

# Building End-to-End Multi-Client Service Oriented Applications

Module 04  
Entities & Core Functionality



# Entity Structure

- Two sets of entities
  - Business side
  - Client side
- Each travels up & down its tiers
- Passed by services and proxies
- Each set of entities has knowledge it needs to service its side of the service wall
- Entities will be “equivalent”
  - Namespace equivalency will be handled in **AssemblyInfo.cs** file

# Business Entities

- Used across data layer, business engine layer, and service layer
- Each entity maps to a database table
- Used as data contracts on business side
  - Not the exclusive data contracts though
  - Can still have custom data contracts whenever needed
- Data access layer will provide ORM mapping if needed
  - DB-Context class will use EF fluent-language
- The **EntityBase** base class provides common characteristics
- Interface for identifying entity ID (**IIdentifiableEntity**)
  - Will be used in Data Access module
- Interface for identifying account ownership (**IAccountOwnedEntity**)
  - Will be used when adding security to application later

# Property Change Notification

- Compile-time property-change handling
  - `() => PropertyName` vs `"PropertyName"`
- Disallow duplicate event wiring
  - No need to `-=` AND `+=` when/if manually wiring to **PropertyChanged** event
- Build dirty-setting into property change

# Dirty Tracking

- Build into property change notification
- Provide way to obtain dirty objects down the graph
- Able to ask if object graph is dirty at any level (with short-circuiting)
- Uses routine to “walk” object graph
  - Leverages cool lambda technique for reusability

# Validation

- **Uses FluentValidation**
  - Simple, yet extensible rules engine
  - Available through NuGet
- **Wired functionality into ObjectBase**
- **Object validates when a property is changed**
- **“IDataErrorInfo” is implemented for XAML binding purposes**
  - Reports back broken validation rules for given property
- **Broken rules stored per-object**
- **You will see more on this when we get to UI**

# Client Entities

- **Used across proxy layer, web API layer, and UI layer**
- **Used as data contracts on client side**
  - Not the exclusive data contracts though
  - Custom data contracts may exist on both sides
- **Have more intelligence than business entities**
  - Property change notification (binding)
  - Dirty-tracking
  - Validation (Fluent-Validation library)
- **Prepared for data binding to any type of client**
- **The **ObjectBase** base class provides common characteristics**

# Unit Testing

- **Test entity characteristics by testing core base**
  - Property change notification
    - Basic notification
    - Against duplicate subscribing
  - Dirty tracking
    - Standard dirty set
    - Child dirtiness
    - Object aggregation & cleaning
    - Object cleaning
  - Validation



# Unit Test Naming Conventions

- Test class name is name of class to be tested followed by “Tests”
- Test names take one of two forms
  - `PascalCase` indicates name of method to be tested
  - `lower_case_underscore_delimited` indicates custom name descriptor

**End of module**