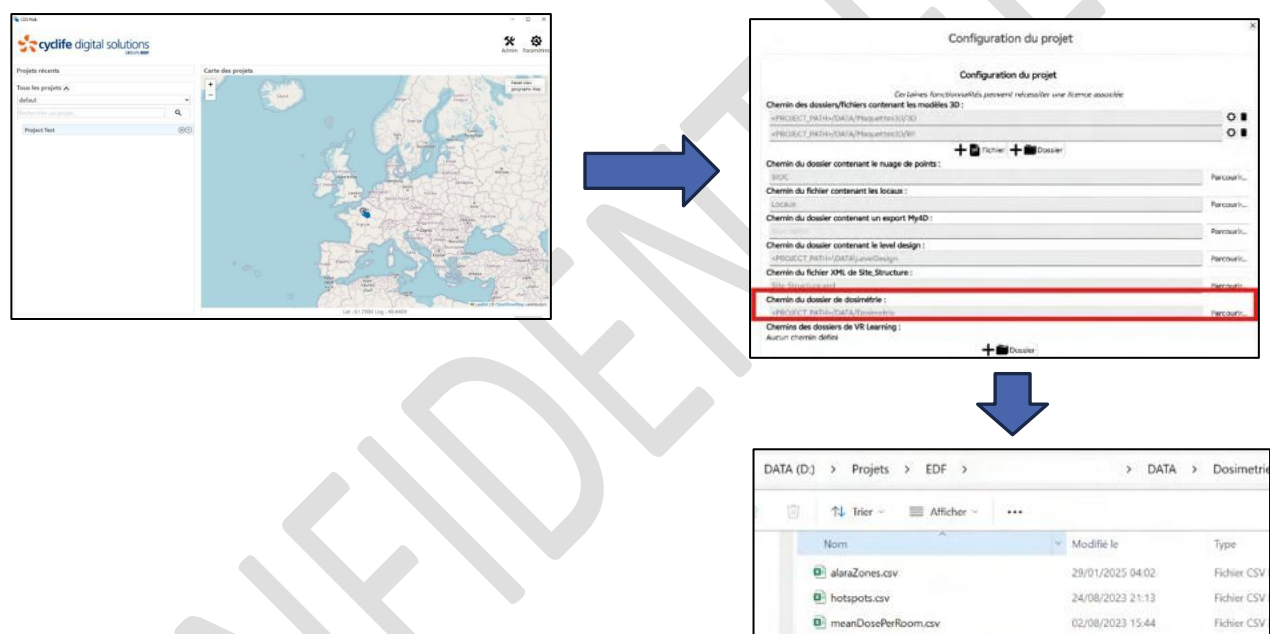
- Average dose rates per room
- Hot spots
- ALARA zones

Other data is expected to be managed in 2026 (emitted and calculated dose rates per hot spot, carddose display, etc.), see §.4.3.3.5. Going further: Upcoming features

Important: To use the dosimetry module, you must have "Rooms" data and "Dosimetry." Otherwise, the module cannot be used.

Dosimetry data is a new type of project "Data." It can be found in the project structure.

To add project dosimetry data, ask your Cyclife Digital Solution platform administrator Cyclife Digital Solution administrator to do this from the Cyclife HUB interface.



Average dose rates per room

The average dose rates per room are entered via a CSV table "meanDosePerRoom.csv" table, which is then used by ViSu.

This table defines the average dose rate for each room.

| roomName | meanDose (µSv/h) |
|----------|------------------|
| local 1  | 2                |
| local 2  | 3                |
| local 3  | 4                |
| local 4  | 5                |
| local 5  | 6                |
| local 6  | 7                |
| local 7  | 8                |
| local 8  | 9                |
| local 9  | 5                |
| local 10 | 3                |

## Hot spots

Hotspots are entered via a CSV table called "hotspots.csv," which is then used by ViSu.

This table defines the position (X, Y, Z) of the hotspots on the site.

| hotspot             | x          | y      | z          |
|---------------------|------------|--------|------------|
| particule_reservoir | 513,296021 | -7,947 | 75,3619995 |
| tuyauterie 1        | 508,58     | -4,84  | 69,21      |
| tuyauterie 2        | 505,86     | -7,7   | 64,42      |
| tuyauterie 3        | 499,24     | -6,99  | 66,02      |
| tuyauterie 4        | 499,65     | -9,55  | 73,02      |

## Alaras zones

Alaras zones ("As Low as Reasonably Achievable") are areas in which a worker will receive the lowest dose in the current room.

They are entered via a CSV table called "alarasZones.csv," which is then used by ViSu.

| Alara_Zone | x   | y  | z  |
|------------|-----|----|----|
| zone 1     | 503 | -8 | 74 |
| zone 2     | 520 | -5 | 69 |
| zone 3     | 511 | -4 | 65 |
| zone 4     | 514 | -8 | 80 |
| zone 5     | 482 | 6  | 66 |

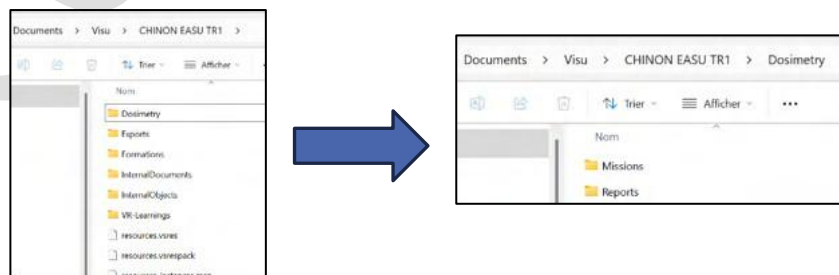
This table defines the position (X, Y, Z) of the Alaras zones on the site.

*NB: For more information on creating hot spots, the Alara zone, and threshold settings, see "Documentation – Dosimetry" and "Documentation – Volumes." Contact us at Cyclife Digital Solutions.*

### 4.3.3.3. Structure of a Dosimetry folder

When using the dosimetry module, a "Dosimetry" folder will be created in your user folder (§.3.8User folder).

This will allow you to store the missions created as well as the CSV reports generated. (§.Viewing mission reports)



#### 4.3.3.4. Available features

Several features related to dosimetry are available. We will go through them in this section:

- Setting dosimeter and radiometer thresholds
- Displaying the average dose rate value per room
- Displaying the average dose rate on a 2D map
- Viewing the average dose rate measured by the dosimeter (value, visual, audible)
- Viewing hot spots
- Display of Alaras zones
- Recording of missions

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#### 4.3.3.4.1. Setting dosimeter and radiometer thresholds

In the dosimetry module, it is possible to configure the thresholds for the dosimeter and radiometer.

There are two types of thresholds:

- Dose rate threshold ( $\mu\text{Sv/h}$ )
- Accumulated dose threshold ( $\mu\text{Sv}$ )

| Seuils                             |      |          |      |
|------------------------------------|------|----------|------|
|                                    | Mini | Sécurité | Maxi |
| Débit de dose ( $\mu\text{Sv/h}$ ) | 0    | 2        | 7    |
| Dose accumulée ( $\mu\text{Sv}$ )  | 0    | 0.2      | 0.8  |

For each threshold, you can set the minimum value, safety value, and maximum value.

These thresholds will be taken into account by the dosimeter.

The settings are configured via the Kiosk. To do this:

1. Go to the Kiosk
2. Click on "Enter"
3. You will be taken to the "Settings" tab
4. Configure the values of thresholds as desired. The changes are automatically taken into account by the dosimeter.



| Dosimetry center                   |      |              |          |
|------------------------------------|------|--------------|----------|
| Paramétrage                        |      | Cartographie | Missions |
| Seuils                             |      |              |          |
|                                    | Mini | Sécurité     | Maxi     |
| Débit de dose ( $\mu\text{Sv/h}$ ) | 0    | 2            | 7        |
| Dose accumulée ( $\mu\text{Sv}$ )  | 0    | 0.2          | 0.8      |

1 2 3

4 5 6

7 8 9

Enter 0 .

You can view the thresholds via the dosimeter:

1. Take the dosimeter
2. Then click on the "thresholds" menu.
3. You should see the values you have set

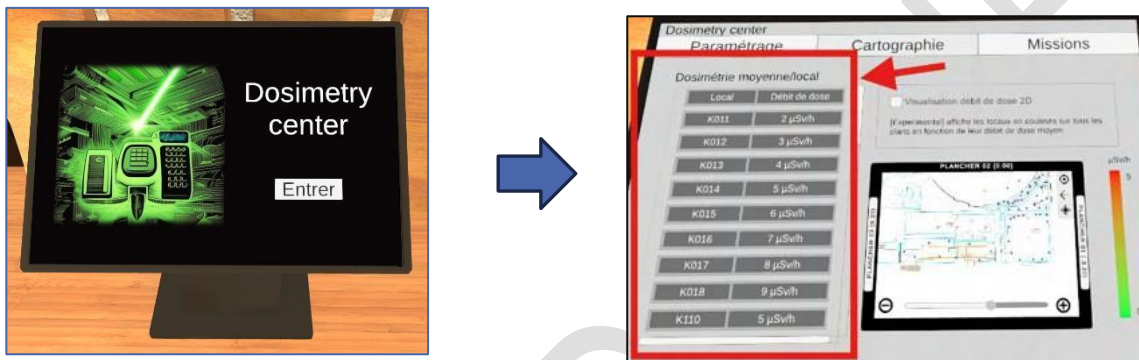


#### 4.3.3.4.2. Viewing the average dose rate value per room

You will be able to view the average dose rate value per room. This data has been entered in the CSV table in the project dosimetry data.

To view it:

1. Go to the Kiosk
2. Click on "Enter"
3. Go to the "Mapping" tab
4. You should see a list of rooms with the associated average dose rate



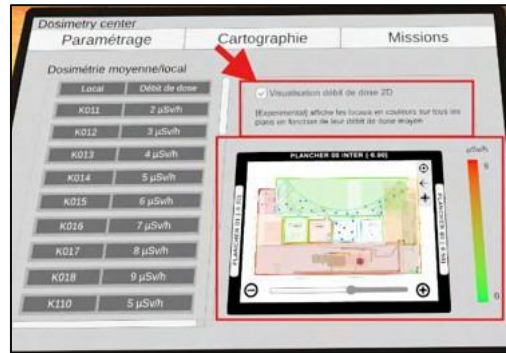
#### 4.3.3.3.3. View the average dose rate on the 2D map

You will be able to view the average dose rate per room on the 2D plan. Depending on the dose rate value, the rooms are colored on the 2D plan according to a min/max color scale:

- **Green:** minimum value
- **Red:** maximum value

To activate the display of the average dose rate on the 2D plan:

1. Go to the Kiosk
2. Click on "Enter"
3. Go to the "Mapping" tab
4. Check the "Display 2D dose rate" option
5. You should visualize the colored rooms on the plan according to their dose rate value.



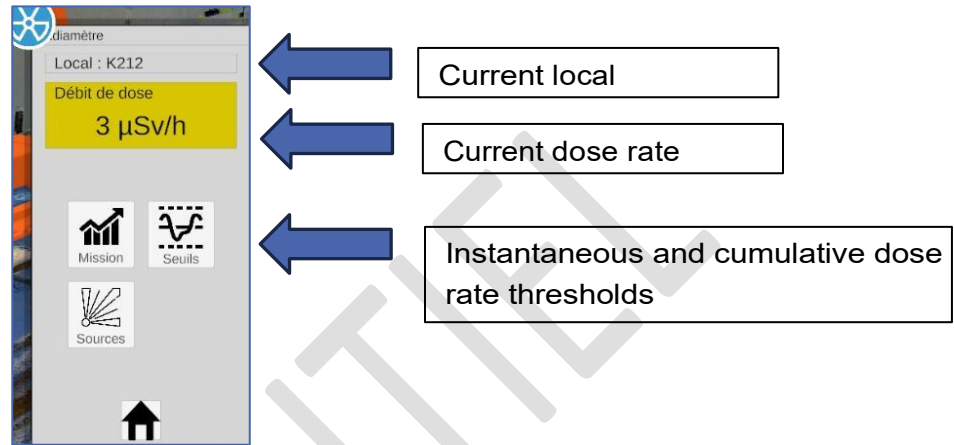
Note: When the option is enabled, rooms are color-coded on all 2D plans (on the 2D plan tool, projection room screen, meeting room screen, etc.).

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#### 4.3.3.3.4. Visualization of dose rate via the dosimeter

:

Your dosimetry thresholds have been set, so you can now go on site and check that you do not exceed them during your movements.



When you move around the site, the dosimeter will display the location you are in at the top of the screen.

Below that, the current dose rate will be displayed. This is shown in a box that is colored according to the comparison with the thresholds:

- **Green indicator:** Below the safe dose rate threshold
- **Yellow indicator:** Above the safe dose rate threshold but below the maximum threshold.
- **Red indicator:** Above the maximum dose rate threshold => Danger! You must take safety precautions.

If this threshold is exceeded, an audible indicator will sound!

Depending on the area in which you are working, the dose rate value will vary, and visual and audible indicators will alert you if you exceed the thresholds set on the Kiosk.

The 'Seuils' screen shows two rows of settings. The first row is 'Débit de dose (µSv/h)' with three input fields: '0', '2', and '7'. The second row is 'Dose accumulée (µSv)' with three input fields: '0', '0.2', and '0.8'. Above the input fields are three colored squares with labels: a green square for 'Mini', a yellow square for 'Sécurité', and a red square for 'Maxi'.

You can check the thresholds using the "Thresholds" option  on the dosimeter.



#### 4.3.3.3.5. Viewing hot spots

Your dosimeter will allow you to view the location of hot spots. A little magic never hurts, and since virtual reality makes it possible, why not take advantage of it to practice? In real life, this won't be possible, so make the most of it.

For the moment, this feature only shows the locations of hot spots. It does not simulate the dose rate emitted by the hot spots.

This at least allows me to know that a hot spot is present, that I should stay away from it during my intervention, and that I should install a radiation shield.

This will likely be considered in 2026, by connecting ViSu with the DEMplus software (see Introduction), also developed by Cyclife Digital Solutions, which includes a dose calculator.

Hot spots are represented by a yellow sphere.



To view hot spots on site:

1. Take your dosimeter
2. Click on the "Sources" option 
3. Check the "View Hotspots" box
4. The hot spots should appear and the cloud around them should turn red to highlight them.



#### 4.3.3.3.6. Viewing Alaras zones

Using your dosimeter, you can now view Alara zones. I have detected a hot spot. Where is the nearest Alara zone in the room where I can go to be safe?

Alara zones are represented by a spinning flag.



To view Alara zones:

1. Take your dosimeter
2. Click on the "Sources" option 
3. Check the "View Alara Zones" box
4. The flags for the zones should appear



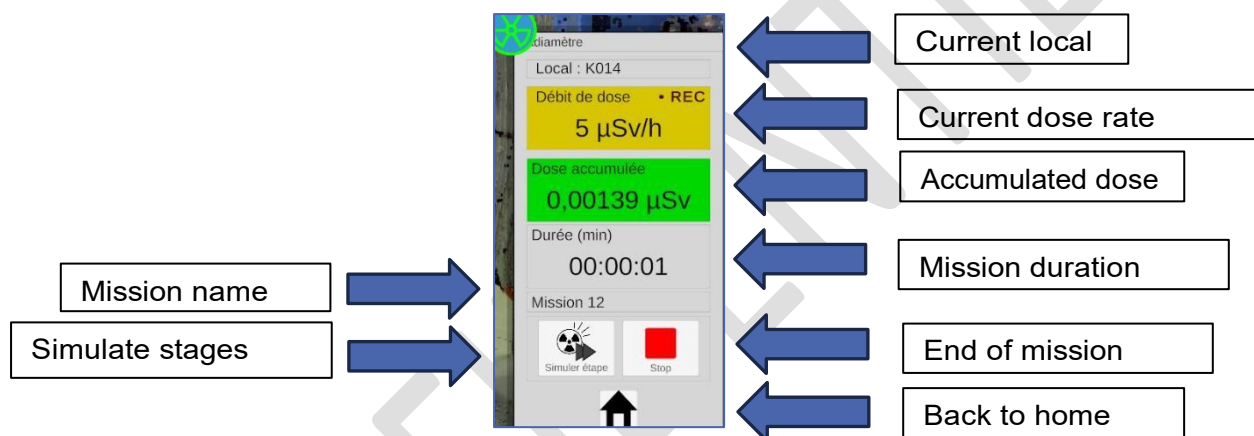
#### 4.3.3.3.7. Recording missions

We have seen that on site you can find out the instantaneous dose rate measured on site.

Now, what if you were to carry out your intervention on a real site but in ViSu for training purposes?

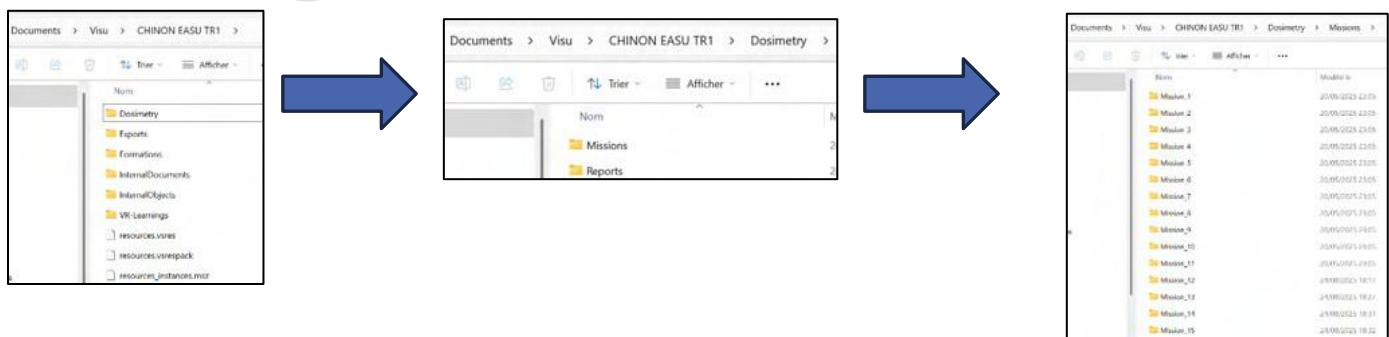
Thanks to mission recording, you will be able to find out the instantaneous dose taken over time as well as the accumulated dose over time. All of this is displayed in a final report (graphs, etc.).

During a mission, other information will appear on the dosimeter:



- Accumulated dose: allows you to know the dose accumulated during the mission/intervention
- Duration: the duration of the mission/intervention
- Simulate steps: Define intervention times for part of an activity instead of performing them in real life, which will simulate the accumulated dose (e.g., in my intervention, I have to work on a pump for 1 hour and 30 minutes, so I will create a 1 hour and 30 minute step instead of staying in ViSu for 1 hour and 30 minutes).

Missions are stored in the "Dosimetry" folder of your user folder in the "Missions" subfolder.



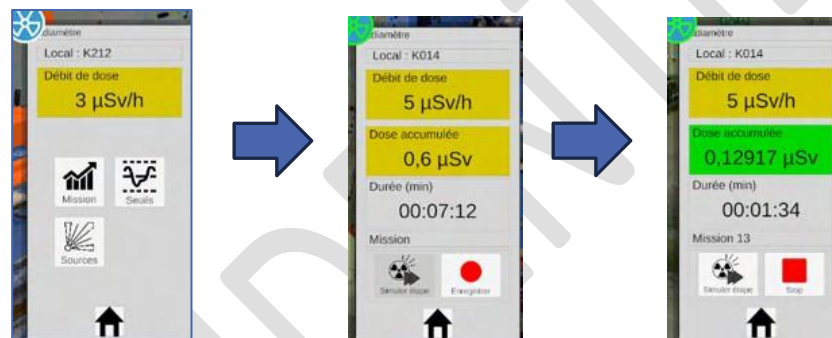
## Start recording missions

To start recording a mission:

1. Take your dosimeter
2. Click on the "Mission" option. 
3. Click on the "Save" button 
4. The mission should then begin and the duration calculation should change.

The instantaneous and accumulated dose rates are recorded over time. You can move around and perform your procedure virtually.

**Important:** During the mission, if you exceed the accumulated dose thresholds defined in the settings, visual and audible indicators should alert you.



## Simulate a step:

This allows you to define intervention times for part of an activity instead of carrying them out in real life, which will simulate the accumulated dose

Example: In my intervention, I have to work on a pump for 1 hour and 30 minutes, so I will create a 1 hour and 30 minute stage, instead of staying in ViSu for 1 hour and 30 minutes.

To simulate a stage

1. On the dosimeter, during the mission, press the "Simulate step" option. 
2. In the interface that appears, enter the duration of the step and press "Validate."
3. The duration should take into account the length of the stage, and the cumulative dose should have been updated.



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[www.cyclife-ds.com](http://www.cyclife-ds.com)

## Stopping a mission

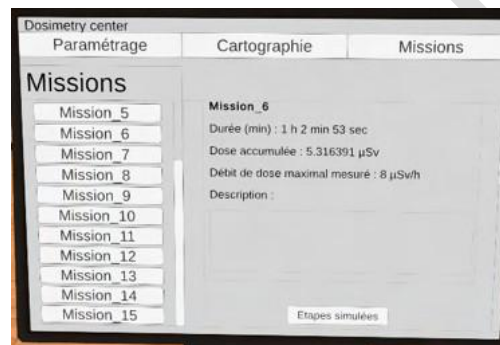
To stop a mission, press the "Stop" button.



## Viewing mission reports

Once your mission has been recorded, you can access the report by going to the Kiosk in the "Missions" tab

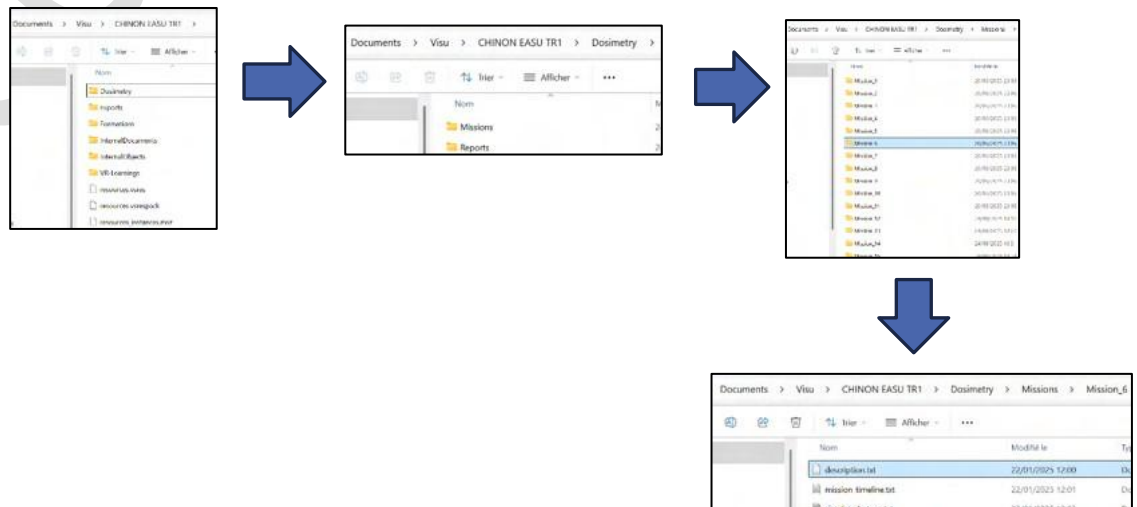
Select the mission you wish to analyze.



