

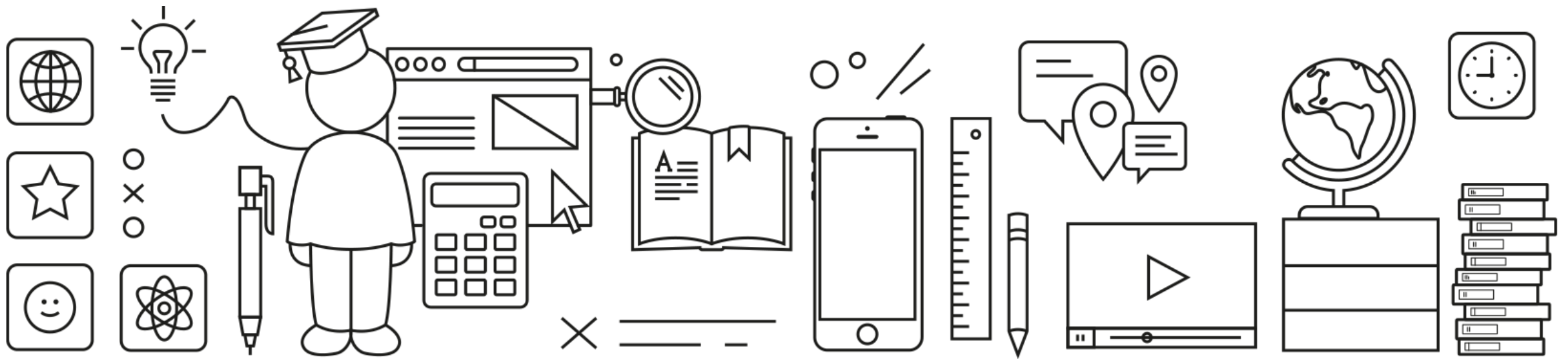


SAP Customer Experience

SAP Commerce Cloud Backoffice Framework

Developer Training

Orchestrate a Cockpit



Orchestration Overview

Orchestration Overview

Step 1: Create a New Cockpit

Step 2: Add Widget Instances

Step 3: Connect the Widget Instances

Orchestration Essentials

Exercise

What is Orchestration?

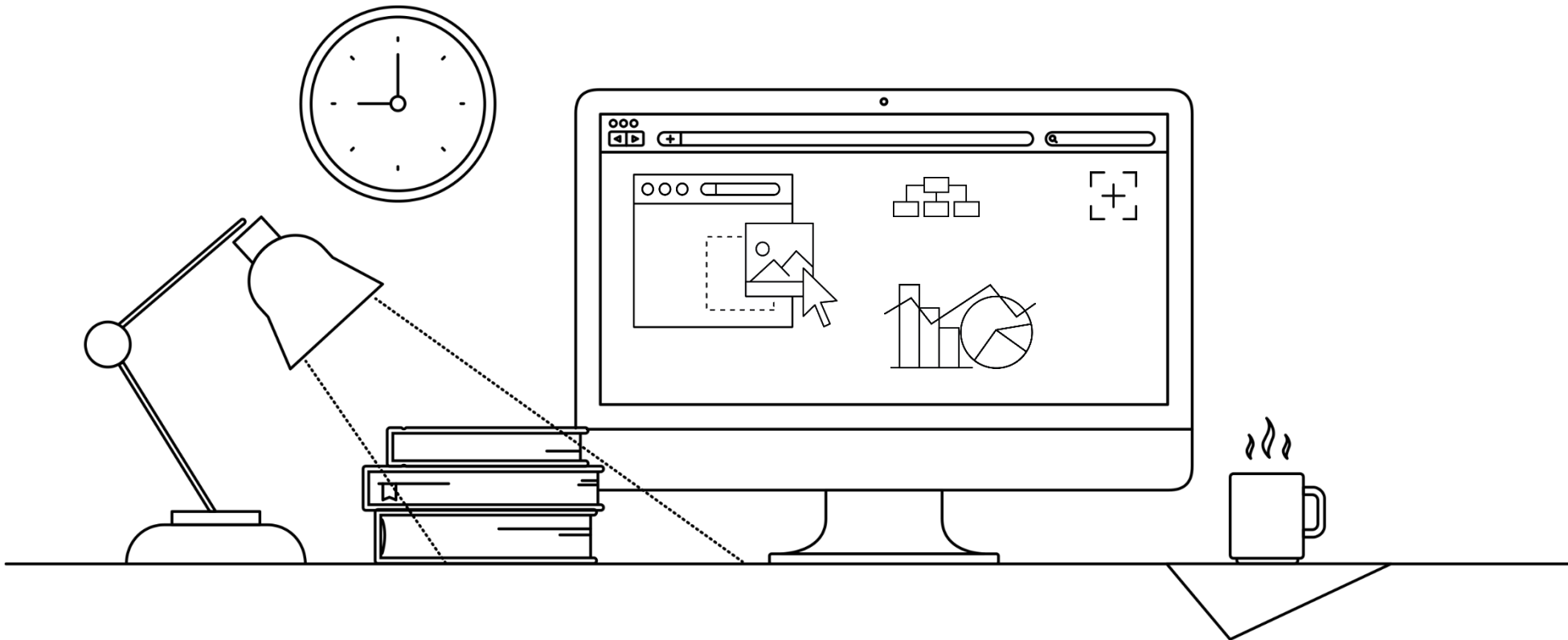
Orchestration – run-time process of combining two or more software components to automate a business process or synchronize data

- Integration approach that allows for decoupling applications and software components
- Provides message routing, security, data transformation, and reliability
- Allows for the central management and monitoring of your integrations

Orchestrating in Backoffice

Orchestrating a Backoffice cockpit is:

- building out one or more business processes by adding and connecting widgets
(*through Application Orchestrator or through widgets.xml*)



Steps to Orchestrate a Cockpit

1.



**Create a
New
Cockpit**

2.



**Add
Widget
Instances**

3.



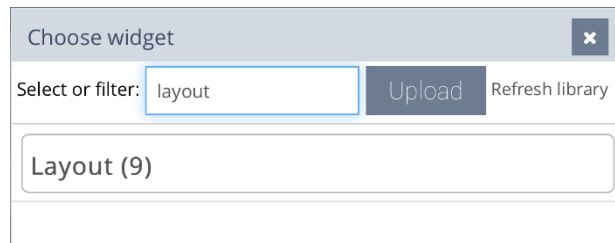
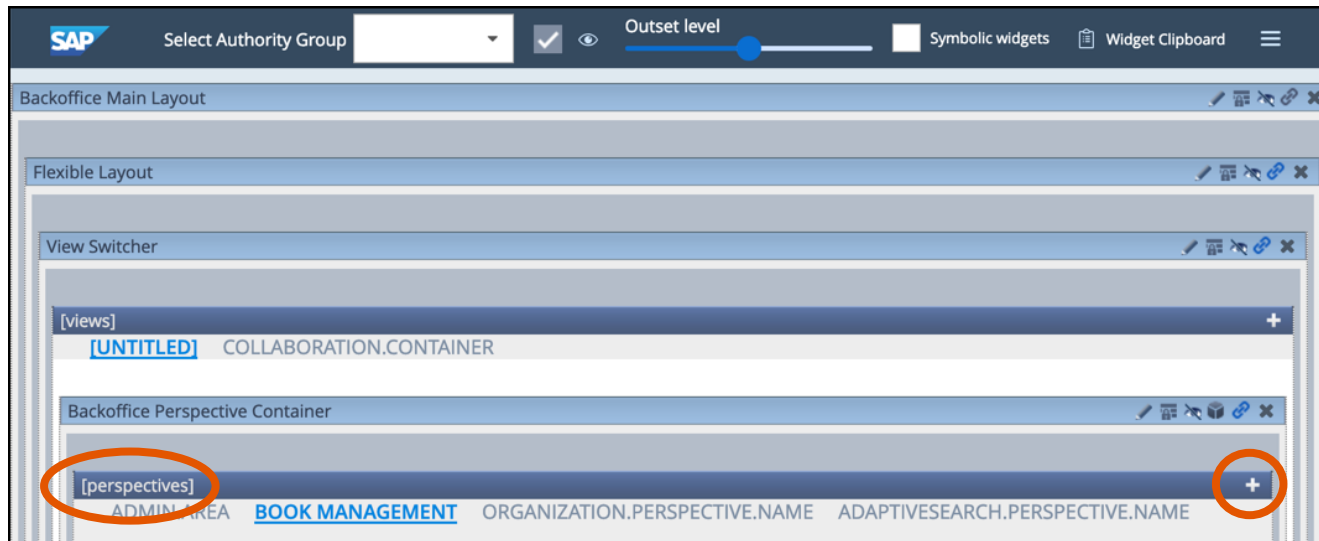
**Connect
the Widget
Instances**



