



A Language Built in its Native Framework

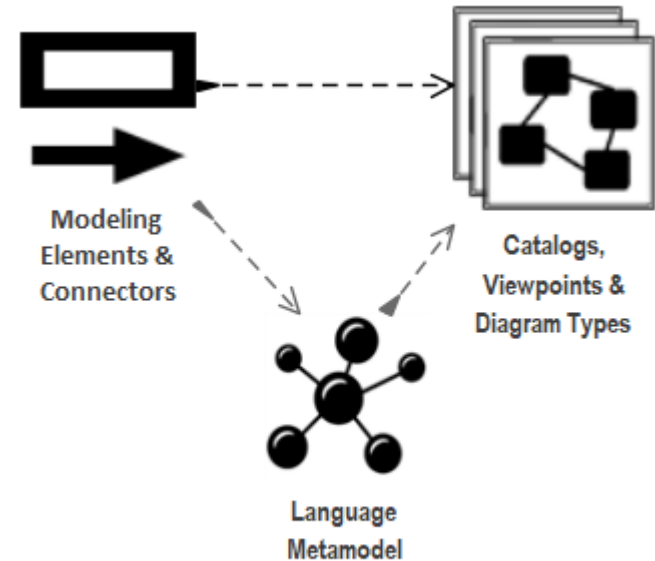
# The Labnaf Strategy & Architecture Framework

# Customization Workbench

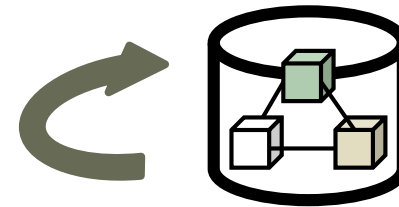
# User Guide

# Labnaf Customization Steps

1. Customize the language following your organization requirements

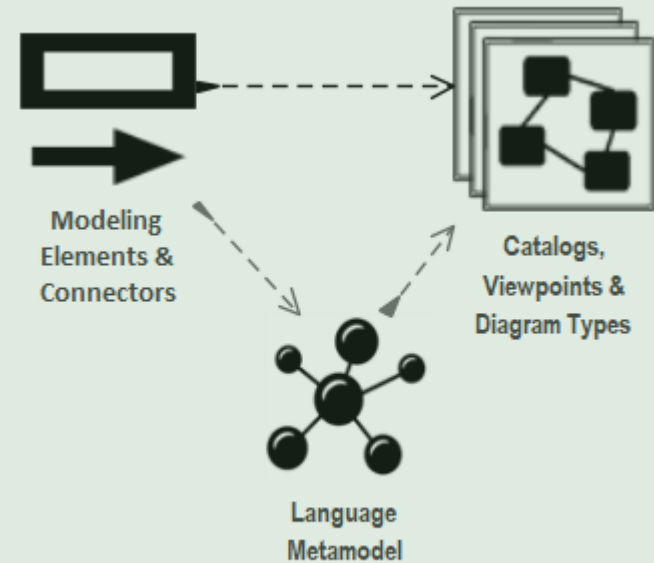


2. Adapt existing repository content

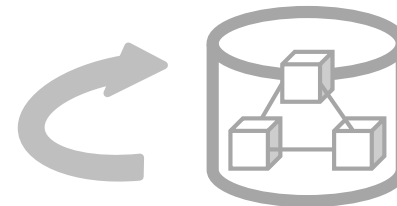


# Labnaf Customization Workbench

1. Customize the language following your organization requirements



2. Adapt existing repository content



# 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
  - ...

### Built-in MDGs and related Toolboxes

Use Case	XML Schema	GoF Patterns
Class	Documentation	ICONIX
Object	Test Domain	LieberLieber AUTOSAR Engineer
Composite	Dashboard	MindMapping
Communication	XMLTransform	NIEM
Interaction	ArcGIS	ODM
Timing	ArchMate	Project Management
State	ArchMate2	RiskTaxonomy
Activity	BPMN 1.1	SOMF 2.1
Component	BPMN 2.0	SPEM
Deployment	BPMN 1.0	User Interface - Simple
Profile	UML Standard Profile	SoaML
Metamodel	Business Rule Model	Strategic Modeling
Analysis	CodeEngineering	UMM 2.0 Profile
Business Modeling	Data Flow Diagrams	UPCC 2.0
Custom	Data Modeling	UPCC 3.0
Requirements	Entity Relationship Diagram	UBL Model Management
Maintenance	Eriksson-Penker Extensions	WebModeling
User Interface	GML	Whiteboard
WSDL	GRA-UML	User Interface - Win32
		Wireframing

