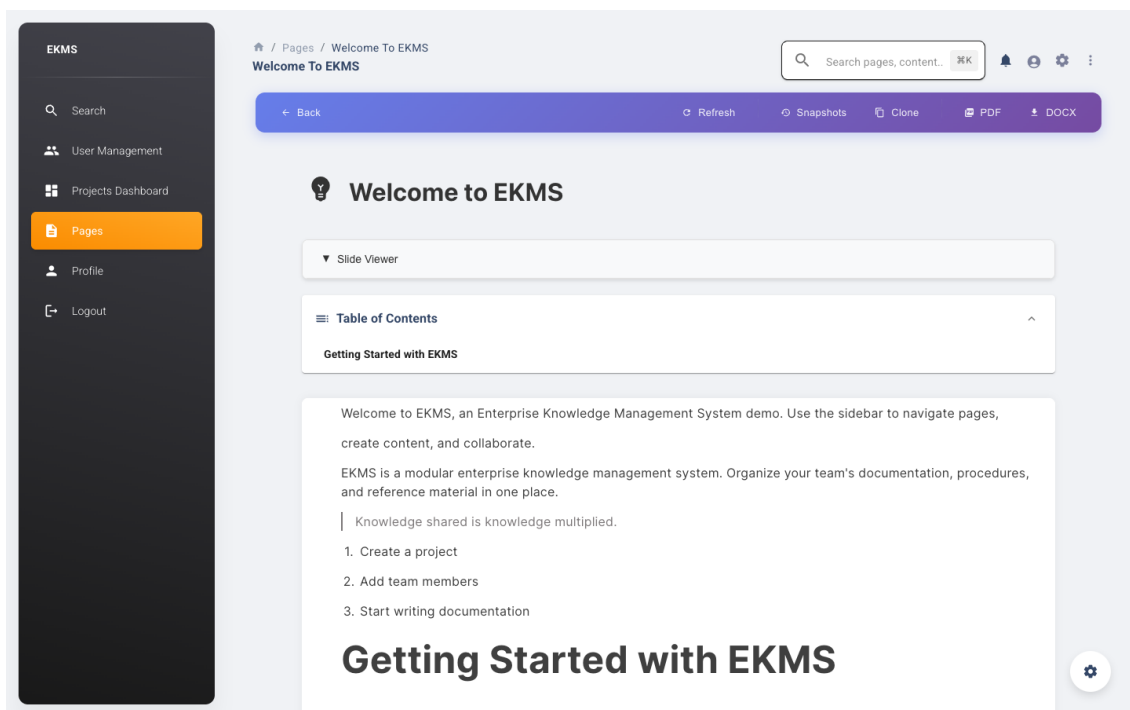


EKMS

Enterprise Knowledge Management System



Contents

1	Problem & Context	2
2	Solution Overview	2
3	Architecture	2
3.1	Stack Overview	3
3.2	Module Breakdown	3
4	Feature Walkthrough	3
4.1	Secure Authentication	3
4.2	Project Dashboard	3
4.3	Page Tree & Navigation	4
4.4	Rich-Text Editor	5
4.5	Global Search	5
4.6	User Profile & Theme Settings	5
5	Tech Stack Details	6
6	Closing	6

1 Problem & Context

Growing organizations lose productivity when institutional knowledge lives scattered across emails, chat threads, and disconnected documents. Teams duplicate work, onboarding takes weeks, and critical procedures become tribal knowledge locked inside individual contributors.

Knowledge workers spend an average of 20% of their time re-discovering information that already exists inside their organization.

EKMS was built to solve this directly: a single, structured space where teams can create, organize, and search all documentation — with project-level access control and a writing experience that gets out of the way.

2 Solution Overview

EKMS is a modular enterprise knowledge base with a rich-text editor, project-based workspace organization, and full-text search. Users authenticate through a secure sign-in flow, land on a project dashboard that shows workspace activity at a glance, and navigate a hierarchical page tree to create or edit documentation.

The editor supports rich formatting via slash commands: headings, quotes, numbered lists, code blocks, and drag-and-drop block reordering — all without leaving the keyboard. Changes are auto-saved in real time.

