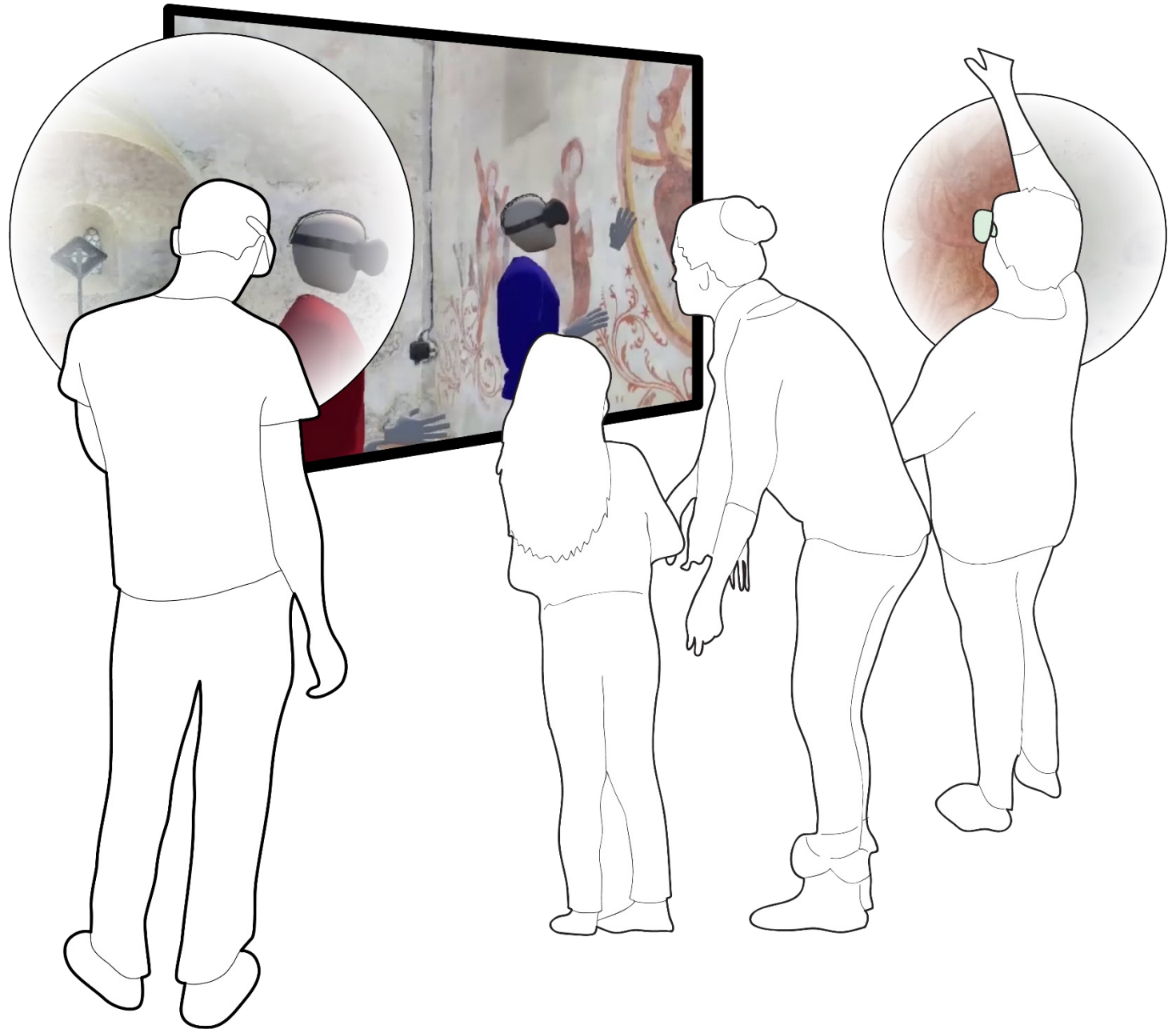con·sen·sive | \ kən-ˈsen-siv \
: consensus-oriented, i.e. respecting different perspectives
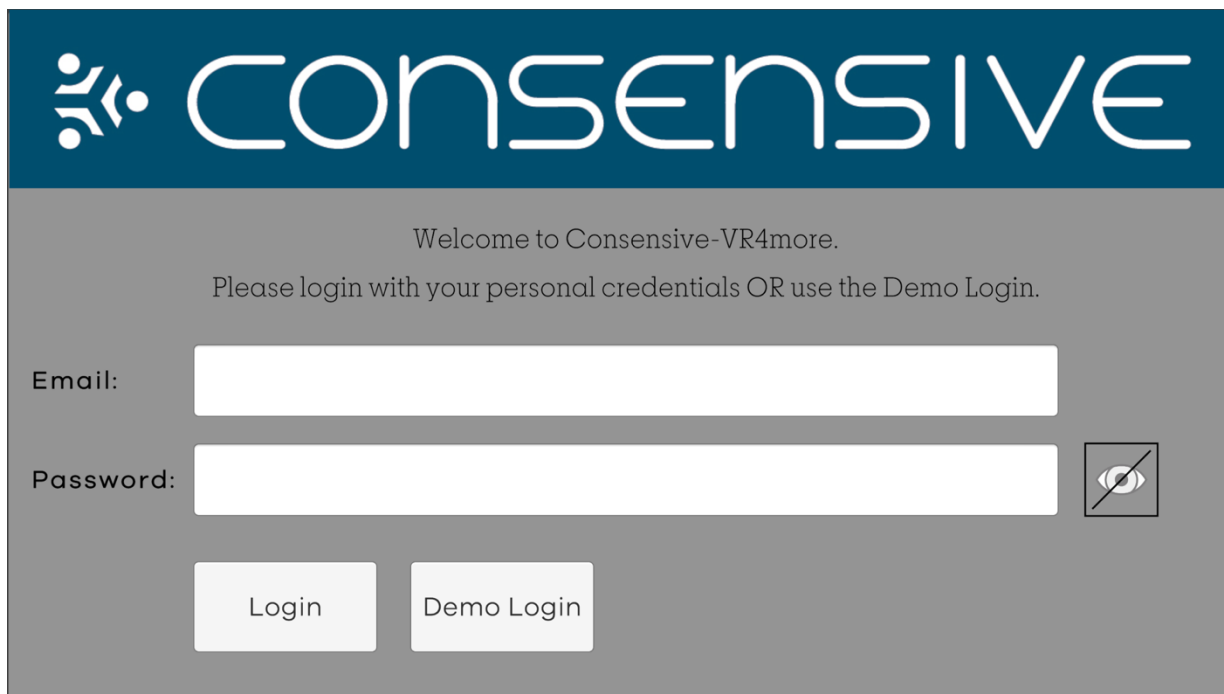// e.g. a consensive presentation

VR4more 3

Start and Configuration

- <u>Login</u>

- <u>Lobby</u>

- <u>Application start on Meta Quest (standalone)</u>

Login

- After the first application start or after logout, the login screen appears (see below).

- If you do not have any login credentials, then you may use the 'Demo Login' button to access the app

The Lobby – Starting a new session

Select the 'New Session' tab

○ Active Sessions ✚ New Session ⚙ Settings

Logout   VR4more 3.0.0-pre.53
Consensive ✖

A

Select the scene for the session
(and start the session with double click)

ARSummaeryBrueckenz...

B

BurgHohnstein   Burgk_Castle_Combined

D

DaubertAltar

E

Session Title
Enter Session Title (optional)

Specify session name.
If left blank, a session name is
auto-generated

Session Description
Enter Session Description (optional)

Provide extended description if
desired

Users in Session

Selected Scene

Name of selected scene

User Alias
Consensive

Specify what name will appear on
your avatar in-session

Mute Group
Enter Mute Group (optional)

Users in the same mute group will
not hear the voices of other
members of the group when voice
communciations are enabled.

Navigation Group
Enter Navigation Group (optional)

Clients in a navigation group can
be teleported together as a group

START

Start session

CONSENSIVE

The Lobby – Joining an active session

Active Sessions

➕ New Session

⚙ Settings

Logout

VR4more 3.0.0-pre.53
Consensive ❌

Available Rooms

Bühne

ensive-presentation

expo

hohnstein

Proberaum A

Proberaum B

Proberaum

SchieferTurm

wehrkirche

Select an active session to join
(and start with double click)

Session Title

Enter Session Title (optional)

Name of selected session

Session Description

Enter Session Description (optional)

Extended description if provided

Users in Session

Number of users in the active session

Selected Scene

Name of the scene currently active in the session

User Alias

Consensive

Specify what name will appear on your avatar in the session

Mute Group

Enter Mute Group (optional)

Users in the same mute group will not hear the voices of other members of the group when voice communciations are enabled.

Navigation Group

Enter Navigation Group (optional)

Clients in a navigation group can be teleported together as a group

START

Start session

CONSENSIVE

The Lobby – Application settings

Select the 'Settings' tab

Logout

Current app version and user name

Close application

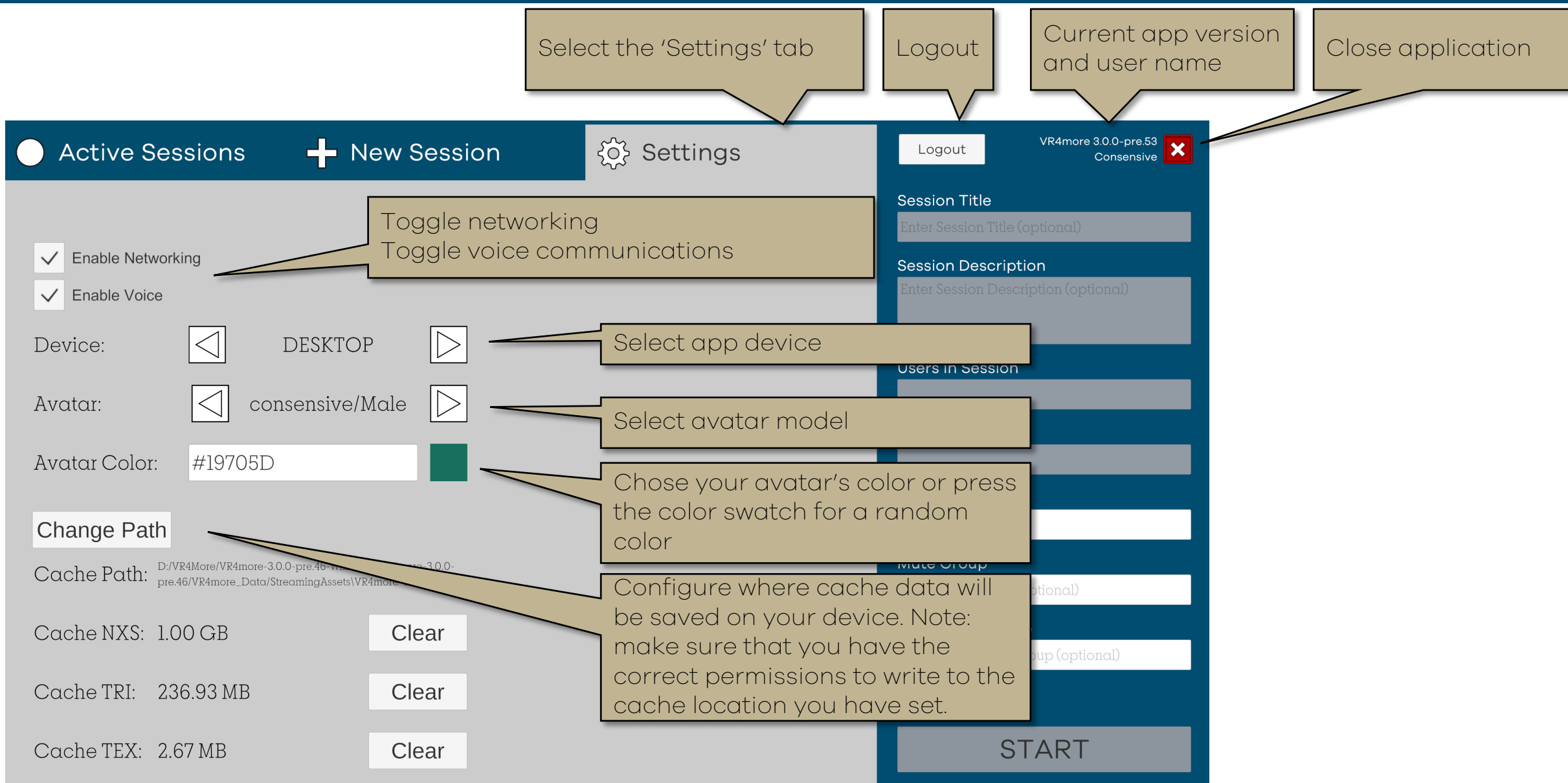Active Sessions   New Session   Settings

Logout   VR4more 3.0.0-pre.53
Consensive

Session Title

Enter Session Title (optional)

Session Description

Toggle networking
Toggle voice communications

☑ Enable Networking

☑ Enable Voice

Enter Session Description (optional)

Device: ◁   DESKTOP   ▷

Select app device

Users in Session

Avatar: ◁   consensive/Male   ▷

Select avatar model

Avatar Color: #19705D

Chose your avatar's color or press the color swatch for a random color

Change Path

Mute Group

Cache Path: D:/VR4More/VR4more-3.0.0-pre.46-w...   ...o-3.0.0-
pre.46/VR4more_Data/StreamingAssets\VR4more...

