

Code First Data Annotations

Configuring Code First using Declarative Attributes

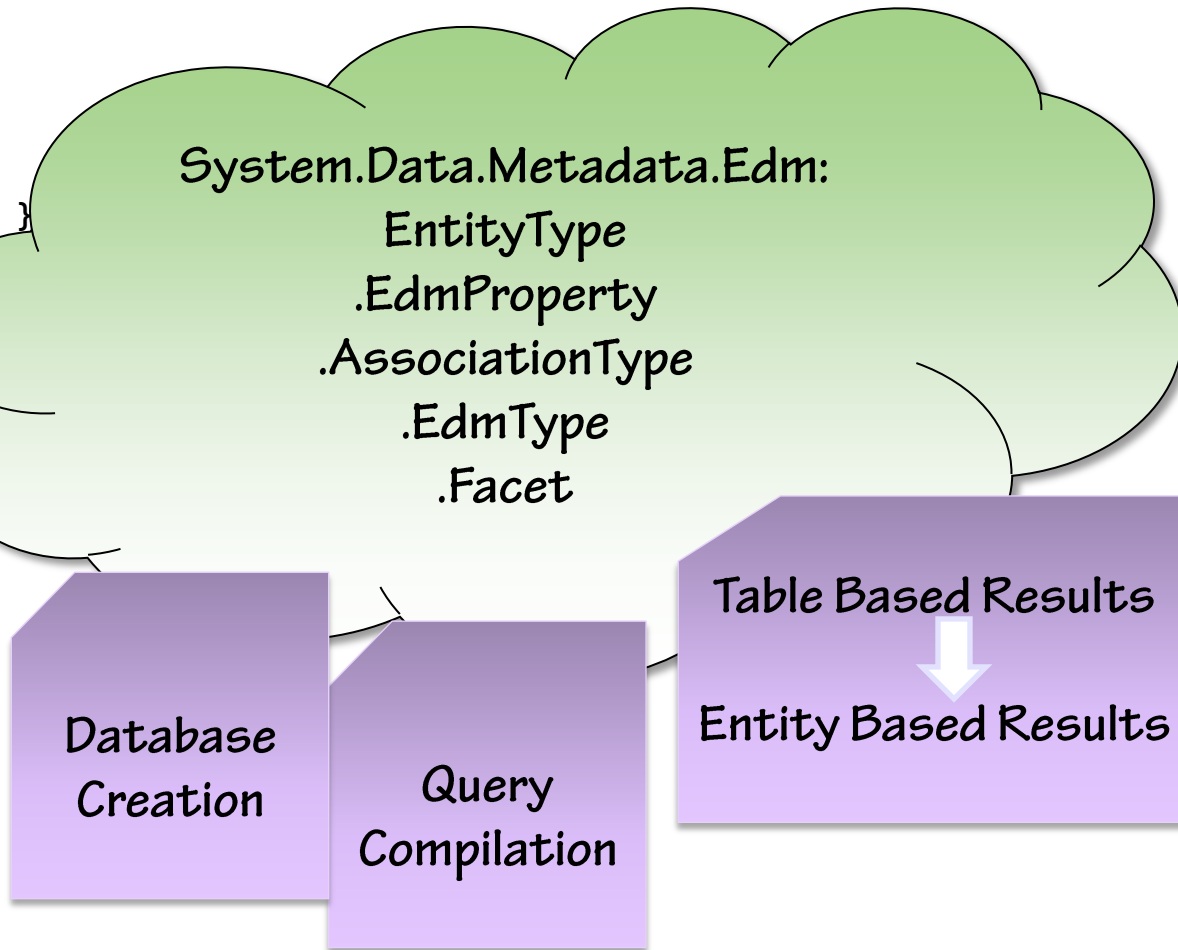


Objectives

- Review: Why Configure Code First?
- List and Demonstrate Each Data Annotation option
- Resources

Code First at Run-Time

```
public class Blog{  
    public int Id { get; set; }  
    public string Title { get; set; }  
    public string BloggerName { get; set; }  
    public BlogDetails BlogDetail { get;  
    public ICollection<Post> Posts {  
    public string BlogCode {  
        get  
        {  
            return Title.Substring(0, 1) +  
        }  
    }  
}
```



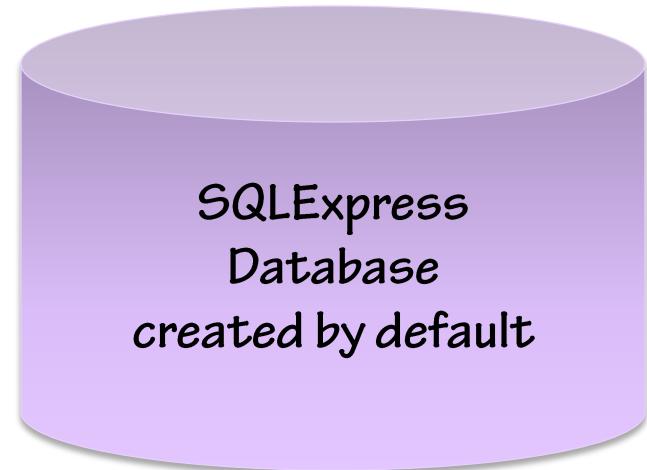
Defaults

```
public class Blog{  
    public int Id { get; set; }  
    public string Title { get; set; }  
    public string BloggerName { get; set; }  
    public List<Post> Posts { get; set; }  
    public string BlogCode {  
        get {return Title.Substring(0, 1) + ":" + BloggerName.Substring(0, 1);}  
    }  
}
```

Key->
Id or "class"Id

Relationship
inferred

```
public class Post{  
    public int Id { get; set; }  
    public string Title { get; set; }  
    public string Content{ get; set; }  
    public virtual Blog Blog{ get; set; }  
}
```