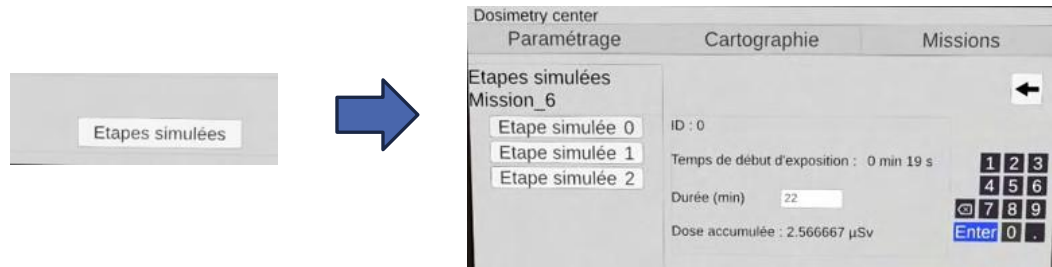
The report contains several pieces of information:

- Name of the mission
- Duration of mission
- Accumulated dose
- Maximum measured dose rate
- Description: If present in the mission file.

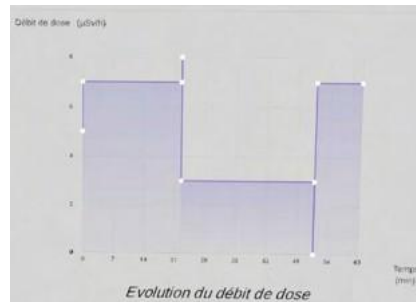
To add a description, edit the "description.txt" file for the desired mission located in the "Dosimetry" folder.



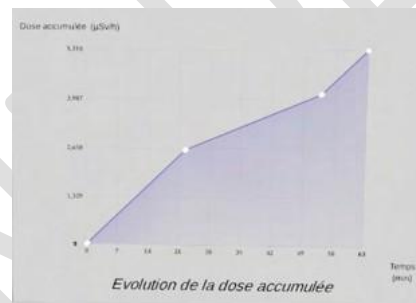
- Simulated steps: this allows you to view all the simulated steps of the mission



- Graph showing the evolution of the dose rate over time



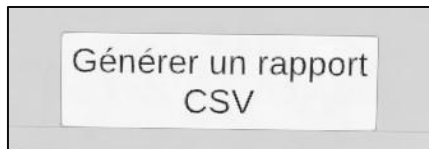
- Graph showing the evolution of the accumulated dose over time



You can also export the values to a CSV file by clicking the button at the bottom of the "Generate CSV report" interface.

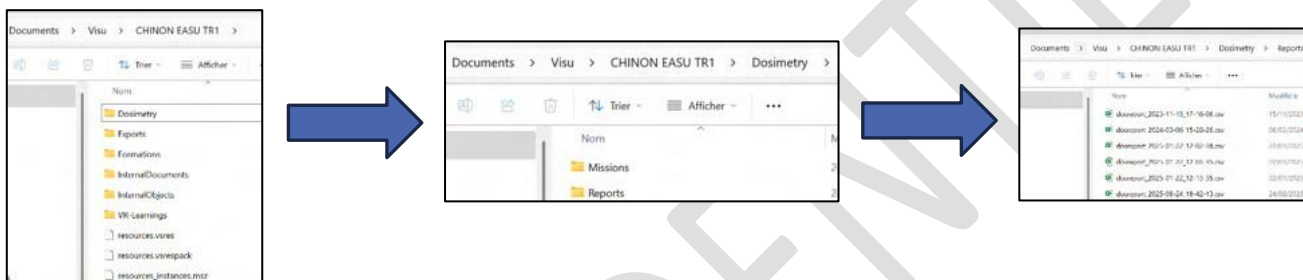
In this report, you will find the different times (not in seconds) with:

- The associated dose rate
- The accumulated dose
- Value type: Live or simulated by a step



|    | A               | B             | C          | D                |
|----|-----------------|---------------|------------|------------------|
| 1  | Exposure report |               |            |                  |
| 2  | Duration        | 3773 secondes |            |                  |
| 3  | Buildup dose    | 5,316391 µSv  |            |                  |
| 4  | Max dose rate   | 8 µSv/h       |            |                  |
| 5  |                 |               |            |                  |
| 6  | Temps           | DoseRate µSv  | DoseCumulé | ÉtatRegistrement |
| 7  | 1               | 5             | 0,00138889 | Live             |
| 8  | 2               | 5             | 0,00277778 | Live             |
| 9  | 3               | 5             | 0,00416667 | Live             |
| 10 | 4               | 5             | 0,00555556 | Live             |
| 11 | 5               | 5             | 0,00694444 | Live             |
| 12 | 6               | 7             | 0,00888889 | Live             |
| 13 | 7               | 7             | 0,01083333 | Live             |
| 14 | 8               | 7             | 0,01277778 | Live             |
| 15 | 9               | 7             | 0,01472222 | Live             |
| 16 | 10              | 7             | 0,01666667 | Live             |
| 17 | 11              | 7             | 0,01861111 | Live             |
| 18 | 12              | 7             | 0,02055556 | Live             |
| 19 | 13              | 7             | 0,0225     | Live             |
| 20 | 14              | 7             | 0,02444445 | Live             |
| 21 | 15              | 7             | 0,02638889 | Live             |
| 22 | 16              | 7             | 0,02833334 | Live             |
| 23 | 17              | 7             | 0,03027778 | Live             |
| 24 | 18              | 7             | 0,03222223 | Live             |
| 25 | 19              | 7             | 0,03416667 | Live             |
| 26 | 20              | 7             | 0,03611112 | Simulé           |
| 27 | 21              | 7             | 0,03805556 | Simulé           |
| 28 | 22              | 7             | 0,04000001 | Simulé           |
| 29 | 23              | 7             | 0,04194445 | Simulé           |
| 30 | 24              | 7             | 0,0438889  | Simulé           |
| 31 | 25              | 7             | 0,04583334 | Simulé           |

These reports are stored in the "Dosimetry" folder of your user folder in the "Missions" subfolder.



### Modify a step after saving a mission

It is possible to modify a step after the fact by accessing the mission report.

Let's go back to the previous example. During my intervention, the work on the pump did not take 1.5 hours but 2 hours. I can modify the duration of the step, and the dosimetric simulation will be recalculated accordingly.

Note: Only the times simulated by a step can be modified. It is not possible to do this for "live" times. To modify

a step:

1. Go to the Kiosk
2. Click on the "Missions" tab
3. Select the desired mission
4. Then click on the "Simulated stages" button
5. You will see a list of simulated steps. Select the one you want to modify.
6. Then enter the new duration.
7. The new accumulated dose value will appear, along with a confirmation message asking, "Do you want to recalculate the mission content?" Confirm.

8. The mission has been updated with all the information: dose rate, accumulated dose (value, graph), duration, etc.



#### 4.3.3.5. Going further: Upcoming features

As previously stated, the Dosimetry module may evolve to include new features in 2026:

- Connection with Cyclife Digital Solutions' DEMplus software (see Introduction) containing a dose calculator:
  - Dose calculation via hot spots
  - Display of dose maps
- Visualization of 3D dosimetric readings
- ....

## 4.3.4. Training

ViSu has a training module that allows a trained architect to create content independently.

Important: With the exception of the creation/editing of training scripts. Scripts used to define the phases/stages of a training scenario with the definition of successes and failures.

If the training architect wants a training script, they will need to go through Cyclife Digital Solutions so that we can create it and make it available.

For the rest of this section, let's adopt these two terms:

- Free training: Training without a scenario script. The trainer assesses the training (visual assessment). There is no ViSu verification.
- Guided training: Training with a script. In this type of training, ViSu will advance the script and change stages/phases based on the actions of the learners.

For example: If the learner has successfully completed a stage, ViSu will move them on to the next stage defined in the script.

Conversely, if they fail, ViSu will make them start again or move to a failure stage depending on what is defined in the script.

To be more precise, **the training architect** will therefore be able to create a "free training course" on their own, independently creating the environment, creating random events, and creating cameras/sounds/lights.

This module will also allow **trainers**, once the training course has been created, to supervise and assess their learners via a supervision interface, which we will describe in more detail below. Assessment is carried out solely at the trainer's discretion. There is no validation of stages by ViSu.

Let's take a closer look at this module and discover its features.

#### 4.3.4.3. Accessibility

The training module is accessible via its dedicated tablet. There are several ways to access the Training tablet depending on the device used

##### In VR/Powerwall:

Open the tool palette, then grab the training tablet in the 3rd category with one of your hands, then the 2<sup>nd</sup> tool from the right.

##### On Desktop:

On the toolbar, click on the "training" icon, the second one on the right.



You should be taken to the training tablet home page.



#### 4.3.4.4. Description and content of a training course

Before describing the content of the tablet, let's review the definition of training on ViSu.

A training course is digital educational content, created by a training architect, which will enable learners to be trained under the supervision and assessment of a trainer.

##### Roles in training:

- **Training architect:** Person who will create the training program
- **Learners:** People who will be trained on the training program
- **Trainer:** Person who will assess and supervise the learners completing the training.

NB: Sometimes, the training architect and the trainer may be the same person.

A training program consists of episodes. In fact, a training program can be divided into several sub-sections (at the discretion of the training architect).

It has different data:

- Environment/scene data
- Hazard Data

This data is carried over from the training course. This avoids duplicating data if, between two episodes of a training course, the environment and/or hazards are almost identical, with only a few adjustments (especially if the data is voluminous).

Example: "Building demolition scenario" training course

- Episode 1: Breaking the concrete slab
- Episode 2: Removing rubble after dismantling the concrete slab

⇒ The environment is the same between the two episodes of the training course: "The building." The fact that the data is carried by the training course avoids having duplicate 3D models of the building (one in each training course).

A training course/episode also has other information: Name, description, sequence, starting point, etc.), which we will discuss in more detail below.

#### 4.3.4.5. Access to the list of courses & episodes

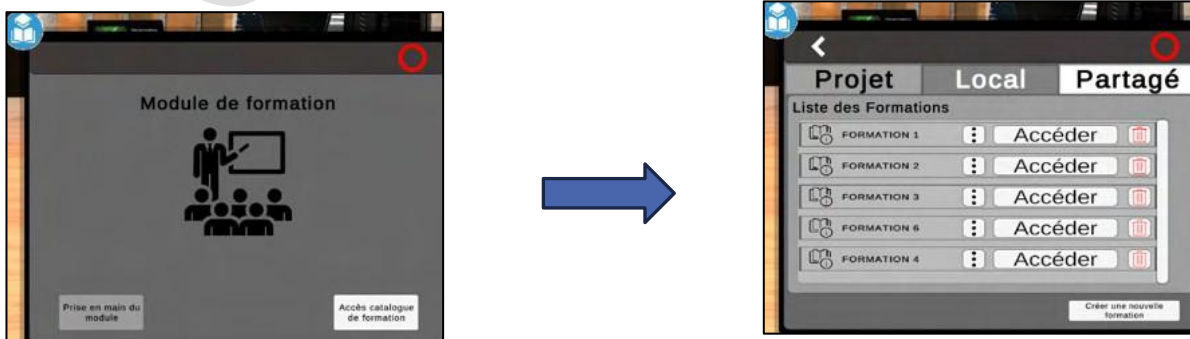
##### List of training courses:

To access the list of training courses, click on the "Access the training catalog" button.

You will be taken to the interface listing the various training courses available.

There are three tabs available: one tab per type of workspace

- Project: Training courses within a project
- Local: Local training
- Shared: Training courses in shared workspaces



## Accessing a training course:

To access a training course, click on the "Access" button next to the desired training course.

You should be taken to the training interface.

*Note: When you access a training course, the elements included in it load in the background.*



A training course consists of:

- Name
- Description
- Outline
- An environment/scene
- Uncertainties
- Episodes

These elements can be found in the training interface:

1. **Name:** allows you to define the name of the training course
2. **Description:** allows you to describe the training course
3. **Schedule:** allows you to describe the different stages of a training course
4. **Element management:** Allows you to create the environment. Detailed below.
5. **Hazard management:** Allows you to create hazards for a training course. Detailed below.
6. **Access episodes**
7. **Connect:** ViSu can connect to an external simulator, allowing you to send cinematics or control elements in ViSu. For more information, see §. 4.3.5 External API Tablet This button allows you to connect to the simulator.
8. **Edit:** Allows you to switch to edit mode by clicking on the icon. It will turn orange. 

## 9. Simulator connection status icon:

- **Red** icon: If ViSu is not connected to the simulator 
- **Green** icon: If ViSu is connected to the simulator 

### List of training episodes:

To access the list of episodes for a training course, click on the "Access episodes" button.

You should be taken to the interface listing the episodes of a training course.

This interface allows you to manage episodes: Create/edit, access, delete



### Accessing a training episode:

To access an episode of a training course, click on the "Access" button next to the desired episode.

You should arrive at the episode interface.

*Note: When you access an episode, the included elements load in the background.*

This interface is similar to that of a training course.

An episode will consist of additional elements:

- Training scenario: Script of a scenario that takes the training from a "open" training course to a "guided" training course.

If you would like to have a training scenario, contact Cyclife Digital Solutions so that we can create it and make it available to you.

- Starting point: The beginning of the episode.



#### Composition of an episode's interface:

1. **Name:** allows you to define the name of the training course
2. **Description:** allows you to describe the training course
3. **Outline:** allows you to describe the different stages of a training course
4. **Training scenario:** Script of a scenario that takes the training from "free" training course to a "guided" training course.
5. **Starting point**
6. **Element management:** Allows you to create the environment. Detailed below.
7. **Hazard management:** Allows you to create hazards for a training course. Detailed below.
8. **Connect:** ViSu can connect to an external simulator, allowing you to send cinematics or control elements in ViSu. For more information, see §. 4.3.5 External API Tablet This button allows you to connect to the simulator.
9. **Edit:** Allows you to switch to edit mode by clicking on the icon. It will turn orange. 
10. **Simulator connection status icon:**
  - **Red** icon: If ViSu is not connected to the simulator 
  - **Green** icon: If ViSu is connected to the simulator 
11. **Start episode:** The episode starts. Learners are teleported to the starting point.

#### 4.3.4.6. Creating/Editing a new training course/episode

Now let's look at how to create a new training course and a new episode

##### 4.3.4.6.3. Creating/Editing a new training course

To create a new training course:

1. From the interface displaying the list of courses, click on the button at the bottom right, "Create a new course."
2. You should be taken to the training course interface
3. You will be able to define the name, description, and sequence of events.
4. You will also be able to manage the elements of the environment and the hazards.  
These parts will be detailed in a dedicated section below §4.3.4.8 Creation/Management of the environment/scene.



To edit an existing formation:

1. From the interface displaying the list of training courses, press the "Access" button next to the desired training course.
2. You should arrive at the training interface.
3. Press the "Edit" icon at the top left
4. The icon should turn orange , and you should be able to modify the name, description, and sequence.
5. You will also be able to manage environmental elements and hazards. These parts will be detailed in a dedicated section below §4.3.4.8 Creating/Managing the environment/scene.

#### 4.3.4.6.4. Creating/Editing a New Episode

To create a new episode for a training course:

1. From the interface displaying the list of episodes in a training course, press the button at the bottom right, "Create a new episode."
2. You should be taken to the episode interface.
3. You will be able to define the name, description, and sequence.
4. Change the starting point: 
  - a. Click on the flag icon.
  - b. A flag should appear; place it where you want it. 
  - c. The starting point has been defined.
6. You will also be able to manage environmental elements and hazards. These parts will be detailed in a dedicated section below. §4.3.4.8 Creating/Managing the environment/scene.



To edit an episode:

1. From the interface displaying the list of episodes in a training course, press the "Access" button next to the desired episode
2. You should arrive at the episode interface.
3. Tap the "Edit" icon at the top left
4. It should turn orange . You should now be able to change the name, description, sequence, and starting point.
7. You will also be able to manage environmental elements and hazards. These parts will be detailed in a dedicated section below. §4.3.4.8 Creating/Managing the environment/scene.

#### 4.3.4.7. Deleting a formation/episode

To delete a formation or episode, simply:

1. In the display the training courses/episodes, click on the "Delete"  next to the desired formation or episode.
2. A pop-up will appear, confirming your choice.
3. The training course/episode should be deleted.



#### 4.3.4.8. Creating/Managing the environment/scene

We will see now how to create the environment/scene of a training session/episode.

##### 4.3.4.8.3. Element management interface:

To add elements to a training course/episode environment, you will need to use the "element management" interface.

To access it from the training/episode interface, click on the "Element Management" button.



This interface allows you to manage the elements that will be added/removed from the training/episode environment.

Currently, an environment/scene can consist of the following elements:

- **3D models** 

- **Elements called "APIs":** 

These are elements that can be controlled from an external simulator connected to ViSu. These elements can also be used in ViSu without being connected to the simulator.

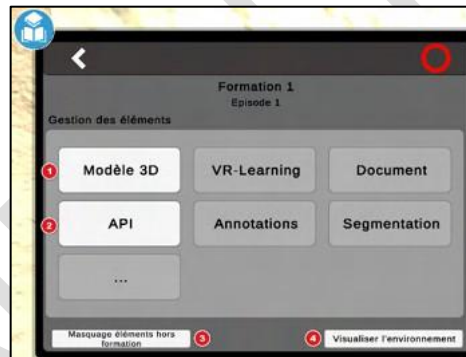
Examples of API elements: Cameras, spotlights, sound sources, IoT sensors, signals.

For more information on these elements, see §. 4.3.5 External API Tablet

NB: In S1 2026, we plan to add other types of elements to a training course (documents, segmentation, VR learning, annotations, etc.).

As a reminder, it is the training course that carries the data. Any data added directly from the training course or episode of a training course will be stored at the training course level.

This allows other episodes of a training course to access this data without having to add it again (avoiding duplication).



#### Composition of the element management interface:

1. **3D models:** Access the management of 3D models in the training environment
2. **API:** Access management of API elements in the training environment
3. **Display/hide elements outside the training course:** Allows you to highlight elements not included in the training course. This allows you to identify them and add them if they have been forgotten.
4. **Highlighting the environment:** Allows you to see the elements already present in the training course. A "green" halo highlights them.

To explain the different steps involved in managing elements in a training environment, let's take the following example.

Environment: A warehouse with elements to be added:

- Scaffolding
- Storage of waste drums
- Security cameras
- Sound spots

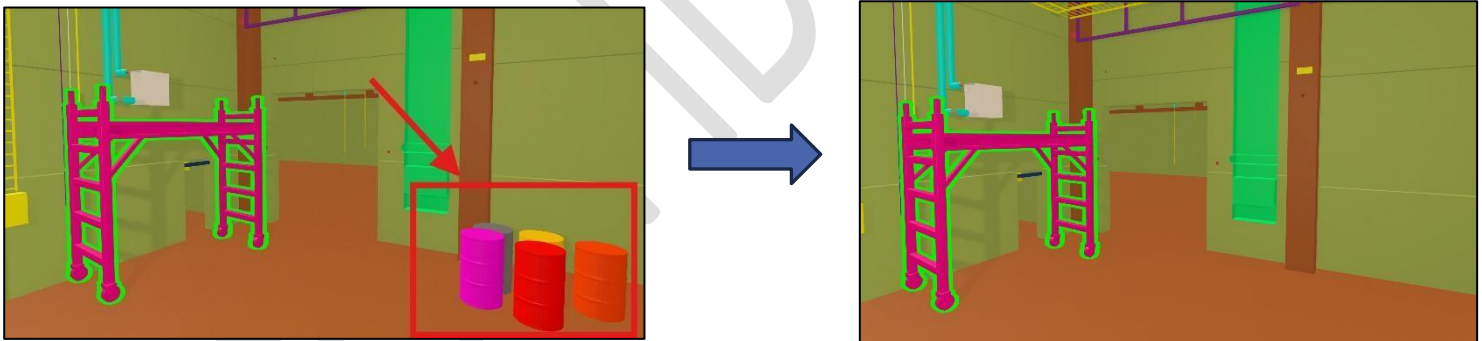
The warehouse is a "project" data item.

In the illustration on the left below, the barrels, circled in red, have not yet been added to the formation environment.

By clicking on the "Hide elements outside the training" option, they have disappeared, as shown in the illustration on the right.

However, by clicking on the "Highlight environment" option, you can see that the scaffolding has been added to the training environment.

⇒ This allows us to see visually that we forgot to add the barrels to the formation.



We will now see how to add waste drums to the formation.

Note that we have not mentioned adding the warehouse to the environment. This is because it is "Project" data!

**Important: Project data is not added to a training course!**

Project data, which is intrinsic to the project, is hard data. It is not added to the training course. It is already used by the training course as the default environment.

The training architect has chosen to create their training course based on this project with the associated environment.

When they launch the project+ to the training course, learners will be:

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- In the project environment (the factory)
- In the training environment (scaffolding+ waste barrels)

To draw a parallel with reality, as a trainer I have to conduct maintenance training on ventilation+ and the labeling of waste drums in a factory. I will bring my own equipment (scaffolding + the drums). I am not going to bring the factory with me.

#### 4.3.4.8.4. Adding elements to the training environment

So let's see how to add our elements to our training course:

- Waste drums
- Security cameras
- Spotlights

##### 4.3.4.8.4.1. Adding 3D models to the training environment

To add our waste drums, you need to:

1. Click on the "3D Models" button
2. The 3D model management interface appears. It allows you to list and manage the 3D models in a training environment.

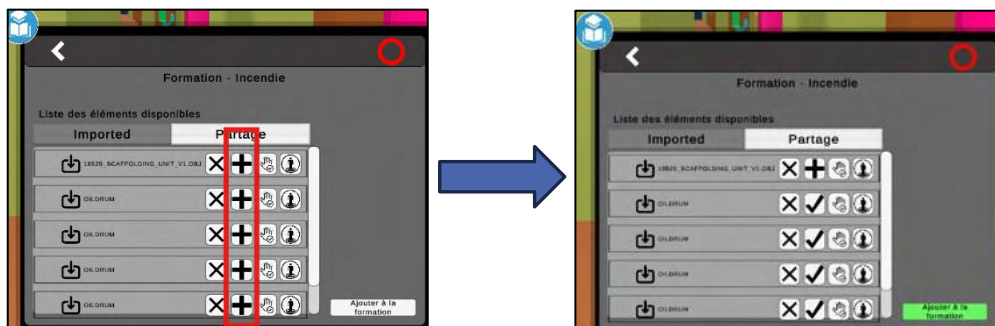
NB: Returning to our example, we can see that the scaffolding is already present in the environment



3. Click on the "Add an element to the training" button
4. You will arrive at the interface displaying the 3D models available in the current ViSu session, both local 3D models ("Imported") and shared 3D models

(as explained above, project 3D models are not available because they are already considered as environment).

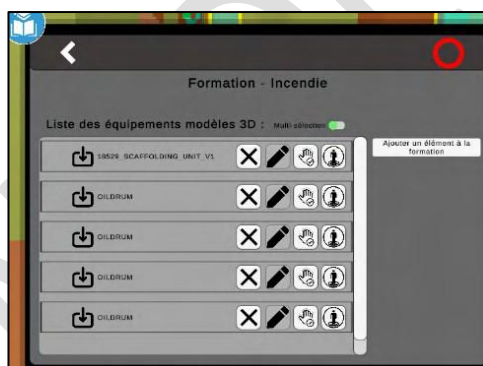
5. In this interface, to add items, press the "+" button next to the 3D models to add them to the basket.



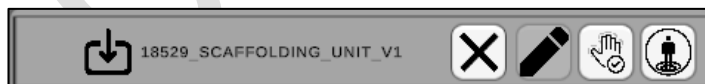
6. Once finished, press the "Add to training" button. The 3D models have been added to the training environment.

Reminder: The training course containing the data and episodes related to this training course will have access to these 3D models and can add them to their environment if desired.

We have just added our waste drums to the training environment.