Configure where cache data will be saved on your device. Note: make sure that you have the correct permissions to write to the cache location you have set.

ptional)

Cache NXS: 1.00 GB   Clear

Cache TRI: 236.93 MB   Clear

up (optional)

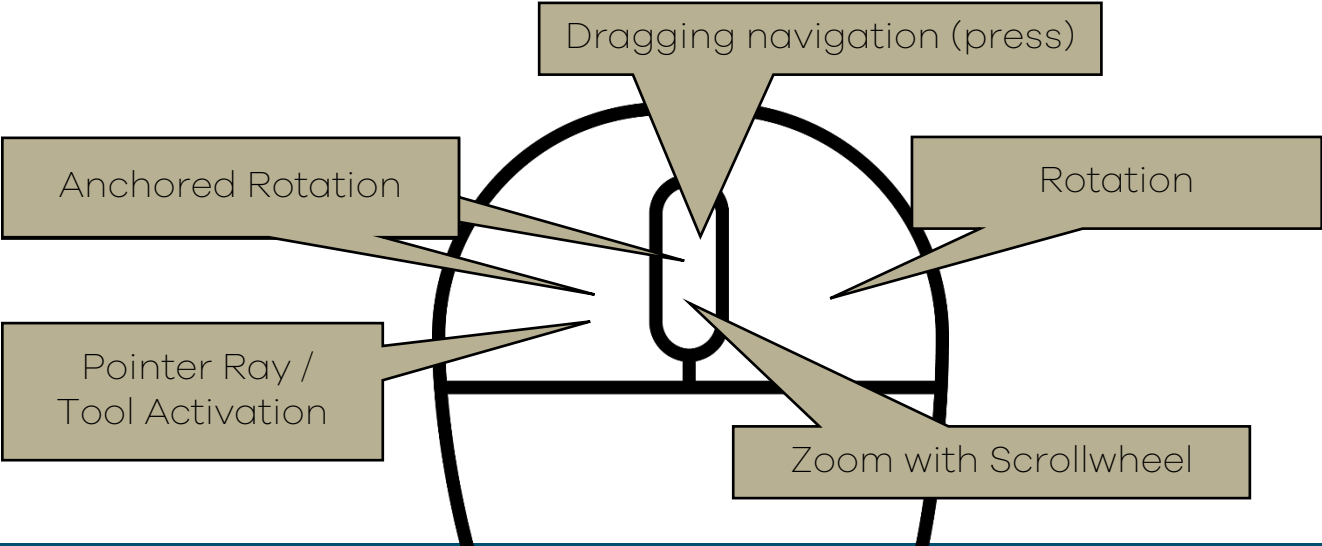Cache TEX: 2.67 MB   Clear

START

CONSENSIVE

Input Controls

- [Desktop Devices](#)
- [Quest Controller](#)
- [Multitouch Devices](#)

Mouse and Keyboard

Keys / Mouse Button	Navigation Function
W/S or up/down	Move forwards/backwards
A/D or left/right	Strafe left/right
Q/E	Move up/down
Left Shift (Hold)	Run
T	Teleport
R	Toggle look up and down
Z	Re-align view to normal
Home	Return to spawn position
Right-Mouse	Enable turning left/right (hold)
Middle-Mouse	Dragging navigation
Right+Middle Mouse	Anchored rotation

Key Binding	Function
I	Teleport group to your position
left CTRL-Key	Tool menu (hold)
H	Toggle help screen
F	Toggle fullscreen
G	Toggle debug display
ESC	Exit

Dragging navigation (press)

Rotation

Anchored Rotation

Pointer Ray / Tool Activation

Zoom with Scrollwheel

CONSENSIVE

Gamepad

L2 or R2: hold for ALT controls

L1: hold to increase motion velocity

R2: hold to increase motion velocity

Scale scene up

Prior POI

Open Help Menu

Teleport Group

Next POI

Horizontal Alignment

Scale scene down

X

Y

A

B

Up/Down
Turn left/right (yaw)

With ALT:
Look up/down (pitch)

Forward/Backward
Strafe Left/Right

CONSENSIVE

Input Mapping for Meta Quest Controller

	Function
Trigger	Ray pointer / Tool activation
Grip	World grab (pinch gesture with both controllers for scaling)
Button B/Y	[Menu for interaction tools](#)
Button A + Trigger	Teleport - Set target teleport position and jump (release trigger)
Button A/X + Hold Controller Over Head	Group Teleport - Teleport group to your current location
Right Joystick	↑↓ Move forwards/backwards ←→ Turn left/right
Left Joystick	↑↓ Move up/down ←→ Strafe left/right
Joystick press	Jump back to last teleport position. Long-press to jump back to spawn position

Button Y

Button B

Left Joystick

Right Joystick

Quest-Menu

Button- X

Button A

Trigger
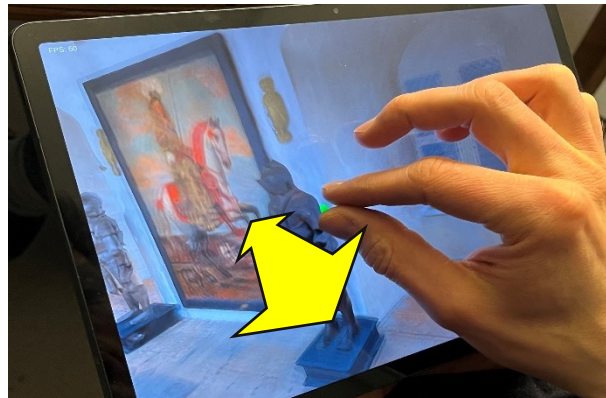
Grip

CONSENSIVE
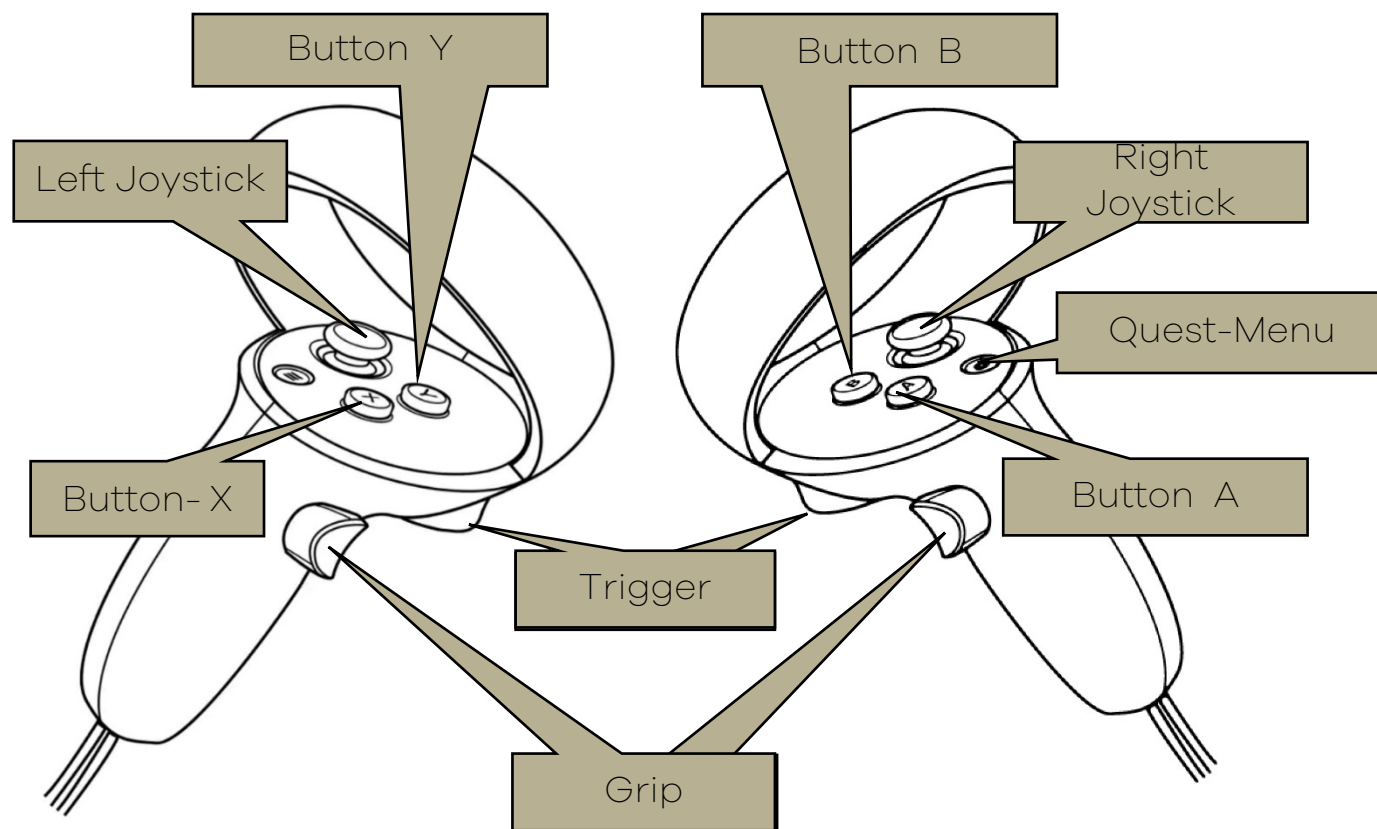
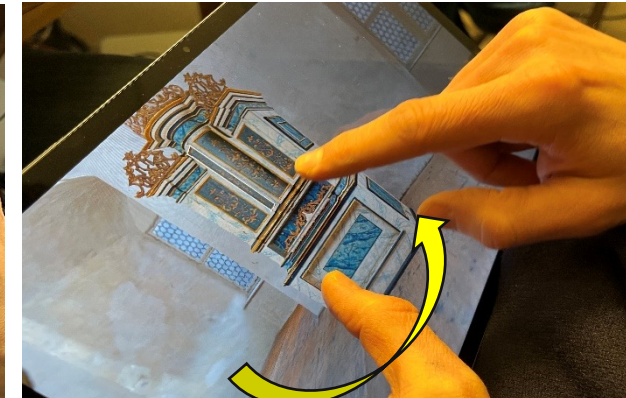# Navigation Controls on Touch Devices

Using single finger navigation you can move up and down or strafe left and right.
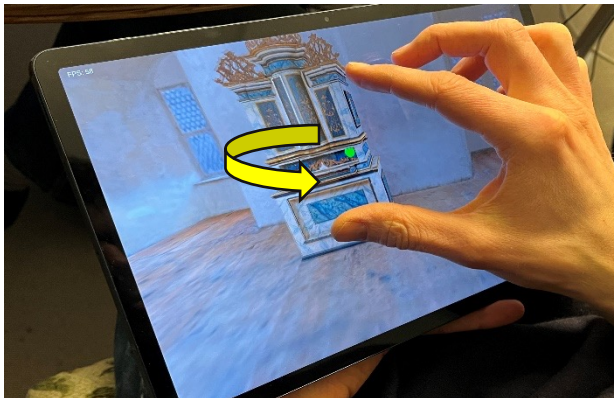
Use two-fingers to turn and rotate.

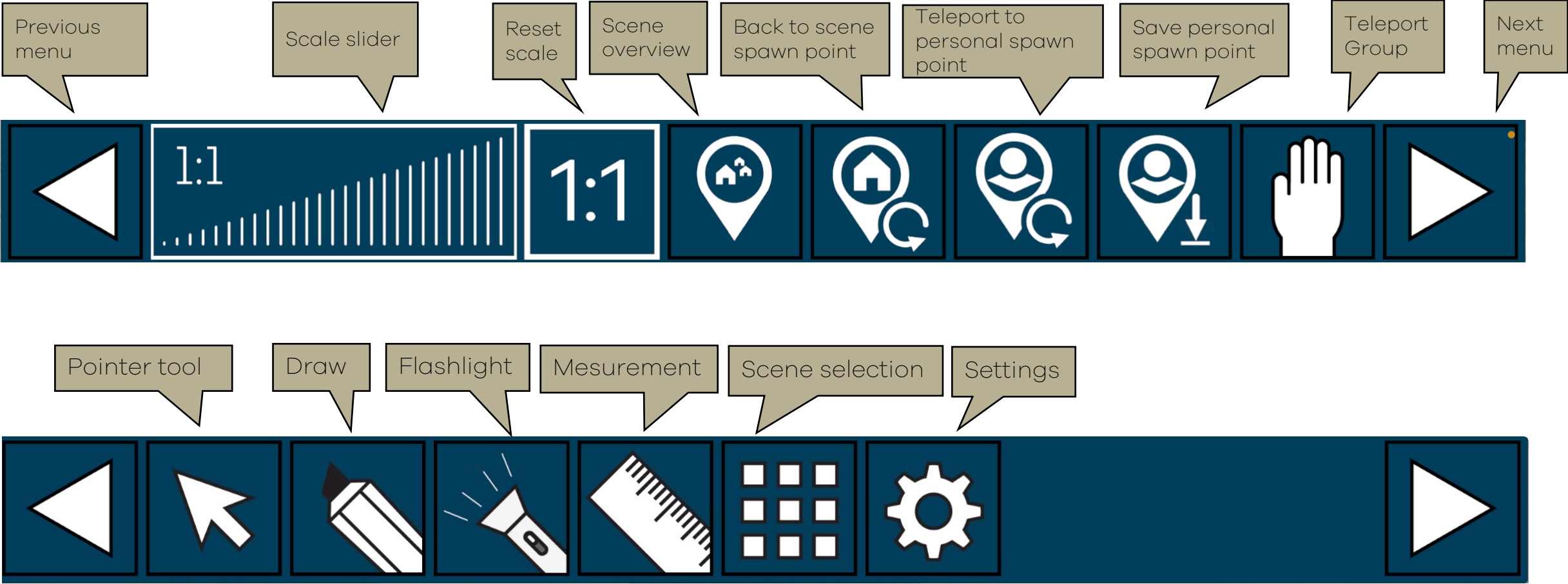Two finger pinching "zooms" in and out (i.e. moves you forward and backward in the scene).

Sequential touch with two fingers (with >0.2sec time difference) allows you to turn around an anchor point in the scene.

Three-finger swipe downwards opens the menu bar.

Three-finger swipe upwards closes the menu bar.

CONSENSIVE

Menus on Touch Devices

Previous menu

Scale slider

Reset scale

Scene overview

Back to scene spawn point

Teleport to personal spawn point

Save personal spawn point

Teleport Group

Next menu

1:1

1:1

Pointer tool

Draw

Flashlight

Mesurement

Scene selection

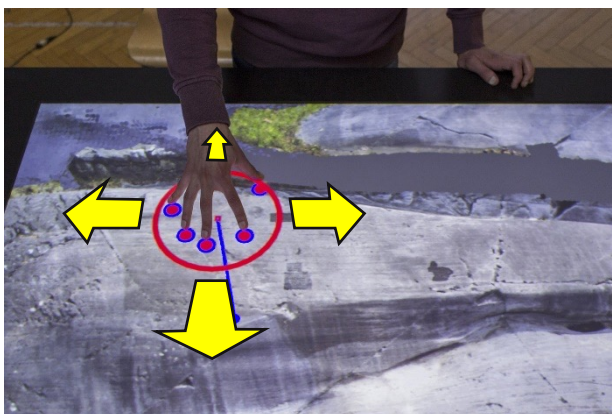Settings

Burgk Castle, Burgk, data courtesy – Infralytica GmbH

CONSENSIVE

Navigation Controls on Touch Tables

On large touch tables, we use hands instead of fingers as the primary method of interaction, with fingers being used to define different modes of interaction.