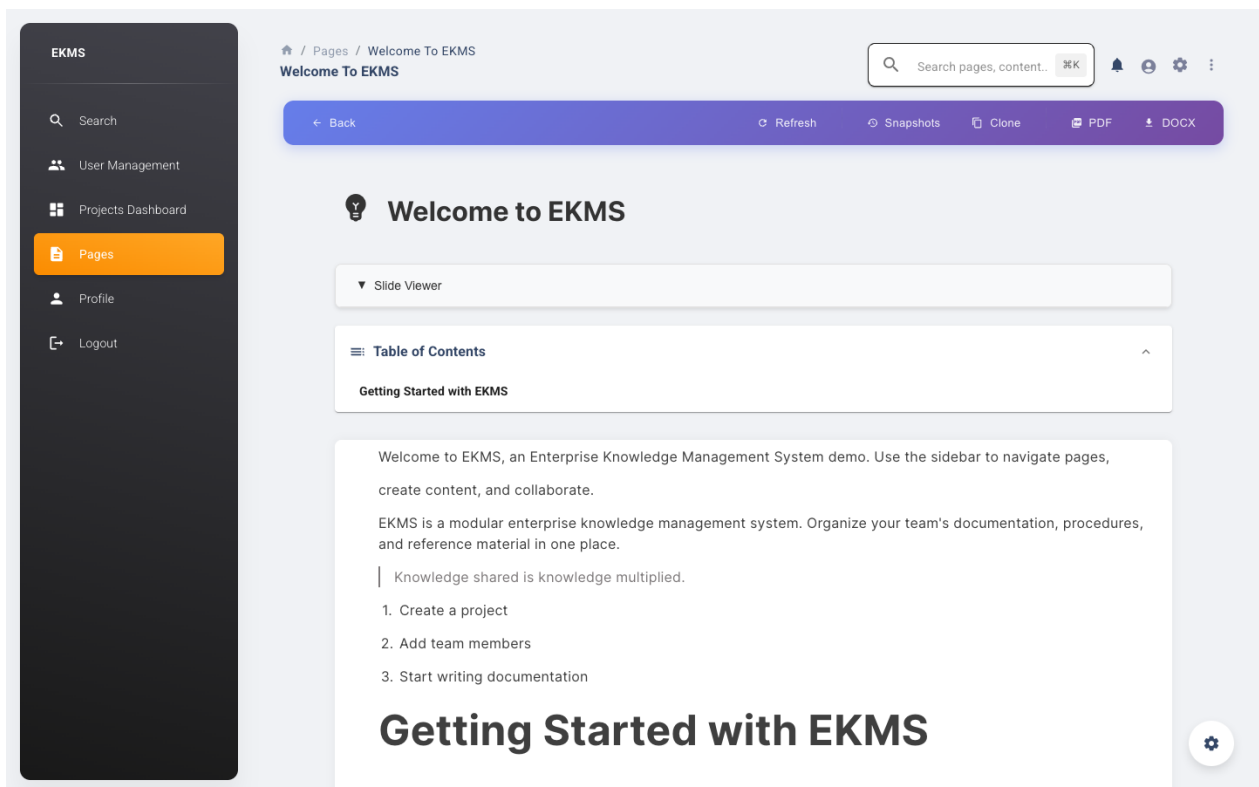


Figure 1 BlockNote-powered rich-text editor with slash command palette and drag-and-drop blocks

3 Architecture

3.1 Stack Overview

- **Frontend** — React + TypeScript, Material UI v5, deployed on Cloudflare Pages
- **Editor** — BlockNote (ProseMirror-based), slash commands, real-time autosave
- **State management** — Zustand for global store; React Query for server state
- **Backend / Auth** — REST API with JWT-based authentication and role-based access control
- **Search** — Full-text search across page content with result highlighting
- **Deployment** — Cloudflare Pages (zero-config CDN, global edge)

3.2 Module Breakdown

Module	Responsibility
Auth	JWT login, session management, protected route guards
Projects	Workspace creation, member roles, project dashboard
Pages	Hierarchical page tree, CRUD, versioned content
Editor	BlockNote instance, slash commands, block drag-and-drop
Search	Cross-project full-text search, ranked results
Profile	User settings, theme preferences (dark/light/system)

4 Feature Walkthrough

4.1 Secure Authentication

Users authenticate via a clean sign-in page with username/password credentials and JWT-based sessions. Routes are protected — unauthenticated users are redirected to sign-in automatically.