What we don't want

# What we want



**Merged Standards & Best Practices**



**One Strategy & Architecture Process**



**One Modeling Language**



**One Tool & One Repository**

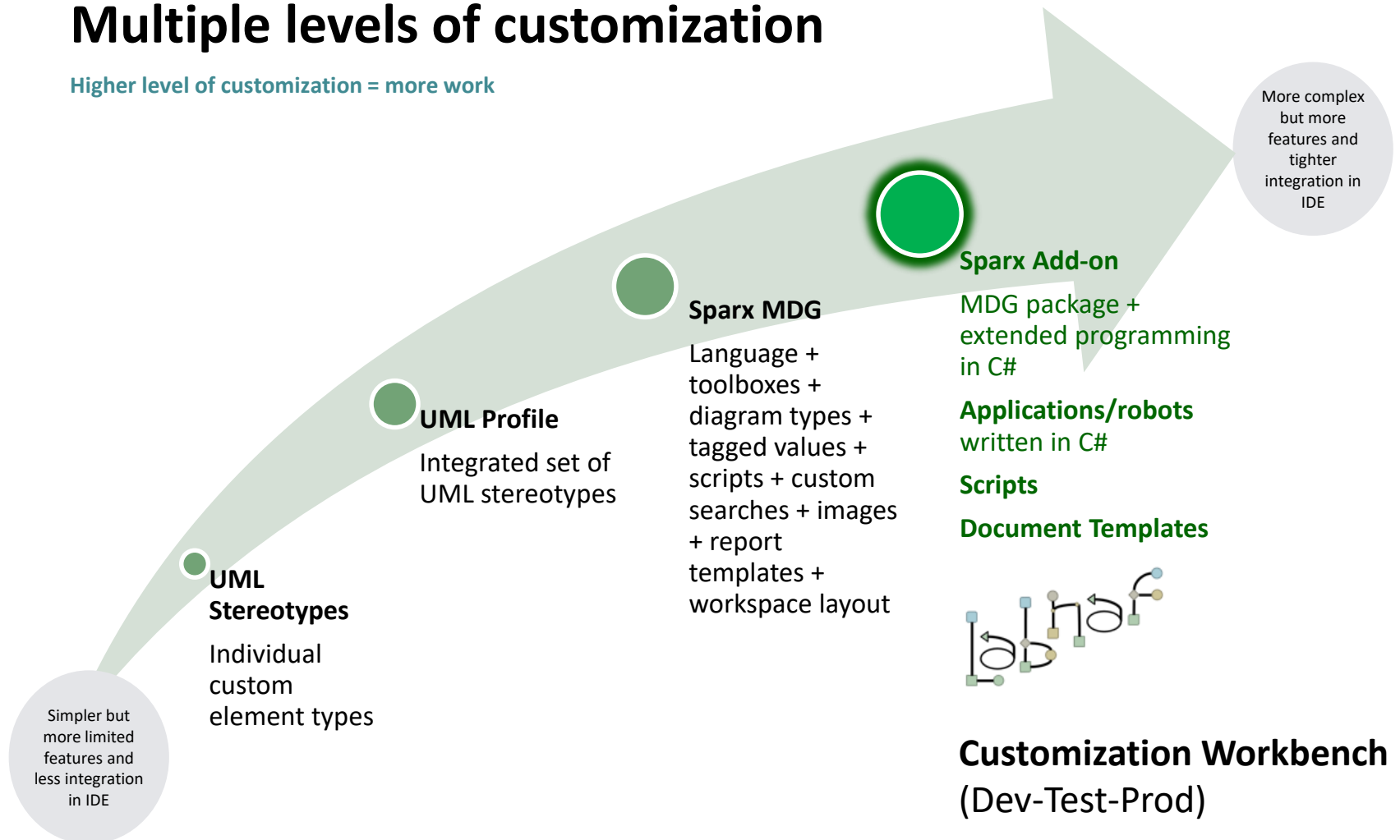


**Extensive On-line Documentation**

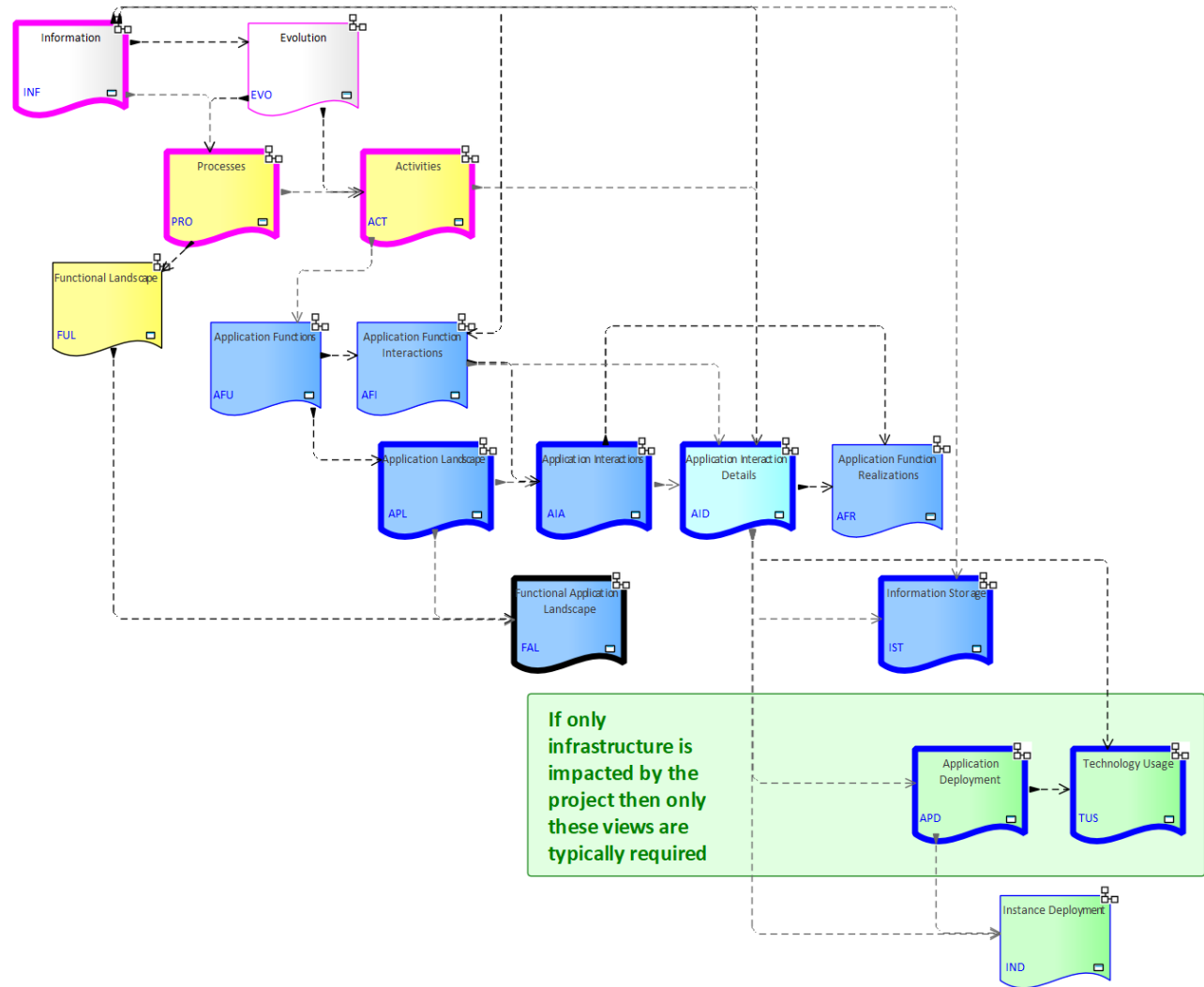
# Sparx EA Software Development Kit (SDK)

## Multiple levels of customization

Higher level of customization = more work



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



# 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

**Examples**

The screenshot displays a software architecture toolbox with the following categories and items:

- Activities**
  - Activity
  - Gateway
  - Intermediate Event
  - End Event
  - Role
  - Start Event
  - Swimlane
  - Data Object
  - Representation
  - Application Function
  - Application Component
  - Location
- Activities Connectors**
  - Activity Trigger
  - Realizes
  - Access
- Application Deployment**
  - Application as a Service
  - Technology as a Service
  - Application Deployment Set
  - Application Component
  - Data Store
  - Logical Node
  - System Software
  - Location
- Application Deployment Connectors**
  - Is deployed on
  - Is part of
  - Realizes
  - Is dependent on
  - Flow allowed by firewall

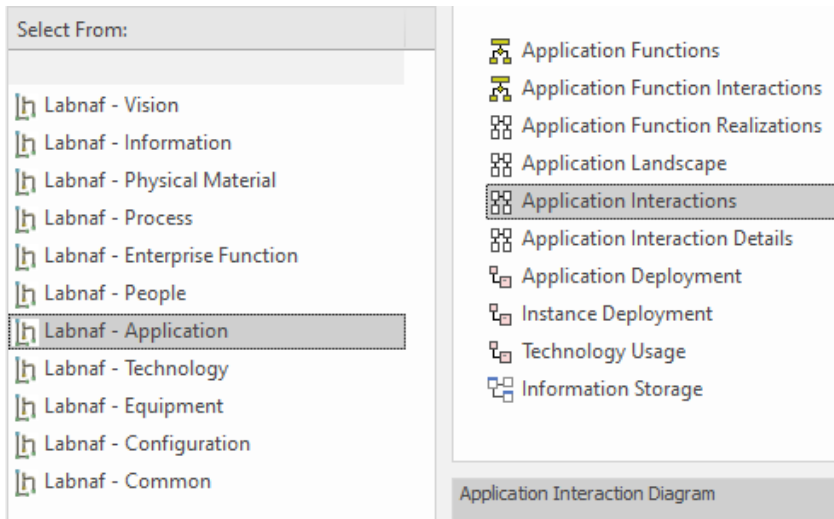
We use verbs instead of nouns to indicate the meaning of the connector's directions



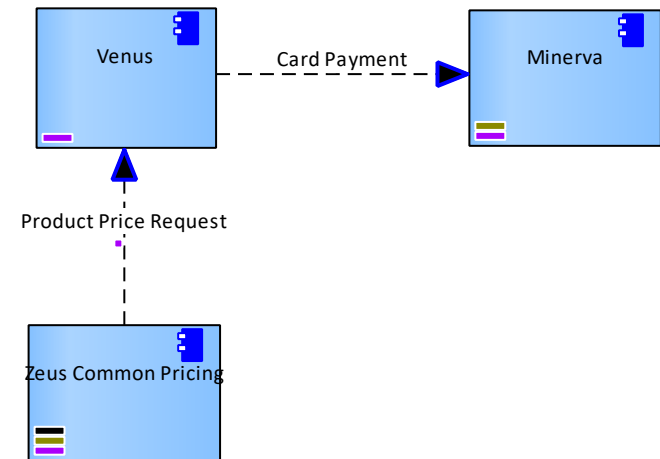
# Diagram Types

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



# 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”

#### Application Interaction

- Application
- Role
- Organization Function
- Organization

#### Application Interaction Connectors

- Application Flow
- Depends on

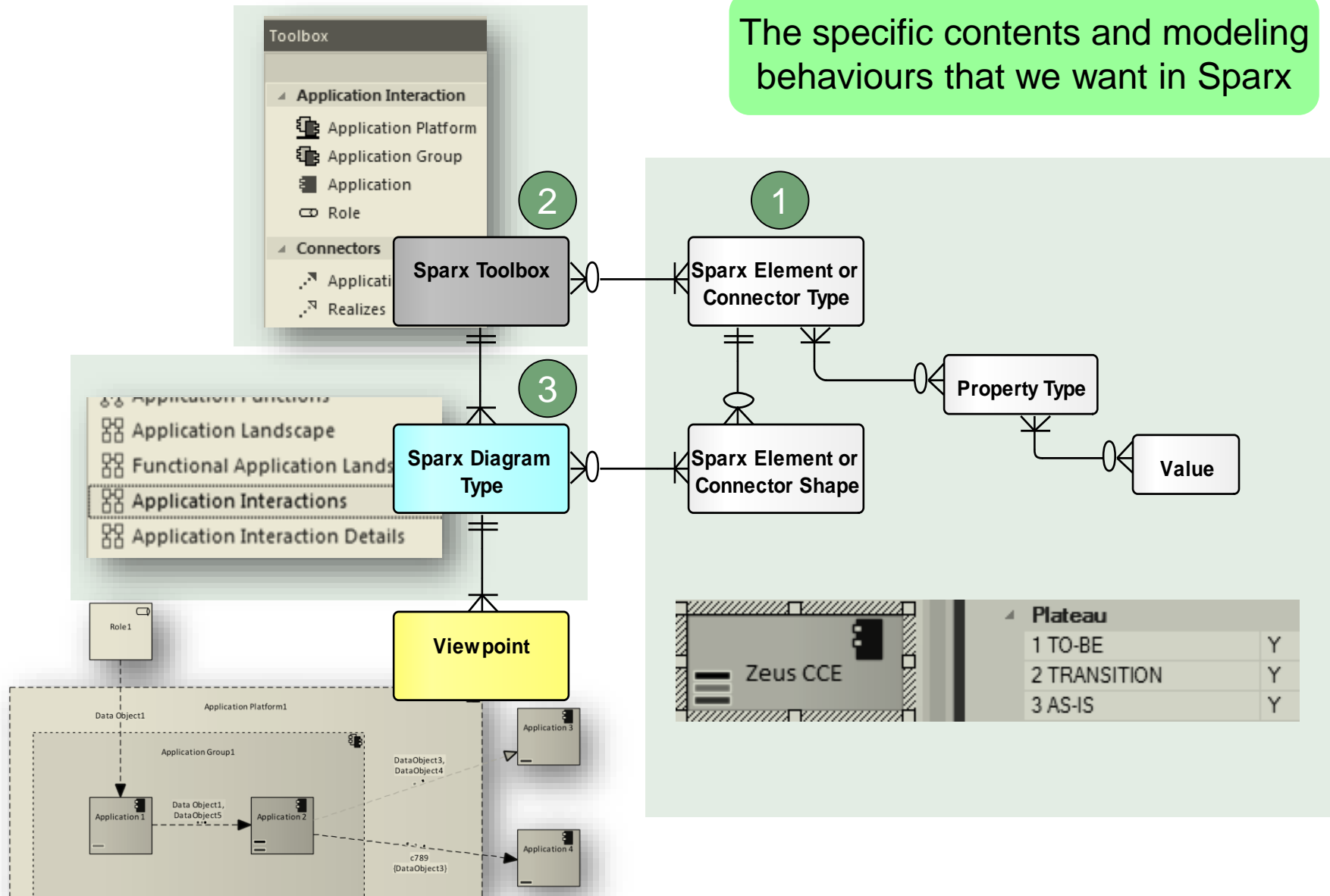
### All elements and connectors used

(These are not actual toolboxes)