1 hand (1 finger)

- pointing mode

1 hand (2-5 fingers)

- screenspace translation
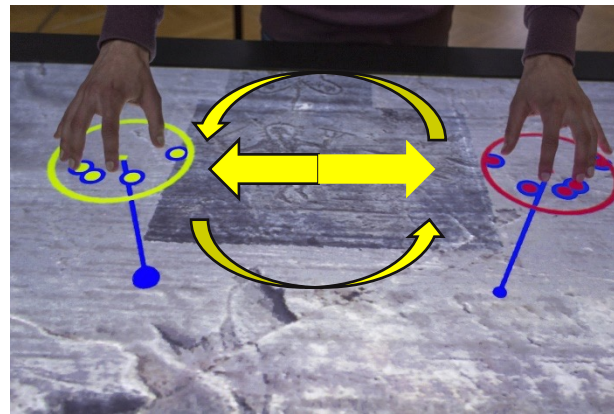
2 hands simultaneously placed

- scaling

- rotation (around screen axis)

- (screenspace translation)
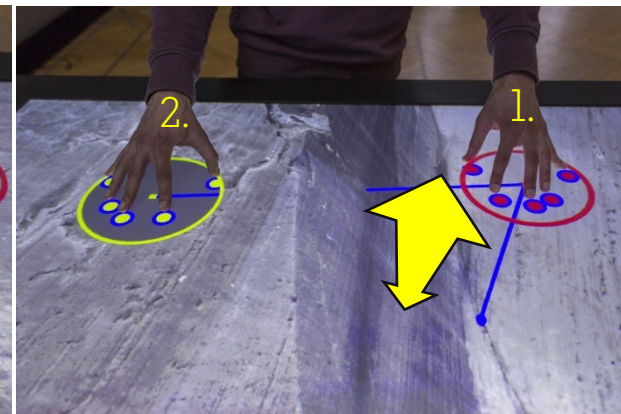
2 hands sequentially placed (>0.2sec time offset)

- vertical translation

CONSENSIVE

Teleportation

-

-

-

Teleporting on Desktop & Touchscreen Devices

Teleportation can be used to jump quickly to any currently visible location in the scene

- On desktop: use the mouse pointer to indicate where you want to teleport to and then press T to jump there

- On touchscreen devices: Double-tap the location you wish to teleport to on-screen

Burgk Castle, Burgk, data courtesy – Infralytica GmbH

CONSENSIVE

Teleporting with the Meta Quest

On Meta Quest:

- Hold A, then half press the trigger button and point the teleport ray to the target location you would like to teleport to. An avatar preview will appear to indicate the target location currently selected.

- By raising or lowering the angle of the right-hand controller whilst holding the A button and keeping the Trigger half pressed, you can move the target location nearer or further away from your current position.

- When you have chosen your target location, fully press and release the Trigger button to teleport there.

- Releasing the A button before releasing the trigger cancels the teleport action

Burgk Castle, Burgk, data courtesy – Infralytica GmbH

CONSENSIVE
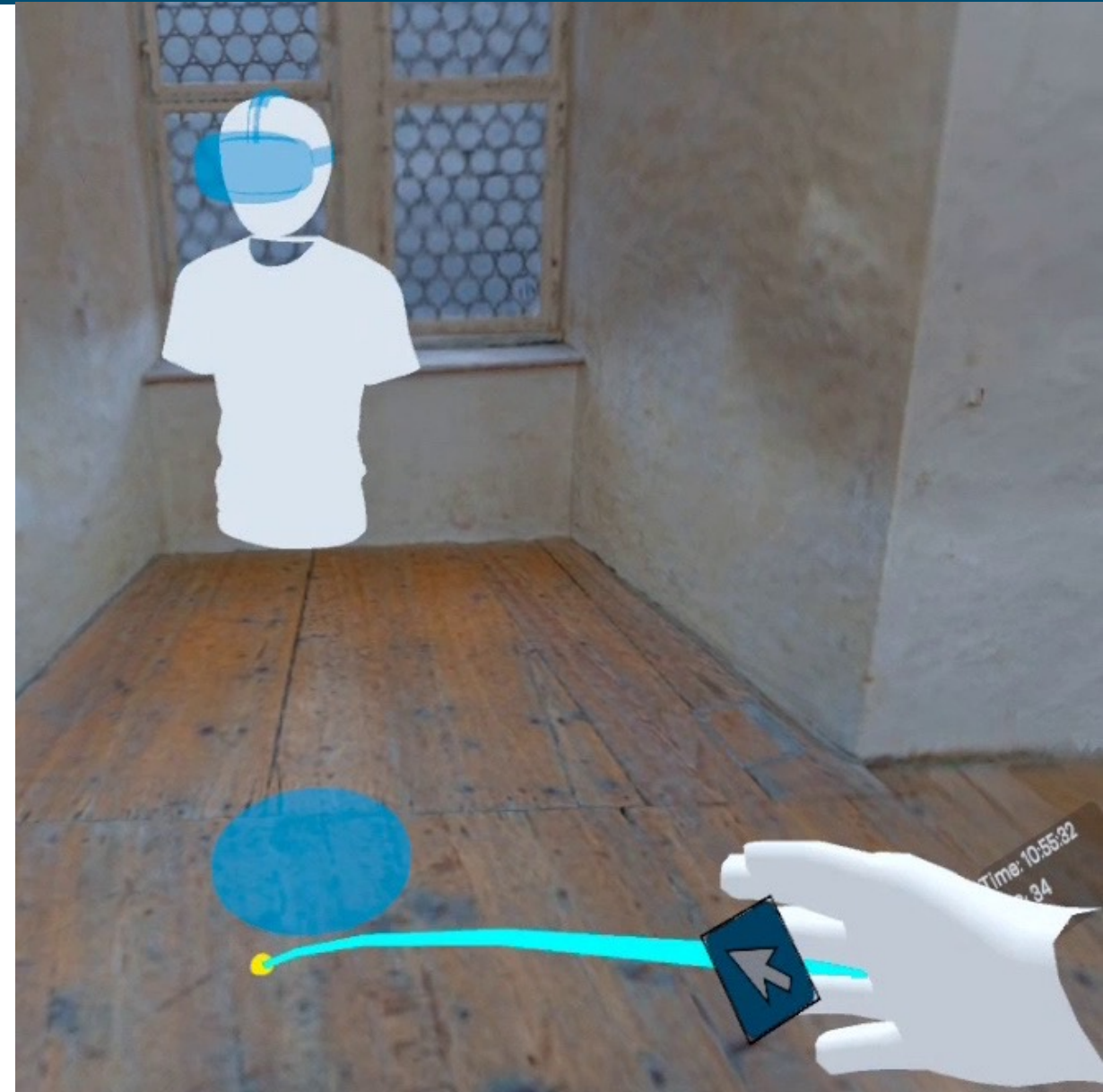
Group Teleportation

All users currently in the scene can be teleported simultaneously to a location using the group teleportation feature. Any user activating group teleportation will teleport all other users in the scene to their current location, either automatically or by invitation. To use group teleportation:

- On desktop - press the "I" key

- On touchscreen devices - use the [navigation menu](#)

- On VR headsets - raise the right hand controller above your head and press the A button

If invitation consent has been switched on in the app settings, group teleport requests will result in a pop-up window being displayed to all other users asking them if they want to accept the teleportation request.

- On touch or desktop devices - an invitation pop-up will appear on-screen inviting you to accept the teleport invitation. To accept the invitation, click or tap on the pop-up before the invitation timer expires. To reject the invitation, simply ignore the pop-up and wait for the invitation timer to run out.

- On Meta Quest - an invitation pop-up will appear at the position of the right hand controller. To accept the invitation, press the A or X controller buttons. To reject the invitation, simply ignore the pop-up and wait for the invitation timer to run out.

Burgk Castle, Burgk, data courtesy – Infralytica GmbH

CONSENSIVE
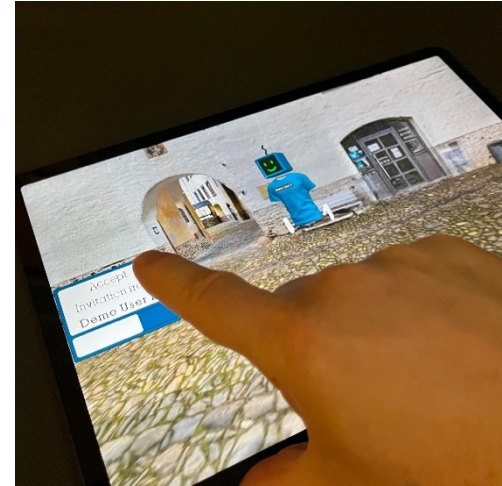
Co-located Groups

- [The Converseum](#)
- [Spatial Registration](#)
- [Navigation & Invitation Settings](#)
- [Continuous Invitations](#)

The Converseum

The Converseum uses a viewing screen and multiple VR-headsets to offer groups of users guided experiences through large virtual scenes. Users can begin by viewing a guided tour on the display screen and then put on VR headsets to jump into specific locations and start interacting in immersive 3D.

CONSENSIVE
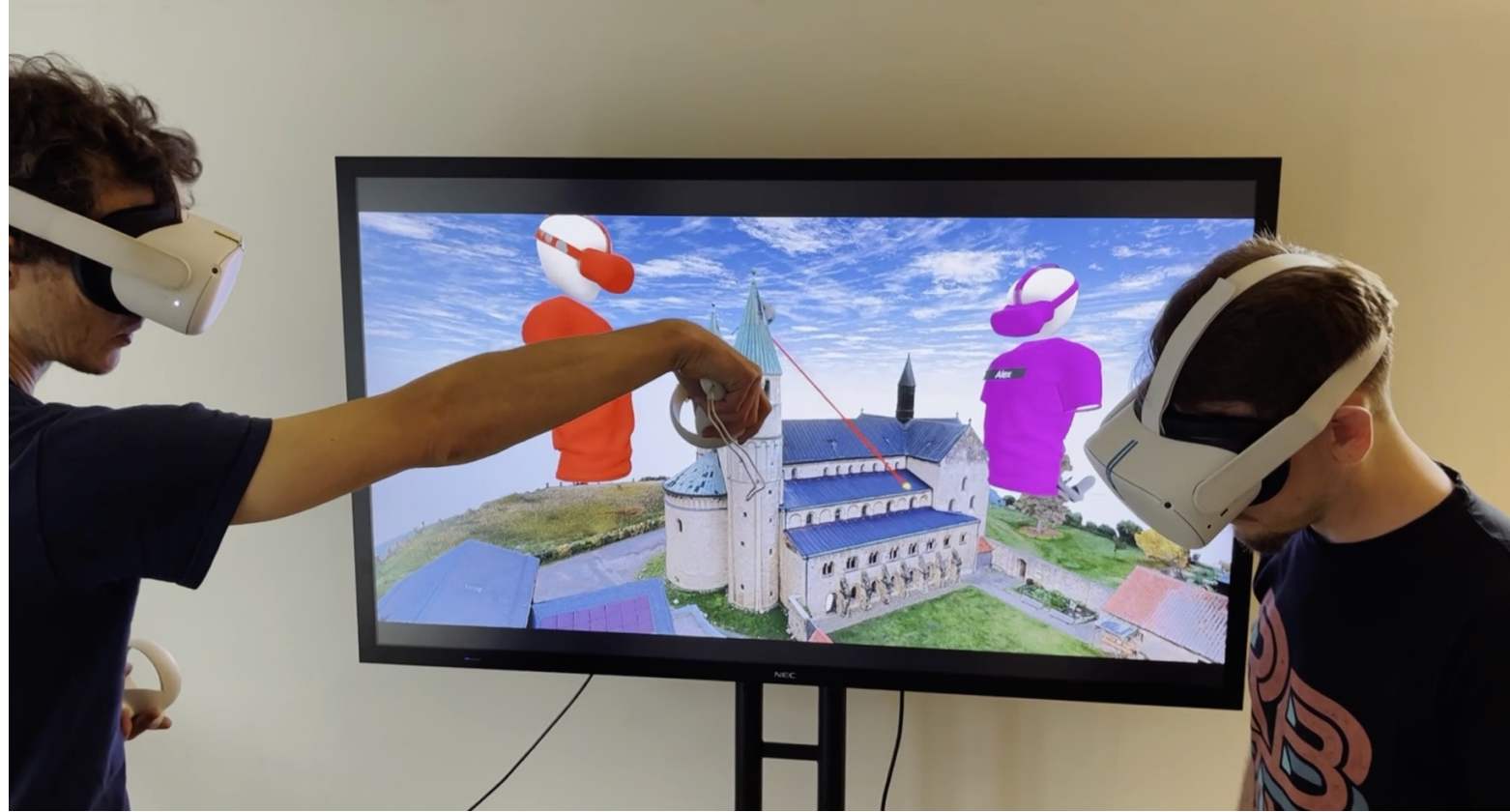
Spatial Registration for Co-located Users

To synchronise the spatial relationships between co-located VR users a registration procedue must be performed for each VR-Headset:

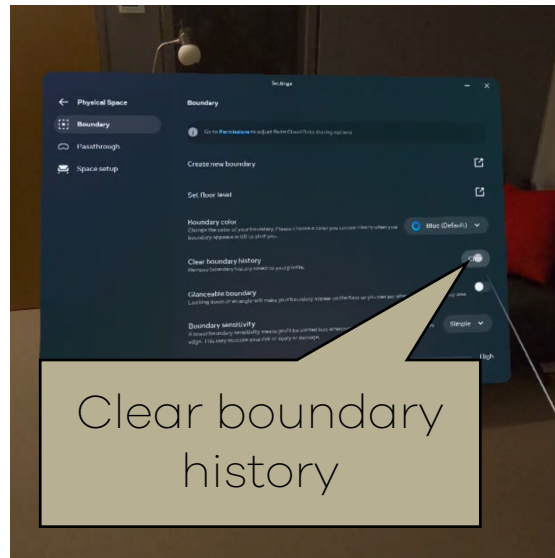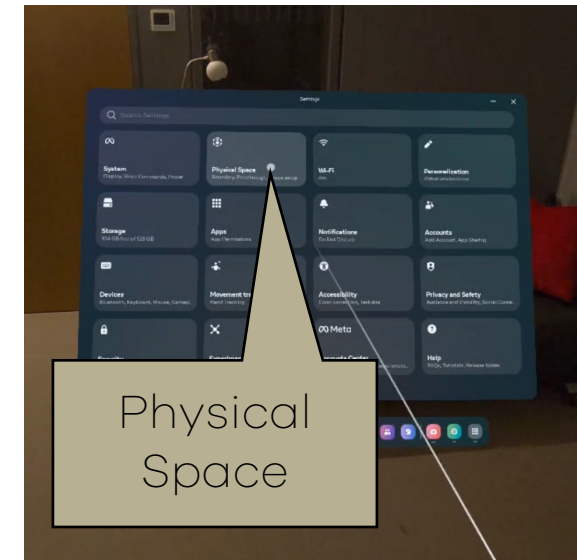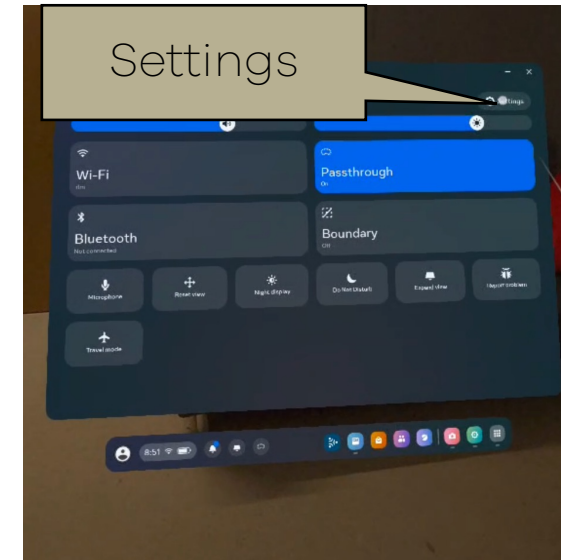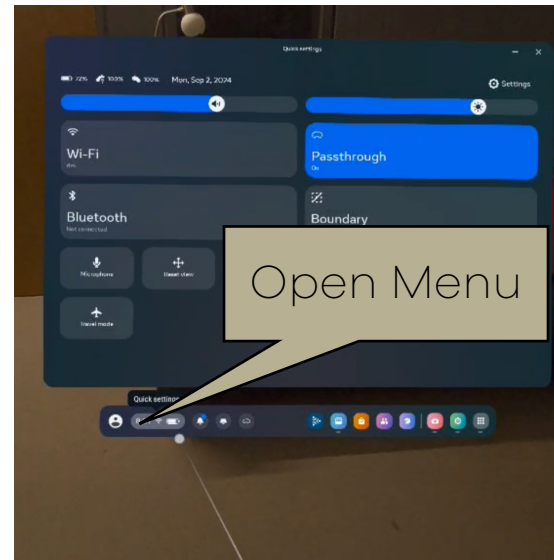**Start with a single „guardian" specified for each device (next page)!**

1. Chose and mark a reference position and direction on the floor of the room where all the users are co-located (red square with arrow)

2. Take an HMD headset in your hand, flip it upside down and back again while covering the face sensor with your thumb. This will initiate a 5 second countdown, accompanied by a pip sound from the headset (note: headset volume must be turned up to hear this).

3. Place the headset at the reference position facing in the correct direction before the countdown is over in order to set the spaital registration for the HMD. The completion of the spatial registration process will be indicated by a final 'plip' sound.

4. Repeat this process with the headsets of all other co-located users and then use one headset to invite all users to a location in order for the spatial registration to come into affect

1 sec.

Flip the HMD over and back for 1 sec.
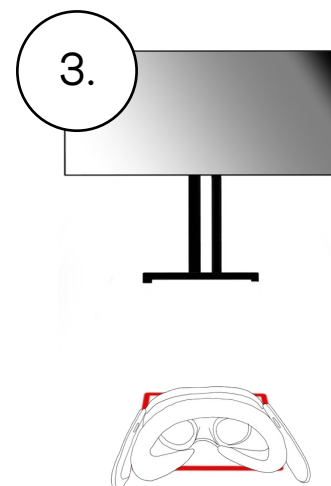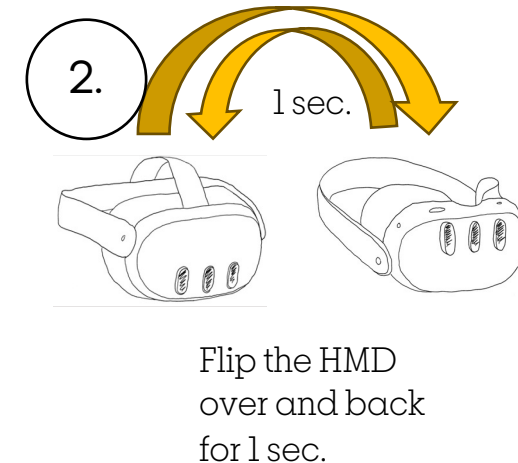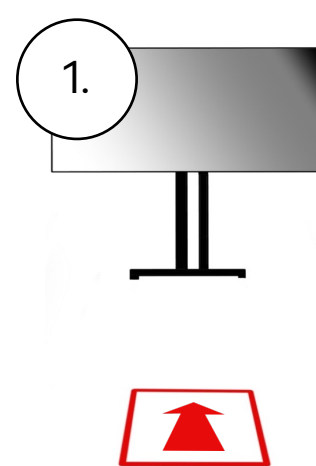
Note: the headset will not be able to recognise the reference position if it lies outside of the guardian boundary set on the HMD. This will prevent successful spatial registration.

CONSENSIVE

Ensure a Single Guardian on Meta Quest VR-Glasses

The spatial registration of Meta Quest VR-Glasses is more robust, if only a single guardian has been specified as a reference to the physical space. Therefore, it is useful to delete prior environment models in terms if guardian history.

Open Menu

Settings

Physical Space

Clear boundary history

Confirm

Create new boundary

Adjust as needed

CONSENSIVE
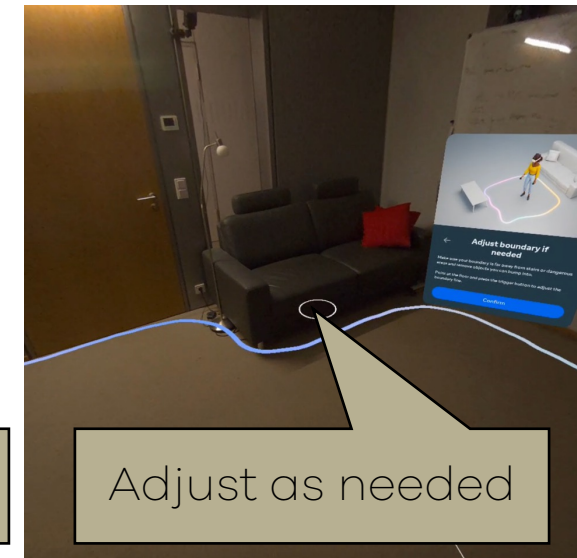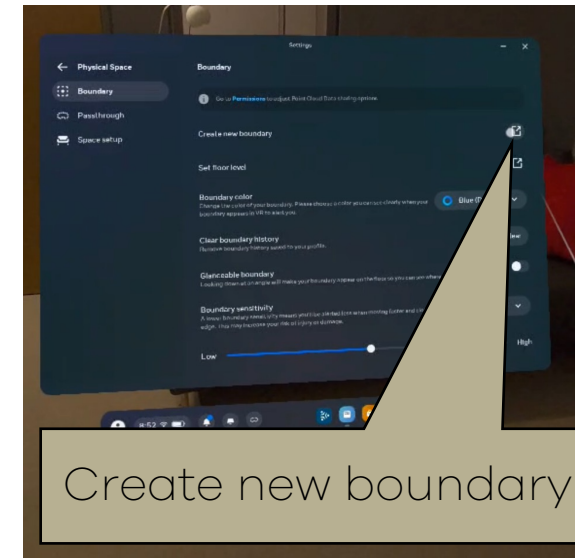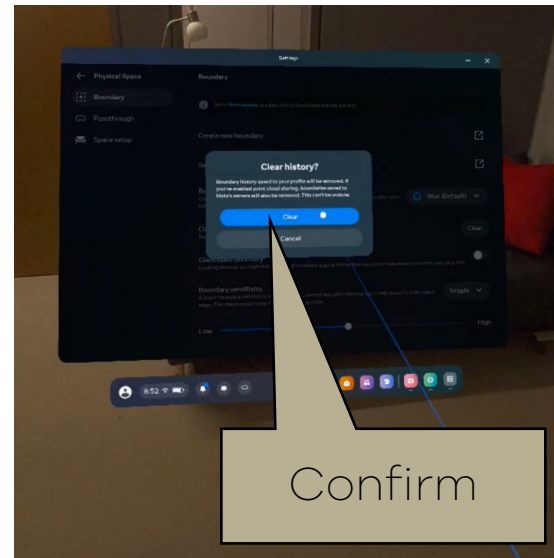
Navigation and Invitation Settings

Individual navigation and invitation settings can be configured for each user in the 'Navigation' pane of the Setting Menu.

- **Steering/Teleport/World Grab Toggles**
  Allows you to switch these navifation features on or off

- **Translation/Rotation Velocity**
  Change the speed with which your avatar moves through the virtual scene

- **Continuous Invite** – see next page

- **Onetime Invite** – Used for configuring group teleportation
  Forced: triggering group teleportation results in all other users being teleported to your position without being asked for consent
  Consent: : triggering group teleportation results in all other users being asked if they would like to jump to your position

- **Invite Frontal Offset**
  The offset, in meters, from your position that other members of your group will appear at when you use group teleport to bring them to your location.

CONSENSIVE
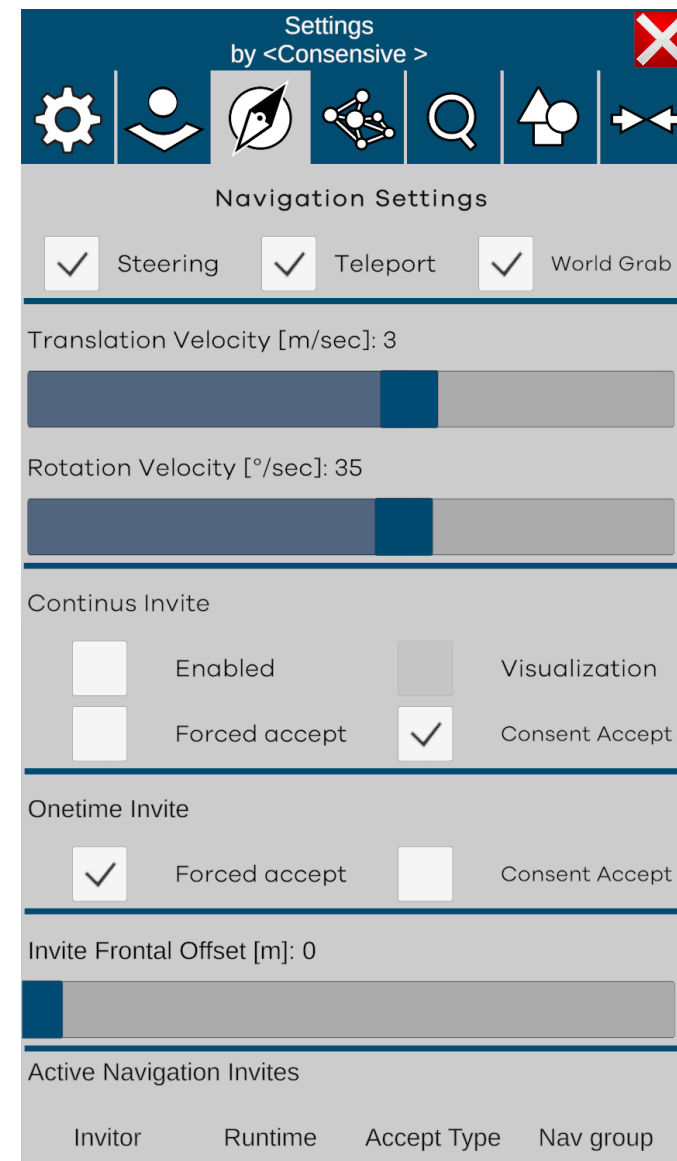
Continuous Invitation

1. Enabling Continuous Invitation allows other users to teleport to your current location at any time without you having to explicitly invite them. Forced Accept should be disabled for continuous invite, Consent Accept enabled, and only a maximum of one client in each session should enable continuous invite at one time.

2. VR users may teleport at any time to the current location of the user who activated continuous invitation by holding their headsets 2m above the floor for one second.