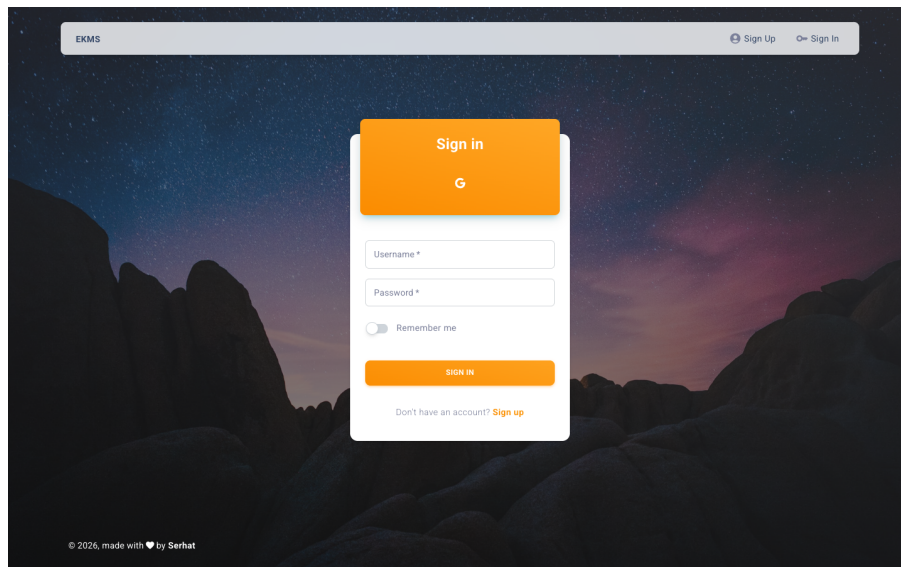


Figure 2 Sign-in page with branded header and credential form

4.2 Project Dashboard

After login, users land on the Project Dashboard — a command center that surfaces all workspaces. Projects can be filtered, roles can be managed, and new projects can be spun up from a single view.

