

```
// users.collection
{
  _id: ObjectId,
  email: string,
  passwordHash: string | null, // null nếu đăng nhập OAuth2
  oauthProviders: [
    provider: 'google' | 'apple',
    providerId: string,
  ],
  roles: ['user', 'creator', 'admin'],
  status: 'active' | 'banned' | 'pending',
  isVerified: boolean,           // verify email
  createdAt: Date,
  updatedAt: Date
}
```

```
// profiles.collection
{
  _id: ObjectId,
  userId: ObjectId, // ref users
  displayName: string,
  avatarUrl: string,
  coverUrl: string,
  bio: string,
  location: string,
  links: {
    website?: string,
    facebook?: string,
    tiktok?: string,
    youtube?: string,
  },
  stats: {
    followersCount: number,
    followingCount: number,
    postsCount: number,
  }
}
```

```
// follows.collection
{
  _id: ObjectId,
  userId: ObjectId, // ai follow
  followerId: ObjectId, // follow ai (user/creator/business)
  createdAt: Date
}
// unique (followerId, targetId)
```

```
// servers.collection
{
  _id: ObjectId,
  name: string,
  description: string,
  ownerId: ObjectId, // user tạo
  type: 'community' | 'business' | 'creator',
  isOfficial: boolean, // cho kênh doanh nghiệp/creator đã duyệt
  avatarUrl: string,
  inviteCode: string, // dùng cho "tham gia group bằng link URL"
  createdAt: Date,
  updatedAt: Date
}
```

```
// server_members.collection
{
  _id: ObjectId,
  serverId: ObjectId,
  userId: ObjectId,
  roles: ['owner', 'admin', 'member'],
  joinedAt: Date,
  lastSeenAt: Date
}
// index: (serverId, userId) unique
```

// channels.collection (Mỗi server có nhiều kênh: text, voice, social feed, livestream chat...)

```
{  
  _id: ObjectId,  
  serverId: ObjectId,  
  name: string,  
  type: 'text' | 'voice' | 'video' | 'social',  
  isPrivate: boolean,  
  category: string | null, // để group theo Category  
  allowedRoles: ['owner', 'admin', 'member'], // đơn giản  
  createdAt: Date  
}
```

// channel_members.collection

```
{  
  _id: ObjectId,  
  channelId: ObjectId,  
  userId: ObjectId,  
  permission: 'owner' | 'member',  
  joinedAt: Date  
}
```

```
// messages.collection
{
  _id: ObjectId,
  channelId: ObjectId,
  senderId: ObjectId,
  content: string,
  attachments: [
    type: 'image' | 'video' | 'file',
    url: string,      // URL S3
    metadata: any
  ],
  replyToMessageId?: ObjectId,
  mentions: [ObjectId], // list userId được @
  reactions: [          // có thể embed để tránh join
    {
      emoji: string,    // "👍", "❤️"
      userIds: [ObjectId] // hoặc chỉ lưu count để nhẹ hơn
    }
  ],
  pinned: boolean,
  deletedAt?: Date,
  createdAt: Date,
  updatedAt: Date
}
// index: channelId + createdAt (phân trang lịch sử chat)
```

```
// posts.collection
{
  _id: ObjectId,
  authorId: ObjectId, // user/creator
  serverId?: ObjectId, // nếu post trong 1 server
  channelId?: ObjectId, // nếu post gắn với channel social
  content: string,
  media: [
    type: 'image' | 'video',
```

```
    url: string,
    metadata: any
  ],
  hashtags: [string],
  location?: string,
  visibility: 'public' | 'followers' | 'private',
  stats: {
    likes: number,
    comments: number,
    shares: number,
    saves: number
  },
  createdAt: Date,
  updatedAt: Date,
  deletedAt?: Date
}
```

// comments.collection

```
{
  _id: ObjectId,
  postId: ObjectId,
  authorId: ObjectId,
  parentCommentId?: ObjectId, // hỗ trợ reply nhiều tầng
  content: string,
  reactions: [
    {
      emoji: string,
      userIds: [ObjectId]
    },
    createdAt: Date,
    deletedAt?: Date
}
```

```
// post_reactions.collection
{
  _id: ObjectId,
  postId: ObjectId,
  userId: ObjectId,
  type: 'like' | 'love' | 'haha' | 'save',
  createdAt: Date
}
// unique index: (postId, userId, type)
```

```
// post_saves.collection
{
  _id: ObjectId,
  userId: ObjectId, // ai save
  postId: ObjectId, // bài nào
  createdAt: Date
}
```

// Index quan trọng:
unique index (userId, postId) // 1 user chỉ save 1 lần

```
// post_shares.collection
{
  _id: ObjectId,
  userId: ObjectId, // ai share
  postId: ObjectId, // share bài nào
  targetType: 'external' // hoặc 'user' | 'channel' | 'server'
  targetId?: ObjectId, // nếu share nội bộ (gửi vào channel, user
  khác...)
  createdAt: Date
}
```

```
// creator_profiles.collection
{
  _id: ObjectId,
  userId: ObjectId,
  type: 'creator' | 'business',
  status: 'pending' | 'approved' | 'rejected',
  description: string,
  documents: [ { url: string } ], // giấy tờ xác minh
  stats: {
    followers: number,
    totalViews: number,
    revenue: number
  },
  createdAt: Date,
  updatedAt: Date
}
```

```
// livestreams.collection
{
  _id: ObjectId,
  hostId: ObjectId,    // creator
  serverId?: ObjectId,
  channelId?: ObjectId,
  title: string,
  description: string,
  status: 'scheduled' | 'live' | 'ended',
  streamKey: string,
  viewerCount: number,
  createdAt: Date,
  startedAt?: Date,
  endedAt?: Date
}
```

```
// call_sessions.collection
{
  _id: ObjectId,
  type: 'video' | 'voice',
  mode: 'direct' | 'group',    // 1-1 hay trong channel

  // Liên kết
  channelId?: ObjectId,        // nếu call trong 1 channel
  serverId?: ObjectId,
  createdBy: ObjectId,        // user khởi tạo

  // Thời gian
  startedAt: Date,            // lúc bắt đầu kết nối
  endedAt?: Date,              // khi kết thúc
  durationSec?: number,       // có thể tính = endedAt - startedAt

  // Người tham gia
  participants: [
    {
      userId: ObjectId,
      joinedAt: Date,
      leftAt?: Date,
    },
  ],
  status: 'ongoing' | 'ended' | 'missed',
}
```

```
// reports.collection
{
  _id: ObjectId,
  reporterId: ObjectId,
  targetType: 'user' | 'post' | 'comment' | 'server' | 'channel',
  targetId: ObjectId,
  reason: string,
  details?: string,
  status: 'pending' | 'reviewing' | 'resolved' | 'rejected',
  actionTaken?: 'none' | 'warning' | 'block_user' | 'delete_content',
  adminId?: ObjectId,
  createdAt: Date,
  updatedAt: Date
}
```

```
// audit_logs.collection
{
  _id: ObjectId,
  adminId: ObjectId,
  action: string,      // 'DELETE_POST', 'BAN_USER',...
  targetType: string,
  targetId: ObjectId,
  metadata: any,
  createdAt: Date
}
```

```
// notifications.collection
{
  _id: ObjectId,
  userId: ObjectId,
  type:
    'new_message' |
    'new_follower' |
    'post_liked' |
```

```
'commented' |  
'creator_approved',  
payload: any,    // id post, id user, message ngắn  
isRead: boolean,  
createdAt: Date  
}
```