Unified Framework for Driving Transformations

Customization Workbench

User Guide

Labnaf Customization Tools => Categories of Customization	Labnaf AddIn: Instant Metamodel Manager	Labnaf AddIn: Instant Metadata Manager	Customization Workbench
Metamodel	*Customizable metamodel expressed using the Labnaf Language and stored in the production database.*		
Select active metamodel (standard, customized standard, or user-defined metamodel)	Y		
Add/Delete connectors to a metamodel	Y		
Upgrade standard metamodel to a new version of Labnaf, while keeping your own customizations	Y		
Generate documentation/diagram about your metamodel customization	Y		
Element Properties			
Create custom property types		Y	Y
Upgrade properties to a new version of Labnaf and keep/restore your own customizations		Y	
Rename/Delete property types		Y	Y
Synchronize property sets in existing elements		All props	MDG props
Add custom properties to the **Tags** Tab		Y	N
Add Labnaf Properties to the **Element** Tab		N	MDG-defined
Create named property groups		N	MDG-defined
Connector Properties			
Create custom connector properties		N	MDG-defined
Elements and Connectors			
Add/Delete element and connector types		N	MDG-defined
Toolboxes and Diagram Types/Viewpoints			
Add/Update/Delete Toolboxes		N	MDG-defined
Add/Update/Delete Diagram Types/Viewpoints		N	MDG-defined
Change Shapes		N	MDG-defined
Change Icons		N	MDG-defined

[More info on the Labnaf Guidance Web Site]

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Labnaf provides two options for language customization

1. Instant Metamodel Manager and the Instant Metadata Manager

The **Instant Metamodel Manager** and the **Instant Metadata Manager** are provided by the Labnaf AddIn i.e. directly in the modeling environment.

- Using these tools, you can
- use the standard built-in metamodel, customize it, or create your own user-defined metamodel from scratch,
- visualize, create, rename, delete and synchronize element properties,
- automatically merge new versions of Labnaf with your own metamodel and metadata (properties) customizations.

2. Customize the Labnaf MDG Using the Customization Workbench

This is used for **advanced customizations**.

The **Customization Workbench** is used for customizing the Labnaf MDG including, properties/tagged values, element types, connector types, toolboxes, diagram types, and metamodel (still using the Labnaf end user language itself).

To activate this customization mode, start the Customization Workbench, and select the "Load MDG from Files" option. *This overrides the above features on (1).*

In this case Labnaf still automatically merges the new Labnaf metamodel version with your own customizations, since Labnaf metamodels are entirely controlled by Labnaf .

But for the other parts of the language specifications, which are defined in the MDG, you need to rely on Sparx tools.

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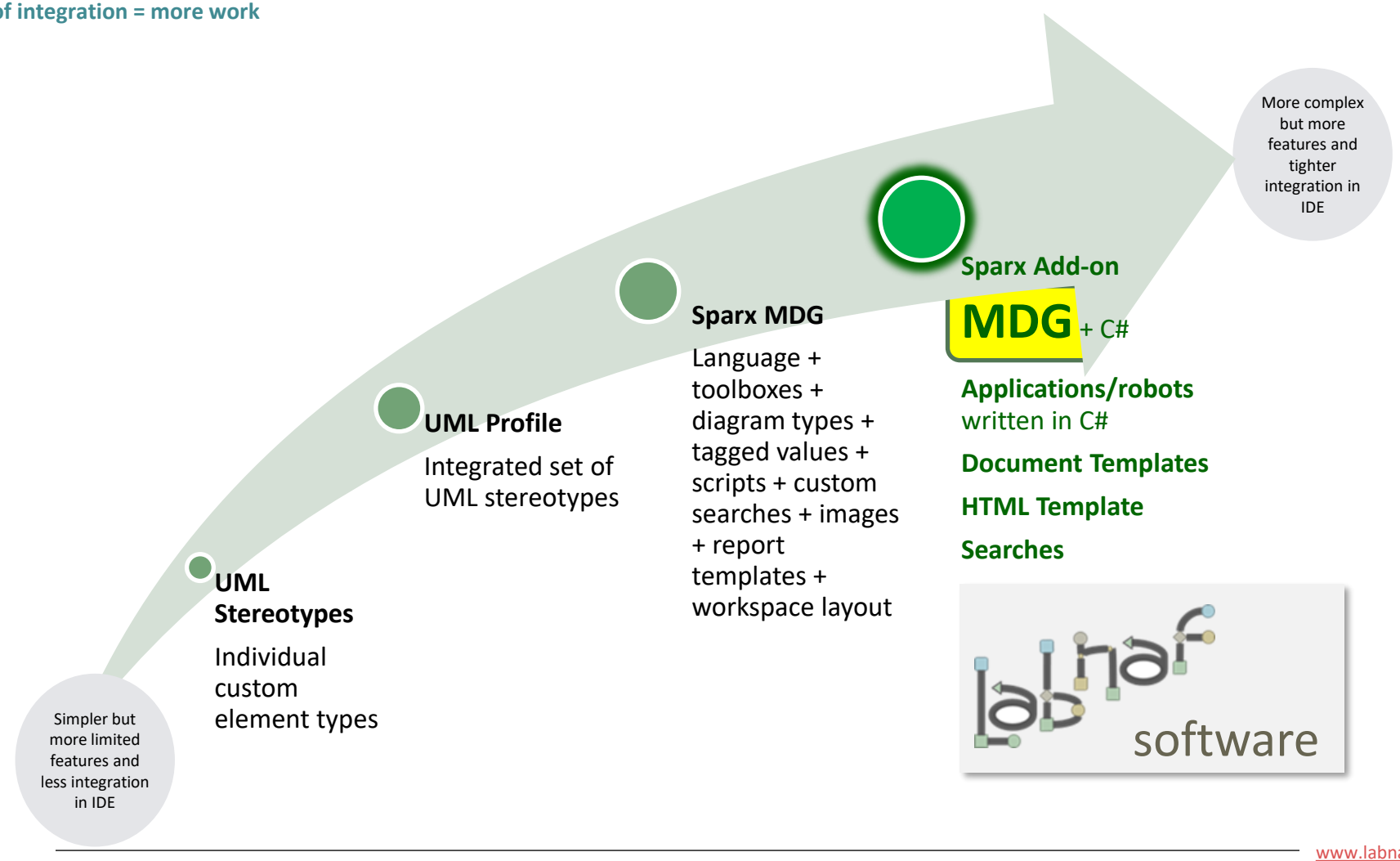
Labnaf was build using the Sparx EA Software Development Kit (SDK)

Enables multiple levels of modeling solution development and integration

Higher level of integration = more work



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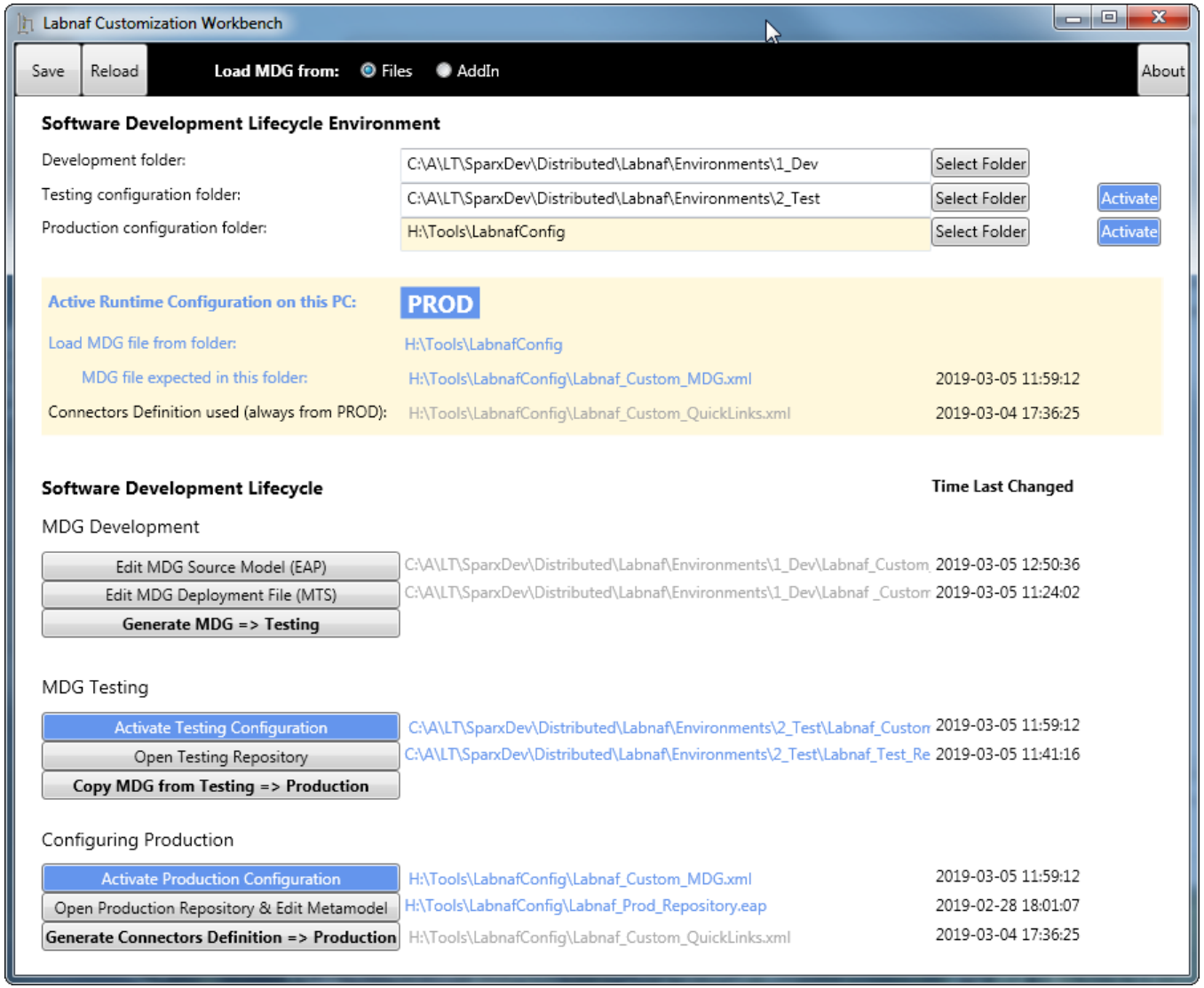
The Labnaf Customization Workbench provides you with a staging environment for customizing the Labnaf MDG

DEV

TEST

PROD



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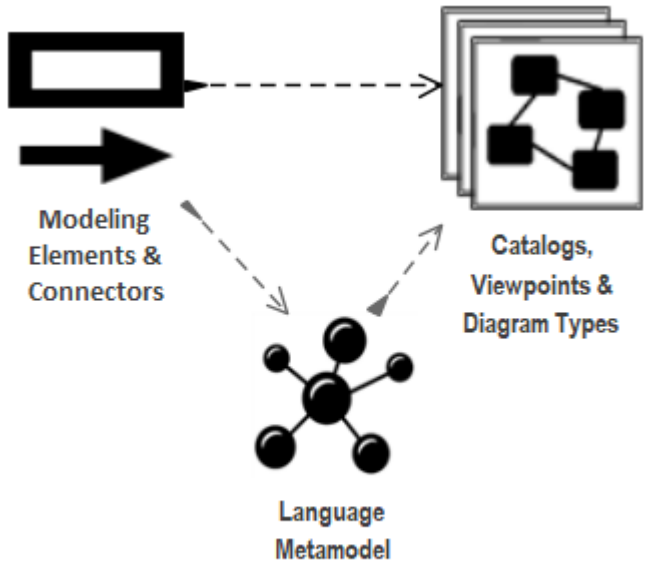
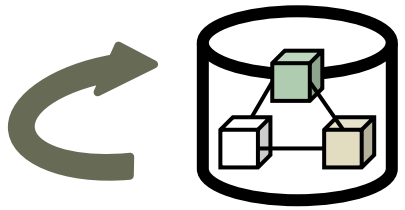
Labnaf Customization Steps

1. Customize the language following your organization requirements



2. Adapt existing repository content



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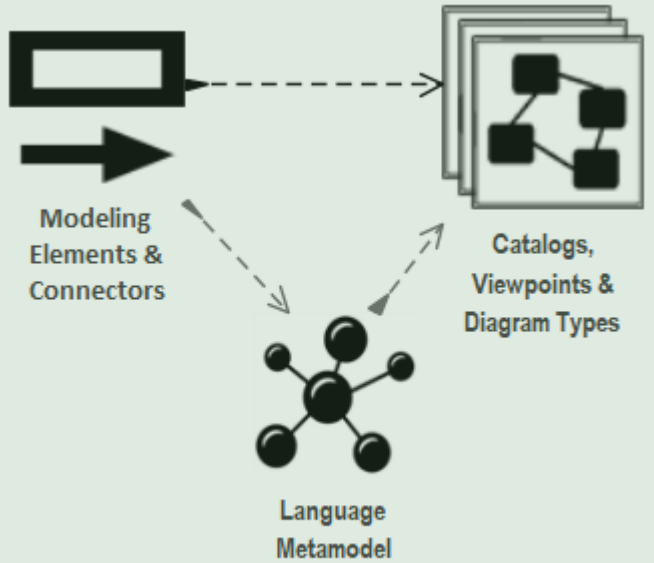
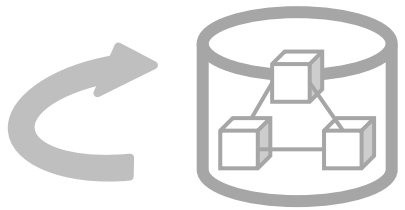
Labnaf Customization Workbench

1. **Customize the language following your organization requirements**



2. Adapt existing repository content



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Sparx EA Modeling Languages
What's in the box

Many model repository options

- **Local** Microsoft **Access** database
- **Shared** database: **SQL Server**, MySQL, Oracle…
- Possible **version control:** Subversion, CVS, TFS…

Many languages & Toolboxes

- (Too) Many languages
- No integration of standards
- Scope / domain-specific
- Switch between many complex toolboxes

Sparx SDK

- Tailoring the tool for an organization
  - Language
  - IDE
  - document generation
  - web publication
  - …

