

# Role Switching and Management Features

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## Overview

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This document outlines the new role selection and switching functionality implemented for the Music-U-Scheduler application.

## Implemented Features

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### 1. Role Selection Page

- **Location:** `/role-selection/page.tsx`
- **Component:** `components/auth/role-selection.tsx`
- **Purpose:** Allows instructors with admin privileges to choose between admin and instructor dashboards

#### Features:

- Automatic detection of users with dual privileges (instructor + admin)
- Clean, user-friendly interface with role cards
- User information display
- Direct logout functionality
- Responsive design with smooth animations

### 2. Enhanced Authentication Logic

- **File:** `frontend/contexts/auth-context.tsx`
- **Enhancement:** Modified login flow to redirect users with multiple roles to the role selection page

#### Logic:

- Checks if user has both instructor role AND admin privileges
- Redirects to `/role-selection` if both conditions are met
- Otherwise, redirects to appropriate single dashboard

### 3. Role Switching in Dashboards

#### Admin Dashboard


- **File:** `app/components/admin/admin-dashboard.tsx`
- **Added:** Role switching dropdown in header
- **Features:**
  - Switch to Instructor Dashboard
  - Return to Role Selection page
  - Only visible if user has instructor privileges

#### Instructor Dashboard

- **File:** `app/components/instructor/instructor-dashboard.tsx`
- **Added:** Role switching dropdown in header
- **Features:**
  - Switch to Admin Dashboard
  - Return to Role Selection page

- Only visible if user has admin privileges

## 4. Role Management Delete Functionality

- **File:** `app/components/admin/role-management.tsx`
- **Status:** Already implemented 
- **Features:**
  - Delete custom roles with confirmation dialog
  - Prevents deletion of built-in roles
  - Proper error handling and success notifications

## 5. Type System Updates

- **File:** `app/lib/types.ts`
- **Added:** `assigned_roles` property to User interface
- **Purpose:** Support for users with multiple instructor roles and admin privileges

## How It Works

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### For Instructors with Admin Privileges:

1. **Login:** User logs in with credentials
2. **Detection:** System detects user has both instructor role and admin privileges
3. **Role Selection:** User is redirected to role selection page
4. **Choice:** User chooses between Admin or Instructor dashboard
5. **Navigation:** User can switch roles anytime using the dropdown in dashboard headers

### Admin Privileges Detection:

Admin privileges are detected when a user has either:

- Primary role: `admin`
- OR assigned roles with `admin_access` permission

### Role Switching:

- Available in both Admin and Instructor dashboard headers
- Uses dropdown menu with intuitive icons
- Provides options to switch roles or return to role selection
- Only displays if user has multiple role capabilities

## UI/UX Improvements

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- **Consistent Design:** Matches existing application theme
- **Intuitive Icons:** Clear visual indicators for different roles
- **Smooth Transitions:** Professional animations and state changes
- **Responsive Layout:** Works on all device sizes
- **User Feedback:** Toast notifications for all actions

## Technical Implementation





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- **TypeScript Support:** Full type safety for all new features
- **React Hooks:** Proper state management and lifecycle handling

- **Next.js Integration:** Server-side rendering compatible
- **Component Reusability:** Modular design for maintainability

## Testing Status

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-  TypeScript compilation successful
-  Build process successful
-  Component rendering verified
-  Backend API integration pending (authentication endpoints need backend)

## Usage Examples

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### Role Selection Page

```
// Automatically shown for users with dual privileges  
// Manual access via: /role-selection
```

### Dashboard Role Switching

```
// Available in header dropdown for eligible users  
// Immediate navigation to selected role dashboard
```

## Future Enhancements

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1. **Role History:** Track user's role switching patterns
2. **Default Role:** Allow users to set preferred default role
3. **Session Persistence:** Remember last selected role across sessions
4. **Role Permissions:** More granular permission-based role detection

## Conclusion

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The role switching functionality provides a seamless experience for users with multiple privileges while maintaining security and usability. The implementation follows React best practices and integrates well with the existing codebase.