

Re-form: PhoneBook

Level 100 - Hands on Labs

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# Goals

Estimated time: 30 Minutes

Goal of this HOL is to teach the fundamentals of re-form, the presentation layer of re-motion. re-form contains re-bind, the data binding component, and re-call, the transactional navigation system.

All exercises in this HOL can be solved step by step. Each exercise is designed to be finishable with an executable result.

During this HOL you will run into sections for questions and discussions. Answers to some questions might be straight forward. Other questions could be tricky. In case you are doing this exercise with other developers, we encourage you to talk about your ideas and your proposed solutions. Be aware that not for every question, there is a perfect answer.

After this exercise you will be able to understand the advantages of re-form and to compare them with other technologies.

Please have also a look on the further readings section in the end of this HOL. They provide some suggestions on how you might want to proceed to learn more.

In this lab you will continue to work on the phonebook sample, which you started with the HOL for re-store.

Topics:

|  |
| --- |
| * Lab1: Using UIGEN to generate a web application project from the domain * Lab2: First steps with re-call, the transactional navigation between forms * Lab3: First steps with re-bind, the binding between control and data |

**Important:**

For this HOL Visual Studio 2010 must be installed on your working PC. We recommend installing the following two third party tools too:

* JetBrains Resharper (<http://www.jetbrains.com/resharper/>)
* RedGate Reflector (<http://reflector.red-gate.com/Download.aspx>)

Both tools will help you to understand the samples in this HOL better.

Get the re-motion version from <https://www.re-motion.org/builds/>. This HOL was verified to be working with version 1.13.101.

This HOL continues where the re-store HOL has ended. If you have not done the re-store HOL yet, please finish this HOL or copy the files of a finished solution to C:\PhoneBook.

This HOL was tested with IE and Google Chrome.

# Lab 1: Using UIGEN

## Exercise Understanding UI Generators

WYSIWYG editors for GUIs are well known to developers. One of the first things you may have learned was to add text box controls and labels to create your first customized “Hello World” application.

Every data type has its “default control”. Strings can be retrieved from text boxes, date from date time pickers, enums from radio buttons, etc. At some points you have to decide, such as whether you want to display the content of a list in a drop down lists or a list box.

In a good DDD entities are stored in domain objects. Every domain object can be represented in a form for CRUD operations. It is obvious to provide at least forms to edit objects and to return all available domain objects in a list.

With the preconditions, it is possible to generate a web application based on the domain objects from a template. The generated forms contain an edit and search form for every domain object. Each property is represented by a control corresponding to its data type.

The generated template can then be edited and adapted to individual needs.

### Questions and Discussions

* WYSIWYG editors can be troublesome. Many products have been known for the instability or the lack of performance of their designers. Do you know products or frameworks, where the designer is the weak spot? Why do you think the designer is the weak spot?
* Create a mapping between data type and common controls (such as: string -> TextBox)!
* Discuss the following statements about UIs. Some of them are definitely to be discussed or dangerous. Which of them do you consider as good which not?
* UIs must me consistent. It is a bad idea to solve a problem in a specific situation in a way and in similar situation in a different way.
* Every UI must support keyboard only input
* UI must be responsive. Every action must trigger an immediate response.
* If the UI is bad, the whole application is worthless, even if the business logic is perfect.
* Users love a well-designed GUI that looks good. If your UI does not look good, your app lacks quality (even though there are no functional problems).
* Modern UI controls with 3D effects are essential. The more new technologies, the better. They improve the general work performance and give the user a new feeling of working.
* You can neglect old browsers to make your GUI outstanding.
* It is hell, if you have to reenter data, because the data has been lost due to a session time out or something similar.
* UIs shall be designed for the power user. The intelligent user shall be enabled to work fast and he shall also be supported by some advanced complex controls. The lame shall learn or quit using the app.
* People are different and their perception and the way they work is different. So there is no good UI, but only UIs that meet the requirement of users.
* The best way to prevent problems with the UI is to prevent that a user enters wrong data.
* If the application does not work appropriate, it is the users fault! The best way of fixing this is to log every user action, pack the logs, mail them to the boss and instruct the boss how he can blame his employee for obvious wrong usage of the apps.
* The more information, the less focus. Some people say that google became dominant as they kept the design simple and focused whereas the competition had stuffed their site with too much information.
* Everyone loves to read. So it is essential to pack as much information as possible on a page. Even we have to repeat ourselves, the more information the better.
* Check out some additional thoughts about usability (see further links as samples). Discuss approaches such as:
* <http://www.smashingmagazine.com/2008/01/31/10-principles-of-effective-web-design/>
* <http://www.sylvantech.com/~talin/projects/ui_design.html>
* <http://www.ambysoft.com/essays/userInterfaceDesign.html>
* What do you think makes a UI successful? Add your own statements about a good UI!
* What is required to design a barrier-free GUI? Why do you think barrier-free pages are important?
* One of the techniques to master in UI development is data binding. If you are new to this topic, research: What is data binding? How can this be achieved? How does a two way data binding differ from a one way data binding? What is an observer pattern?