What we don't want

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What we want

Merged Standards & Best Practices

One Strategy & Architecture Process

One Modeling Language

One Tool & One Repository

Extensive On-line Documentation

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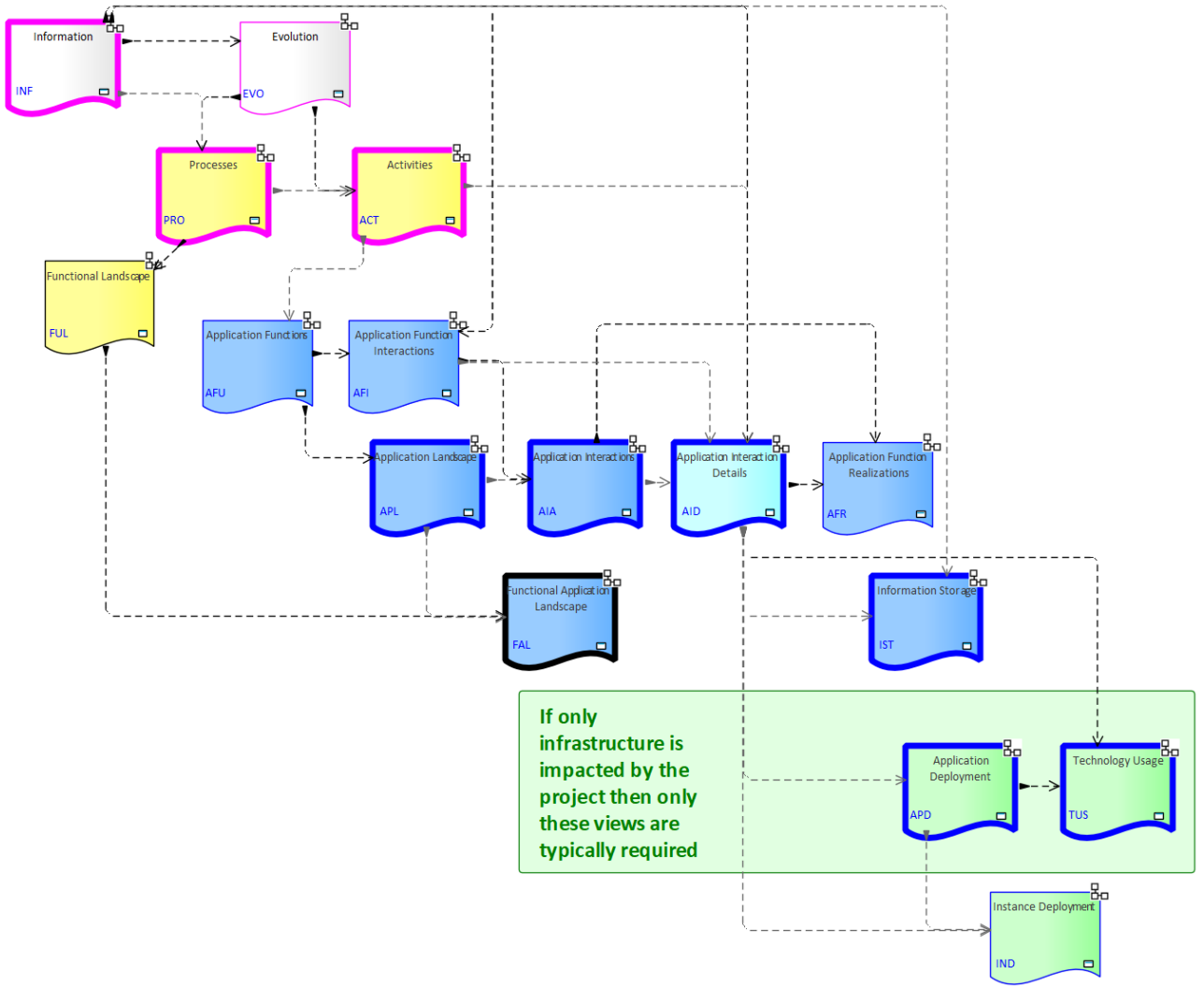
We need one modular language and tool but address specifically each type of view



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Each type of architecture view needs to have its toolbox with element and connector types

Elements & Connectors

- Some come from standards
- Some were adapted
- Some are proprietary

What we want

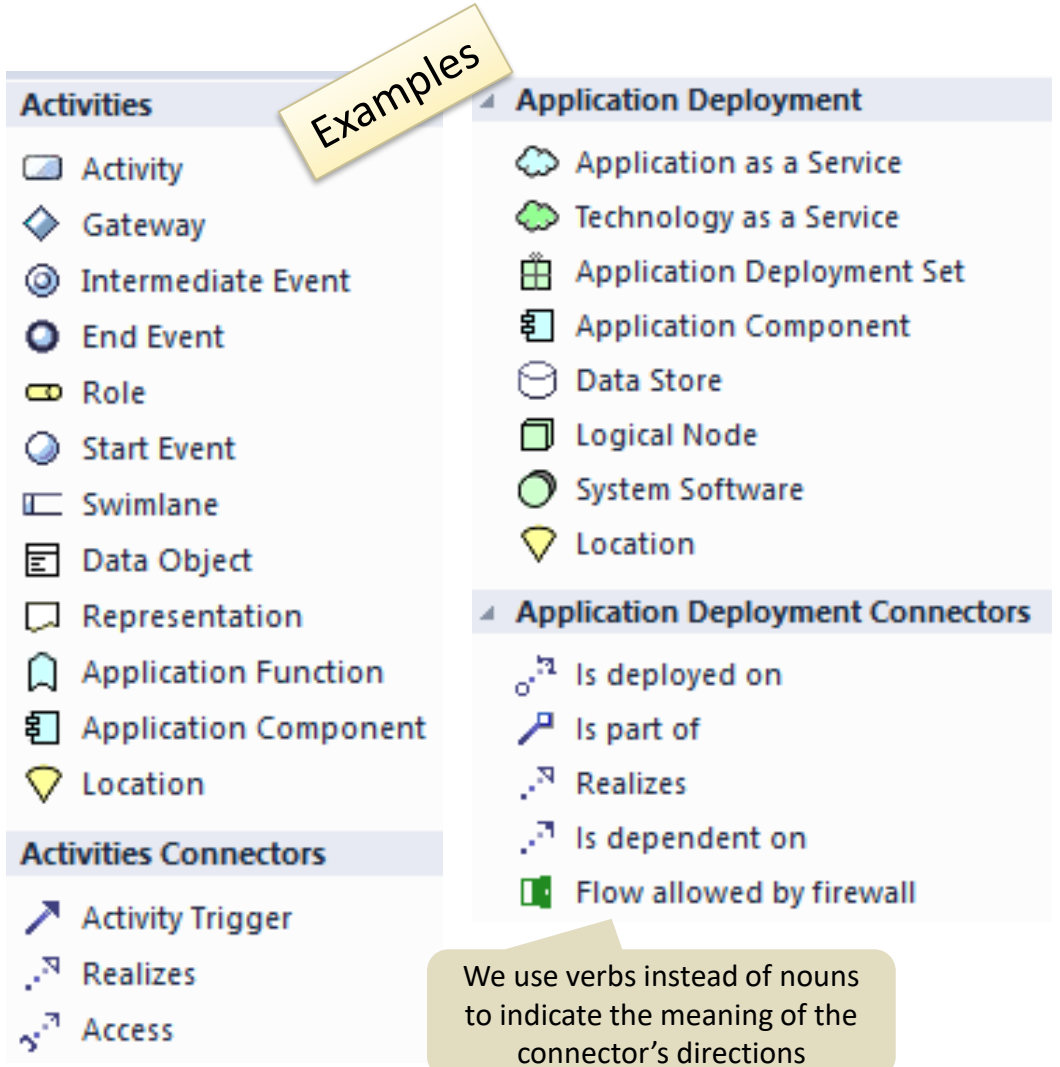

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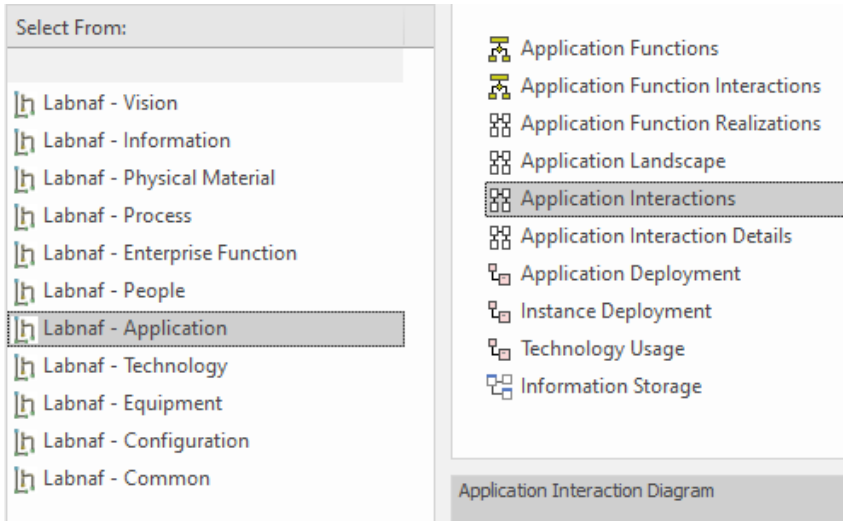
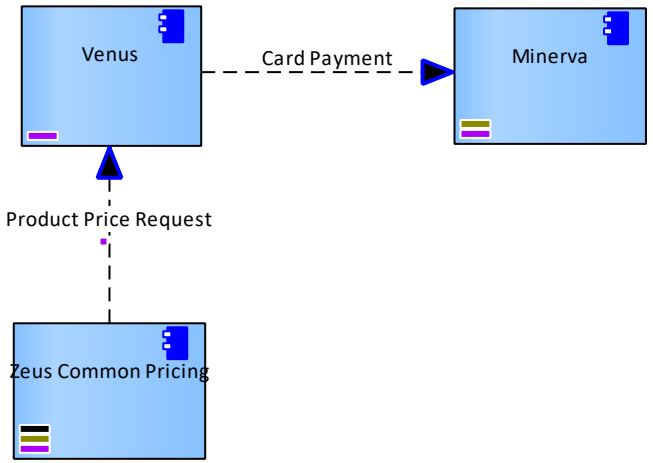
Diagram Types

What we want

When you select New diagram / … the following list of Labnaf perspectives and diagram types appears



A Labnaf diagram type addresses a specific strategy or architecture viewpoint



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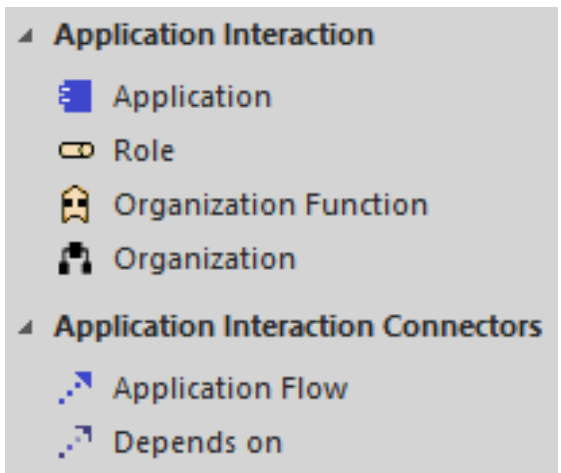
Toolboxes

What we want

Each diagram type has its own toolbox.

Each diagram-specific toolbox only contains the elements and connectors that are relevant to this diagram type.

Toolbox for the diagram type "Application Interactions"



All elements and connectors used

(These are not actual toolboxes)

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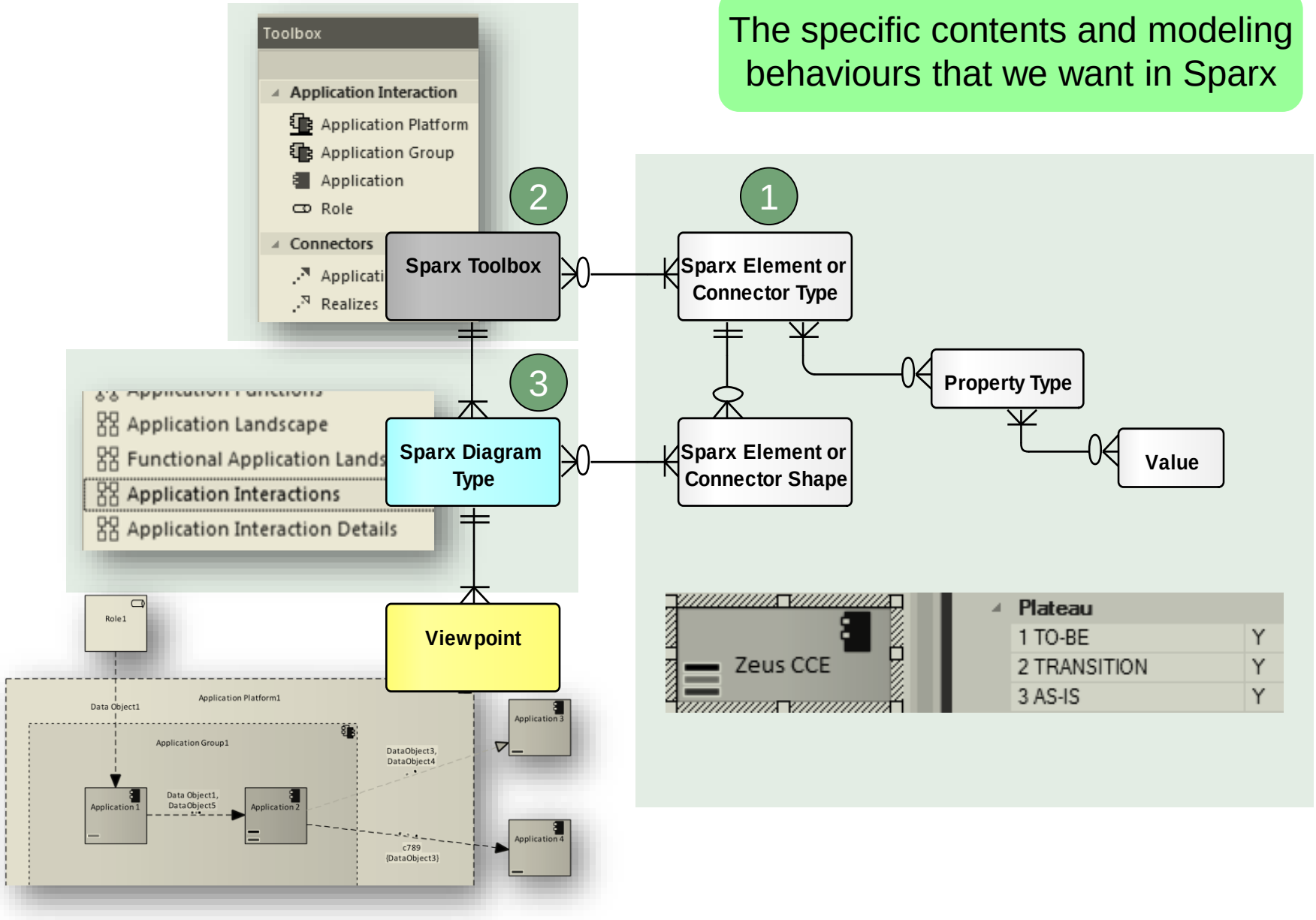
Key items to be designed and configured