3. Frontal offset can be used to adjust where teleporting VR users will appear relative to the position of the invitee

4. A list of active users at the bottom of the menu window shows which users have continuous invite enabled. This can be used to help assure that only one user has continuous invite activated at any one time.
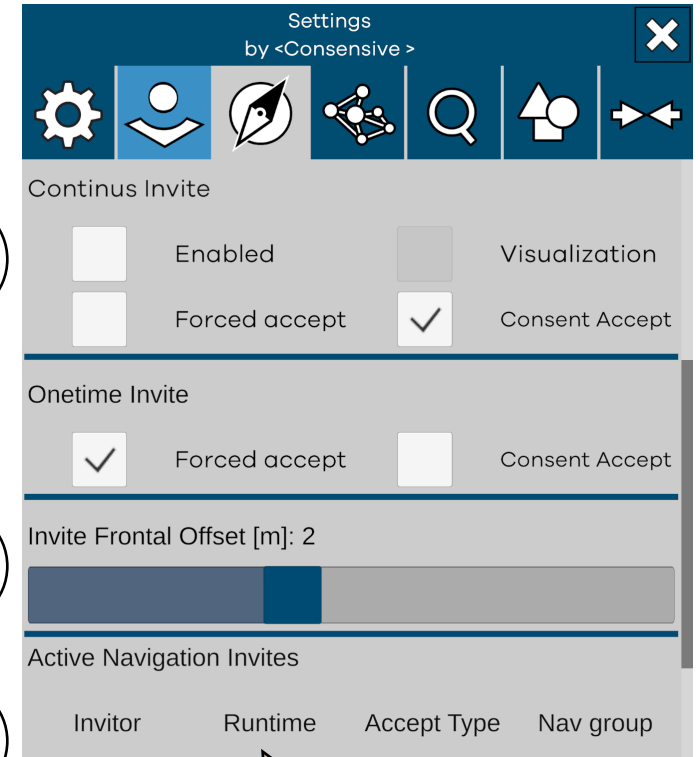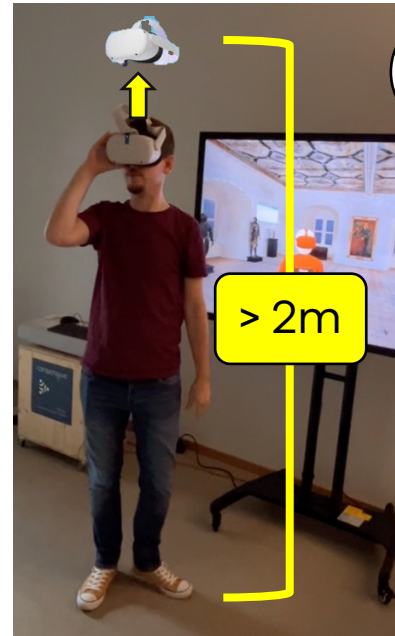

Check here that only one user with "Continuous Invite" is listed as active in the session

Menus and Interaction Tools

In-Session Menu

Pressing the B button on the controller of a VR headset, the Ctrl-Key on a desktop computer, or doing a three-fingered downward swipe on a touch device activates the In-Session Menu. From here, the following options can be selected:

    ⬚ Pointer
    ⬚ Navigation submenu
    ⬚ Annotations
    ⬚ Settings Menu
    ⬚ Scene Selection
    ⬚ Ruler
    ⬚ Flashlight
    ⬚ Draw

To select a menu item, move the ray pointer over its icon and then release the menu button.

CONSENSIVE
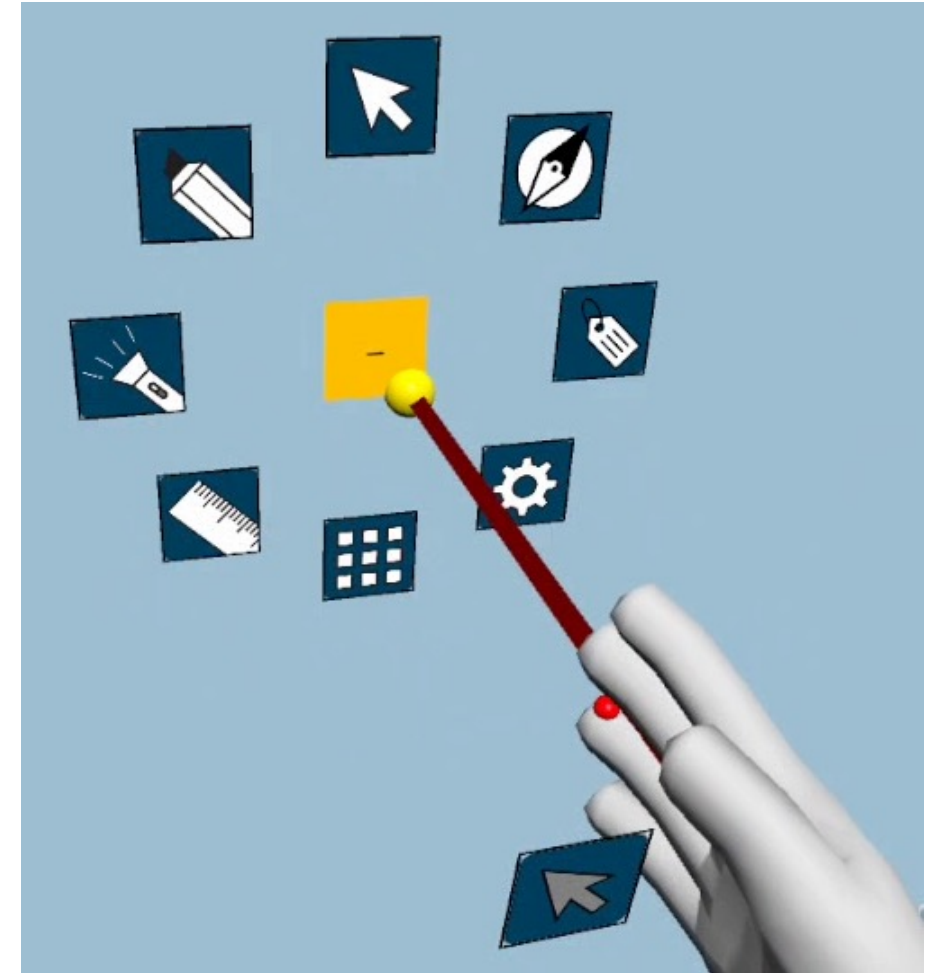
Settings: General

Settings
by <Consensive >

General Settings

VR4more: VR4more 3.0.0-pre.50
VR4more-Nexus: 1.6.5
VR4more-PVS: 1.0.4

Back To Lobby

Performance Tool

GUI Visibility

Reset Objects   Toggle Annotations

FoV [°]: 60

Near Plane [m]: 0.1

Far Plane [m]: 500

Settings Menu voulme: 50

Reset all moved objects to their default positions in the scene

Camera Settings: for developer use only

Volume level of the settings menu sounds

Toggle visibility of applciation information

Toggle visibility of anotations

CONSENSIVE

Settings: User

Name of logged in user

Display name for your avatar

Select avatar model

Avatar color code

User role (for POIs)

Settings
by <Consensive >

User Settings

Name: Consensive

Alias: Consensive

Avatar: ◁ consensive/Male ▷

Color: #19705D

Current Avatar Color. Clicking on color swatch: change avatar to a random new color

Role: ◁ Default ▷

CONSENSIVE

Settings: Navigation

For information on these menu settings, see the following pages in the 'Co-Located Groups' section of the manual:

- Navigation & Invitation Settings
- Continuous Invitations

Settings: Network

Toggle the ability for the user to participate in voice communications. Switching this off will prohibit the user from being able to send or reive voice communications in the sesion, thus saving network data.

Mute user. This will mute the user's microphone.

Settings
by <Consensive >

Network Settings

Network Connected: True
Server Address:
wss://cg011.vr4more.com/room/hohnstein/

Network enabled

Voice enabled

Mute

Bandwidth Limit [MBit/s]: 0.5

Bandwidth testing tool (for expert users only)

CONSENSIVE

Settings: Nexus (Data Streaming)

Max. Triangle Budget for Rendering (0 is unlimited). Reducing the triangle budget may help improve the performance of the app and overall user experience on devices with more limited processor capacity.

Shadow types and quality affect visual quality but also rendering effort

Higher Antialiasing means smoother visualization, but also higher rendering effort

Settings
by <Consensive >

Quality Settings

PVS not running!
Loading: 0
Total MB Selected Traverser: 804.8535
Total MB Used Traverser: 999.6683
Total Triangles Rendered: 472351
Non Linear Error Base: 1

Cache Nexus

Triangle Budget: 0

Visualization Modes

Single Color   WireFrame

PassThrough   ✓ Global PassThrough

Shadow Type: HARD

Shadow Quality: MEDIUM

Anti Aliasing: MSAA4x
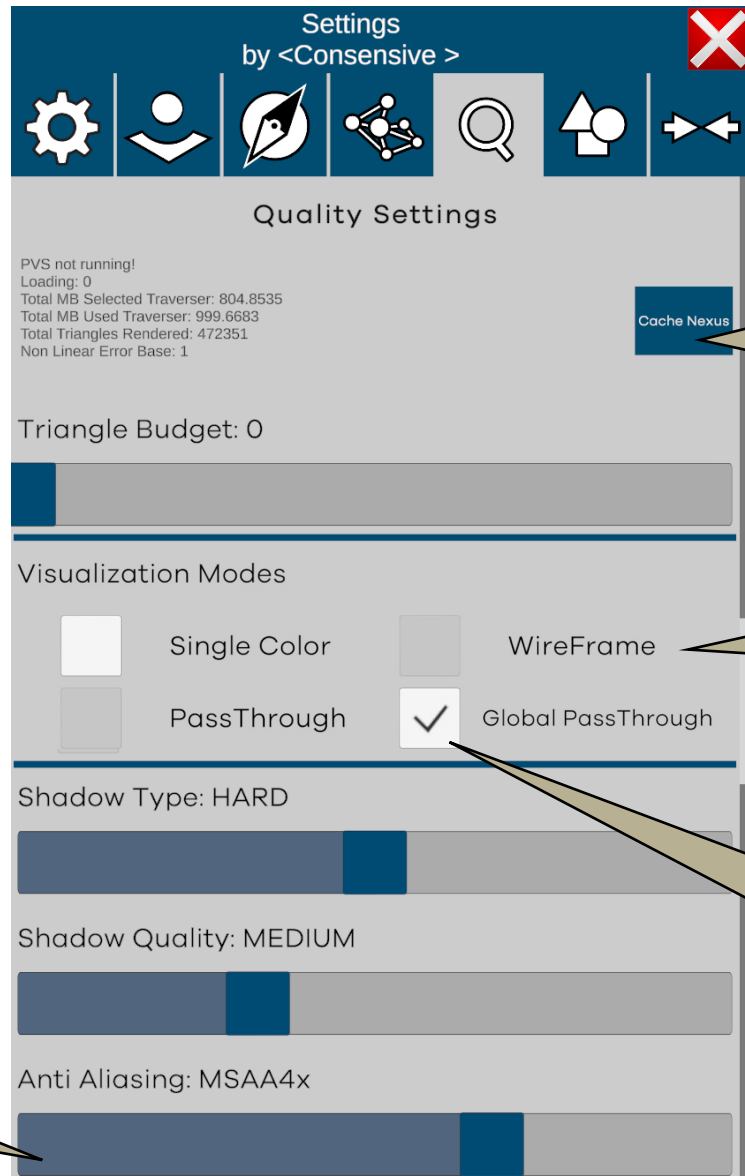
Pre-cache all the data in the current scene onto your device. This can be useful in situations where you want to visit the scene again later on a network with very limited bandwidth.

Toggle single color or untextured wireframe visualisation modes. This will simplify the rendering of the scene for the user.

Global PassThrough switches to all XR-headsets in the session to mixed-reality mode using video pass through

CONSENSIVE

Settings: Scene
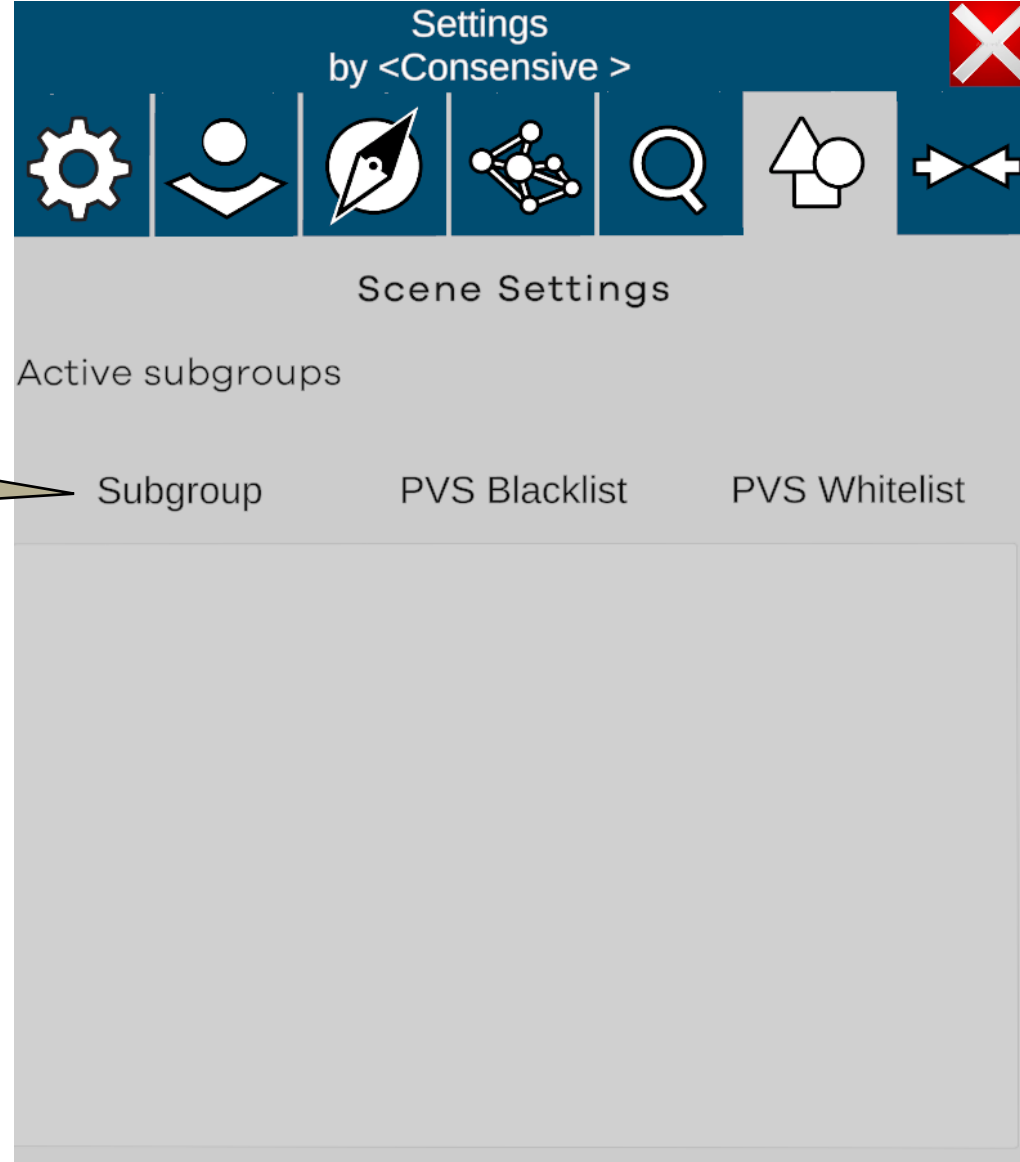
In some scenes, subparts can be blacklisted or whitelisted

Navigation Submenu

To enter the navigation menu:

- Press and hold the Menu-Button (B/Y on HMD-Controller or CTRL-Key on Desktop-PC) and then point to the Navigation icon in the menu. Release the menu button whilst hovering on the icon to select navigation.