## Exercise Using UI Gen

The logical steps to create the GUI of your DDD application are:

1. **Create your domain (which should already be done in our previous lab for re-store)**
2. **Prepare a XML template to generate the GUI**
3. **Generate your Visual Studio Web Project containing all Forms from the command line**
4. **Adapt your generated UI to your own needs.**

### Task 1 – Preparing UIGEN

UIGEN.EXE is a command line tool to generate a Visual Studio Web Project based on

* Compiled domain objects (from your domain project)
* A Xml based project template

UIGEN is part of the re-motion contribution project. UIGEN is shipped with a stable version of re-motion. If you are working with a development version, you might have to check out the latest version of the re-motion contribution repository and build the Remotion.ObjectBinding.Web.CodeGenerator project (<https://svn.re-motion.org/svn/Remotion-Contrib/>) to get the UIGEN.exe. The latest template is also included at that location.

The generate the UI for the phonebook application with UIGEN, you need to

1. **Verify that your domain project is compiled without any errors.**
2. **Add a PhoneBook.xml file to the directory C:\PhoneBook**
3. **Make sure that you have the latest UIGenTemplate available (if not, the latest Templates are availiable from the Remotion.Object.WebCodeGenerator project).**
4. **Use the following content for PhoneBook.xml and adapt the directories to match your projects and template**

<?xml version="1.0" encoding="utf-8" ?>

<!-- ATTENTION! Only ABSOLUTE PATHS are supported by uigen.exe -->

<!-- DO NOT USE RELATIVE PATHS OR YOUR APPLICATION WILL BREAK -->

<applicationGenerator template="\PhoneBook\Remotion\UIGenTemplates\TabbedEditor\TabbedEditor.xml">

<settings

templateRoot="\PhoneBook\Remotion\UIGenTemplates\TabbedEditor"

targetRoot="\PhoneBook"

projectNamespaceRoot="PhoneBook.Web"

domainNamespaceRoot="PhoneBook.Domain"

/>

<projectReplacements>

<replace from="$ReferencesDir$" to="References" />

<!-- Domain -->

<!-- Copy the DomainProjectGuid from your PhoneBook.Domain.csproj file -->

<replace from="$RemotionResDirectory$" to="\PhoneBook\Remotion\res" />

<replace from="$DomainProjectGuid$" to="{E715FCED-AD7C-4EB7-9E30-EDF67D904A48}" />

<replace from="$DomainProjectName$" to="PhoneBook.Domain" />

<replace from="$DomainProjectAssembly$" to="PhoneBook.Domain" />

<replace from="$RemotionAssembly$" to="\PhoneBook\Remotion\net-3.5\bin\Debug" />

<replace from="$WxeEngine$" to="\PhoneBook\Remotion\net-3.5\bin\Debug" />

<replace from="$WebClientName$" to="PhoneBook.Web" />

<replace from="$WebClientAssembly$" to="PhoneBook.Web" />

<replace from="$STRONG\_SUPPLEMENT$" to="Version=1.13.101.2, Culture=neutral,

PublicKeyToken=fee00910d6e5f53b" />

<!-- USER -->

<replace from="$USER\_APPNAME$" to="PhoneBook Web Sample" />

<replace from="$USER\_DEFAULT\_ASPX\_TOPIC$" to="This application was generated by UIGen.exe" />

<replace from="$USER\_DEFAULT\_ASPX\_STARTINFO$" to="To start the application click 'Start'" />

<replace from="$USER\_DEFAULT\_STARTPAGE$" to="EditLocation.wxe?WxeReturnToSelf=true" />

<replace from="$USER\_STATUSBAR$" to="yes" />

<replace from="$USER\_CLASSIC\_APPSTYLE$" to="false" />

<replace from="$USER\_STORAGEPROVIDER$" to="PhoneBookDB" />

<replace from="$USER\_CATALOGNAME$" to="PhoneBook" />

</projectReplacements>

</applicationGenerator>

### Task 2 – Using UIGEN

1. **Go to the command line**
2. **Call** c:\PhoneBook\Remotion\net-3.5\bin\debug\UIGen.exe /uigen:C:\PhoneBook\PhoneBook.xml /asmdir:C:\PhoneBook\PhoneBook.Domain\bin\Debug