The specific contents and modeling behaviours that we want in Sparx



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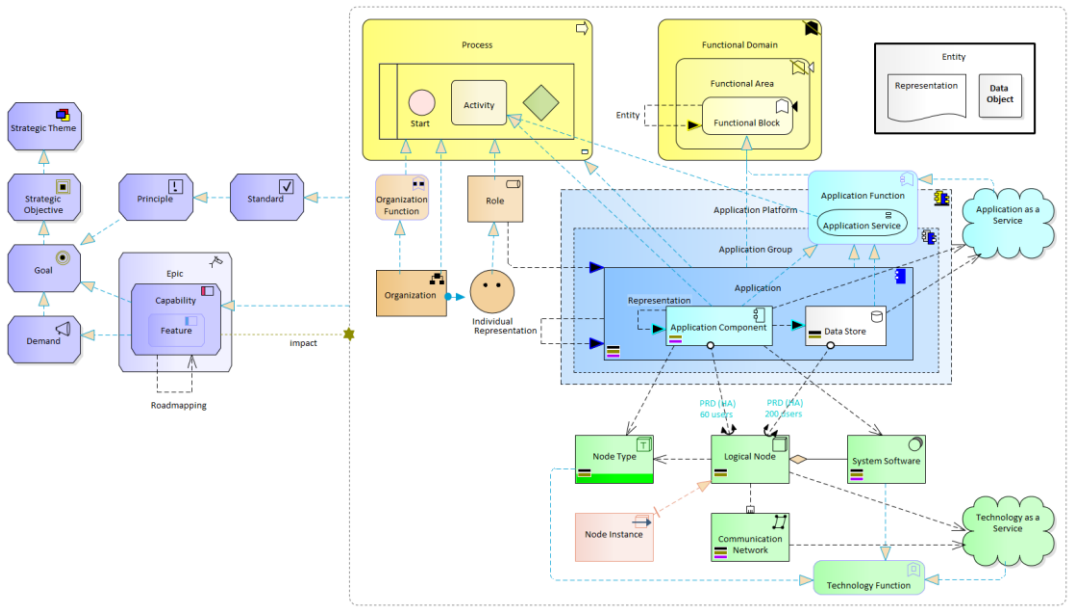
We also want an agile Language Metamodel used both for documentation & automatic model validation

What we want



While Modeling

Existing Invalid Connectors

Prevent creation of invalid connectors

Robot

Send Error Emails to Relevant Recipients

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The evolving environment

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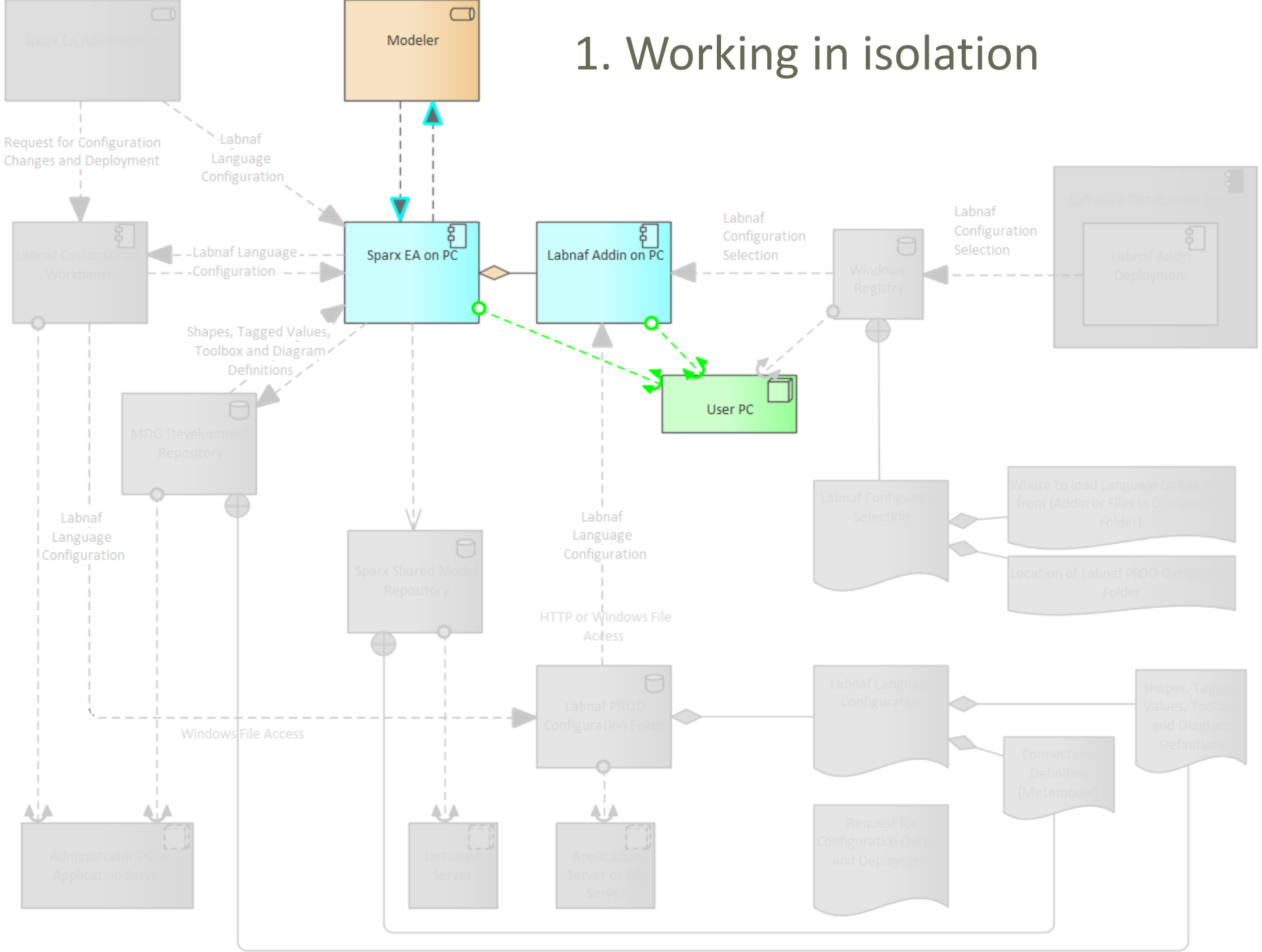
1. Working in isolation



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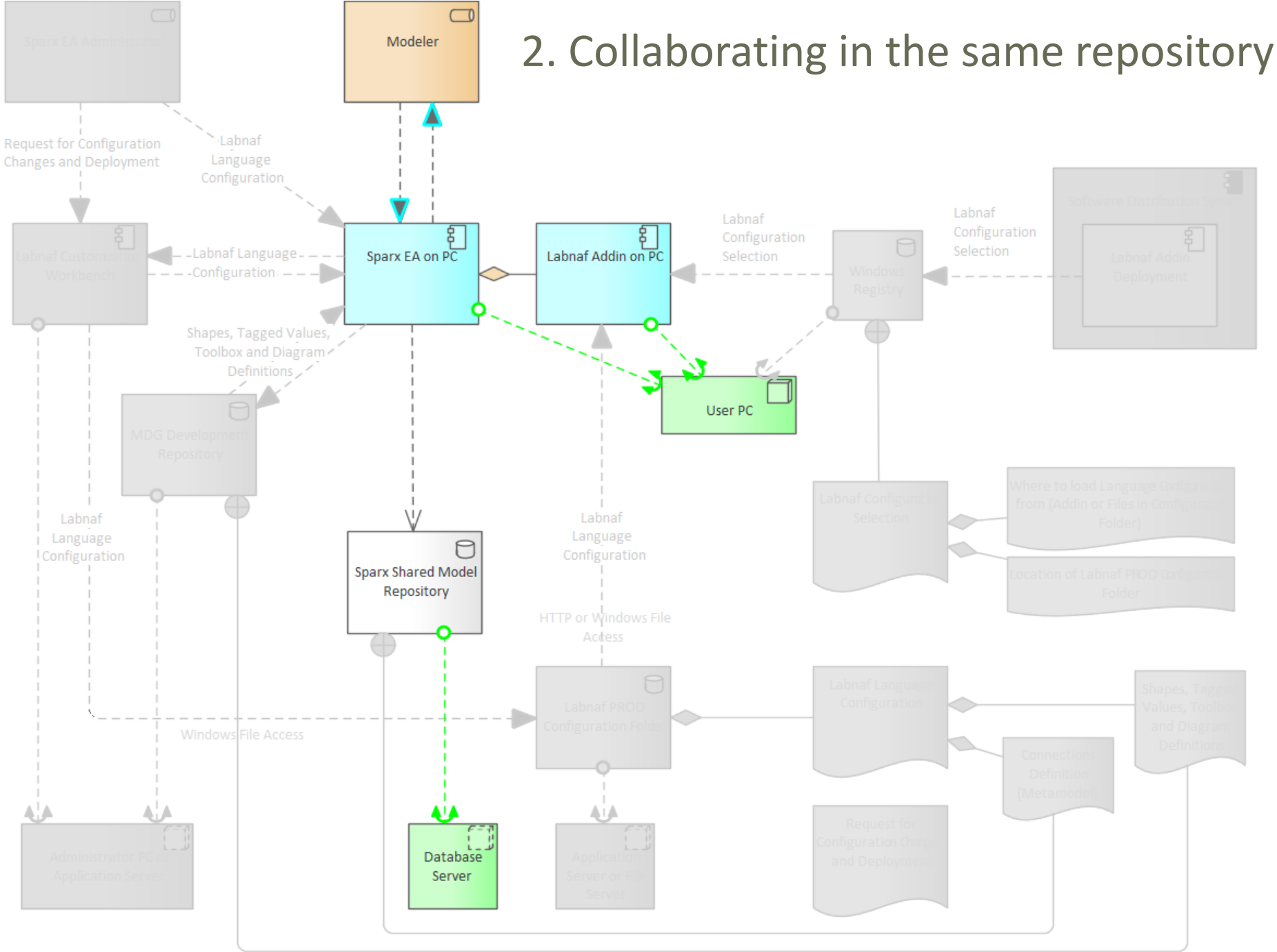
2. Collaborating in the same repository



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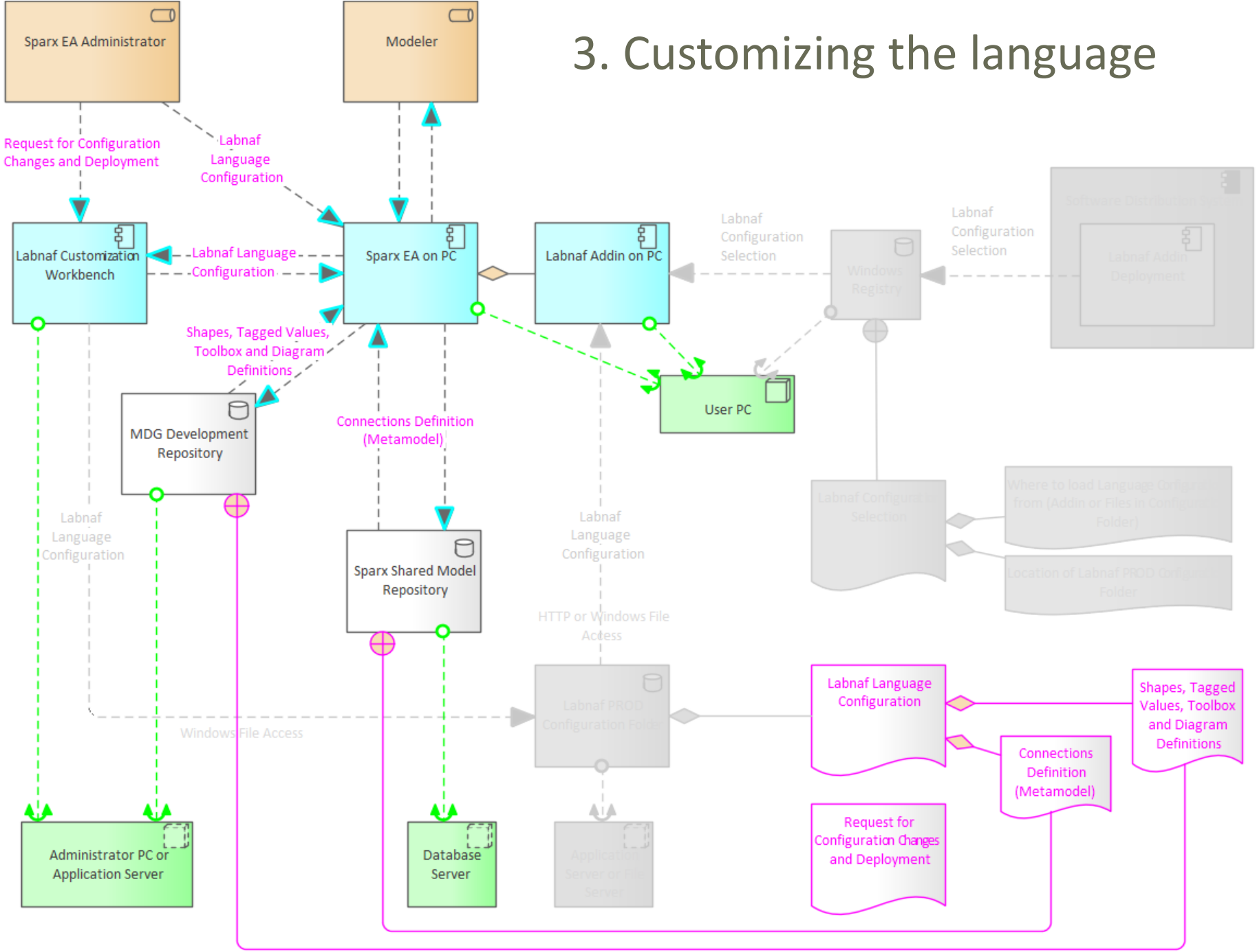
3. Customizing the language