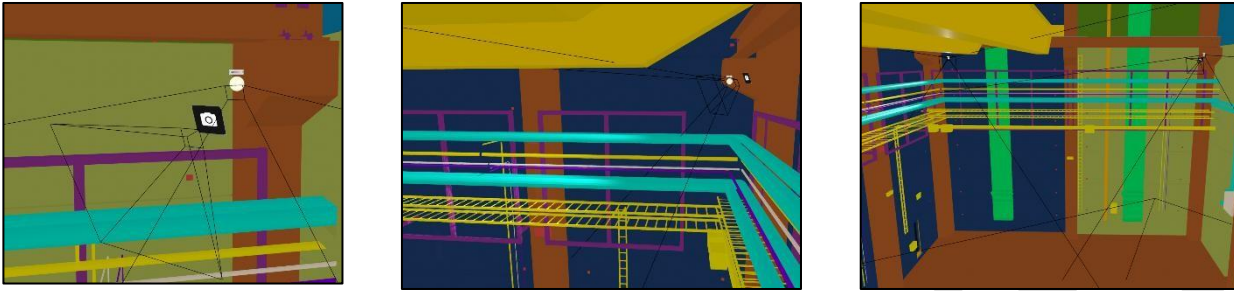
In the 3D models included in the training environment, options are available:



- Delete the 3D model from the environment 
- Edit: This option is disabled on 3D models (this editing does not apply to changes to 3D models) 
- Make Non-Interactive: This allows you to configure the elements with which The user will not be able to interact once the training/episode has started (e.g.,   make walls non-interactive to prevent learners from moving them).
- Teleportation on the 3D model 

#### 4.3.4.8.4.2. Adding "API" elements to the training environment

Our security cameras and spotlights that we need to add to the environment are "API" elements. We visualize their representation features.



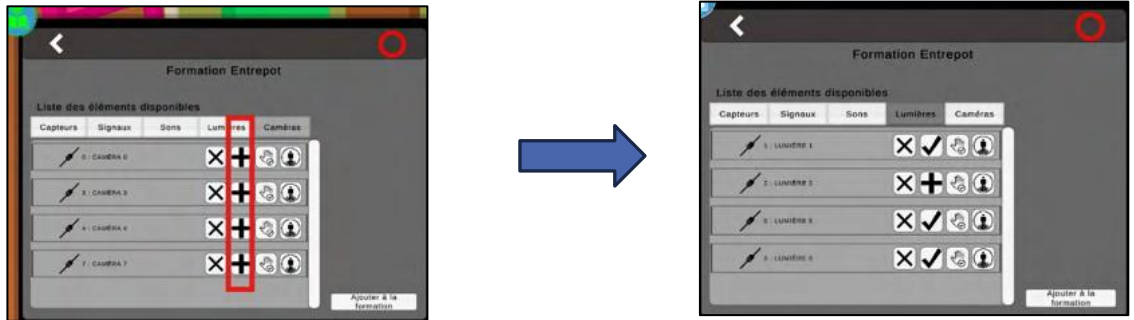
These elements were created from the "API" tablet. To see how to create them, refer to §.4.3.5 External API Tablet

To add them, you must:

1. Click on the "API" button
2. The API element management interface appears. It allows you to list and manage the API elements in a training environment.



3. Click on the "Add an element to the training course" button
4. You will be taken to the interface displaying the API elements available in the current ViSu session with tabs for each type of API data (see §. 4.3.5 External API Tablet).
5. In this interface, to add items, press the "+" button next to the API items to add to the cart.



6. Once you are done, press the "Add to training" button. The API elements have been added to the training environment.

Reminder: The training course containing the data and episodes related to this training course will have access to these API elements and can add them to their environment if desired.

⇒ We have just added our security cameras and spotlights to the environment of training.



In the API elements included in the training environment, options are available:



- Delete the API element from the environment
- Edit: Allows you to edit the parameters of an API element (for more details, see §.§. 4.3.5 Tablet External)
- Make Non-Interactive: This option is disabled on API elements.
- Teleportation on the 3 D model

#### 4.3.4.8.5. Adding an element to the environment of a training episode

To add elements to the environment, this time from a training episode, there are two ways:

1. Select available elements in the training course.
2. Add elements from the session that are not present in the training course

We will look at the process of adding items using 3D models as an example. The process is the same for all types of data (including API items).

##### Select elements available in the training course:

Reminder: in this case, the training course containing the data and the episodes linked to this training course will have access to these elements and can add them to their environment if desired.

To select items available in the training course to add to the episode, you:

1. From the "3D model management" interface of an episode, click on the "3D Models" button
2. The 3D model management interface appears. It allows you to list and manage the 3D models in an episode's environment. Here you will find all the 3D models available in the training. Initially, they are not added to the episode.



3. To add them, use the selector next to the items. 
4. If the selector turns green, the element has been added to the episode. 



As with the formation, the elements have the same options: Edit (for API elements), make non-interactive, teleportation.

Important: However, deletion is not available because the elements belong to a formation. These elements can be used by other episodes. We have therefore blocked this option for security reasons.

The interface for episode elements has a filter:

- **All:** displays all elements (included in both the episode and the course)
- **Only in the training course:** displays only the elements available in the training course but not added to the episode. This is useful for quickly viewing the remaining elements that could be added to the episode.
- **In the episode:** displays only the elements added to the episode.



Add items from the session that are not present in the training course:

If items are not already present in the training course and you want to add them.

You can, just follow the same instructions as in §.4.3.4.8.4 Adding an element to the training environment

Once the elements have been selected, they will first be added to the training course, then selected in the current episode.

NB: These elements will therefore also be available for the other episodes of this training course.

#### 4.3.4.9. Creating/Managing hazards

We will now look at how to create hazards in the training course/episode.

These hazards will be used by the trainer once the training has begun. The trainer will be able to trigger them via their supervision interface in order to assess how their learners respond to these unexpected events. There are several types of hazards:



- **Camera Random Event:** This random event applies to cameras and can change their status.
  - States:
    - ON
    - OFF
    - Flashing
- **Light hazard:** This hazard applies to spotlights and can change their status.
  - States:
    - ON
    - OFF
    - Flashing
- **Signal Random Event:** When activated, this random event triggers the sending of a signal that will be transmitted to the External API. (For more details, see §.§. 4.3.5 External API Tablet)
- **Sound hazard:** This hazard applies to sound sources and can modify their status
  - States:
    - One Shot: Play the sound once
    - Loop: Play in a loop
    - Play
    - Pause
- **Fire hazard:** This hazard triggers a fire at the defined location.

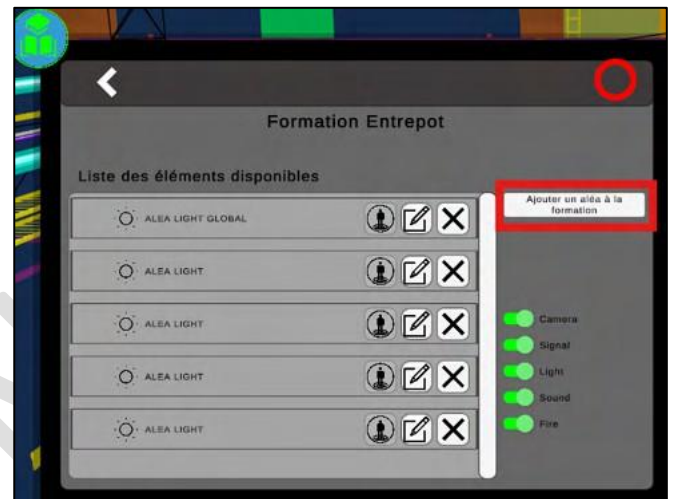
As a reminder, it is the training course that carries the data. Any data added directly from the training course or episode of a training course will be stored at the training course level.

This allows other episodes of a training course to access this data without having to add it again (avoiding duplication).

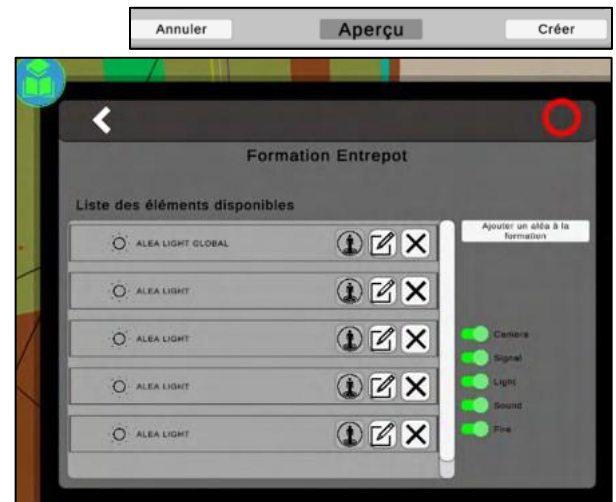
#### 4.3.4.9.3. Adding a hazard to a training course

To add hazards to a training course, you must:

1. Click on the "Hazard Management" button in the training interface
2. The hazard management interface appears. It allows you to list and manage the hazards of the training course.



3. Click on the "Add a hazard to the training course" button
4. You will be taken to the hazard creation/editing interface. This interface allows you to create the different types of hazards (see the detail for each type of hazard below §4.3.4.9.5 Detailed creation of different types of hazards).
5. For each hazard, a preview can be generated to preview the result.
6. Once satisfied, press the "create" button



The hazards will be added to the hazard management interface.

Options are available for hazards:

- Edit: Only available on a training course.
- Delete: Only available on a training course

The following filters are available in this interface:

- Display/Hide camera hazards
- Display/Hide signal hazards
- Display/Hide light hazards
- Display/Hide sound hazards
- Display/Hide fire hazards

#### 4.3.4.9.4. Adding a hazard to an episode

Reminder: The training course containing the data and episodes related to this training course will have access to these elements and can add them to their environment if desired.

To add a hazard to an episode, you must go through the "Hazard Management" interface of an episode.



Adding a hazard to an episode follows the same process as adding an element to an episode's environment.

A hazard can be created:

- Either by selecting it from the hazard list for the formation
- Or by creating it: The hazard will then be added to the training course and automatically selected for the current episode.

For more details, follow the process in §.4.3.4.8.5 Adding an element to the environment of a training episode and apply it to hazards.

#### 4.3.4.9.5. Detailed creation of different types of hazards

##### **Creation of camera/light/sound hazards:**

A camera/light/sound is defined by:

- Name of hazard
- Description

- Camera/Lighting/Audio: Element to which it is applied.

NB: For the light hazard, it is possible to associate it with the global light.

- Status ON: A state when activated (choice from among the API element states)
- Status OFF: A state when deactivated (choice from among the API element states)

Example of hazard:

- Camera failure: When the hazard is activated, the camera stops working.
- Light fault: When the hazard is activated, the light starts to flicker.
- Sound fault: When the hazard is activated, a shrill noise is triggered.

### **Creating signal hazards:**

To create and add signal hazards, signals must have been defined (for more details, see §.§. 4.3.5 External API Tablet).

A signal hazard is defined by:

- Name of the hazard
- Description
- Status ON: A signal sent to the simulator upon activation. For more details, see §.§. 4.3.5 External API Tablet)
- OFF status: A signal sent to the simulator upon deactivation. For more details, see §.§. 4.3.5 External API Tablet)

Example of hazard: Triggering the hazard sends a power failure signal to the external simulator. This puts the external simulator into a degraded state. When the hazard is deactivated, a signal repairs the power failure. The external simulator returns to its nominal state.

### **Creating fire hazards:**

A fire hazard is defined by:

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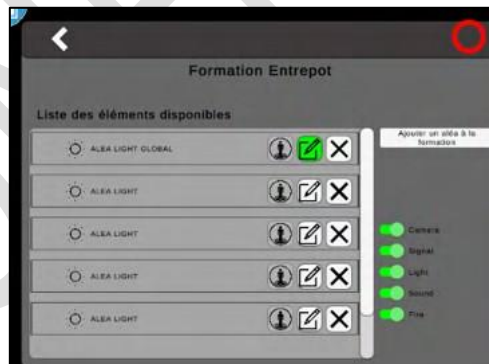
- Hazard name
- Description
- A position: to define the position
  1. Press the button. 
  2. Place the flag button that appears where the fire should be
  3. Then confirm by clicking on the green check mark 
- Status ON: When activated, the fire hazard will be triggered.



Example of a hazard: When the hazard is triggered, a fire will start at the defined location.

#### 4.3.4.9.6. Editing hazards in a training session/episode

Hazards can only be edited in the formation interface by pressing the "Edit" button .



*Editing is not available for episodes because hazards belong to the training course. Editing a hazard from an episode would modify the hazard at the training course level, which could potentially affect other episodes.*

#### 4.3.4.10. Starting/Stopping an episode of a training course

##### 4.3.4.10.3. Starting an episode of a training course

There are several ways to launch a training episode:

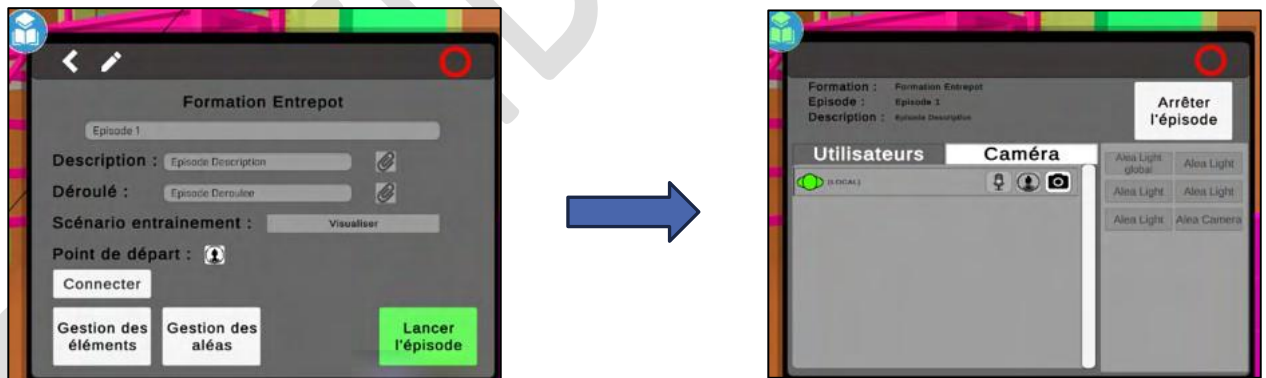
- **Via the training tablet:** The training architect wants to test their training.
- **Via the trainer interface:** The trainer wants to evaluate their learner(s) through their supervision interface.

##### 4.3.4.10.3.1. Launching via the training tablet

From the training tablet, in VR/Powerwall/Desktop, the training architect can test their training and check that they have thought of everything.

To start an episode from the tablet:

1. Select the desired episode
2. Then press the "Start episode" button
3. You will be taken to the training supervision interface, which we will look at in more detail below.



Below, we will look at the details of launching an episode and the supervision interface.

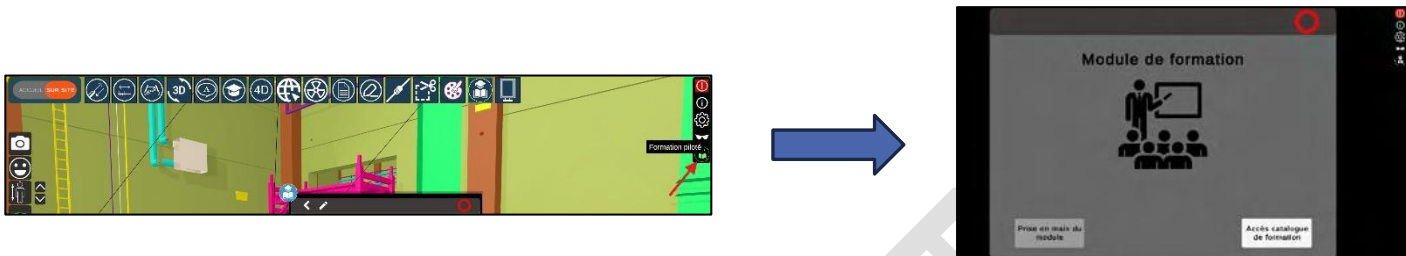
##### 4.3.4.10.3.2. Launching via the trainer interface

A "trainer" interface is available to evaluate learners.

This is a 100% desktop interface, equivalent to the settings interface.

This interface allows the trainer to evaluate trainees in all training delivery configurations, whether face-to-face, remote, or hybrid (for more details, see §.4.3.4.11 Training delivery - Remote and Face-to-face).

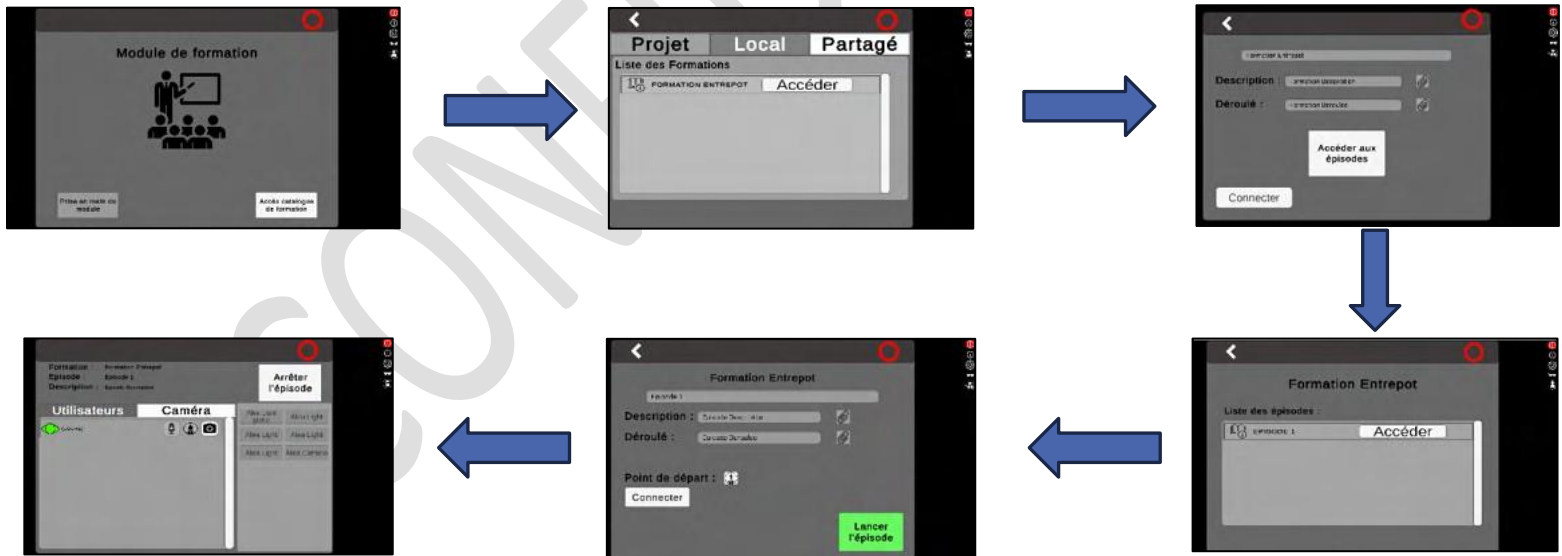
To access it, press the "Trainer Interface" button in the vertical system bar on the right. The button allows you to show/hide the interface.



The Trainer interface is a simplified version of the training tablet. It corresponds to the read-only training tablet (no management of items/contingencies, no editing).

It allows the trainer to:

1. Select/change training episodes
2. Start a training episode
3. Access the supervision interface



Below, we will look at the details of launching an episode and the supervision interface.

#### 4.3.4.10.3.3. Steps for launching an episode

Let's see what happens when an episode is launched. To illustrate this, we will use the example of an "Escape Game" puzzle room. In this analogy, the architect and trainer at ViSu will be represented by the game master on the "Escape Game" side.

Let's look at the different stages:

1. Before/preparation
2. Launch
3. During
4. After the end of the game/episode

##### **Before/preparation episode/game**

###### Example: "Escape Room":

- A game room is chosen. It is prepared and tidied up to be put in its starting configuration. Some elements are defined as fixed (walls, tables, ...), others as removable.
- Contingencies are defined by the game master. They may be launched during the session. [ViSu Training Episode \(episode selection: loading elements\):](#)
- An episode is chosen. It is set up in its starting configuration (environment defined by the training architect). As with the "escape game" room, the training architect has defined whether the elements are fixed or removable.
- Random events are defined by the architect. They may be triggered during the session.



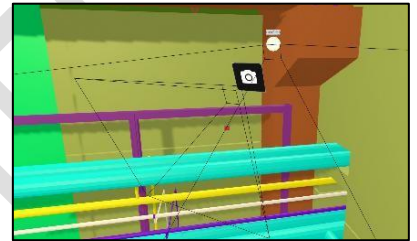
## Launching an episode/part

### Example: "Escape Room":

- Participants are placed at the starting point.

### ViSu Training Episode (Press the "Start episode" button):

- Learners are placed at the starting point, defined by the training architect.
- The lines/icons representing API elements (cameras, lights, fire, sound spots, etc.) are hidden.



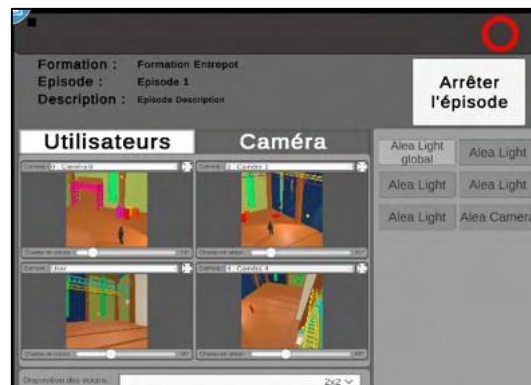
## During episode/game

### Example: "Escape Room Game":

- Participants can play the escape game
- Any items that have been moved will be returned to their original position at the end of the game.
- Participants can talk to each other and to the game master
- The game master can trigger random events via an interface.
- The game master can view the participants via camera feeds. [ViSu](#)

### Training Episode:

- Learners can complete the training episode
- Fixed elements ("non-interactive") cannot be moved.
- Any changes/modifications will not be saved. The elements that have been changed will be restored to their original configuration at the end of the episode.
- Learners can talk to each other and to the trainer.
- The trainer can trigger random events via their supervision interface
- The trainer can view the learners via camera feeds.



## After/end of episode/part

### Example: "Escape Room" (end of the game):

- Participants leave the room
- The manipulated elements are returned to their original configuration for the next game.

### ViSu Training Episode (Press "Stop episode"):

- The manipulated elements are returned to their initial configuration.
- The hazards used during the episode are deactivated
- The lines/icons representing API elements (cameras, lights, fire, spotlights sound effects, etc.) are redisplayed.
- The trainer can change episodes if they wish.

#### **4.3.4.10.3.4. Description of the supervision interface**

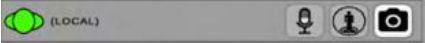
The supervision interface allows a trainer to:

- Access information about the selected episode
- View the list of learners
- Access camera feeds
- Trigger random events
- Stop the current episode



## View the list of learners

By clicking on the "users" tab, you will have access to the list of learners in the training course.

Options are available for each user: 

- Mute: You can mute a user's microphone by clicking on it. 
- Teleport to a user 
- Display the camera feed from a user's view 

## Access camera feeds

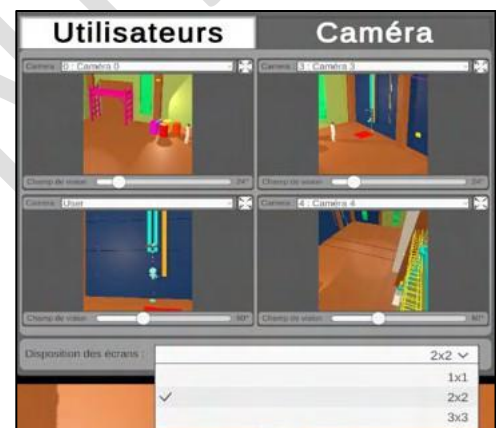
By clicking on the "camera" tab, you will have access to the list of camera feeds.

You will be able to display the feeds from the cameras available in the episode:

- Cameras installed by the training architect
- Views from different participants.

This interface allows you to choose:

- The number of screens displayed (1/4/9)
- Focus on a screen
- Changing a camera's field of view
- Selecting the camera feed on each screen



This interface is identical to the interface on the "screen" tablet. When launching a training episode, the screen tablet has access to the camera feeds available in the episode.