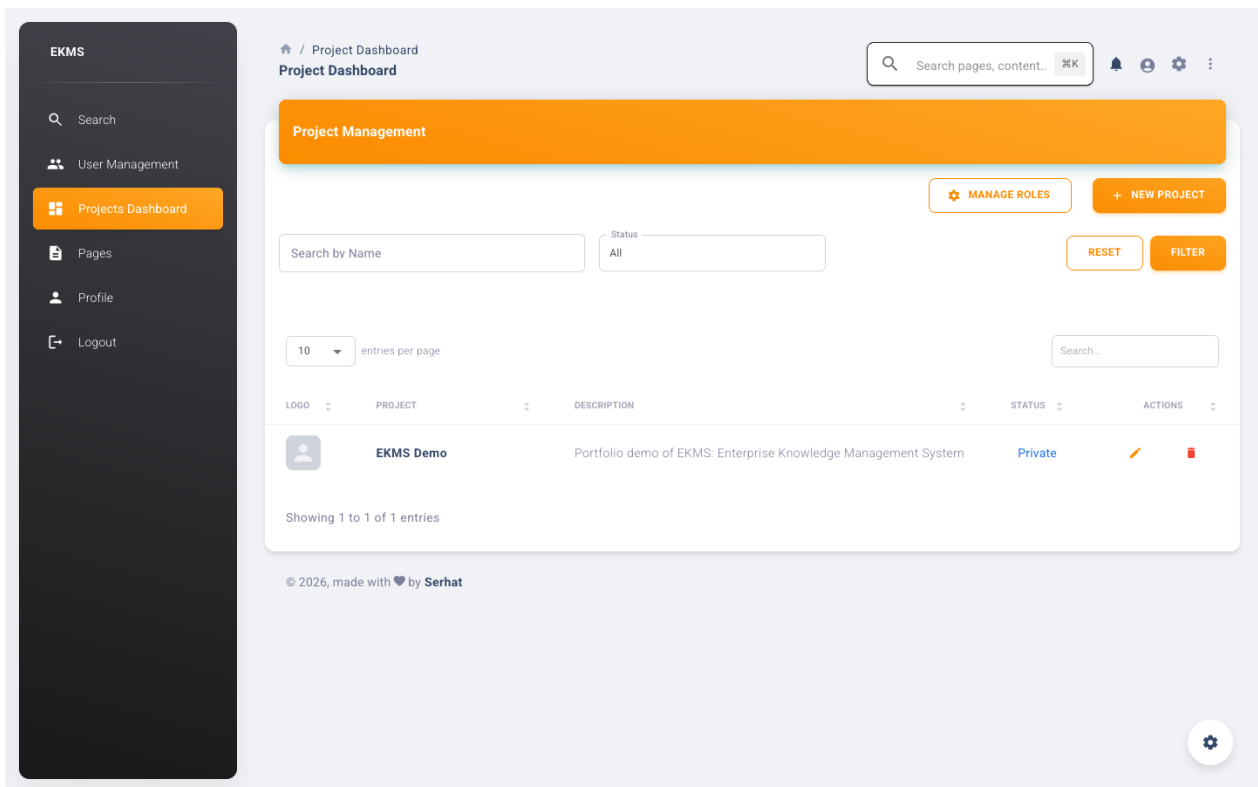


Figure 3 Project Dashboard showing workspace overview, role management, and project creation

4.3 Page Tree & Navigation

The Pages view presents a hierarchical sidebar tree. Users can browse nested pages, see recently modified entries, and jump directly into editing — all from one glanceable layout.