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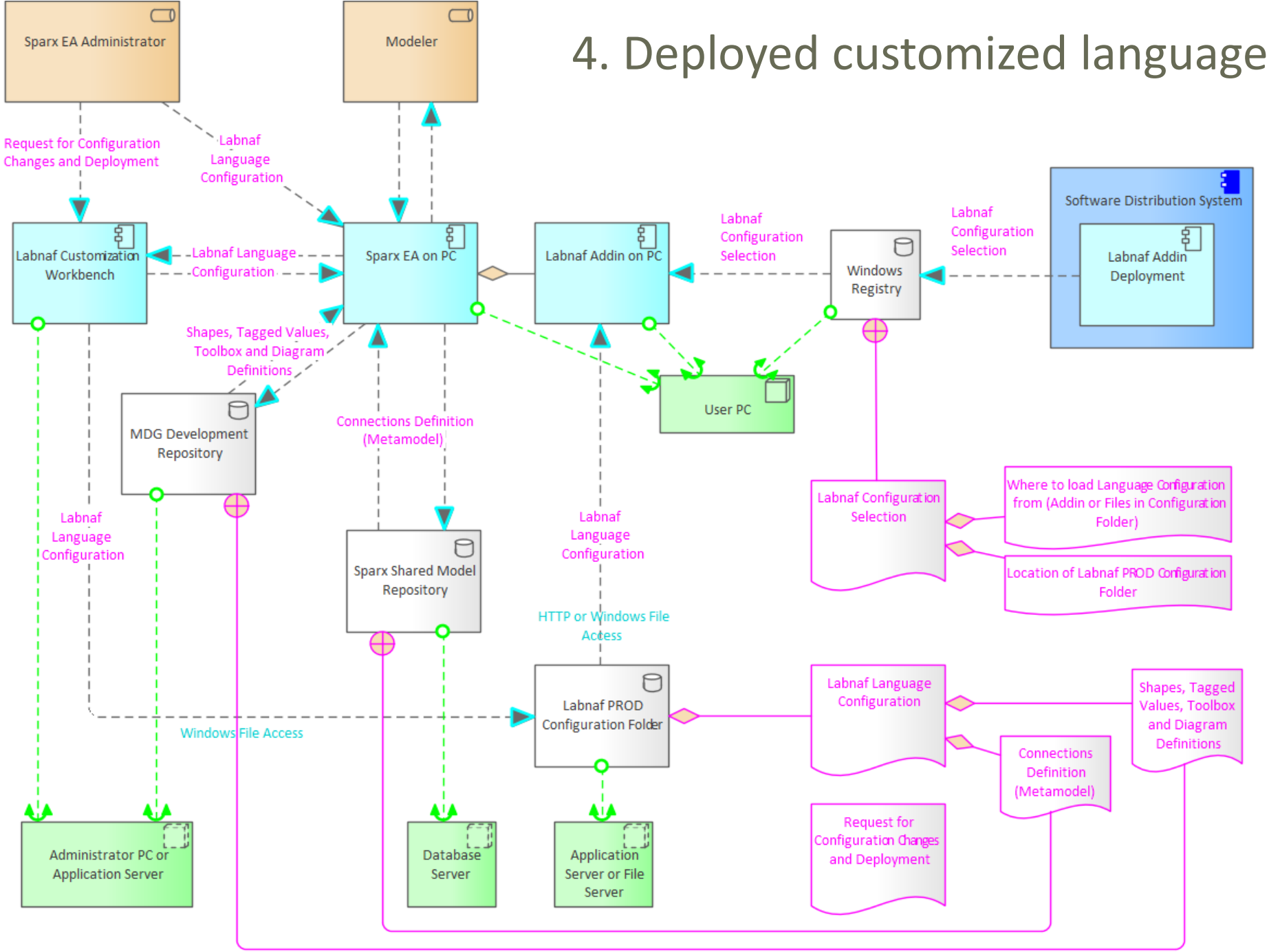
4. Deployed customized language



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How to proceed in practice…

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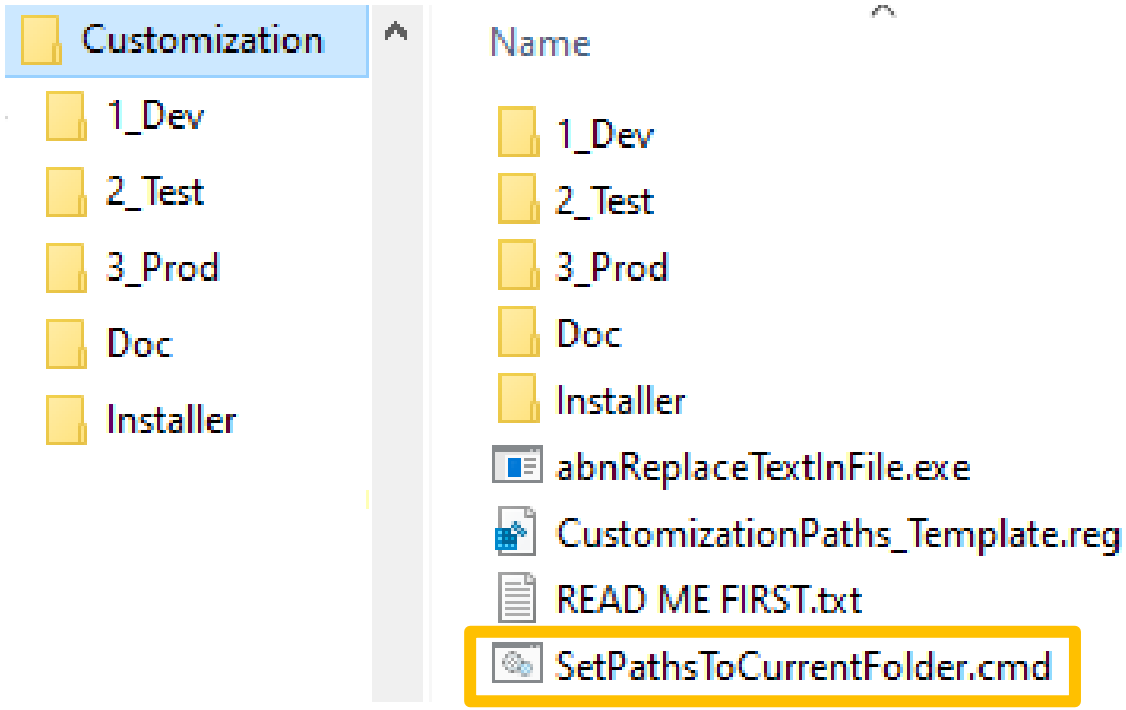
Automatic configuration to start customization

- Copy the Labnaf_Customization folder anywhere you want on your file system
- Double-click on “SetPathsToCurrentFolder.cmd”



This updates the Labnaf configuration files and registry keys following the “Labnaf_Customization” folder location.

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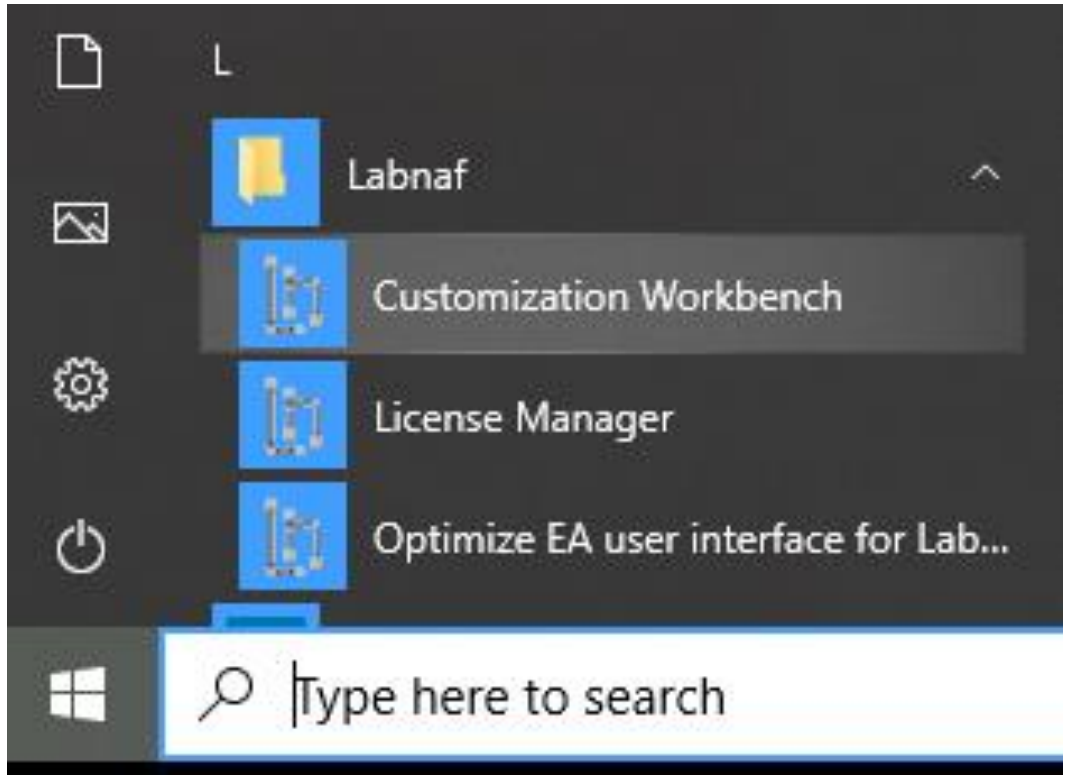
Start the Customization Workbench…



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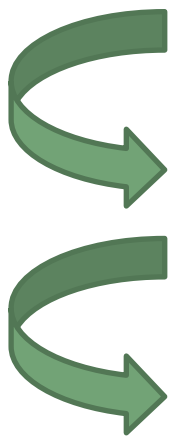
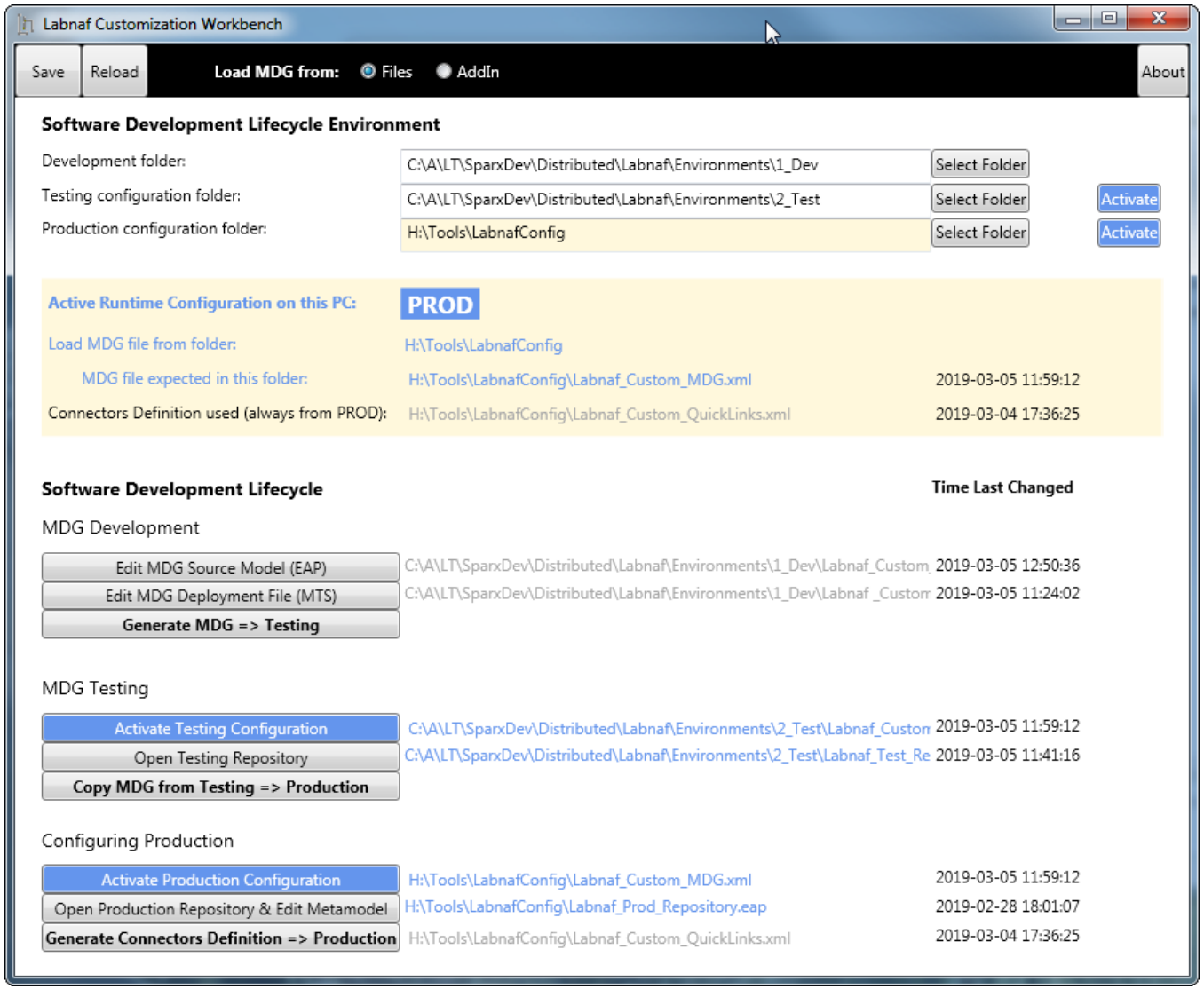
The Customization Workbench guides you throughout the **Language customization** lifecycle





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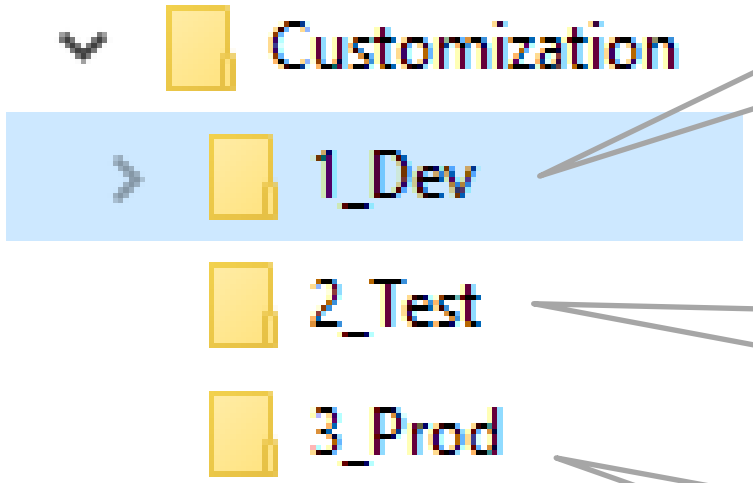
Like in any SDLC (Software Development Lifecycle) , there is one environment for each Labnaf customization stage



