

SmartComponent Library

The OpenEdge Application Modernization Framework



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Consultingwerk Ltd.



- Independent IT consulting organization
- Focusing on **OpenEdge** and **related technology**
- Located in Cologne, Germany
- Customers in Europe, North America, Australia and South Africa
- Vendor of tools and consulting programs
- 26 years of Progress experience (V5 ... OE11)
- Specialized in GUI for .NET, OO, Software Architecture, Application Integration

OpenEdge® application modernization solutions

- WinKit
- **SmartComponent Library**
- Dynamics4.NET
- Tools can be used together or separately
- Share common code base

Agenda

- **Overview**
- Developing Business Logic
- Developing GUI for .NET Frontends
- Telerik Mobile Integration
- Kendo UI/Angular
- Migration and Modernization Options
- Kendo UI Builder



SmartComponent Library

- Developer Framework aimed to increase Developer productivity and flexibility
- Reduce or avoid repeating tasks
 - Tools (code generation and round-trip dev.)
 - Integration with Progress tools (OpenEdge, Telerik, KUIB, BPM, Corticon, ...)
 - Application Framework
- Allow integration with existing Applications and Frameworks (3rd party or home grown)
- Allow usage of individual framework components as needed (not all or nothing)

Application Framework Features

- Authentication, including client-principal support and multi-tenancy
- Flexible authorization (menu, toolbar, business logic, custom tokens, ...), can be used for data-authorization (e.g. Regions)
- Localization (full UI translation)
- Definition based referential integrity
- Batch scheduler (repeating, just once, run now)
- Enhanced Unit testing framework
- ...

SmartComponent Library

- „eat your own dog food“
- Most of our tools are written using our own libraries and tools, 99.9% ABL code
- Full source code shipped to customers
- Weekly incremental releases (48 releases/year)
- Allow legacy code integration
- Designed for customization
- Don't understand “best practices” as the “only right way”

OpenEdge Version support

- 10.2B07, 10.2B08
- 11.3.2, 11.3.3 – 11.7
- First day support for 11.6
- Almost first day support for 11.7
- 32 bit/64 bit
- Classic AppServer / WebSpeed
- PASOE
- ...

Common Component Specification

- Goal is to define **common understanding** and **architectural patterns** to allow **interoperability** of **framework components** from different vendors
- Consultingwerk founding member of CCS
- Team leader of Business Entity spec-team
- Containing the term „Component“ in the product name since 9 years – since product launch
- Framework was designed to allow interoperability with 3rd party components
- Framework fully compatible with CCS-ARCH1, CCS-SSS and CCS-BE specs (released in December 2016)

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Backend Overview

- The SmartComponent Library provides a flexible OERA Backend Architecture
- OpenEdge Reference Architecture
- Business Entities, Data Access Objects are a key component
- Business Tasks, including support for scheduled and async processing
- Common Infrastructure Components, Services

