CirclesXR Documentation

Changes I have done and how they are working

Anastacia Gorbenko

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User Types

Type	Category	Description
Superuser	Admin User	Automatically added when the server is started for the first time with default password of "password" CAN ONLY BE 1 OF THIS TYPE
Admin	Admin User	
Teacher/ Researcher	Manager User	Can view private worlds that they have been given viewing access to (if they are in *viewingPermissions* array or *editingPermissions* array), and can edit and create magic links to worlds that they have been given editing access to (if they are in *editingPermissions* array)
Student/ Participant/ Tester	Standard User	Can view private worlds that they have been given viewing access to (if they are in *viewingPermissions)*
Guest	Guest	
Magic Guest	Magic Guest	

User Categories

Category	Admins Users	Manager Users	Standard Users	Guests	Magic Guests
Worlds					
View public worlds	✔	✔	✔	✔	✔
View private worlds	✔	With permission	With permission	✗	✗
View magic link worlds	✗	✗	✗	✗	✔
Edit worlds	✔	With permission	✗	✗	✗
Put worlds in groups and subgroups	✔	✗	✗	✗	✗
Create magic links for worlds	✔	With permission	✗	✗	✗
Users					
Create users	✔	✗	✗	✗	✗
Change user's usertype	✔	✗	✗	✗	✗
Can edit user profile	✔	✔	✔	Only avatar	Only avatar
Files					
Upload files	✔	✔	✔	✗	✗

Updating User Types

- Can be edited on the "Manage Users" page

- Shows descriptions of the different user types and what they have permission to do

- Shows all users on the server and their current user type (expect themselves)

- Allows for changing user types to either admin, teacher, researcher, student, participant, or tester

- A user can NOT be assigned the role of superuser, guest, or magic guest

User Display Name

- When user is registered, by default the display name is their username

- Display name can be permanently changed (in the database) through the "Profile" page

- Display name can be changed temporarily for the session through the form on the "Explore" page

*** If the same user account logs in on different devices at the same time, each session can have a different temporary display name ***

User Registration

- Takes username, password, and password confirmation

- Username must be unique in the database

- User is automatically assigned as a participant user type

User Creation

- Users can be created on the "Manage Users" page

- User of type superuser, guest, or magic guest can NOT be created

- Can create users one at a time, or in bulk by uploading a CSV file in the following format:

    username,usertype

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sampleAdmin,Admin

sampleTeacher,Teacher

sampleResearcher,Researcher

sampleStudent,Student

sampleParticipant,Participant

sampleTester,Tester

Guest Login

- Logined in by selected "continue as guest" on login or registration page

- New guest is created and added to database

- Guest expires and auto deletes from database 24 hours after it is created

Guest Database

expireAt	Object auto deletes 24 hours after it is created
usertype	"Guest" or "MagicGuest"
magicLinkWorlds	Worlds that they can access through the magic link

… Everything else same as user database, with the exception of there being no password or email

Magic Links

- Can be created on the "Explore" page

- Takes the forwarding name, number of days it will be active, and the world(s) it allows access to

- When link is used:

  - A new magic guest user is created in the database

  - User is automatically logged in

  - Explore page lists the worlds that the magic link give access to (alongside the public worlds)

- Users can view the magic links they created on the "Your Magic Links" page and:

  - See when they expire

  - Renew links

  - Delete links

*** Links that never expire can not actually be deleted, only the forwarding link is deleted from database (the actual magic link can still be used) ***

Magic Link Database

creator	User that created magic link
forwardLink	Forward link that is used to access magic link
magicLink	Actual magic link
expires	If the magic link expires
expiryDate	When magic link expires
worlds	Names of worlds in the magic link

Servers Database

ownerName	Server owner's name
description	Server description
worlds	Array of the names of the worlds in the server
link	Link to server

More Circles Servers

- "More Circles" page shows other Circles servers that are currently running
- When page is loaded, the server sends an HTTP request to the central server for data in the servers database
    - If request does not go through, an error message is displayed
    - If request is successful, information about each running Circles server is displayed
- Inactive servers will be greyed out and labelled as inactive
- On the central Circles Server, by superuser and admin users:
    - Servers can be added to the database
    - Servers can be marked as active or inactive
    - Servers can be deleted