A **development** folder for your Labnaf customization

A **testing** folder

A **production** folder

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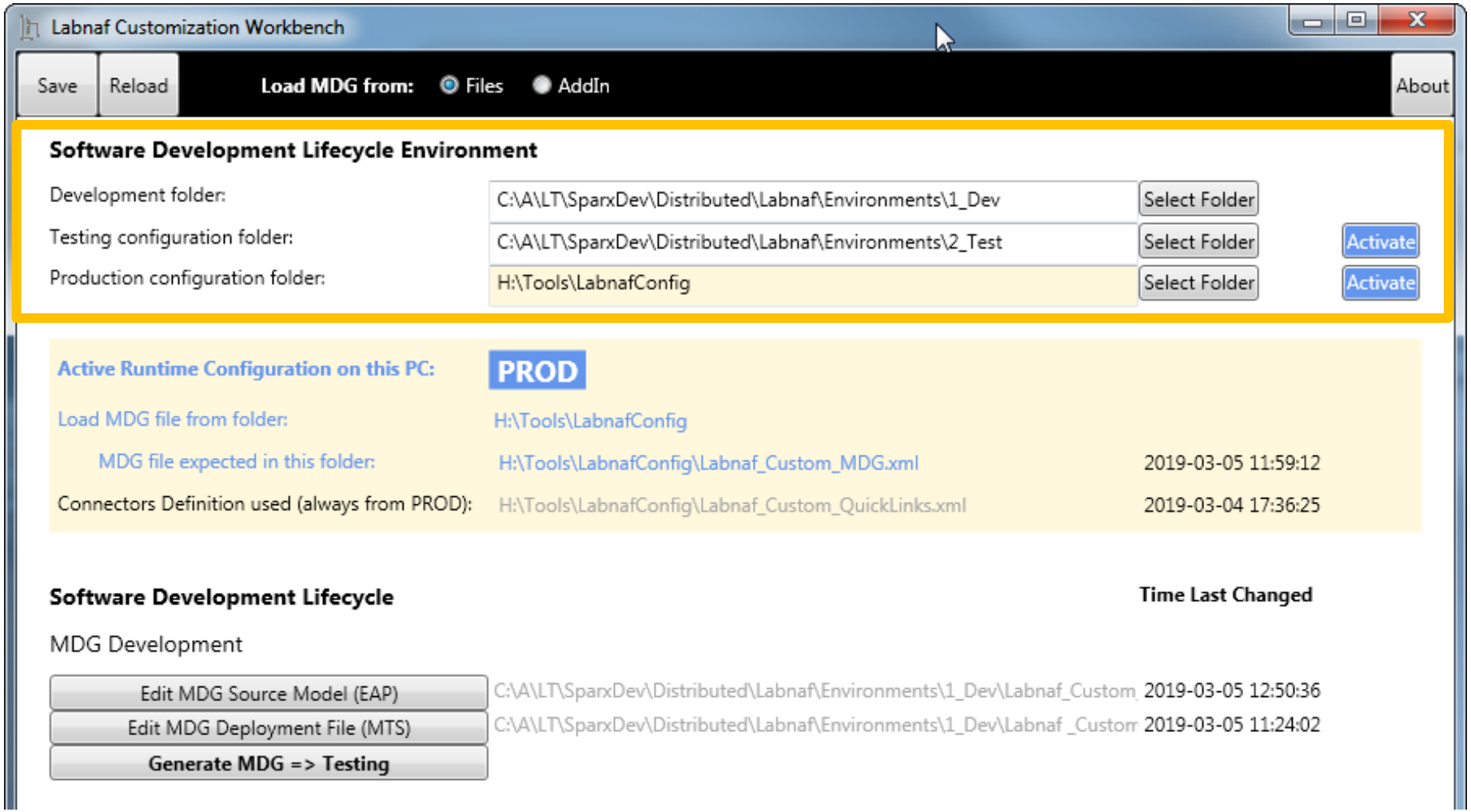
SDLC Environment Setting

Select the **Development**, **Testing** and **Production** configuration folders



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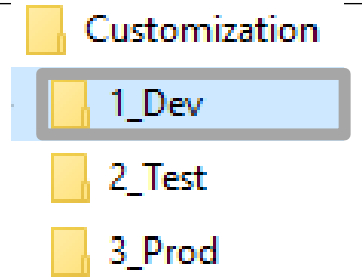
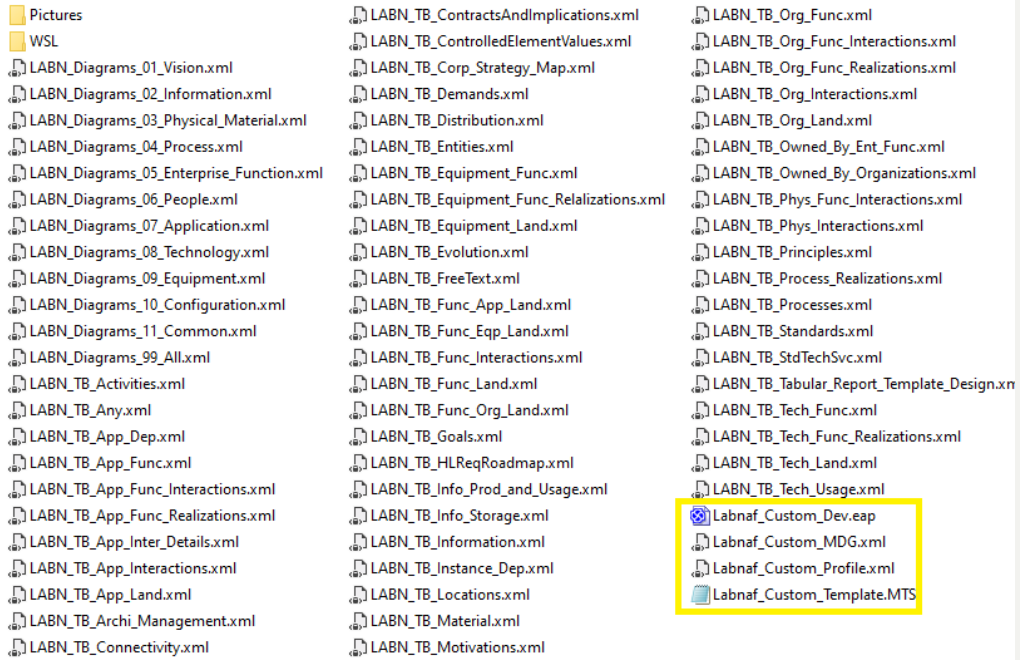


The Development Stage

Development Folder



Step 1: Develop your customized Labnaf language

- **Labnaf_Custom_Dev.eap**: A Labnaf model repository for customizing your Labnaf modeling language
- **Pictures**: Folder for storing custom language images

Step 2: Generate language "profiles"

- **LABN_Diagrams_...xml:** Diagram types
- **LABN_Custom_Profile.xml:** Element & connector types
- **LABN_TB....xml**: Toolboxes

Step 3: Use the wizard to update

- **Labnaf_Custom.MTS**: The binding of all profile files needed
- **Labnaf_Custom_MDG.xml:** Your resulting customized Labnaf modeling language (generated in the Test folder)

For further details, see Sparx'Systems MDG Technologies User's Guide @ https://sparxsystems.com/resources/user-guides/modeling/mdg-technologies.pdf

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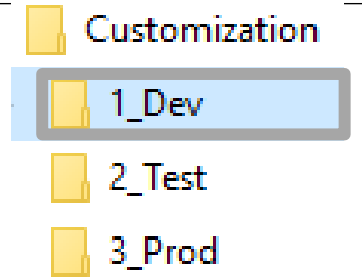
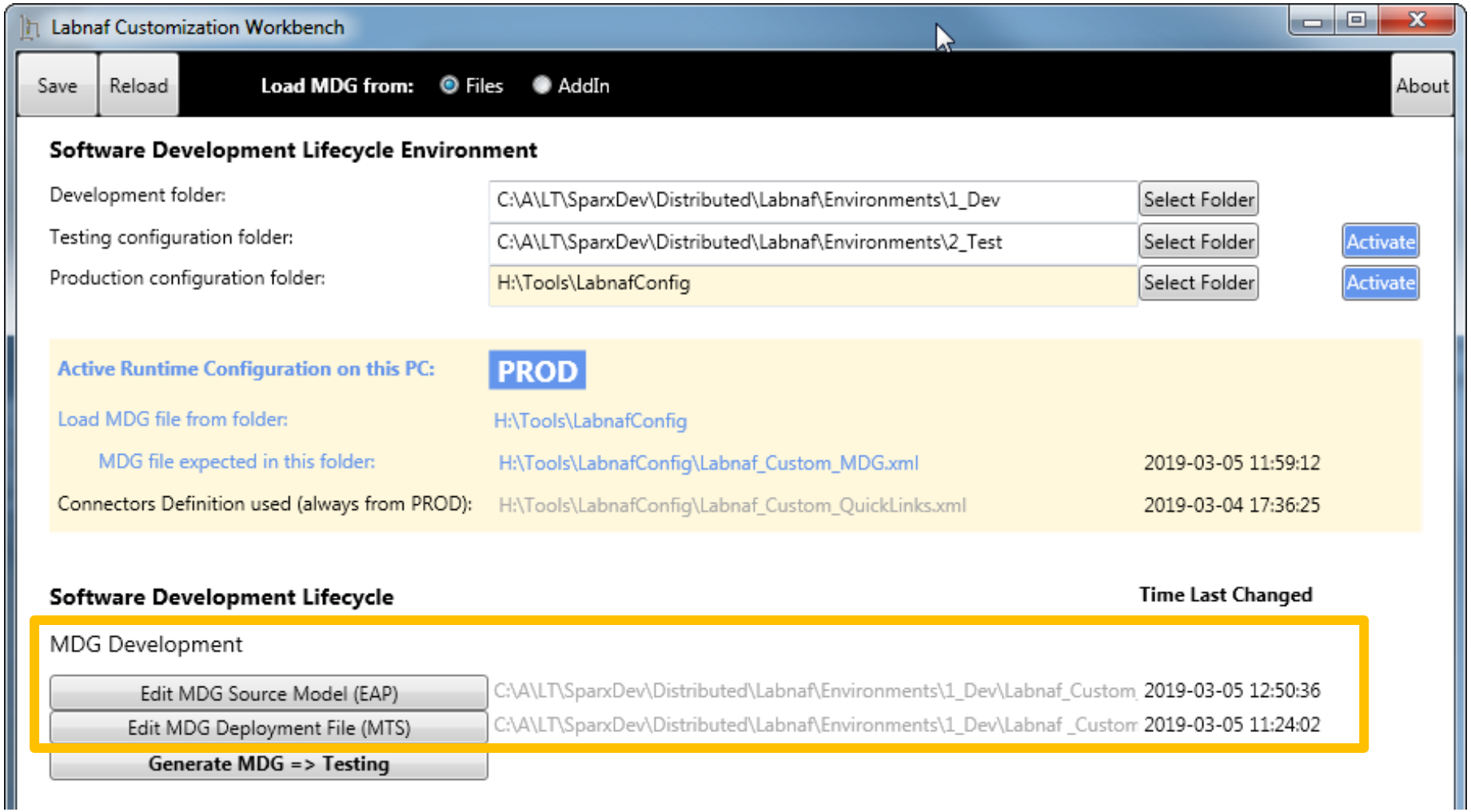


Develop your customized Labnaf language



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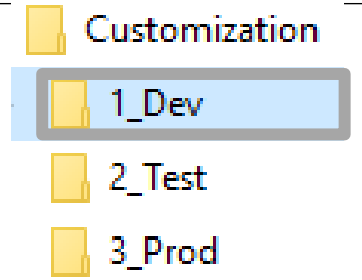
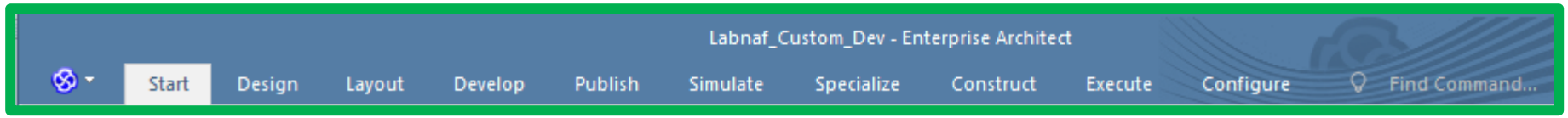
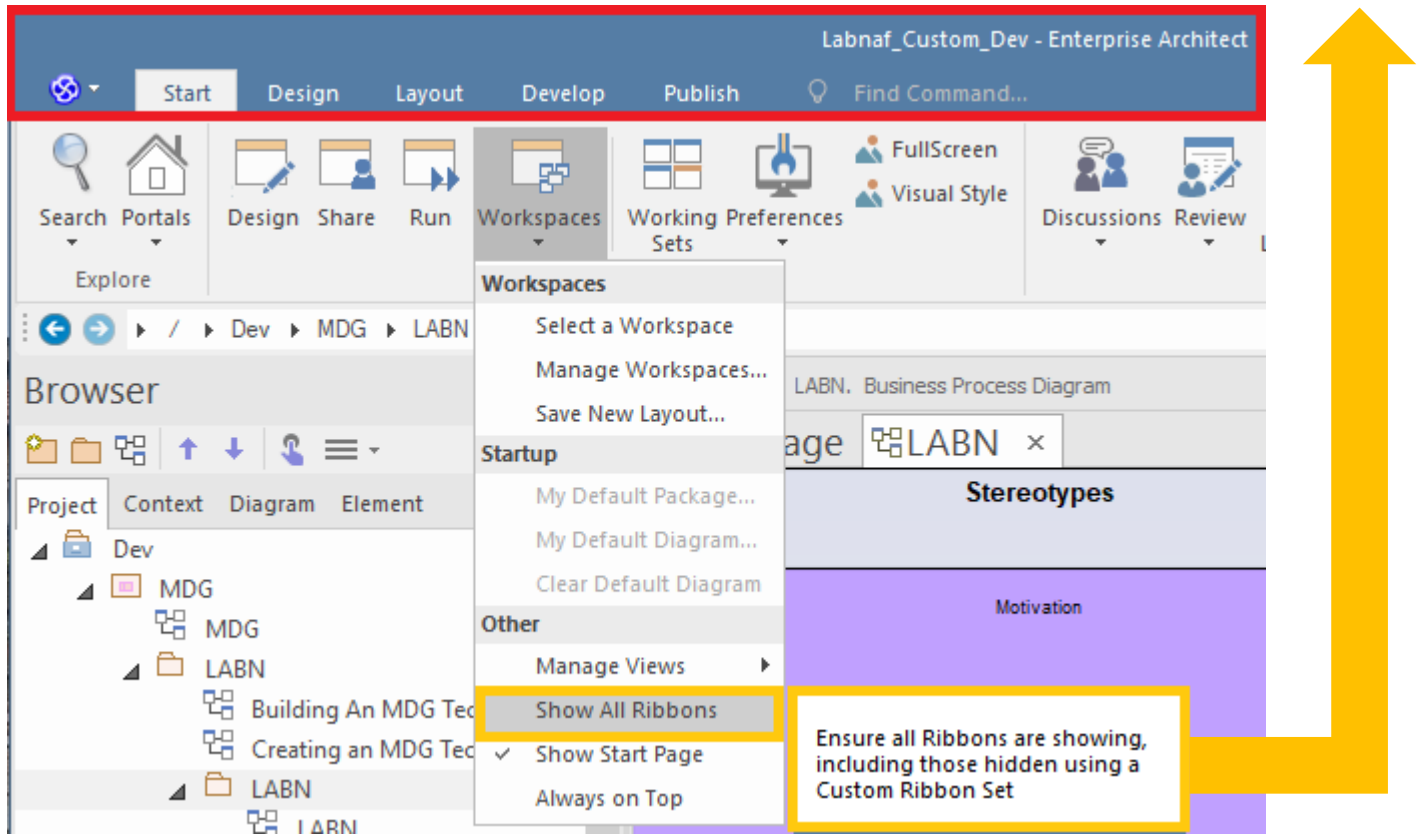