For more information on the screen tablet and the options on the screens, see §.4.3.6 Screen tablet

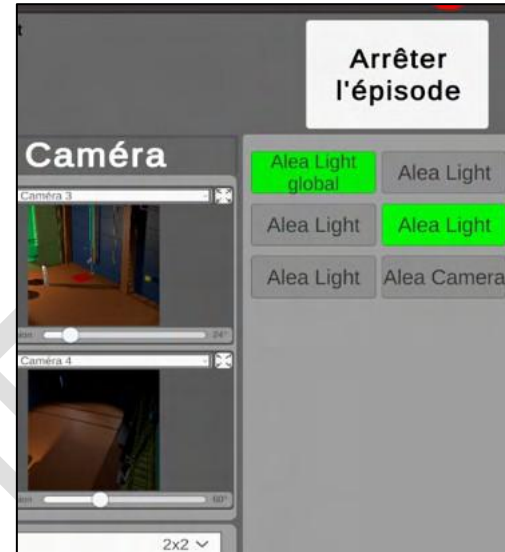
## Triggering unexpected events

To challenge and assess learners' behavior during unexpected events, the trainer can trigger various hazards (camera hazards, light hazards, sound hazards, signal hazards, fire hazards) that have been defined by the training architect.

This is thanks to the hazard activation interface on the right.

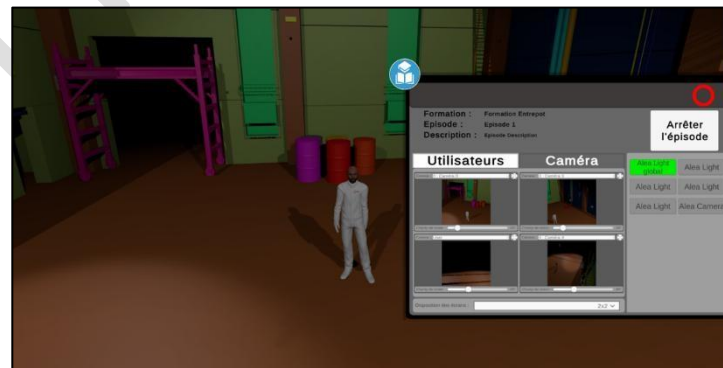
On hover: Display of the hazard description (if available)

When clicked: Activation/deactivation of the hazard (gray: deactivated, green: activated)



Example:

- Triggering of general power failure hazard: Only the emergency lighting installed by the architect are available



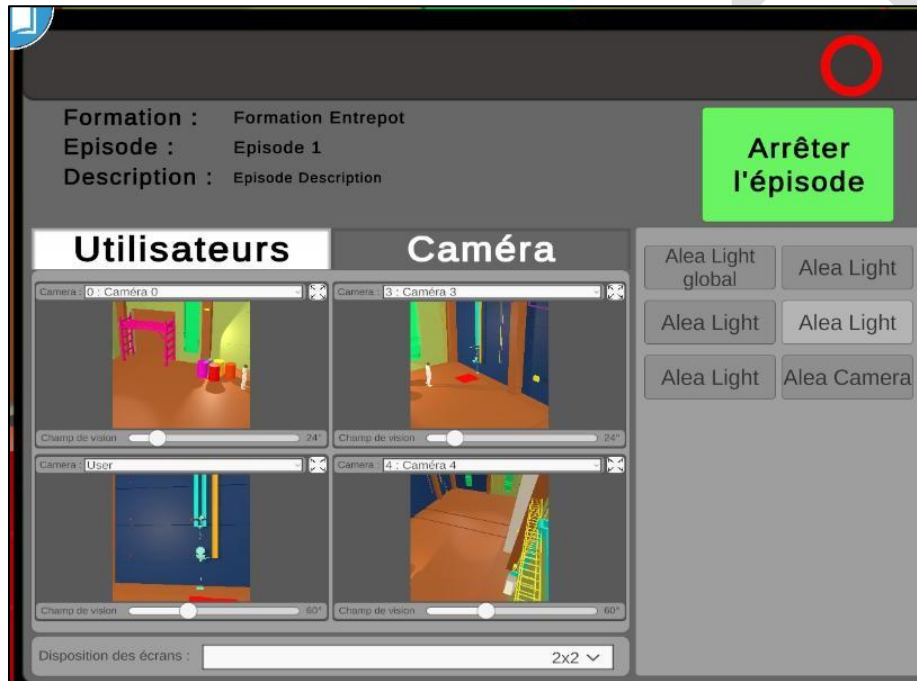
- Triggering a fire hazard



#### 4.3.4.10.4. Stopping a training episode

To stop an episode, simply press the "Stop Episode" button on the monitoring interface.

- The episode will stop.
- The elements of the environment and the hazards are returned to their original configuration.



#### 4.3.4.11. Delivery of training courses - Distance and Presence

| Configurations | Faisabilité                        |                                                                                                      |
|----------------|------------------------------------|------------------------------------------------------------------------------------------------------|
| Config 1       | 100% présentiel                    | L'instructeur et les apprenants sont physiquement au même endroit.                                   |
| Config 2       | 100% distanciel                    | Instructeur et apprenants sont tous à des endroits différents.                                       |
| Config 3       | Instructeur à distance             | Les apprenants sont au même endroit, l'instructeur est ailleurs.                                     |
| Config 4       | Distanciel et présentiel           | Pour une même session de formation, certaines personnes sont à distance, les autres au même endroit. |
| Config 5       | Distanciel, présentiel et variable | Pour une même session de formation, la configuration peut changer selon les jours.                   |

The application allows training to be carried out in the five configurations above.

Regardless of where the trainer and learners are located, they can start a multi-user training session by connecting to their respective workstations (VR, Desktop, or Powerwall).

The trainer will then be able to assess one or more learners remotely, in person, or in a hybrid manner.

The trainer will be able to supervise from:

- The training desktop interface on a learner's computer
- Alone on their computer by joining a multi-user session

For more information, see §.4.3.4.14 Multi-user training

#### 4.3.4.12. Sharing a training course

A training course can be added to a shared folder. Once added to a shared folder, subscribers will be able to collaborate on this training course in either "Offline" or "Online" sharing mode. They will be able to create it together.

For more information on sharing, see §.4.6 Sharing:

- Adding a training course to a shared folder
- Offline and online sharing
- Protecting access to a folder (concept of "host," read-only)
- Updating a share
- ...

#### 4.3.4.13. Connecting to an external simulator

From the training tablet, it is possible to connect to the external simulator. For more information, see §.4.3.5.5The external simulator and §.Connection from the training tablet

#### 4.3.4.14. Multi-user training

Training courses can be viewed by multiple users. For more information, see §.4.5.2.3.3.4Live shared training courses

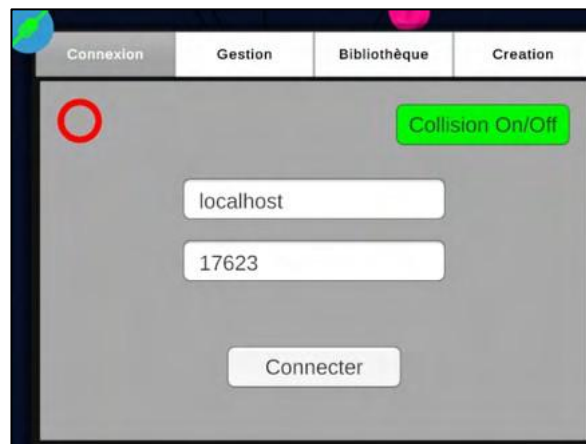
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### 4.3.5. External API tablet

The external API interface allows you to create interactive/controllable elements via external simulators. We could draw an analogy between these elements and home automation objects.

These elements do not need to be connected to the simulator. They can be used solely within ViSu.

This tablet allows you to manage interactive API elements and connect to an external simulator.



The API tablet has four tabs:

- Connection tab: Allows you to connect to the external simulator
- Management tab: Lists all interactive API elements.
- Library tab: Allows you to view the 3D API models that can be created from the external simulator
- Creation tab: Allows you to create interactive API elements

#### 4.3.5.3. Accessibility

##### In VR/Powerwall:

Open the tool palette, then use one of your hands to grab the API tablet in the <sup>third</sup>category and then the <sup>first</sup>tool on the right.

##### On Desktop:

On the toolbar, click on the "API Tablet" icon, the 5th from the right.



#### 4.3.5.4. Interactive API elements

Various interactive API elements can be created from ViSu. They can also be controlled via an external simulator, if it is connected to ViSu.

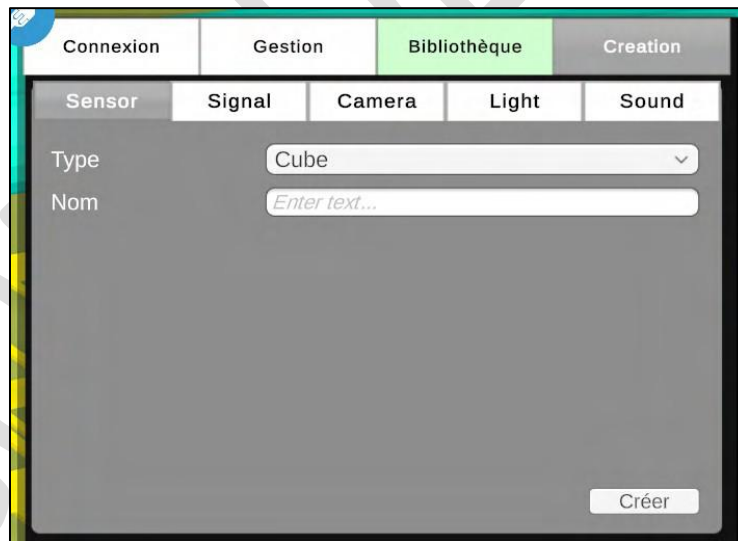
Other additional elements can be created and controlled by the simulator, but we will discuss these in [section 4.3.5.5 External simulator](#).

Each interactive API element has a unique identifier. This identifier allows the simulator to control it.

##### **Various interactive API elements:**

- Sensors:
- Signals
- Cameras
- Lights
- Sound spots

These are created from the "creation" tab on the tablet. There is a dedicated sub-tab for creating each type of element.



##### 4.3.5.4.3. Sensors

This API element is an IoT sensor that allows real-time retrieval of values from actual sensors and displays them in ViSu. This makes it even closer to reality.

The sensor can be created from ViSu but is not very useful if used alone in the application. Its main advantage is that it can be connected to an external simulator

transmitting real values in real time. We will look at this connection in §.

#### 4.3.5.5 The external simulator.

### **Description**

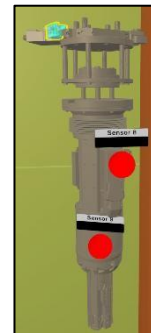
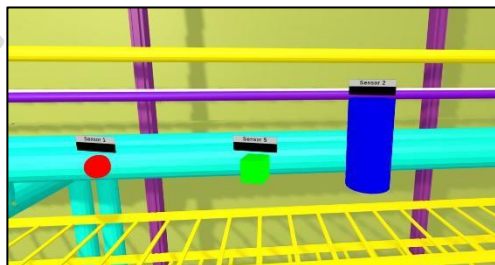
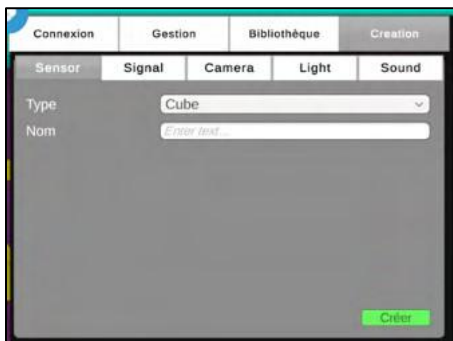
A sensor consists of:

- Name
- Type: Several representations are available
  - Green cube
  - Blue cylinder
  - Red sphere
- A value: This value can be updated in real time by the external simulator.

### **Creation**

To create a sensor:

1. Select the "Sensor" sub-tab from the creation tab
2. Choose the sensor type
3. Choose a name (if you don't enter one, a default name will be assigned)
4. Press the "create" button at the bottom right.
5. The sensor is created and appears in front of you. It is represented by the chosen shape, and its name is displayed above it. Below the name, a black thumbnail is currently empty; this is where the value will be displayed.
6. Once created, you can move it to position it where you want.



### **Use**

### **Modify settings**

To modify the settings of a sensor:

1. In the API tablet management tab, click on the "Edit" button for the desired sensor. 
2. The settings interface will appear. Make the desired changes and press "Save."
3. The settings will then be applied



### Use cases

IoT sensors can be used:

- At the equipment level: Retrieval of values from hydraulic sensors, pressure sensors on a clamp, etc.
- At the building level: Retrieving the pressure value of a valve,

#### 4.3.5.4.4. Signal Button

This API element is a signal button that sends a signal to the external simulator. The simulator processes the signal it receives and can send a message back to ViSu.

For example, the button sends a "Handling bridge animation" signal, and the simulator sends messages in real time to animate the equipment.

#### **Description**

A signal consists of:

- Name: By default, if no name is entered, the type label will be used.
- Type: type of signal to be sent. It is defined by a label
- A description: describing the signal

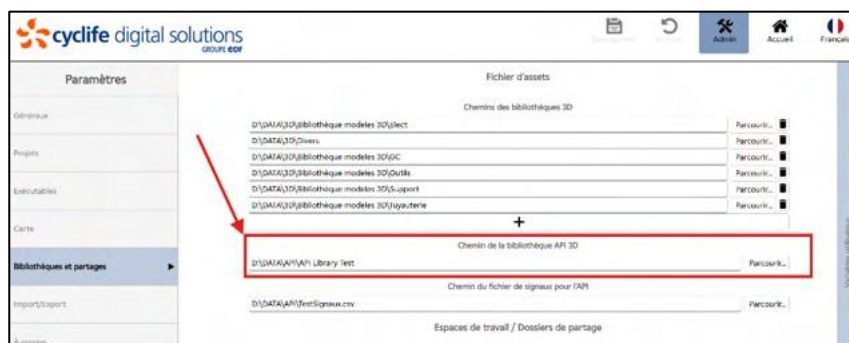
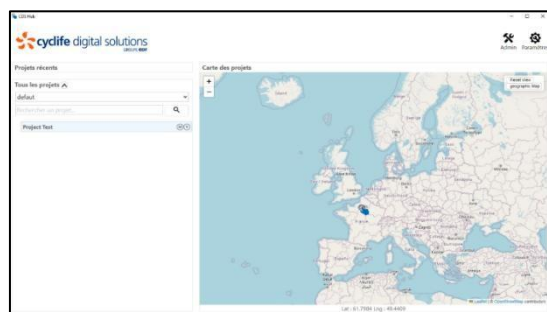
**Important:** A signal button cannot be created if the signals have not been created beforehand.

Signals are defined using a CSV table consisting of three columns (no specific file name required, only the columns are important):

- Name: label that will appear in the type
- ID: Identifier that will be sent by the signal and interpreted by the simulator
- Description: Description of the signal.

| Nom                      | Id | Description  |
|--------------------------|----|--------------|
| Animation pont roulant   | 1  | Description1 |
| Animation sortie de GV   | 2  | Description2 |
| Animation 1              | 3  | Test1        |
| Animation 2              | 4  | Test2        |
| Panne electricité        | 5  |              |
| Réparation panne courant | 6  |              |
| Bug informatique         | 7  |              |

Once created, this table must be referenced by ViSu. To do this, ask your Cyclife Digital Solution Platform administrator to do so from the Cyclife HUB interface.



Once referenced, the different types of signals will be available during the creation of a signal button.

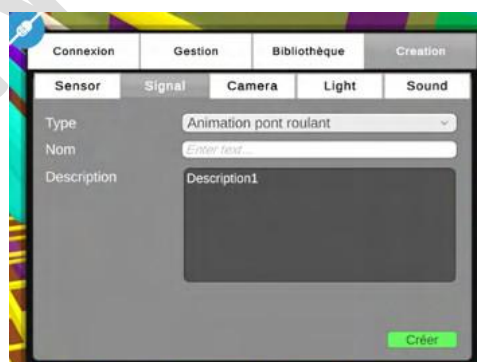
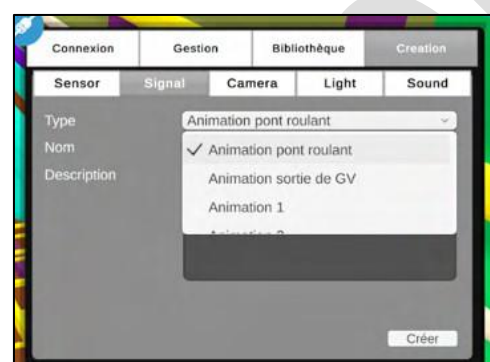
## Creation

To create a signal button:

1. Select the "Signal" sub-tab in the creation tab
2. Choose the signal type from the drop-down list (list of signals retrieved from the signal table defined via Cyclife HUB).

When you select the type, the signal description appears in the dedicated box (description retrieved from the signal table defined via the Cyclife HUB).

3. Choose a name (if no entry is made, the signal label will be used by default)
4. Press the "create" button at the bottom right.
5. The signal button is created and appears in front of you.
6. Once created, you can move it to position it where you want.

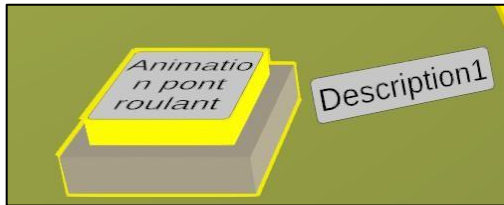


## Usage

To use the signal button:

1. Click on it
2. A notification will appear; confirm your choice

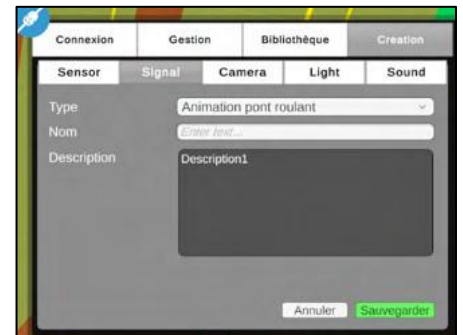
3. If the connection is established with the external simulator, the signal will be sent. Depending on the signal, ViSu may receive one or more return messages.



### Change settings

To modify the settings for a signal button:

4. In the API tablet management tab, click on the "Edit" button on the desired signal button
5. The settings interface will appear. Make the desired changes and click "Save."
6. The settings will then be applied



### Use cases

Different signal examples:

- **Handling bridge animation signal:** the button sends the signal, the simulator in Return will send messages activating the equipment in real time.
- **Power failure signal:**
  - The button sends the signal
  - The simulator will send messages in real time to turn off the lights in ViSu.
  - Upon receipt, ViSu turns off the lights.

- **Power failure repair signal**

- The button sends the signal
- The simulator will send messages in real time to turn the lights back on in ViSu.
- Upon receiving the signal, ViSu turns the lights back on.

#### 4.3.5.4.5. Camera

This API element is a camera. As in reality, once created, it films in real time whatever is in its field of vision.

It can only be used in ViSu, but if a simulator is connected, it can be controlled via its ID.

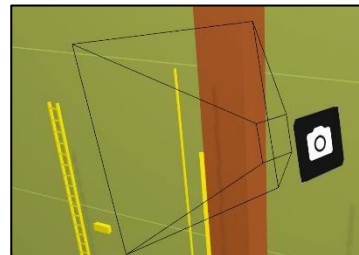
#### **Description**

A camera consists of:

- Name
- Description
- Field of view: defined between 0° and

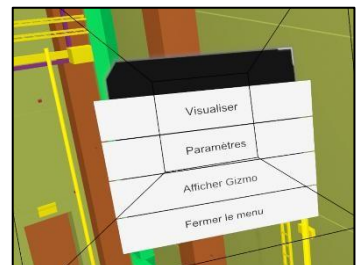
180° It is represented by:

- An icon
- A truncated pyramid: representing the field of view



A camera also has a context menu with various options:

- View: Return camera
- Settings: modify settings
- Show/Hide manipulator: displays the manipulator used to modify translation and rotation.
- Close menu

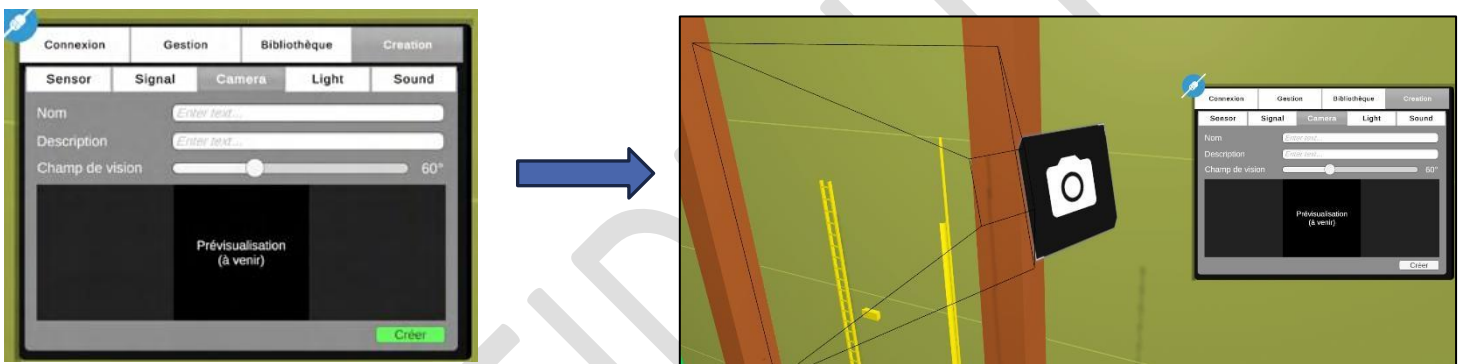


## Creation

To create a camera:

1. Select the "Camera" sub-tab from the creation tab
2. Choose a name (if no name is entered, a default name will be assigned)
3. Add a description (optional)
4. Define the field of view
5. Press the "Create" button at the bottom right.
6. The camera is created and appears in front of you.
7. Once created, you can move it to position it where you want.

In Desktop, you will not be able to orient it as desired. You will need to use its context menu. We will see this below in the section on usage.

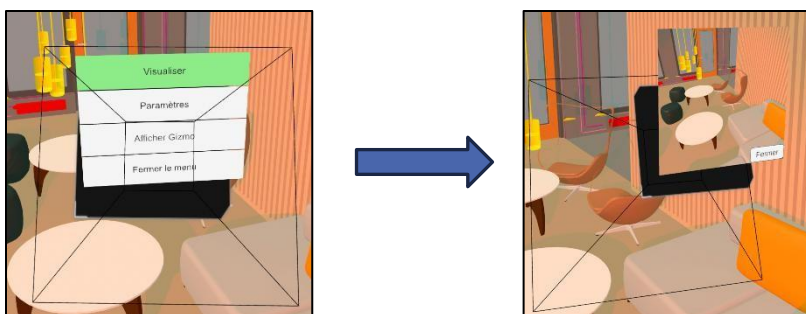


## Usage

### Viewing camera feeds

There are different ways to view the feed from a camera:

- **Via the camera context menu:**
  1. Open the context menu for a camera
  2. Press the "View" option
  3. A screen appears with the camera feed. Press "Close" when finished.