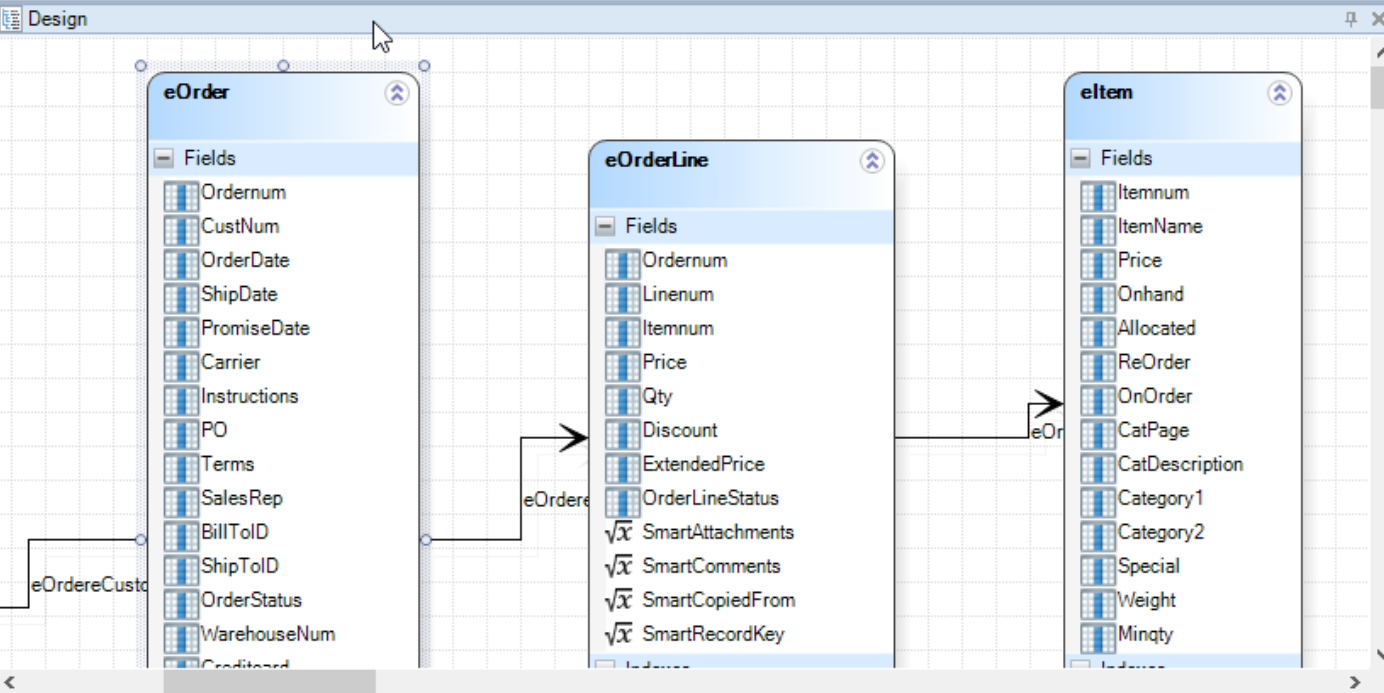
Business Logic Design Process

- Template based, Visual Design using Diagrams
- Flexible source code generator
 - Customizable templates
 - Customizable code generator (ABL class)
- Plugin Infrastructure (integrate your own ABL code)
 - Influence automatic naming and design process
 - Add and enhance code generation
- Query custom repositories during design phase
- Ad-hoc based Business Entity Test utility

File Business Entity Temp Table Data-Relation

Pointer Relation Relation Fields Generate Business Entity Tester Expand all Collapse all Batch Generator Include Files Service Interface Generate Viewer Generate Window Default fields DataDirect OpenAccess

M... Design Relation Relation Build Test Database Tables REST Adapter UI Components SmartF... Data Integr...



Toolbox Database Fields...

Custom sports2000

- Benefits
- BillTo
- Bin
- Country
- Customer
- Department
- Employee
- Family
- Feedback
- InventoryTrans
- Invoice
- Item
- LocalDefault
- Order
- OrderLine
- POLine
- PurchaseOrder

icfdb SmartDB

sports2000.Custo...

- Address
- Address2
- Balance
- City
- Comments
- Contact
- Country
- CreditLimit
- CustNum
- Discount
- EmailAddress
- Fax
- Name
- Phone
- PostalCode
- SalesRep
- State
- Terms

Entity Properties

Business Entity Description Temp-Table Defaults Generate

Business Entity Name: OrderBusinessEntity

Business Entity Purpose: Business Entity for Order

Business Entity Package: Consultingwerk.SmartComponentsDemo.OERA.Sports2000

Dataset Controller Name: OrderDatasetController

Dataset Controller Package: Consultingwerk.SmartComponentsDemo.OERA.Sports2000

Dataset Path: Consultingwerk\SmartComponentsDemo\OERA\Sports2000

Entity Properties Table Properties Data-Relation Index Properties

Field Properties

| Field | Description | XML | Calculated Field Expression |
|---------------|----------------|--|-----------------------------|
| Name: | Ordernum | | |
| Data Type: | Extent: 0 | <input type="checkbox"/> Case Sensitive | |
| Initial: | 0 | <input type="checkbox"/> Initial Unknown | |
| Label: | Order Num | | |
| Format: | zzzzzzzzz9 | | |
| Source Field: | Order.Ordernum | | |