- Vision**
  - Strategic Theme
  - Strategic Objective
  - Goal
  - Standard
  - Principle
  - Demand
  - Epic
  - Capability
  - Feature
  - Story
- Information**
  - Information Domain
  - Entity
  - Representation
  - Data Object
- Process**
  - Process
  - Start Event
  - Intermediate Event
  - Gateway
  - Activity
  - End Event
  - Swimlane
- Enterprise Function**
  - Functional Domain
  - Functional Area
  - Functional Block
  - Functional Category
  - Functional Service
  - Access Point
- Physical**
  - Equipment Function
  - Equipment Service
  - Equipment
  - Equipment Type
  - Facility
  - Distribution Network
  - Location
  - Material
  - People**
    - Organization Function
    - Organization Service
    - Role
    - Organisation
    - Individual
    - Contract
  - Application**
    - Application Function
    - Application as a Service
    - Application Service
    - Application Platform
    - Application Group
    - Application
    - Application Component
    - Data Store
  - Technology**
    - Technology Function
    - Technology as a Service
    - Node Type
    - System Software
    - Communication Network
    - Interface Protocol
    - Application Deployment Set
    - Logical Node
    - Instance Deployment Set
    - Node Instance
- All Connectors**
  - Access
  - Association
  - Application Flow
  - Component Flow
  - Depends on
  - Deployment
  - Evolves into
  - Flow is allowed by firewall
  - Functional Flow
  - Functional Performer Flow
  - Impacts
  - Influences
  - Instance is part of
  - Instance is deployed on
  - Instance realizes
  - Is a constituent of
  - Is assigned to
  - Is bound by contract
  - Is owned by
  - Is part of
  - Network Interlink
  - Node to Network Connection
  - Path between Nodes
  - Physical Flow
  - Realizes
  - Specializes
  - Triggers

# Key items to be designed and configured

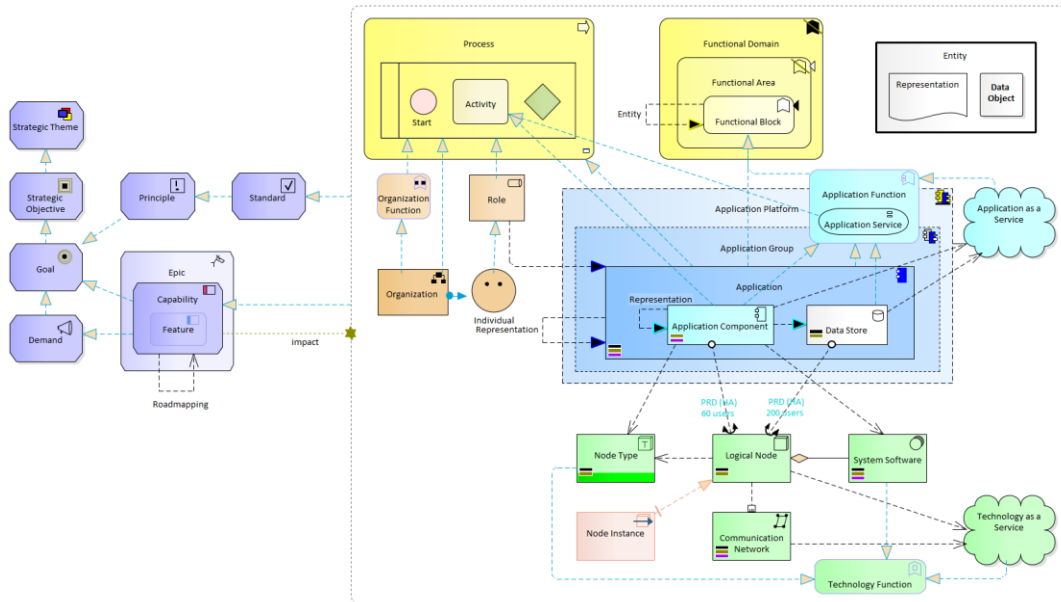
The specific contents and modeling behaviours that we want in Sparx