As soon as the **Labnaf_Custom_dev**.eap in open **ensure all ribbons are showing**





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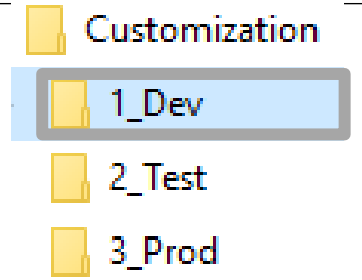
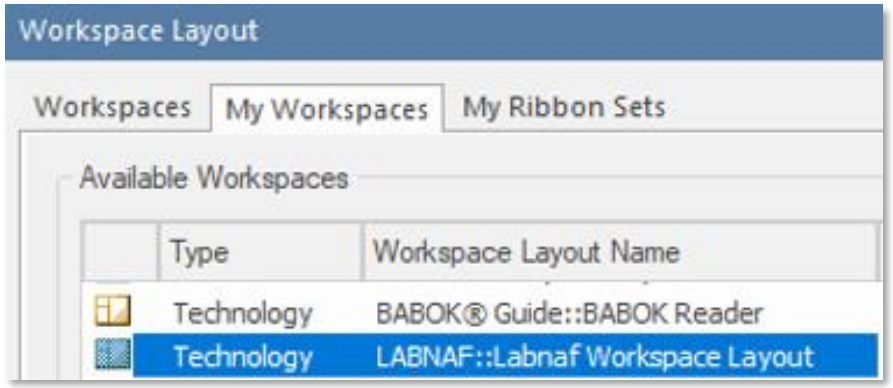


Set up your EA workspace layout for Labnaf



- This feature automatically opens and organizes all the EA windows that are useful with Labnaf including Labnaf customization
- Select the "**Start**" ribbon.
- Select the option "**Workspaces > Manage Workspaces > My Workspaces > Labnaf Workspace Layout**".
- Press the "**Apply**" button.

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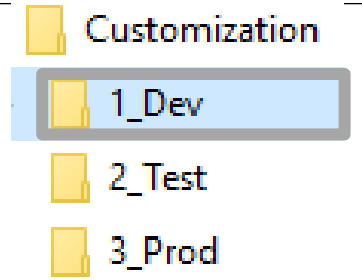
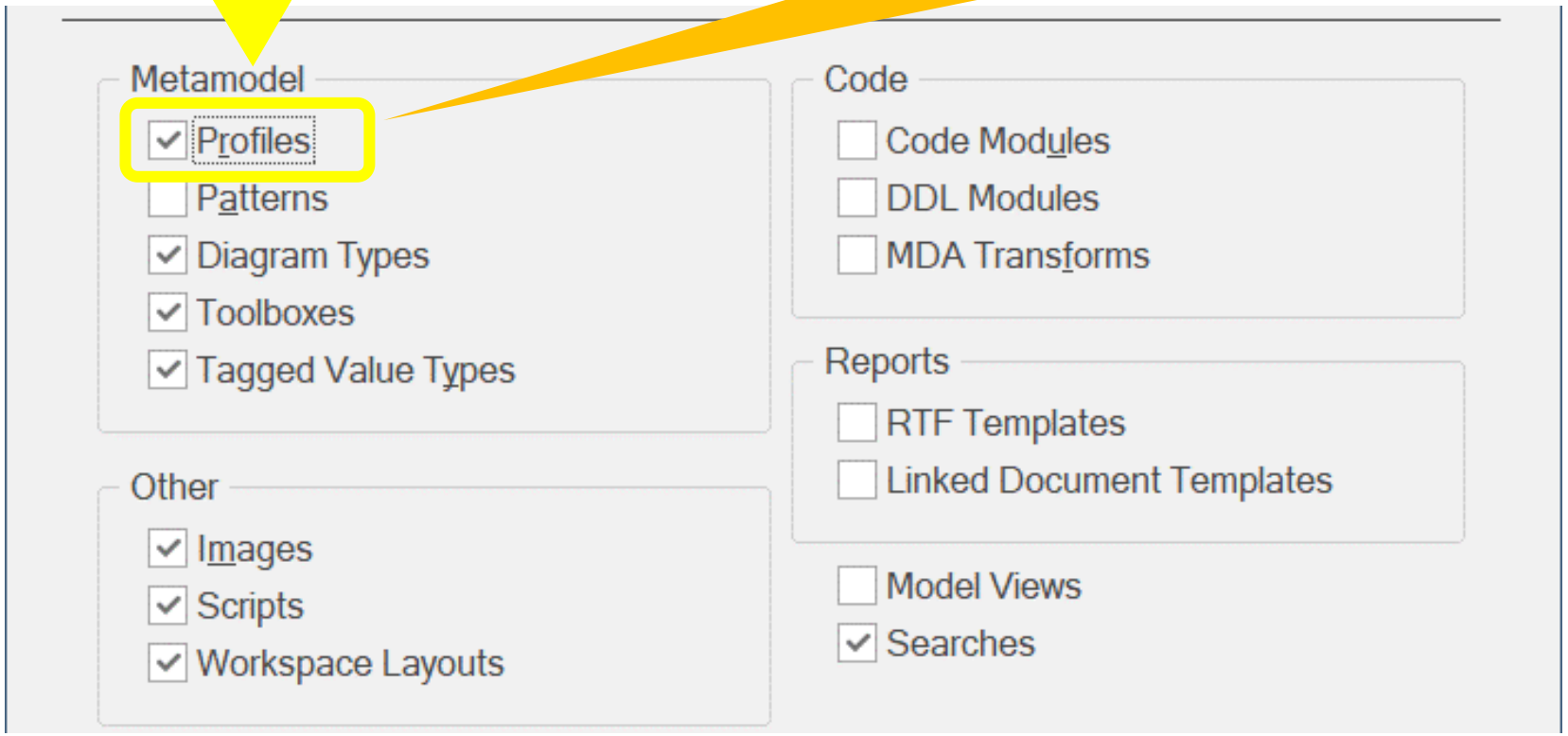


Things you can change or add to the Labnaf_Custom_dev.eap

- Element & Connector types
- Tagged Values

Complex Sparx **Metamodeling** approach **replaced by Labnaf => Simplified, readable, dynamically customizable and upgradable at runtime**



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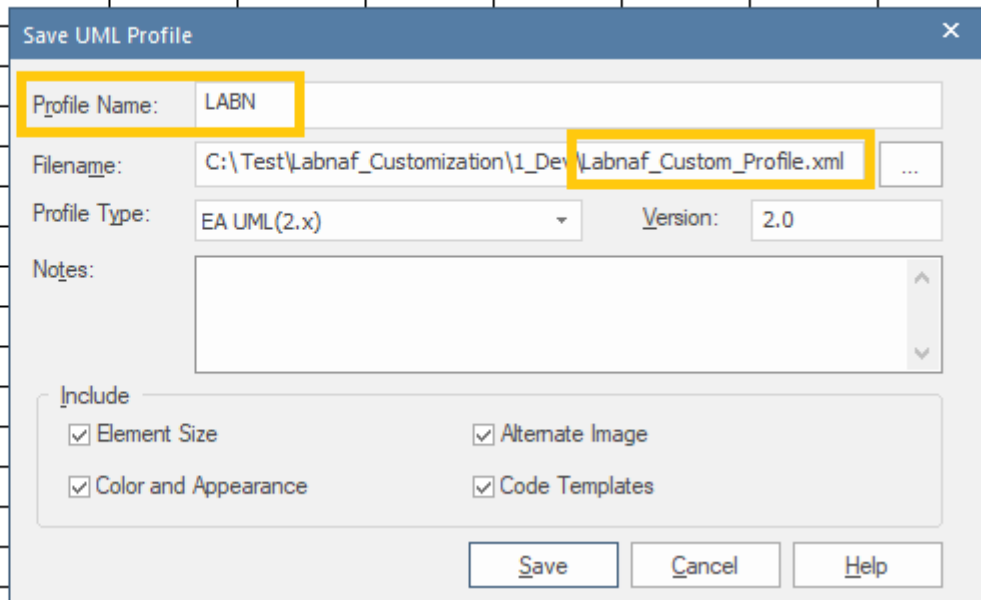
Updating the Labnaf MDG Profiles

See Sparx System's EA documentation about updating

- Stereotype Profiles
- Toolbox Profiles
- Diagram Profiles

Refer to "**Labnaf Customization - Updating Profiles.xlsx**" to get the **Labnaf MDG profile** names and corresponding XML file names

	A	B
1	**Profile Name**	**XML File Name**
2	LABN	Labnaf_Custom_Profile.xml
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		



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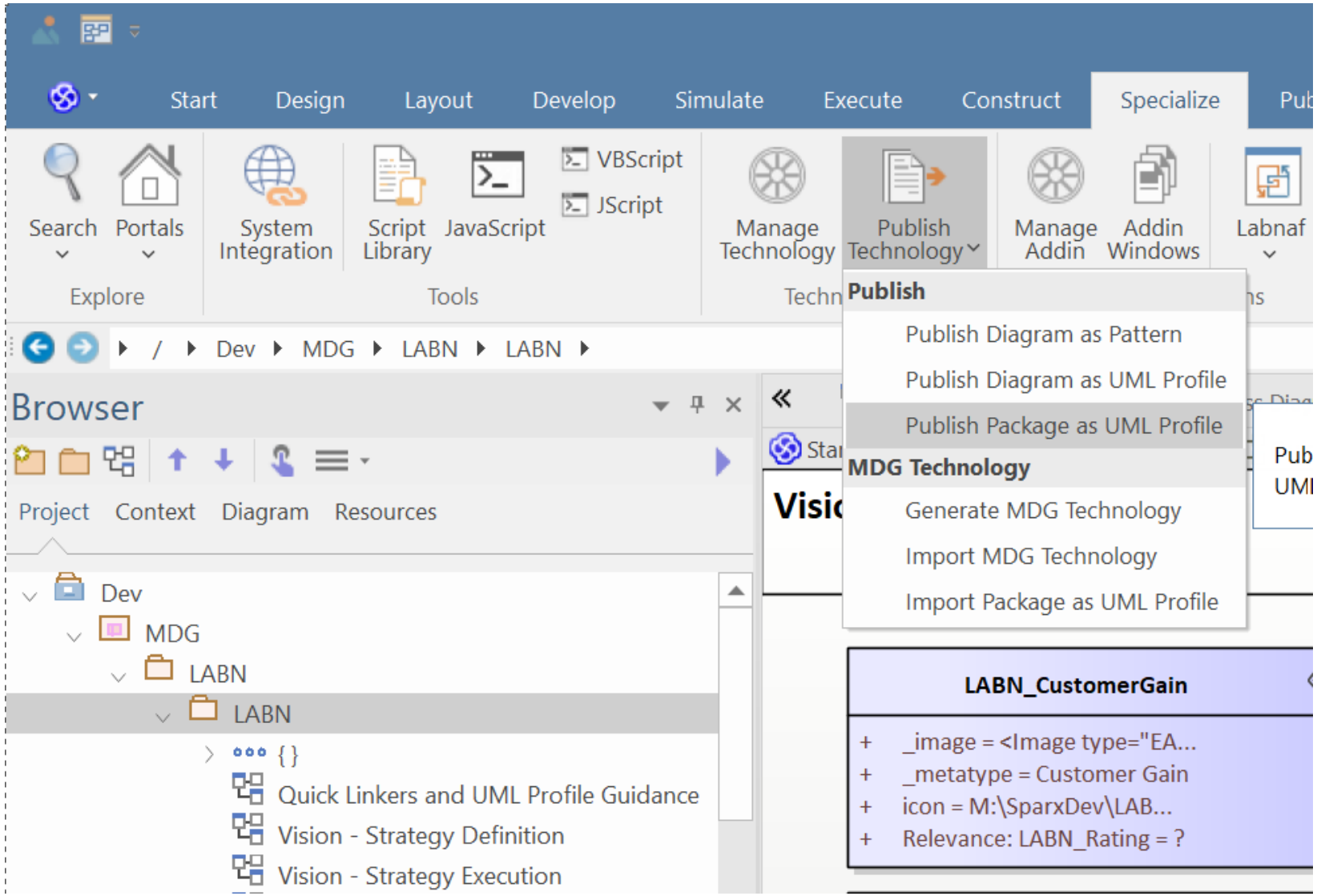
Saving the Labnaf MDG Profiles



