

# Add-On Solution

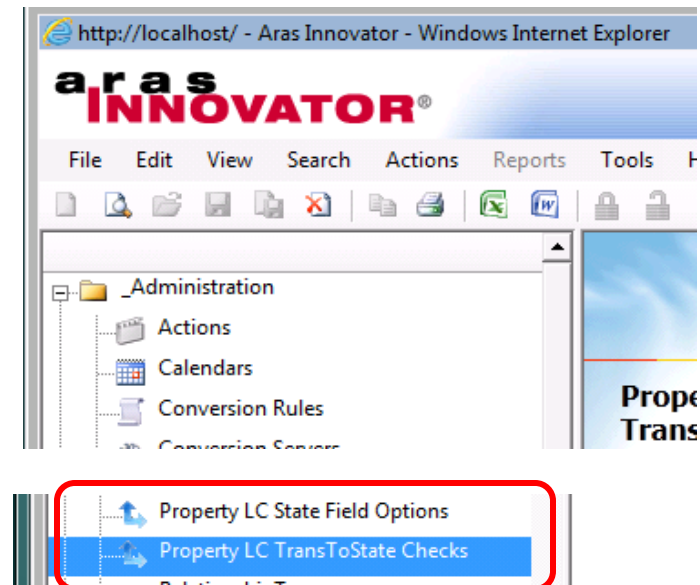
“Life Cycle Based Props and Fields  
vX-X”

# Introduction

- It is common that properties defined by ItemType should also be checked as required properties based on a Life Cycle state.
- It is also common that visibility and disabled status of data fields (bound to properties) on a form can be controlled by Life Cycle State and/or defined Identities (User Groups).
- Rather than writing custom logic for the above behavior a generic logic can be introduced to read additional property configurations.
- To do so the data model of „Property“ and „Life Cycle Transition“ was extended.
- The generic „Validation“ logic can then be used on Life Cycle pre-Transition Actions.
- A report can be used to run the validations manually.
- This add-on Solution Package contains an example that adds checks to Part status „Released“ (properties: make\_buy, cost).
- And to Form logic of „Part“ on various states (for properties/fields: make\_buy)