Plateau	
1 TO-BE	Y
2 TRANSITION	Y
3 AS-IS	Y

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

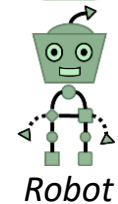
What we want



While Modeling

Existing Invalid Connectors

Prevent creation of invalid connectors

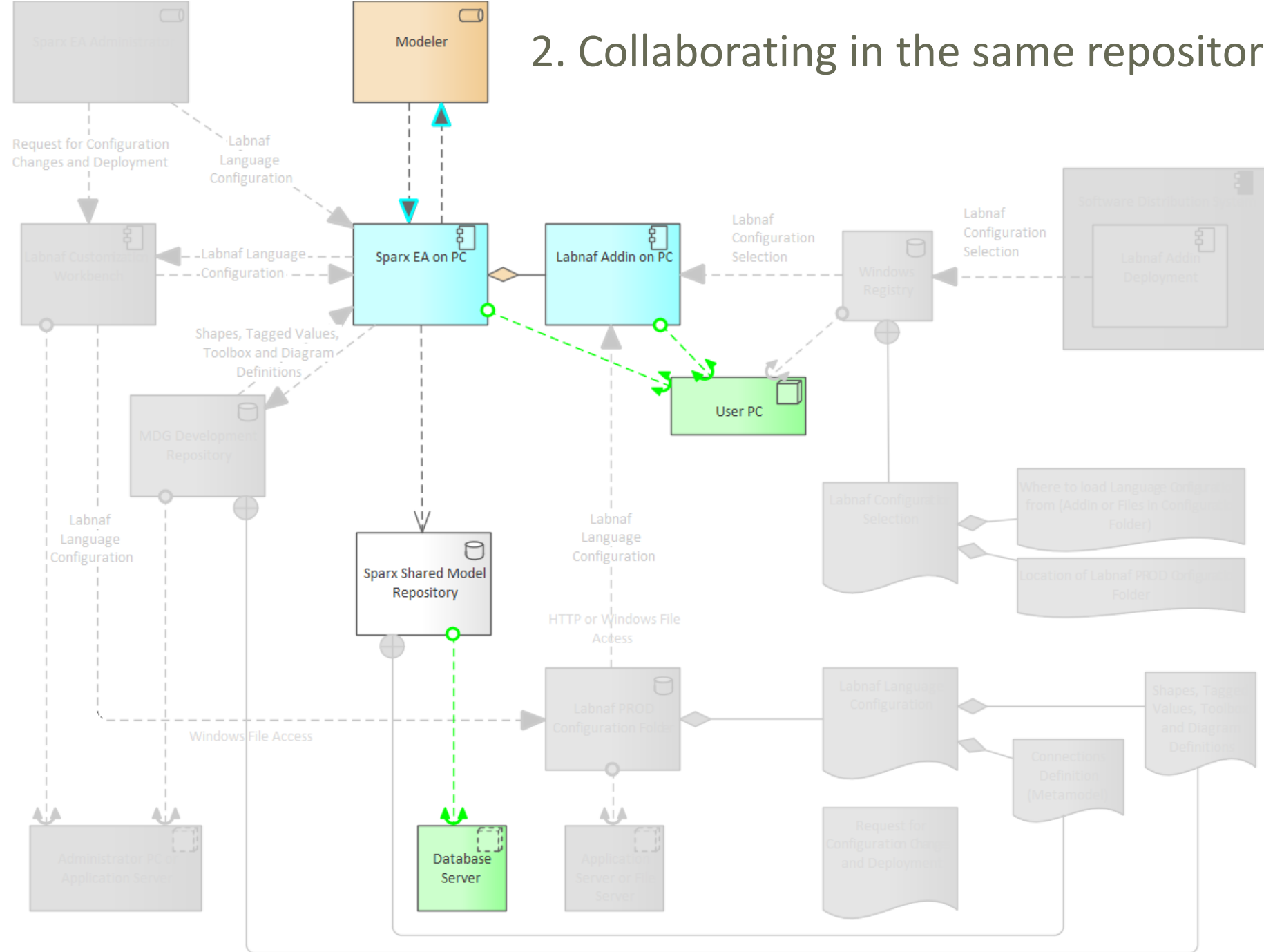


Send Error Emails to Relevant Recipients

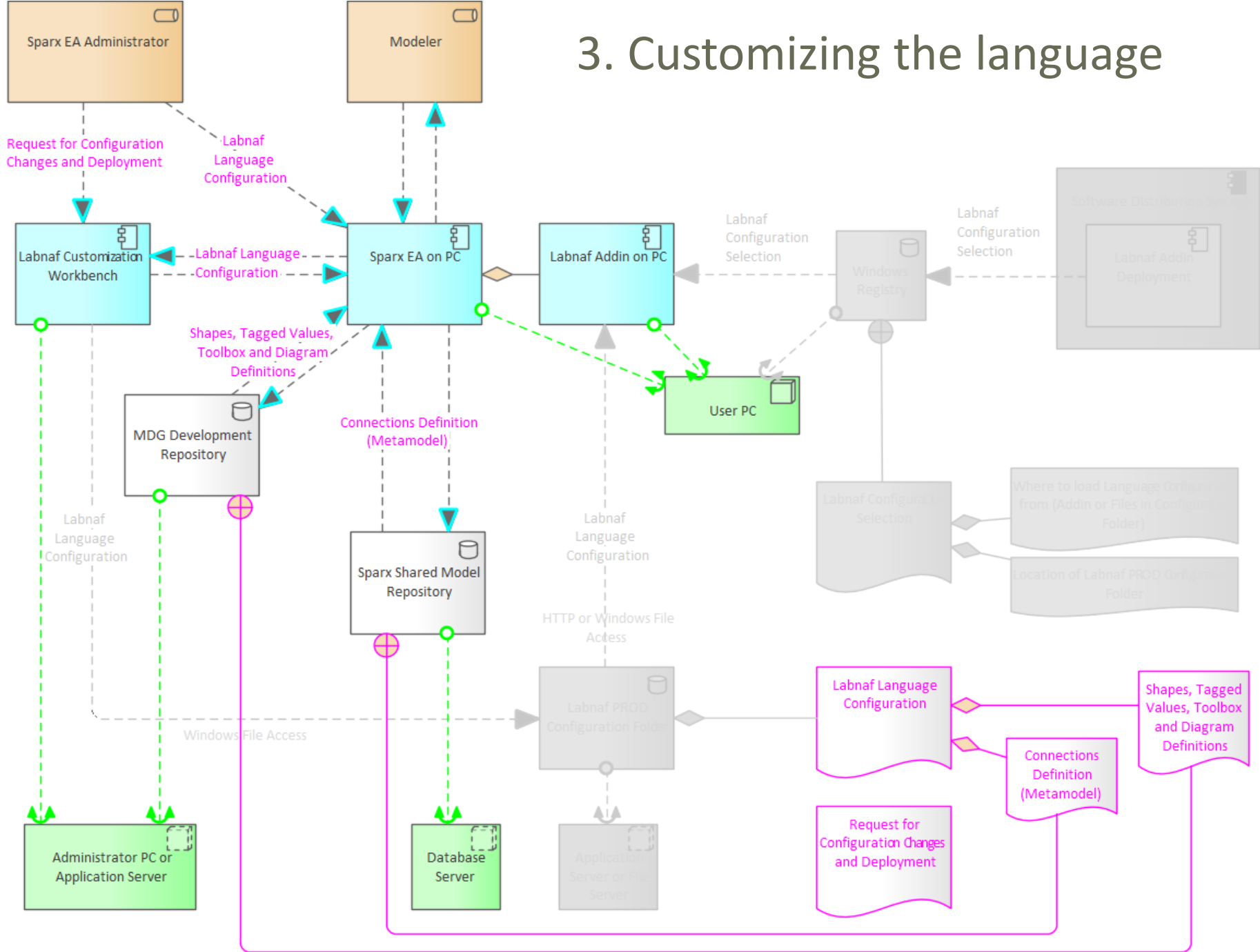
# *The evolving environment*



## 2. Collaborating in the same repository

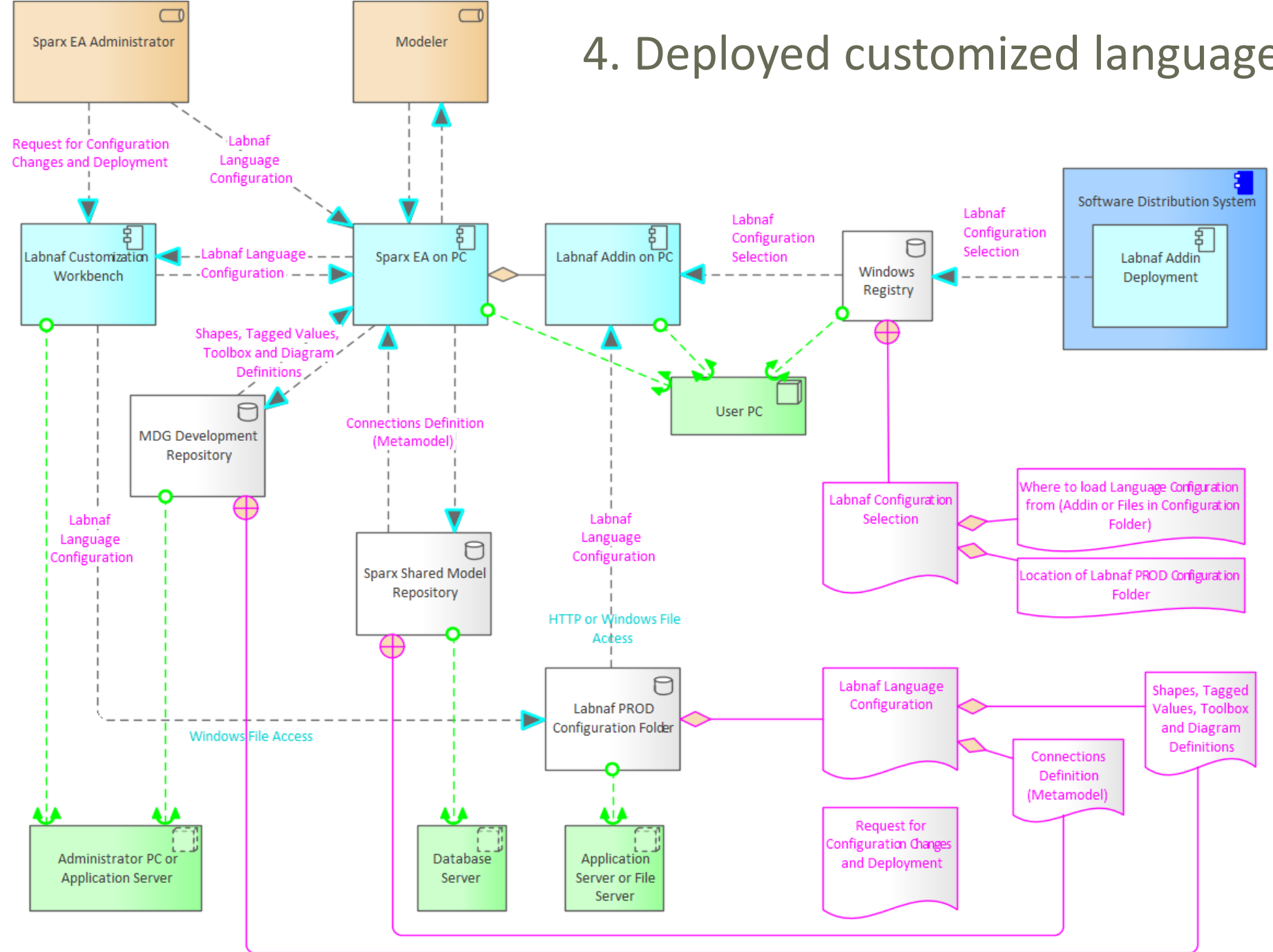


# 3. Customizing the language





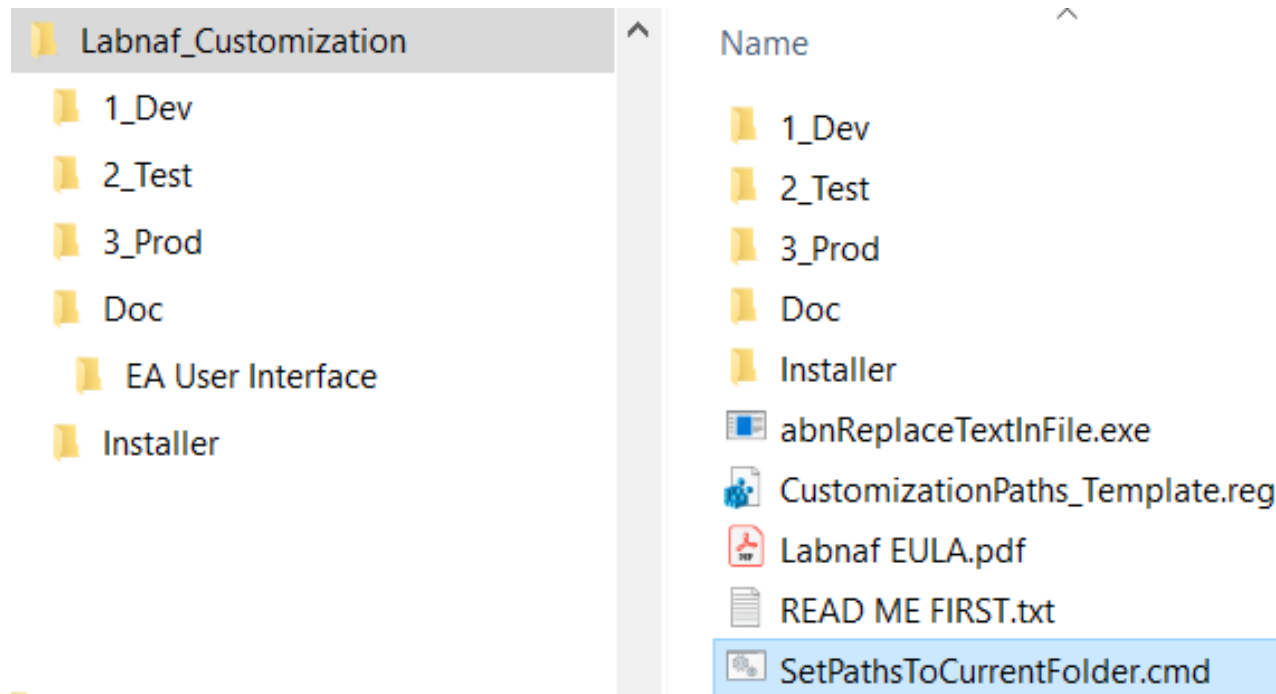
# 4. Deployed customized language



*How to proceed in practice...*

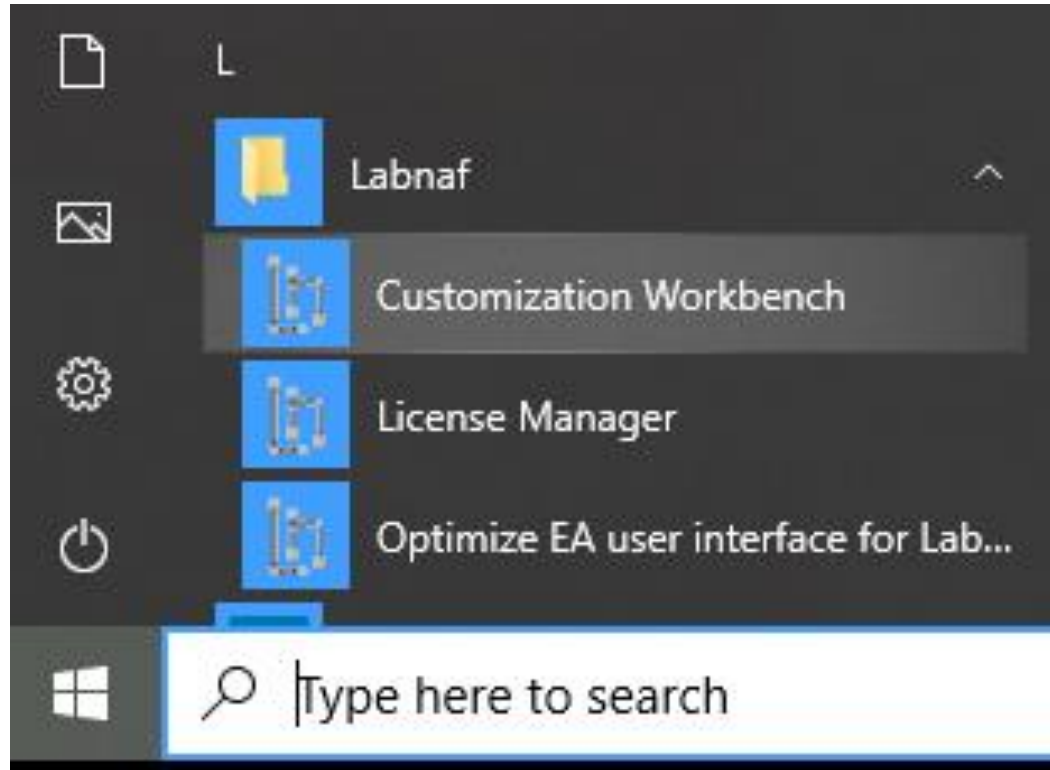
# Automatic configuration to start customization