Configure Code First Classes for EF EDM

```
[Table("InternalBlogs")]
public class Blog{
    [Key, Column("IBKey")]
    public int IdBlog { get; set; }
    [Required]
    public string Title { get; set; }
    [MaxLength(10)]
    public string BloggerName { get; set; }
    [Timestamp]
    public Byte[] TimeStamp { get; set; }
    public BlogDetails BlogDetail { get; set; }
    public virtual ICollection<Post> Posts { get; set; }
    [NotMapped]
    public string BlogCode {
        get {
            return Title.Substring(0, 1) + ":" + BloggerName.Substring(0, 1);
        }
    }
}
```

Data Annotations

Fluent API

```
modelBuilder.Entity<Blog>().HasKey(b => b.IdBlog).ToTable("InternalBlogs");
modelBuilder.Entity<Blog>().Property(p => p.IdBlog).HasColumnName("IBKey");
```

System.ComponentModel.DataAnnotations

- Key
- MaxLength
- MinLength
- Required
- Column
- Table
- ConcurrencyCheck
- Timestamp
- ComplexType
- InverseProperty
- ForeignKey
- DatabaseGenerated
- NotMapped

System.ComponentModel.DataAnnotations

System.ComponentModel.DataAnnotations.dll

EntityFramework.dll

- System.ComponentModel.DataAnnotations
 - AssociatedMetadataTypeTypeDescriptionProvider
 - AssociationAttribute
 - ConcurrencyCheckAttribute
 - CustomValidationAttribute
 - DataType
 - DataTypeAttribute
 - DisplayAttribute
 - DisplayColumnAttribute
 - DisplayFormatAttribute
 - EditableAttribute
 - EnumDataTypeAttribute
 - FilterUIHintAttribute
 - IValidatableObject
 - KeyAttribute
 - MetadataTypeAttribute
 - RangeAttribute
 - RegularExpressionAttribute
 - RequiredAttribute
 - ScaffoldColumnAttribute
 - ScaffoldTableAttribute
 - StringLengthAttribute
 - TimestampAttribute
 - UIHintAttribute
 - ValidationAttribute
 - ValidationContext
 - ValidationException
 - ValidationResult
 - Validator

- EntityFramework
 - System.ComponentModel.DataAnnotations
 - ColumnAttribute
 - ComplexTypeAttribute
 - DatabaseGeneratedAttribute
 - DatabaseGeneratedOption
 - ForeignKeyAttribute
 - InversePropertyAttribute
 - MaxLengthAttribute
 - MinLengthAttribute
 - NotMappedAttribute
 - TableAttribute
 - System.Data.Entity
 - System.Data.Entity.Infrastructure
 - System.Data.Entity.ModelConfiguration
 - System.Data.Entity.ModelConfiguration.Configuration
 - System.Data.Entity.ModelConfiguration.Conventions
 - System.Data.Entity.Validation
 - DbEntityValidationException
 - DbEntityValidationResult
 - DbUnexpectedValidationException
 - DbValidationError

Key Attribute

- **Convention for EntityKey**
 - Property named "Id"
 - Property named [classname]+ "Id" (e.g. AliasId)
- **When Convention is not Met**

[Key]

```
public int ThisIsTheIDProperty { get; set; }
```


Required

```
[Required]
```

```
public string Name { get; set; }
```

MaxLength/MinLength

```
[MaxLength(20), MinLength(5)]  
public string AliasName
```

Table/Column

```
[Table("Authors", Schema = "guest")]  
    public class Alias  
  
    [Column("DateStarted", Order = 1, TypeName = "date")]  
        public DateTime CreateDate { get; set; }
```

ConcurrencyCheck/Timestamp

```
[ConcurrencyCheck]  
public string SocialSecurity
```

```
[Timestamp]  
public byte[] RowVersion
```

DatabaseGenerated/NotMapped

```
[DatabaseGenerated(DatabaseGeneratedOption.Computed)]  
public DateTime CreateDate
```

DatabaseGeneratedOption.Computed

DatabaseGeneratedOption.Identity

DatabaseGeneratedOption.None

```
[NotMapped]  
public decimal CalculatedProperty
```

ComplexType

```
public class Alias
{
    public int Id {get; set;}
    public string Name {get; set;}
    public Privace PrivacySettings{get; set;}
    . . .
}

[ComplexType]
public class Privacy
{
    public bool TweetsArePrivate { get; set; }
    public bool AddLocationToTweets { get; set; }
    public bool HttpsRequired { get; set; }
}
```

ForeignKey

```
public class Alias
{
    [Key]
    public int AuthorKey { get; set; }
    . . .
}
```

```
Public class Tweet
{
    . . .
    public int AuthorId { get; set: }
    [ForeignKey("AuthorId")]
    public Author Author { get; set; }
}
```

InverseProperty

```
public class Alias
{
    ...
    [InverseProperty("AliasAdministrator")]
    public List<Person> Admins { get; set; }
    [InverseProperty("AliasGuestAuthor")]
    public List<Person> GuestAuthors { get; set; }
}
```

```
-----

public class Person
{
    public int Id { get; set; }
    public string Name { get; set; }
    public Alias AliasAdministrator { get; set; }
    public Alias AliasGuestAuthor { get; set; }
}
```


Data Annotations Summary

- Key
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- MinLength
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- Column
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- ComplexType
- InverseProperty
- ForeignKey
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- NotMapped

Resources

- Pluralsight training: pluralsight.com
- MSDN Developer Center: msdn.com/data/ef
- EF Team: blogs.msdn.com/adonet
- Rowan Miller Blog: romiller.com
- Arthur Vickers: blog.oneunicorn.com
- Julie Lerman: thedatafarm.com/blog
- LearnEntityFramework.com