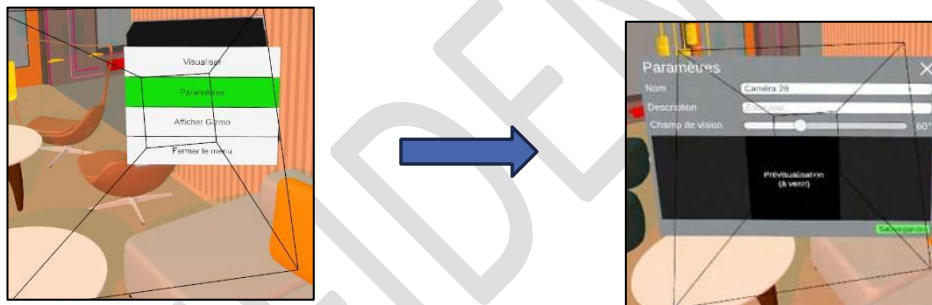


- **Via the screen tablet:** This is a dedicated tablet that displays camera feeds on multiple screens (1/4/9). For more information, see §4.3.6 Screen tablet
- **Via the training supervision interface:** This is an interface that allows the trainer to supervise a training session. In this interface, they have access to camera feedback screens. For more information, see 4.3.4.10.3.4 Access to camera feedback

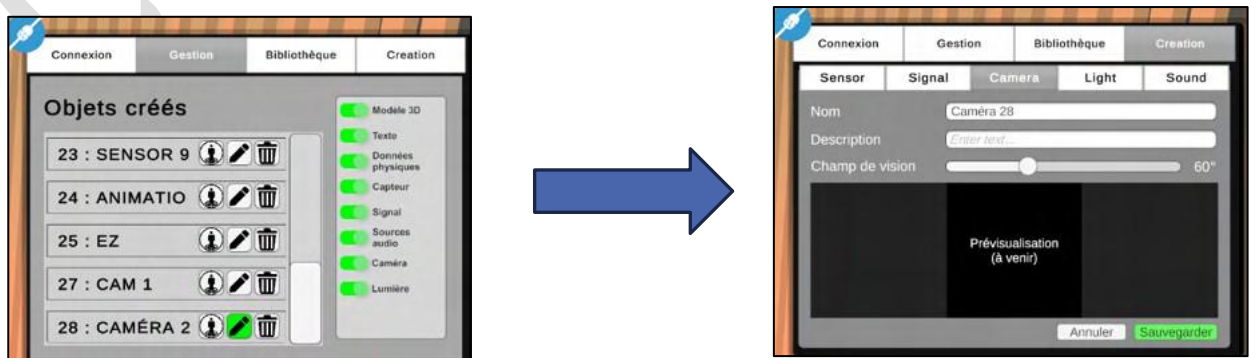
### Modifying settings

There are different ways to modify a camera's settings:

- **Via the camera context menu:**
  1. Open the context menu for a camera
  2. Press the "Settings" option
  3. The settings interface appears. Make the desired changes and press "Save."
  4. The settings are then applied



- **Via the management tab**
  7. In the management tab of the API tablet, click on the "Edit" button on the desired camera.
  8. The settings interface will appear. Make the desired changes and press "Save."
  9. The settings will then be applied



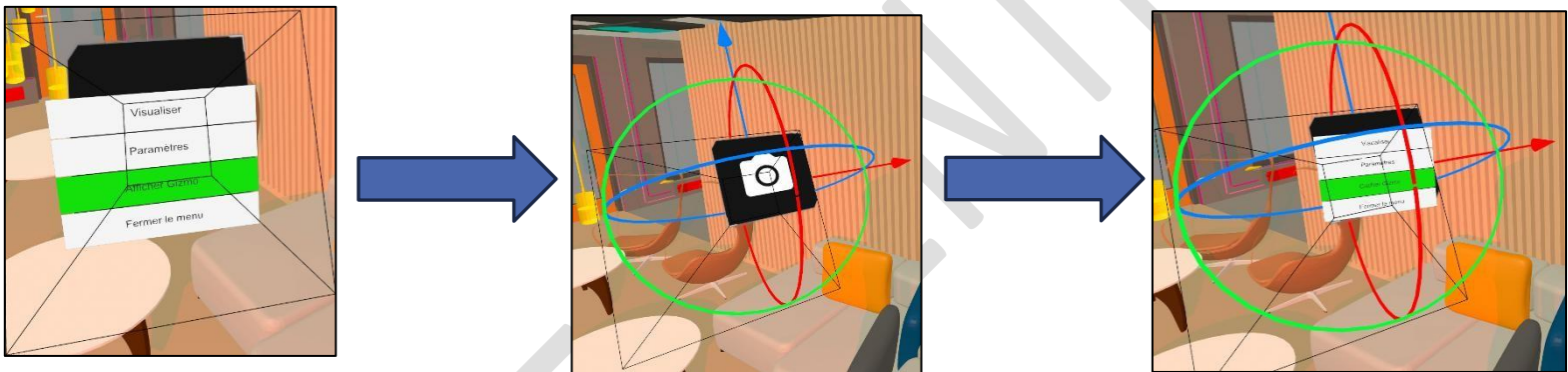
## Handling

There are different ways to manipulate a camera:

**In free mode:** In Desktop/VR/Powerwall, grab the camera and place it as desired. In Desktop, you will not be able to orient it as desired. You will need to use its context menu.

- **Via the context menu:**

1. Open the context menu of a camera
2. Press the "Show Manipulator" option
3. The manipulator appears. Use it to modify the camera in translation and/or rotation.
4. Once you are finished, press the "Hide Manipulator" option.
5. The manipulator will disappear.



## Use cases

Various examples of use cases:

- Placement of cameras on equipment for training in virtual teleoperation.
- Placing cameras on a drone to practice virtual site reconnaissance
- Placement of cameras to simulate site surveillance.

#### 4.3.5.2.4. Lights

This API element is a light. As in reality, once created, it illuminates the environment and allows you to simulate lighting on a site or during an intervention. Real-time shadow calculation (projected shadows) adds even more realism.

It is possible to disable ambient light so that only the spotlights that have been placed.

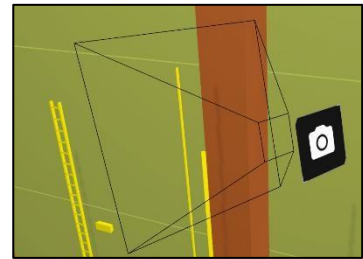
It can only be used in ViSu, but if a simulator is connected, it can be controlled via its ID.

Important: Lights only work on 3D models (not on point clouds).

#### **Description**

A light is composed of:

- Name
- Description
- Type: A light can be
  - A spotlight: illuminates according to a defined angle
  - A point: Diffusion of light over 360°.
- Color: the color emitted by the light
- Intensity: luminous power
- Maximum distance: maximum lighting distance
- Angle: angle of illumination of the spotlight.



It is represented by:

- An icon
- A truncated pyramid: representing the lighting area

A light also has a context menu with various options:

- Settings: modify the settings
- Show/Hide manipulator: displays the manipulator used to modify translation and rotation.
- Close the menu

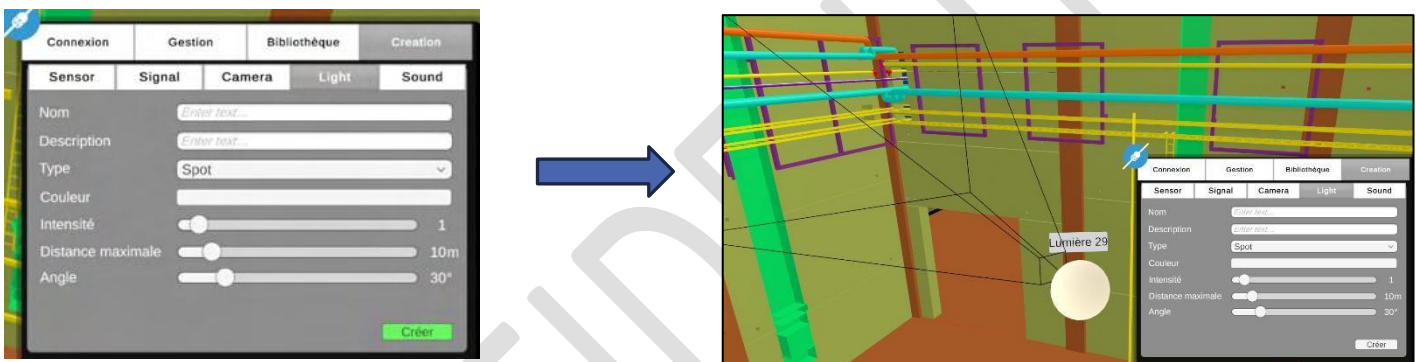


## Creation

To create a light:

1. Select the "Light" sub-tab in the creation tab.
2. Choose a name (if no entry is made, a default name will be assigned)
3. Add a description (optional)
4. Set the various parameters
5. Once you are done, press the "Create" button at the bottom right.
6. The light is created and appears in front of you.
7. Once created, you can move it to position it where you want.

In Desktop mode, you will not be able to orient it as desired. You will need to go through its menu. contextual. We will see this below in the section on usage.

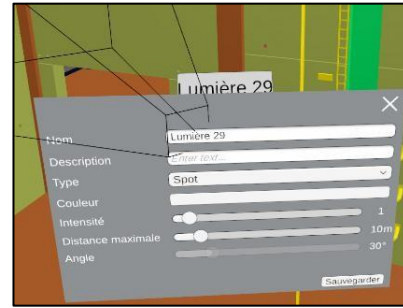
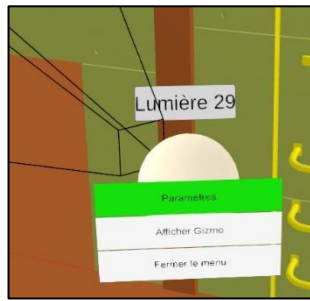


## Usage

### Changing settings

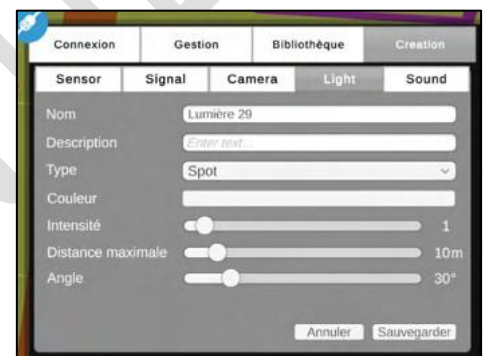
There are different ways to modify the settings of a light:

- **Via the light context menu:**
  1. Open the context menu for a light
  2. Press the "Settings" option
  3. The settings interface appears. Make the desired changes and press "Save."
  4. The settings are then applied



- **Via the management tab**

1. In the API tablet management tab, click on the "Edit" button for the desired light. 
2. The settings interface will appear. Make the desired changes and press "Save."
3. The settings will then be applied



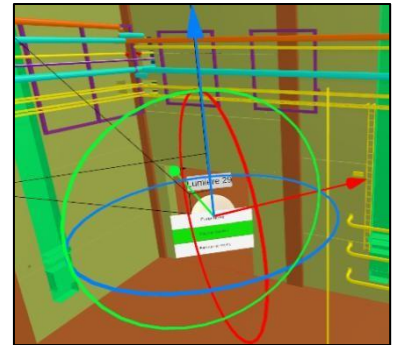
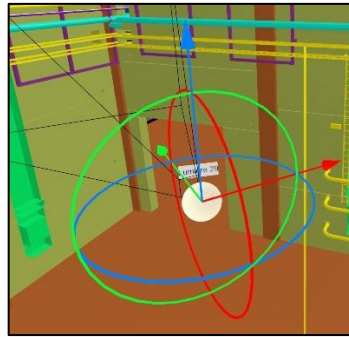
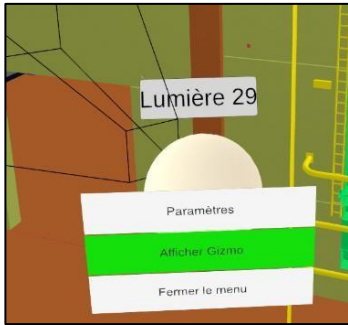
## Manipulation

There are different ways to manipulate a light:

**In free mode:** In Desktop/VR/Powerwall, grab the light and place it as desired. In Desktop, you will not be able to orient it as desired. You will need to use its context menu.

- **Via the context menu:**

6. Open the context menu for a light
7. Press the "Show Manipulator" option
8. The manipulator appears. Use it to modify the light in translation and/or rotation.
9. Once finished, press the "Hide Manipulator" option.
10. The manipulator disappears.

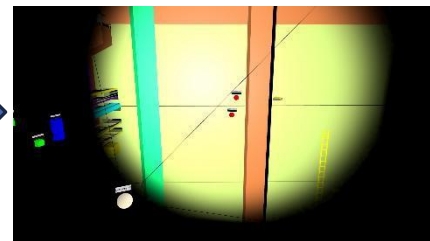
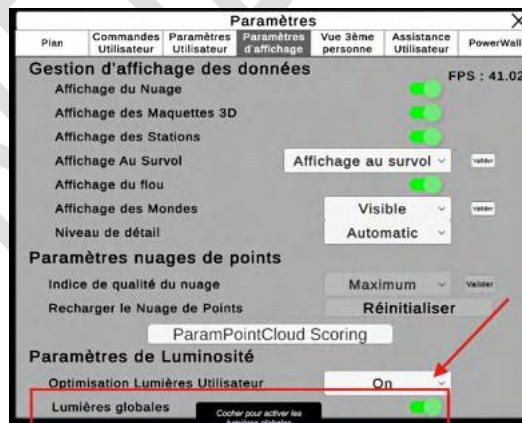
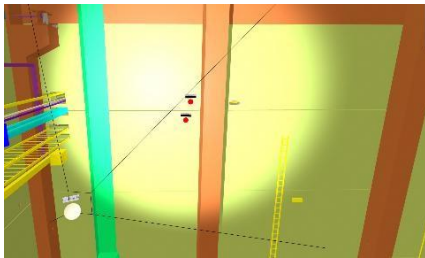


### Turn the ambient/global light on/off

You can turn the ambient/global light on/off so that you are only lit by the lights placed in the environment.

To turn off the ambient/global light:

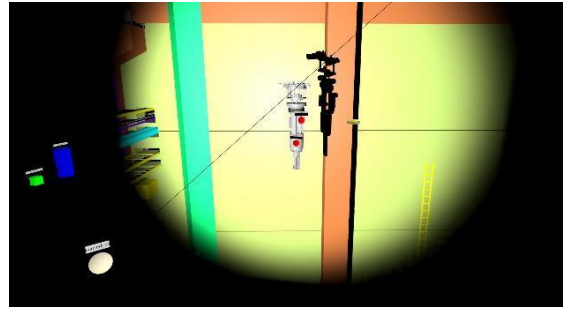
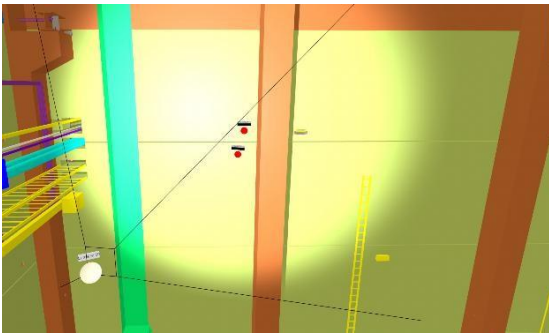
1. Open the global settings interface
2. Click on the "Display Settings" tab
3. Disable the global light (at the bottom of the interface).
4. The ambient/global light is now disabled.



### Shading

In ViSu, shadows are calculated in real time if a light source illuminates 3D models.

These shadows are very useful because they allow you to see the shadows that would obscure visibility in reality.



### **Use cases**

Various examples of use cases:

- Placing lights on equipment to practice remote operation in virtual reality.
- Placing lights on a drone to practice virtual site reconnaissance
- Placing lights to simulate lighting on site.

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#### 4.3.5.2.5. Sound sources

This API element is a sound source. As in reality, once created, it can be used to simulate the sound environment at a site or during an intervention, creating a more realistic experience.

It can only be used in ViSu, but if a simulator is connected, it can be controlled via its ID.

#### **Description**

A sound source consists of:

- **Name**
- **Description**
- **Default sound:** the sound associated with this sound source.  
Compatible formats (.wav, .mp3)
- **Volume:** sound power
- **Maximum distance:** maximum listening distance for the sound
- **Loop:** Option if the sound source plays in a loop.
- **Spatial:** Option if the sound is spatial or global (currently only spatial)
- **Play on startup:** Sound is played continuously without any action required by the user

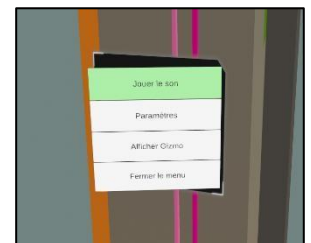
This option is useful for creating ambient soundscapes in a site's premises. When a user enters the premises, they automatically hear the ambient soundscape.

It is represented by an icon.



A sound source also has a context menu with various options:

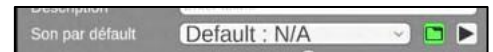
- Play/Stop sound
- Settings: modify settings
- Show/Hide manipulator: displays the manipulator used to modify translation and rotation.
- Close the menu



## Creation

To create a sound source:

1. Select the "Sound" sub-tab in the creation tab
2. Choose a name (if you don't enter one, a default name will be assigned)
3. Add a description (optional)
4. Choose the sound, either the default or:
  - a. From the drop-down list of existing sounds
  - b. By searching for a sound via the file explorer. Compatible formats (.wav, .mp3)

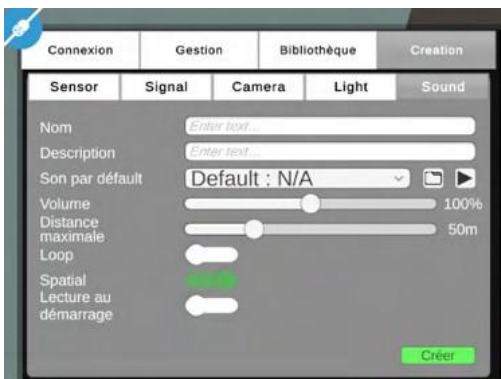


Once selected, you can listen to it.

Note: Imported sounds are automatically added to the list of documents in the document tablet.

5. Set the various parameters
6. Once you are done, press the "Create" button at the bottom right.
7. The sound source is created and appears in front of you.
8. Once created, you can move it to position it where you want.

In Desktop mode, you will not be able to orient it as desired. You will need to go through its menu. contextual. We will see this below in the section on usage.



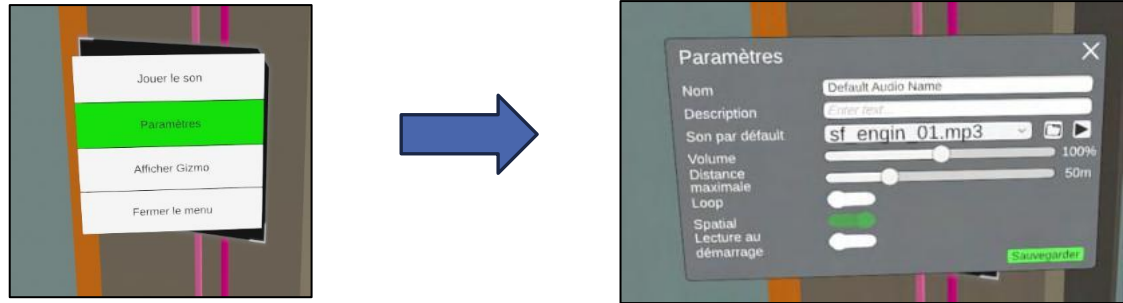
## Usage

### Changing settings

There are different ways to modify the settings of a sound source:

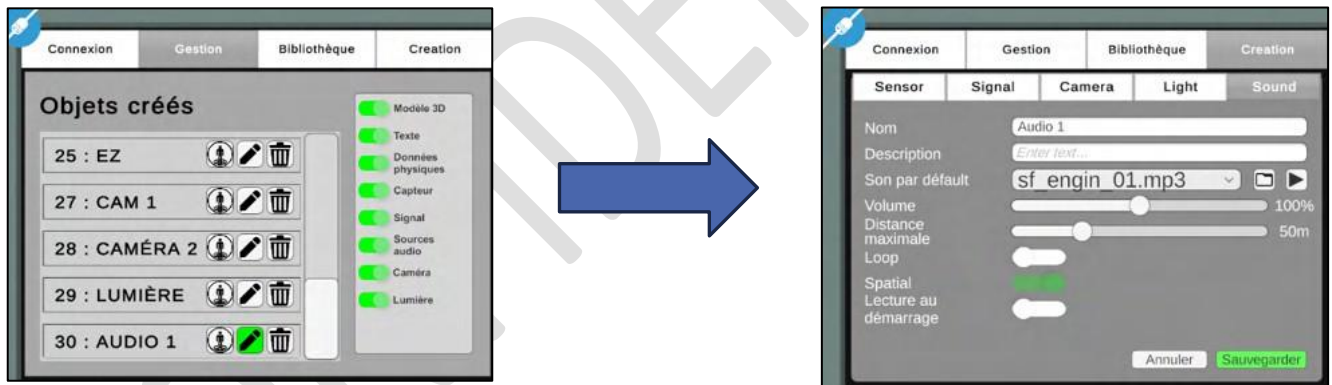
- **Via the sound source context menu:**
  1. Open the context menu for a sound source
  2. Press the "Settings" option

3. The settings interface appears. Make the desired changes and press "Save."
4. The settings are then applied



- **Via the management tab**

1. In the management tab of the API tablet, click on the "Edit" button for the desired sound source. 
2. The settings interface will appear. Make the desired changes and press "Save."
3. The settings are then applied



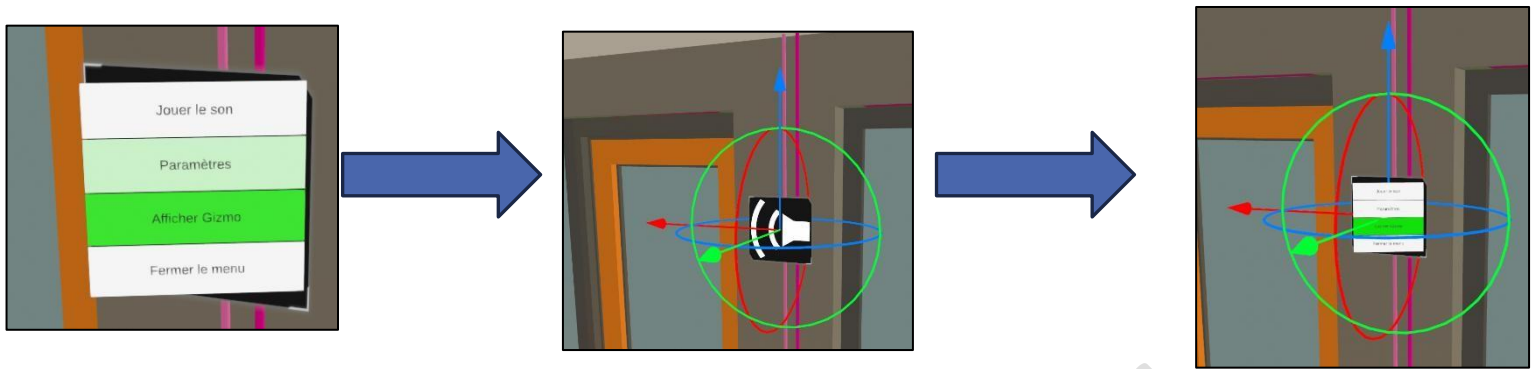
### Handling

There are different ways to manipulate a sound source:

**In free mode:** In Desktop/VR/Powerwall, grab the sound source and place it as desired. In Desktop, you will not be able to orient it as desired. You will need to use its context menu.

- **Via the context menu:**

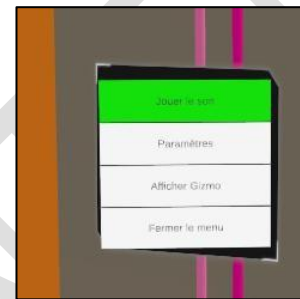
1. Open the context menu of a sound source
2. Press the "Show Manipulator" option
3. The manipulator will appear. Use it to modify the sound source in translation and/or rotation.
4. Once you are finished, press the "Hide Manipulator" option.
5. The manipulator disappears.



### Play/Stop sound

To play/stop the sound:

1. Open the context menu for a sound source
2. Press the "Play/Stop sound" option
3. The sound is played/stopped



### Use cases

Various examples of use cases:

- Placing a sound source on equipment to practice virtual surgery virtual operation. Change the sound depending on the material being cut.
- Record sound at the actual site. Then integrate these sounds into the virtual factory.
- Create voice tutorials.

#### 4.3.5.5. The external simulator

What if we connect ViSu to an external simulator to simulate complex animations such as robotics animations? Thanks to this interface, ViSu opens and connects with other software, and in this specific case, ViSu acts as a viewer.

