

NIT3004 - IT Capstone Project 2  
Semester 2, Block 4

# USER MANUAL for ROOMCAST



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# 1 - System Overview

RoomCast is an online platform that enables the storage, organization, and sharing of media files using a local SQLite database. RoomCast has a secure multi-user login system for individuals to navigate their own individual media collections or foster collaboration on shared media collections. Users are able to easily upload various file types (videos, images, documents) with an intuitive upload module that detects file types automatically. RoomCast provides a management system for organizing media files into albums, for sharing related media files, and/or for organizing related media files. RoomCast also provides a screen management system that assists users in registering and managing various types of display screens (screen technologies) whether they are physical or "virtual" displays or both. Finally, RoomCast provides a casting feature that will allow users to cast select media files from the RoomCast server to attached screens using a web-based receiver interface (in-browser). Roomcast provides a complete media streaming user experience.

## 1.1 - Introduction

RoomCast is an engaging media management and casting platform that is armed to take the headache out of sharing digital content across multiple screens. Constructed in ASP.NET Core MVC, Entity Framework Core, and Tailwind CSS it allows users to upload, manage, view collections of digital files such as images, videos, documents, and PDFs via a web interface.

RoomCast sits between traditional file storage with newly invented display technologies enabling users to cast content via a unique feature to connected displays; TVs, monitors, or Raspberry Pi devices as receivers. RoomCast is ideal for teacher's use in education, workplaces or creative teams that want a simple way to manage and display digital content.

# 2 - Install and Run RoomCast (Server)

## 2.1 - Prerequisites

1. Operating System: Windows 10 or later
2. Web Browser: Microsoft Edge, Google Chrome, or Firefox
3. Git (optional): For version control and repository management
4. Visual Studio 2022
5. LibreOffice

Before running the project you must have LibreOffice installed. Here's the official website: <https://www.libreoffice.org/download/download-libreoffice/>. Select the operating system that you're using (Windows/macOS/Linux). Download the latest version, then you're done! This ensures that whatever documents the user sends to the machine, it's converted into a pdf and the user is able to view the document.

The screenshot shows the LibreOffice download page. At the top, it says "Download LibreOffice" and has a large "LibreOffice 25.8.3" logo. Below the logo, there's a brief description: "Our latest stable release, with user interface improvements, new spreadsheet functions, and faster file loading." To the right, there's a sidebar with the heading "Choose your operating system:" followed by a dropdown menu set to "Windows (64-bit)". Below the dropdown is a large yellow "DOWNLOAD" button, and under it are links for "Torrent, Info". At the bottom left of the main content area, there's a link "need another language?".

Now check to ensure you have Visual Studio 2022 installed on your computer before proceeding to run RoomCast. You can download Visual Studio from the official Microsoft website at <https://visualstudio.microsoft.com/downloads> and go to our GitHub to download the zip file <https://github.com/Strelok1515/RoomCast>.

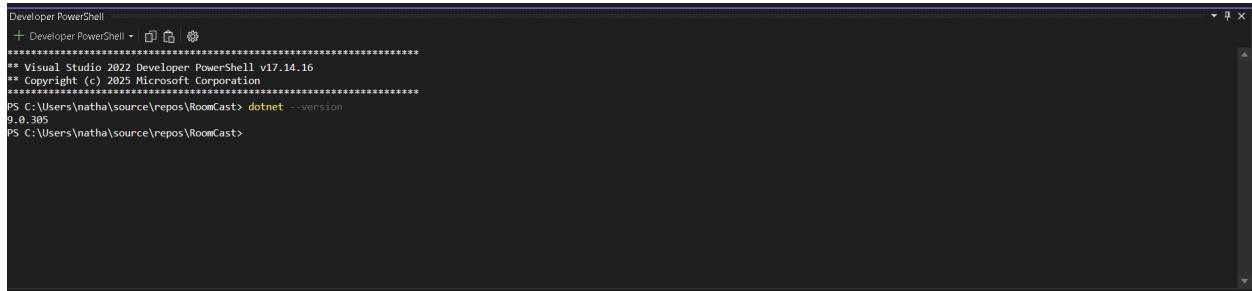
When downloading Visual Studio, choose the ".NET desktop development" workload when prompted, which includes everything you need to build and run ASP.NET Core MVC applications.

After installation is complete, open Visual Studio 2022 and open the RoomCast solution file.

The screenshot shows the Visual Studio 2022 download page. It features the Visual Studio logo and the text "Visual Studio 2022 | Windows". Below that, a small note says "The most comprehensive IDE for .NET and C++ developers on Windows for building web, cloud, desktop, mobile apps, services and games." To the right, there's a box titled "Insiders" with the subtext "Visual Studio 2022 Insiders build is here!". It contains two buttons: "Download" and "Learn more →".

After installing Visual Studio 2022, verify that the .NET 9.0 SDK or higher is installed. Open View → Terminal and type: **dotnet --version**

If you see a version number (e.g., 9.0.100 or Latest), the SDK is correctly installed.



```
Developer PowerShell
+ Developer PowerShell - ① ② ③
=====
** Visual Studio 2022 Developer PowerShell v17.14.16
** Copyright (c) 2025 Microsoft Corporation
=====
PS C:\Users\natha\source\repos\RoomCast> dotnet --version
9.0.100
PS C:\Users\natha\source\repos\RoomCast>
```

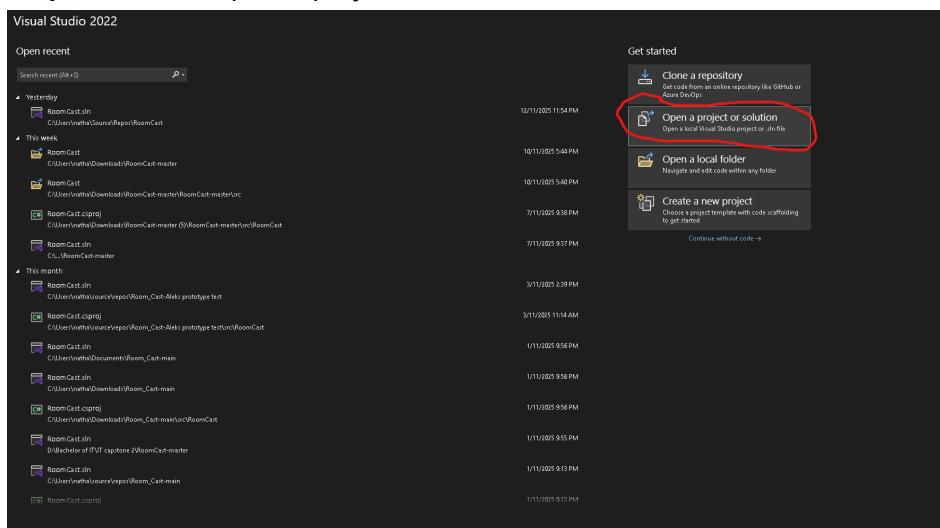
**Note:** Visual Studio 2022 provides an integrated environment for running and debugging RoomCast locally.

Ensure you use the same version of the .NET SDK as listed above for compatibility.