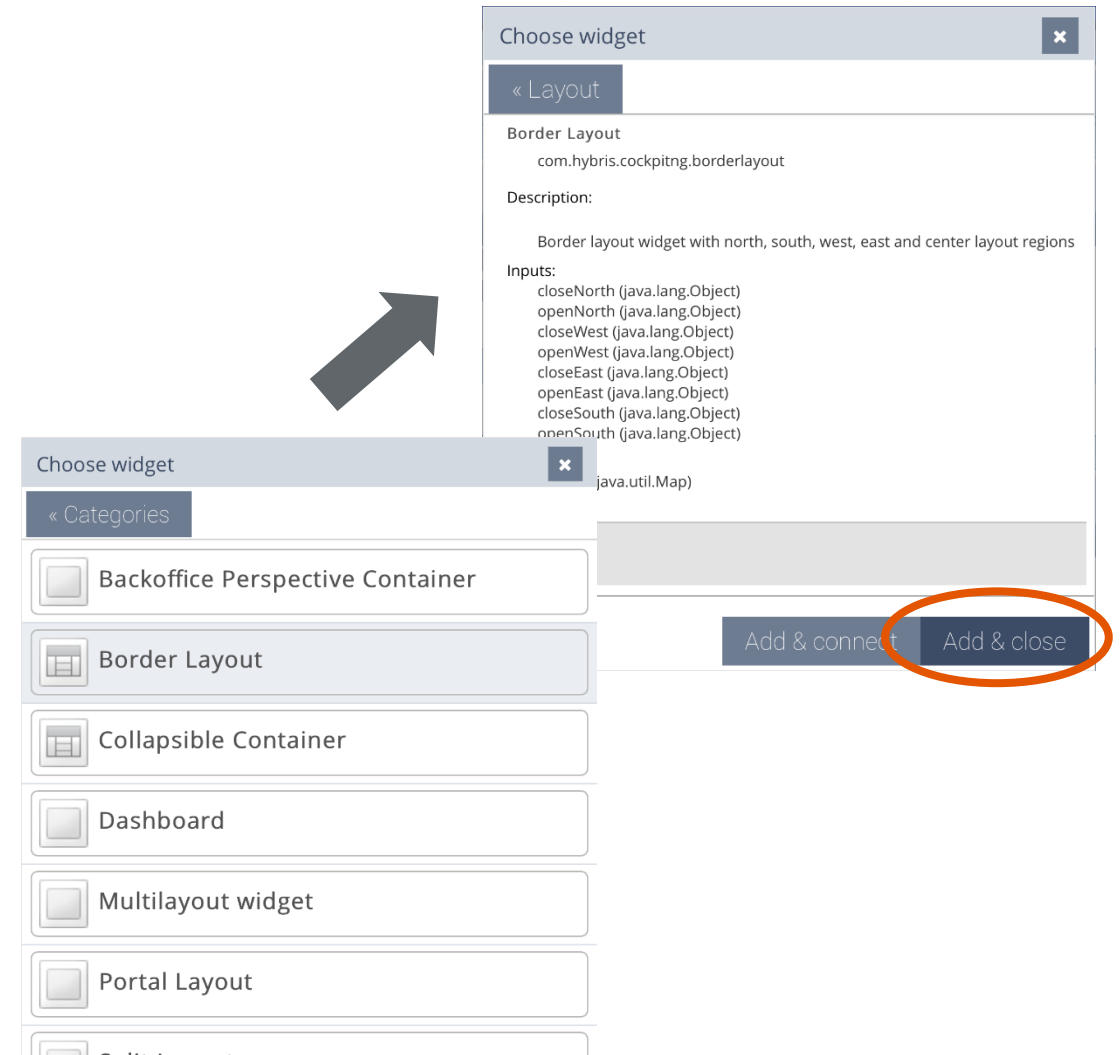
Step 1: Create a New Cockpit

Orchestration Overview
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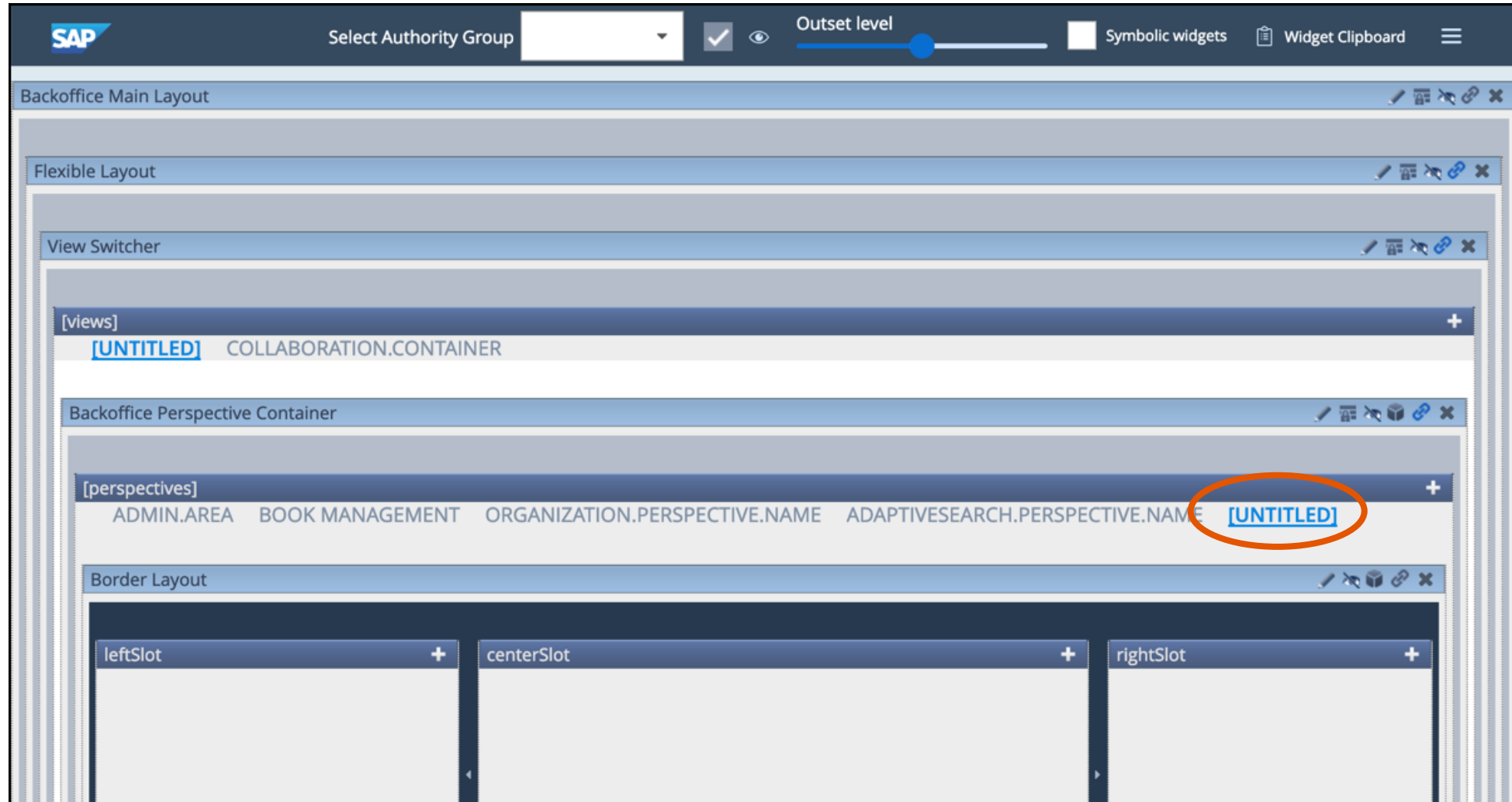
Step 1: Create a new Cockpit



Type the layout widget name directly, or filter by keyword, **layout**



Step 1: Create a new Cockpit – (continued)



Step 1: Create a new Cockpit - Settings

Configure settings for your new cockpit, such as

- Title (*tab display name*)
- Widget ID (for widget instance)
 - Needs to be unique
 - Replace autogenerated value to make it meaningful

Available settings will be determined by the specific widget

Settings for com.hybris.cockpitng.borderlayout

GENERAL LOCALIZATION VIRTUAL SOCKETS ACCESS RESTRICTION

Title: My Cockpit

Widget ID: custom-borderlayout-cockpit

autoCloseWest: false

border: none

broadcastHorizontalResize: true

centerBorder: none

eastBorder: none

ADD SETTING

CLOSE

Step 1: Create a new Cockpit - Generated XML

As you work in Application Orchestrator, you can display the merged `widgets.xml` file to view the XML that gets generated

- Search for your cockpit's XML code by its unique Widget ID (`mycustom-cockpit`)
- Cockpits can be identified in the XML by the `slotId="perspectives"` attribute on a `<widget ...>` tag
- All widget instances added to a cockpit can be found inside the cockpit's `<widget ...> </widget>` tags

`custombackoffice-backoffice-widgets.xml`

```
<widgets>
...
  <widget id="mycustom-cockpit" widgetDefinitionId="com.hybris.cockpitng.borderlayout"           slotId="perspectives"
title="Custom Layout Cockpit" template="false">
  <widget id="collapsible" ...
    ...
  </widget>
</widget>
...
</widgets>
```

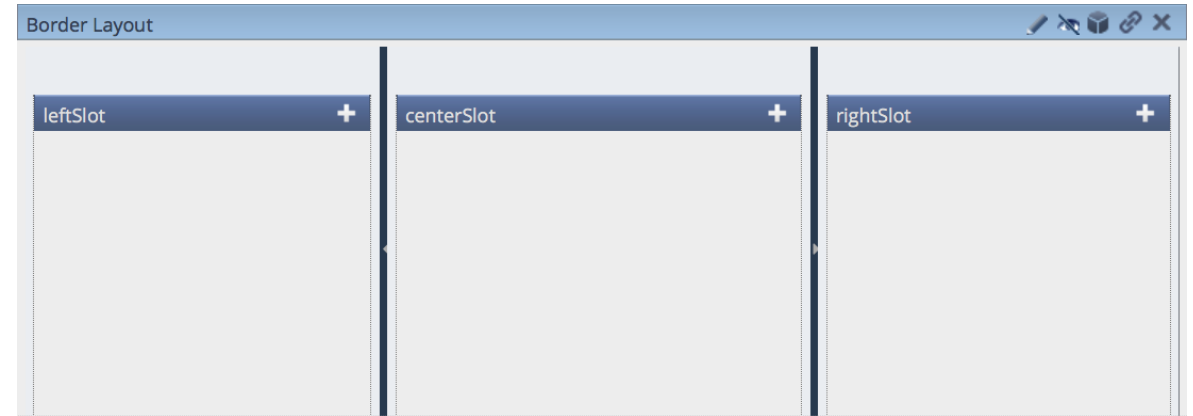
A Short Detour: Common Layout Widgets

Before we move on to [Step 2](#) : *How to Orchestrate a Cockpit*, let's take a look at some of the most common layout widgets that you can choose for your custom cockpit

Border Layout Widget

- Most common layout used
- Contains 5 slots: north(*top*), south(*bottom*), center, west (*left*), and east(*right*) for placing other widgets
- Lots of available widget settings
 - enable/disable specific slots
 - set slot widths
 - allow/disallow slots to be collapsible
 - apply a border
 - ...
- This is the layout used for the Administrator Cockpit