World Groups Database

name	Group name
subgroups	Subgroups that are part of the group

World Groups

- Groups and their subgroups can be created and deleted on "Explore" page
- Group names must be unique and subgroup names must be unique under their group

World Database

- Automatically updated when server is started from public/worlds
- When server is started, database worlds are compared to the ones in public/worlds. Worlds that are not in that folder are deleted from the database

name	Folder name
url	Path to folder
group	Group the world is part of (if any)
subgroup	Subgroup the world is part of (if any)
viewingRestrictions	If there are viewing restrictions (if there are none, all users can see the world)
viewingPermissions	What users can see the world (if there are access restrictions)
editingPermissions	What users can edit the world (who can edit viewing restrictions and permissions)
whiteboardFiles	Array of files that users have inserted into whiteboards in the world, storing the file and whiteboard id

*** When server is restarted, the public/worlds folder is deleted and remade to prevent deleted worlds from remaining ***

Editing Worlds

- Worlds can be edited on the "Edit World" page

Groups and Subgroups

- Worlds can be placed in groups and subgroups (a world can be in no groups, be in a group, or be in a group and subgroup)
- Worlds can only have 1 group and subgroup

Viewing and Editing Restrictions

- Worlds can have or not have viewing restrictions → This can be updated
- If there are no viewing restrictions, all users can access the world
- If there are viewing restrictions,
    - Shows what users can or can not view the world
    - Users can be given viewing permissions or their permissions can be taken away
- Worlds have editing permissions which control who can edit a world's viewing permissions
- Users will NOT see themselves on the lists

*** Wardrobe world access can not be changed and it does not show up in database ***

Uploaded Content Database

user	What user account the content is linked to
displayName	Name that the file was uploaded with
name	File name
url	Path to file
type	Type of content
category	Overall type of file (ex. Image, application)

Uploaded User Content

- Uploaded content is stored in node_server/uploaded

- Users can upload:

~~Text Files~~	Image Files	Video Files	3D Models
~~.pdf~~	- .png	- .mp4	
~~.plain~~	- .jpg	- .mov	
~~.txt~~	- .jpeg	- .avi	
	~~.gif~~		

- "Uploaded Content" page shows all the content that the user has uploaded

- Users can delete content that they have uploaded

*** No A-Frame compatibility with .gifs ***

*** PDF files are big and slow down world fast ***

Whiteboard Component

- In world index.html, developer can add a-entity tag with circles-whiteboard component

    <a-entity id="whiteboard"

        circles-whiteboard>

    </a-entity>

- Once set, whiteboard id can NOT be changed (otherwise none of the associated content on the board will show up anymore

- Allows users to insert files they have uploaded on "Uploaded Content" page

    - Files can be moved around on board

    - Files can be deleted from board

circles-whiteboard	
Schema	**Description**
fileSelected	(FOR PROGRAM USE ONLY) If a file was selected
fileInserted	(FOR PROGRAM USE ONLY) If a file was inserted
fileDeleted	(FOR PROGRAM USE ONLY) If a file was inserted
height	Height of board object (default 3)
width	Width of board object (default 5)
depth	Depth of board object (default 0.25)
boardColor	Base color of board object (default white)
shadows	If the board creates and takes shadows (default false)
maxFiles	Maximum number of files that can be inserted
uploadingRestrictions	Array of who can upload files Options: all, none, admin, teacher, researcher, student, participant, tester, custom *** Superuser will always be able to *** *** Guests can not upload content ***
editingRestrictions	Array of who can edit files Options: all, none, admin, teacher, researcher, student, participant, tester, guest, custom *** Superuser will always be able to ***

customUploading	Array of usernames that can upload files (*uploadingRestrictions* must include "custom")
customEditing	Array of usernames that can edit files (*editingRestrictions* must include "custom")

Overview

Generates whiteboard itself inside of entity tag with its previous content and the default controller

Allows users to insert files

Handles button presses

Controls what the current user can do based on *uploadingRestrictions, editingRestrictions, customUploading, customEditing*