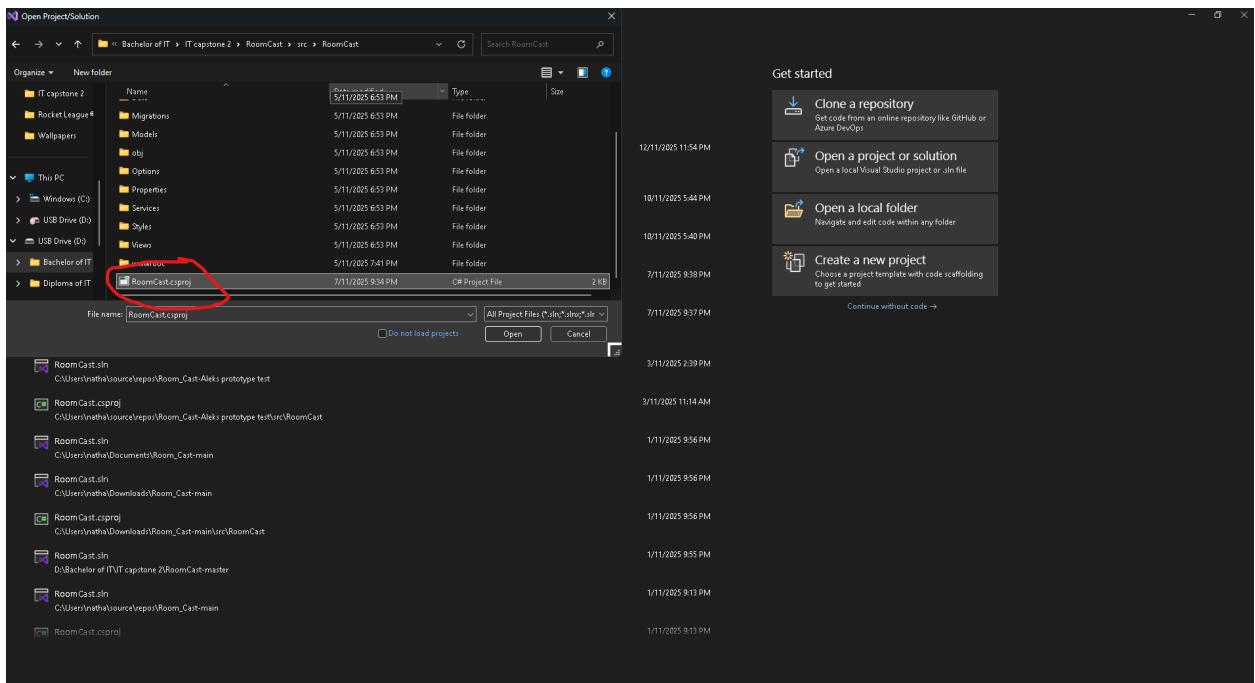
## 2.2 - Open the solution

**Step 1:** Launch Visual Studio 2022.

**Step 2:** Select “Open a project or solution”.



**Step 3:** Navigate to the extracted RoomCast folder and open the solution file: **RoomCast.sln**



**Step 4:** Wait for dependencies to load automatically.  
Visual Studio will restore all required NuGet packages.

```

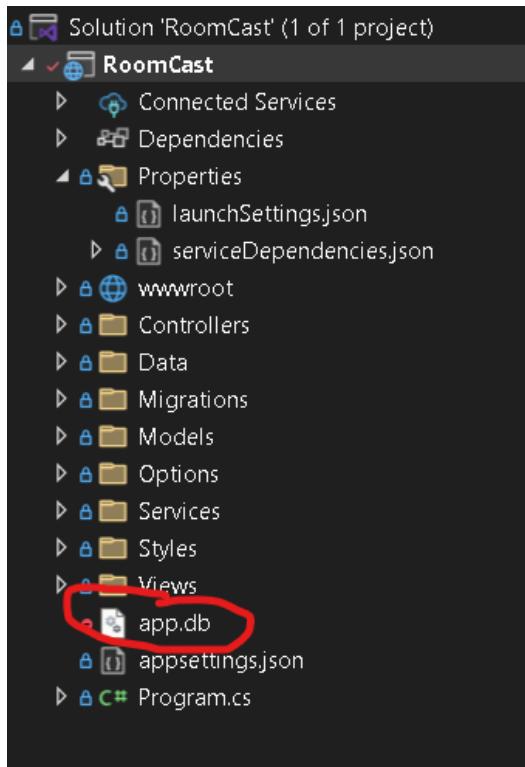
37 // Ensure database schema exists at startup
38 using (var scope = app.Services.CreateScope())
39 {
40     var dbContext = scope.ServiceProvider.GetRequiredService<ApplicationDbContext>();
41     dbContext.Database.Migrate();
42 }
43
44 if (!app.Environment.IsDevelopment())
45 {
46     app.UseExceptionHandler("/Home/Error");
47     app.UseHsts();
48 }
49
50 app.UseHttpsRedirection();
51
52 var staticFileContentTypeProvider = new FileExtensionContentTypeProvider();
53 staticFileContentTypeProvider.Mappings[".wasm"] = "application/wasm";
54
55 app.UseStaticFiles(new StaticFileOptions
56 {
57     ContentTypeProvider = staticFileContentTypeProvider
58 });
59
60 app.UseRouting();
61 app.UseAuthentication();
62 app.UseAuthorization();
63
64 app.MapRazorPages();
65 app.MapControllers();
66 app.MapControllerRoute(
67     name: "default",
68     pattern: "{controller=Account}/{action=Login}/{id?}");
69
70 app.Run();
71
72
    
```

## 2.3 - Verify the Database

**Step 1:** After extracting the RoomCast.zip file, navigate to the project folder.

**Step 2:** Inside the /RoomCast directory, you should see a file named app.db.

**Step 3:** This file contains all your application data such as users, uploaded media, albums, and screen assignments.



**Step 4:** In the Solution Explorer, find and open the file named appsettings.json.

**Step 5:** Check the "ConnectionStrings" section. It should look similar to this:

The screenshot shows the Solution Explorer and the content of the appsettings.json file. The ConnectionStrings section is highlighted with a red oval, and the appsettings.json file itself is highlighted with a green oval.

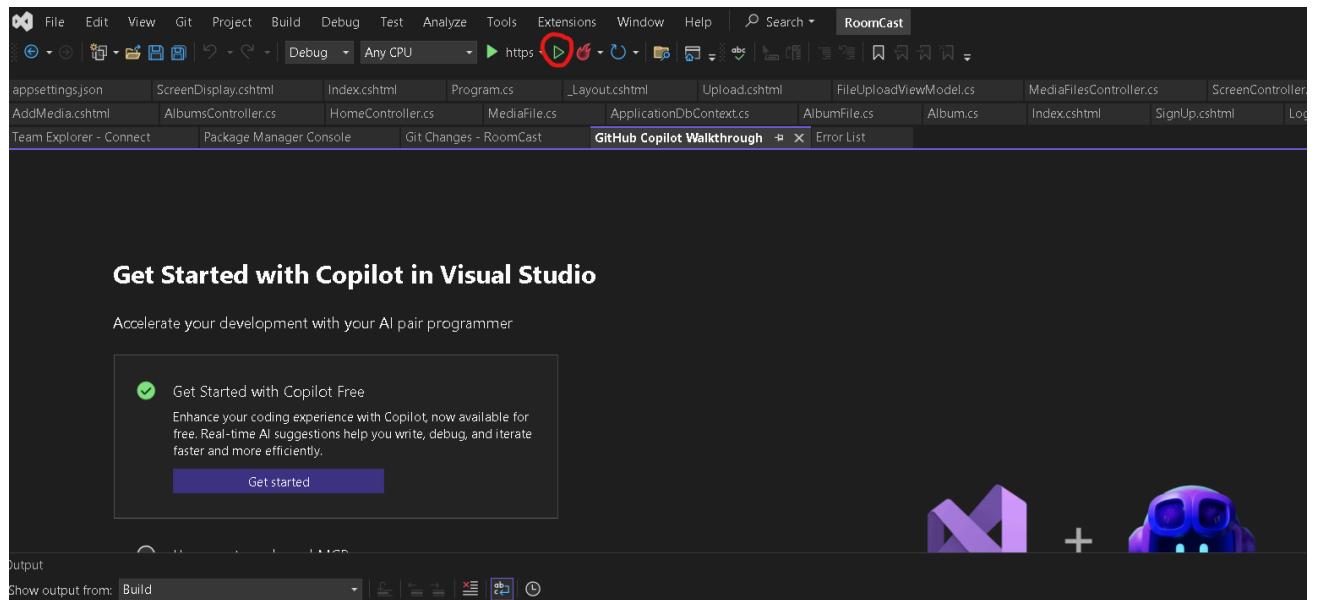
```
1  {
2    "ConnectionStrings": {
3      "DefaultConnection": "Server=(localdb)\\MSSQLLocalDB;Database=RoomCastDB;Integrated Security=True"
4    },
5    "Logging": {
6      "LogLevel": {
7        "Default": "Information",
8        "Microsoft.AspNetCore": "Warning"
9      }
10     },
11     "AllowedHosts": "*",
12     "Authentication": {
13       "AutoLoginAfterRegistration": true
14     }
15   }
```

Note: This confirms the project is connected to SQL Server LocalDB, not SQLite. If the database file (app.db) exists, migrations and updates have already been applied, you do not need to run Add-Migration or Update-Database again.

