# Project Summary - Domain & Services

This document summarizes all the work completed so far in the Domain, Entities, Enums, Security Layer, and Services. It also lists what remains to be done.  
  
If you start a new chat, provide this document as context. The next step is to continue with the missing services (Authentication, Lookup, Dashboard, Notification Templates/Logs, AuditTrail integration).

## 1. Entities & Enums (Completed)

### Entities:

* - User (extended: lockout, reset token, 2FA fields)
* - Registration
* - Institution
* - Notification
* - AuditTrail

### Enums:

* - LicenseType
* - LicenseSector
* - FinancialDomain
* - RegistrationStatus
* - NotificationEvent
* - AuditActionType
* - PasswordFormat

## 2. Builders (Completed)

* - RegistrationBuilder
* - InstitutionBuilder
* - NotificationBuilder
* - AuditTrailBuilder
* - Security Builders (Permission, RolePermission, UserRole, UserPermissionOverride)

## 3. Services (Completed)

* - RegistrationService (CRUD + Workflow + StatusLogs + Notifications)
* - InstitutionService (Advanced CRUD + Search + Reports + Relations)
* - Directory Services (CountryService, StateProvinceService)
* - NotificationService (basic sending: InApp/Email/SMS/Push)
* - AuditTrailService (logging with Enum)
* - PermissionService (CRUD + Grants + Overrides + Authorize logic)
* - RoleService (CRUD + UserRole mapping)
* - AccessControlService (CanAsync, CanDoAsync)
* - UserService (CRUD + Activate/Deactivate + ResetPassword + Lock/Unlock + Roles)
* - EncryptionService (PBKDF2 + AES + Tokens)

## 4. Settings

SecuritySettings (EncryptionPassphrase, PBKDF2 iterations, SaltSize, Expiry, Lockout, 2FA)

Configured in appsettings.json and injected via IOptions.

## 5. Remaining Services / Tasks

* - AuthenticationService (Login, ValidatePassword, JWT/Token, Logout)
* - UserSettingsService (preferences, MFA toggles, language)
* - NotificationService (Templates, Logs, Retry, Subscriptions)
* - DashboardService (statistics, KPIs, summaries)
* - LookupService (reference data: LicenseTypes, BusinessScaleRange, EmployeeRange, etc.)
* - AuditTrail integration with other services (User, Institution, Registration)

## 6. Next Step

The next focus is to complete the missing services (Authentication, Lookup, Dashboard, Notification Templates/Logs, AuditTrail integration). This document provides the context required to continue development.