- The Navigation icon should now appear virtually attached to the HMD controller, or, on Desktop, in the upper right corner of the screen. This indicate that you are now in navigation mode.

- Pressing the Menu-Button again opens the Navigation pie menu from which the following tools can be selected:

 Teleport to the default spawn point for the scene

  Frame complete scene (generally scaled down)

1:1 Reset scaling to 1:1

 Set your own personal spawn point for this scene

 Teleport to your personal spawn point

CONSENSIVE
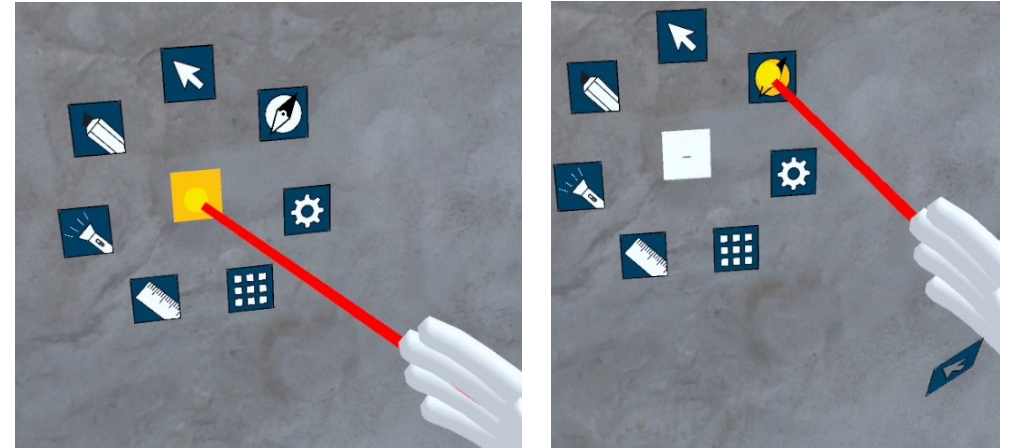
Scene Switching Menu

The Scene Switching menu allows to switch between scenes without leaving your current session.

- The list of available scenes can be scrolled through using the scrollbar on the right.

- A scene can be switched to by either:
  On Quest: using the ray pointer and trigger to select the desired scene and then selecting the "Switch Scene" button.
  On Desktop: selecting the scene with the mouse and then double clicking on its name (or clicking the "Switch Scene" button.
  On Touch Devices: double tapping the name of the desired scene

- The scene is switched for all users who are in the same session with you.
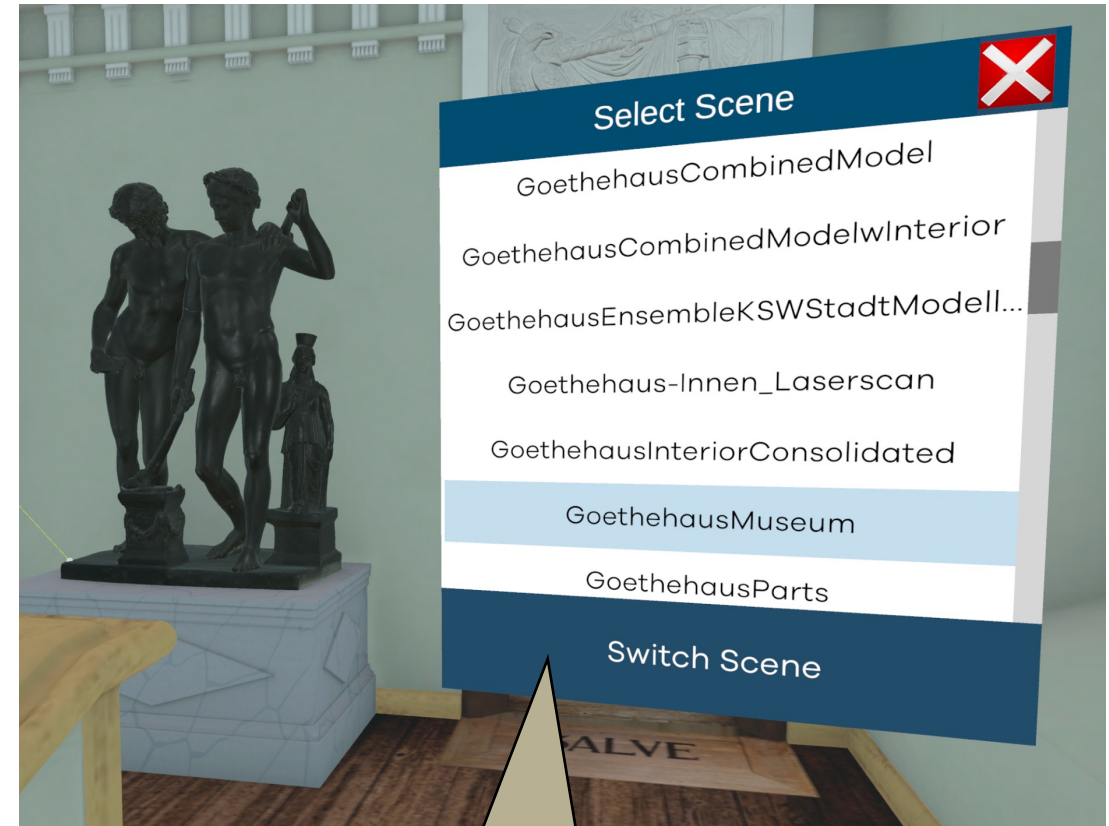
Switch to the selected Scene

Distance Measurement Tool

Using this tool you can measure distances between multiple points in virtual space.

- Start by selecting the measurement tool from the in-session menu.

- Select any point in space that you want to measure from and activate the tool by holding the trigger button (Quest), pressing the left-mouse button (desktop) or by tapping and holding your finger on the screen (touchscreen devices). Then drag the measurement tool to a second point that you want to measure the distance to and release the tool.

- You can continue to add further points of measurement by clicking, dragging and releasing.

- The measured distance is shown next to the last measurement point you selected.

- To clear the measurement:
  - Desktop: press "C" key
  - VR headset & Touchscreen Devices: select another tool

Dist: 0,19m

Flashlight

The flashlight tool can be used to illuminate an area on a virtual model. To operate:

- Select the flashlight tool from the in-session menu

- Activate the tool by holding the trigger button (Quest) or pressing the left-mouse button (desktop). On touchscreen devices the flashlight is active as soon as it is selected from the menu.

Fortified Church of Döblitz, data courtesy – Bauhaus-Universität Weimar
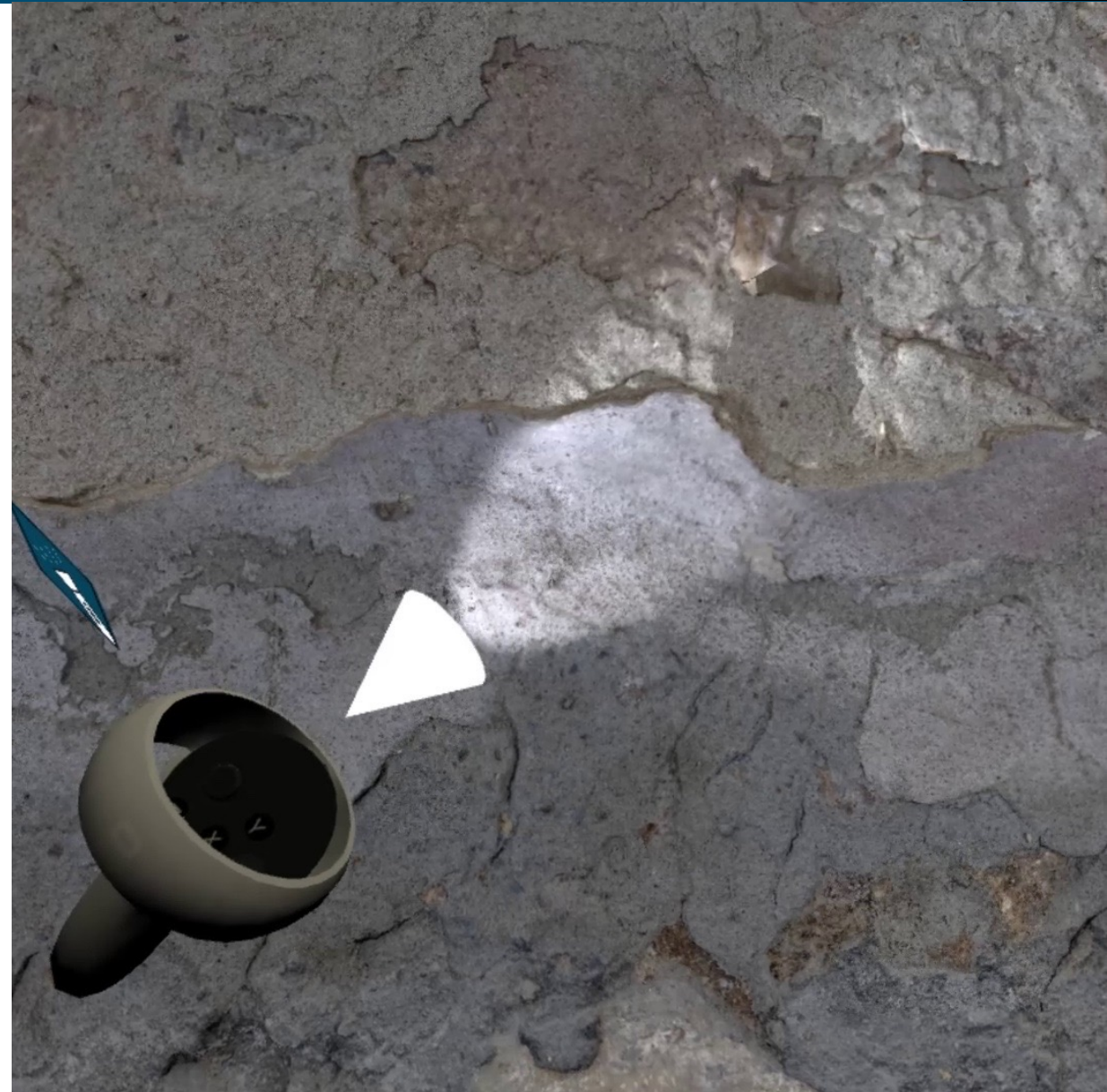
Draw Tool

Use for creating simple freehand line drawings in virtual space – e.g. for highlighting something of interest

- Select the draw tool from the in-session menu and then activate it by holding the trigger button (Quest), pressing the left-mouse button (desktop) or by tapping and holding your finger on the screen (touchscreen devices).

- Every time you start a new drawing the previous one will be deleted.

- To clear a drawing:
  - Desktop: press "C" key
  - VR headset & Touchscreen Devices: select another tool

Burgk Castle, Burgk, data courtesy – Infralytica GmbH

CONSENSIVE
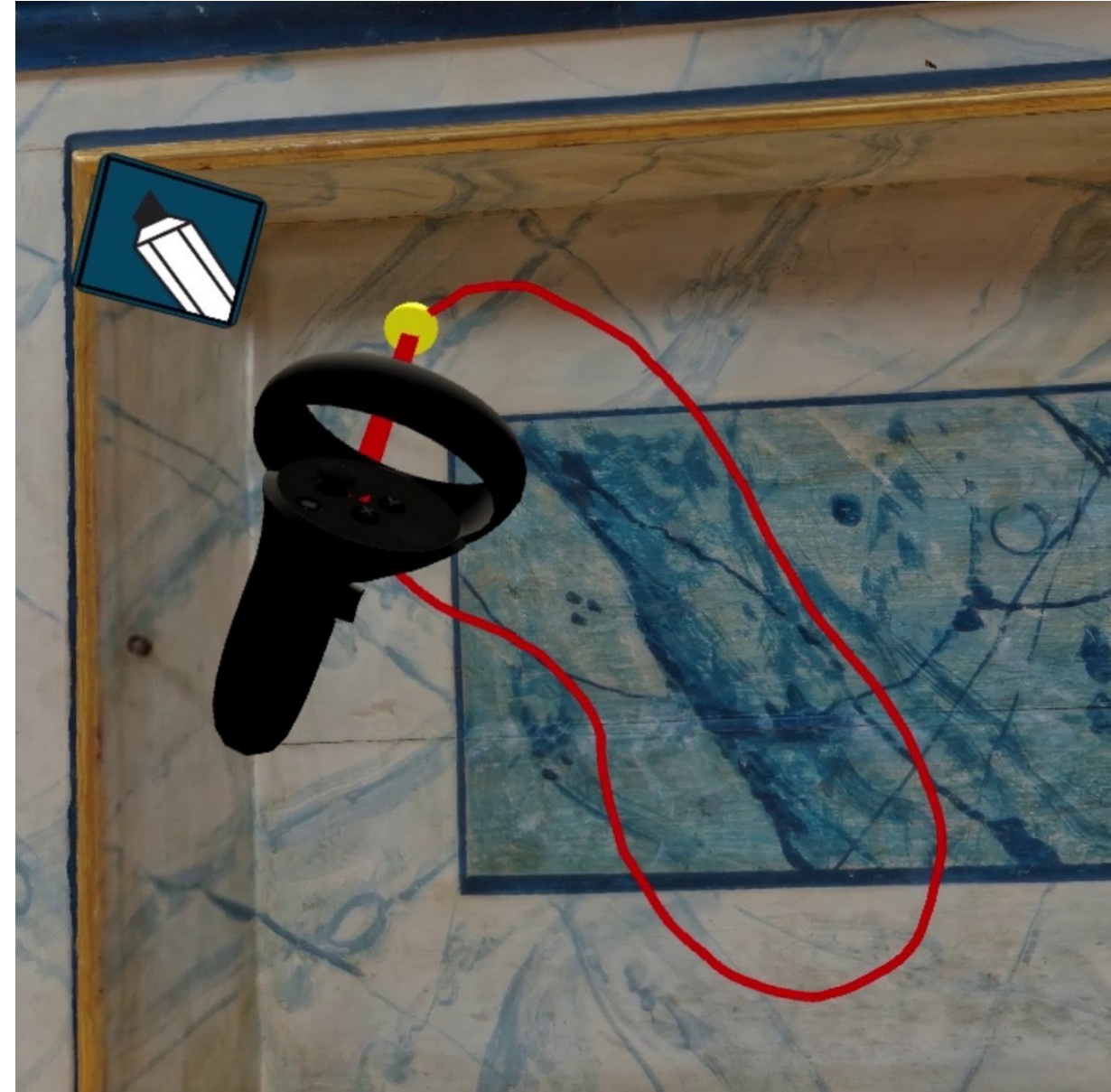
Using a microphone

If "Voice enabled" is checked in the Network Settings menu and "GUI visibility" in General Settings menu is set to "On", then a microphone status icon will appear in the lower right corner of the user view. This icon:

- Shows if the microphone is muted or unmuted

- Changes color when the microphone detects audio

- Can be clicked on to mute or unmute the microphone

No sound captured

Sound captured

Microphone is open

Microphone is muted

CONSENSIVE
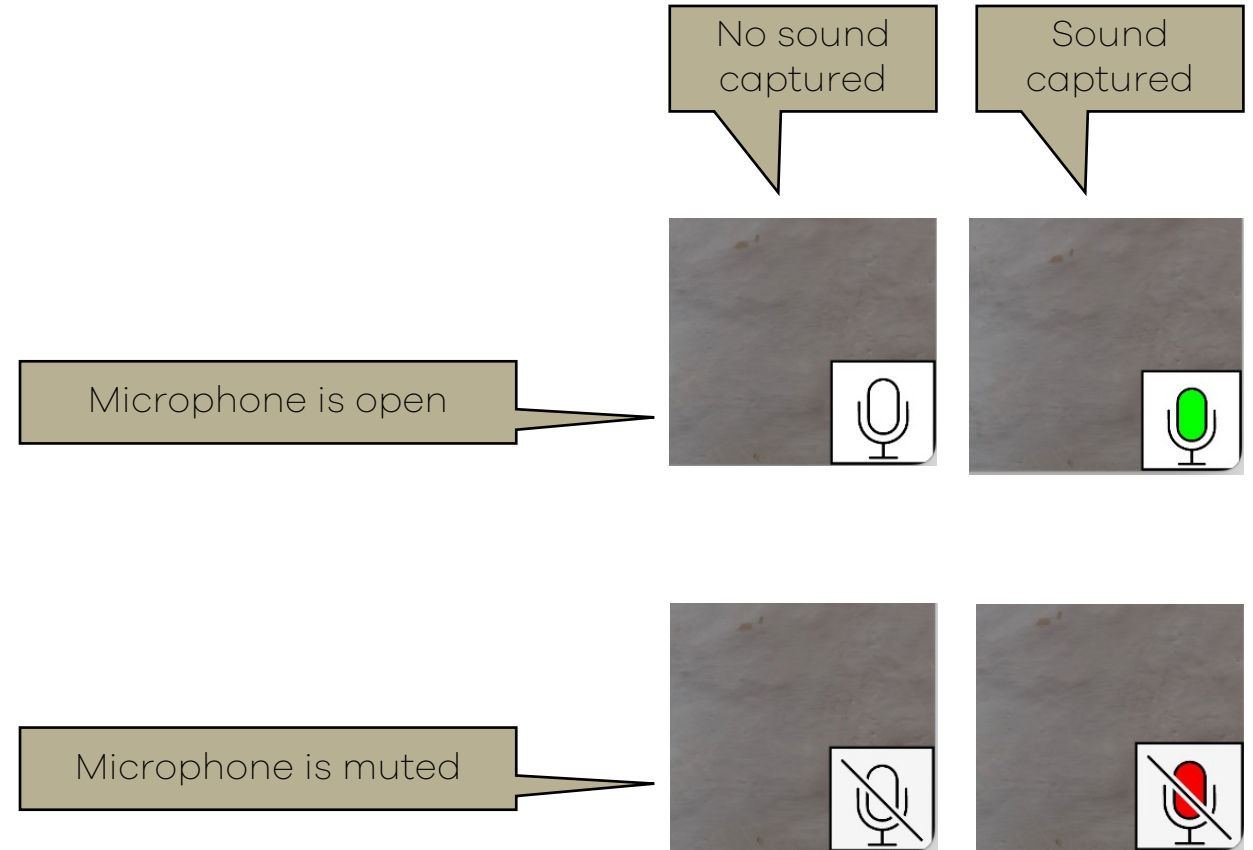
Points of Interest (POIs) – Accessing the POI Menu

The points of interest (POI) feature can be used to pre-define multiple positions in a scene and then teleport a group or an individual user between them.

This can be helpful for pre-planning and offering virtual group tours through a VR scene.

POIs are accessed through the POI menu. To view the POI menu:

- 'GUI Visibility' must be switched on in the <u>settings menu</u>.

- You must be using either a touchscreen or desktop version of the VR4More app (the POI neu is not currently available on VR-headsets)

- You must click on the blue arrow icon on the right of the screen to open the menu

Click the arrow icon to open the menu

CONSENSIVE
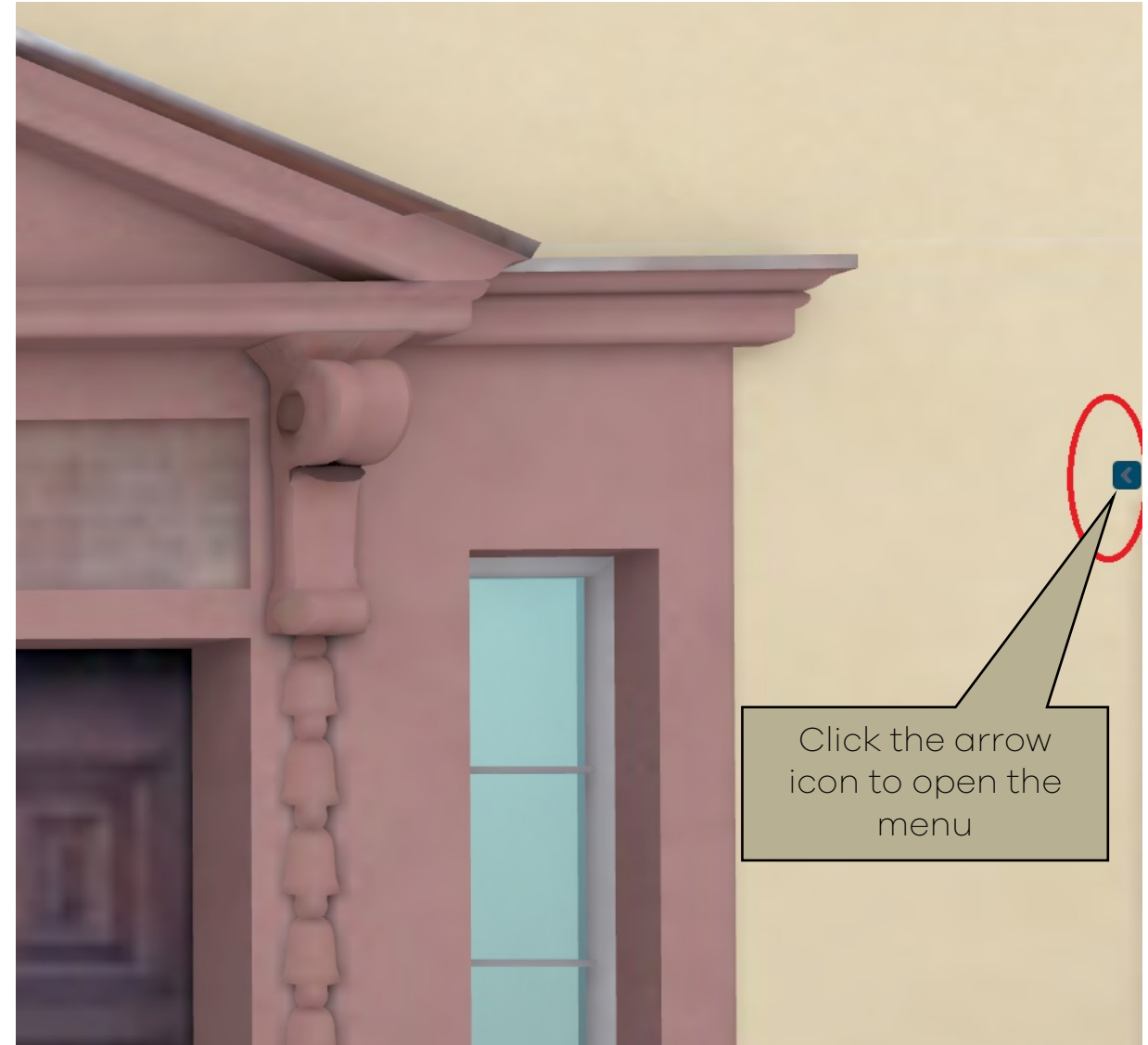
Points of Interest – Navigating between POIs

Once the POI menu is open, you can navigate between POIs by simply selecting the thumbnail image of the location you want to teleport to.

- On touchscreen devices, double-tap the location thumbnail in the POI menu to teleport

- On desktops and laptop devices, double-click with your mouse on the location thumbnail in the POI menu to teleport

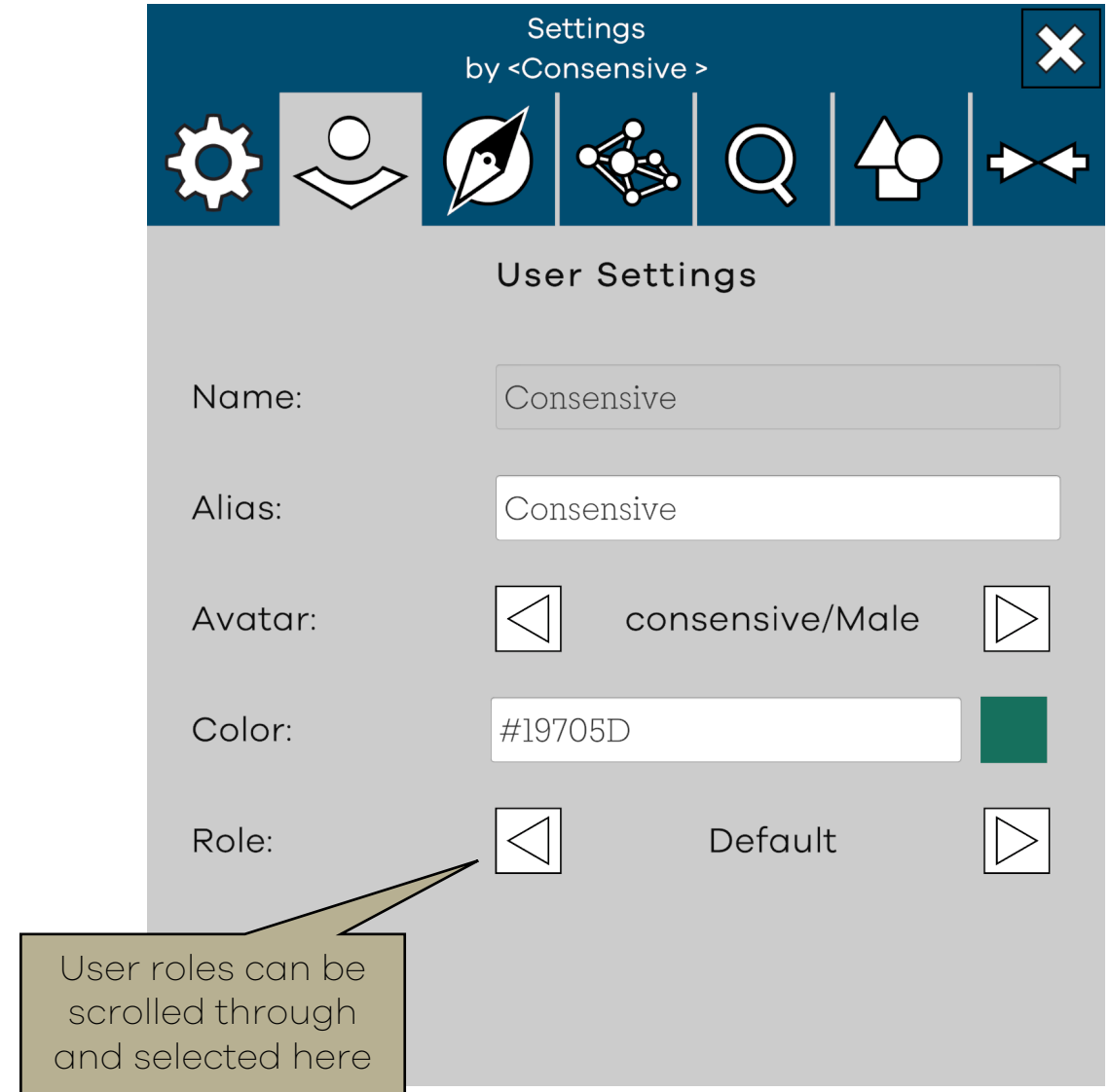Select location thumbnail to teleport

Points of Interest – Roles

Sometimes you may want different users on different devices to experience a different perspective on the same POI. This can be particularly useful, for example, when a virtual tour leader on a touchscreen device needs to have a different perspective on a POI to the tour group of VR-Headset users that they are leading, such that they can easily keep an overview on the group's positions and activities.
To achieve this, VR4More's POI feature includes the possibility for setting up different user groups, called 'roles'.
User roles allow for each POI to contain multiple perspectives, appropriate for different user types, and for those perspectives to be made available exclusively for specific groups of users or specific types of devices.
The POI user role of each user can be set in the user settings menu of their device.