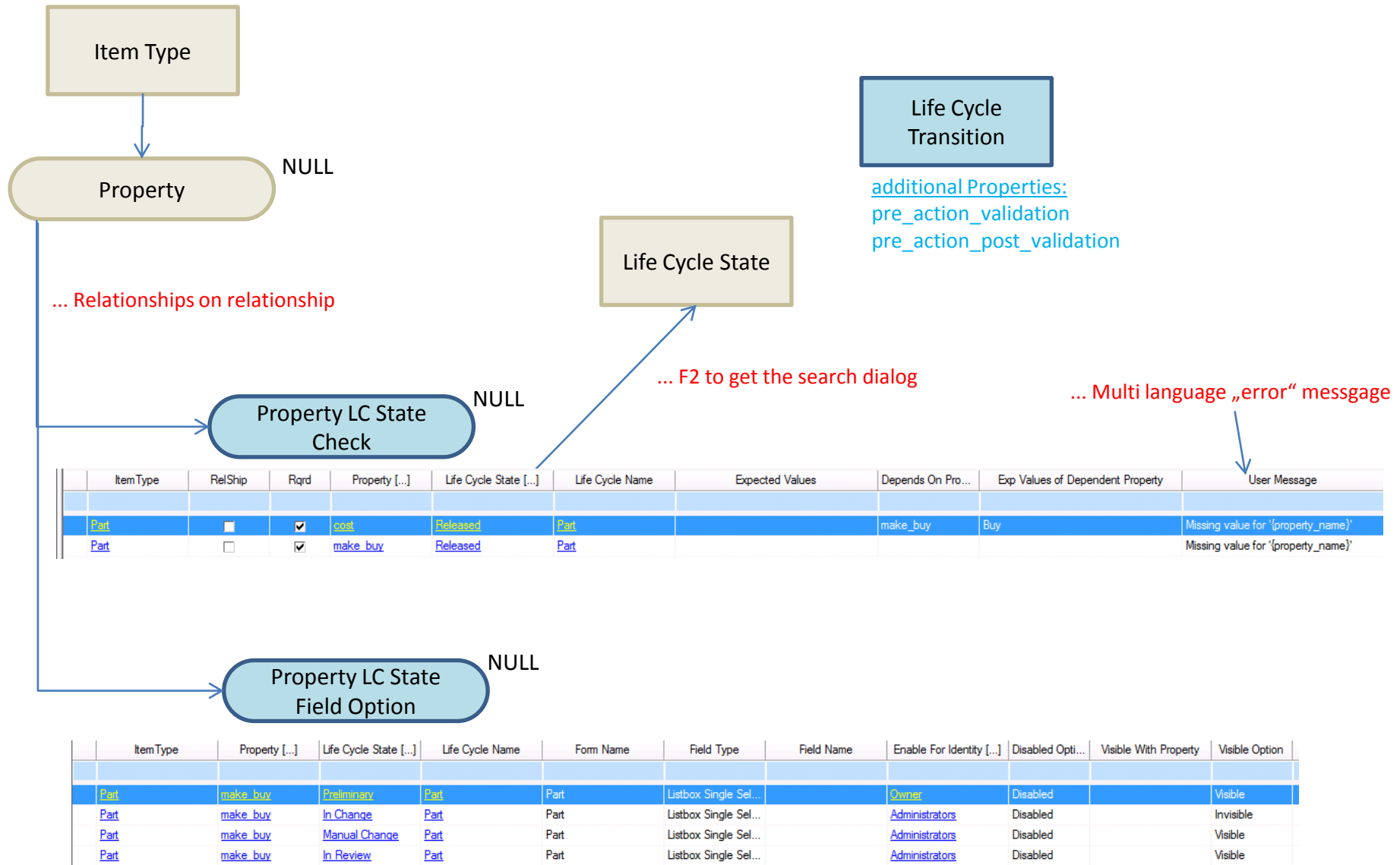
# Installation

- Download the current version of this Add-On-Solution „Life Cycle Based Props and Fields vX-X”
- Locate the ReadMe.txt and follow the instructions. You will need the import tool of the Aras Packaging Utilities.
- There will be 4 separate import step to do in the right sequence. For some you must use user „root” to connect to Aras for this others you can use „admin” as described in the ReadMe.txt.
- None of the import steps should cause any importing errors.
- After successful Installation log on as „admin” and expand the „Administration” folder. You should see these 2 new entries.
- These are the relationships connected to „Property” where you can define the rules per Property, ItemType and LifeCycle State (and Form Name for field display rules).
- You must lock the related ItemType and Property first to add new rules or to make modifications.