Controls how many files can be uploaded and restricts users from uploading past *maxFiles*

Inserting files

If this is the first or the only circles-whiteboard, attaches circles-upload-ui to entity tag

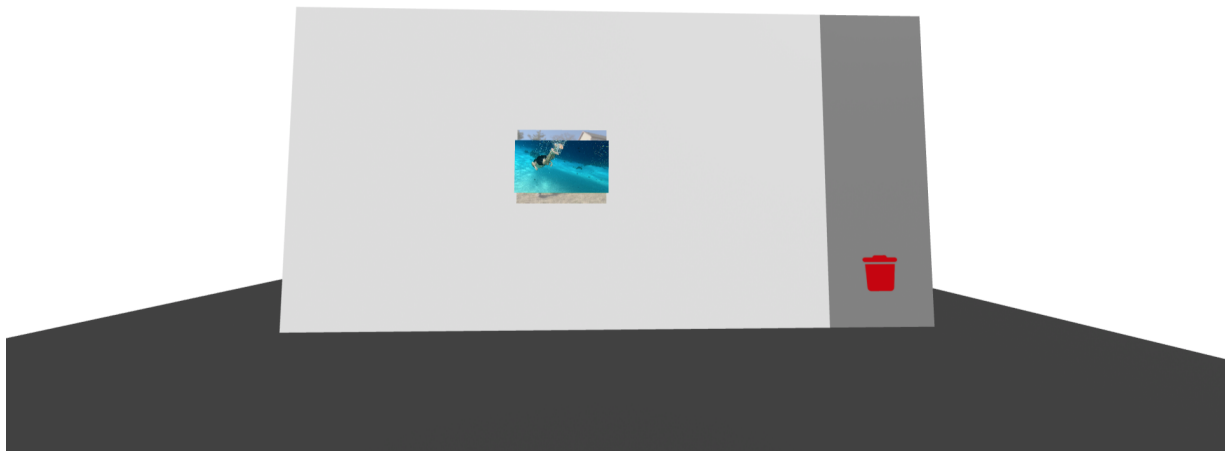When upload button is clicked, circles-upload-ui component is activated for the current whiteboard

Users can only insert files if they have permission to in *uploadingRestrictions* or *customUploading*

Deleting files

When file is clicked, the file selected controller is visible (triggered through circles-whiteboard-file)

When trash button is clicked, file is removed from whiteboard and deleted from *whiteboardFiles* array for that world

Networking

Handles networking for whiteboard to sync for all active users when files are:

- Deleted: File is deleted from whiteboard

circles-upload-whiteboard-ui	
Schema	**Description**
active	If the UI should currently be displayed (default false)
whiteboardID	The whiteboard to upload file to

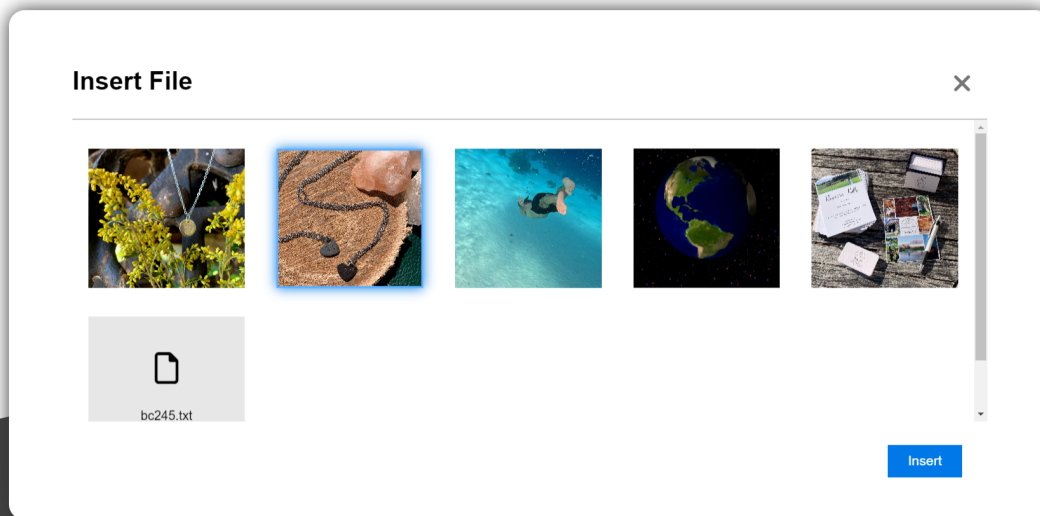| Overview |
|---|
| Generates pop up to insert files into whiteboard |
| All whiteboards use the pop up |
| Only run through first circles-whiteboard component so there is only 1 pop up generated |
| When component is activated (*active* is true), pop up is displayed |
| When component is inactivated (*active* is false), pop up is hidden |
| Computer and mobile devices have an overlay pop up |