Overview

- eOrder
 - eCustomer
 - eOrderLine
 - eltem
 - eSalesrep

Demo 1

- Create SalesRep Business Entity
- Add „CustomDescription“ and „AverageQuota“ Calculated Fields
- Review in Progress Developer Studio

Demo 2

- Create Customer Business Entity
- Add Validation on Name
- Query Customer using DatasetModel
- Update using DatasetModel
- Add custom method to Business Entity
 - Put Customer On Hold
- Invoke custom method using Model Method

Business Logic reuse – write once use in:

- **OpenEdge GUI for .NET**
- OpenEdge GUI/TTY/Batch
- **Telerik Kendo UI/Kendo UI Builder**
- **Telerik Mobile** and NativeScript
- WebSpeed
- OpenEdge BPM
- Native Mobile Applications (Xamarin Studio)
- Progress Rollbase
- Web Services and REST Services
- Sonic ESB
- DataDirect OpenAccess SDK
- Unit Testing frameworks



Agenda

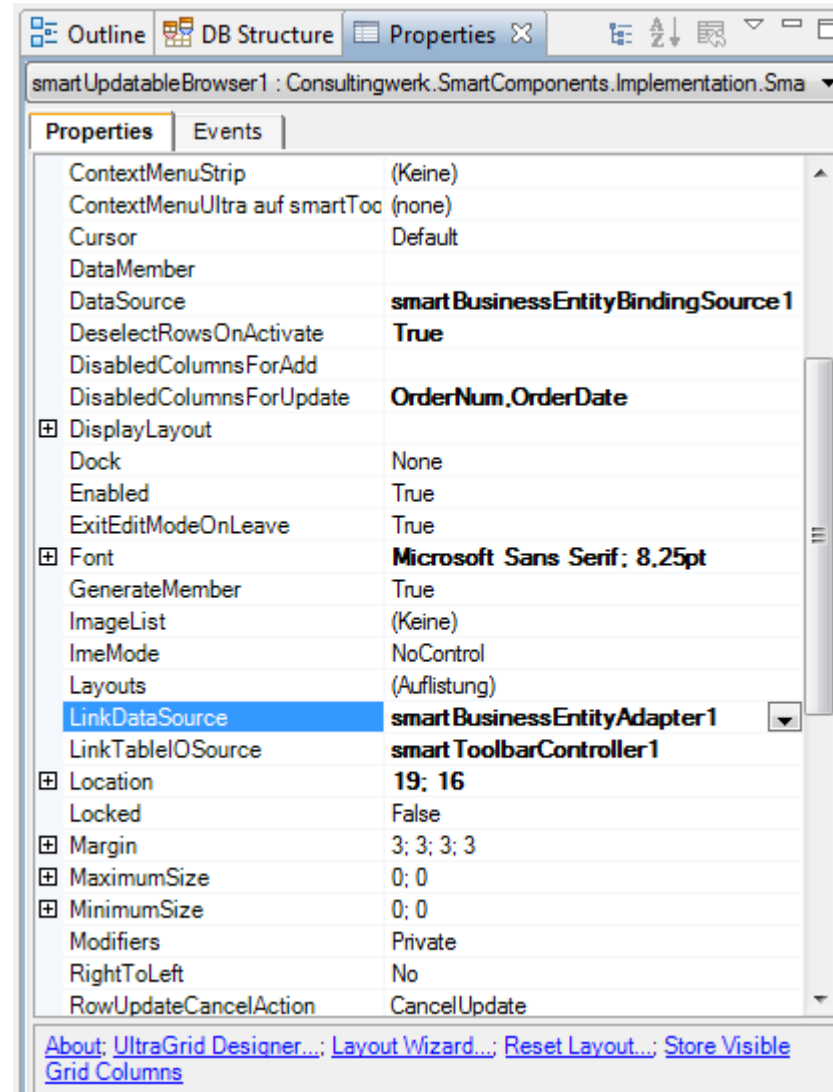
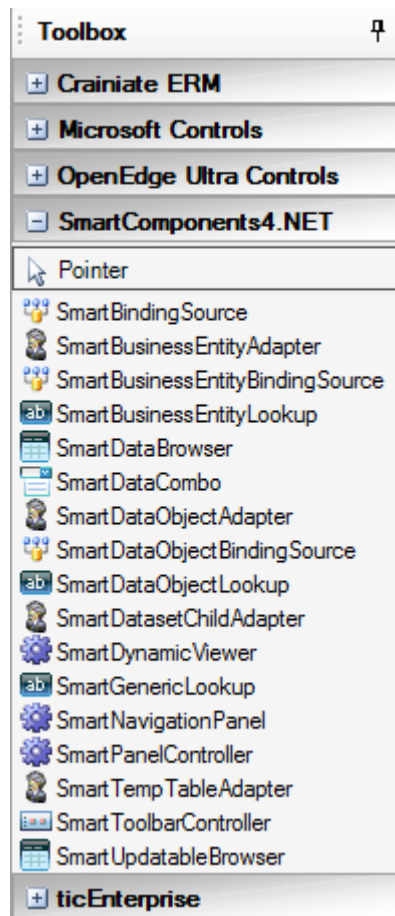
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User Interface Design Process