With *north* and
south slots
disabled



With *all* slots
enabled



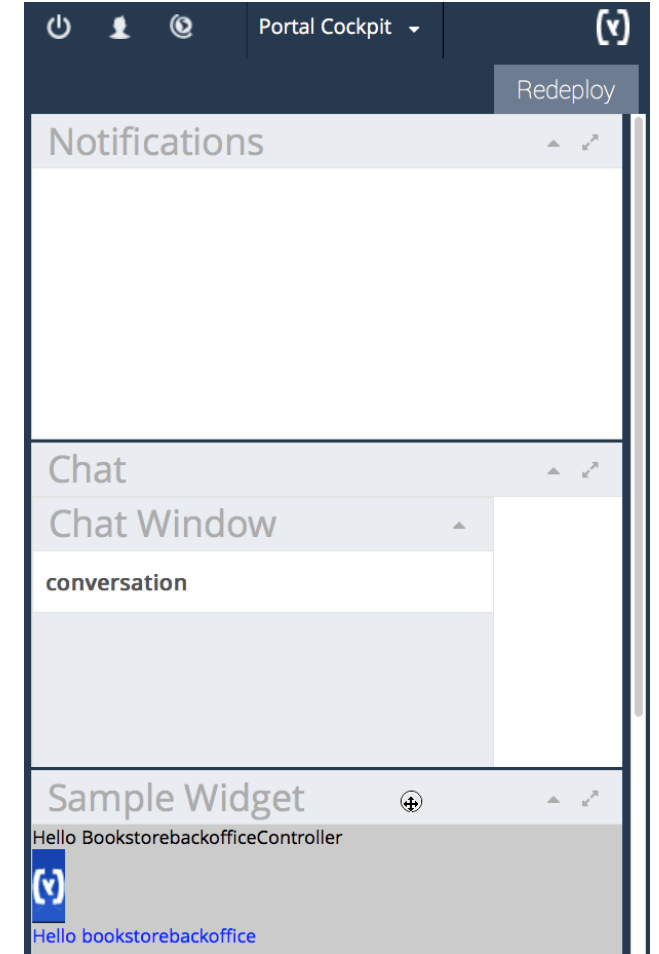
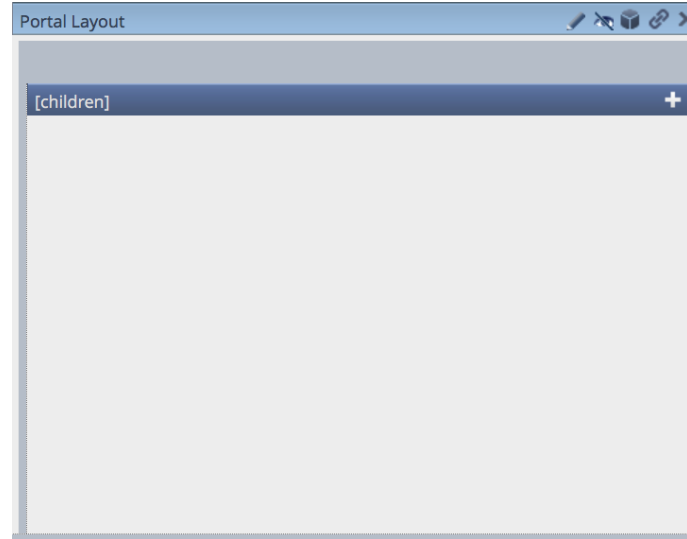
Collapsible Container Widget

- **2 or 3 slots that can be collapsed/expanded**
- **Settings**
 - enable/disable 3rd slot
 - title of each slot
 - height (of top & center slots) in %
 - allow locking
 - initial slot view state – collapsed/expanded
 - initial lock state of each slot – locked/unlocked



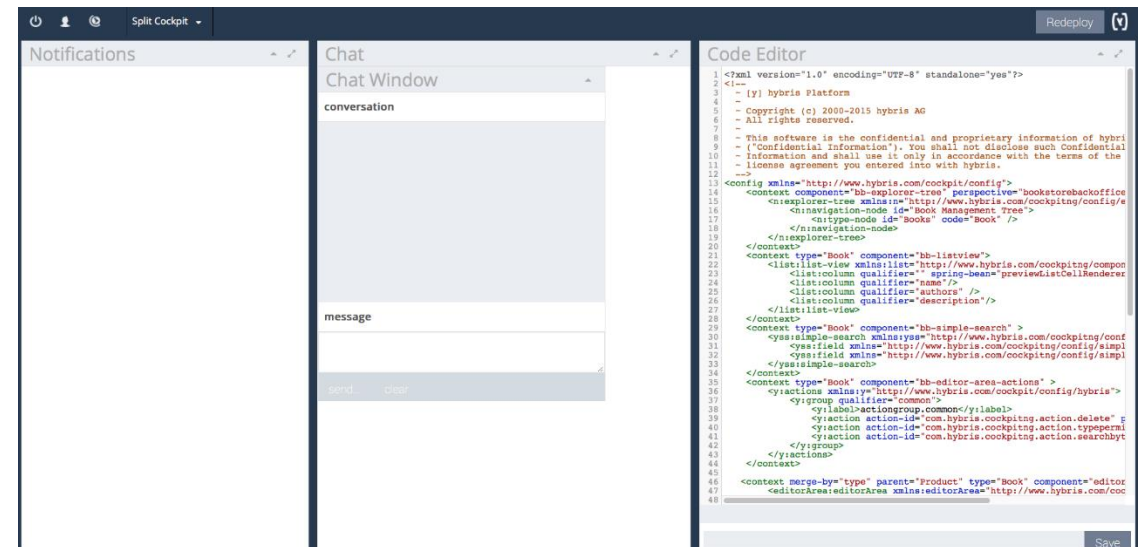
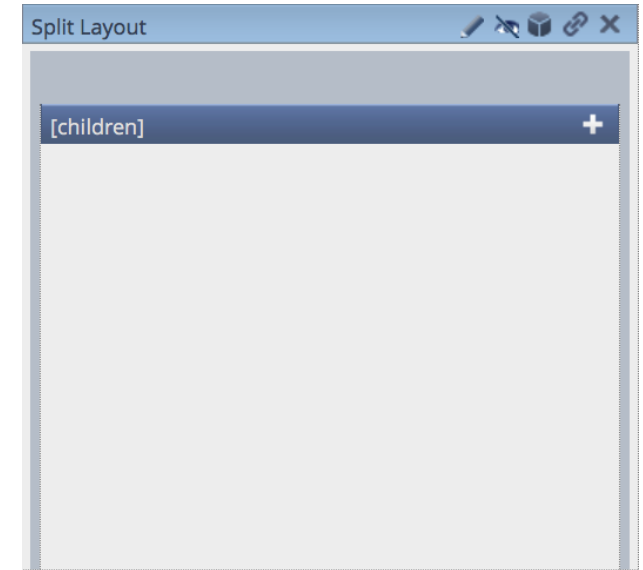
Portal Layout Widget

- No set layout! 1 large slot
- Add multiple widget instances to the slot
- Allows for dynamic layout by end user via drag and drop
- All widgets placed in the slot are automatically draggable



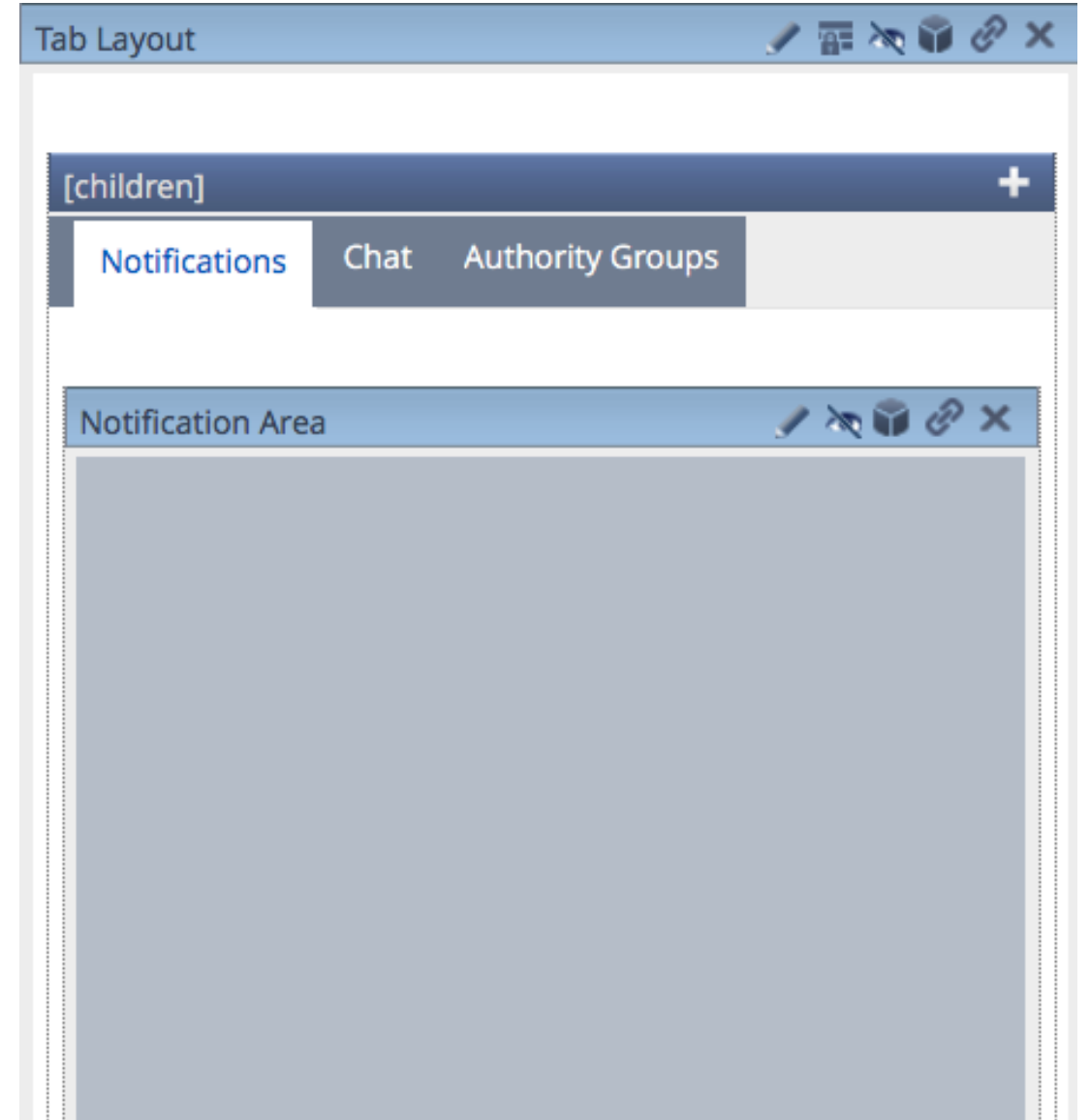
Split Layout Widget

- 1 slot for all widget instances
- All contained widget instances are separated by splitters
- End user can resize widget instances with splitter
- Settings
 - orient (*v_split* or *h_split*)