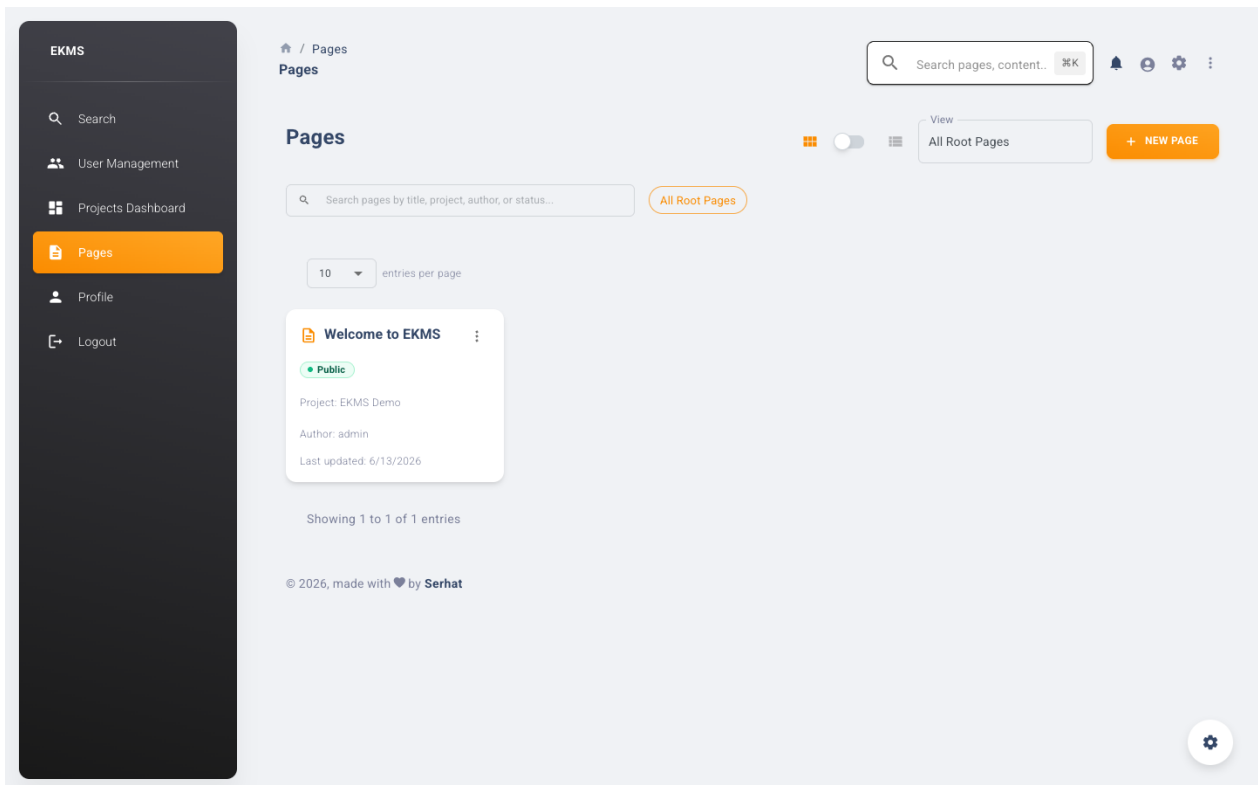


Figure 4 Pages list with sidebar navigation and page metadata

4.4 Rich-Text Editor

The BlockNote editor delivers a Notion-like writing experience: type / to open a slash command menu for any block type (heading, quote, numbered list, code, callout). Blocks can be reordered by drag-and-drop. Content is auto-saved continuously so no work is ever lost. See Figure 1 above for a full-view screenshot of the editor in action.

4.5 Global Search

Full-text search spans all pages and projects. Results appear instantly as the user types, with highlighted matches and one-click navigation to the source page.

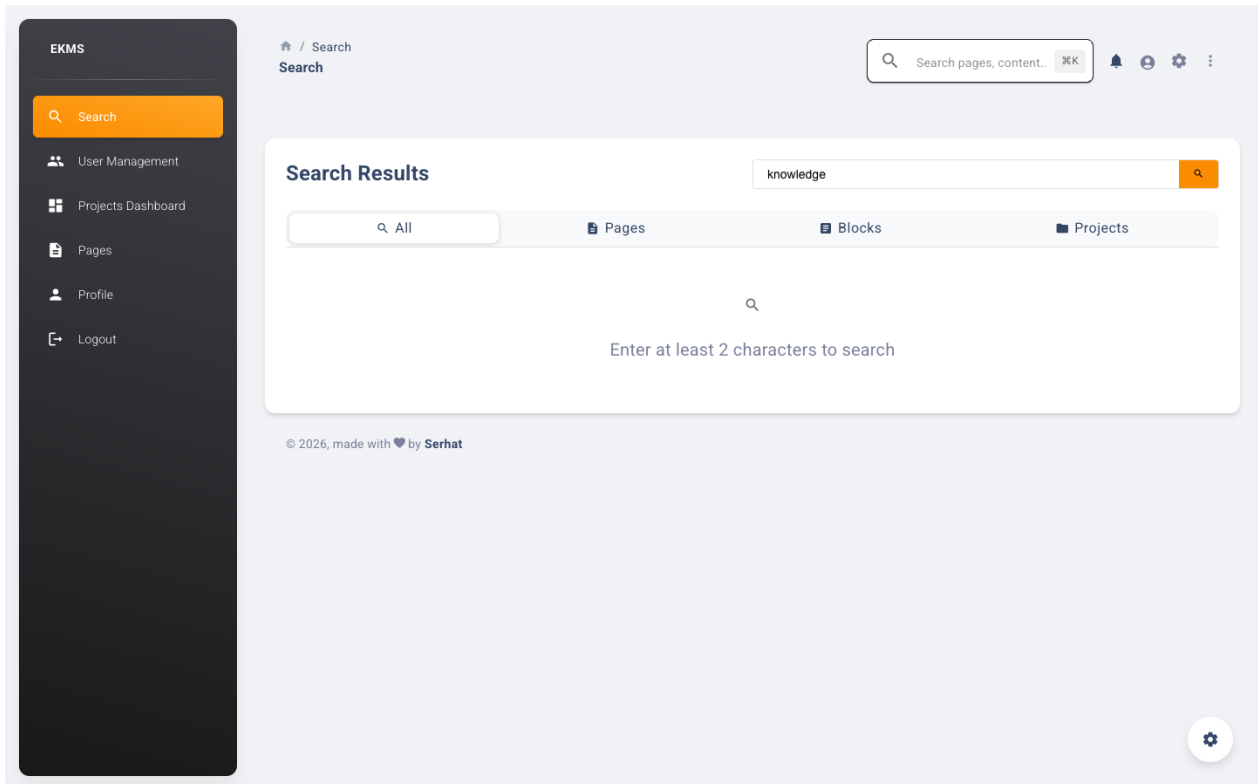


Figure 5 Global search: typing "knowledge" returns ranked results across all projects

4.6 User Profile & Theme Settings

Users can manage their profile and switch between light, dark, and system themes. The Material UI Configurator also lets administrators customize sidenav colors and layout behavior.