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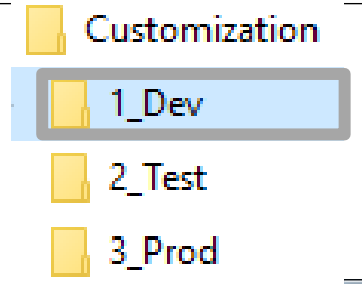
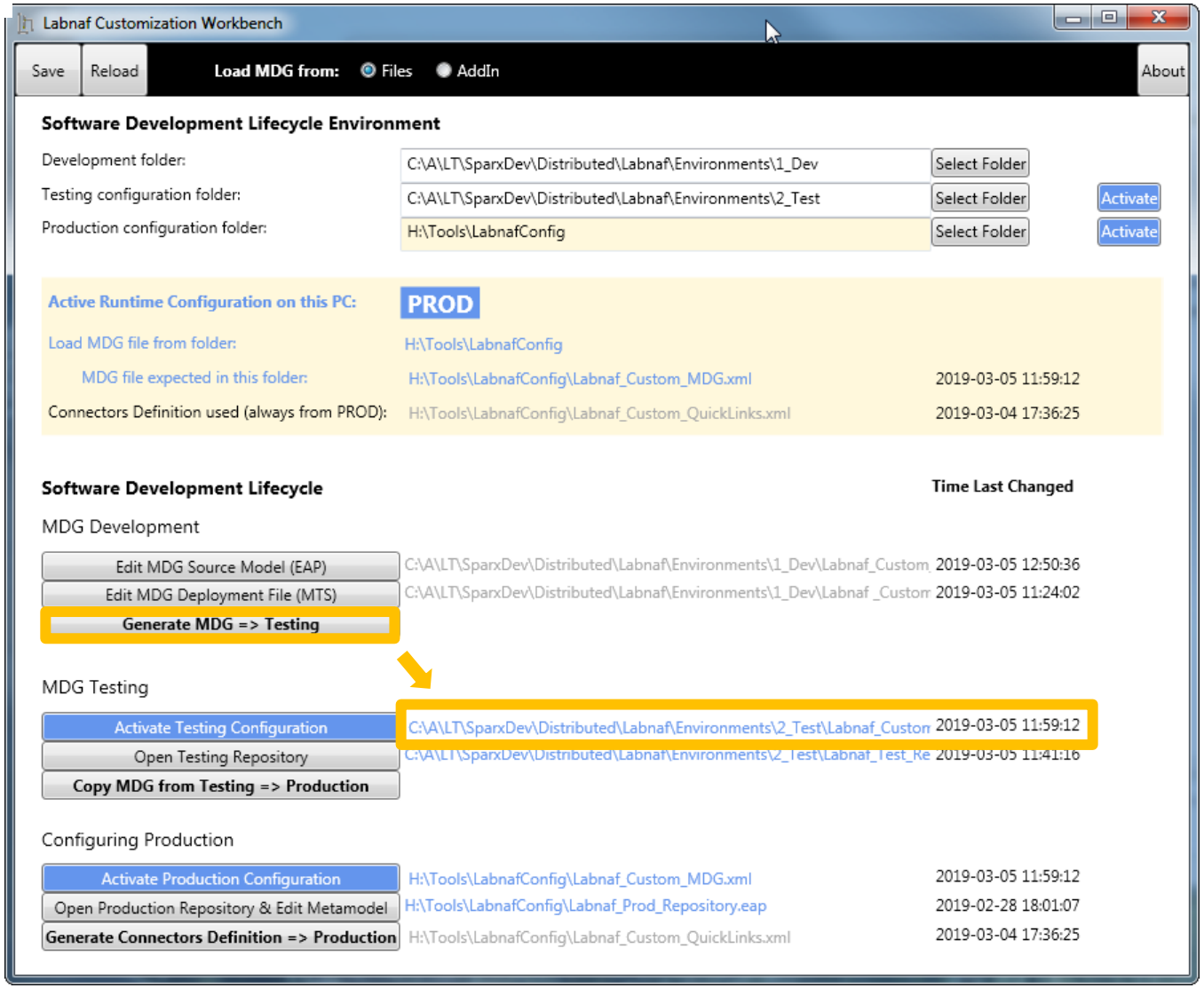


Generate the Customized Labnaf MDG file (Language configuration)



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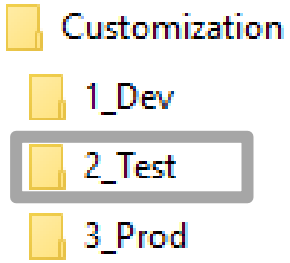
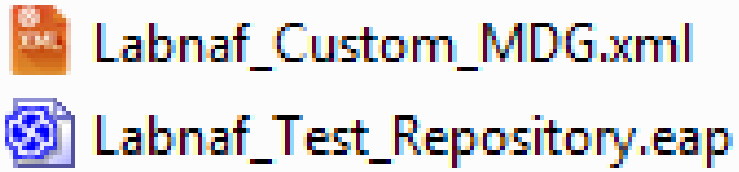


The Testing Stage

Contents of the Testing Folder



Labnaf_Custom_MDG.xml: Your customized Labnaf modeling language

Labnaf_Test_Repository.eap: Your model repository that you will use to test your customized Labnaf modeling language

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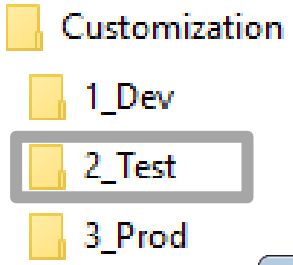

Activate the Testing Configuration and create some diagrams in the Testing Repository

Labnaf Customization Workbench

Save | Reload | Load MDG from: Files AddIn | About

Software Development Lifecycle Environment

Development folder:	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\1_Dev	Select Folder
Testing configuration folder:	M:\SparxDev\Distributed\Labnaf\Environments\2_Test	Select Folder / Activate
Production configuration folder:	M:\SparxDev\Distributed\Labnaf\Environments\3_Prod	Select Folder / Activate

Active Runtime Configuration on this PC: TESTING

Load MDG file from folder:	M:\SparxDev\Distributed\Labnaf\Environments\2_Test	
MDG file expected in this folder:	M:\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Custom_MD	2019-03-29 12:36:02
Connectors Definition used (always from PROD):	M:\SparxDev\Distributed\Labnaf\Environments\3_Prod\Labnaf_Custom_Qu	2019-03-04 17:36:25

Software Development Lifecycle		Time Last Changed
MDG Development		
Edit MDG Source Model (EAP)	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-29 12:32:17
Edit MDG Deployment File (MTS)	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf _Custom	2019-03-29 12:36:02
Generate MDG => Testing		
MDG Testing		
Activate Testing Configuration	M:\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Custom_MD	2019-03-29 12:36:02
Open Testing Repository	M:\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Test_Reposit	2019-03-05 11:41:16
Copy MDG from Testing => Production		
Configuring Production		
Activate Production Configuration	M:\SparxDev\Distributed\Labnaf\Environments\3_Prod\Labnaf_Custom_MI	2019-03-10 12:15:46
Open Production Repository & Edit Metamodel	M:\SparxDev\Distributed\Labnaf\Environments\3_Prod\Labnaf_Prod_Repos	2019-03-27 17:18:17
Generate Connectors Definition => Production	M:\SparxDev\Distributed\Labnaf\Environments\3_Prod\Labnaf_Custom_Qu	2019-03-04 17:36:25

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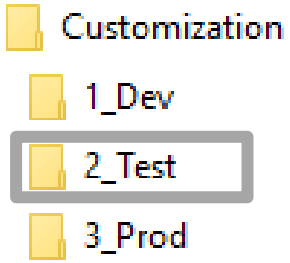
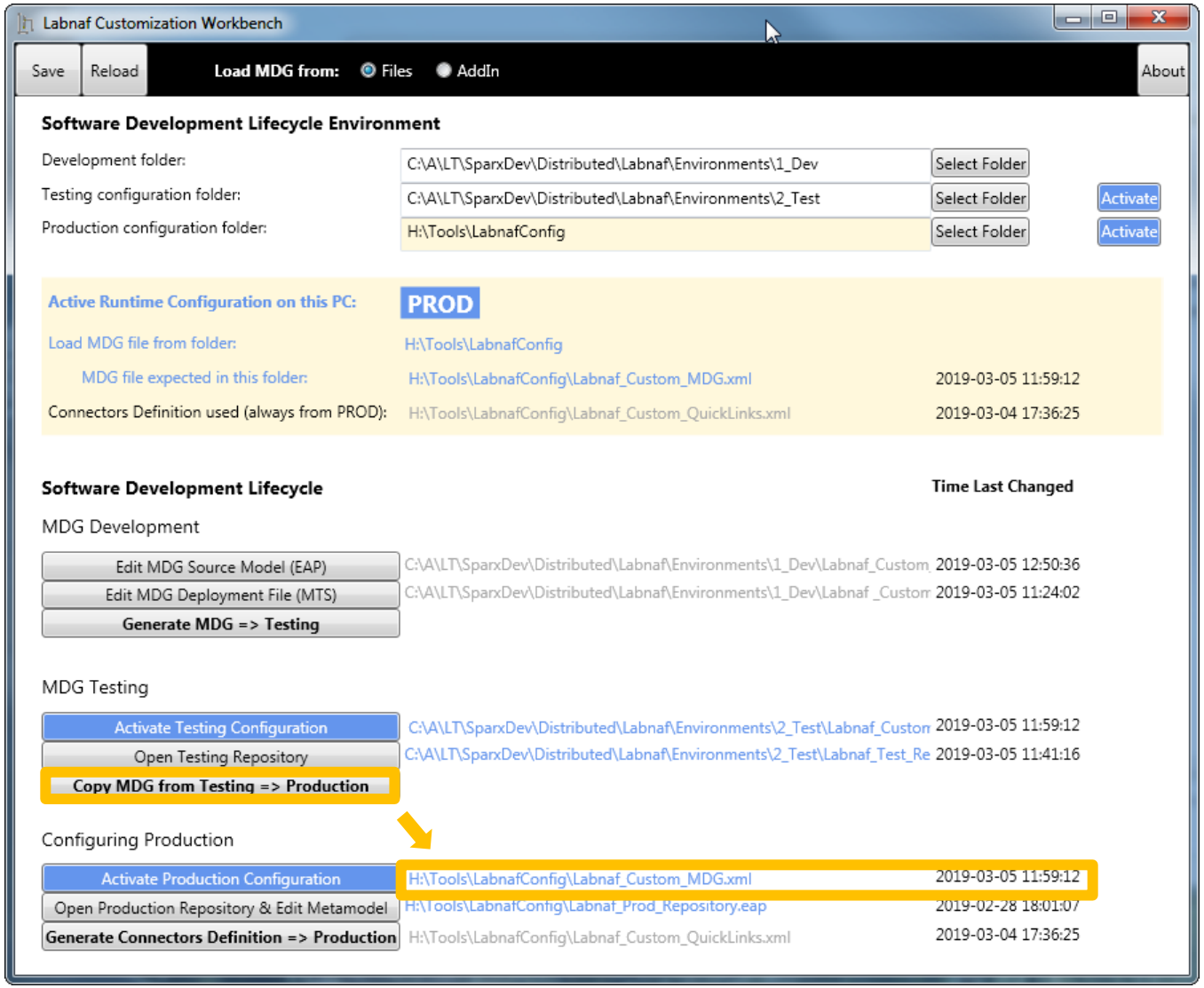


Copy the Customized Labnaf MDG file to Production



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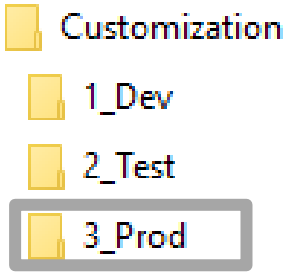
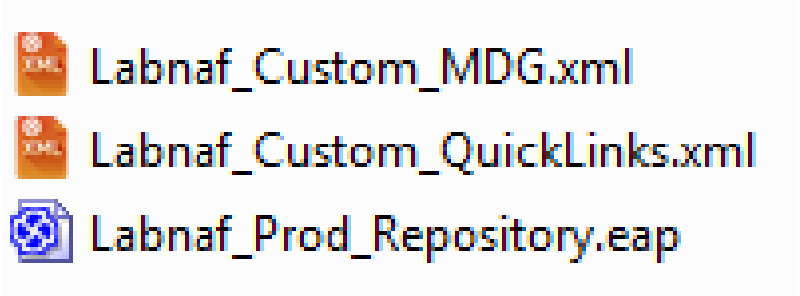


The Production Stage

Contents of the Production Folder



The production folder can be located on a web server folder. In which case:

- The Customization Workbench accesses this folder directly on the file system.
- End users, using the Labnaf Addin, access the corresponding web folder url instead.

Labnaf_Custom_MDG.xml: Your customized Labnaf modeling language

Labnaf_Prod_Repository.eap: Your production model repository where you can dynamically customize the language metamodel

Labnaf_Custom_Quicklinks.xml: The connection rules generated from the language metamodel

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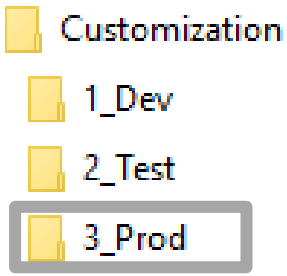
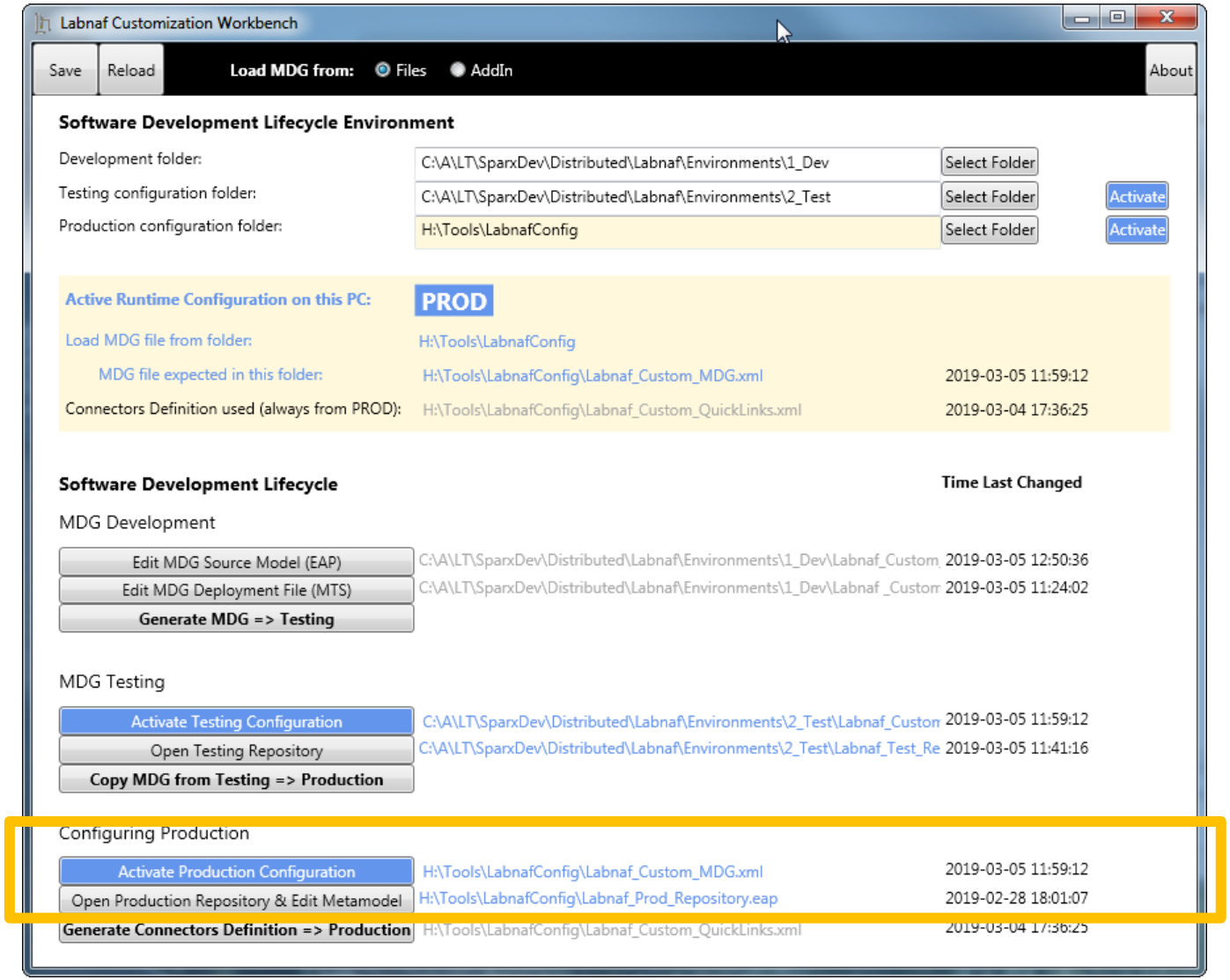