This section will explain the principle of communication with an external simulator. For more details, dedicated documentation is available.

In addition, an API DLL is available for communicating with ViSu to send and receive messages.

If you are interested in connecting ViSu to your simulator, or if you do not yet have a simulator and would like to get an idea of how ViSu communicates with a simulator, we have developed an in-house beta simulator.

If you need more information about the documentation, the DLL, or the in-house simulator, **please contact Cyclife Digital Solutions**.

##### 4.3.5.5.3. Connection with an external simulator

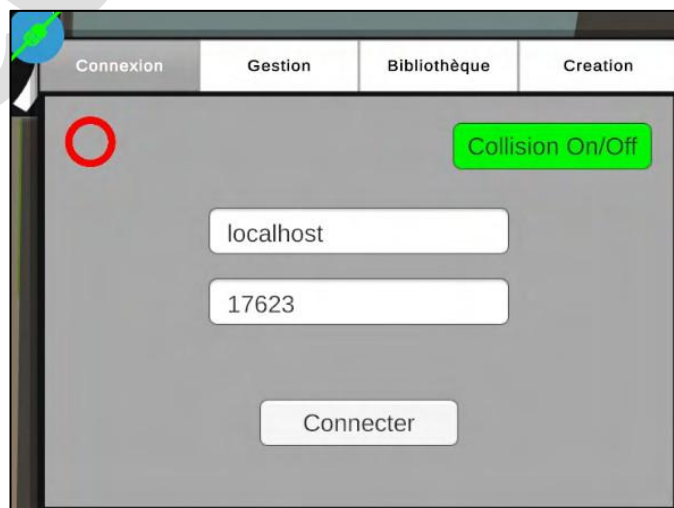
First, before detailing the different messages that can be sent and the API elements that a simulator can control, we will look at how the ViSu-External Simulator connection works.

The simulator can be on the same workstation as ViSu locally or on another machine.

For the explanation, we will use the "House" simulator.

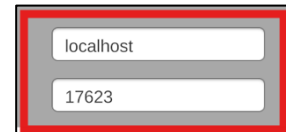
To create the ViSu-External Simulator connection, go to the "Connection" tab on the API tablet.

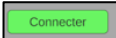
##### API tablet "Connection" tab



In this tab, you must:

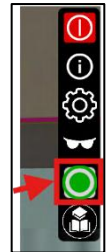
1. Configure the IP address and the reception and transmission connection ports (refer to the dedicated documentation).



2. Once the IP address and ports have been configured correctly, first launch the simulator and then connect via ViSu. 
3. If everything goes well, the connection should be established. You should see the connection indicator change from red to green  



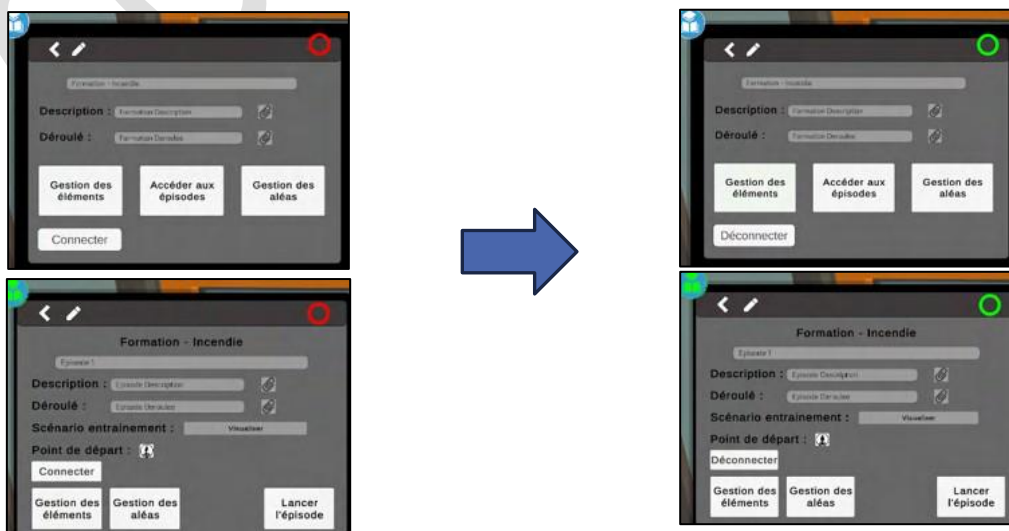
4. Another visual connection indicator should appear on the ViSu system bar.



### Connection from the training tablet

From the training tablet at the training or episode level, it is also possible to launch the connection. However, the IP address and ports must be configured in advance in the "Connection" tab of the API tablet.

Once configured, follow the same instructions, first launch the simulator and then the Connection via ViSu. The visual connection indicator should turn green.



#### 4.3.5.5.4. Messages exchanged between ViSu and the external simulator

The external simulator can control all interactive API elements created in ViSu:

- IoT sensors
- Signal buttons
- Cameras
- Lights
- Sound sources

The external simulator will also be able to create elements to control in ViSu

- 3D models API
- Texts
- Physical data
  - Gradient elements
  - Vector
  - Physical sphere

##### **Message: IoT sensors "Data updated"**

Once the IoT sensors have been created in ViSu, using their respective identifiers, the external simulator will be able to send them the values from the real sensors on site in real time.



##### **Message: Buttons – signals**

ViSu will be able to send signals to the external simulator (see §4.3.5.4.4 Button-Signal). Once received, the simulator will be able to send return messages to ViSu based on the signal received.

Signals can also be sent via training events (see §.Creating signal events:)



Signals from the

Example use cases: see §. [Use cases](#)

### **Message: Cameras**

Once the cameras have been created in ViSu, using their respective identifiers, the external simulator will be able to control them in order to:

- Turn the cameras on/off
- Flashing cameras

Example use cases: see §. [Use cases](#)

### **Message: Lights**

Once the lights have been created in ViSu, using their respective identifiers, the external simulator will be able to control them in order to:

- Turn lights on/off
- Make the lights flash

Example use cases: see §. [Use cases](#)

The simulator can also send a message to turn the ambient/general lighting on/off.

### **Message: Sound sources**

Once the sound sources have been created in ViSu, using their respective identifiers, the external simulator will be able to control them in order to:

- Play the sound source once only
- Play the sound source in a loop
- Play the sound source
- Stop the sound source

Example use cases: see §. [Use cases](#)

## 3D models API

3D models can be created by the simulator. Once created, the simulator can send messages to modify them.

Before they can be created by the simulator, these 3D models must be known to both ViSu and the simulator.

### 3D API model library

For this purpose, there is a library of 3D API models shared between ViSu and the simulator.

It is a Windows folder containing 3D models (preferably in vsz format).

Once this library has been filled with the desired 3D models, it must be referenced by ViSu.

To do this, ask your Cyclife Digital Solution Platform administrator to do so from the Cyclife HUB interface.



Once referenced, you will be able to view the items in the library in the "Library" tab of the API tablet.

You can only view the available 3D models. To create them, you will need to use the simulator.



The external simulator can send messages in order to:

- Create equipment and their sub-elements
- Destroy equipment and its sub-elements
- Modify the position/rotation/scale of equipment and their sub-elements
- Modify the metadata of equipment and their sub-elements (e.g., update the "pivot point" metadata).

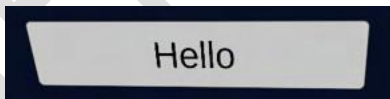
In return, ViSu can send the following messages:

- The actual positions, in ViSu, of each piece of equipment and their sub-elements
- 1. Real-time collision points between equipment/sub-elements and the environment in ViSu.

This allows the simulator to adjust the kinematics sent based on the collision points.

### **Message: Text creation**

The external simulator will be able to send a message displaying text. This will allow, for example, messages to be sent to learners during training sessions.



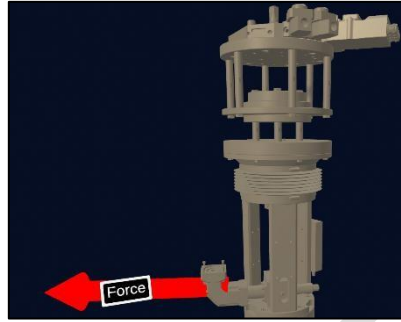
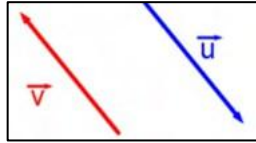
### **Message: Physical data**

The external simulator will be able to send messages to display physical data in ViSu:

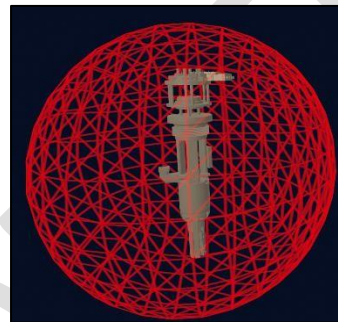
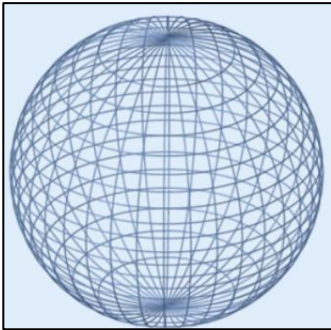
- 2. **Gradient elements:** A color gradient bar that allows you to visualize, for example, when approaching a breaking point or other problem  
, for example, when approaching a breaking point or other problem



3. **Physical vector:** An arrow and associated text to represent, for example, the direction of a force (and its power sent to the text) or directional information.



4. **Physical sphere:** A sphere (through which you can see) to represent, for example, the maximum distance of a robot arm or a restricted access area.



#### 4.3.5.5. External "Home" Simulator

All of the messages seen above can be sent by the external simulator.

The "home" simulator can simulate the messages sent by the real simulator.

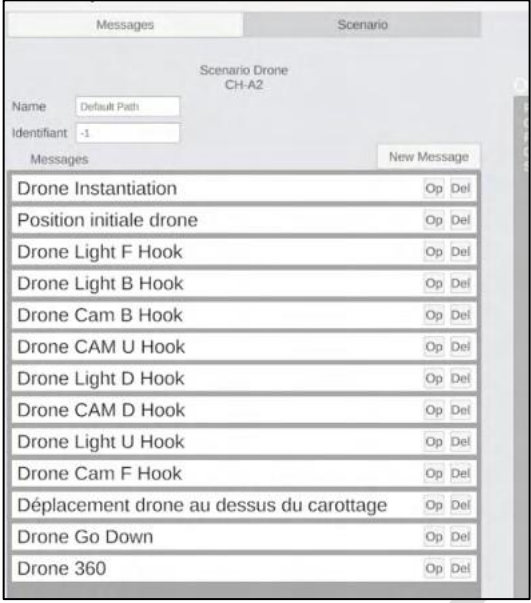
The **"in-house" simulator** has the unique feature of being able to **create and save scenarios**. A scenario is a sequence of messages sent in succession.

Example scenario: a drone for practicing virtual site reconnaissance equipped with cameras and lights at the front, rear, top, and bottom.

Various messages are sent:

1. Message: Creation of the 3D model of the drone
2. Message: Moving the drone to its starting point
3. Messages: Attaching all cameras and lights to the drone

4. Message: Move the drone above the core sample
5. Message: Drone descent into the area to be inspected
6. Message: Rotate the drone to explore.



The screenshot shows a software interface with two tabs: 'Messages' and 'Scenario'. The 'Scenario' tab is active, displaying 'Scenario Drone CH-A2'. Below this, there are input fields for 'Name' (containing 'Default Path') and 'Identifiant' (containing '-1'). A 'New Message' button is located to the right. The main area is a table of messages, each with 'Op' and 'Del' buttons.

| Messages                                 | Op | Del |
|------------------------------------------|----|-----|
| Drone Instantiation                      | Op | Del |
| Position initiale drone                  | Op | Del |
| Drone Light F Hook                       | Op | Del |
| Drone Light B Hook                       | Op | Del |
| Drone Cam B Hook                         | Op | Del |
| Drone CAM U Hook                         | Op | Del |
| Drone Light D Hook                       | Op | Del |
| Drone CAM D Hook                         | Op | Del |
| Drone Light U Hook                       | Op | Del |
| Drone Cam F Hook                         | Op | Del |
| Déplacement drone au dessus du carottage | Op | Del |
| Drone Go Down                            | Op | Del |
| Drone 360                                | Op | Del |

If you are interested in connecting ViSu to your simulator, or if you do not yet have a simulator and would like to get an idea of how ViSu communicates with a simulator, we have developed a beta "in-house" simulator.

If you need more information about the documentation, the DLL, or the "in-house" simulator, **please contact Cyclife Digital Solutions.**

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#### 4.3.5.6. The management tab

This tab is dedicated to managing interactive API elements. As with any tab "Manage" a tablet in ViSu. This tab lists the elements that have been created of the same type as the tablet. Here, the list displays all the interactive API elements that have been created.

The list of all your items will be displayed in the box below.



You can filter them by API element type. →



Various options are available for each interactive API element from this tab:

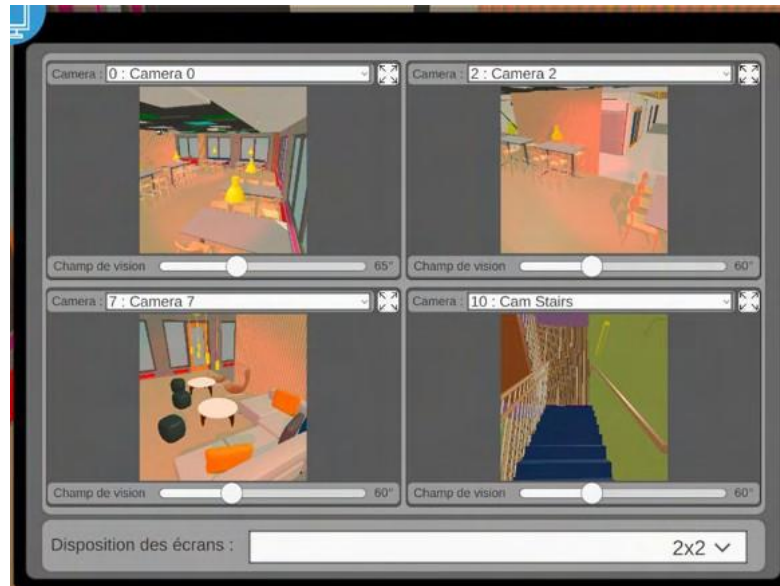


1. Show/Hide the API element
2. Teleport to the API element
3. Edit the API element
4. Delete the API element

### 4.3.6. Tablet screen

The screen tablet allows you to view the feedback from the cameras created in ViSu, namely:

- Cameras installed in ViSu
- The views of the various participants in a collaborative session.

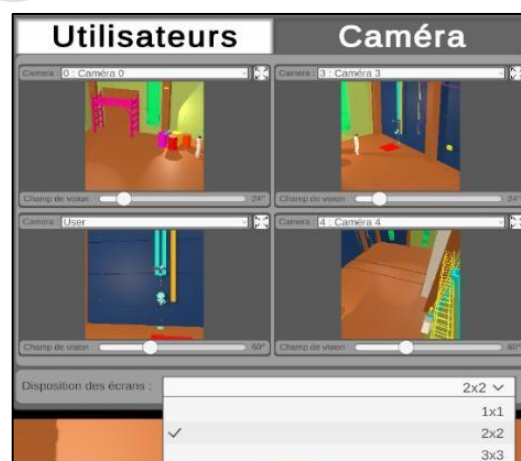


This interface allows you to choose:

- The number of screens displayed (1/4/9)
- Choose the camera feed on each screen
- Focus on a screen 
- Change the field of view of a camera



This interface is identical to the training supervision interface with camera feeds.



#### 4.2.4.1.1. Accessibility

##### In VR/Powerwall:

Open the tool palette, then use one of your hands to grab the screen tablet in the second category and then the second tool from the right.

##### On Desktop:

On the toolbar, click on the "Screen Tablet" icon, the <sup>first</sup> one on the right.



#### 4.2.4.1.2. Usage

##### Choosing the number of screens

To choose the number of screens, use the drop-down list at the bottom. This will allow you choose between 1 screen, 2x2 screens (4), or 3x3 screens (9).

Depending on your choice, the interface will reconfigure itself and display the desired number of screens desired.

Please note: The more camera feeds there are, the more latency there may be. Displaying camera feeds is very resource-intensive.



##### Choosing camera feedback on a screen

First, to have a camera feed on a screen, you must have cameras in ViSu. If you want to create cameras, see §.4.3.5.4.5Camera

##### Instructions:

1. Choose your screen
2. Click on the drop-down menu above the screen
3. Select the desired camera
4. The selected camera feed should be displayed on the screen.



### Focus on a screen

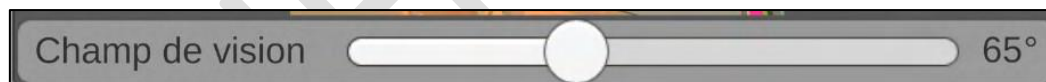
To focus (full screen) on a screen, simply press the button  at the top right of the desired screen.



To exit focus mode, press the button again. 

### Changing a camera's field of view

To change a camera's field of view, use the slider at the bottom of the screen.



## 4.4. Avatars

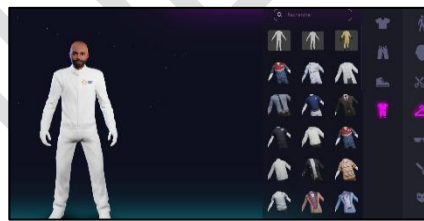
In ViSu, you will be able to choose an avatar to represent yourself when you create your VR-Learning or during multi-user sessions.

ViSu uses [ReadyPlayerMe](#) avatars.

ReadyPlayerMe is a cross-game avatar platform designed for the metaverse, offering the ability to create custom 3D avatars.

You can choose avatars either:

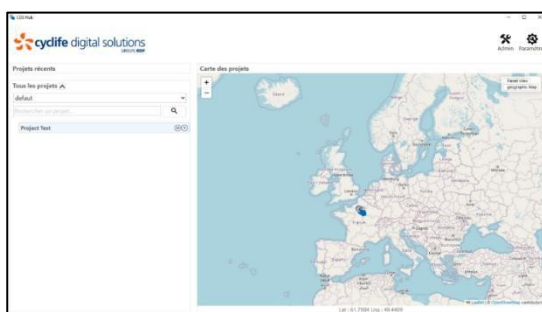
- Predefined in the library integrated into ViSu.
- Personalize and customize your avatar step by step by creating it online using the [ReadyPlayerMe](#) tool. Once created, you can import it into ViSu by following the dedicated Avatar tutorial PDF found in ViSu next to the Avatar interface.



To centralize the avatars of a department or company in one place. It will be possible to create a "Shared Avatars" folder on a network and put all the avatars of a department or company in it.

This folder must then be referenced by ViSu.

To do this, ask your Cyclife Digital Solution Platform administrator to do this from the Cyclife HUB interface.

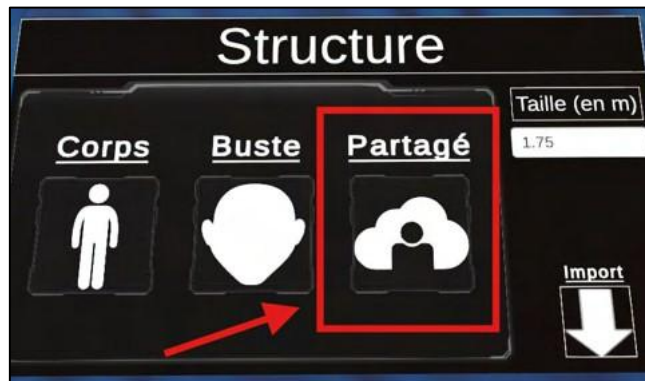


**THIS DOCUMENT IS STRICTLY CONFIDENTIAL AND MAY NOT BE DISCLOSED TO ANY THIRD PARTY WITHOUT AUTHORIZATION.**

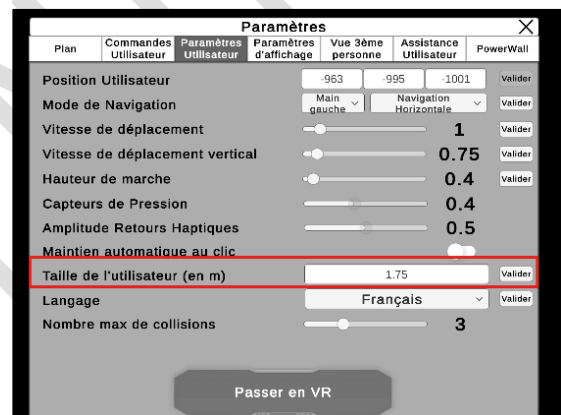
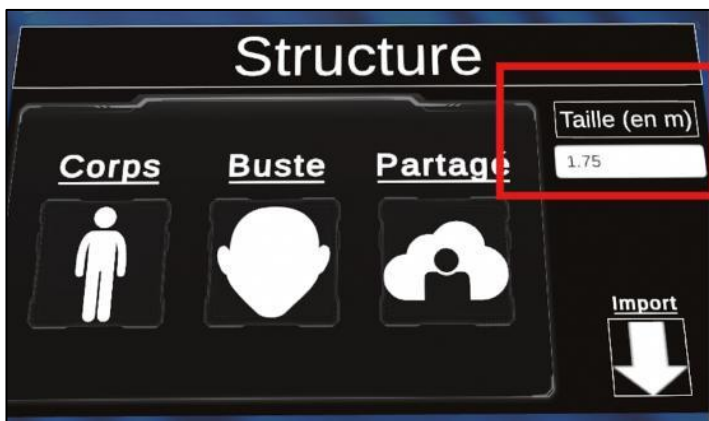
**CYCLIFE DIGITAL SOLUTIONS** | 56 Boulevard de Courcerin 77183 Croissy-Beaubourg – France

[www.cyclife-ds.com](http://www.cyclife-ds.com)

Once referenced, the avatars in the "Shared Avatars" folder will be accessible in the Avatar interface



Via the avatar interface, or via the settings window > User settings, you will be able to change the size of your avatar:



## 4.5. Collaborative/Multi-user session

One of ViSu's most popular features is the "collaborative session" feature. Multiple users can connect and collaborate without time or location constraints (no geographical restrictions) using the device of their choice:

- Desktop
  - Screen, keyboard, mouse
  - Gamepad
- VR
- Powerwall

They will be able to choose their avatar, create or join a collaborative session, and then get to work.

**Important:** To run multi-user sessions, we use **"Photon"** servers

(<https://www.photonengine.com/>).

Two types of servers are available:

- "Photon Cloud" server: Please note that this server may be blocked by your company's infrastructure.
- "Photon Local" server: If the "Photon Cloud" server is blocked.

You will need to equip yourself with a "Photon Local" server that will run on your local servers.

### 4.5.1. Accessibility

The collaborative space is located in the ViSu lobby. Here you can:

- Select your avatar
- Preview it in the mirror
- Create or join a collaborative session



## 4.5.2. Usage

Once you are in the multi-user space, let's take a look at the different steps involved in participating in a collaborative session.

Steps for participating in a collaborative session:

1. Choosing an avatar: for information on choosing an avatar, see §.4.4Avatars
2. Choosing the "Photon" server
3. Configuring user information
4. Create/join a session

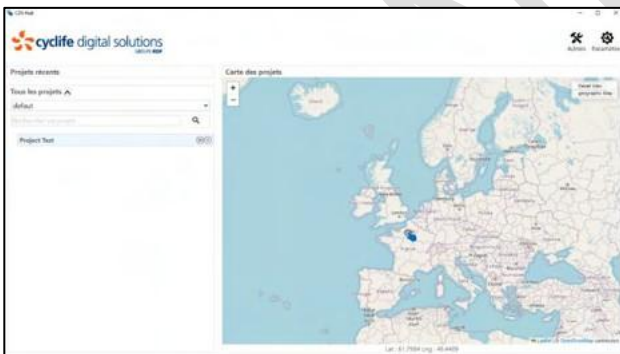
### 4.5.2.1. Select the "Photon" server

1. **Go to the multi-user interface, then press start.**

2. **Connect to the "Photon" server**

- Photon Cloud Server: Press Cloud only
- Photon Local server:
  - First, launch the local photon server: For more details, ask your CDS Platform administrator.
  - Then enter the server's IP address.