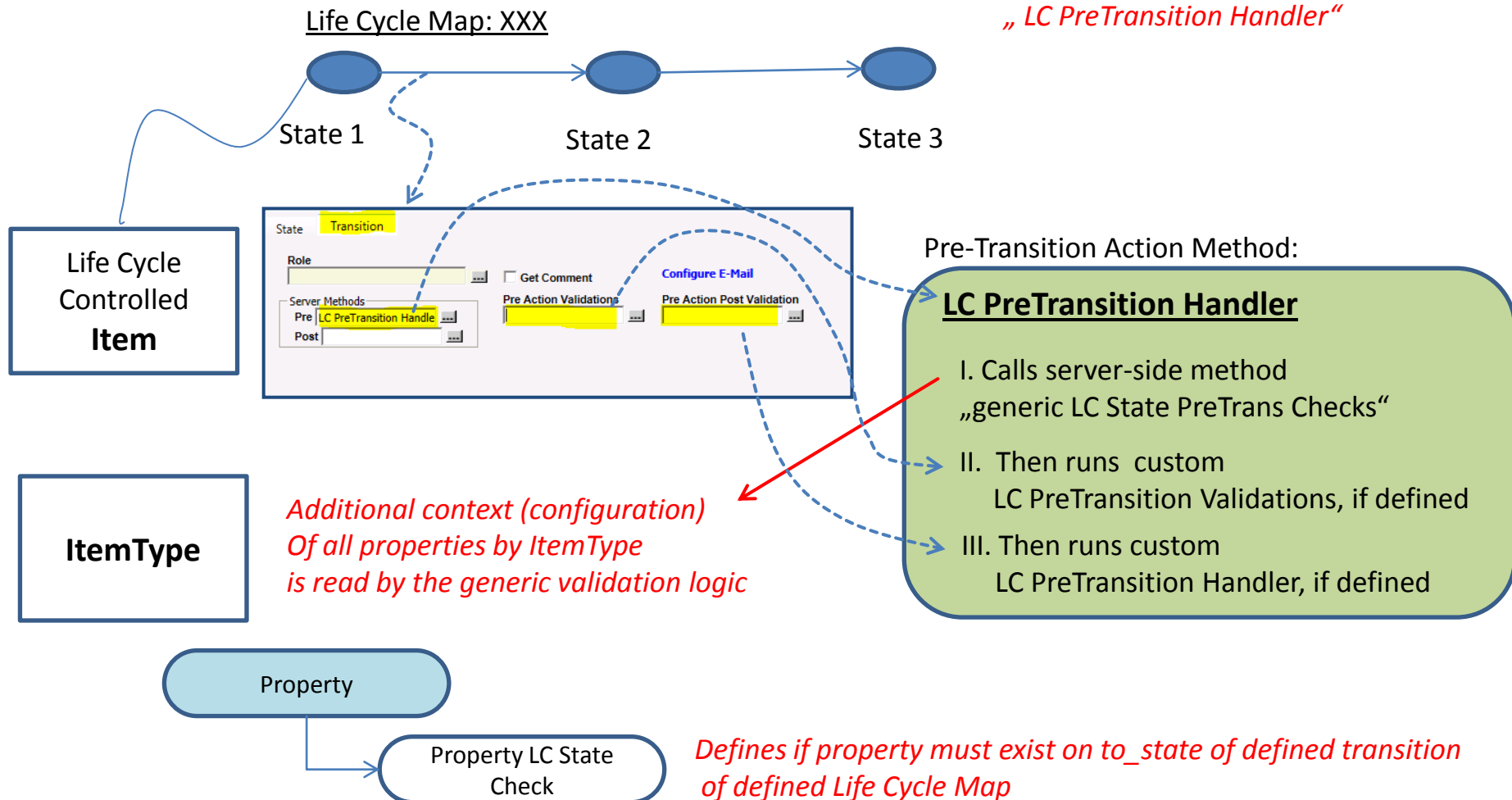
# Design Details

# Data Model Exenstions



# Add Validation Logic to Life Cycle Pre-Transition Action

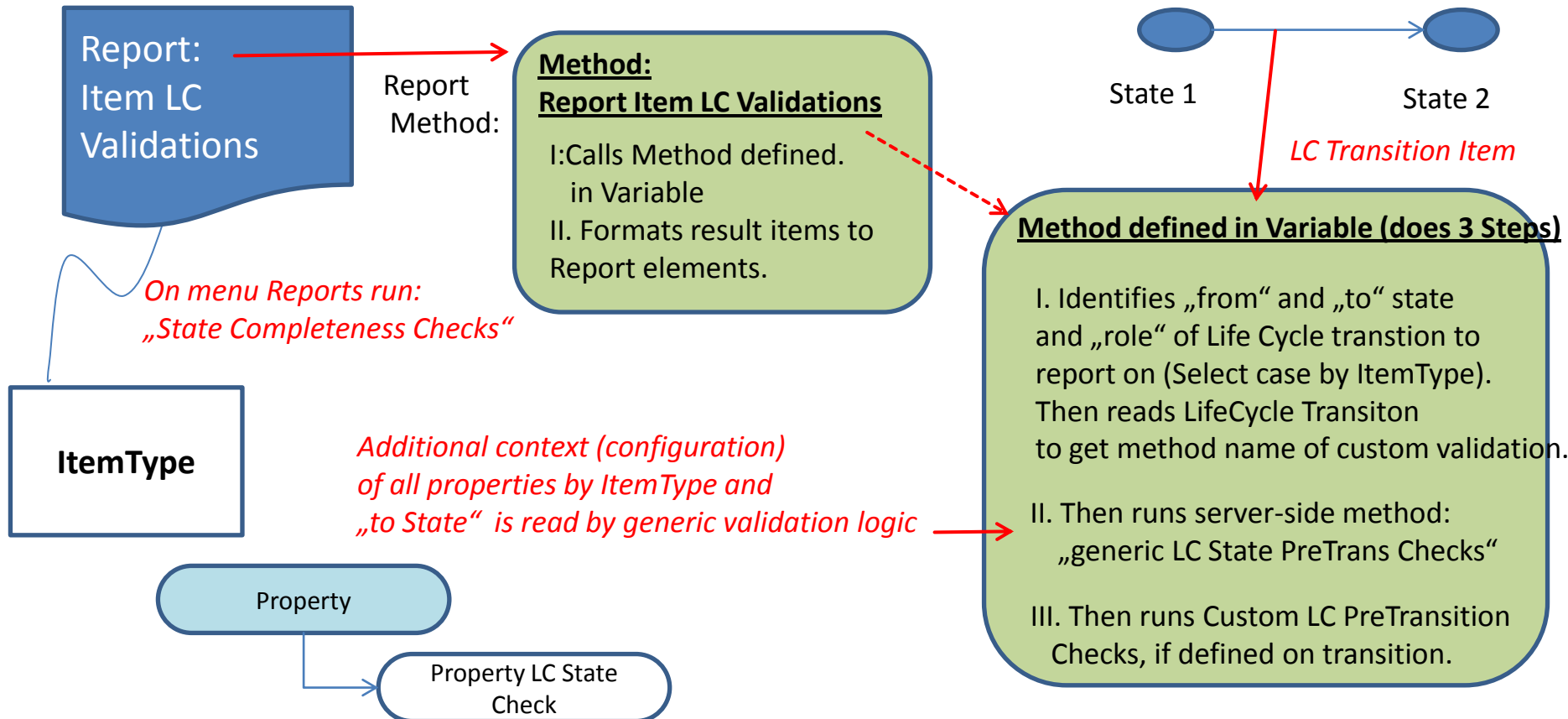
*Every Transition ending in the state **to be validated** (here State 2) must have the Pre-transition action set to „LC PreTransition Handler“*



# Item Completeness Report.

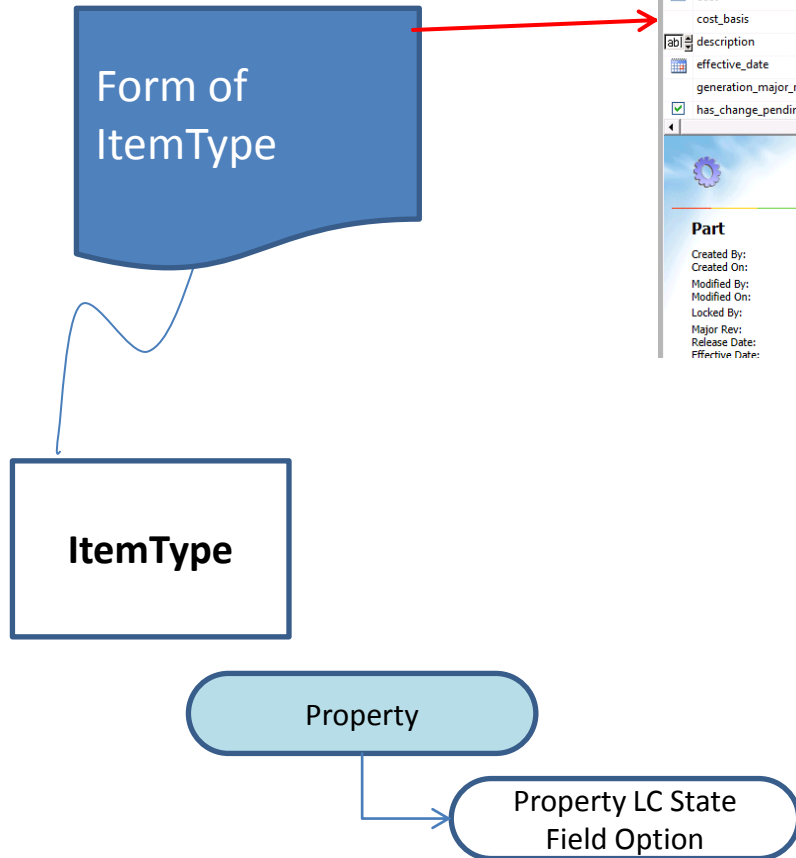
Default is: „Item LC Validation Report“  
.. Register your custom method here