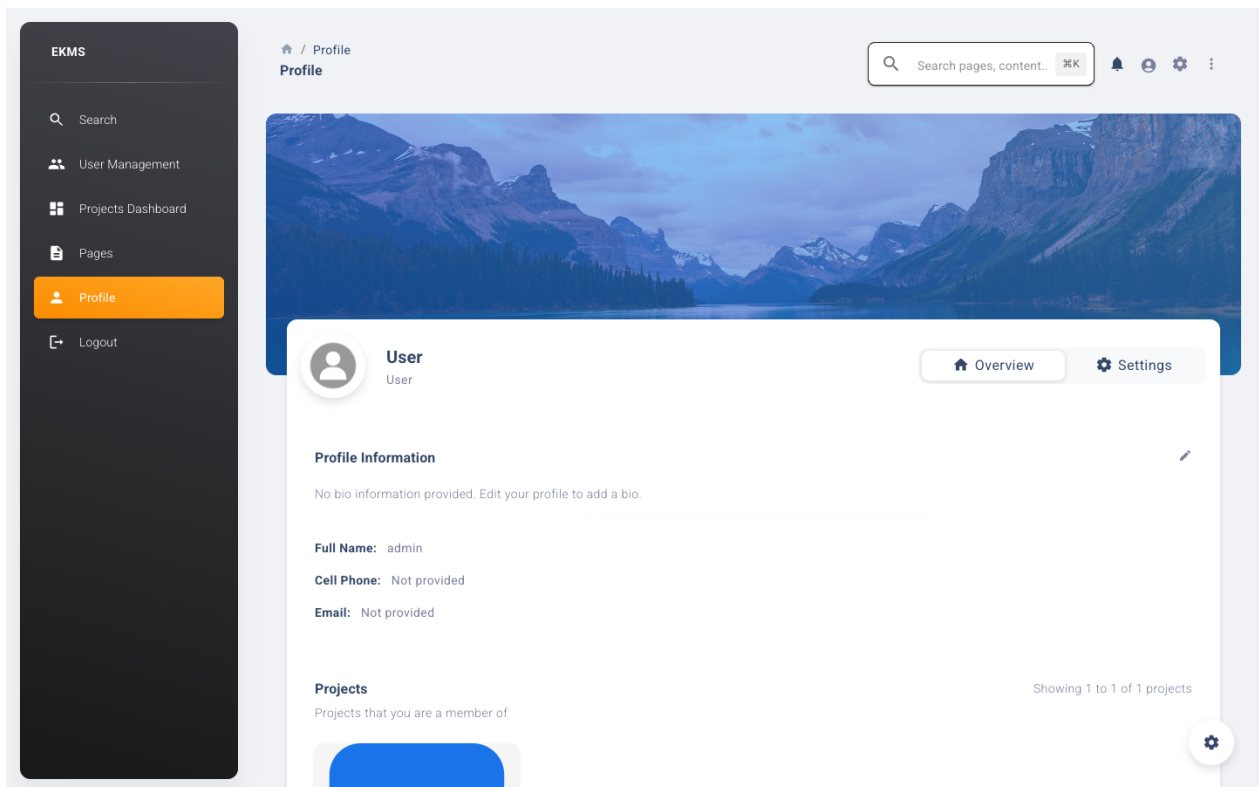


Figure 6 Profile settings with theme switcher and Material UI configurator

5 Tech Stack Details

- **React 18 + TypeScript** — Component-based UI with strict type safety; enables reliable large-scale refactors
- **Material UI v5** — Design system providing consistent spacing, typography, and theming; dark/light mode out of the box
- **BlockNote** — ProseMirror-based editor chosen for its slash-command extensibility and React-first API over alternatives like Quill or TipTap
- **Zustand** — Lightweight global state without Redux boilerplate; ideal for authentication state and UI config
- **React Query** — Server-state synchronization with automatic caching and background refetching
- **Cloudflare Pages** — Static deployment at the edge; instant global propagation and zero cold starts
- **JWT Authentication** — Stateless token-based auth with role-based access control per project workspace

6 Closing

EKMS demonstrates a production-ready knowledge management platform: clean architecture, polished UI, and a writing experience that teams actually enjoy using.

Live demo: ekms.projects.serhatkeskin.com

Source code: github.com/serhatkeskin/ekms-demo

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