## 2.4 - Run the Application

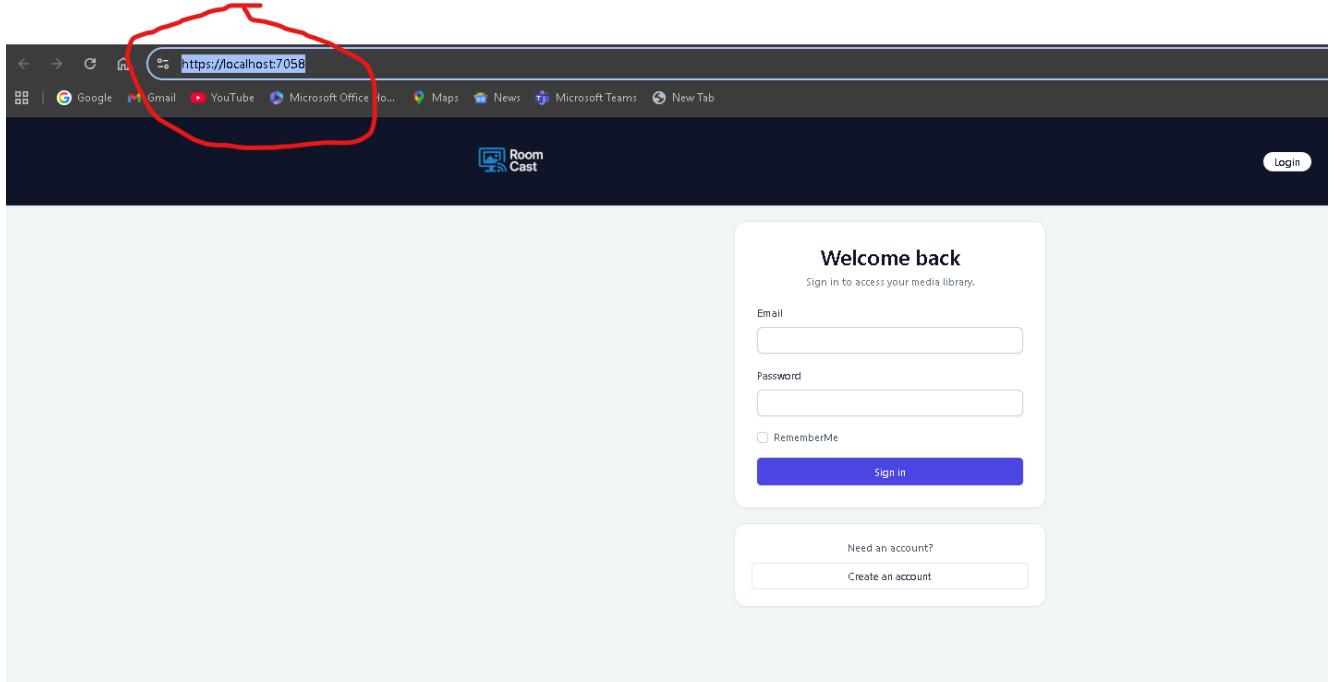
**Step 1:** In Visual Studio, set RoomCast as the startup project.

**Step 2:** Click the ‘Run’ button or press F5.



**Step 3:** Your default browser will open automatically at: <https://localhost:7058>

**Step 4:** You will see the RoomCast login page.



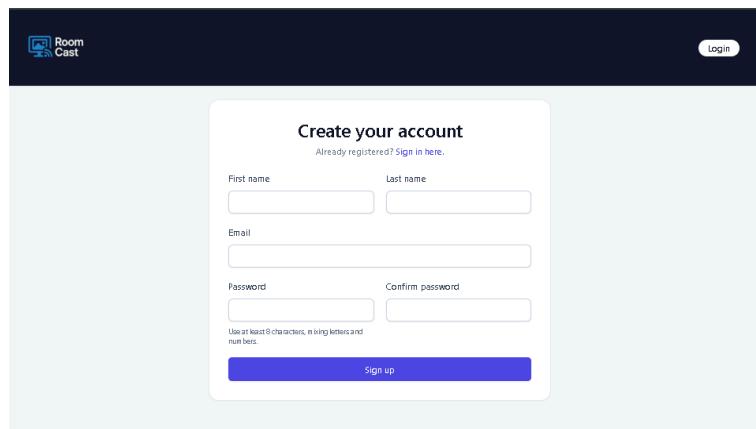
## 3 - HOW TO USE APP

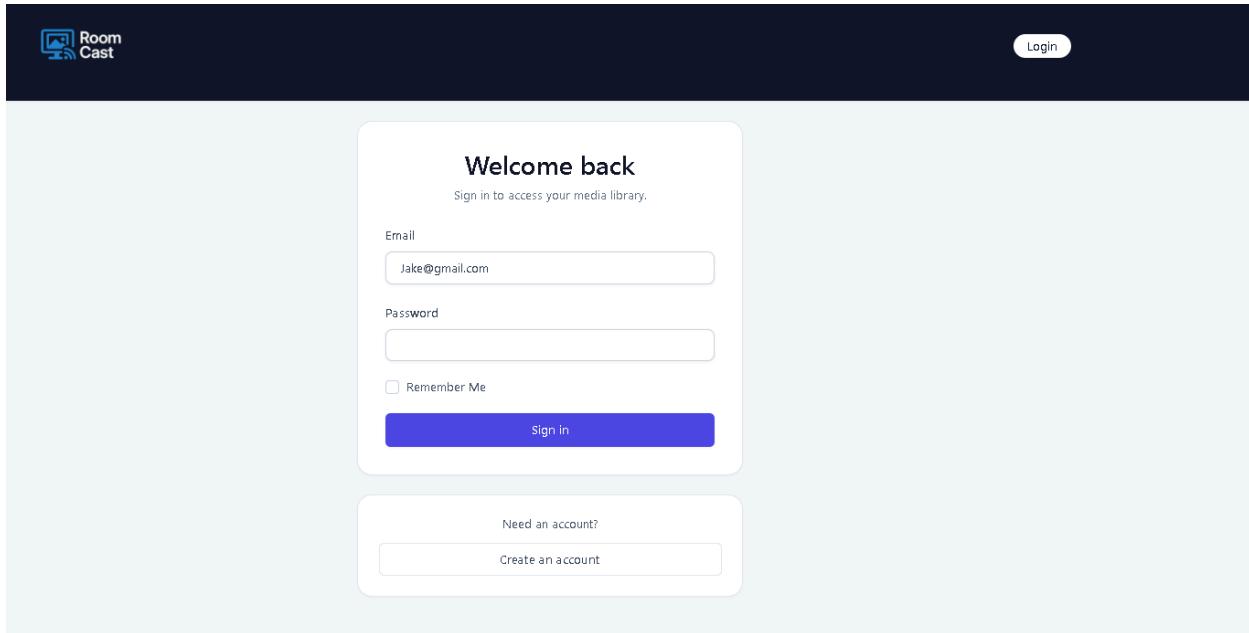
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### 3.1 - Login or Register

**Step 1:** If you already have an account, log in with your credentials.

**Step 2:** Otherwise, click “Create an account” to create a new user account.





## 3.2 - Home Page

1. Once you have created an account on our website you will be transferred to the home page.
2. You can press the “Get started” button to be located on the “Upload” page.
3. Or you can press the “Show my Files” button to be moved to the “My Files” page.
4. Explore what our website has got to offer:
  - Home Page: Overview of your media and shortcuts.
  - My Files: Upload and manage media files.
  - Upload Page: Add new images, videos, or documents.
  - Albums: Organize media into collections.
  - Screens: Assign content to display on TVs or other devices.