**Variable:**  
„Item LC Validation Report Method“



# Form Fields disabling and visibility

*OnFormPopulated event*



The screenshot shows a web browser window with the URL 'http://localhost/ - Form - Part (read only) - Windows Internet Explorer'. The browser displays a form titled 'Part' with various fields including 'Part Number', 'Revision', 'State', 'Name', 'Type', 'Unit', 'Make / Buy', 'Cost', 'Long Description', 'Assigned Creator', 'Designated User', and 'Effective Date'. A table of events is visible in the background, listing various JavaScript functions and their associated events.

Name	Method Type	Ver	Execution Allowance	Comments	Event	Sort Order
Fill Form Fields	JavaScript	1	World		onFormPopulated	128
Show Goal Basis	JavaScript	1	World		onFormPopulated	256
Show Class-Specific Fields	JavaScript	1	World		onFormPopulated	512
PE_ShowCreateNewRevButton	JavaScript	1	World		onFormPopulated	768
CommonFormFuncs_API	JavaScript	1	World	a library of JS function to be used on a Form	onFormPopulated	800
Part Form Populate Logic	JavaScript	1	World	This is template how to include generic handling of visibility and disabling of form fields	onFormPopulated	801

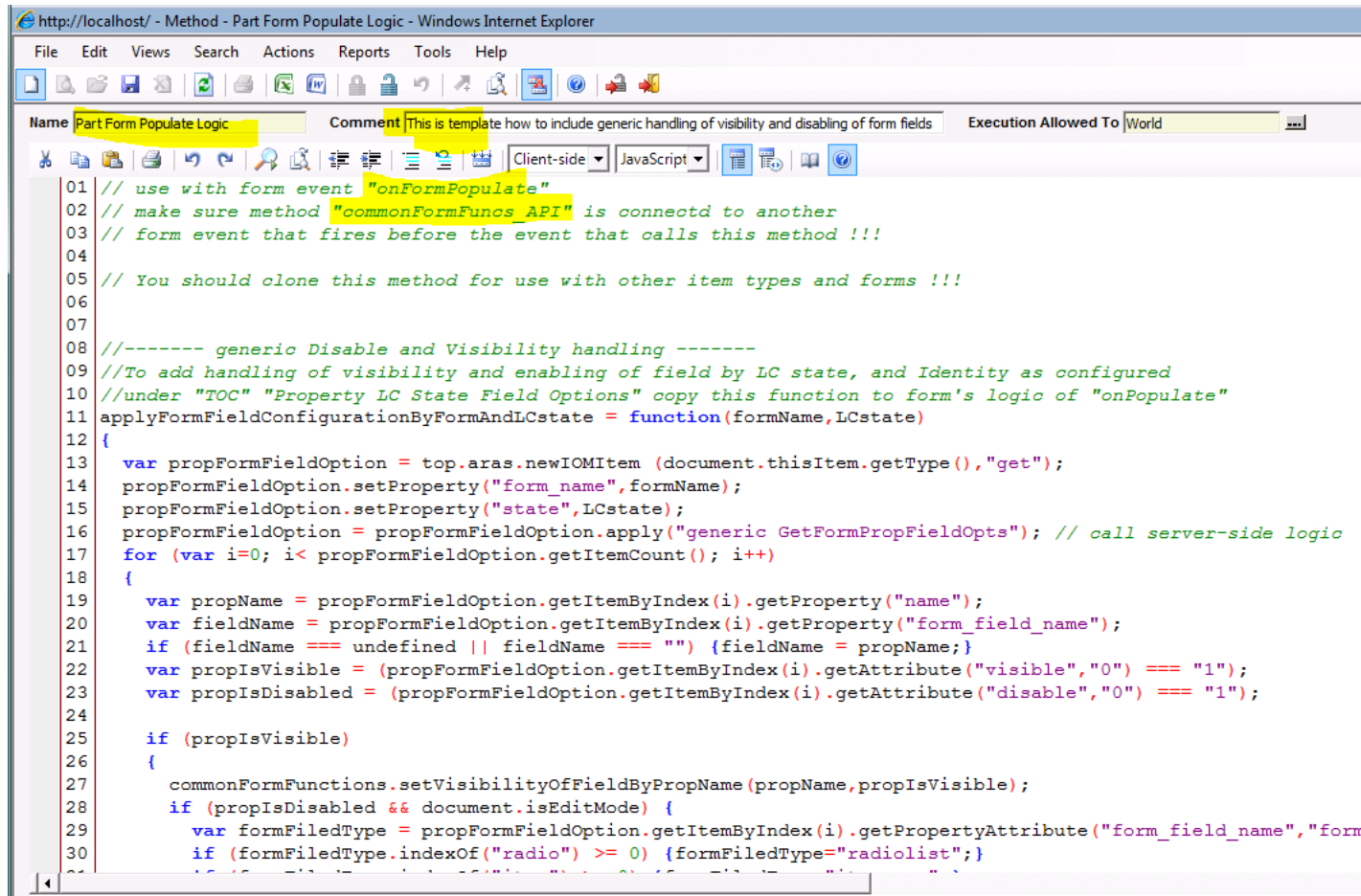
*The form populate logic must include a call to read and handle the rules for field visibility and disabling*