Activate the Production Configuration and open the Production Repository



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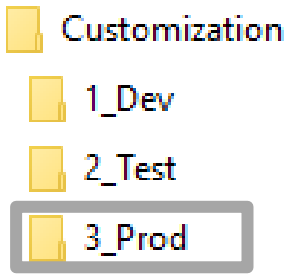
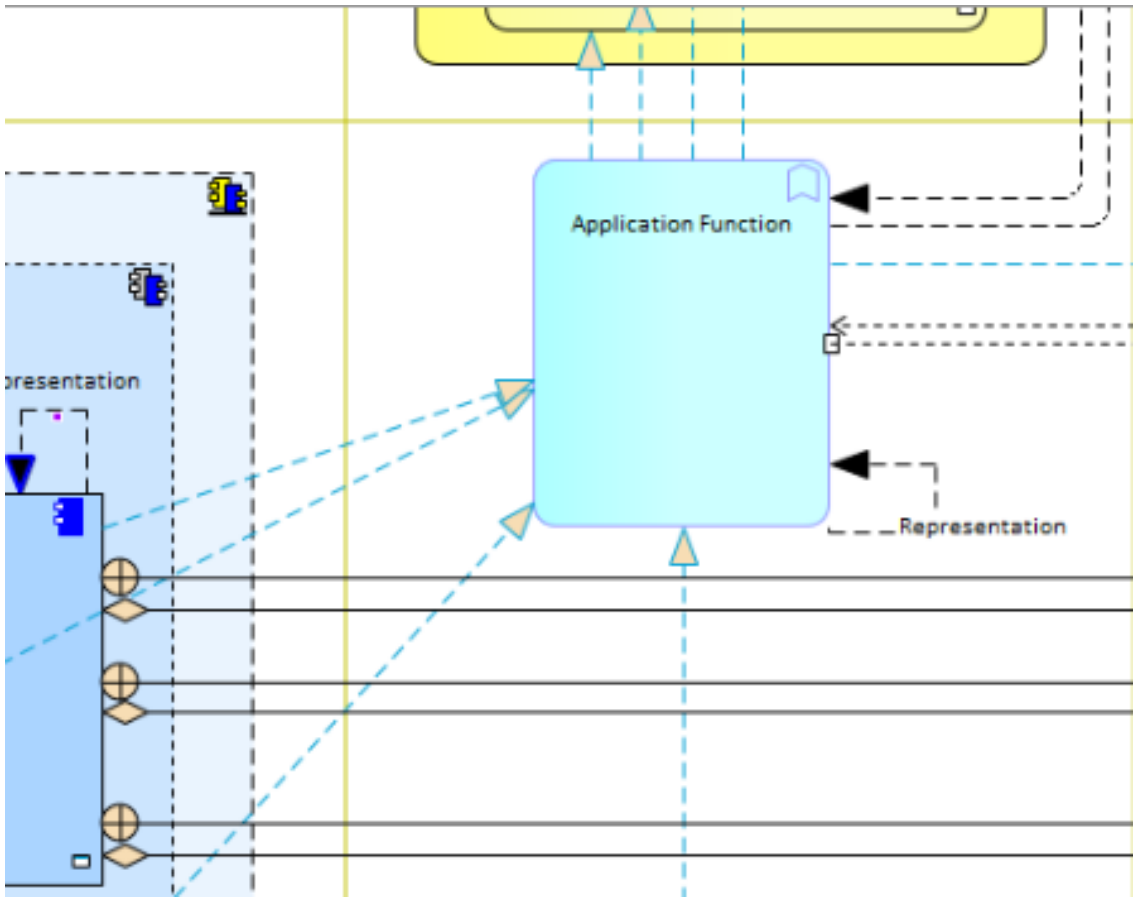


Update the language metamodel

- Add or delete connectors in the language metamodel



Further details on the Labnaf Guidance web site.

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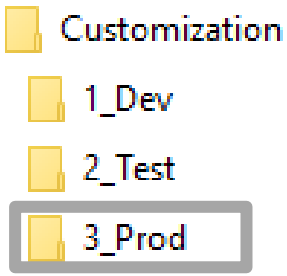

(Re)generate the connector definitions

Labnaf Customization Workbench

Save | Reload | Load MDG from: Files AddIn | About

Software Development Lifecycle Environment

Development folder:	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\1_Dev	Select Folder
Testing configuration folder:	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\2_Test	Select Folder / Activate
Production configuration folder:	H:\Tools\LabnafConfig	Select Folder / Activate

Active Runtime Configuration on this PC: PROD

Load MDG file from folder:	H:\Tools\LabnafConfig	
MDG file expected in this folder:	H:\Tools\LabnafConfig\Labnaf_Custom_MDG.xml	2019-03-05 11:59:12
Connectors Definition used (always from PROD):	H:\Tools\LabnafConfig\Labnaf_Custom_QuickLinks.xml	2019-03-04 17:36:25

Software Development Lifecycle		Time Last Changed
MDG Development		
Edit MDG Source Model (EAP)	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-05 12:50:36
Edit MDG Deployment File (MTS)	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf _Custom	2019-03-05 11:24:02
Generate MDG => Testing		
MDG Testing		
Activate Testing Configuration	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Custom	2019-03-05 11:59:12
Open Testing Repository	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Test_Re	2019-03-05 11:41:16
Copy MDG from Testing => Production		
Configuring Production		
Activate Production Configuration	H:\Tools\LabnafConfig\Labnaf_Custom_MDG.xml	2019-03-05 11:59:12
Open Production Repository & Edit Metamodel	H:\Tools\LabnafConfig\Labnaf_Prod_Repository.eap	2019-02-28 18:01:07
Generate Connectors Definition => Production	H:\Tools\LabnafConfig\Labnaf_Custom_QuickLinks.xml	2019-03-04 17:36:25

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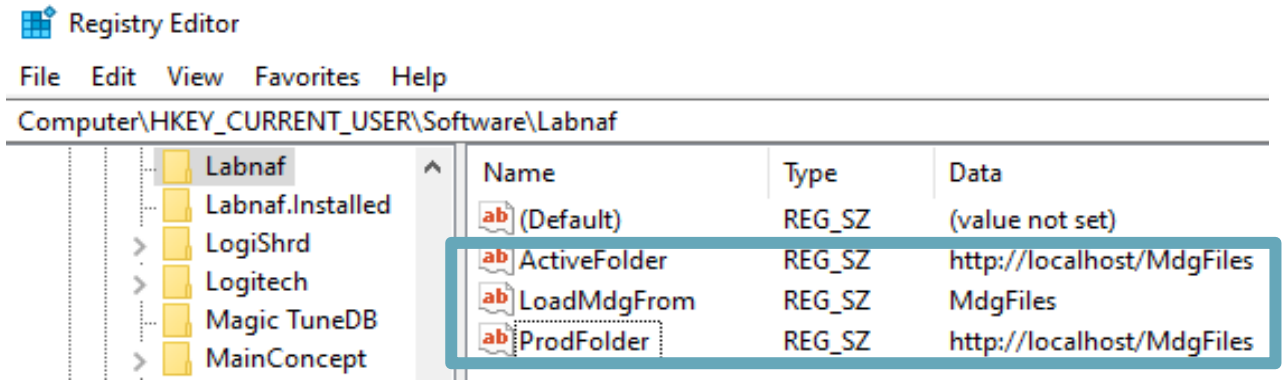
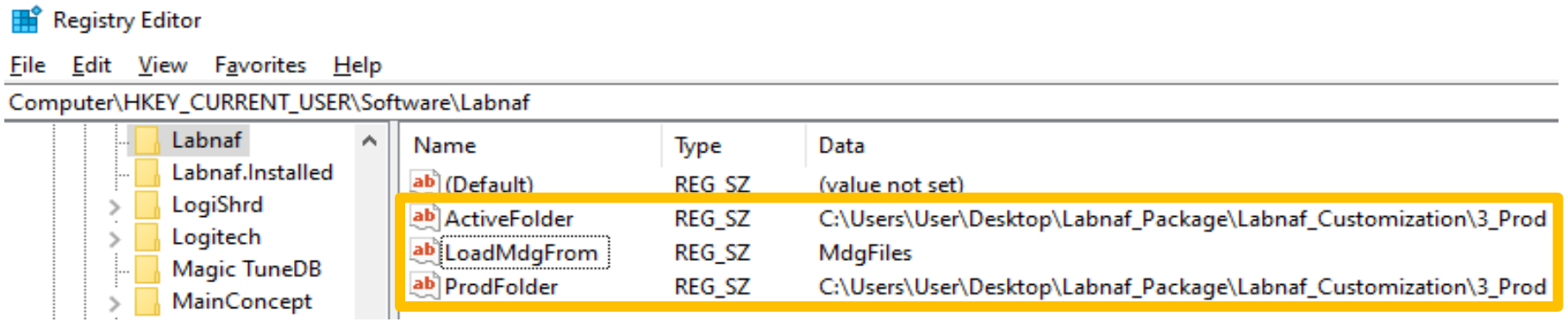
Deployment for end users of the Labnaf Addin

To deploy the customized version of the language on end users' desktops, the software distribution package must set some registry keys under **HKEY_CURRENT_USER\Software\Labnaf**

- **LoadMdgFrom** = MdgFiles
- **ActiveFolder** and **ProdFolder** point to the production folder (**web url** or **file system**)
  For end users ActiveFolder and ProdFolder must have the same value.





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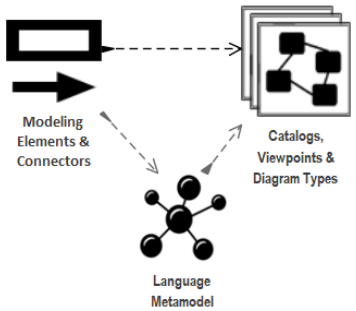
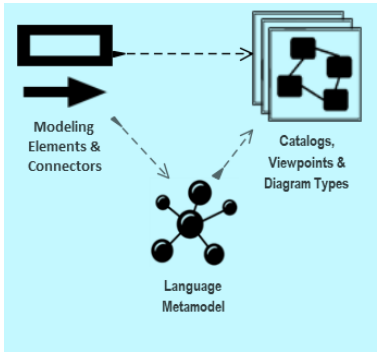
Merging your Labnaf customizations into a new version of Labnaf

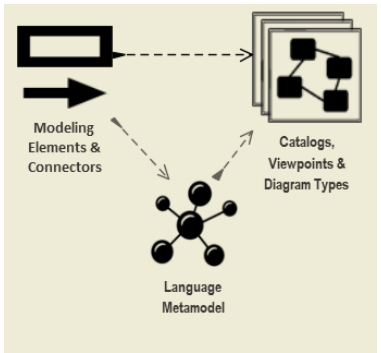
New tagged values,
new elements types,
new connector types



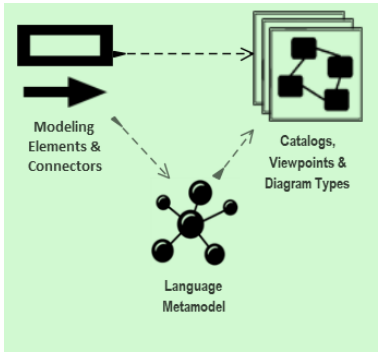
Labnaf Version X



Labnaf Version X
+ Customer Changes



Labnaf Version Y



Labnaf Version Y
+ Customer Changes

How to proceed

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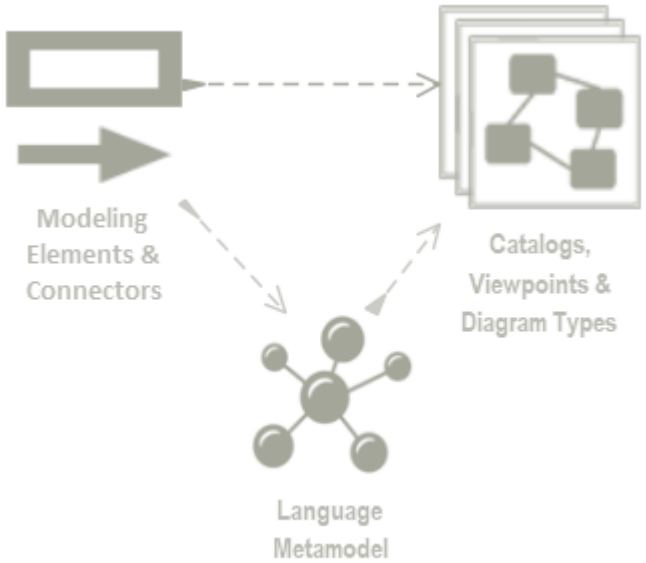
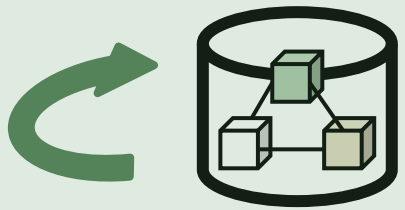
See also: Labnaf Language Transformer

1. Customize the language



2. Adapt existing repository content



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