### Task 3 – Testing UIGEN

The UI Gen should have generated PhoneBook.Web Directory in C:\PhoneBook\

1. **Add the generated project to your solution in Visual Studio**
2. **Set the generated project as startup project**
3. **Build and run**

### Questions and Discussions

* Investigate the phonebook.xml file and try to find out what you can adapt!
* You can create a corporate design via templates to enable you and your fellow developers to create branded applications on a mouse click. On a scale from one to ten, how powerful is this feature?
* The default template is a tabbed editor: Forms are grouped by tabs. Of what can you alternative structures can you think of?
* What can you configure in the TabbedEditor.xml?
* **Expert Questions:** Could you also create a Silverlight project based on the domain with UIGen? What would be required to create a tool that creates a Silverlight project?

# Lab 2: First steps with re-call

## Exercise: Understanding re-call

re‑call enables a developer to call re-bind forms similar to subroutines. It is possible to pass (typed) parameters and to return values to the caller.

re-call stores the states of these pages. re‑call uses re-store in-memory transactions, removing any need to explicitly access the database.

Once the application is started, we can look up the startup link. We get a such as <http://localhost:22809/EditLocation.wxe?WxeReturnToSelf=true>. The port may vary.

To understand the technology, it is necessary to understand handlers in ASP.NET. There are many tutorials in the web. If you are new to this topic, get an overview on web handlers before you read on.

### Questions and Discussions

* If a junior developer asks what a web handler is, how would you explain this topic?
* Try to call some forms in the browser. Adapt the URL from the exercise description to <http://localhost:22809/EditPerson.wxe?WxeReturnToSelf=true>. Does it work?
* **Expert Questions:** Discuss the topic session state management!

## Exercise 1: Get Rid of Exceptions

On saving during debugging, you encounter this message!

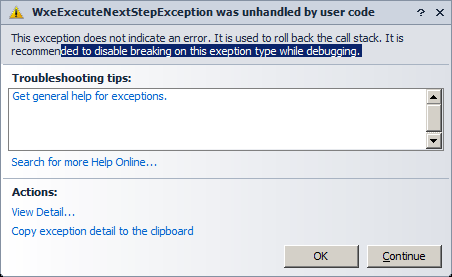


Illustration 1 WxeExecuteNextStepException

Of course, we want to remove this messsages

### Task 1: Get Rid of WxeExecuteNextStepException

You can get rid of this by

1. **CTRL + ALT + E (Editing Exception)**
2. **Add Remotion.Web.ExecutionEngine.WxeExecuteNextStepException to the list**
3. **Uncheck User-unhandled**

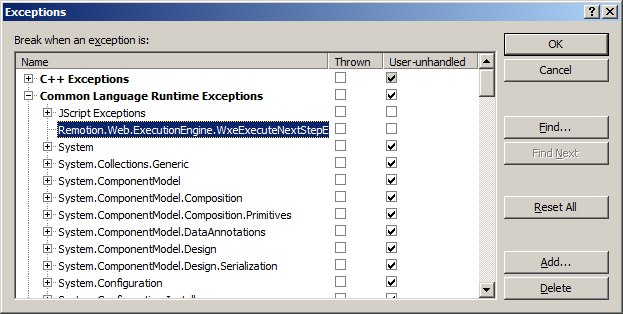
I 

Illustration Exception

### Question

* Is this behavior to roll back a call stack an “exception to the usage of exceptions”?

# Lab 3: First steps with re-bind

## Exercise 1: Globalization

### Task 1: Fixing tab names

The tab names contain identifiers with a ~ symbol. We can change this in the following steps

1. **Open global.resx file in PhoneBook.Web project**
2. **Change names**

As you can see, you can add more languages. You might want to try out to add a globalized version specific languages.

1. **Copy file global.resx to global.es.resx. This would add a Spanish version. Feel free to take any language you want**
2. **Translate identifiers in your globalization file**
3. **Start and change language in the browser settings.**

### Task 2: Adding Globalization on Properties

After we have changed the tab names, we adapt identifiers in the form like PhoneNumbers or FirstName.

1. **Add class attributes to the class declaration of Person, PhoneNumber and Location**

[MultiLingualResources("PhoneBook.Domain.Globalization.PhoneNumber")]

[MultiLingualResources("PhoneBook.Domain.Globalization.Person")]

[MultiLingualResources("PhoneBook.Domain.Globalization.Location")]

The Location class should look like

[DBTable]

[MultiLingualResources ("PhoneBook.Domain.Globalization.Location")]

public class Location : BindableDomainObject

Attention: If your domain is not called PhoneBook.Domain, you will run into trouble with the namespace. You can adapt either the project name or the string identifier in the class attribute.