*Server side method „generic GetFormPropFieldOpts“ will evaluate the rules configured per Property, ItemType, Form and LifeCycle State*

*CommonFormFuncs\_API contains helper functions to disable, hide and iun-hide fields on Forms (by property names)*



# Example to use on Form Populate Logic



The screenshot shows a web browser window with the address bar displaying "http://localhost/ - Method - Part Form Populate Logic - Windows Internet Explorer". The browser's menu bar includes File, Edit, Views, Search, Actions, Reports, Tools, and Help. The toolbar contains various icons for file operations and development tools. Below the toolbar, there is a table with three columns: Name, Comment, and Execution Allowed To. The first row has the name "Part Form Populate Logic", a comment "This is template how to include generic handling of visibility and disabling of form fields", and "World" in the execution allowed to column. Below the table, there are dropdown menus for "Client-side" and "JavaScript". The main content area displays a JavaScript code snippet with line numbers from 01 to 34. The code is a template for handling form visibility and disabling. It starts with comments explaining its purpose and usage. The main logic is enclosed in a function named "applyFormFieldConfigurationByFormAndLCstate". Inside this function, it creates a "propFormFieldOption" object, sets its properties, and then iterates through the form fields. For each field, it checks if it is visible or disabled based on the "propIsVisible" and "propIsDisabled" flags. If visible, it calls "commonFormFunctions.setVisibilityOfFieldByPropName". If disabled and in edit mode, it sets the "formFiledType" to "radiolist" if the field type is "radio".

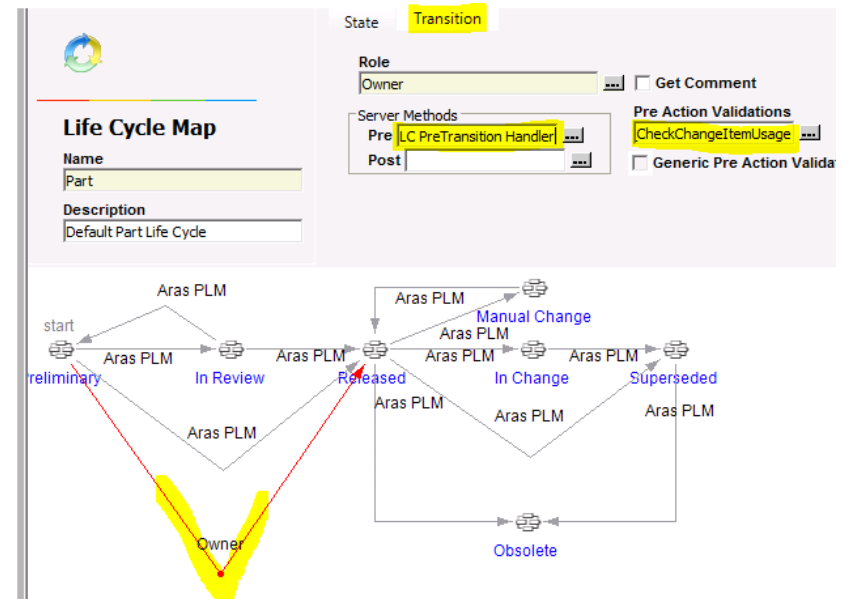
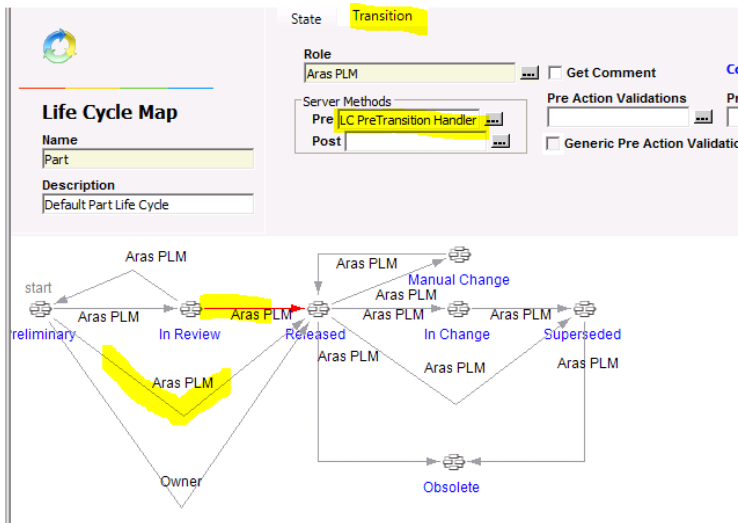
```
01 // use with form event "onFormPopulate"
02 // make sure method "commonFormFuncs_API" is connected to another
03 // form event that fires before the event that calls this method !!!
04
05 // You should clone this method for use with other item types and forms !!!
06
07
08 //----- generic Disable and Visibility handling -----
09 //To add handling of visibility and enabling of field by LC state, and Identity as configured
10 //under "TOC" "Property LC State Field Options" copy this function to form's logic of "onPopulate"
11 applyFormFieldConfigurationByFormAndLCstate = function(formName,LCstate)
12 {
13     var propFormFieldOption = top.aras.newIOMItem (document.thisItem.getType(),"get");
14     propFormFieldOption.setProperty("form_name",formName);
15     propFormFieldOption.setProperty("state",LCstate);
16     propFormFieldOption = propFormFieldOption.apply("generic GetFormPropFieldOpts"); // call server-side logic
17     for (var i=0; i< propFormFieldOption.getItemCount(); i++)
18     {
19         var propName = propFormFieldOption.getItemByIndex(i).getProperty("name");
20         var fieldName = propFormFieldOption.getItemByIndex(i).getProperty("form_field_name");
21         if (fieldName === undefined || fieldName === "") {fieldName = propName;}
22         var propIsVisible = (propFormFieldOption.getItemByIndex(i).getAttribute("visible","0") === "1");
23         var propIsDisabled = (propFormFieldOption.getItemByIndex(i).getAttribute("disable","0") === "1");
24
25         if (propIsVisible)
26         {
27             commonFormFunctions.setVisibilityOfFieldByPropName(propName,propIsVisible);
28             if (propIsDisabled && document.isEditMode) {
29                 var formFiledType = propFormFieldOption.getItemByIndex(i).getPropertyAttribute("form_field_name","form
30                 if (formFiledType.indexOf("radio") >= 0) {formFiledType="radiolist";}
31             }
32         }
33     }
34 }
```