The screenshot shows the RoomCast website homepage. At the top, there is a dark header bar with the RoomCast logo on the left and navigation links for Home, My Files, Upload, Albums, Screens, Hello Jake@gmail.com!, and Logout on the right. Below the header, a promotional message reads "Share Your Media. Anywhere. Upload, organize, and display your media instantly across connected screens — built for creators, teams, classrooms, and businesses." Two buttons are present: "Get Started" (in a blue box) and "View My Files". The main content area has a light gray background and features a large white rounded rectangle containing the heading "How RoomCast Works" in bold black font. Below this, there are three sections: "Upload" (with an icon of a cloud with an upward arrow), "Organize" (with an icon of a folder), and "Display" (with an icon of a monitor). Each section includes a brief description: "Upload" says "Upload images, documents, and videos from any device — securely and instantly.", "Organize" says "Create albums to group your media, making sharing simple and fast.", and "Display" says "Cast your albums instantly to any connected screen using RoomCast."

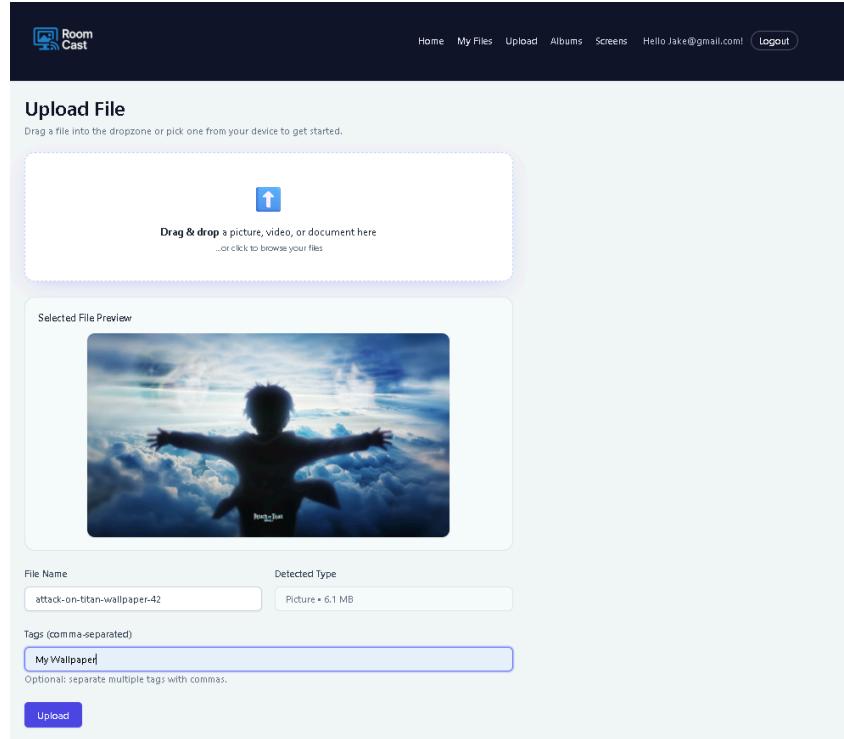
### 3.3 - My Files and Upload page

**Step 1:** Go to “Upload” → click “Drag & drop a picture, video or document here” box.

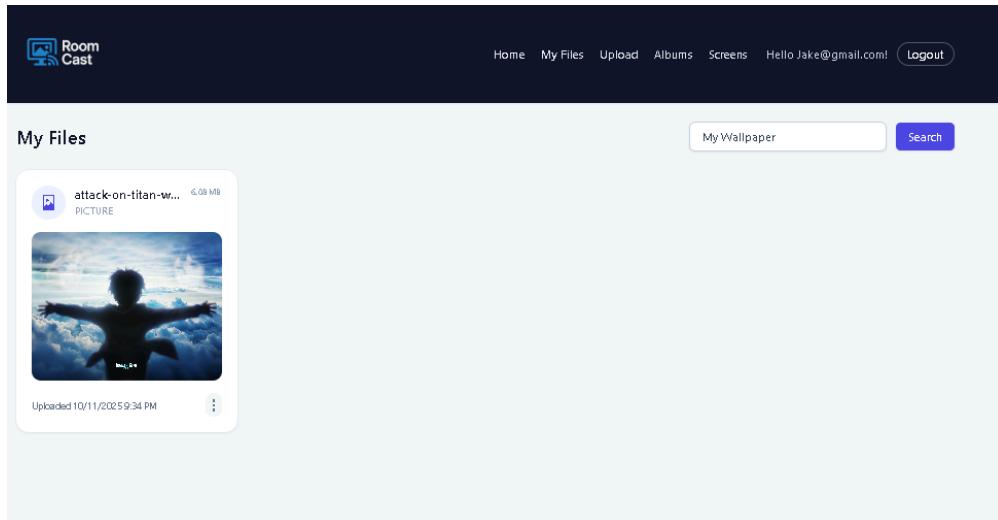
**Step 2:** Choose a file (image, video, or document).

**Step 3:** Write a tag in the “Tags” Box

**Step 4:** Once uploaded, it will appear in your “My Files” Page



**Step 5 (Optional):** If you somehow can't find your image, video or document. You can simply go to "My Files" page and write in the search bar your tag for the content you uploaded (Mine was "My Wallpaper").



**Note:** This is how the “My Files” page would look like with all sorts of content.

The screenshot shows the 'My Files' section of the Room Cast interface. At the top, there's a navigation bar with links for Home, My Files, Upload, Albums, Screens, and Logout. A search bar is also present. Below the navigation, the 'My Files' heading is displayed. There are five media items listed:

- A picture titled "attack-on-titan-w..." (PICTURE) with a file size of 6.08 MB. It shows a silhouette of a person with arms outstretched against a cloudy sky. It was uploaded on 10/11/2025 at 9:34 PM.
- A video titled "WIN\_20251105\_2..." (VIDEO) with a file size of 1.84 MB. It shows a dark screen with a play button icon. It was uploaded on 5/11/2025 at 9:00 PM.
- A picture titled "Graph" (PICTURE) with a file size of 0.05 MB. It shows a diagram with nodes labeled "Face", "Updater", "LocalTariif", and "Car". It was uploaded on 5/11/2025 at 8:00 PM.
- A picture titled "Rocket League" (PICTURE) with a file size of 0.57 MB. It shows a screenshot from the game Rocket League. It was uploaded on 5/11/2025 at 7:42 PM.
- A picture titled "CoolBackground" (PICTURE) with a file size of 0.32 MB. It shows a cityscape viewed through a window. It was uploaded on 5/11/2025 at 7:41 PM.

### 3.4 Create An Album

**Step 1:** Navigate to Albums and click “Create Album”.

The screenshot shows the 'My Albums' section of the Room Cast interface. At the top, there's a navigation bar with links for Home, My Files, Upload, Albums, Screens, and Logout. A search bar is also present. Below the navigation, the 'My Albums' heading is displayed. There are two albums listed:

Thumbnail	Album Name	Created	Actions
	Test 1	5/11/2025 9:06 PM	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Add Media</a> <a href="#">Assign</a>
	Test 2	5/11/2025 9:12 PM	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Add Media</a> <a href="#">Assign</a>

A green 'Create Album' button is located in the top right corner of the main content area, with a red box drawn around it to highlight it.