- Screen design based on rich foundation classes
- Compose Forms by adding rich SmartComponents and standard .NET Controls
- Connect and parameterize SmartComponents using property grid and Wizards
- Data centric design process: Achieving UI Design productivity similar to the AppBuilder

User Interface Design Process



Demo

- Use Business Entity Designer to generate UI
- Open in Visual Designer
- Add Salesrep Lookup in Visual Designer

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Support for Progress/Telerik Mobile

- SmartComponent Library Backend and

**Progress/Telerik Mobile and
Web Options = perfect match!**

- Full support for complete JSDO functionality

JSDO  **Consultingwerk
likes this.**

Support for Progress/Telerik Mobile

- Generic REST Service Interface for JSDO based clients
 - Full CRUD support
 - Invoke Methods
 - Invoke Business Tasks
- No need to redeploy new REST application for every single application
- Direct access to any Business Entity or Business Task that the current user is authorized for

Generic REST Service Interface for JSDO

- Simplified deployment
- PASOE (Progress AppServer) or Classic AppServer
- Web Handlers (OpenEdge 11.6), PASOE preferred
- REST Adapter (OpenEdge 11.5, Classic AppServer supported)
- Single developer AND large teams
- Translation of Data Catalog

Demo Telerik Mobile Platform

- Create a new hybrid mobile project in Telerik Mobile platform using Wizard
- Add access to SalesRep Business Entity
- Leverage same Business Entity in Web and Desktop

- Recorded version of the demo:
<https://www.youtube.com/watch?v=m-63Wzpjs9c>

Business Entity Designer <C:\Work\SmartComponents4NET\115_64\ABL\Demo\TelenikPlatform\SalesrepBusinessEntity.bedm>

File Data
Demo.TelenikPlatform.SalesrepBusinessEntity

Stop Business Entities Custom Context: Custom Parameter Object (Serializable) Data Source Query Info

eSalesrep

| Monthquota_1 | Monthquota_2 | Monthquota_3 | Monthquota_4 | Monthquota_5 | Monthquota_6 | Monthquota_7 | Monthquota_8 | Monthquota_9 | Monthquota_10 | Smallimage | Largeimage | Email | Phoneoffice | Phoneprivate | Phonemobile | CustomDesign |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (NULL) | (NULL) | | | | | |
| 1697 | 1748 | 1800 | 1854 | 1910 | 1967 | 2026 | 2087 | 2150 | 2215 | Byte[-]Array | Byte[-]Array | bbb@sports2 | +49 221 2760 | | +49 171 4357 | Gogsch, Andr |
| 0 | 1967 | 2026 | 2087 | 2150 | 2215 | 2281 | 2349 | 2419 | 2492 | Byte[-]Array | Byte[-]Array | dkp@sports2 | +49 221 2760 | | +160 700 822 | Pitt, Dirk K / |
| 4300 | 4152 | 4277 | 4405 | 4537 | 4673 | 4813 | 4957 | 5106 | 5259 | Byte[-]Array | Byte[-]Array | dos@sports2 | qwq | | | Donna / DOS |
| 1697 | 1748 | 2000 | 1854 | 1910 | 1967 | 2026 | 2087 | 2150 | 2215 | Byte[-]Array | Byte[-]Array | gpe@sports2 | +49 221 2760 | | | Gilles Ehrer / |
| 4031 | 4152 | 4277 | 4405 | 4537 | 4673 | 4813 | 4957 | 5106 | 5259 | Byte[-]Array | Byte[-]Array | hxm@sports2 | +49 221 2760 | | | Harry Munvig |
| 1312 | 2404 | 2476 | 2560 | 2627 | 2706 | 2787 | 2871 | 2957 | 3046 | Byte[-]Array | Byte[-]Array | jel@sports20 | qwq | | | Jan Loopsnel |
| 1910 | 1967 | 2026 | 2087 | 2150 | 2215 | 2281 | 2349 | 2419 | 2492 | Byte[-]Array | Byte[-]Array | kik@sports20 | | | | Kari Iso-Kaup |
| 44 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (NULL) | (NULL) | | | | | |
| 4456 | 4590 | 4728 | 4870 | 5016 | 5166 | 5321 | 5481 | 5645 | 5814 | Byte[-]Array | Byte[-]Array | rdr@sports20 | | | | Robert Roller |
| 3183 | 3278 | 3376 | 3477 | 3581 | 3688 | 3799 | 3913 | 4030 | 4151 | Byte[-]Array | Byte[-]Array | sls@sports20 | | | | Smith, Spike |