Note: To avoid each user having to enter the server IP address, it can be entered once via the Cyclife HUB interface. Ask your Cyclife Digital Solutions Platform administrator.

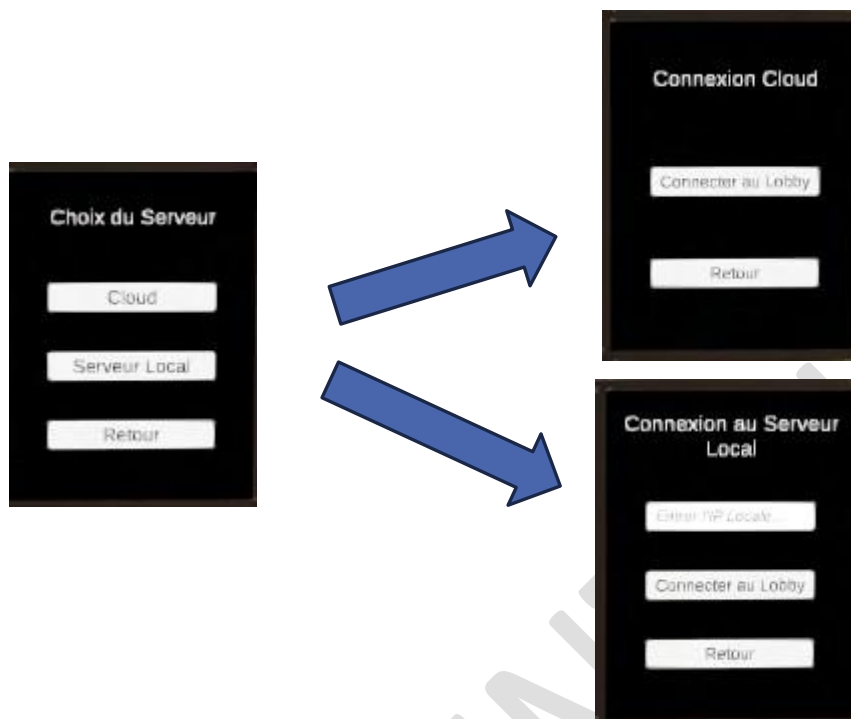


Paramètres Réseau

|                                                     |                                         |
|-----------------------------------------------------|-----------------------------------------|
| Nom d'utilisateur :                                 | User 1                                  |
| Nom de l'entreprise :                               | EDF                                     |
| Adresse IP du serveur local :                       | <input type="text" value="Non défini"/> |
| Adresse réseau où se trouvent les avatar partagés : | Q/VR/SharedAvatars                      |

Parcourir...





3. **Press "Connect to Lobby":** If you have access to the server, you should proceed to the next step (access rights, internet access, etc.).

#### 4.5.2.2. User information settings

You can now enter your user information.

4. **Click on name, then enter:**

- Username
- Company name

5. **Press Enter**

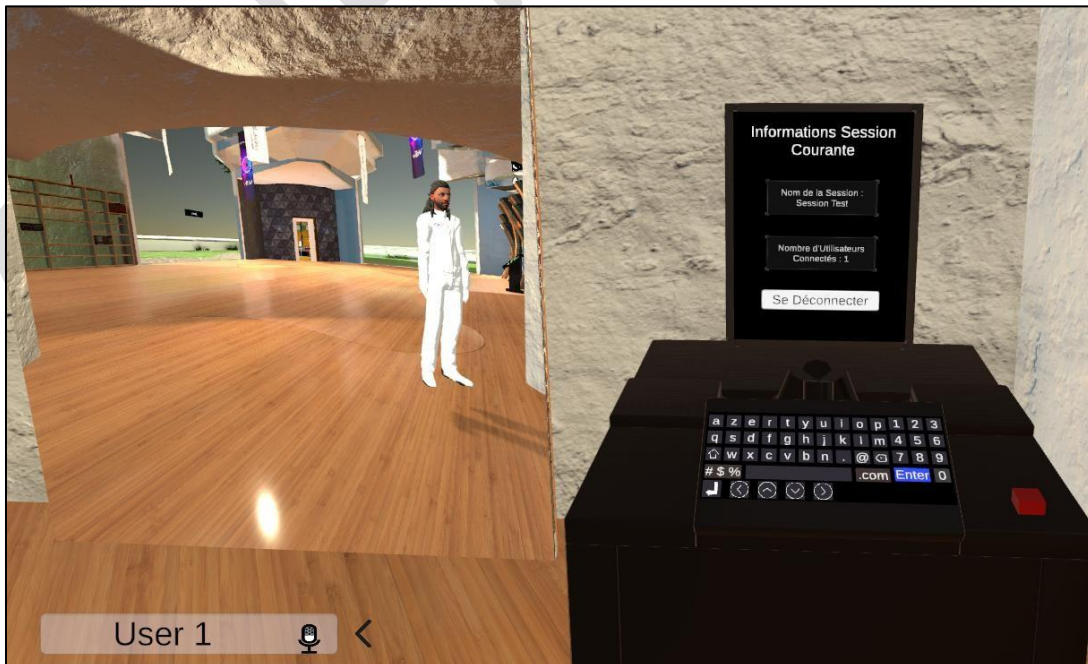
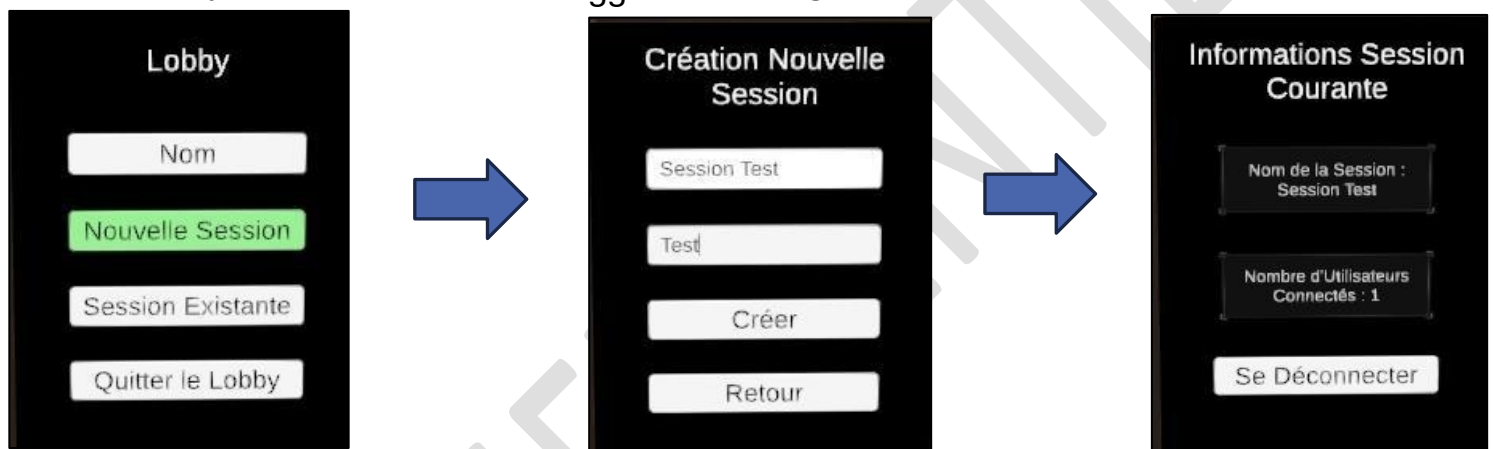
The screenshot shows a screen titled 'Informations Utilisateur' (User Information). It contains three input fields: 'User 1', 'EDF', and 'Retour'.

### 4.5.2.3. Create/Join a session

The final step is to create or join a session. We will look at both options.

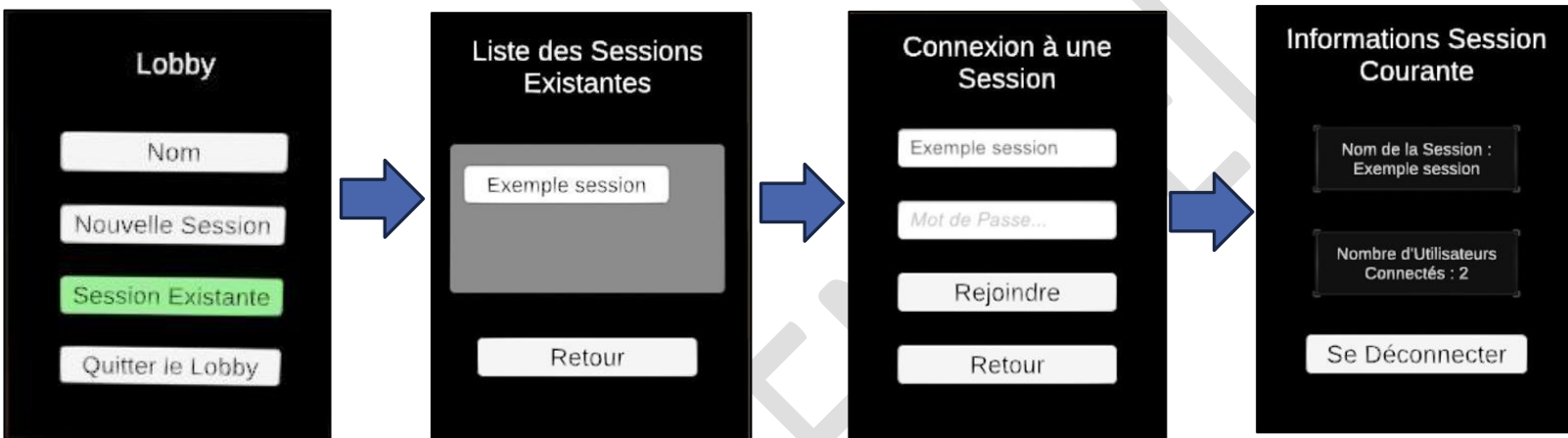
#### 4.5.2.3.1. Creating a session:

1. Press the "New Session" button
2. Enter the session name
3. Enter the password (Optional)
4. Press "create"
5. You should now be logged into the Create session.



#### 4.5.2.3.2. Join a session:

1. Press the "Existing Session" button
2. Select the desired session
3. Enter the password
4. Press "Join."
5. You should now be in the session and able to see and hear the other users



#### 4.5.2.3.3. Session flow:

Once in the session, you will be able to collaborate with other users. Let's take a look at how a collaborative session works.

Upon connection, a color is assigned to each participant. This color will be used throughout the session to tag everything related to that user (e.g., avatar on the map, measurements created, annotations created, etc.).



##### 4.5.2.3.3.1. Multi-user menu:

When you log in to a multi-user menu, at the bottom left of the screen, regardless of the device (Desktop, VR, Powerwall).

This context menu allows you to see the list of users connected to the session. By default, it is collapsed and displays the person who is currently speaking.

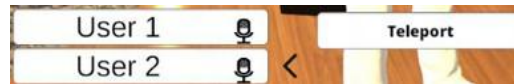
To expand it and view the list of participants, simply click on it. After a few seconds, if there is no interaction with the device, it automatically folds up.



##### Options available in the Multi-User Menu:

- Mute: You can mute a user's microphone (including your own) by clicking on it. 

- Teleport to a user:
  1. Click on the menu to expand it.
  2. Click on a user's label
  3. Click on the teleport label that appears next to the user's name.
  4. You should find yourself next to them.



#### 4.5.2.3.3.2. Actions, tools, and information shared "live":

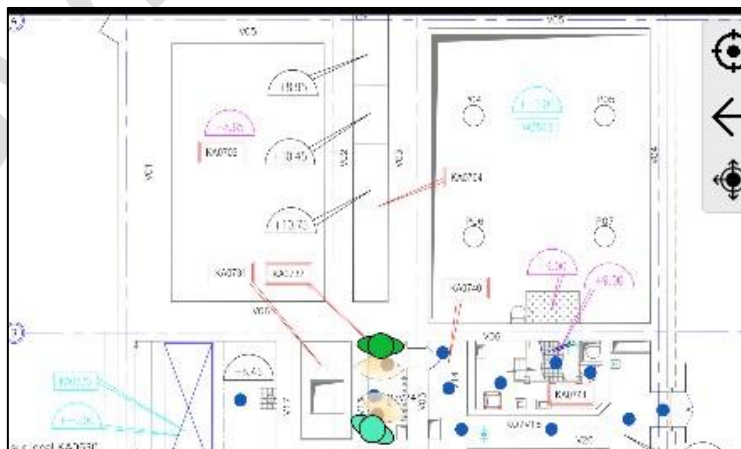
During the session, various actions and information are shared live.

##### List of information shared live

- **The avatar used**
- **User names and company names** (if applicable): These appear above the avatar
- **Made and gestures from the user** (movements from head, the movements, hand movements, etc.)
- **Voices**: Participants can communicate. An audio system is integrated into ViSu. When a participant speaks, a speaker appears above their avatar.
- **Position on the floor plan**: Each user is represented by an avatar icon with its associated color. You can see other users moving around in real time.



*NB: If a user is not on the same floor as you, their icon appears semi-transparent.*



For the moment, certain actions and tools are shared. It is planned in the sheet roadmap for S1 2026, to expand this list of live-shared items.

#### List of tools shared "live":

Tools can be shared with other users. A tool can be created by one user and given to another.

- The tool palette
- The laser
- The measuring tool

#### List of actions shared "live":

- Creating/editing measurements
- Creating/editing icon annotations
- Creation/editing of notes/tickets
- Creating/editing 2D/3D drawings



#### 4.5.2.3.3. 3D models shared "live"

During a collaborative session, it is possible to collaborate on 3D models 3D models.

To do this, before starting the session, users must subscribe to the shared folder containing the 3D models. Important: the shared folder must be up to date.



For more information on how to subscribe and add 3D models to a shared folder, see §.4.6Sharing.

Once all participants have subscribed to the same shared folder, they will be able to collaborate on 3D models and, for example, conduct a design review. To do this, simply launch and join the same collaborative session.

Users will be able to apply changes to the shared 3D models available in ViSu, and these changes will be shared "live." All participants in the session will see the changes.

Here is the list of changes to 3D models shared "live"

- 3D model manipulations
- Rendering modification (visibility, color, opacity)
- Applying a saved state

NB: In S1 2026, we plan to expand this list of modifications (e.g., sharing cross-sectional views, sharing collisions, etc.).



#### 4.5.2.3.3.4. Live shared training sessions

During a collaborative session, it is possible to collaborate on training courses.

To do this, before starting the session, users must subscribe to the shared folder containing the training courses. Important: the shared folder must be up to date.



For more information on how to subscribe and add training courses to a shared folder, see §.4.6Sharing

Once all participants have subscribed to the same shared folder, they will be able to collaborate on a training course. This allows a trainer to assess several learners at the same time. For more information on training courses, see

*Error! Reference source not found. Error! Reference source not found.*

To do this, simply launch and join the same collaborative session.

Users will then be able to share "live" around a training course.

They will be able to collaborate live throughout the different stages of a training course:

- Designing a training course with others: BETA version
- Launching a training course with others

### **Designing a training course with others**

This feature is currently in "BETA" mode. Users will be able to design training courses collaboratively.

Only one user has the rights to make changes (save) to the shared training course.

This user is the "Host" of the shared training program. §.4.6.3Protecting access to a shared folder.

For the moment, users can only design 3D models of the environment together "live." Any changes will be visible in real time to all participants.

For any changes made by the "Host" to API elements/contingencies, other users will need to leave the collaborative session and then update the share to retrieve them.

### **Launch of a group training session**

A training session can be launched by several people. To do this, in a trainer/learner configuration, the trainer must create the collaborative session. The learners also join this session.

The order is important! By logging in <sup>first</sup>, the trainer will be the only person able to launch a shared training course; the other participants will not be able to do so.

The trainer can either be on:

- **A learner's VR station:** They will launch the training session from the supervision interface training interface. This workstation will therefore create the collaborative session.
- **Their independent workstation:** They will launch the training session: In this mode, the trainer is a multi-participant like the learners. They will therefore be able to launch the training session and move around freely to observe the learners while being spatially with them.

### **Loading stage:**

When the trainer selects an episode, all of its elements (environment) are automatically loaded for each participant.

### **Launch stage:**

When the training is launched in multi-user mode:

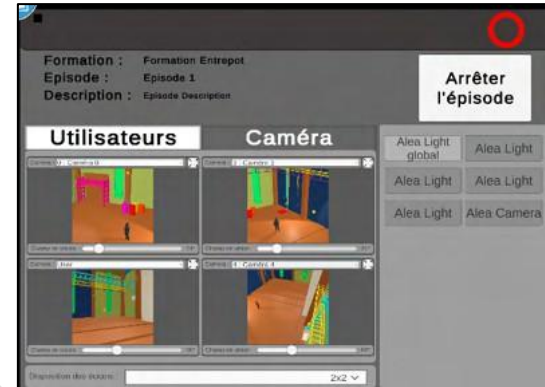
- All participants are teleported to the starting point of the training session
- The lines/icons representing API elements (cameras, lights, fire, spotlights , etc.) are hidden.

### **Step in the process:**

When the training is in progress in multi-user mode:

- Learners can complete the training episode
- Fixed elements ("Non-interactive") cannot be moved.
- Any changes/modifications will not be saved. The elements that have been changed will be restored to their original configuration at the end of the episode.
- Any manipulation of 3D models is shared "live" with all participants.
- Learners can talk to each other and to the trainer.
- The trainer can trigger random events via their supervision interface: an activated random event is triggered for each user.
- The trainer can view the learners via camera feeds: They can view each user's view on the camera feeds.

- Any message sent by the external simulator is shared "live" with all users (see §4.3.5 External API Tablet).
- users (see §4.3.5 External API Tablet).



### Episode termination step:

- The elements manipulated are returned to their initial configuration for each user.
- The hazards used during the episode are deactivated for each user
- The lines/icons representing API elements (cameras, lights, fire, spotlights , etc.) are redisplayed for each user

#### 4.5.2.4. Disconnecting from a session

To disconnect from a collaborative session, you must:

- Return to the work lobby in the collaborative space
- Then press the "Disconnect" button on the "Multi-user" interface

NB: If you lose your connection, a notification will appear inviting you to reconnect to the current session.



## 4.6. Sharing

What if we could share data and collaborate on it in ViSu? This is possible, and in this section we will see how to do it.

### 4.6.1. Introduction to sharing

A share is a folder/workspace where users can store data and edit it collaboratively.

#### **2 ways to work with sharing:**

##### Offline sharing

- Allows you to work and access shared data with others. There is one caveat: if several users access the shared data at the same time, they cannot all modify it. There is a "Host" principle: the first user connected has write access, while the others have read-only access. If changes are made by the "host," other users will not see them "live." To see them, they will need to update their sharing to retrieve the changes made.

NB: Equivalent to a Word file on the network with read-only access.

##### "Online" sharing

- Allows you to work on and access data shared by several people. In this specific case, users have access to the same share but are also in a collaborative session. Unlike offline sharing, this allows everyone (not just the host) to see changes made to shared data in real time. The data is modified by all participants and saved by the host of the shared file. NB: Equivalent to a Word file on the network with a collaborative editing system.

#### **2 types of sharing space**

##### "Official" sharing

- These are official shares that are made available to all users. When ViSu is opened, they are accessible to users.

These shares are added only by the Cyclife Digital Solutions platform administrator via the Cyclife HUB interface.

## "Customs" sharing

- These are shares that can be created by all users. Once the shared space has been created, it can be shared with other users so that they can subscribe to it. Users who subscribe to the same workspace can collaborate on the data contained within it.

We will now look at the different parts of sharing:

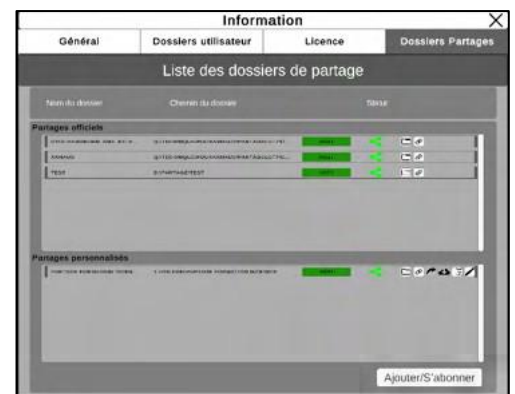
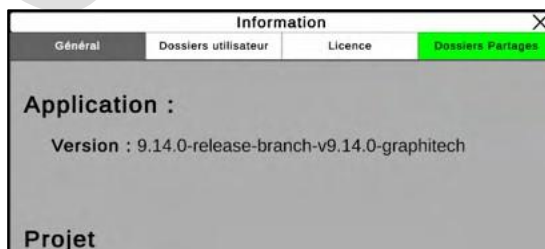
1. Accessibility to shared folders
2. Access protection for a shared folder
3. Data available in a shared folder
4. Creating & subscribing to a shared folder
5. Unsubscribing from a shared folder
6. Viewing data in a share
7. Adding/removing items from a shared folder
8. Updating a shared folder
9. Example workflow for sharing

### 4.6.2. Accessibility to shared folders

To view and manage shared folders, there is a dedicated interface accessible from the system bar.

To access it:

1. In the system bar, click on the "Information" button
2. In the information interface that appears, click on the "Shared Folders" tab
3. You will be taken to the "shared folders" interface.



This interface displays the list of available shared folders. There are two types of sharing:

- "Official Shares" section
- "Custom Shares" section For each

share, you have access to:

- Share name
- Folder path
- Status: Indicates whether the data displayed in the current session is up to date with the data in the shared folder. For more information, see §.Updating a shared folder below. 
- Options
  - Open the shared folder in a Windows window 
  - Copy the path of the shared folder to the clipboard: allows you to send it to a colleague so they can add & subscribe to the share. 
  - Unsubscribe from the share 
  - Edit the name of the share 

At the bottom right, an "Add" button allows you to create/subscribe to a share. We will see how to use it in more detail below. §4.6.8Add/remove items from a shared folder

### 4.6.3. Protecting access to a shared folder

As with any collaborative work system, there is a security feature. The <sup>first</sup>user to access the shared folder has write access. This user is called the "Host" of the share. Other users have read-only access (any changes they make to the items will not be saved).

Once the <sup>first</sup>user has released access to the share (by exiting ViSu or unsubscribing), the <sup>second</sup>person, who is subscribed, becomes the "Host" and has write access.

During a collaborative/multi-user session, if participants are subscribed to the same share, they will be able to collaborate on the shared data.

All changes made by participants to shared data will be visible to everyone.

In this specific case, it is the "Host" who retrieves their changes and the changes made by others and saves them in the shared folder (remember, only one person has write access).

## 4.6.4. Data available in a shared folder

Several types of data can be added and shared in a shared folder.

Currently, the following types of data can be shared:

- 3D models 
-  training courses (see §.)

The roadmap for S1 2026 includes plans to expand this list of data that can be placed in a shared folder.

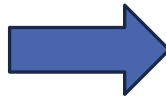
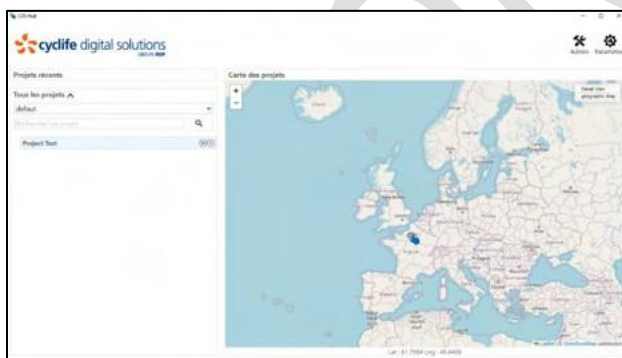
## 4.6.5. Creating & subscribing to shared folders

As mentioned above, there are two types of shares: official shares and custom shares, which have two different creation and subscription workflows.