Headset devices have a virtual pop up that appears in front of the user and rotates to always face them
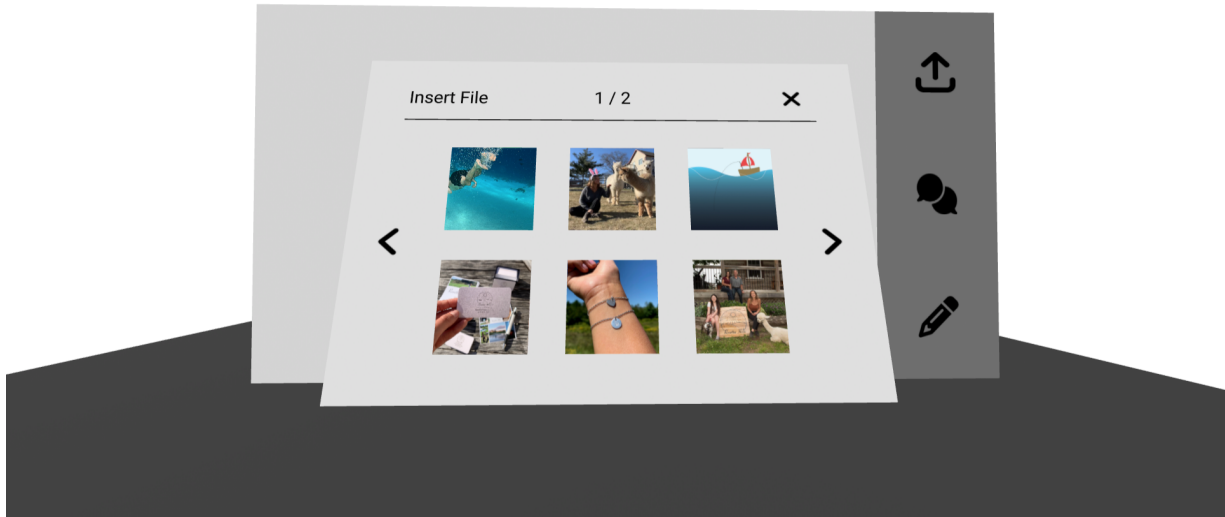
When file is selected and insert button is clicked:

- Entry is added to *whiteboardFiles* array for that world to store the file and what whiteboard it was uploaded to
- File is added to whiteboardFiles folder
- Entity tag for the file is added to whiteboard with the circles-whiteboard-file component attached

Networking

Handles networking for whiteboard to sync for all active users when files are:

- Inserted: File is inserted to whiteboard

circles-whiteboard-file	
Schema	**Description**
category	Catagory of file (ex. image, video, text)
asset	File asset
whiteboardID	Whiteboard the file is on
fileID	Name of file
originalHeight	File height
originalWidth	File width
boardHeight	Whiteboard height
boardWidth	Whiteboard width
position	Position of file on whiteboard
editable	If the current user can edit the file
Overview	
Controls file inserted into whiteboard	
Displays file	
Controls file selected view on whiteboard (file moved to front and opacity overlay is placed in front of other files)	
When file is clicked, another controller is generated on the whiteboard for if the user wants to delete the file. If the user clicks again outside the file, the default controller is visible again (generated through circles-whiteboard)	
When file is moved, its position is updated in *whiteboardFiles* array for that world	

Networking

Handles networking for element to sync for all active users when files are:

- Selected: Shown that file is selected by another user and other users can not select it

- Unselected: Normal view of file returns and other users can select it

- Moved: File position is updated

Additional Components

| circles-drag-object	
Schema	**Description**
maxCoordinate	Top coordinate of where the object can be dragged
minCoordinate	Bottom coordinate of where the object can be dragged
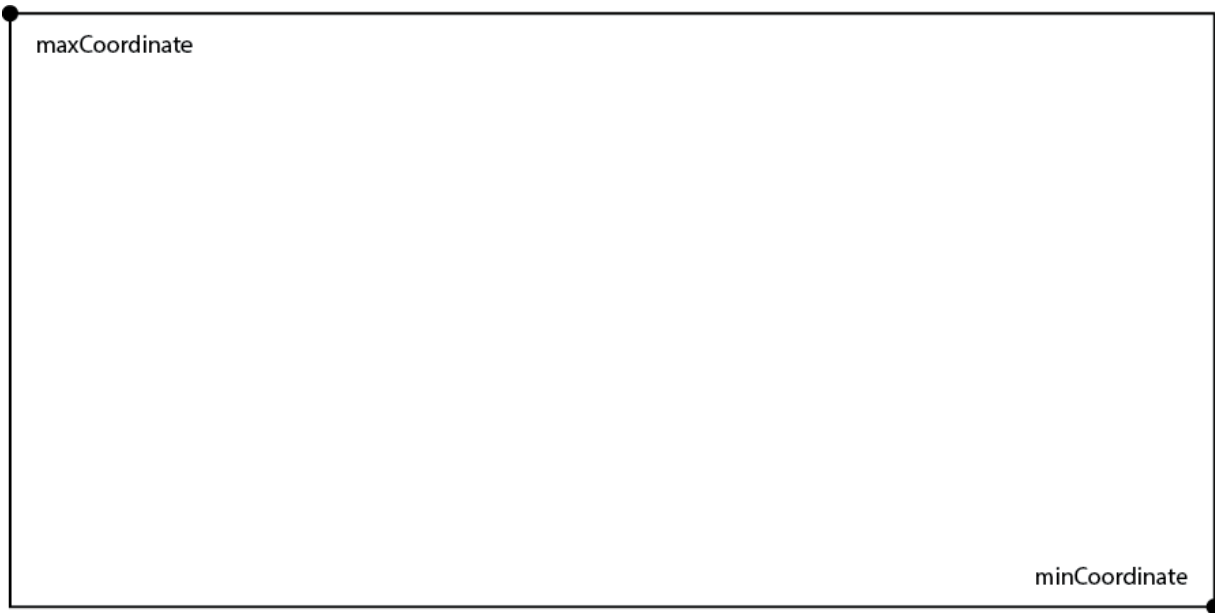
Overview
Allows user to drag object vertical and horizontally within the boundaries of specified coordinates
*** Component creates no indication when the object is selected ***

Computer Compatibility
When user clicks down on the object, camera look-controls are disabled. When user releases click, look-controls are enabled again
When user is clicking and dragging object, object moves within the boundaries of specified coordinates

User can also move object when selected by arrow UI that appears when object is clicked. When user clicks anywhere else, UI is exited
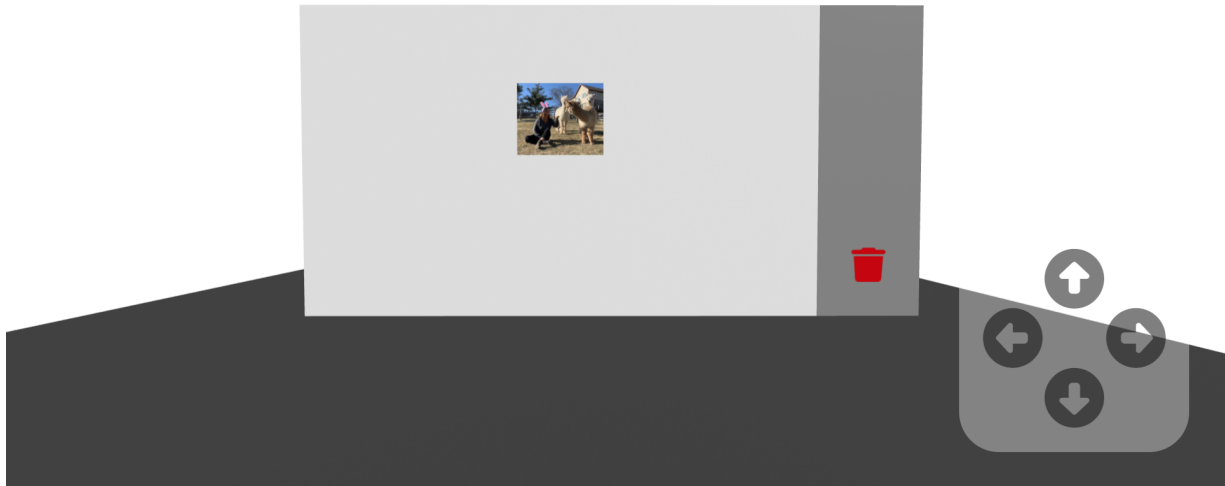
Mobile Compatibility

When user clicks object, arrow UI appears to move object (picture above)

When user clicks anywhere else, UI is exited

Headset Compatibility

When user clicks object, it is selected and user can use the right joystick to move the object

circles-video-controls	
Schema	**Description**
controls	Whether the video has controls available to the user
controlsDisplayed	When the controls should be displayed Options: onclick, onhover *** If user in on mobile, onclick is always active ***
parentElementID	If onclick option is selected, parent element id that should be clicked to unselect
skipSeconds	How many seconds to fast forward or rewind to when buttons are pressed If value is a negative number, component calculates the value to be a 5th of the video length
autoplay	Whether the video should autoplay on load
loop	Whether the video should loop
soundAvailable	Whether the video should have the option to turn on sound
Function	**Description**
fastForwardVideo()	Fast forwards video *skipSeconds* seconds
rewindVideo()	Rewinds video *skipSeconds* seconds
pauseVideo()	Pauses video
playVideo()	Plays video
soundOn()	Turns video sound on

soundOff()	Turns video sound off

Overview
Generates UI to allow user to fast forward, rewind, pause, play, mute, and unmute a video
Video is muted on load by default, but can be unmuted if *soundAvailable* is true
UI appears when video is hovered or clicked
If UI appears onhover, it disappears after 2 seconds of inactivity. If something is clicked on the UI, or the mouse leaves and hovers the video again, the countdown of inactivity is reset *** Can not hide UI on mouseleave as raycaster takes hovering over children elements (ex. pause button) as leaving the element ***
If UI appears onclick, it disappears if parent element is clicked
Displays video progress bar

Edited Components

circles-lookat
Adjusted to include 2 additional schema variables

Schema	Description
contraintedX	What the x rotation should always be if *constrainYAxis* is true
contraintedZ	What the z rotation should always be if *constrainYAxis* is true

Models

- Automatically added to database when the server is started for the first time

Ideas For Later

- *General:*
    - Better authentication of users for some actions (ex. if they are an admin user when trying to delete a server)
- *Explore Page:*
    - Sort worlds into different categories (ex. public worlds, worlds the user has viewing access to, worlds the user has editing access to)
    - For superuser and admin users, show what worlds are public and private
- *Edit World Access Page:*
    - Sorting users (ex. sort by user type, username)
    - Searching for usernames
    - Filtering by user type

- *Profile Page:*
    - Allow user to see their avatar when customizing it
    - Deleting users
- *Manage Users Page:*
    - Sorting users (ex. sort by user type, username)
    - Searching for usernames
    - Filtering by user type
- *Magic Links:*
    - When a magic link is used, give the user the option to create a magic guest user account that they can continuously use while the magic link is active (user auto-deletes from database when magic link expires) - This allows the user to have their account preferences saved instead of having a new guest user created every time they want to use the magic link
    - Continuing on idea above, allow users to link the world(s) to an existing account rather than having to create a new one
        - Access to world would expire when magic link expires
    - Allow users to see the active links they have created and when they expire
- *More Circles Page:*
    - Searching for servers
    - Filtering through active and inactive servers