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

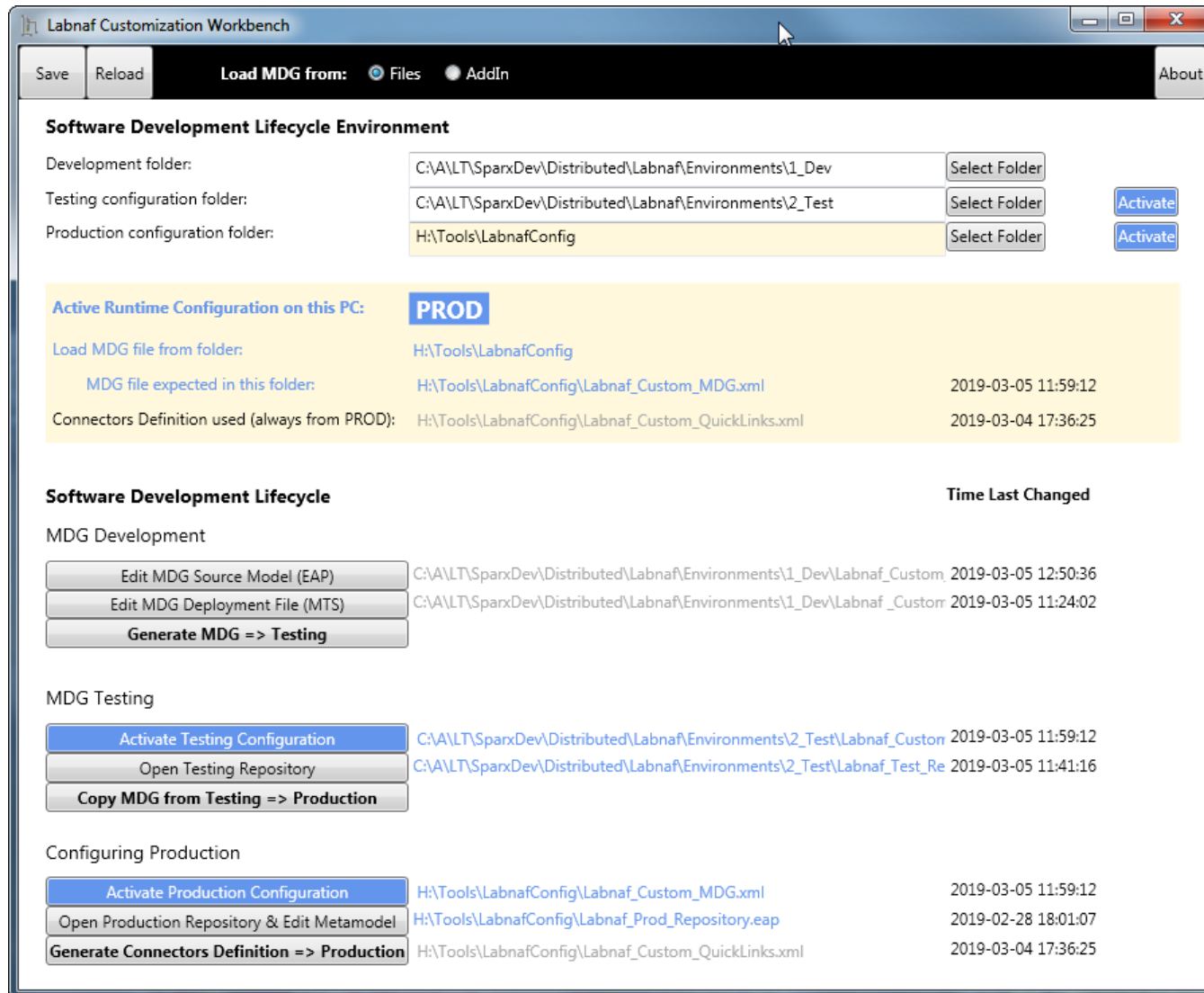


*This updates the Labnaf configuration files and registry keys following the “Labnaf\_Customization” folder location.*

# Start the Customization Workbench...



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



The screenshot displays the Labnaf Customization Workbench interface. At the top, there are buttons for 'Save' and 'Reload', and a 'Load MDG from:' section with radio buttons for 'Files' (selected) and 'AddIn'. An 'About' button is in the top right corner.

**Software Development Lifecycle Environment**

Development folder: C:\ALT\SparxDev\Distributed\Labnaf\Environments\1\_Dev [Select Folder]  
Testing configuration folder: C:\ALT\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:\ALT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-05 12:50:36
Edit MDG Deployment File (MTS)	C:\ALT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-05 11:24:02
<b>Generate MDG =&gt; Testing</b>		

MDG Testing

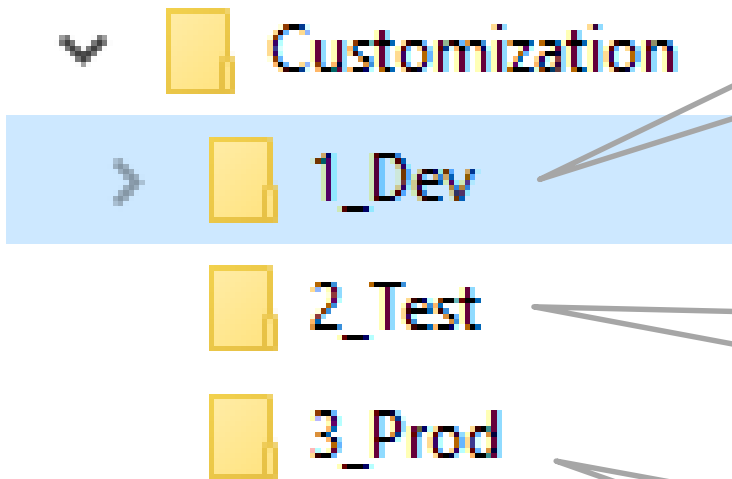
<b>Activate Testing Configuration</b>	C:\ALT\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Custom	2019-03-05 11:59:12
Open Testing Repository	C:\ALT\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Test_Re	2019-03-05 11:41:16
<b>Copy MDG from Testing =&gt; Production</b>		

Configuring Production

<b>Activate Production Configuration</b>	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
<b>Generate Connectors Definition =&gt; Production</b>	H:\Tools\LabnafConfig\Labnaf_Custom_QuickLinks.xml	2019-03-04 17:36:25



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

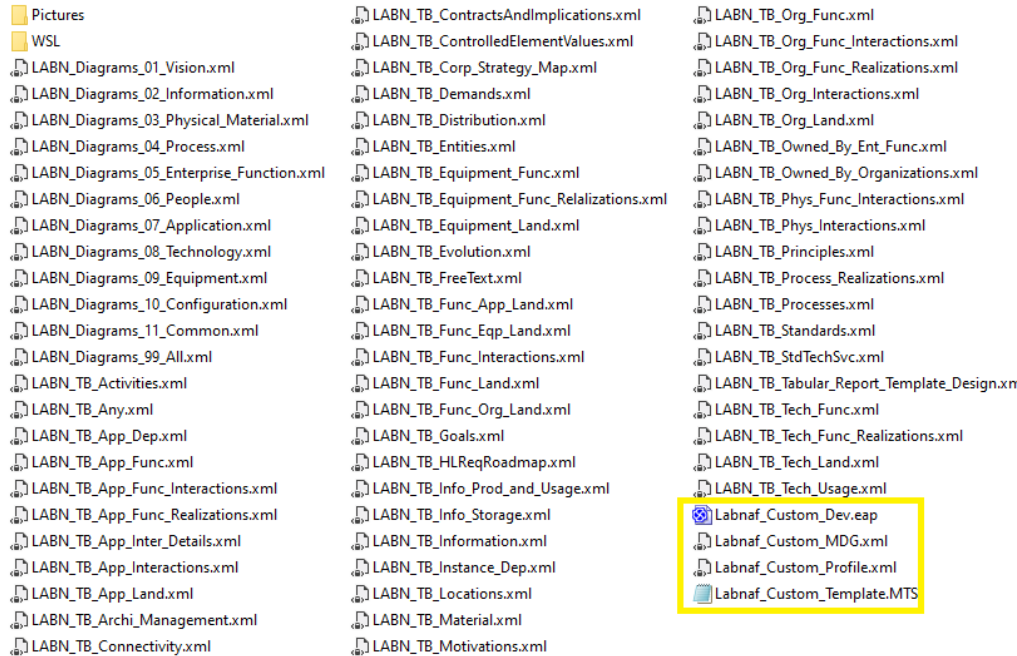
# SDLC Environment Setting

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

The screenshot shows the 'Labnaf Customization Workbench' application window. At the top, there are 'Save' and 'Reload' buttons, and a 'Load MDG from:' section with radio buttons for 'Files' (selected) and 'AddIn'. An 'About' button is in the top right corner. The main content area is titled 'Software Development Lifecycle Environment' and is highlighted with a yellow border. It contains three rows of configuration fields: 'Development folder' with path 'C:\A\LT\SparxDev\Distributed\Labnaf\Environments\1\_Dev', 'Testing configuration folder' with path 'C:\A\LT\SparxDev\Distributed\Labnaf\Environments\2\_Test', and 'Production configuration folder' with path 'H:\Tools\LabnafConfig'. Each row has a 'Select Folder' button and an 'Activate' button. Below this, a yellow box displays 'Active Runtime Configuration on this PC: PROD'. Underneath, it shows 'Load MDG file from folder: H:\Tools\LabnafConfig', 'MDG file expected in this folder: H:\Tools\LabnafConfig\Labnaf\_Custom\_MDG.xml' (dated 2019-03-05 11:59:12), and 'Connectors Definition used (always from PROD): H:\Tools\LabnafConfig\Labnaf\_Custom\_QuickLinks.xml' (dated 2019-03-04 17:36:25). At the bottom, a section titled 'Software Development Lifecycle' includes a 'Time Last Changed' column and a table of actions: 'Edit MDG Source Model (EAP)' (dated 2019-03-05 12:50:36), 'Edit MDG Deployment File (MTS)' (dated 2019-03-05 11:24:02), and 'Generate MDG => Testing'.