## Step 2: Enter an Album Name.

The screenshot shows the 'Create Album' page. At the top, there's a header with the Room Cast logo and navigation links: Home, My Files, Upload, Albums, Screens, Hello Jake@gmail.com!, and Logout. Below the header, the main title 'Create Album' is displayed. A sub-instruction says 'Choose a name for your new album. You can add media once it's created.' There's a 'New Album' section with a folder icon and the text 'This helps keep your media organized and easy to find.' Below this is a 'Album Name' input field containing 'e.g., Holiday Photos, Work Presentation, Family Trip 2025'. At the bottom are two buttons: a green 'Create Album' button and a white 'Cancel' button.

## Step 3: Click View to check the content you have uploaded in the album (You have the option to download the content to your device).

The screenshot shows the 'Test 1' album page. At the top, there's a header with the Room Cast logo and navigation links: Home, My Files, Upload, Albums, Screens, Hello Jake@gmail.com!, and Logout. Below the header, the album title 'Test 1' is shown, along with the creation date 'Created Wednesday, 5 November 2025 9:06 PM'. On the right, there's a blue 'Add Media' button. The album contains four items:

- CoolBackground**: PICTURE. Preview, Download, Remove from Album.
- Lab 3**: DOCUMENT. Preview, Download, Remove from Album.
- Session 1 Introduction**: DOCUMENT. Preview, Download, Remove from Album.
- Rocket League®\_20240913164159**: PICTURE. Preview, Download, Remove from Album.

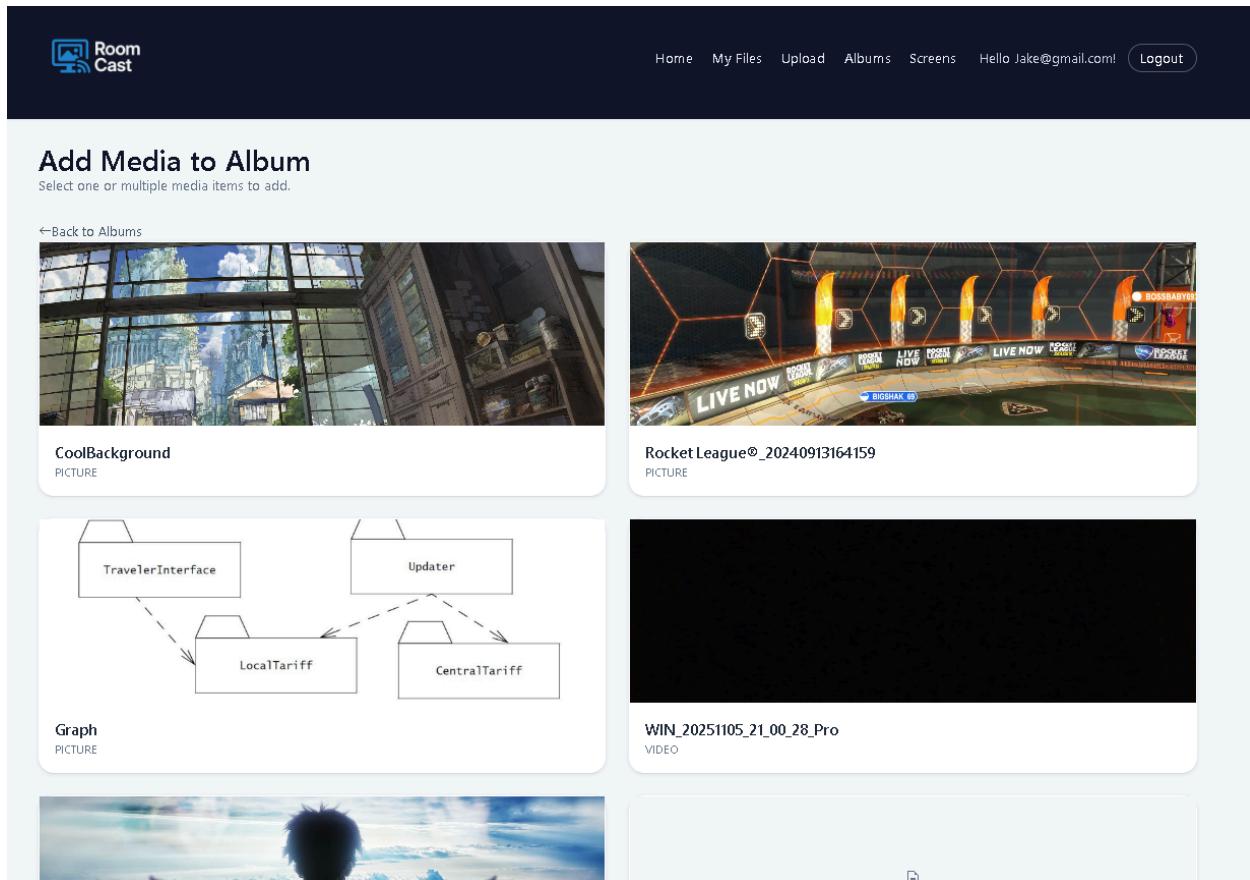
**Step 4:** Click Edit to change the Album Name.

The screenshot shows the Room Cast application interface. At the top, there is a dark header bar with the 'Room Cast' logo on the left and navigation links for Home, My Files, Upload, Albums, Screens, and Logout on the right. Below the header is a light gray content area containing a modal dialog box. The dialog has a title 'Edit Album' and a subtitle 'Update the album name or modify details below.' Inside the dialog, there is a form field labeled 'AlbumName' containing the value 'Test 1'. At the bottom of the dialog are two buttons: a blue 'Save Changes' button and a white 'Cancel' button.

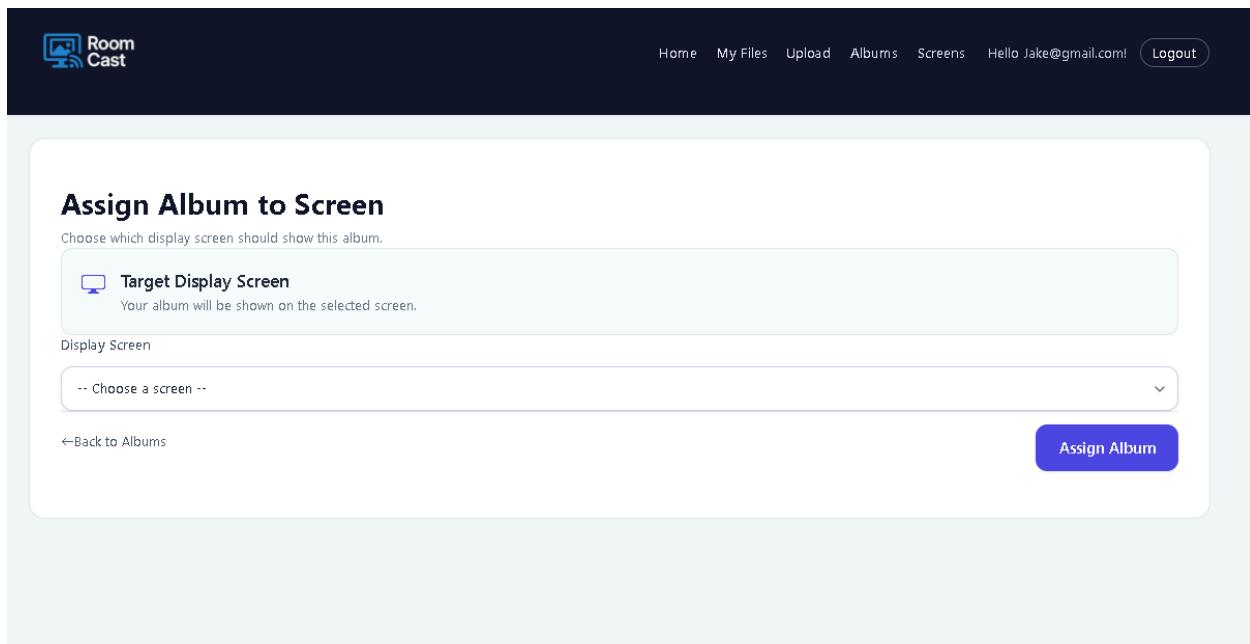
**Step 5:** Click the Delete button to remove the Album from your collection.