Runtime: 50 msec; DB Records Reads: sports2000: 54, ictb: 23, SmartDB: 23

eSalesrep.Region()

Business Entity Name: Demo.TelenikPlatform.SalesrepBusinessEntity
 Business Entity Purpose: Business Entity for Salesrep
 Business Entity Package: Demo.TelenikPlatform
 Dataset Controller Name: SalesrepDatasetController
 Dataset Controller Package: Demo.TelenikPlatform
 Dataset Path: Demo\TelenikPlatform
 Dataset Name: dsSalesrep
 Use Distinct Include Files for Temp-Table Definition
 Data Access Name: SalesrepDataAccess

Table Properties Index Properties Data-Relation Entity Properties

SmartComponent Library

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SmartComponents.Web2



Kendo UI
THE ART OF WEB DEVELOPMENT



SmartComponents.Web2

- Angular is a MVVM framework for browser based applications
- Binding Data to UI Elements
- Separate Data, View and Code
- Kendo UI provides UI components for Angular
- SmartComponents.Web2 implements similar programming model as in GUI for .NET
- Configurable data sources and communication between UI components

Demo

```

<div ng-controller="simpleCtrl" style="background-color: white;">
  <h1>Salesreps</h1>

  <div class="row">
    <div class="col-md-28">

      <smart-data-source
        smart-object-name='salesrepDataSource'
        smart-business-entity-name="Consultingwerk.SmartComponentsDemo.OERA.Sports2000.SalesRepBusinessEnt
        smart-entity-table="eSalesrep"></smart-data-source>

      <smart-grid
        smart-object-name='salesrepGrid'
        smart-data-source='salesrepDataSource'
        smart-grid-layout='Consultingwerk.SmartComponentsDemo.OERA.Sports2000.SalesRepBusinessEntity/sales

    </div>

    <div class="col-md-20">

      <smart-toolbar
        smart-object-name='salesrepToolbar'></smart-toolbar>

      <smart-viewer
        smart-object-name='salesrepViewer'
        smart-data-source='salesrepDataSource'
        smart-tableio-source='salesrepToolbar'
        smart-viewer-layout='Consultingwerk.SmartComponentsDemo.OERA.Sports2000.SalesRepBusinessEntity,

    </div>
  </div>
</div>

```



Demo Kendo UI

- AppServer Backend
- Generate Kendo UI Grid Screen
- Server-side filtering, sorting



Kendo UI

THE ART OF WEB DEVELOPMENT

Progress UI flexibility strategy

- SmartComponents.Web2 built to fit with Progress UI strategy
- Built around UI meta data
 - Annotations in code
 - Repository Database
 - Generated code
- Common Component Specification compliant
- Progress Kendo UI Builder integrated

SmartComponents.Web2

- Initially Based on Angular JS 1 (JavaScript)
- Rewritten in Angular 2 (November 2016 – June 2017)
- Complete rewrite in TypeScript as a OO solution
- Leveraging communication protocols known from SmartComponent Library for GUI for .NET