- The 'default' user role is usually that of the POI tour leader, or the person who will have access to the POI menu on desktop or touchscreen devices in order to move the group around.

- The 'HMD Visitor' user role is made for VR-Headset users who are participating in a tour, but who do not need to be able to navigate the group through the POIs.

Settings
by <Consensive >

User Settings

Name: Consensive

Alias: Consensive

Avatar: ◁   consensive/Male   ▷

Color: #19705D

Role: ◁   Default   ▷

User roles can be scrolled through and selected here

CONSENSIVE

Application Info

- [Desktop Information Display](#)
- [HMD Information Display](#)

Application Information (Desktop)

Pressing the G key on your keyboard toggles the visibility of the application information gui

- A window at the top-left corner of the screen provides the following information:
  - The The current time
  - FPS: The image refresh rate in frames per second
  - Navigation scale

- An icon at the top-right of the screen indicates which tool is currently selected.

- The microphone status icon appears at the bottom-right of the screen.

Time: 14:28:15
FPS: 60
Scale: 1

Current time

Tool indicator

Frame counter

Navigation scale

CONSENSIVE
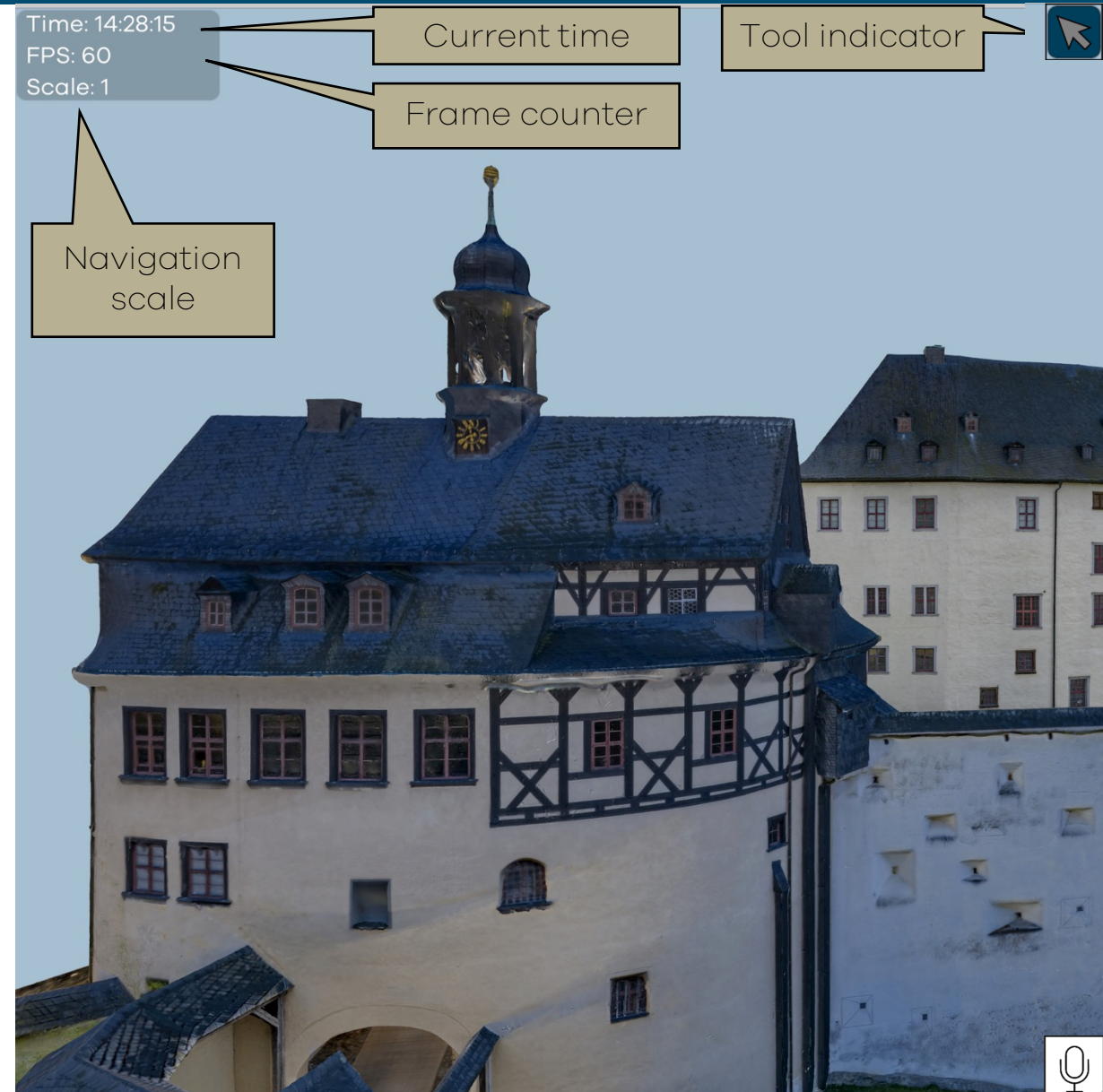
Application Information (Meta Quest)

Application information can be switched on and off on the Quest via the 'GUI Visibility' toggle option in the [settings menu](#). When activated:

- An icon next to the right-hand Quest controller indicates the currently selected tool.

- A semi-transparent window displayed beside the right-hand controller shows the current time, framerate and navigation scale.

- The microphone status icon appears beside the left-hand controller.
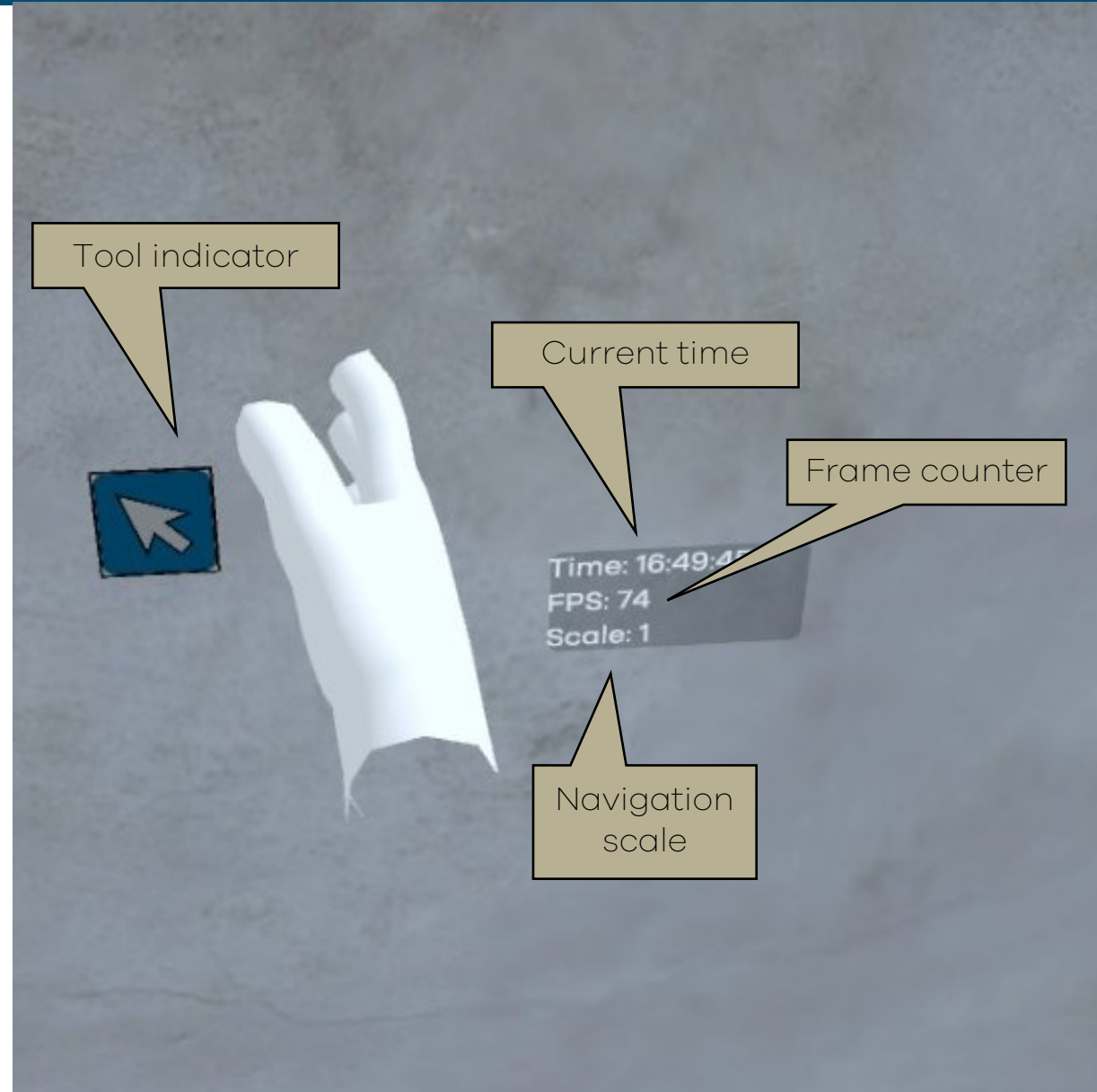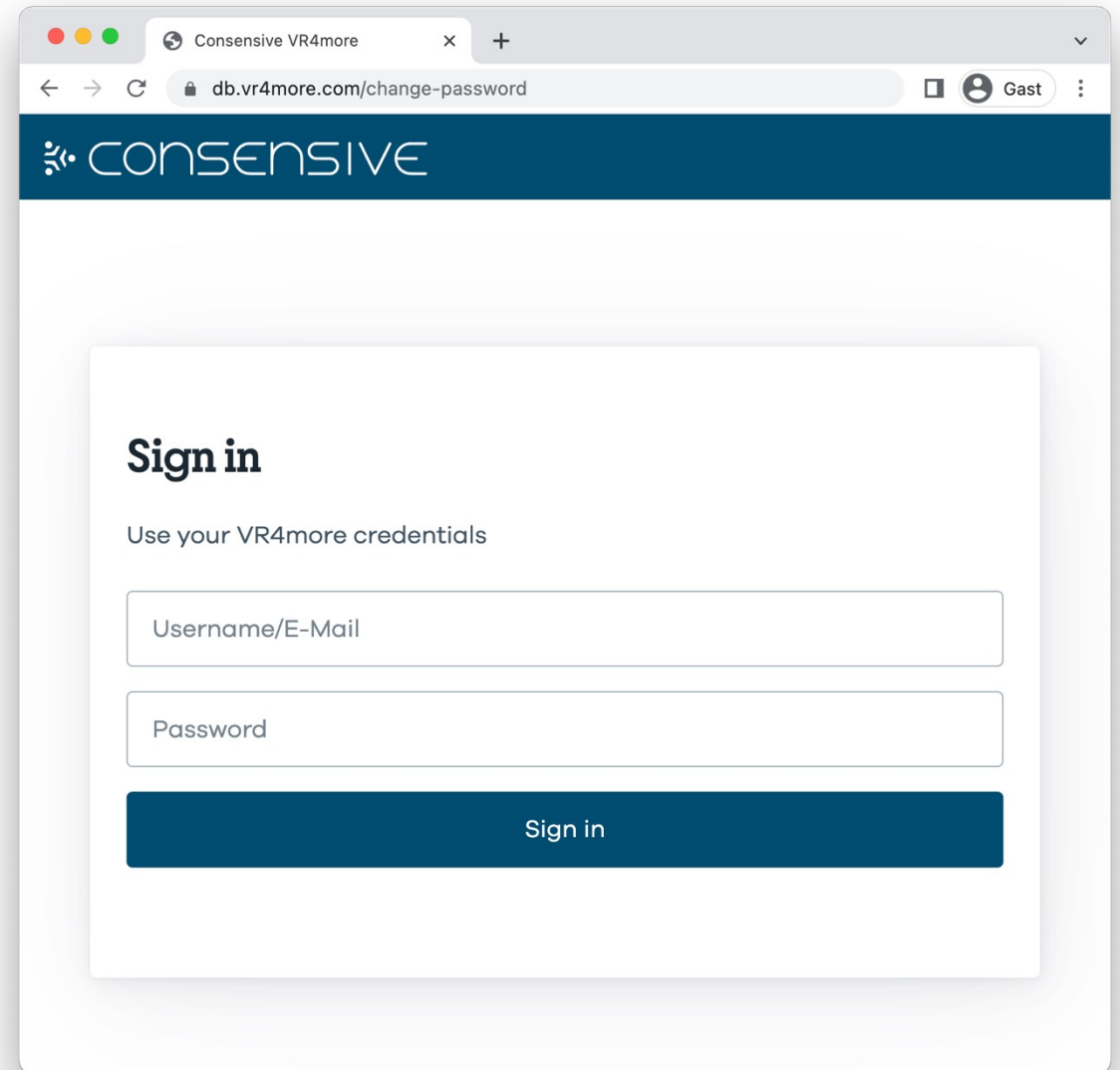
Miscellaneous

- Change user password

- App installation and updates on Android VR-Headsets

Change Password

Follow the link below to change user password:

https://db.vr4more.com/change-password

Installation / Updates on Android VR-Headsets

Instructions for installing via Meta App Lab

- Register for Meta App Lab

- Visit: https://www.meta.com/s/1Sr2sz5qd

- Login with your Meta App Lab account and request an invitation for our app. You will then receive an invitation, which you must accept

- Shortly after accepting, VR4More should be listed as available for install in your app list (try restarting your device if it does not appear within a few minutes)

Installing without App Lab

- Download Android SDK platform tools:

    - https://developer.android.com/tools/releases/platform-tools#downloads

    - Unwrap archive

- Connect device via USB

    - Confirm USB connection at host and client

- Open Terminal and call ./adb or .\adb.exe at its location in the unwrapped folder "platform-tools"

    $ ./adb devices
      … lists connected devices

    $ ./adb install -r -d <path to VR4more[…].apk>
      … installs or updates VR4more

CONSENSIVE

CONSENSIVE

VR4more