The screenshot shows the Room Cast application interface. At the top, there is a dark header bar with the 'Room Cast' logo on the left and navigation links for Home, My Files, Upload, Albums, Screens, and Logout on the right. Below the header is a light gray content area containing a modal dialog box. The dialog has a title 'Delete Album' and a subtitle 'This action is permanent and cannot be undone.' Inside the dialog, there is a summary section showing 'Album Name: Test 1' and 'Created: Wednesday, 5 November 2025 9:06 PM'. At the bottom of the dialog is a large red button with the text 'Delete' and a trash icon, which is partially obscured by a tooltip that reads 'Yes, Delete Album'. Below this button is a white 'Cancel' button.

**Step 6:** Press Add Media to add content from the “My Files” Page and select as many media you want.

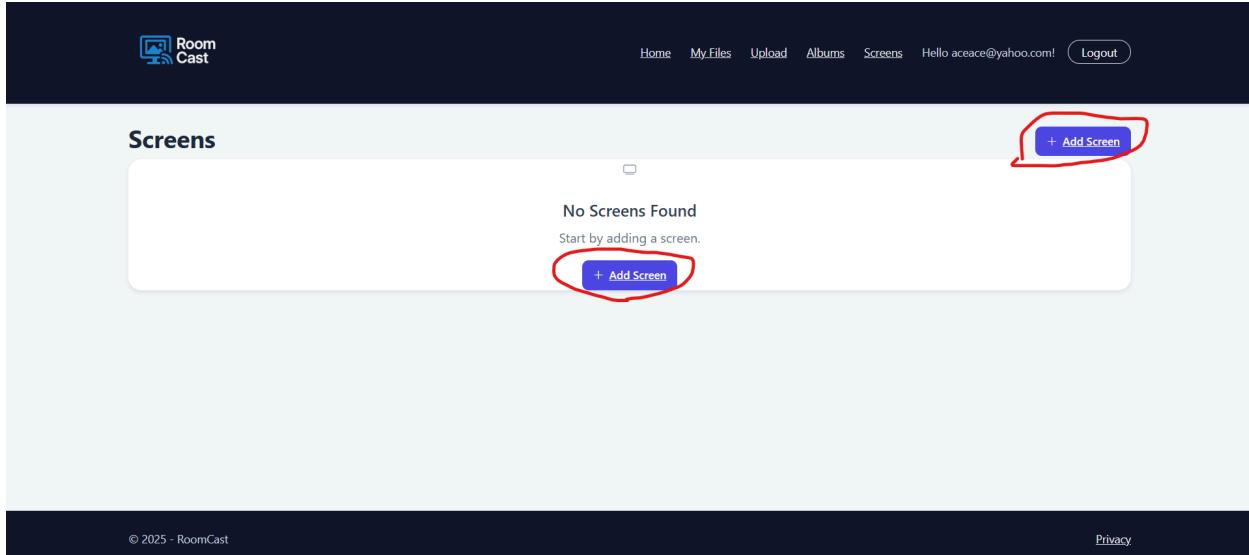


**Step 7:** Lastly, press the Assign button to choose a screen to cast the content (Will show later on how to create a screen to cast on).



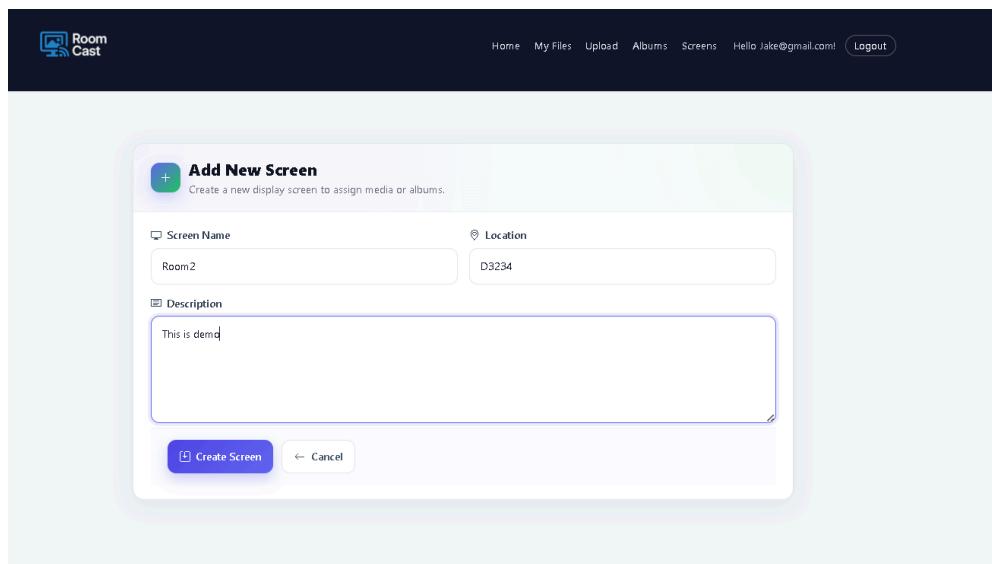
## 3.5 - Screen Casting

**Step 1:** Navigate to Screens and click Add Screen.



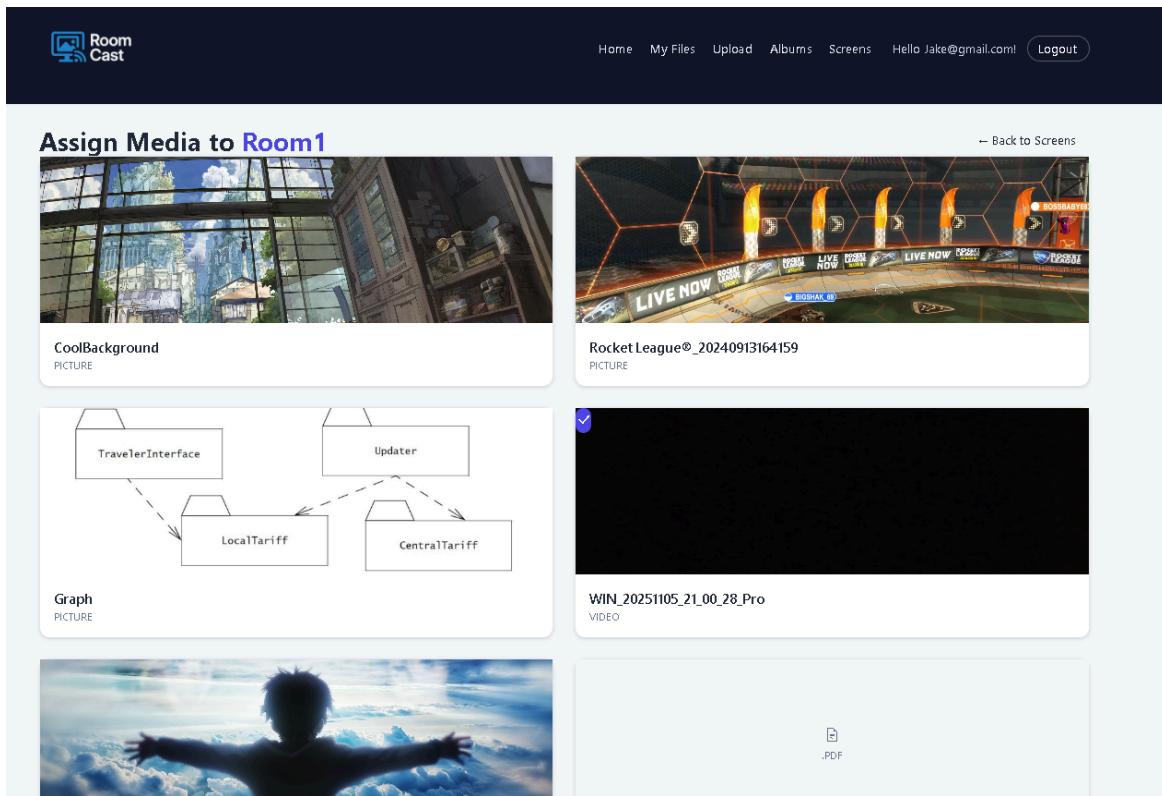
The screenshot shows the 'Screens' section of the RoomCast application. At the top right, there is a blue button labeled '+ Add Screen'. This button is circled in red. Below it, another '+ Add Screen' button is also circled in red. The main content area displays a message: 'No Screens Found' and 'Start by adding a screen.' A third '+ Add Screen' button is located at the bottom of this message area, also circled in red.