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SmartComponent Library and WinKit

- ***SmartComponent Library*** and ***WinKit*** are part of our GUI for .NET adoption and migration strategy
 - WinKit: Enhancement of existing screens
 - SmartComponent Library: New functionality
- Shared framework foundation classes
- Compatible directory and project structure
- Used side by side in customer projects
- Over 40 different WinKit implementations already
- WinKit included in SmartComponent Library

Order Maintenance
_ □ X

File Navigate Maintenance View

← ← → → 👤 ✎ 🏠 ⌨ ✖

Order Num: 1 Ordered: 23/01/09

Order Status: Shipped

Shipped: 28/01/2009

Promised: 28/01/09

Cust Num: 53 Name: Offside Hockey

Carrier: FlyByNight Courier Terms: Net30 PO:

Orderlines Customer Detail

Handle with care

OrderLines

| Line Num | Item Num | Item Name | Qty | Price | Extende |
|----------|----------|-----------------|-----|-------|---------|
| 1 | 54 | Canoe | 30 | 4,86 | |
| 2 | 55 | Surfboard | 21 | 23,85 | |
| 3 | 53 | Swimming Trunks | 75 | 8,77 | |
| 4 | 28 | Ski Gloves | 39 | 23,00 | |
| 5 | 39 | Baseball | 75 | 34,00 | 2. |
| 6 | 26 | Catchers Mit | 28 | 4,99 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Line Num: 1

Item Num: 54

Item Name: Canoe

Price: 4,86

Qty: 30 Extended Price: 131,22

Discount: 10%

Order Line Status: Shipped

Order Maintenance - Redesigned

File Start Options

Navigation: First, Prev, Next, Last
Search: Search
Maintenance: Edit, Save, Delete, Cancel

Order Num: Ordered: ..

Order Status:

Shipped: ..

Promised: ..

Cust Num: Name:

Carrier: Terms: PO:

Handle with care

Orderlines Customer Detail

Legen Sie eine Spalte hier ab, um nach dieser zu gruppieren.

| Line Num | Item Num | Item Name | Qty | Price | Ext |
|----------|----------|-----------------|-----|-------|-----|
| ▶ 1 | 54 | Canoe | 30 | 4,86 | |
| 2 | 55 | Surfboard | 21 | 23,85 | |
| 3 | 53 | Swimming Trunks | 75 | 8,77 | |
| 4 | 28 | Ski Gloves | 39 | 23,00 | |
| 5 | 39 | Baseball | 75 | 34,00 | |
| 6 | 26 | Catchers Mit | 28 | 4,99 | |

Line Num:

Item Num:

Item Name:

Price:

Qty: Extended Price:

Discount:

Order Line Status:

Migration and Modernization options

- **Enhance and extend existing applications**
- SmartComponent Library integrates with existing applications and frameworks
- SmartComponent Library functionality can be accessed from existing code
- SmartComponent Library can access existing code, typically of any kind
 - direct execution or through adapters
 - custom service or component implementations
 - Don't worry about SHARED VARIABLES etc...

Alternative

- Migration of existing Applications



Migration and Modernization options

- Migration of partial source code
- Options vary based on current code
- Strong usage of Proparse for analyzing source code, importing into Business Entity Designer
- Migration of any kind of applications
 - custom
 - ADM1, ADM2 or Dynamics
- Template based migration of UI components
- API for ABL Widget abstraction

Demo

- Migration of ABL Browse Widget
 - Rewrite of Calculated Field
 - Creation of matching Business Entity
- Migration of ABL GUI for .NET Frame
 - Implement ABL Widget abstraction
- Migration to Angular View

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Kendo UI Builder

- Graphical Designer for Kendo UI Frontends
- Leverages JSDO and Data Object Catalog
- Application Generation/Build Framework
- Angular JS and responsive UI

Support for Kendo UI Builder

- Business Entity Designer provides support for Semantic Type
- Generation of meta data for Data Provider
- Generation of meta data for User Interface
- Migration of ABL GUI to KUIB meta data for Views
- Extensive ABL API for manipulating KUIB meta data
- Integration of components (like Lookup) from SmartComponents.Web2

Questions