# 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>



# Develop your customized Labnaf language

The screenshot shows the 'Labnaf Customization Workbench' application window. The title bar includes standard window controls. The interface has a dark header with 'Save' and 'Reload' buttons, and a 'Load MDG from:' section with radio buttons for 'Files' (selected) and 'AddIn'. An 'About' button is in the top right.

**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]

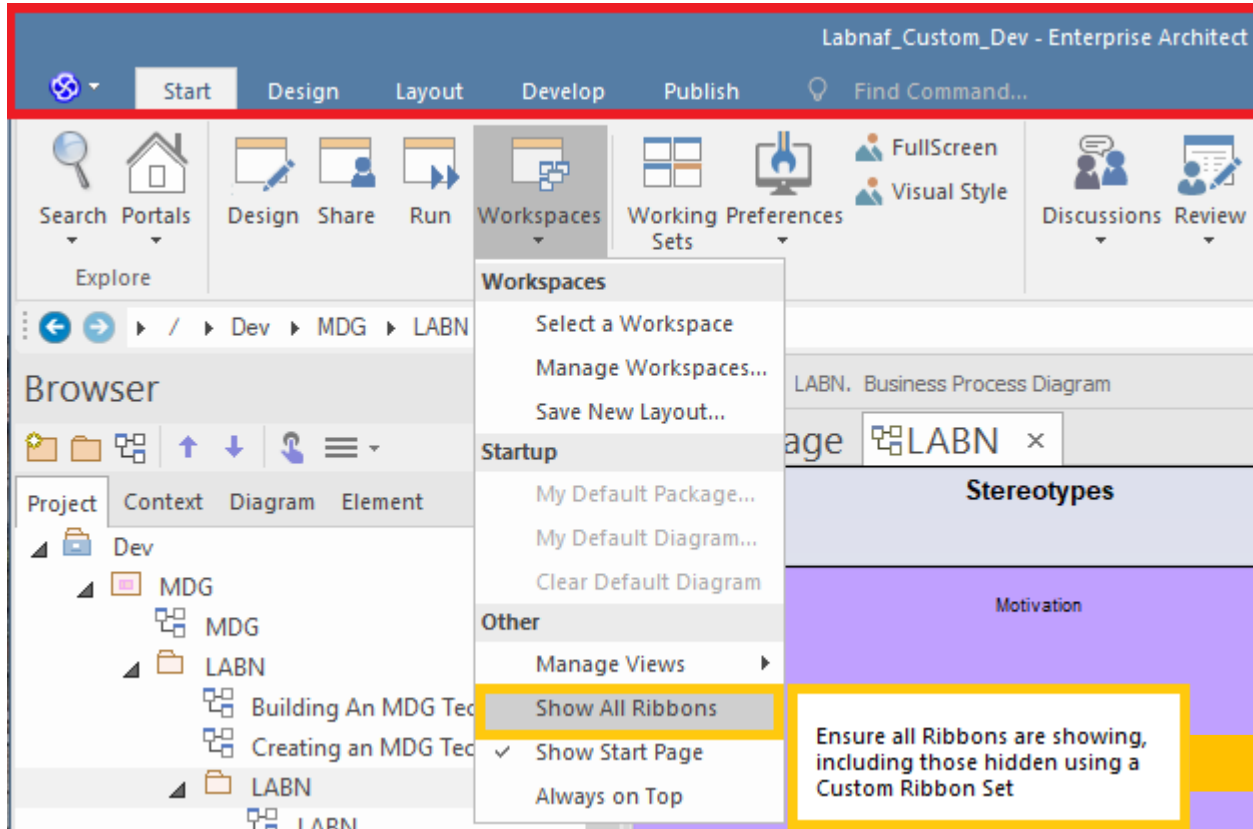
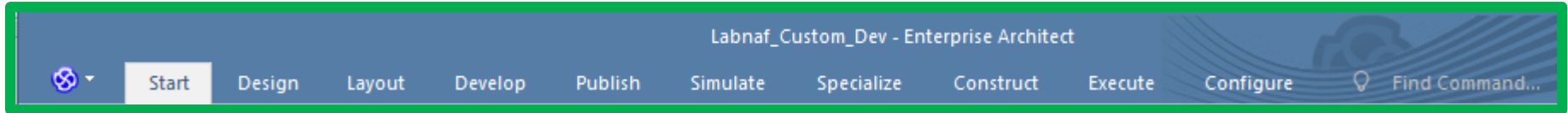
**Active Runtime Configuration on this PC:** **PROD**

- 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)

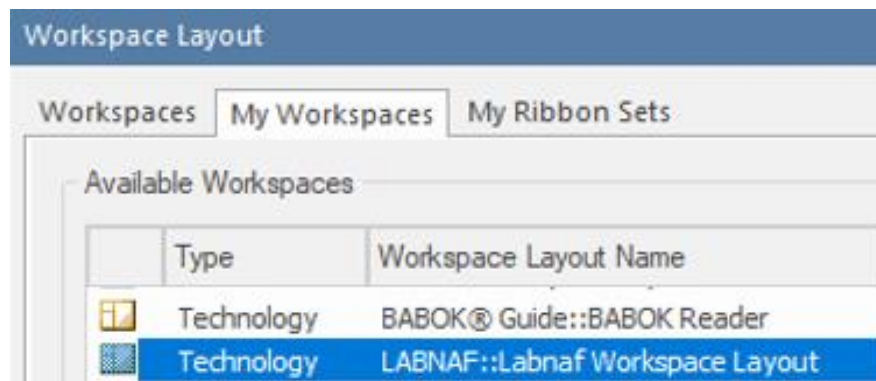
**Software Development Lifecycle** Time Last Changed

Action	Path	Time Last Changed
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		

As soon as the Labnaf\_Custom\_dev.eap in open **ensure all ribbons are showing**



# Set up your EA workspace layout for Labnaf

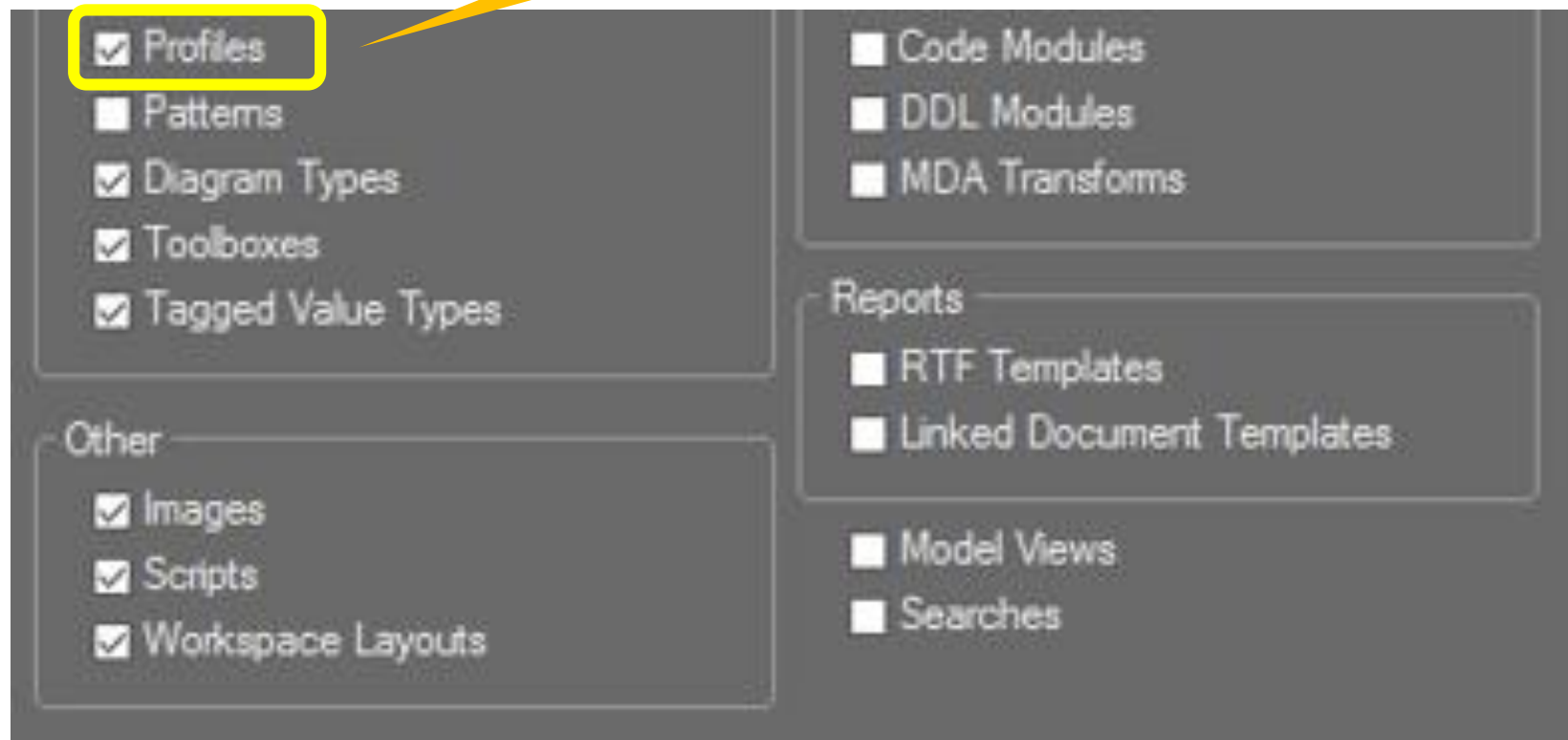


- This feature automatically opens and organizes all the EA windows that are useful with Labnaf including Labnaf customization
- Select the “**Start**” ribbon.
- Select the option “**Workspaces > Manage Workspaces > My Workspaces > Labnaf Workspace Layout**”.
- Press the “**Apply**” button.

# 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 changeable at runtime**



# 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	C	D	E	F	G	H	I	J
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										

Save UML Profile

Profile Name: LABN

Filename: C:\Test\Labnaf\_Customization\1\_Development\Labnaf\_Custom\_Profile.xml

Profile Type: EA UML(2.x) Version: 2.0

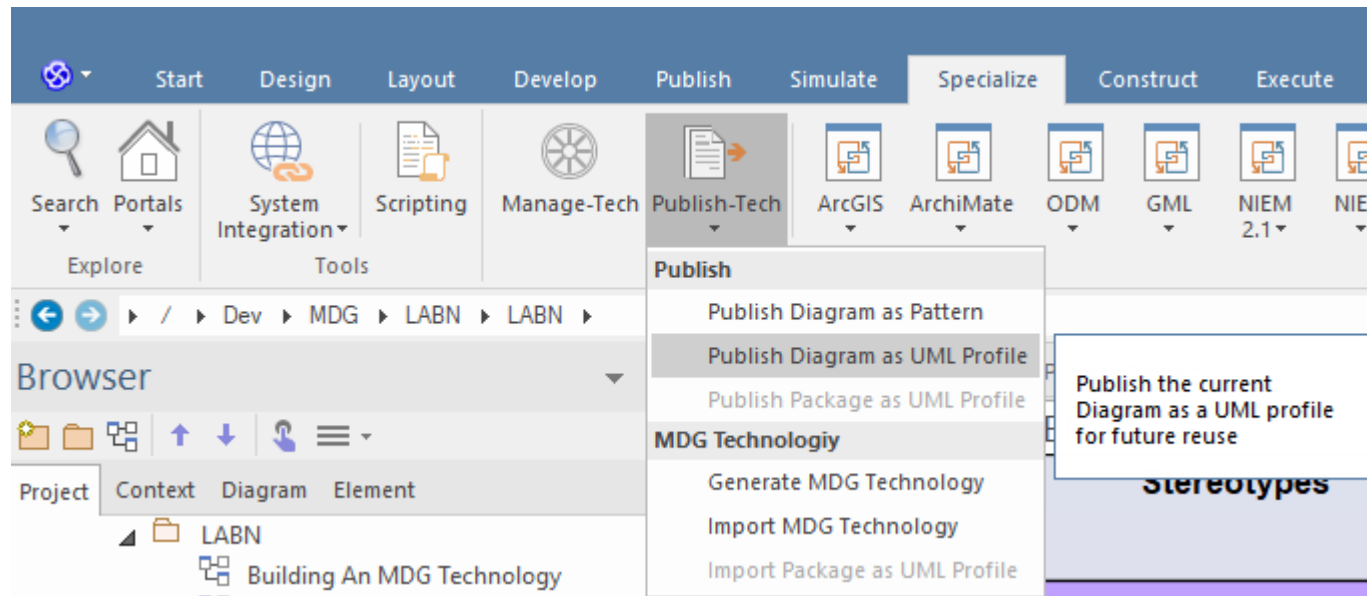
Notes:

Include

- Element Size
- Alternate Image
- Color and Appearance
- Code Templates

Save Cancel Help

# Saving the Labnaf MDG Profiles



## Working around a Sparx bug: Making sure the default colors are saved when saving as profile

- Either **show the pan & zoom window**
- or scroll down the length of the diagram once before you do an export
- or save the diagram fully zoomed out.

# Generate the Customized Labnaf MDG file (Language configuration)

The screenshot shows the Labnaf Customization Workbench interface. The window title is "Labnaf Customization Workbench". The interface is divided into several sections:

- Software Development Lifecycle Environment:**
  - Development folder: C:\ALT\SparxDev\Distributed\Labnaf\Environments\1\_Dev
  - Testing configuration folder: C:\ALT\SparxDev\Distributed\Labnaf\Environments\2\_Test
  - Production configuration folder: H:\Tools\LabnafConfig
- Active Runtime Configuration on this PC:**
  - Environment: **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:**
  - MDG Development:**
    - Edit MDG Source Model (EAP): C:\ALT\SparxDev\Distributed\Labnaf\Environments\1\_Dev\Labnaf\_Custom... (2019-03-05 12:50:36)
    - Edit MDG Deployment File (MTS): C:\ALT\SparxDev\Distributed\Labnaf\Environments\1\_Dev\Labnaf\_Custom... (2019-03-05 11:24:02)
    - Generate MDG => Testing** (highlighted with a yellow box)
  - MDG Testing:**
    - Activate Testing Configuration** (highlighted with a yellow box): C:\ALT\SparxDev\Distributed\Labnaf\Environments\2\_Test\Labnaf\_Custom... (2019-03-05 11:59:12)
    - Open Testing Repository: C:\ALT\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** (highlighted with a yellow box): 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)

A yellow arrow points from the "Generate MDG => Testing" button to the "Activate Testing Configuration" button.

# The Testing Stage

## Contents of the Testing Folder

 Labnaf\_Custom\_MDG.xml

 Labnaf\_Test\_Repository.eap

**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



# 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

Testing configuration folder: M:\SparxDev\Distributed\Labnaf\Environments\2\_Test

Production configuration folder: M:\SparxDev\Distributed\Labnaf\Environments\3\_Prod

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\_MC 2019-03-29 12:36:02

Connectors Definition used (always from PROD): M:\SparxDev\Distributed\Labnaf\Environments\3\_Prod\Labnaf\_Custom\_Qc 2019-03-04 17:36:25

**Software Development Lifecycle** Time Last Changed

MDG Development

<input type="button" value="Edit MDG Source Model (EAP)"/>	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-29 12:32:17
<input type="button" value="Edit MDG Deployment File (MTS)"/>	C:\A\LT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-29 12:36:02
<input type="button" value="Generate MDG =&gt; Testing"/>		

MDG Testing

<input type="button" value="Activate Testing Configuration"/>	M:\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Custom_MC	2019-03-29 12:36:02
<input type="button" value="Open Testing Repository"/>	M:\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Test_Reposit	2019-03-05 11:41:18
<input type="button" value="Copy MDG from Testing =&gt; Production"/>		

Configuring Production

<input type="button" value="Activate Production Configuration"/>	M:\SparxDev\Distributed\Labnaf\Environments\3_Prod\Labnaf_Custom_MI	2019-03-10 12:15:46
<input type="button" value="Open Production Repository &amp; Edit Metamodel"/>	M:\SparxDev\Distributed\Labnaf\Environments\3_Prod\Labnaf_Prod_Repos	2019-03-27 17:18:17
<input type="button" value="Generate Connectors Definition =&gt; Production"/>		

# Copy the Customized Labnaf MDG file to Production

Labnaf Customization Workbench

Save Reload Load MDG from: Files AddIn About

**Software Development Lifecycle Environment**

Development folder: C:\ALT\SparxDev\Distributed\Labnaf\Environments\1\_Dev Select Folder

Testing configuration folder: C:\ALT\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:\ALT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-05 12:50:36
Edit MDG Deployment File (MTS)	C:\ALT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-05 11:24:02
<b>Generate MDG =&gt; Testing</b>		

MDG Testing

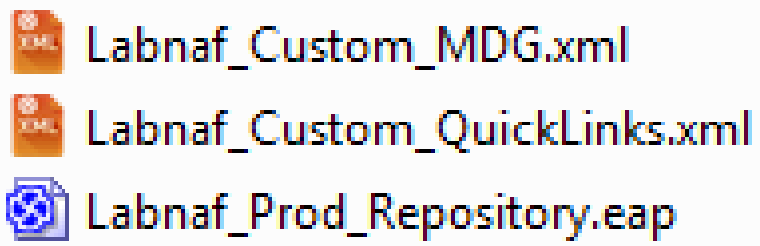
<b>Activate Testing Configuration</b>	C:\ALT\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Custom	2019-03-05 11:59:12
Open Testing Repository	C:\ALT\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Test_Re	2019-03-05 11:41:16
<b>Copy MDG from Testing =&gt; Production</b>		

Configuring Production

<b>Activate Production Configuration</b>	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
<b>Generate Connectors Definition =&gt; Production</b>	H:\Tools\LabnafConfig\Labnaf_Custom_QuickLinks.xml	2019-03-04 17:36:25

# The Production Stage

## Contents of the Production Folder



**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

**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.

# Activate the Production Configuration and open the Production Repository

The screenshot shows the Labnaf Customization Workbench interface. At the top, there are tabs for 'Save' and 'Reload', and a 'Load MDG from:' section with radio buttons for 'Files' (selected) and 'AddIn'. Below this, the 'Software Development Lifecycle Environment' section contains three rows of configuration:

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

Below this, the 'Active Runtime Configuration on this PC:' section shows 'PROD' is selected. It lists the 'Load MDG file from folder' as H:\Tools\LabnafConfig, and provides details for the MDG file and Connectors Definition used.

The 'Software Development Lifecycle' section is divided into 'MDG Development' and 'MDG Testing'.

**MDG Development:**

Edit MDG Source Model (EAP)	C:\ALT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-05 12:50:36
Edit MDG Deployment File (MTS)	C:\ALT\SparxDev\Distributed\Labnaf\Environments\1_Dev\Labnaf_Custom	2019-03-05 11:24:02
Generate MDG => Testing		

**MDG Testing:**

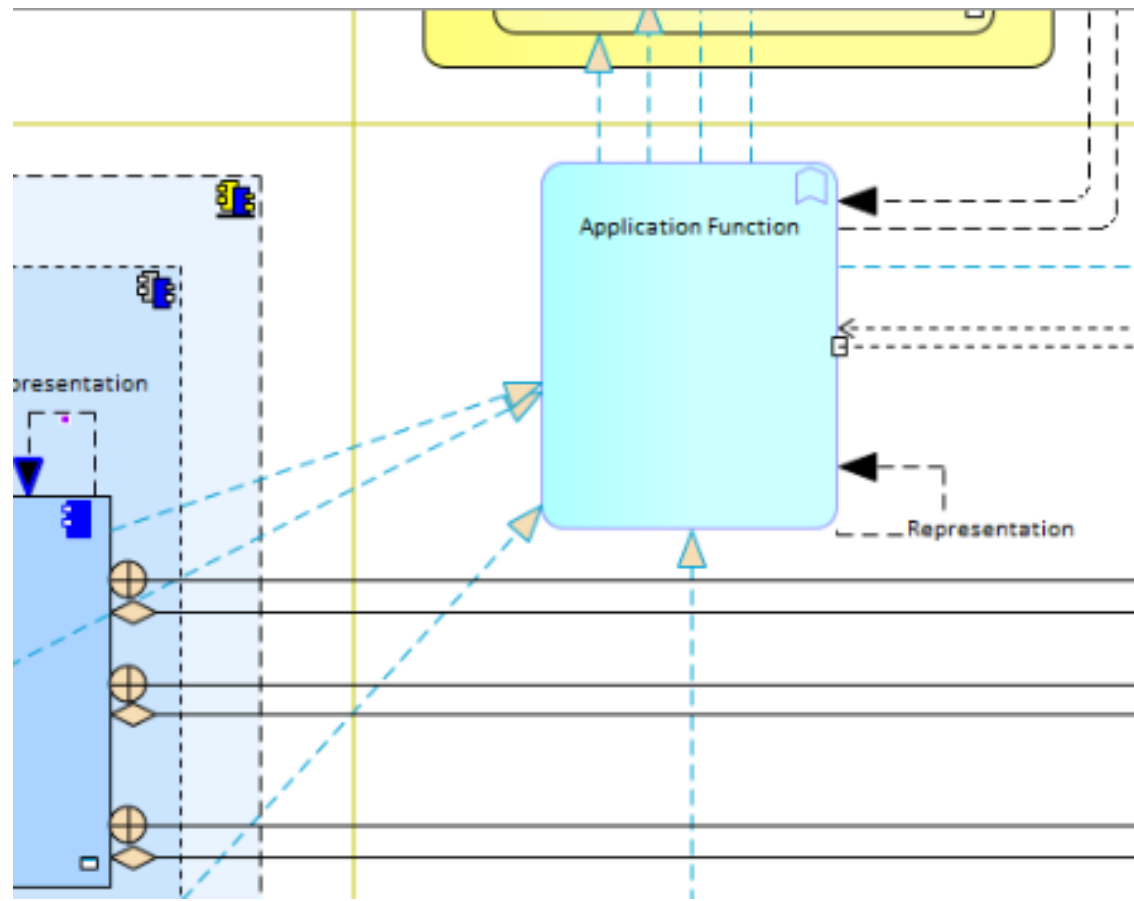
Activate Testing Configuration	C:\ALT\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Custom	2019-03-05 11:59:12
Open Testing Repository	C:\ALT\SparxDev\Distributed\Labnaf\Environments\2_Test\Labnaf_Test_Re	2019-03-05 11:41:16
Copy MDG from Testing => Production		

**Configuring Production (highlighted in yellow):**

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

# Update the language metamodel

- Add or delete connectors in the language metamodel



# (Re)generate the connector definitions

The screenshot shows the Labnaf Customization Workbench interface. At the top, there are buttons for 'Save' and 'Reload', and a 'Load MDG from:' section with radio buttons for 'Files' (selected) and 'AddIn'. Below this is the 'Software Development Lifecycle Environment' section, which includes fields for 'Development folder', 'Testing configuration folder', and 'Production configuration folder', each with a 'Select Folder' button. The 'Production configuration folder' is highlighted in yellow and set to 'H:\Tools\LabnafConfig'. To the right of these fields are 'Activate' buttons. Below this is a yellow-highlighted section titled 'Active Runtime Configuration on this PC: PROD'. It contains a table with the following data:

Load MDG file from folder:	MDG file expected in this folder:	Time Last Changed
H:\Tools\LabnafConfig	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

Below this is the 'Software Development Lifecycle' section, which is organized into three categories: 'MDG Development', 'MDG Testing', and 'Configuring Production'. Each category has a list of actions with their corresponding file paths and 'Time Last Changed' values.

Action	File Path	Time Last Changed
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		
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		
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

The 'Generate Connectors Definition => Production' action is highlighted with a yellow box at the bottom of the screenshot.

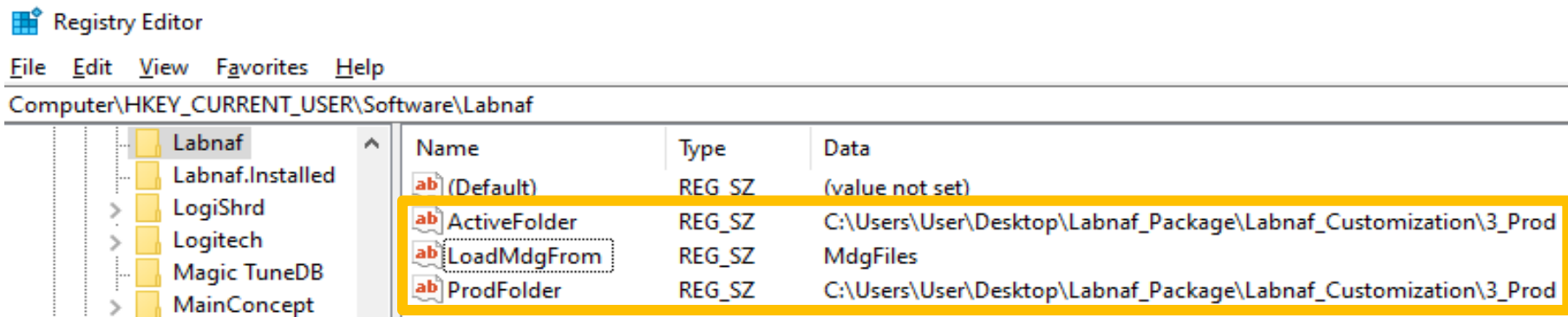
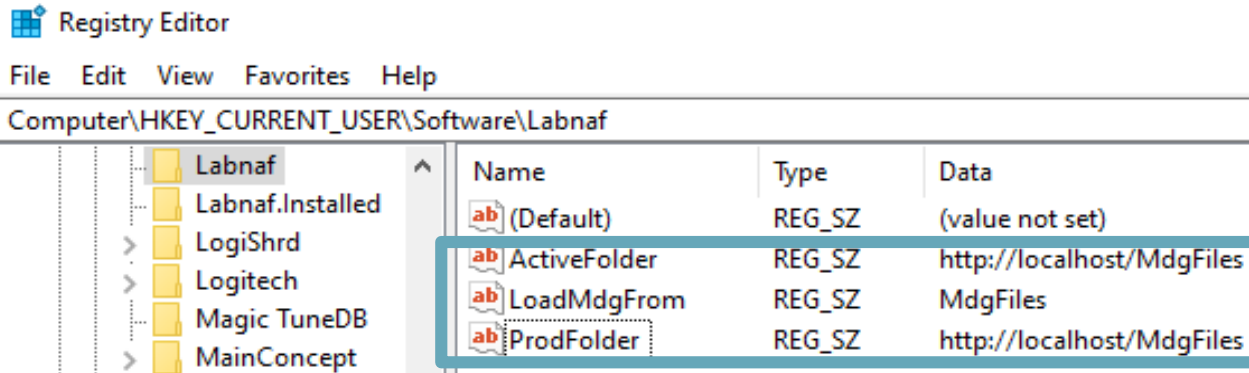
# Deployment for end users of the Labnaf Addin

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

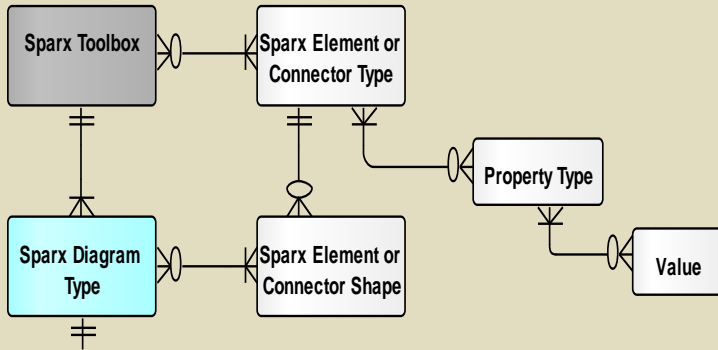
- **LoadMdgFrom** = MdgFiles
- **ActiveFolder** and **ProdFolder** point to the production folder (**web url** or **file system**)

For end users ActiveFolder and ProdFolder must have the same value.



# Behind the scene: How it works

## Default Labnaf MDG (in AddIn)



Default shape scripts & images

Add shape scripts & images found in AddIn



Labnaf\_Custom\_QuickLinks.xml

## 3. Merge @ runtime

(when opening Test or Prod Repository)

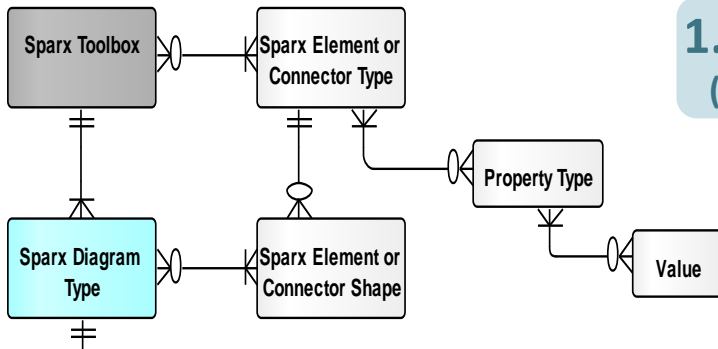
4. Update metamodel & generate connection rules

Labnaf\_Custom\_MDG.xml

## 2. Generate MDG

Labnaf\_Custom\_Dev.eap

## Startup Labnaf MDG



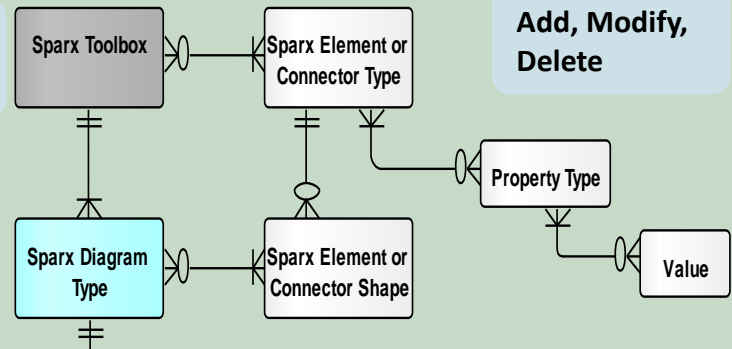
No shape script; No image

1. Customize (development)



Labnaf\_Custom\_Dev.eap

## Customized Labnaf MDG



Optionally new shape scripts & images

Add, Modify, Delete