**Step 2:** This will give you the ability to create a Screen name, the location of the device and description.

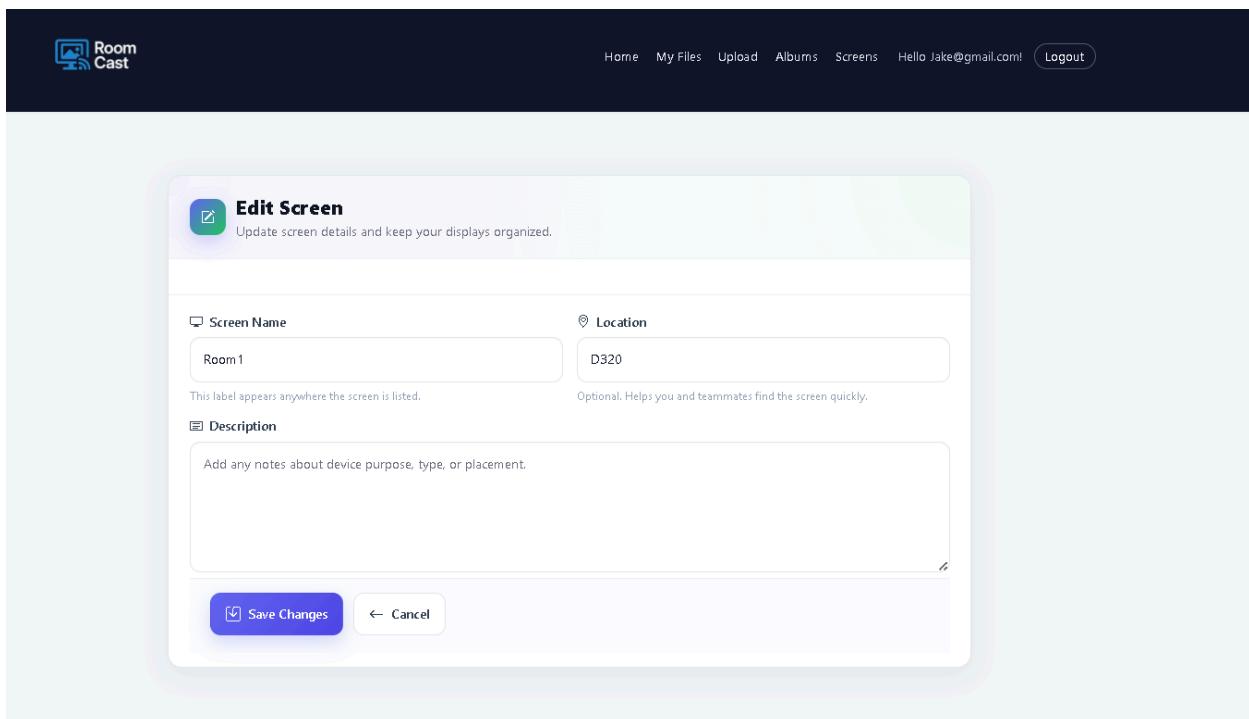


The screenshot shows the 'Add New Screen' dialog box. It has a green header bar with the title 'Add New Screen' and a sub-instruction 'Create a new display screen to assign media or albums.' Below this, there are three input fields: 'Screen Name' (containing 'Room2'), 'Location' (containing 'D9234'), and 'Description' (containing 'This is demo'). At the bottom left is a blue 'Create Screen' button, and at the bottom right is a 'Cancel' button.

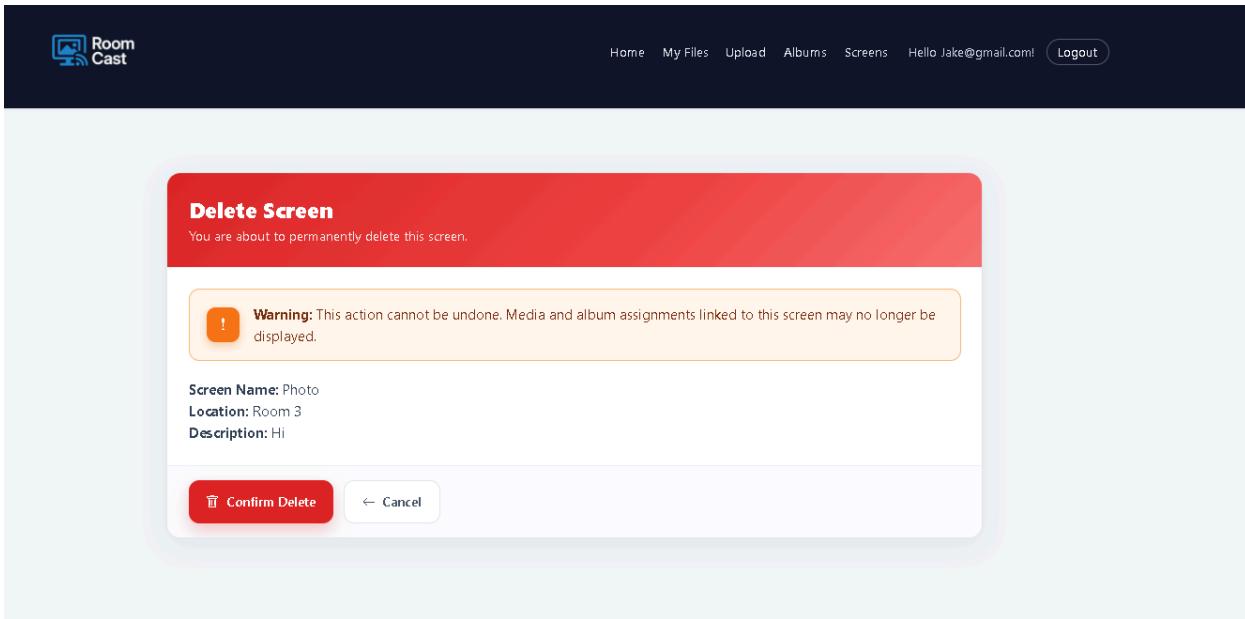
**Step 3:** Click Assign to add media from the “My Files” page.