# Using the Checks on standard „Part“

- The last step of the import packages will add the checking routines and the „completeness check report“ to itemType „Part“ and the life cycle states of life cycle map „Part“.
- In a similar way you can add the generic checks to other itemTypes and their relevant live cycle maps.
- **NOTE:**  
Variable „Item LC Validation Report Method“ must be set. The name of the method starting the „Item Completeness Check“ report must be listed here. The import package comes with a sample of this method. The logic of this method must be extended to support additional itemTypes that you may want to use it for.
- You can code your own logic for completeness checks and use your own method instead. The results should then be compatible with the „XSLT“ (stylesheet) used on the Report „[Item LC Validation Report](#)“.

# Adding checking logic to „Part“ Life Cycle

The method „**LC preTransition Handler**“ can be used on any pre-transition of a life-cycle. It will call the generic checking logic „**generic LC State Pre Trans Checks**“ to validate the property rules defined per life cycle state and ItemType. After execution of the generic checks it will then call the custom methods listed in „Pre Action Validation“ and „Pre Action Post Validations“.



# Report for „Completeness Checks“ to Part Added

http://localhost/ - ItemType - Part - Windows Internet Explorer

File Edit Views Search Actions Reports Tools Help

Name: Part  
Singular Label: Part  
Plural Label: Parts  
History Template: Default  
Default Structure View: Tab View  
Versioning: Versionable ☒  
Discipline: Automatic  
Revisions: Default  
Search: Auto Search ☐ Default Page Size: 25  
Max Records:   
Implementation Type: ☒ Single Item ☐ Poly Item ☐ Federated Item  
Unlock On Logout ☐  
Dependent ☐  
Is Relationship ☐  
Enforce Discovery ☒  
Use Src Access ☐  
Allow Private Permissions ☒

ItemType  
Class Structure  
Show Parameters Tab  
Never

Small Icon  
Select an image...

Large ICON  
Select an image...

Views Server Events Actions Life Cycles Workflows TOC Access TOC View Client Events Can Add Permissions Reports Poly Sources

Actions Pick Related

Name	Description	Type	Target	Method [...]	Location
Multilevel BOM Report		Item	One Window		Client
BOM Quantity Rollup Report		Item	One Window		Client
BOM Costing Report		Item			
PE_SearchPartCircularReferences	Find and list circular...	ItemType			
Item LC Validation Report		Item			

Ready

File Edit View Search Actions Reports Tools Help

Simple Search Page Size: 25 Max Results: Current

Name	Value	Default Value
AccountLockoutDuration_minutes		-1
AccountLockoutThreshold_triesNum		-1
Build	6	
DefaultLanguage	English	English
DefaultLocale	en-US	en-US
IncludedSolutions	PLM,Project.QP,PLM,Project.QP	
IR-016146	Patched	
IR-1526	DB is patched	
Item LC Validation Report Method	Item LC Validation Report	Item LC Validation Report
Logon Allowed To	World	World
MessageCheckInterval	900000	900000
PE_Impact_Matrix_expand	1	1
Preference Types	0BDF3A9BA8D94A18A016541653EA...	0BDF3A9BA8D94A18A0165...
Relationship Access Control	off	
Relationship Tabs	yes	

RelationshipTypes

- Replication Transactions
- Replication Transactions Log
- Reports
- Revisions
- Saved Searches
- Sequences
- SharePoint Libraries
- SQLs
- System Events
- System Events Log
- System Events Log Descriptor
- Teams
- Users
- Variables
- Vaults