1. **Add the class attribute**

[EnumDescriptionResource("PhoneBook.Domain.Globalization.Country")]

to enum Country

1. **Add a folder Globalization in the Domain Project**
2. **Add the files Location.resx, Person.resx, PhoneNumber.resx, Country.resx**
3. **Add properties to ressources file**

* Location.resx: Name property:ZipCode, Value: Zip
* Person.resx: Name property:FirstName, Value: First Name
* Person.resx: Name property:SurName, Value: Last Name

1. **Run application again and check what has changed**

### Questions and Discussions

* What are possible problems if you translate your page into another language?

## Exercise 3: Customizing Content

### Task 1: Display names

Looking on the form PhoneNumber, we get the last name of a person in the drop down list. This can be changed

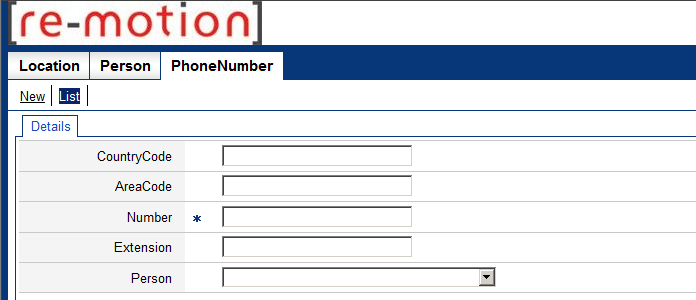


Illustration start screem

1. **Replace in class PhoneNumber**

public override string DisplayName

{

get { return Surname; }

}

With

public override string DisplayName

{

get { return Surname + ", " + FirstName; }

}

Of course, it is possible to change the DisplayNames of the other classes too.

### Task 2: Customizing a BOC List

Looking at the search result of Location, we might get a list such as:

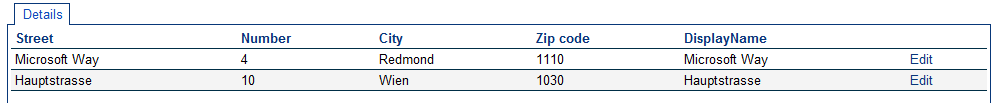


Illustration 4: Boclist

First, we get rid of the DisplayName as this makes no sense in the list

1. **Replace in SearchResultLocationControl**

<remotion:BocAllPropertiesPlaceholderColumnDefinition />

**with**

<remotion:BocSimpleColumnDefinition PropertyPathIdentifier="Street" />

<remotion:BocSimpleColumnDefinition PropertyPathIdentifier="Number" />

<remotion:BocSimpleColumnDefinition PropertyPathIdentifier="City" />

<remotion:BocSimpleColumnDefinition PropertyPathIdentifier="ZipCode" />

1. **We also might want to combine street with number.**

<remotion:BocSimpleColumnDefinition PropertyPathIdentifier="Street" />

<remotion:BocSimpleColumnDefinition PropertyPathIdentifier="Number" />

**with**

<remotion:BocCompoundColumnDefinition ColumnTitle="Name" ItemID="CompoundEdit"

FormatString="{0}, {1}">

<propertypathbindings>

<remotion:PropertyPathBinding PropertyPathIdentifier="Street" />

<remotion:PropertyPathBinding PropertyPathIdentifier="Number" />

</propertypathbindings>

<persistedcommand>

<remotion:BocListItemCommand Type="Event"/>

</persistedcommand>

</remotion:BocCompoundColumnDefinition>

### Questions and Discussions

* If you compare this strategy to XAML, what are the advantages and disadvantages?

# Final Questions

* Discuss: Many people claim RIA technologies are better than web based technologies. What is your opinion about this? Is it a good idea to replace ASP.NET based pages with new Silverlight pages?

# Lab Summary

You have learned

|  |
| --- |
| * Lab1: Using UIGEN to generate a web application project from the domain * Lab2: First steps with re-call, the transactional navigation between forms * Lab3: First steps with re-bind, the layer for data binding |

Please note: This is a Level 100 tutorial. Much has not been covered here, such as

* Designing forms using the re-motion designer integration for visual studio
* Re-call parameters
* Changing default values for Boc controls

No HOL is currently available to cover these advanced topics.

Now you might want to

|  |
| --- |
| * Learn about re-strict, the security component (no HOL available until now) * Learn more about UI principles. It is highly recommended that even as developer you have a basic understanding of UI principles. There are some very good books on this topic such as * <http://www.amazon.com/Designing-Mind-Understanding-Interface-ebook/dp/B003H3IOXM/ref=sr_1_2?ie=UTF8&qid=1297333053&sr=8-2> |
|  |