### 4.6.5.1. Official shares: Creation & Subscription

Standard users cannot create these shares. They are created by your Cyclife Digital Solutions Platform administrator via the Cyclife HUB. To add "official shares," go through the Cyclife HUB.

These shares can be read-only or read/write depending on the option selected.



Once created by the administrator, these shares are automatically accessible to all users when ViSu is launched. Users subscribe to these shares and can use them to view data or add/modify data (depending on their write permissions).

Users cannot unsubscribe from these shares.

| Liste des dossiers de partage |                                          |        |
|-------------------------------|------------------------------------------|--------|
| Nom du dossier                | Chemin du dossier                        | Statut |
| Partages officiels            |                                          |        |
| CYCLIFSWEDEN_SMA_EXT...       | Q:\TECHNIQUE\POURARNAUD\PARTAGELOTTIC... | HOST   |
| ARNAUD                        | Q:\TECHNIQUE\POURARNAUD\PARTAGELOTTIC... | HOST   |
| TEST                          | D:\PARTAGE\TEST                          | HOST   |

Examples of official shares:

- Share "Case No. ... Test Project": Shared folder allowing subscribers to work on data concerning case no. ... Test project.
- Network user folder sharing: Sharing that allows a user to have a space where they can store data on a network space accessible by different PCs (personal work PC, VR room PC). No need to import/export data to move from one workstation to another. By logging in with these credentials on the different workstations and then launching ViSu, the user will automatically be subscribed to this folder and will therefore have access to the data.
- Sharing "Project No. F15D1 - Electrical Modifications": Shared folder allowing subscribers to work on data relating to Project No. F15D1 - Electrical Modifications.

#### 4.6.5.2. Custom sharing: Creation & Subscription

Unlike official shares, custom shares can be created by all users.

This allows you to create shared workspaces independently, for example to have a workspace for:

- Example 1: Working with four people on a model review offline or online. Once validated, Send this share to the administrator to make it official.
- Example 2: Create a personalized workspace in addition to the default user folder
- Example 3: Designing a training course for several people offline or online.

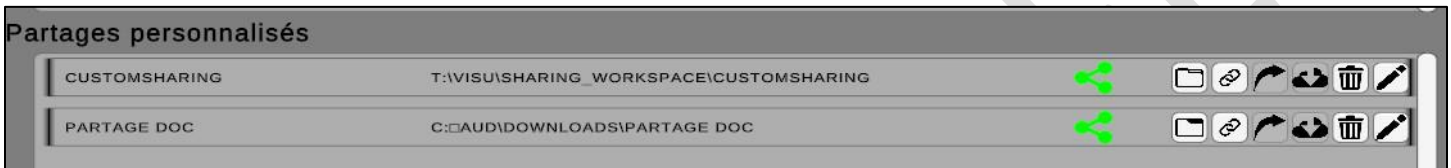
## Creating a shared space:

Steps for creating a shared folder:

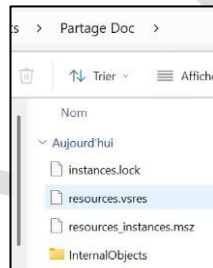
1. Click on the "Add" button in the sharing interface
2. In the file explorer that appears, create a new folder, press "Enter"
3. Then press the "Select" button
4. The share folder is created and added to the list of custom shares

When you create a share folder, you are automatically subscribed to it.

*(ViSu will execute the subscription process and load all data corresponding to this share).*



Here is the composition of a workspace:



**Important:** A user should not do change at risk damage the sharing. Any addition/modification/deletion of data must be done directly via ViSu and not via Windows folders.

## Subscribing to a shared space:

The steps for subscribing to a share are similar to those for creating a shared folder:

1. Click on the "Add" button in the sharing interface.
2. In the file explorer that appears, select a shared folder instead of creating one.  
(Be careful not to enter the shared folder. Select its name).
3. Then press the "Select" button.
4. The share has been added to the list of custom shares and you are now subscribed to it.

When you subscribe to a shared folder, ViSu automatically loads the data contained in it.

Note: There is a trick for quickly transferring and subscribing to a share.

1. Use the button "  " to allow a user to copy the share path to their clipboard.
2. The user copies the path and sends it to their colleague.
3. The colleague can then add the share via the path and subscribe

#### 4.6.6. Unsubscribing from a shared folder

You can unsubscribe from a shared folder (only custom shared folders).

When you unsubscribe from a shared folder, all associated data is unloaded. You no longer have access to it.

To unsubscribe, you must:

1. Click on the "Unsubscribe" button next to the desired share 
2. A confirmation pop-up will appear; confirm your choice
3. You are now unsubscribed from the selected share. It will also be removed from your list of custom shares.



#### 4.6.7. Viewing data in a share

For each type of data, in the associated tablet, there is a tab dedicated to managing sharing folders.

For the moment, as indicated above, only 3D models and training courses can be added to a sharing folder.

##### 4.6.7.1. Contents of the sharing tab on a tablet

This tab lists all available shares (official or custom) with the associated data corresponding to the tablet type.



Contents of the sharing tab for a tablet:

- Shared folders with associated data (only data of the same type as the tablet)
- A filter on the type of sharing: ability to filter official/custom sharing folders



- A sharing folder update indicator
- Multi-selection: gives access to the same options as for local/project data.

#### 4.6.7.2. Accessibility of data in shared folders

##### **3D tablet:**

To find shared items in the 3D tablet:

1. Open the 3D tablet
2. Click on the "Management" tab
3. Then click on the "Shared" sub-tab
4. You will find the shared folders with the associated 3D models

##### **Training tablet:**

To find shared items in the training program:

1. Open the training tablet
2. Click on "Access training catalog."
3. Then click on the "Shared" tab
4. You can find the shared folders with the associated training courses

## 4.6.8. Adding/removing items from a shared folder

We will now look at how to add/remove items from a shared folder.

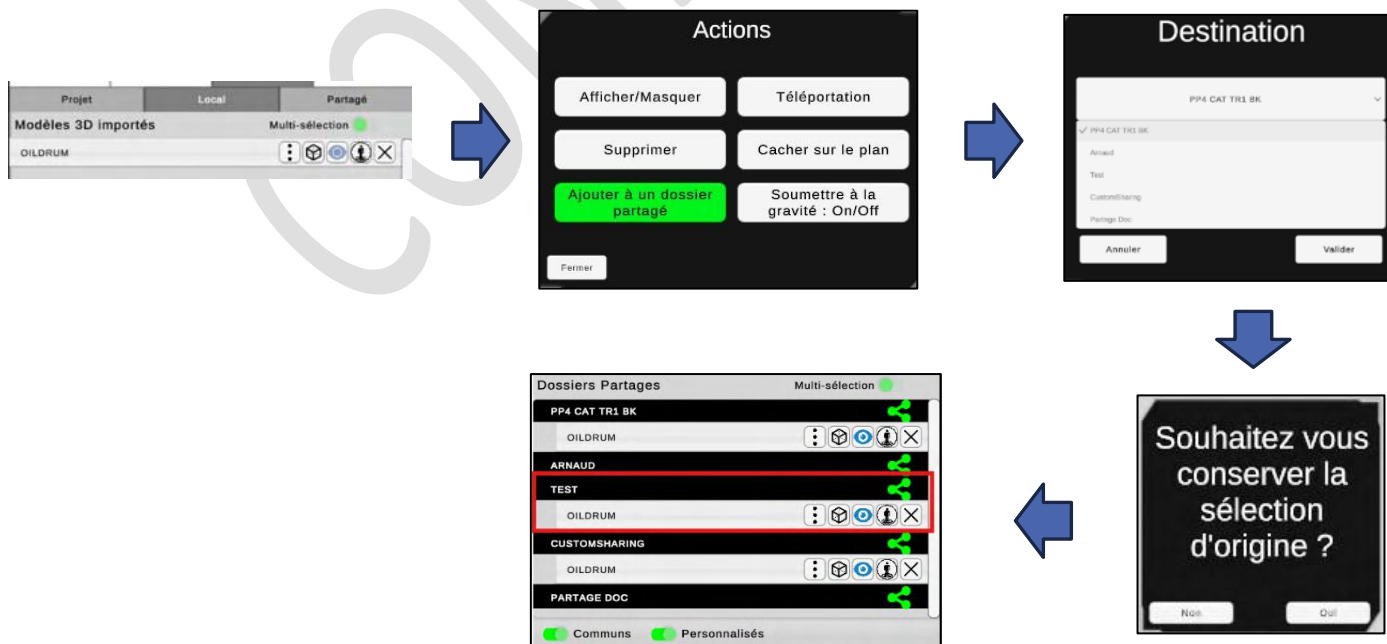
### 4.6.8.1. Adding items to a shared folder

The process is the same for all types of data. In our tutorial, we will do this with 3D models. You can follow the same instructions for other types of data (e.g., training courses).

**Important:** To add an item to a shared folder, you must have write permissions and be the first to access it (otherwise you will only have read permissions).

To share an item in a shared folder:

1. In one of the tabs (Project, Local, Shared), click on the "..." of the item you want to add (this is also possible with multiple selections)
2. In the context menu that appears, click on the "Add to a shared folder" option
3. From the drop-down list that appears, select the share to which you wish to add the item.
4. A pop-up appears asking if you want to keep the original selection, answer "yes" or "no."
5. The item will then be copied or moved to the share folder depending on your previous choice
6. The item has been added successfully. You can go to the sharing tab to check.



Once added to the share, any other users subscribed to this share will be notified and will see that the share folder is no longer up to date. For more information, see §.4.6.9 Updating a share folder.

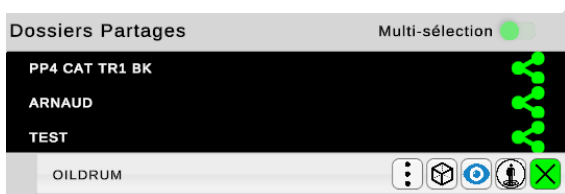
#### 4.6.8.2. Removing items from a shared folder

The process is the same for all types of data. In our tutorial, we will do this with 3D models. You can follow the same instructions for other types of data (e.g., training courses).

**Important:** To remove an item from a shared folder, you must have the rights and be the <sup>first</sup> to access it (otherwise you will be read-only).

To remove an item from a shared folder:

1. In the sharing tab, click on the cross next to the item you want to remove (this is also possible with multiple selections).
2. A pop-up appears, confirming your choice
3. The item has been successfully removed



Once removed from the share, any other users subscribed to this share will be notified and will see that the share folder is no longer up to date. For more information, see §.4.6.9 Updating a share folder

#### 4.6.9. Updating a shared folder

If you are subscribed to a share and you see this icon , it means that you are not up to date with the content of the share.

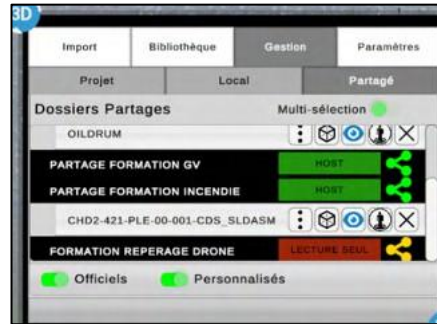
This happens when several people are subscribed to the same share. In this specific case, people who see this icon are in read-only mode. This is because one person opened the share <sup>first</sup> and became the "Host" and can modify it. Anyone else who subscribed after that can view the share but is in read-only mode. The <sup>first</sup> person made a change to the share, making the others' shares obsolete.

The latter must update the share to obtain the latest version containing the changes made. We will see how to update a share. But first, let's look at where this icon appears.

#### 4.6.9.1. Viewing an outdated share

You can see the update icon in several places:

- In the share management window
- In the tabs for data that can be shared (3D, training)



#### 4.6.9.2. Updating a shared folder

To update a share, you must:

1. Open the share management window
2. You should see the shares that are not up to date. The share icon should be "orange" 
3. Click on the share icon to update the share
4. A confirmation pop-up will appear to validate the update. Accept.
5. The icon should turn green, indicating that the update has been completed (please note that depending on the size of the changes, this may take more or less time).
6. The changes have been loaded.
7. To check, return to the tabs for data that can be shared (3D, training) in the sharing tab.
8. The shared items should have been updated.

#### 4.6.10. Example of a workflow for sharing

Here are some workflows related to sharing that can be implemented:

- **Sharing "Case No. ... Test Project"**: Shared folder allowing subscribers to work on data related to case no. ... Test project.
- **Network user folder sharing**: Sharing that allows a user to have a space where they can store data on a network space accessible by different PCs (personal work PC, VR room PC). No need to import/export data to move from one workstation to another. By logging in with these credentials on the different workstations and then launching ViSu, the user will automatically be subscribed to this folder and will therefore have access to the data.
- **Share "Project No. F15D1 - Electrical Modifications"**: Shared file allowing subscribers to work on data relating to Project No. F15D1 - Electrical Modifications.

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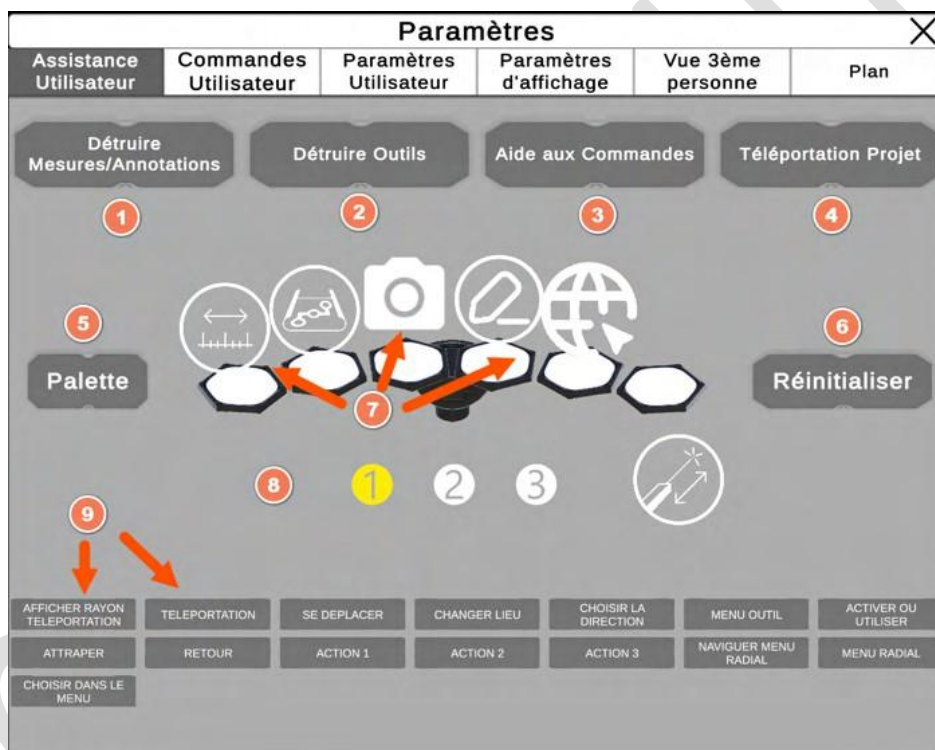
## 4.6. User assistance

The "User Assistance" tab allows a ViSu trainer/advisor to assist users in VR/Powerwall (not available in Desktop) through various actions. Useful during demos or training sessions.

To access it, open the settings window and click on the "User Assistance" tab.

This interface will allow a ViSu trainer/advisor to:

- Display user help
- Show/create tools
- Destroy tools/elements (to clean up)
- Teleport the user to a location



- 1) Destroy all measures, audio annotations, and annotation icons
- 2) Destroy all tools instantiated in the world
- 3) Show/Hide all main actions on controllers
- 4) Teleport to the lobby or point cloud
- 5) Show/Hide the tool palette
- 6) Reset all tools
- 7) Allows you to create or show a tool with a simple right click

- 8) Navigate, create, or display the different categories in the tool palette
- 9) Help showing an action on the joystick.

#### 4.6.1. Display user help

To display users, the ViSu trainer/advisor can either:

- Display/Hide all command help: Press the "Command Help" button



- Display certain command help: via the buttons at the bottom of the interface.
  - **Grab**
  - **Activate/Use**
  - **Move**
  - **Change location (Site/Lobby):** Button to change location
  - **Tool menu:** Button to show/hide the tablet
  - **Display Teleportation Beam:** Action to display the teleportation beam
  - **Teleportation:** Action to confirm teleportation



#### 4.6.2. Show/create tools

The ViSu trainer/advisor can display or create tools for the VR user depending on their level of proficiency in ViSu.

To do this, they will use the virtual tool palette, which is the counterpart to the



To display/hide the real tool palette in front of the VR/Powerwall user, click on the "palette" button.

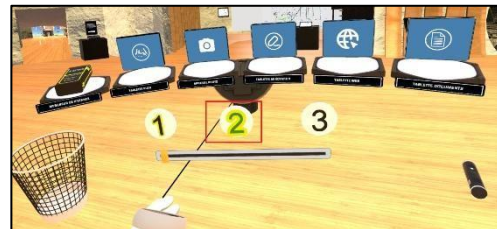
When you hover over the tool icons, a label will appear with the name of the tool.

To navigate the virtual palette, click on the categories (as you would in the actual palette). Changing categories in the virtual palette does not change the categories in the actual palette.

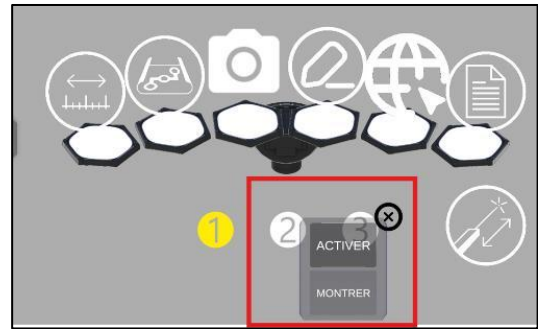
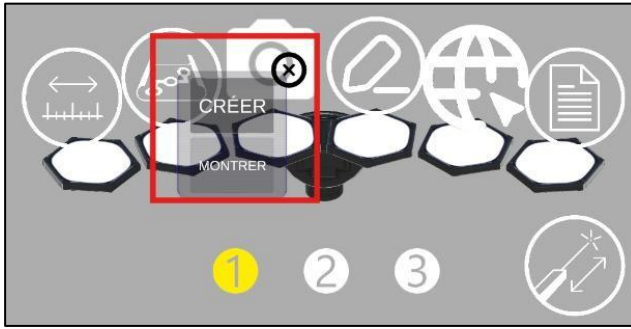
A context menu is available on the tool/category icons. It offers 2 levels of assistance:



- Level 1 "Show": Show only and do not perform for the VR/Powerwall user: This will highlight the tool icon/category with a green highlight in the actual palette on the item shown.



- Level 2 "Create/Activate": Do it for the VR/Powerwall user
  - On a tool, this will create the tool in front of the user
  - On a category, this will change the category on the actual palette.



To Show/Create:

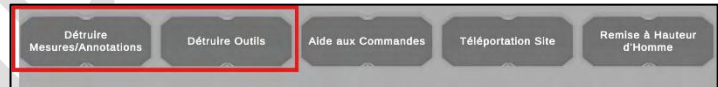
1. Right-click on the tool/category to bring up the context menu
2. Click on the desired option "Create/Activate" or "Show"
3. This will create/activate or show the tool/category.

#### 4.6.3. Deleting tools/elements

The ViSu trainer/advisor can clean up and delete tools/elements (measurements/annotations) created by users during demos.

To do this, press the buttons:

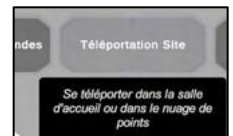
- Delete Measurements/Annotations
- Delete Tools

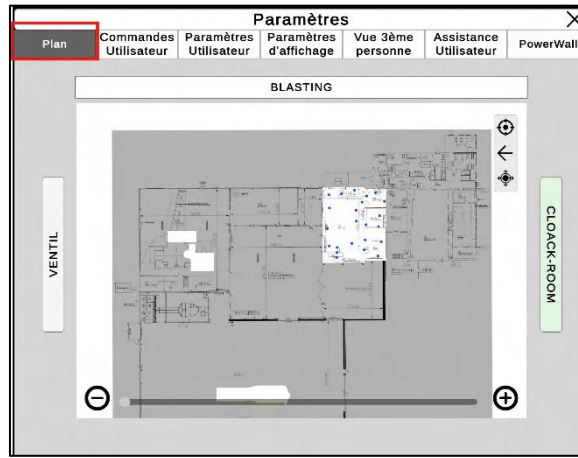


#### 4.6.4. Teleport User to a Location

The ViSu trainer/advisor can teleport:

- Either the user to the site/lobby: via the "Teleport Site/Lobby" button
- Or to a location from the map: via the map tab in the settings window.





## V. User experiences/use cases

### 5.1. ViSu Home: Virtual meetings via different workspaces (meeting room, projection room, etc.)

Hold your virtual meetings via ViSu. You can use the various spaces in the lobby, from the projection room to the meeting room and the showroom.

Choose your avatar and give presentations with your colleagues using your documents (PowerPoint, videos, images, PDFs).



#### Features:

- Access to documents (PowerPoint, PDF, videos, whiteboard)
- Teleportation to the site
- Search for 3D equipment by functional tag
- Choice of avatar
- Drawing in 2D/3D

## 5.2. Virtual tour/on-site inspection

**Access** infrastructure details **freely and securely** that are unreachable or difficult to access in reality.

**Avoid** on-site **travel** and optimize metal time.

**Access business tools** (rangefinder, annotations, 2D plans, etc.).

### Features:

- Free navigation on an industrial site (using 3D models, point clouds, photos, 2D plans)
- Work tools (rangefinder, annotations, 2D plans, documents, laser pointer, camera, etc.) , etc.)



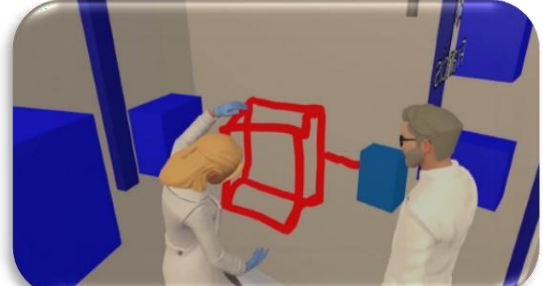
## 5.3. Collaboration

Allows all stakeholders to **work together without time or location constraints, on a computer, in VR, or on Powerwall.**

- The sites
- Engineering centers
- Service providers
- Administrative authorities
- ...

### Features:

- Multi-user connection
- Voice communication
- Avatar display
- Sharing of other users' actions
- Collaborative work tools
- 2D/3D drawing



## 5.4. Model review - Equipment design assistance module

**Review of designs** created during immersion to incorporate all constraints of manufacturing and operation

**Design your equipment directly** in virtual reality in **ViSu** using its **design assistance module**.

No more perspective problems on 2D screens.

### Features:

- Import & Integration of 3D models
- Simulation, collision, and handling scenarios (4D Module)
- Access to metadata
- Collaborative work tools
- 2D/3D drawing
- Cross-section view
- Equipment position comparison
- Gravity/collisions
- Equipment handling
- Assembly/Disassembly
- Creation of notes/tickets



## 5.5. Training

### 5.5.1. Professional development: immersive learning

Creation of **immersive learning experiences by experts** to transfer knowledge:

- Technical knowledge
- Business knowledge
- Building knowledge
- Construction site experience

#### **Features:**

- VR learning module
- 2D/3D drawing
- Documents



## 5.5.2. Training scenarios

Get it right the first time, **practice the right moves before going on site.**

With ViSu, you can **run training scenarios** (serious games) **to prepare for your interventions in the best possible conditions.**

E.g.: Training on lineage, remote operations

### Features:

- Training scenarios (successes/failures)
  - Handling of elements (valves, sensors)
  - Answering questionnaires
  - Access to documents (2D plans, P&ID)
- Real-time synchronization, via IoT sensors, between the real arm and the virtual model
- Supervision module
- Cameras, lights, sound sources