# 2 Property Checks Added

http://localhost/ - Property - make\_buy (read only) - Windows Internet Explorer

File Edit Views Search Actions Reports Tools Help

**Property**

Name: **make\_buy**

Label: Make / Buy

Grid Visibility: Hidden On Main Search ☒ Hidden On Relationship ☒ Column Width: 100 Default Search:

Required ☐ Unique ☐ Indexed ☐ Read Only ☐ Data Type: List Data Source: Make Buy

Range: Min: Max: Inclusive ☐

Keyed Name Order: Order By: 1152 Sort Order: Pattern: Default Value: Make

Event: State specific Property Checks

State specific Form Fields Options

Item Type	RelShip	Life Cycle State [...]	Life Cycle Name	Rqrd	Property [...]	Expected Values	Depends On Pro...	Exp Values of Dependent Property	User Message
Part	<input type="checkbox"/>	Released	Part	<input checked="" type="checkbox"/>	make_buy				Missing value for "(property_name)"

For LC status „Released“ property „make\_buy“ is required.

An „expected value“ can be defined optionally.

The user message is a multi-Language text the will be reported, if check fails

http://localhost/ - Property - cost (read only) - Windows Internet Explorer

File Edit Views Search Actions Reports Tools Help

**Property**

Name: **cost**

Label: Cost

Grid Visibility: Hidden On Main Search ☐ Hidden On Relationship ☒ Column Width: 80 Default Search:

Required ☐ Unique ☐ Indexed ☐ Read Only ☐ Data Type: Decimal

Precision: 19 Scale: 4 Range: Min: Max: Inclusive ☐

Keyed Name Order: Order By: 896 Sort Order: Pattern: Default Value:

Event: State specific Property Checks

State specific Form Fields Options

Item Type	RelShip	Life Cycle State [...]	Life Cycle Name	Rqrd	Property [...]	Expected Values	Depends On Pro...	Exp Values of Dependent Property	User Message
Part	<input type="checkbox"/>	Released	Part	<input checked="" type="checkbox"/>	cost		make_buy	Buy	Missing value for "(property_name)"

For LC status „Released“ property „cost“ is required, but only if property „make\_buy“ is set and has „expected“ value „Buy“

An „expected value“ for cost can also be defined optionally.

The user message is a multi-Language text the will be reported, if check fails

# For Form „Part“ rules to display or disable the „make\_buy“ field are added

This logic will only work for Forms bound to an ItemType !

By status of the item displayed in the form rules to disable and/or hide form fields can be defined.  
Disabled fields can be enabled for defined Identities.

This only works for form fields bound to a property of the item displayed !

The screenshot shows a web application interface for configuring a form. The top part displays the configuration for a form field named 'make\_buy'. The configuration includes a 'Name' field, a 'Label' field, a 'Grid Visibility' section with checkboxes for 'Hidden On Main Search' and 'Hidden On Relationship', a 'Column Width' field, a 'Default Search' field, a 'Required' checkbox, a 'Unique' checkbox, an 'Indexed' checkbox, a 'Read Only' checkbox, a 'Data Type' dropdown menu set to 'List', a 'Data Source' dropdown menu set to 'Make Buy', a 'Range' section with 'Min' and 'Max' fields, an 'Inclusive' checkbox, a 'Keyed Name Order' field, a 'Pattern' field, an 'Order By' dropdown menu, a 'Sort Order' field set to '1152', and a 'Default Value' field set to 'Make'.

The bottom part of the screenshot shows a table with the following columns: Item Type, Life Cycle State [...], Life Cycle Name, Form Name, Field Type, Field Name, Enable For Identity [...], Disabled Opti..., Visible With Property, and Visible Option. The table contains four rows of data, all for the 'Part' item type.

Item Type	Life Cycle State [...]	Life Cycle Name	Form Name	Field Type	Field Name	Enable For Identity [...]	Disabled Opti...	Visible With Property	Visible Option
Part	Preliminary	Part	Part	Listbox Single Sel...	Owner	Owner	Disabled		Visible
Part	In Change	Part	Part	Listbox Single Sel...	Administrators	Administrators	Disabled		Invisible
Part	Manual Change	Part	Part	Listbox Single Sel...	Administrators	Administrators	Disabled		Visible
Part	In Review	Part	Part	Listbox Single Sel...	Administrators	Administrators	Disabled		Visible

# Testing the Checks on „Part“

http://localhost/ - Part - P1000 - Windows Internet Explorer

File Edit Views Search Actions Reports Tools Help

Part Number: P1000 Revision: A State: Preliminary Assigned Creator: Innovator Admin

Name: Part 1 Designated User:

Type: Unit: EA Make / Buy: Cost: Effective Date:

Long Description:

Created By: Innovator Admin  
Created On: 9/27/2012  
Modified By: Innovator Admin  
Modified On: 9/28/2012  
Locked By: Innovator Admin  
Major Rev: A  
Release Date:  
Effective Date:  
Generation: 3  
State: Preliminary

[Select an image...](#)

Create a new „Part“ and leave „Make/Buy“ and „Cost“ empty.

# State Completeness Checks Report

Save the new Part and then run this report...