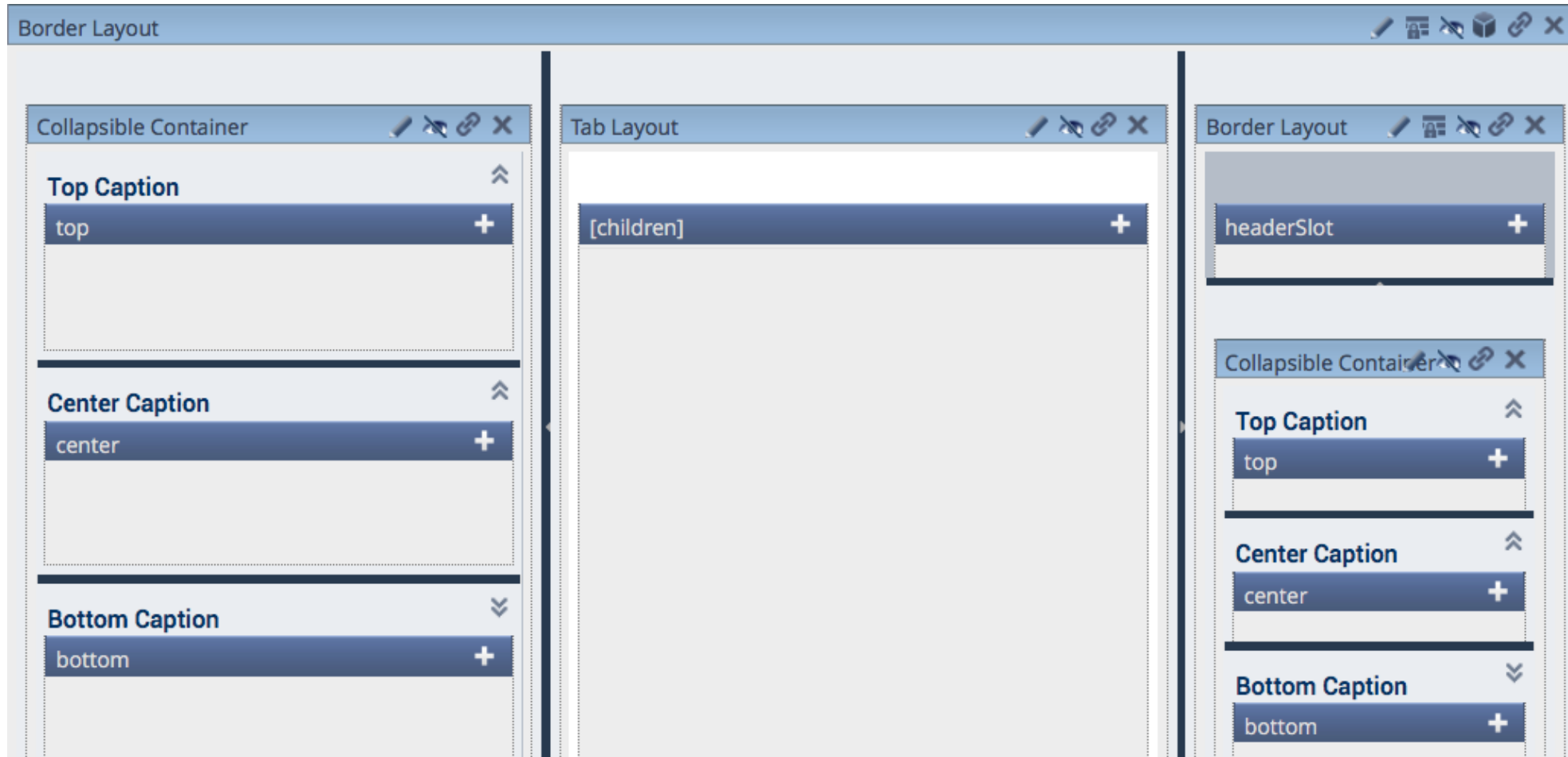
Tab Layout Widget

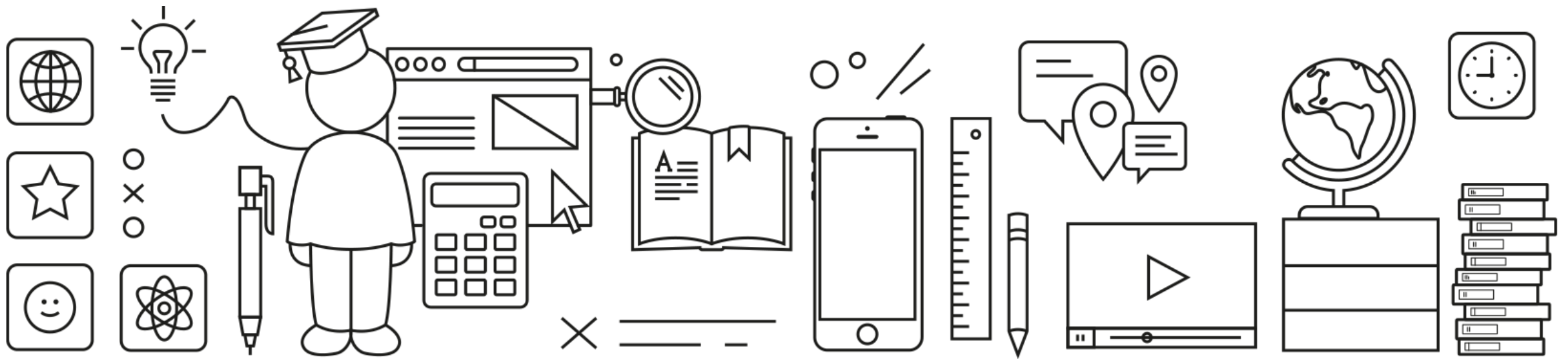
- 1 slot for all widget instances
- By default, renders contained widget instances as tabs
- Based on setting, can also render contained widgets as:
 - portal
 - list
 - h_split / v_split
 - ...
- Settings
 - type



Complex Cockpit Layouts

You can create complex cockpit layouts by nesting layout widgets

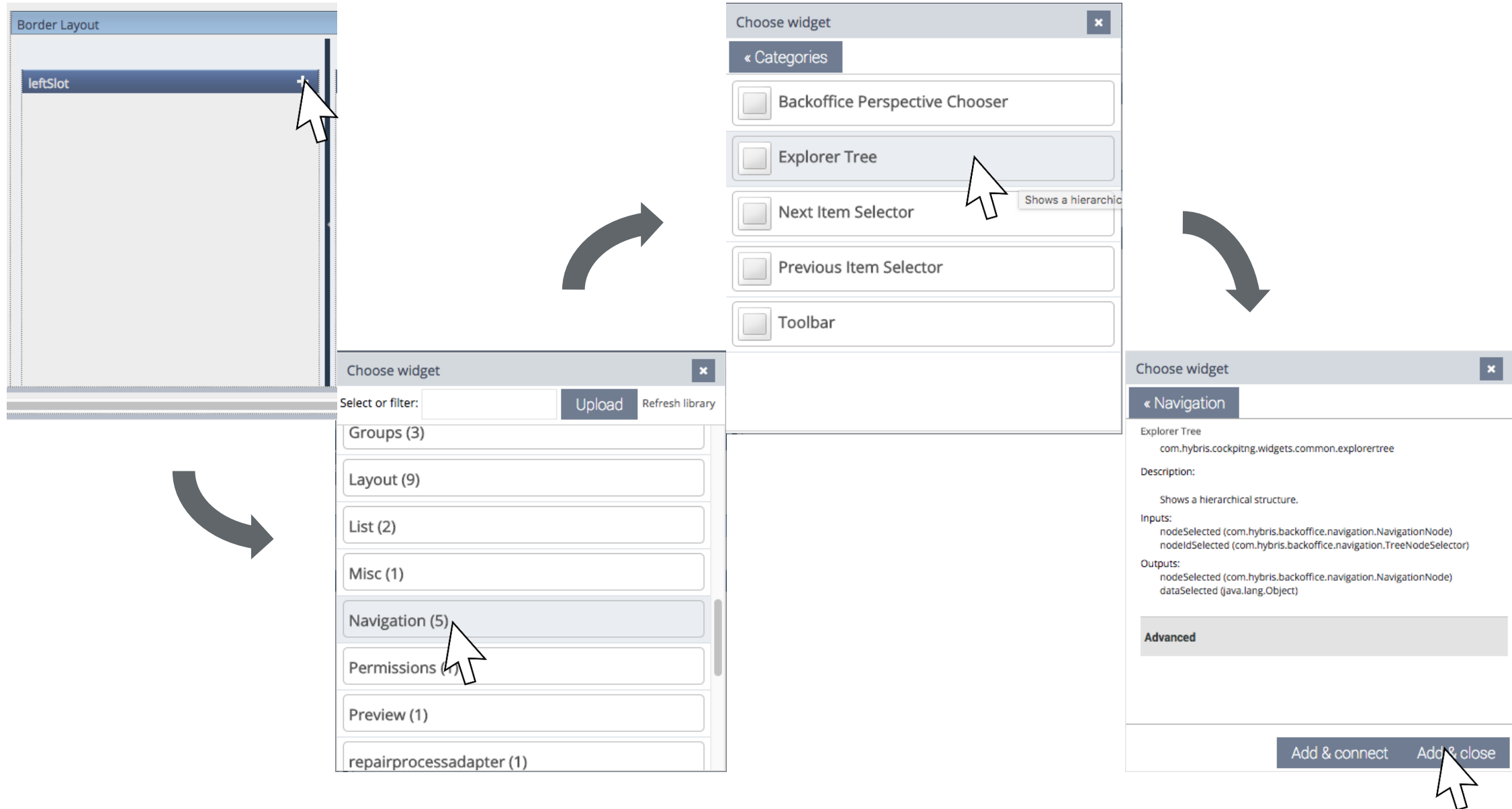




Step 2: Add Widget Instances

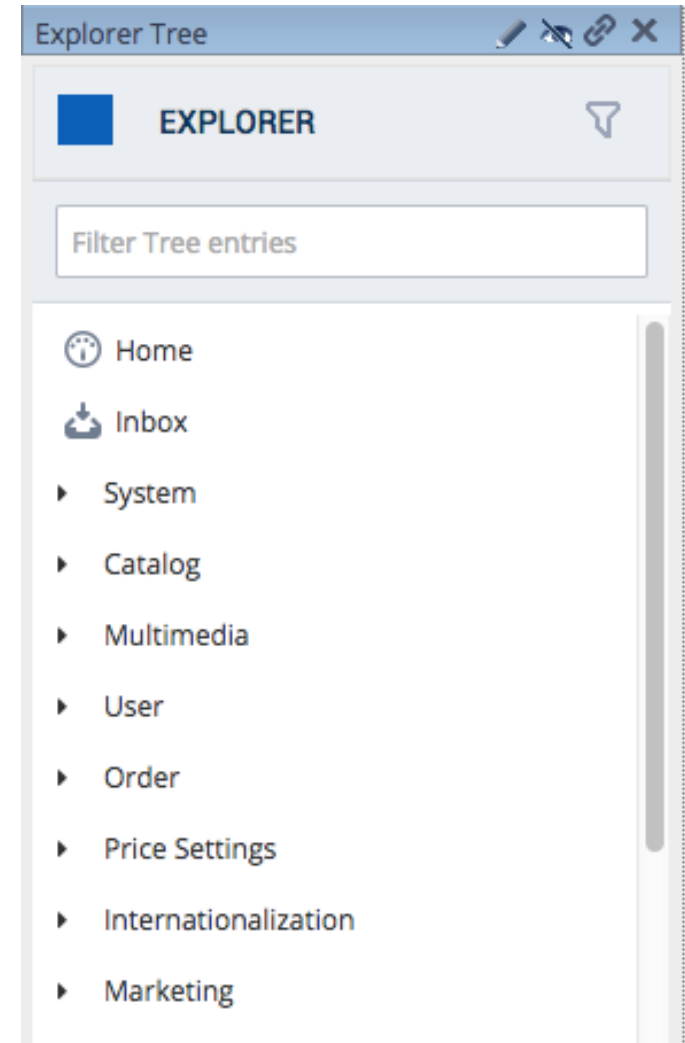
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Step 2: Add Widget Instances



Step 2: Add Widget Instances - ctd

Now you should see an instance of the widget you chose replacing the empty slot



Step 2: Add Widget Instances - Settings

Configure settings for the new widget instance, such as

- Title (*tab display name*)
- Widget ID (*needs to be unique*)

Settings for com.hybris.cockpitng.widgets.common.exploretree

General Localization Virtual sockets Access Restrictions About

Title: My Custom Explorer

Widget ID: my-custom-explorer

allowFilteringEntries: true X

explorerTreeConfigCtx: explorer-tree X

widgetStyleAttribute: X

widgetStyleClass: X

Add Setting

Close

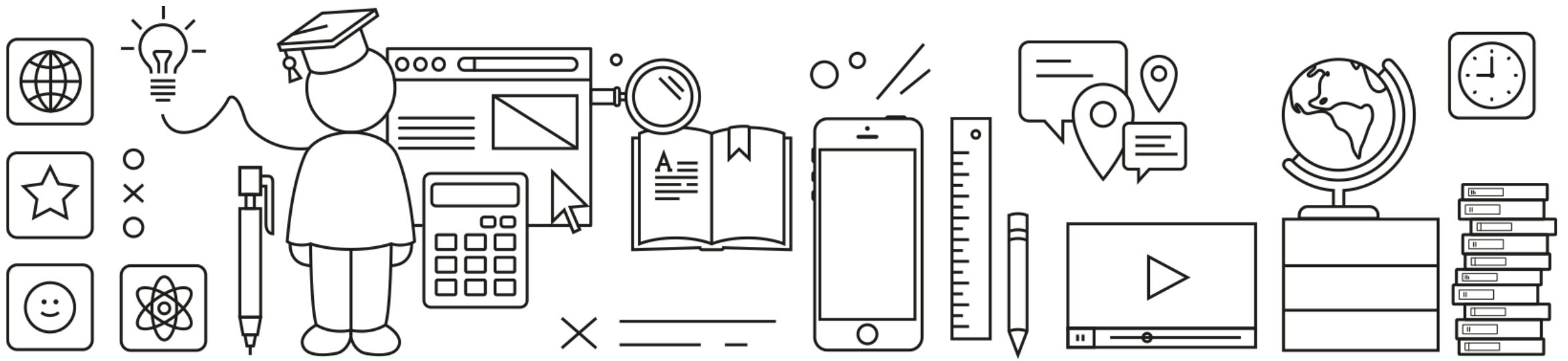
Step 2: Add Widget Instances - Generated XML

Similar to the layout widget, you can display the merged `widgets.xml` file to view the XML that gets generated for the new widget instance

- Search for the widget's XML code by its unique Widget ID (`my-custom-explorer`)
- All widget instances added to a cockpit can be found inside the cockpit's `<widget ...>` `</widget>` tags
- To preserve the changes, copy them to your `custombackoffice-backoffice-widgets.xml`

`custombackoffice-backoffice-widgets.xml`

```
<widgets>
...
  <widget id="mycustom-cockpit" widgetDefinitionId="com.hybris.cockpitng.borderlayout"           slotId="perspectives"
  title="Custom Layout Cockpit" template="false">
    <widget id="my-custom-explorer"
      widgetDefinitionId="com.hybris.cockpitng.widgets.common.explorertree"
      slotId="leftSlot" title="My Custom Explorer" template="false">
      ...
    </widget>
    ...
  </widget>
  ...
</widgets>
```



Step 3: Connect the Widget Instances

Orchestration Overview

Step 1: Create a New Cockpit

Step 2: Add Widget Instances

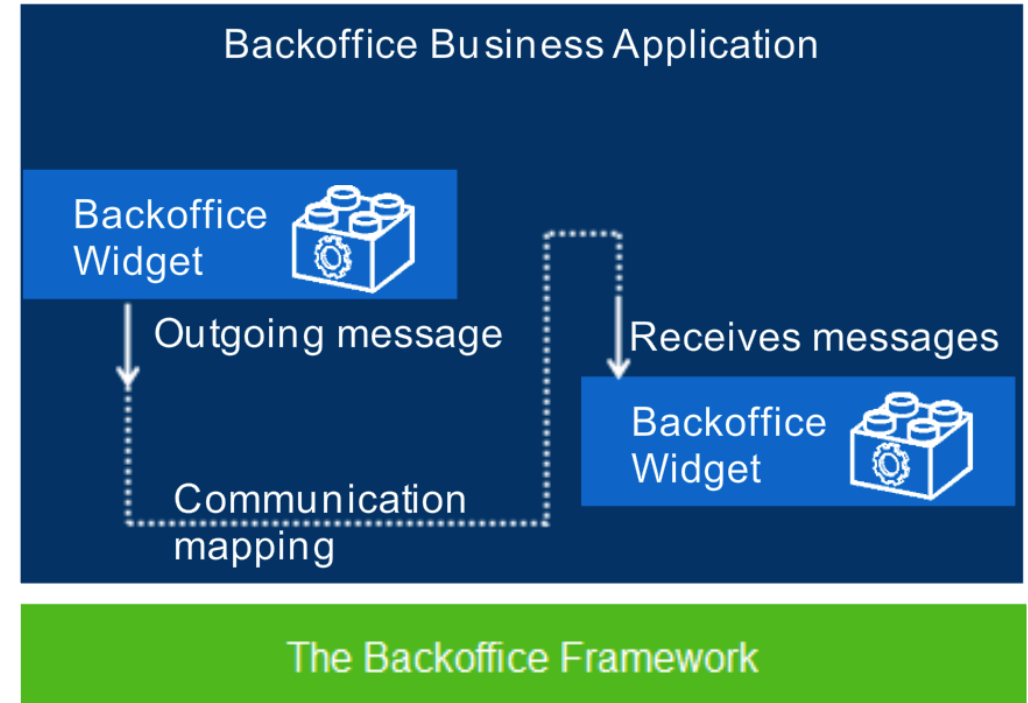
Step 3: Connect the Widget Instances

Orchestration Essentials

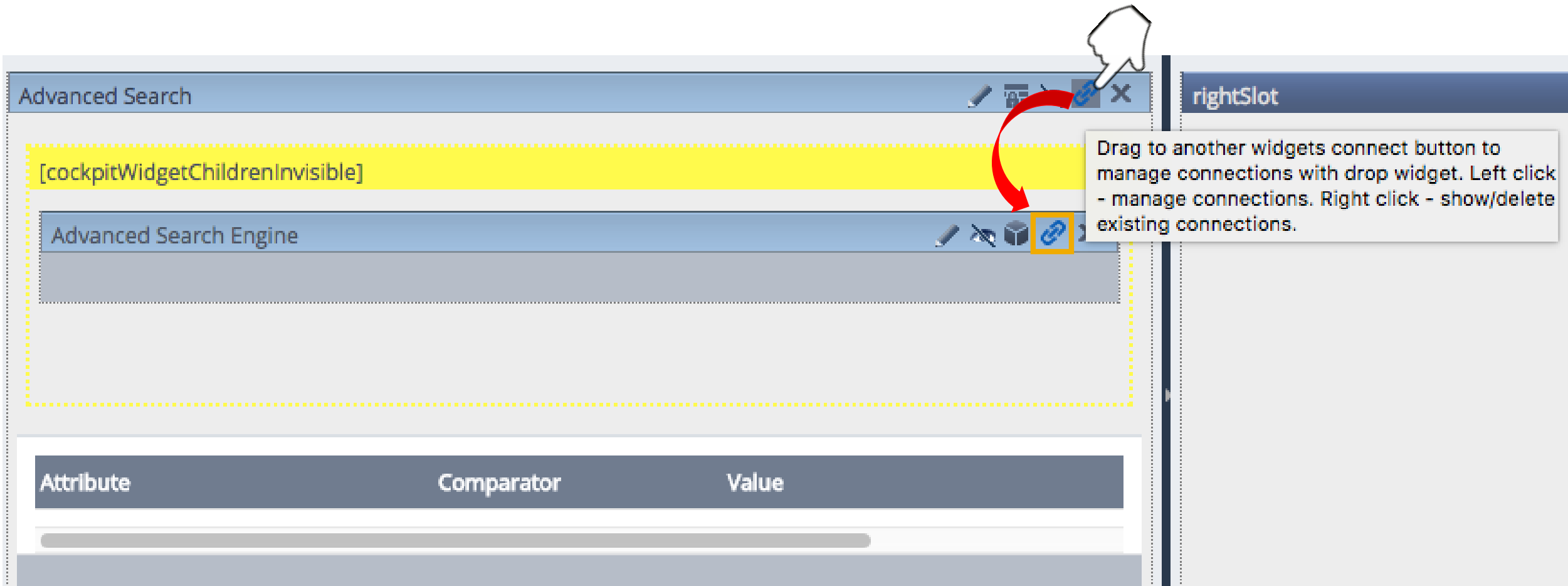
Exercise

Communication in Backoffice

- Widgets use input/output sockets to communicate
- To establish a connection, you should connect one widget's output socket to another's input socket
- For a connection to be feasible, the *data types* of the input/output sockets on both ends must match or be compatible



Step 3: Connect the Widgets



The screenshot shows a software interface for connecting widgets. On the left, a yellow dashed box contains two widgets: "Advanced Search" at the top and "Advanced Search Engine" below it. The "Advanced Search" widget has a toolbar with a blue chain icon. The "Advanced Search Engine" widget also has a toolbar with a blue chain icon. A red arrow indicates a drag-and-drop action from the chain icon of the "Advanced Search" widget to the chain icon of the "Advanced Search Engine" widget. On the right, a "rightSlot" is visible. A tooltip box is present, containing the text: "Drag to another widgets connect button to manage connections with drop widget. Left click - manage connections. Right click - show/delete existing connections."

Attribute	Comparator	Value

Step 3: Connect the Widgets – (continued)

Choose sockets to connect

Source: com.hybris.cockpitng.advancedsearch

autosuggestionQuery

Type: com.hybris.cockpitng.search.data.AutosuggestionQueryData

out

searchData

Type: com.hybris.backoffice.widgets.advancedsearch.impl.AdvancedSearchData

out

reset

Type: java.util.Map

out

Target: com.hybris.cockpitng.widgets.common.advancedsearchengine

searchData

Type: com.hybris.backoffice.widgets.advancedsearch.impl.AdvancedSearchData

in

Source	out socket	Target	in socket	

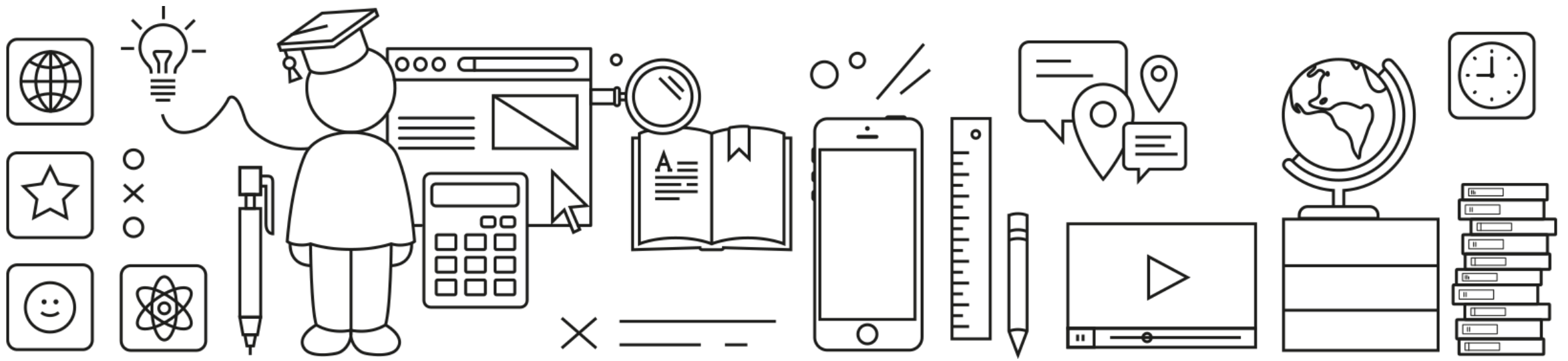
Step 3: Connect the Widgets – Generated XML

In Backoffice orchestrator mode, you can display the merged `widgets.xml` file to view the XML that gets generated for the new connection

- Search for either source or target widget's XML code by the unique Widget IDs (`custombackoffice-advancedsearch` or `custombackoffice-advancedsearchengine`)
- All widget connections are put inside `<widget-connection ...> </widget-connection>` tags
- To preserve the changes, copy them to your `custombackoffice-backoffice-widgets.xml`

Custombackoffice-backoffice-widgets.xml

```
...  
<widget-connection sourceWidgetId="custombackoffice-advancedSearch" outputId="searchData"  
    targetWidgetId="custombackoffice-advancedSearchEngine" inputId="searchData"/>  
...
```



Orchestration Essentials

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Widget Slots

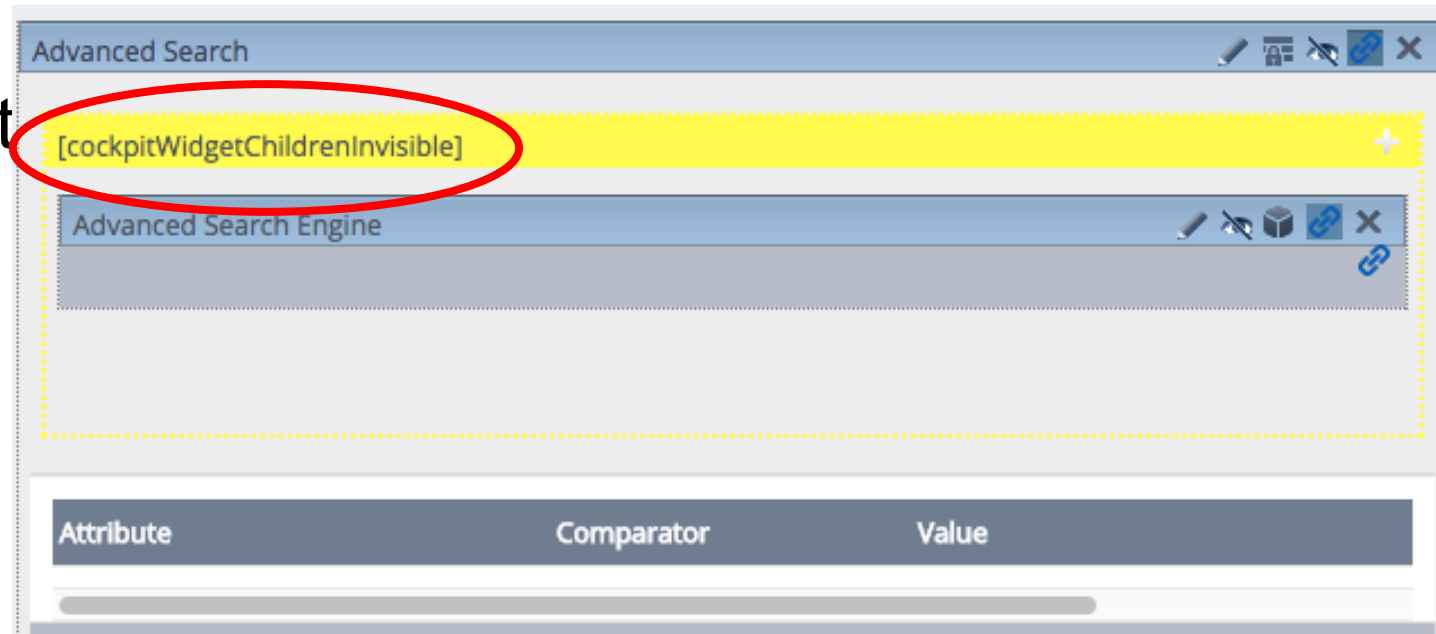
- Components defined in the view (.zul file) of a widget to which other widgets can be assigned
- Enable a widget to have child widgets
- Used to create composed widgets
- Used by the layouts to have different slots in different parts of the screen

some-widget.zul

```
<widget ...>
  ...
  <widgetslot slotId="additionalArea" width="100%" height="100%" />
  ...
</widget>
```

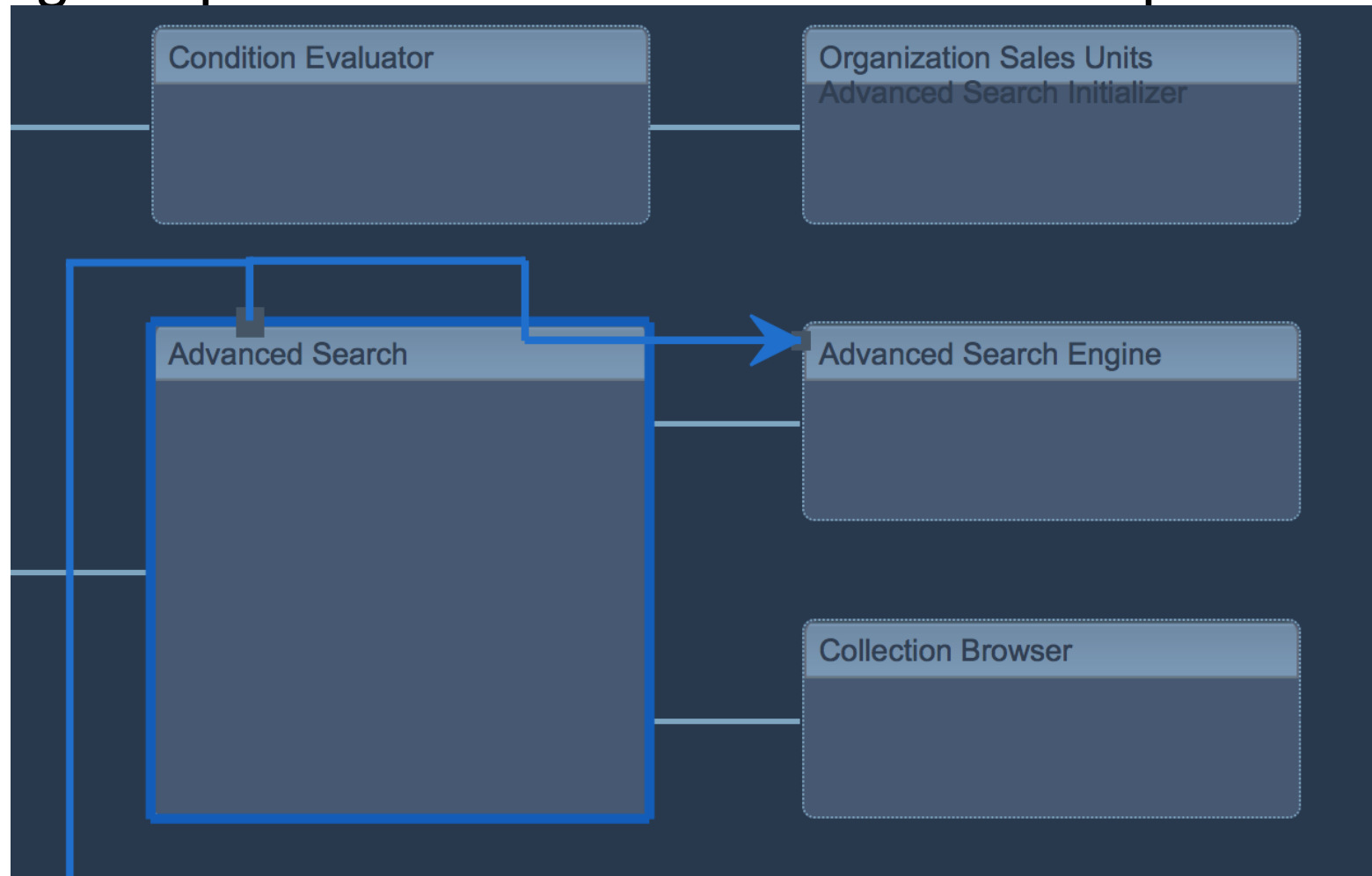
Invisible Widgets

- Many widgets have a single invisible slot called `cockpitWidgetChildrenInvisible`
- Any widget placed on this slot will NOT be displayed
- Only accessible through its sockets
- Used for holding widgets that do **only** data manipulation
- (thus, they have no need for a view)



Application Orchestrator – Symbolic View

Symbolic view is a good place to see connections and dependencies



Remember These Widget Types from the Recap?

Advanced Search

Explorer Tree

Collection Browser

Editor Area

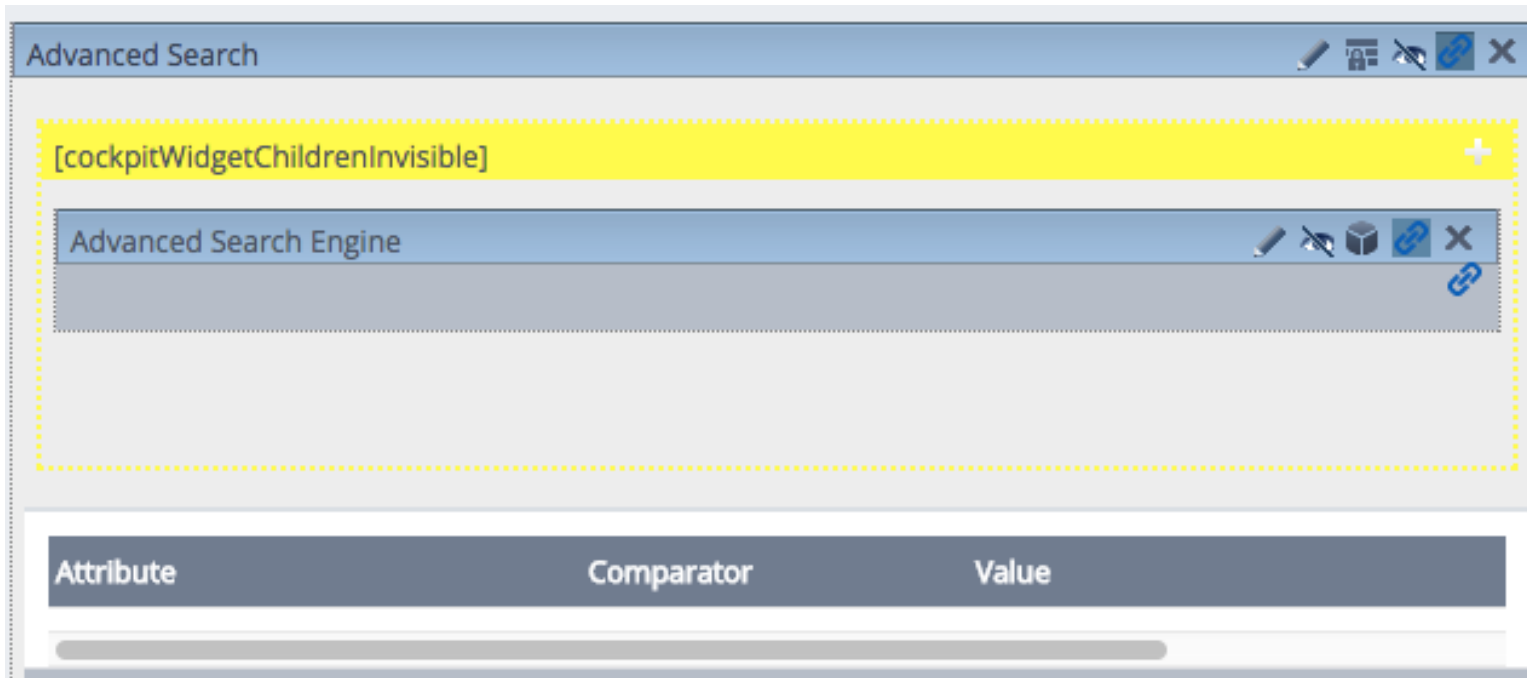
The screenshot displays the SAP Book Management Fiori application. The interface is divided into several sections:

- Explorer Tree:** Located on the left, it shows a hierarchical view of the application data, including 'Book Management Tree' and 'Book'.
- Advanced Search:** A search bar at the top center with a 'SEARCH' button.
- Collection Browser:** A table displaying a list of books. The table has columns for 'Identifier', 'Book.authors', and 'Catalog version'. The data is as follows:

Identifier	Book.authors	Catalog version
The Strange Case of the Disappearing hybris Website	[]	Bookstore Product Catalog : Staged
Wuthering Heights	Charlotte T. Bron [Charlotte T. Bron], Dale Carnaby [Dale Carnaby]	Bookstore Product Catalog : Staged
How to Make Friends and Infuriate People	Thomas Hardy [Thomas Hardy]	Bookstore Product Catalog : Staged
Two Gentlemen of Pamplona	William Rattlespear [William Rattlespear]	Bookstore Product Catalog : Staged
- Editor Area:** The bottom section, titled 'Title: "Object-Oriented Methodology for Labrador Breeders" - Bookstore Product Catalog : Staged'. It contains a 'PROPERTIES' tab and a form with fields for 'Article Number' (1210424959), 'Identifier' (Object-Oriented Methodology for La), 'Catalog version' (Bookstore Product Catalog : Staged), 'Approval' (approved), 'Image' (300Wx300H/generic-cover.jpg), and 'Book.publisher' (Hybris University Press).

Advanced Search Engine Widget

- A helper widget that executes the search on behalf of the *Advanced Search* widget
- Used together with the Advanced Search widget
- Put in the invisible slot: cockpitWidgetChildrenInvisible



Backoffice Space Management

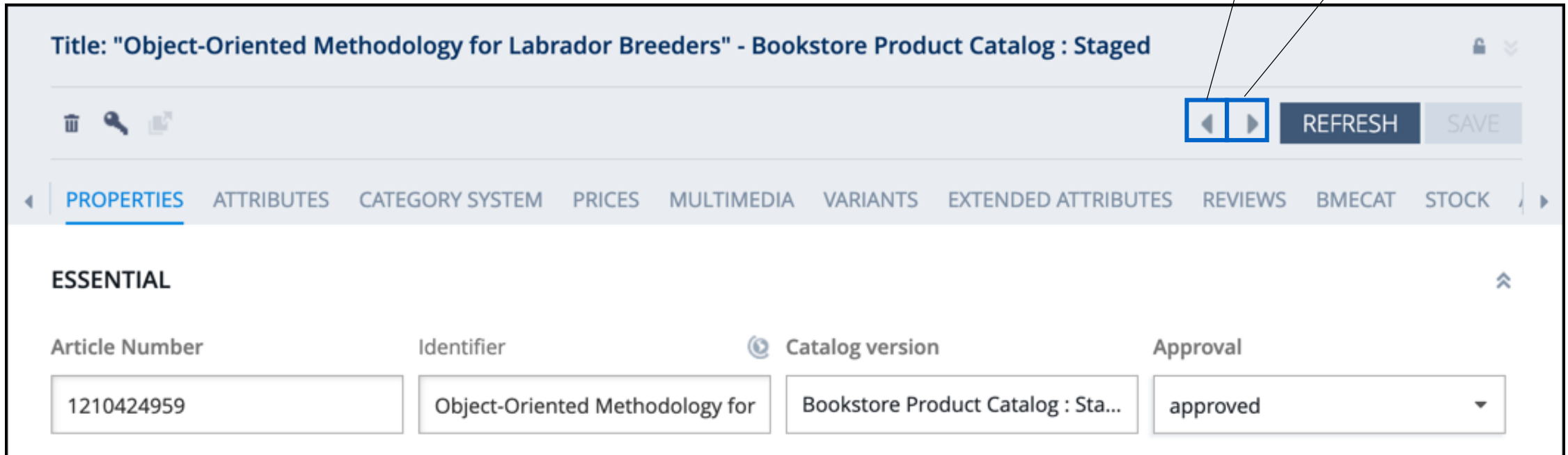
“The Backoffice Space Management widget enables you to automatically expand or collapse areas in the default Backoffice Application layout.”

End-user actions such as selecting a node in the navigation tree, triggering a search query, and selecting an item in the list have an impact on the visibility of the following widgets:

- Advanced Search Widget
- Collection Browser Widget
- Editor Area Widget

Previous/Next Item Selector

The Previous/Next Item Selector widget enables you to get the previous/next item's attributes in the Editor Area displayed.



The screenshot shows a web application interface for editing a product. At the top, a title bar displays "Title: 'Object-Oriented Methodology for Labrador Breeders' - Bookstore Product Catalog : Staged" with a lock icon and a dropdown arrow. Below the title bar is a toolbar with icons for delete, search, and print, followed by navigation buttons: a left arrow, a right arrow (both highlighted with a blue box), a "REFRESH" button, and a "SAVE" button. Two lines from the text above point to these navigation buttons. Below the toolbar is a horizontal menu with tabs: "PROPERTIES" (selected), "ATTRIBUTES", "CATEGORY SYSTEM", "PRICES", "MULTIMEDIA", "VARIANTS", "EXTENDED ATTRIBUTES", "REVIEWS", "BMECAT", and "STOCK". The main content area is titled "ESSENTIAL" with an expand/collapse icon. It contains a form with four fields: "Article Number" (1210424959), "Identifier" (Object-Oriented Methodology for), "Catalog version" (Bookstore Product Catalog : Sta...), and "Approval" (approved).

Title: "Object-Oriented Methodology for Labrador Breeders" - Bookstore Product Catalog : Staged

REFRESH SAVE

PROPERTIES ATTRIBUTES CATEGORY SYSTEM PRICES MULTIMEDIA VARIANTS EXTENDED ATTRIBUTES REVIEWS BMECAT STOCK

ESSENTIAL

Article Number Identifier Catalog version Approval

1210424959 Object-Oriented Methodology for Bookstore Product Catalog : Sta... approved



Exercise 4



Exercise 4 – Orchestrate a Cockpit

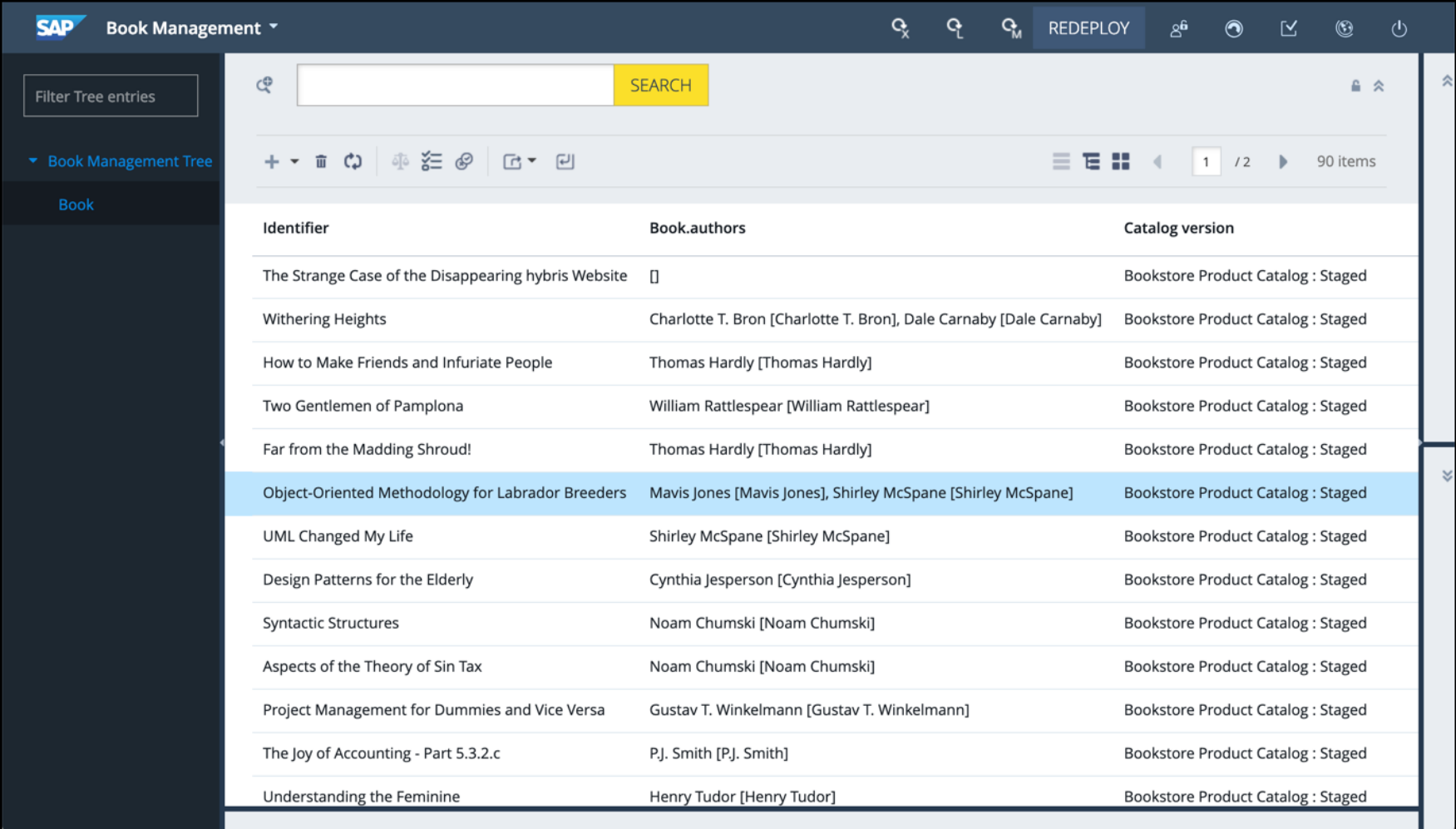
Start making the Book Management cockpit your own!

The goal is to have a cockpit where the user can select the Book type node to view all Books in the system. The user can then click on a book to bring up its editor.

After Preparation

Three main widgets added:

- Explorer Tree
- Advanced Search
- Collection Browser



The screenshot displays the SAP Book Management application. On the left is a dark sidebar with a 'Filter Tree entries' box and a 'Book Management Tree' section containing a 'Book' entry. The main area features a search bar with a 'SEARCH' button and a toolbar with icons for adding, deleting, refreshing, and other actions. Below the toolbar is a table with 90 items, showing columns for Identifier, Book.authors, and Catalog version. The table is currently displaying 12 rows, with the 6th row highlighted in blue.

Identifier	Book.authors	Catalog version
The Strange Case of the Disappearing hybris Website	[]	Bookstore Product Catalog : Staged
Wuthering Heights	Charlotte T. Bron [Charlotte T. Bron], Dale Carnaby [Dale Carnaby]	Bookstore Product Catalog : Staged
How to Make Friends and Infuriate People	Thomas Hardly [Thomas Hardly]	Bookstore Product Catalog : Staged
Two Gentlemen of Pamplona	William Rattlespear [William Rattlespear]	Bookstore Product Catalog : Staged
Far from the Madding Shroud!	Thomas Hardly [Thomas Hardly]	Bookstore Product Catalog : Staged
Object-Oriented Methodology for Labrador Breeders	Mavis Jones [Mavis Jones], Shirley McSpane [Shirley McSpane]	Bookstore Product Catalog : Staged
UML Changed My Life	Shirley McSpane [Shirley McSpane]	Bookstore Product Catalog : Staged
Design Patterns for the Elderly	Cynthia Jespersen [Cynthia Jespersen]	Bookstore Product Catalog : Staged
Syntactic Structures	Noam Chumski [Noam Chumski]	Bookstore Product Catalog : Staged
Aspects of the Theory of Sin Tax	Noam Chumski [Noam Chumski]	Bookstore Product Catalog : Staged
Project Management for Dummies and Vice Versa	Gustav T. Winkelmann [Gustav T. Winkelmann]	Bookstore Product Catalog : Staged
The Joy of Accounting - Part 5.3.2.c	P.J. Smith [P.J. Smith]	Bookstore Product Catalog : Staged
Understanding the Feminine	Henry Tudor [Henry Tudor]	Bookstore Product Catalog : Staged

Enable Editing Books

- Add a new Editor Area for the books
- [OPTIONAL] Add navigation buttons to it
- Persist your changes in
bookstorecustombackoffice-backoffice-widgets.xml

Exercise 4 – The End Goal

SAP Book Management REDEPLOY

CONTENT

SEARCH

Filter Tree entries

<
1 / 2
>
92 items

Identifier	Book.authors	Catalog version
The Strange Case of the Disappearing hybris Website	[]	Bookstore Product Catalog : Staged
Wuthering Heights	Charlotte T. Bron [Charlotte T. Bron], Dale Carnaby [Dale Carnaby]	Bookstore Product Catalog : Staged
How to Make Friends and Infuriate People	Thomas Hardy [Thomas Hardy]	Bookstore Product Catalog : Staged
Two Gentlemen of Verona	William Shakespeare [William Shakespeare]	Bookstore Product Catalog : Staged

Title: "Far from the Madding Shroud" - Bookstore Product Catalog : Staged

<
>
REFRESH
SAVE

ADMINISTRATION
OTHER
CLASSIFICATION ATTRIBUTES

ESSENTIAL

Approval

approved ▼

Catalog version

Bookstore Product Catalog : Staged

Article Number

1178279359

Book.rentable

☒ True
 ☐ False

Book.ISBN10

1178279359

Book.ISBN13

3331178279359

Book.language

en

PK

8796093186049

Thank you.