**Step 4:** Press Edit button to change the Screen Name, Screen Location and Screen Description.

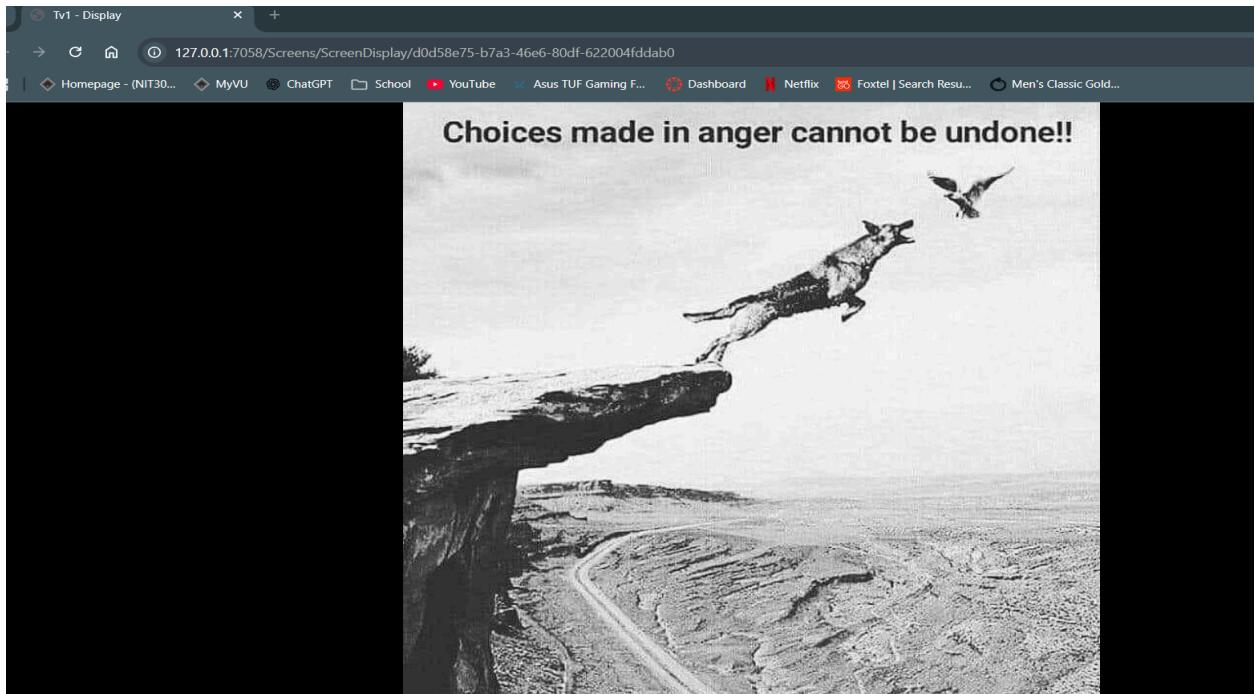


**Step 5:** Click the Delete button to remove the screen from your collection



**Step 5:** Click Preview to see the media that you've assigned

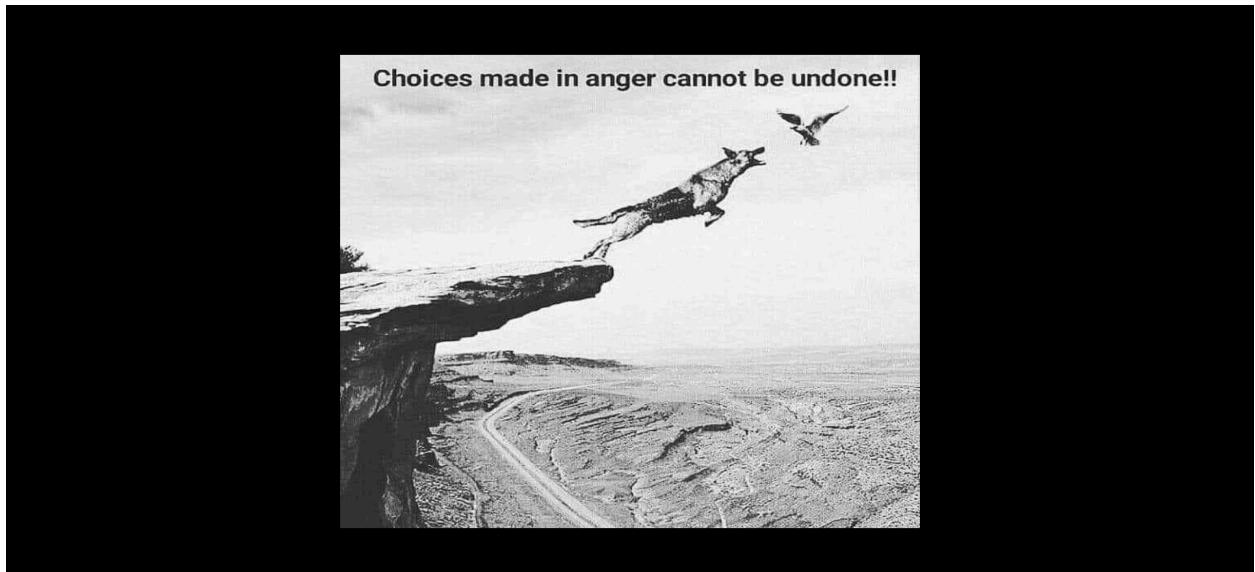
The screenshot shows a table titled "Screens" with a header row: "Name", "Location", "Description", "Assigned", and "Actions". There is one data row for a screen named "Tv1" located at "D300" with the description "Test". In the "Actions" column, there are five buttons: "Assign" (blue), "Edit" (orange), "Delete" (red), "Preview" (blue with a red circle around it), and "Start Casting" (light blue). The "Stop" button is also present but not highlighted.



**Step 6:** Click Cast to screen cast content on a TV (Second SS is taken in Casting Full Kiosk-Mode

Screens

Name	Location	Description	Assigned	Actions
Tv1	D300	Test	Media: 1 Albums: None	<a href="#">Assign</a> <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Preview</a> <a href="#">Start Casting</a> <a href="#">Stop</a>



**Step 7:** Click Stop to deactivate the casting on the TV

The screenshot shows the RoomCast application's interface. At the top, there is a navigation bar with links for Home, My Files, Upload, Albums, Screens, and Logout. Below this is a header titled 'Screens' with a '+ Add Screen' button. The main area displays a table with columns for Name, Location, Description, Assigned, and Actions. One row is visible, showing 'Tv1' as the name, 'D300' as the location, 'Test' as the description, and 'Media: 1' and 'Albums: None' under Assigned. The Actions column contains several buttons: 'Assign' (blue), 'Edit' (yellow), 'Delete' (red), 'Preview' (light blue), 'Start Casting' (light blue), and 'Stop' (light blue). The 'Stop' button for 'Tv1' is circled in red.

## 4 - Troubleshooting

Problem	Possible Cause	Solution
“Cannot connect to database” error	Wrong database path or missing RoomCastDB	Check the appsetting.json file and verify your SQL Server LocalDB is Installed
Blank or missing pages when running RoomCast	Missing NuGet packages or unbuilt solution.	In Visual Studio, go to Build, then go to Rebuild Solution and ensure all dependencies restore correctly.
Media files not uploading or displaying	Folder permission issues or path misconfiguration.	Verify the wwwroot/uploads folder exists and that your user account has write access.
Login or registration not working	Database not migrated or corrupted.	Delete the existing database and run Update-Database in Package Manager Console.

“The project failed to build” error in Visual Studio	Missing SDK or incompatible .NET version.	Install .NET SDK 9.0.305 or a compatible version and restart Visual Studio.
“Access denied” when uploading files	Permission restriction in project directory.	Run Visual Studio as Administrator or adjust folder permissions.

## 5 - Conclusion

This guide is a complete resource for installing, using and deploying RoomCast. The reader, following these instructions, should be able to confidently install Visual Studio, open the RoomCast Project, and experience its media management and casting features even without experience.

RoomCast is a reliable and forward-thinking approach to multi-device content sharing. This effort will expand through proactive integrations with hardware and IoT technologies such as Raspberry Pi.