The screenshot shows a software application with a menu bar (File, Edit, View, Search, Actions, Reports, Tools, Help) and a toolbar. The 'Reports' menu is open, showing options like 'PE\_SearchPartCircularReferences', 'Multilevel BOM Report', 'BOM Quantity Rollup Report', 'BOM Costing Report', and 'State Completeness Checks' (highlighted). Below the menu is a table with columns: Number, Revision, Name, Type, State, Cost, Changes. The table contains one row: 'A', 'Part 1', 'Preliminary', and a checkbox.

Below the application window is a web browser window titled 'http://localhost/ - Report: Item LC Validation Report - Windows Internet Explorer'. The report content is as follows:

**State Completeness Checks Report...** Status Transition from 'Preliminary' to 'Released'

Generated on: 9/28/2012

**Part:** P1000

**ERRORS:**

Message	Message Code
Missing value for Make / Buy	Check-2

**WARNINGS:**

Message	Message Code
This item is still locked by Innovator Admin	Check-1

A red box highlights the error message 'Missing value for Make / Buy' with the text: '... the generic check for transition to „Released“ detects that a value for „Make/Buy“ is missing'.

The browser status bar at the bottom shows 'Done', 'Trusted sites', 'Protected Mode: Off', and '100%'.



# Checking dependent Properties

... set a value for „Make/Buy“ save the part and run the Report again...

http://localhost/ - Part - P1000 - Windows Internet Explorer

File Edit Views Search Actions Reports Tools Help

Part Number: P1000 Revision: A State: Preliminary Assigned Creator: Innovator Admin

Name: Part 1 Designated User:

Type: Unit: EA Make / Buy: Buy Cost: Effective Date:

Long Description:

**Part**

Created By: Innovator Admin  
Created On: 9/27/2012  
Modified By: Innovator Admin  
Modified On: 9/28/2012  
Locked By: Innovator Admin  
Major Rev: A  
Release Date:  
Effective Date:

http://localhost/ - Report: Item LC Validation Report - Windows Internet Explorer

State Completeness Checks Report... Status Transition from 'Preliminary' to 'Released'

Generated on: 9/28/2012

Part: P1000

**ERRORS:**

Message	Message Code
Missing value for 'Cost'	Check-2

**WARNINGS:**

Message	Message Code
This item is still locked by Innovator Admin	Check-1

Done Trusted sites | Protected Mode: Off 100%

... the generic check for transition to „Released“ detects that a value for „Cost“ is missing

# Same Checks are applied on Life Cycle

... unlock the Part and do a „promote“ to „Released“

http://localhost/ - Part - P1000 (read only) - Windows Internet Explorer

File Edit Views Search Actions Reports Tools Help

Part Number: P1000 Revision: A State: Preliminary Assigned Creator: Innovator Admin

Name: Part 1 Designated User:

Type: Unit: EA Make / Buy: Buy Cost: Effective Date:

Long Description:

Created By: Innovator Admin  
Created On: 9/27/2012  
Modified By: Innovator Admin  
Modified On: 9/28/2012  
Locked By:  
Major Rev: A  
Release Date:  
Effective Date:

BOM BOM Structure Alternates AML Docur

Actions ▾ No Related ▾

Goal ▲ Target Estimated

Promote P1000 -- Webpage Dialog

To State

Released

... the generic check for transition to „Released“ detects that a value for „Make/Buy“ is missing

Error -- Webpage Dialog

Missing value for 'Cost'

Show Details OK Copy buffer

# Set all required Properties and the Checks will report „Success“

The screenshot displays a web application interface with two main windows. The top window, titled 'http://localhost/ - Part - P1000 (read only) - Windows Internet Explorer', shows a 'Part' details page. The 'Part' section includes metadata: Created By: Innovator Admin, Created On: 9/27/2012, Modified By: Innovator Admin, Modified On: 9/28/2012, Locked By: (blank), Major Rev: A, Release Date: (blank), and Effective Date: (blank). Below this, a table shows the 'Cost' with a 'Goal' of 100.0000 and a 'Target' of 100.0000. The 'Reports' menu is open, highlighting 'State Completeness Checks'. The bottom window, titled 'http://localhost/ - Report: Item LC Validation Report - Windows Internet Explorer', displays the 'State Completeness Checks Report...'. The report text reads: 'Generated on: 9/28/2012', 'Part: P1000', 'OK... Validation was successful.', 'Generated on: 9/28/2012', and a colon ':'.

Part Number: P1000  
Name: Part 1  
Type: (blank)  
Location: (blank)

Created By: Innovator Admin  
Created On: 9/27/2012  
Modified By: Innovator Admin  
Modified On: 9/28/2012  
Locked By: (blank)  
Major Rev: A  
Release Date: (blank)  
Effective Date: (blank)

BOM BOM Structure Alternate:  
Actions: No Related  
Goal: 100.0000 Target: 100.0000  
Cost: 100.0000

Reports Tools Help  
Multilevel BOM Report  
BOM Quantity Rollup Report  
BOM Costing Report  
PE\_SearchPartCircularReferences  
State Completeness Checks

Preliminary Innovator Admin  
Designated User

http://localhost/ - Report: Item LC Validation Report - Windows Internet Explorer

State Completeness Checks Report...

Generated on: 9/28/2012

Part: P1000

OK... Validation was successful.

Generated on: 9/28/2012

: