



创新之路

mapp View 页面设计与交互探索

名片



戚浩辰 Application Engineer

B&R Industrial Automation (China) Co., Ltd.

A member of the ABB Group

E-Mail: Haochen.qi@br-automation.com

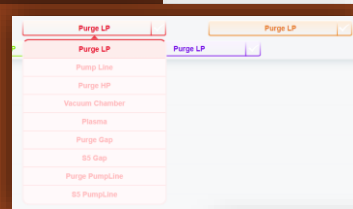
www.br-automation.com

目录

01 搭建逻辑清晰的框架图



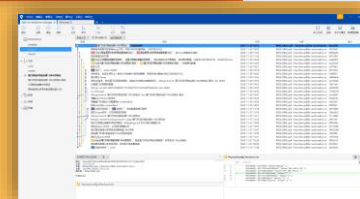
02 创建观感友好的主题风格



03 以三个控件的创新妙用为例

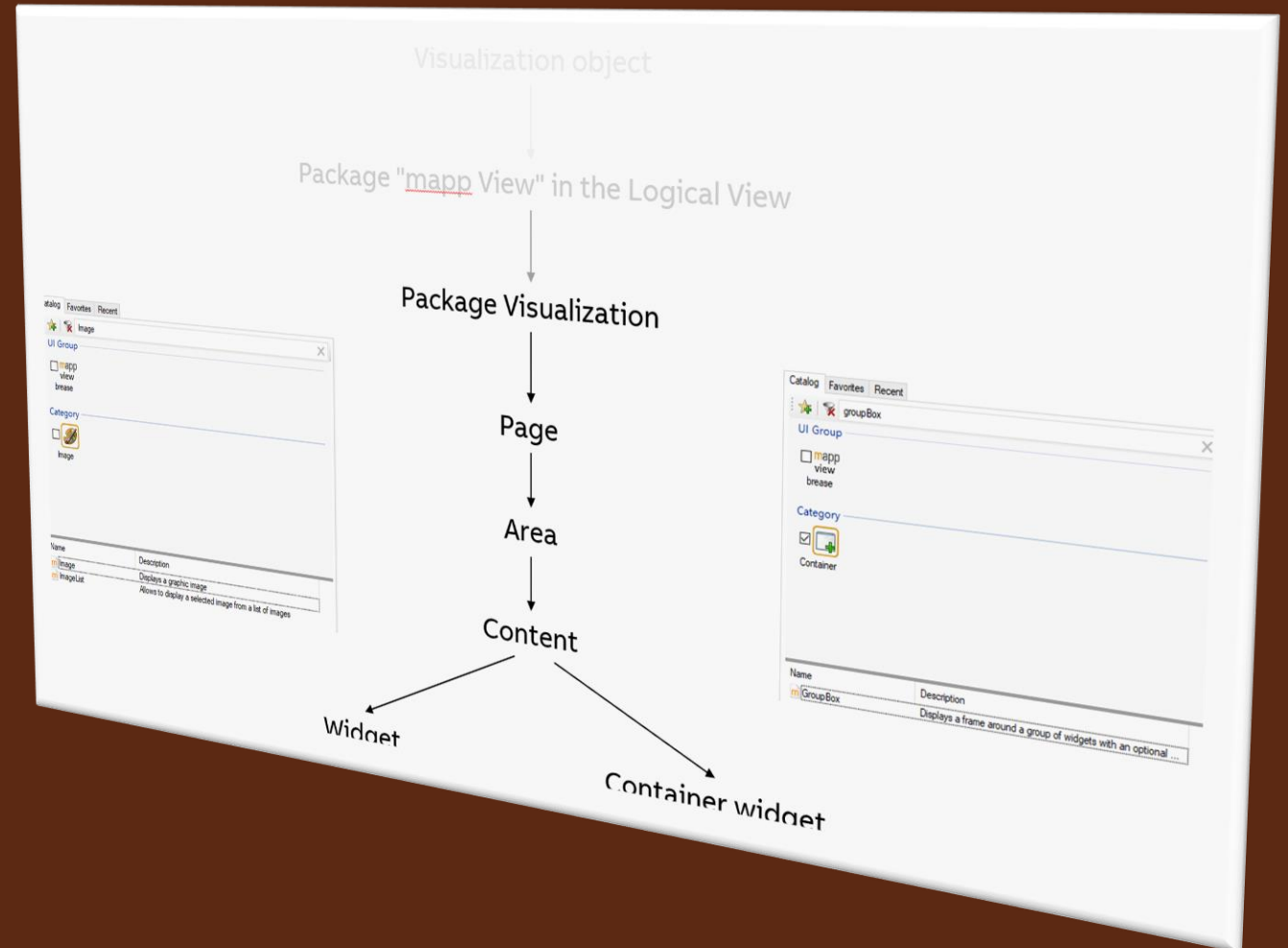


04 版本控制 & mapp View



01

搭建逻辑清晰的框架图

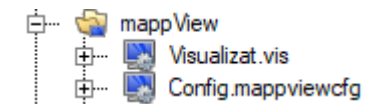
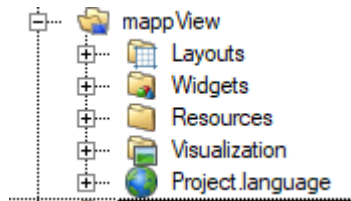
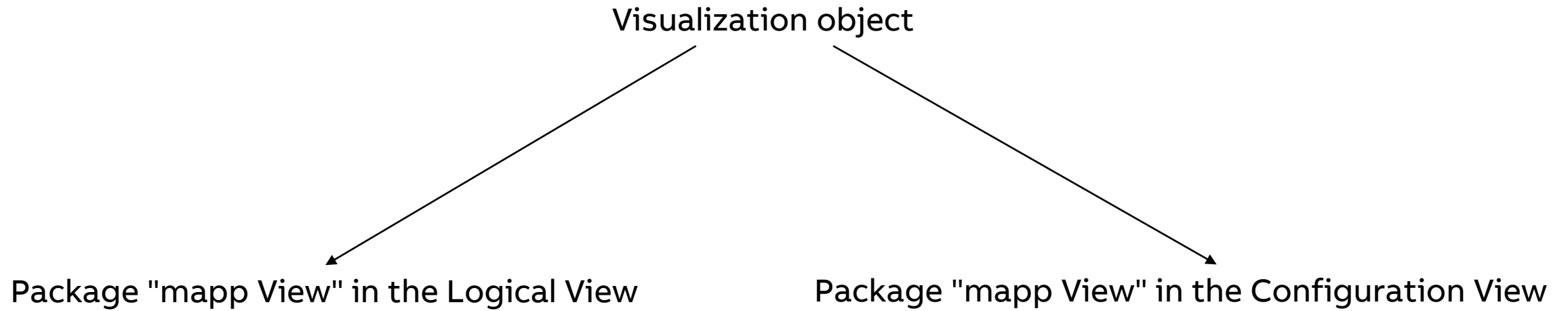


Visualization object

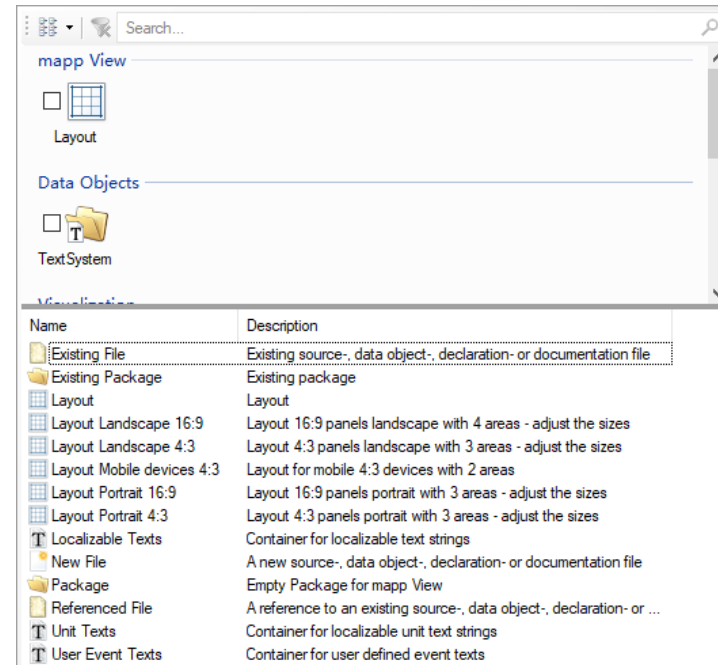
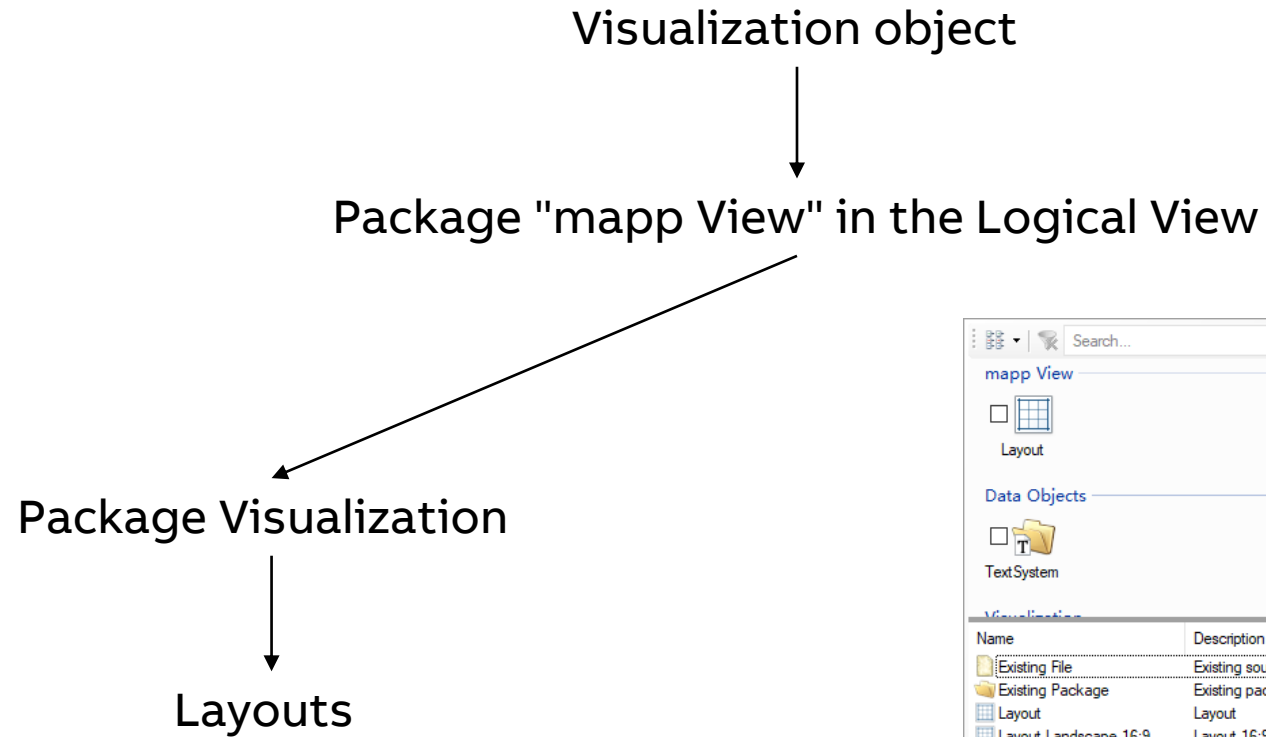
☒ 
mapp View

Name	Description
 Visualization	Visualization Package Description

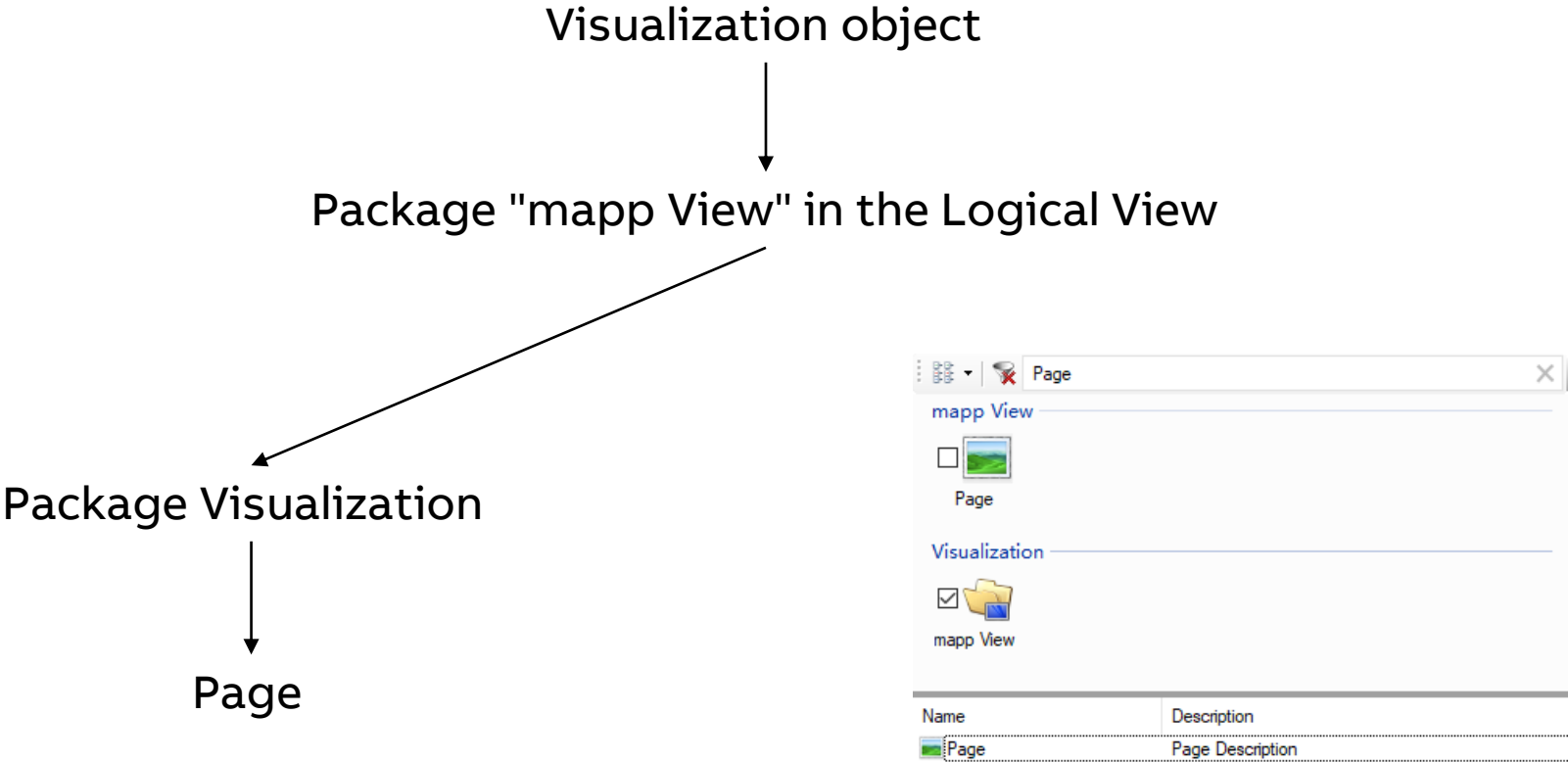
框架



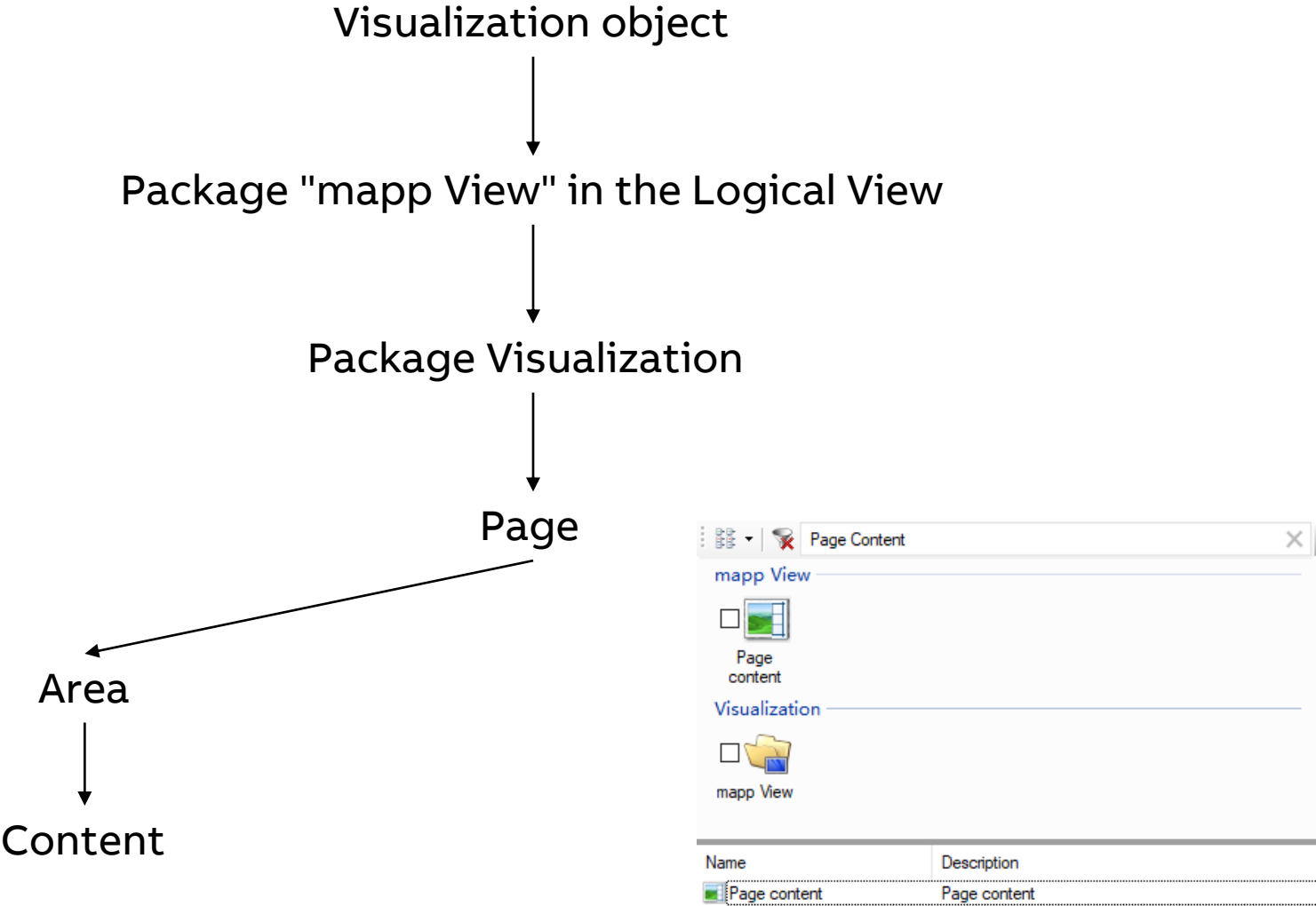
框架



框架



框架



Visualization object

Package "mapp View" in the Logical View

Package Visualization

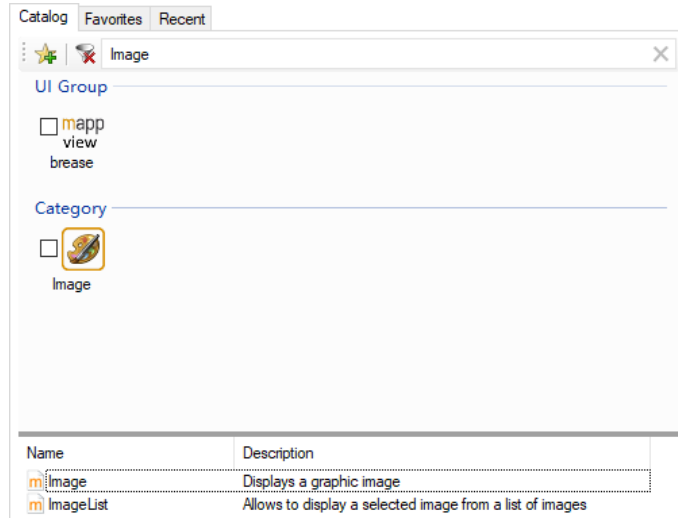
Page

Area

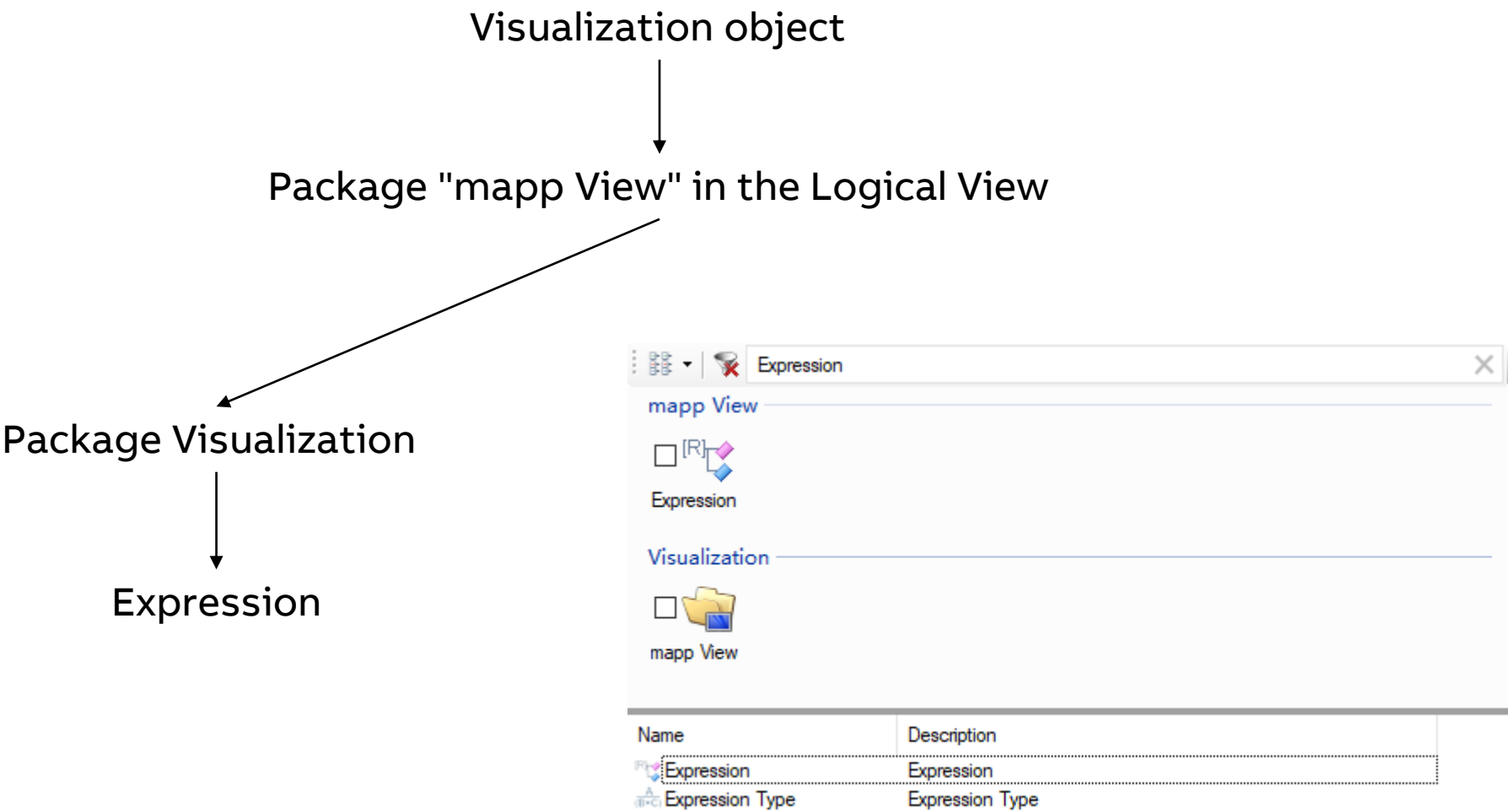
Content

Widget

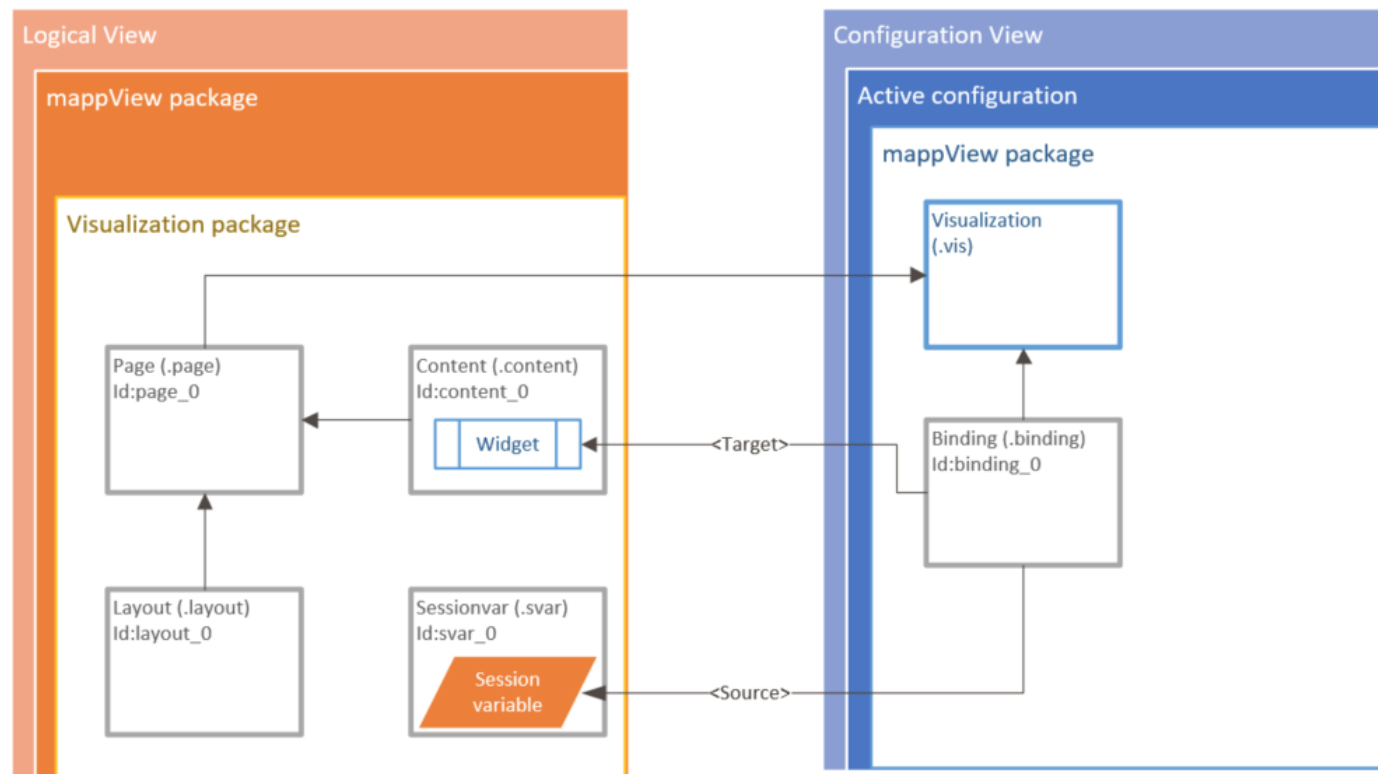
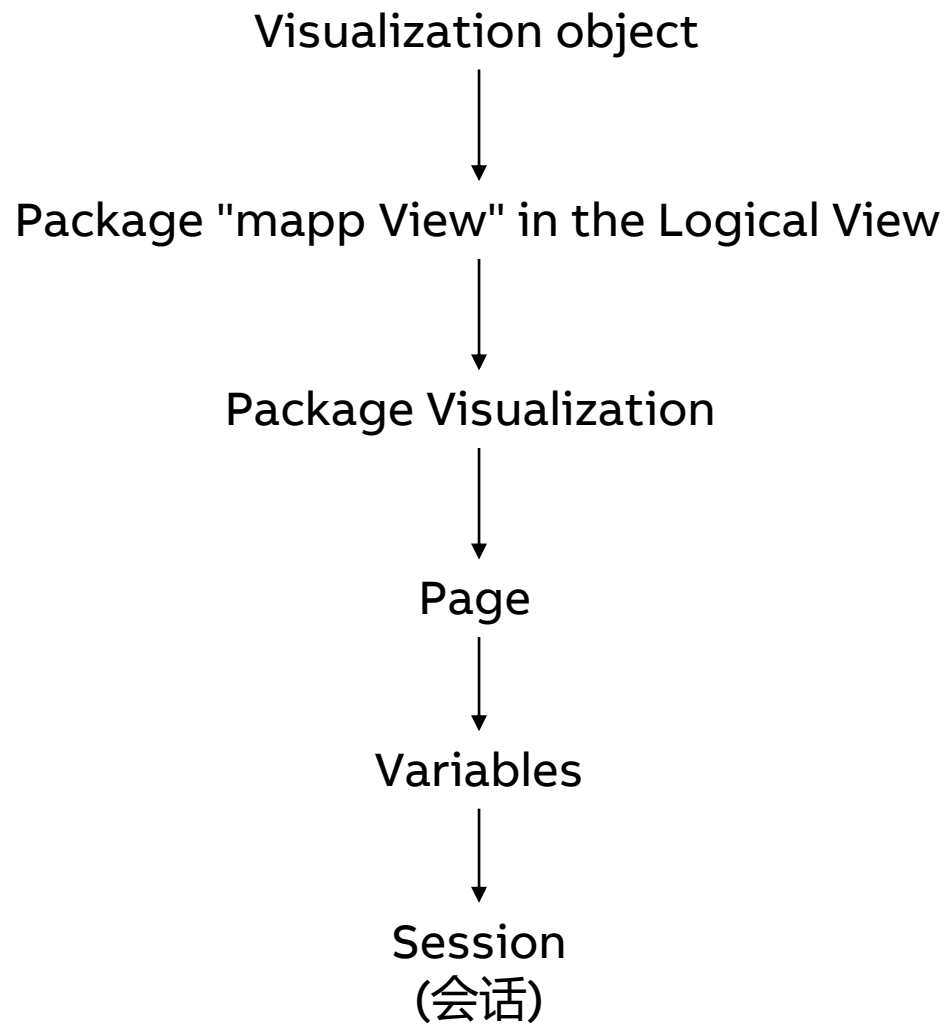
Container widget



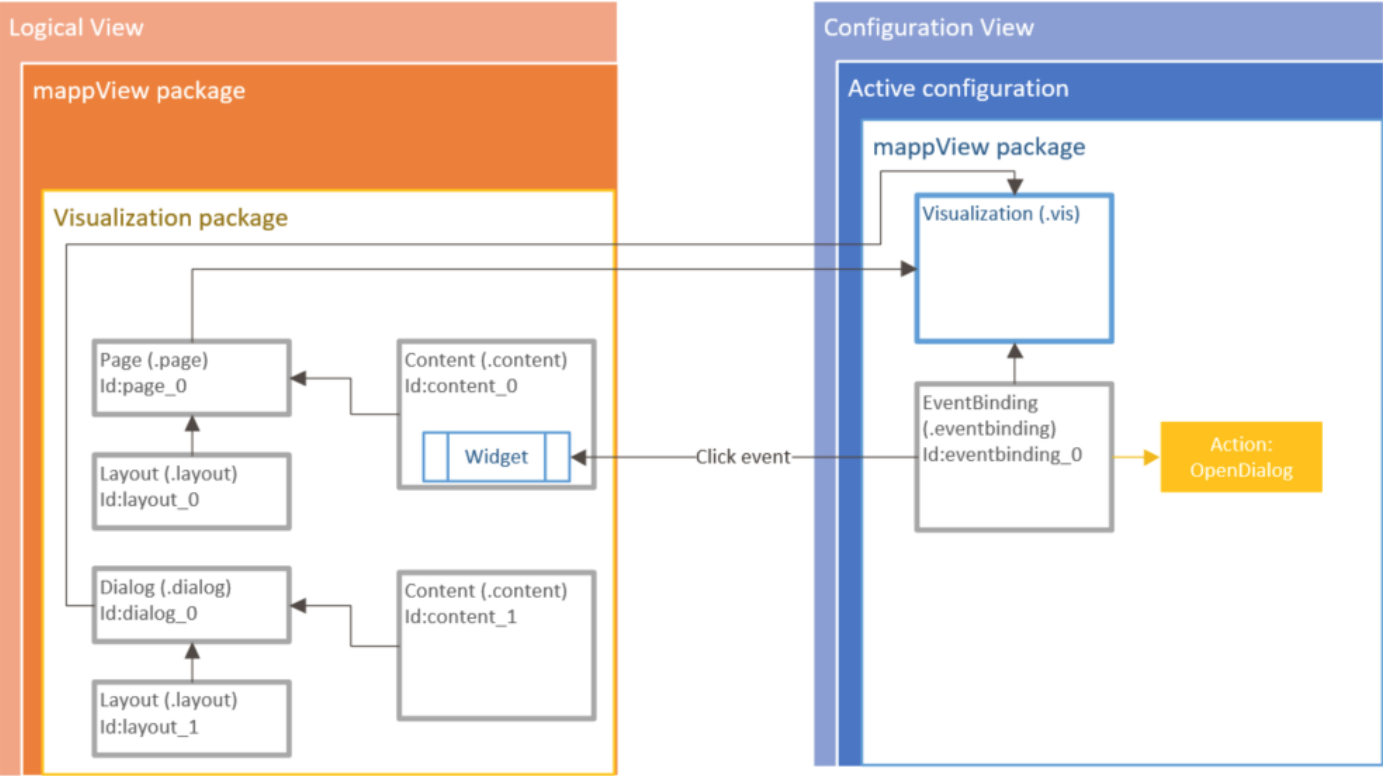
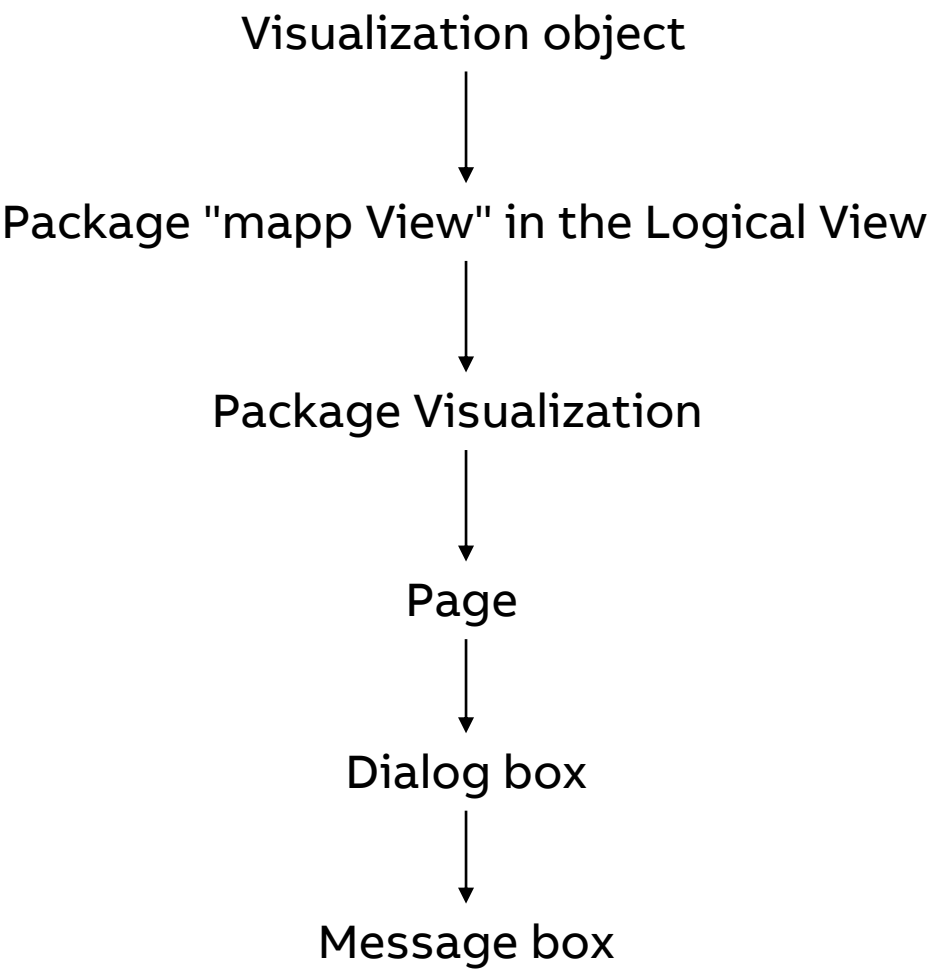
框架



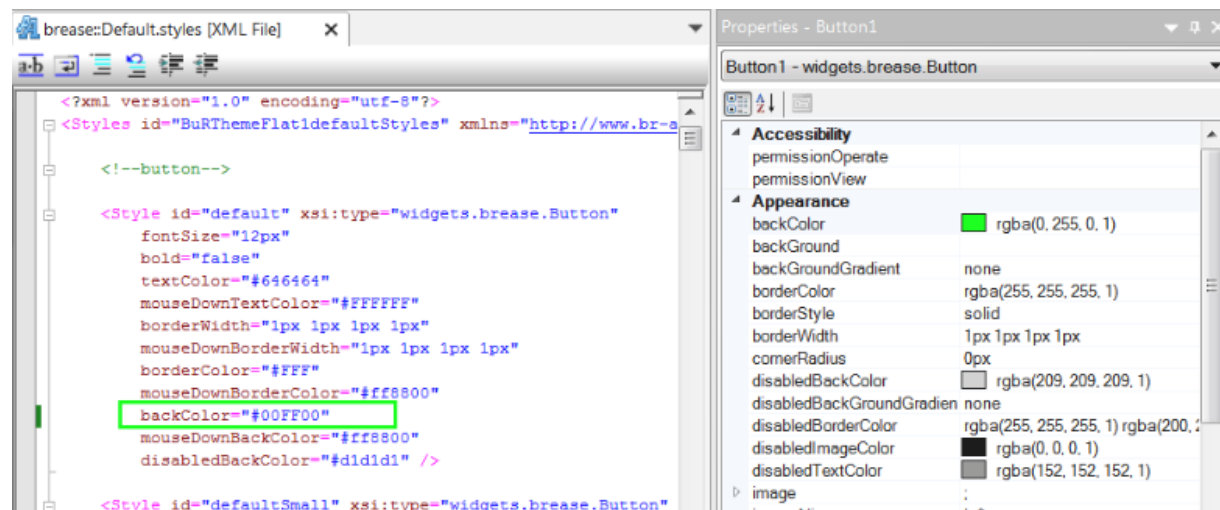
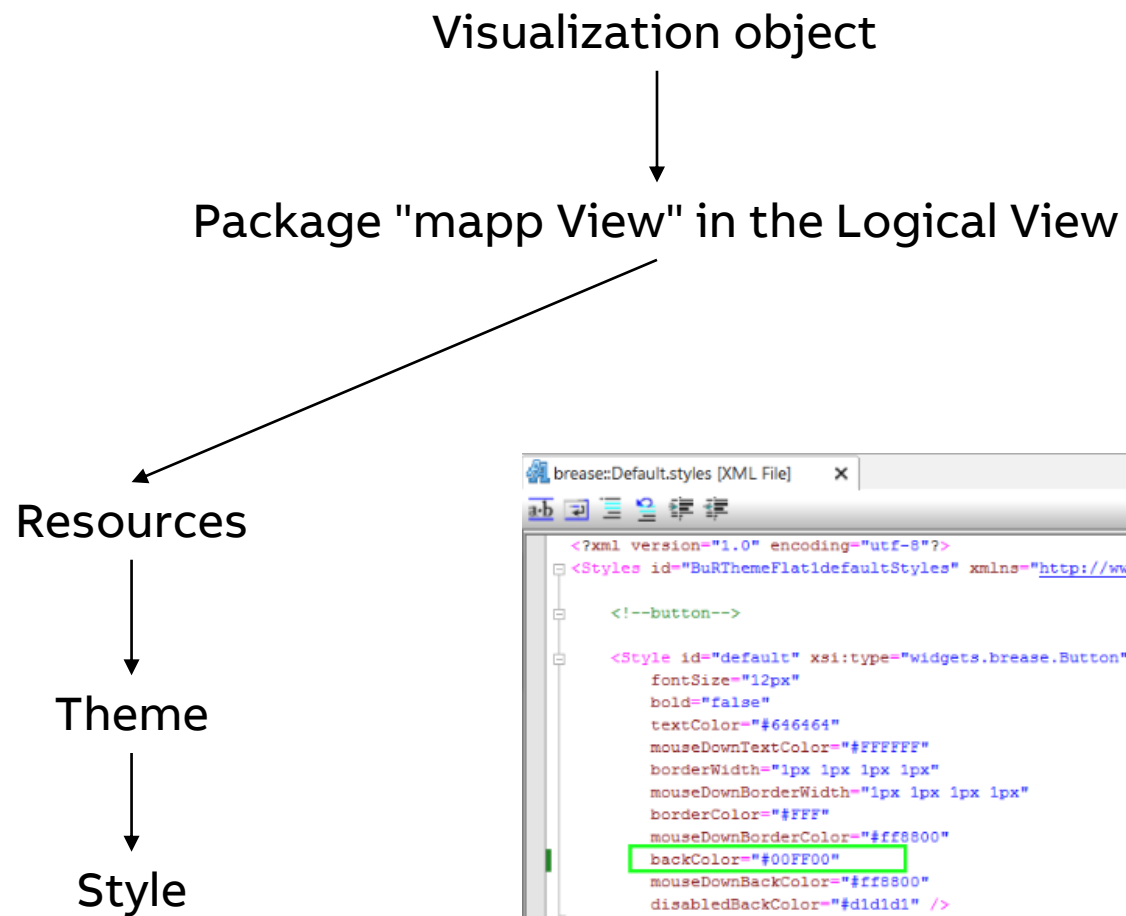
框架



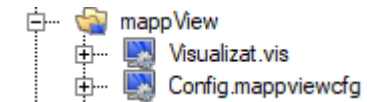
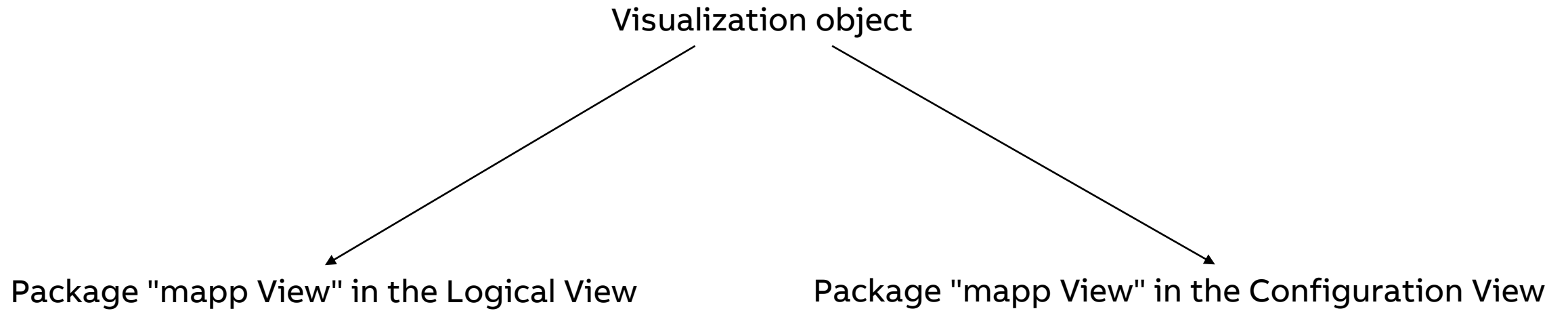
框架



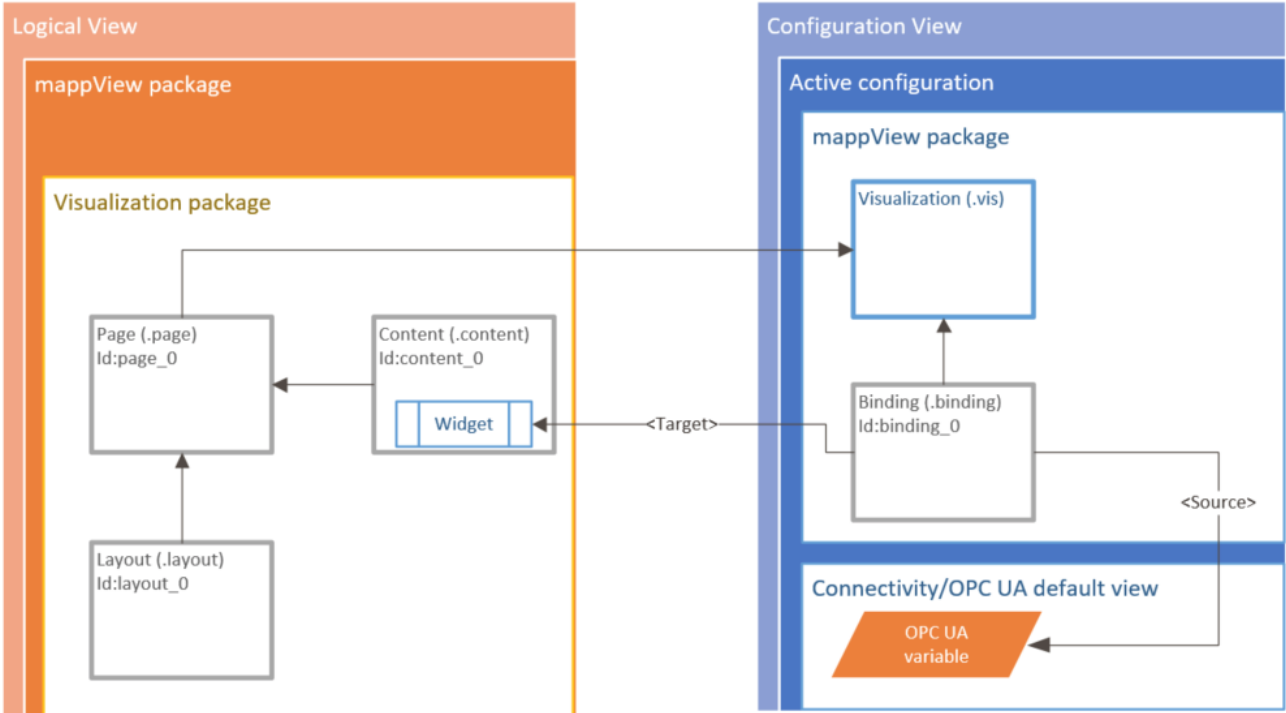
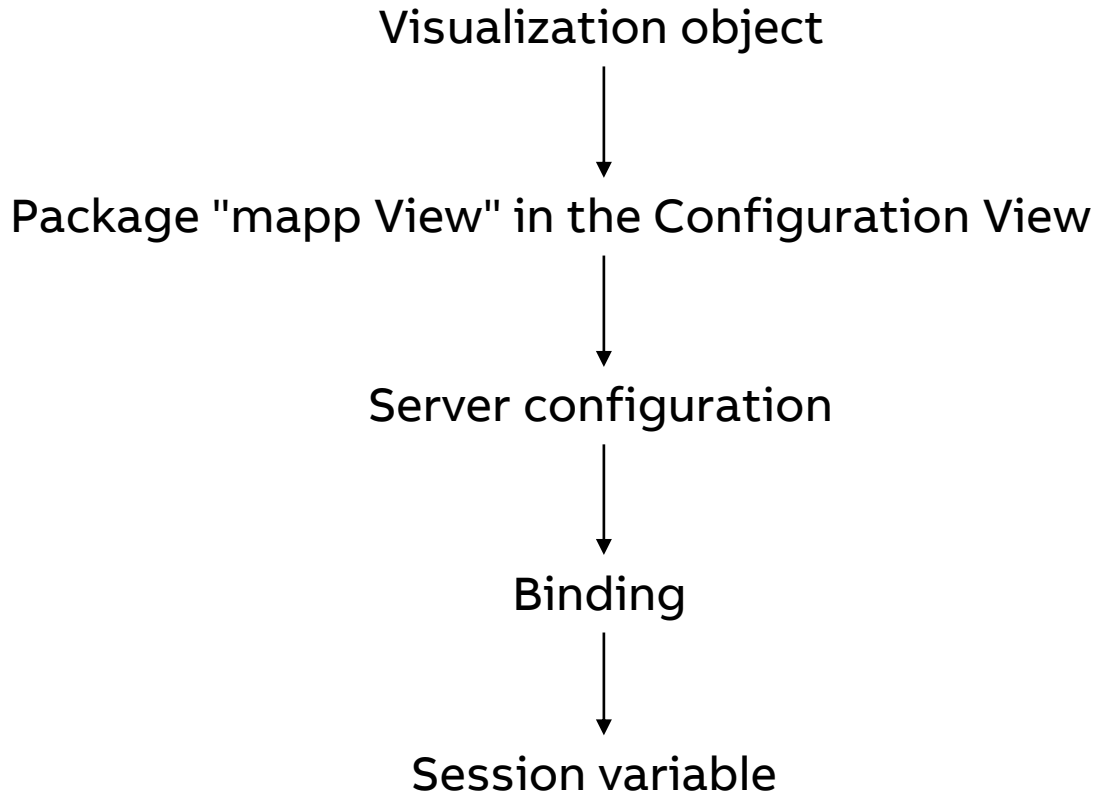
框架



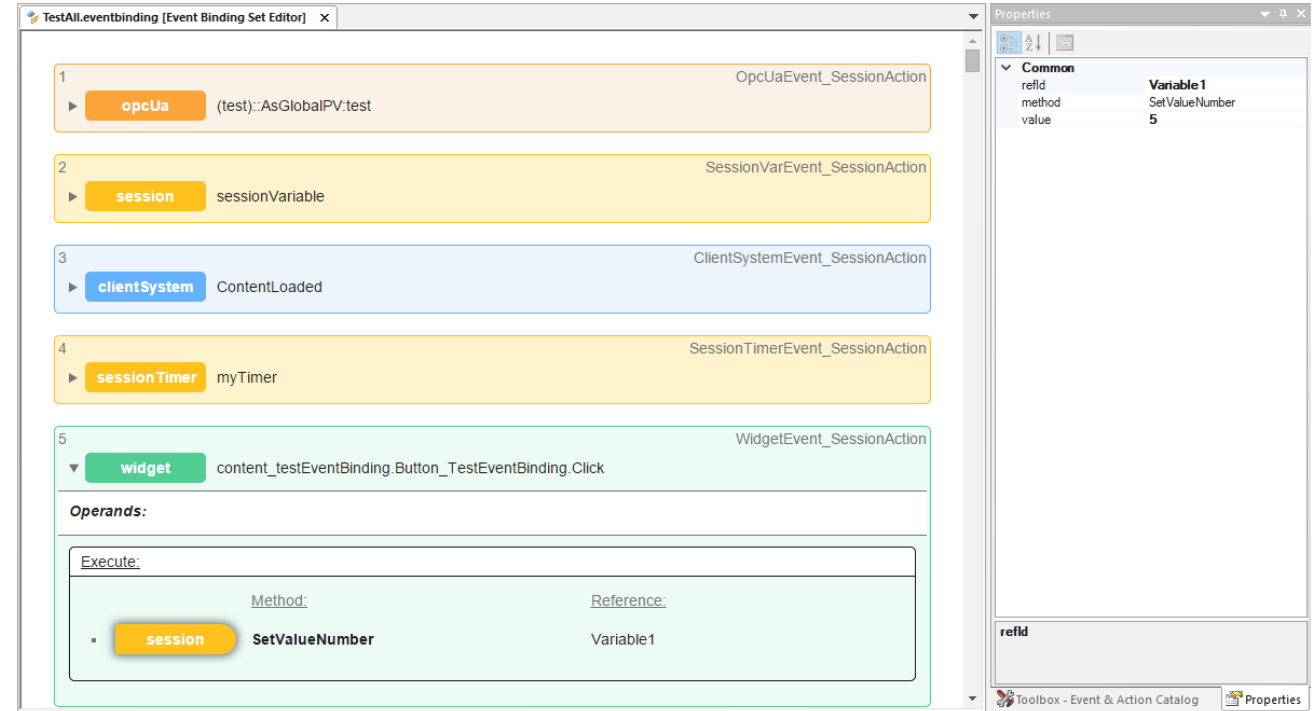
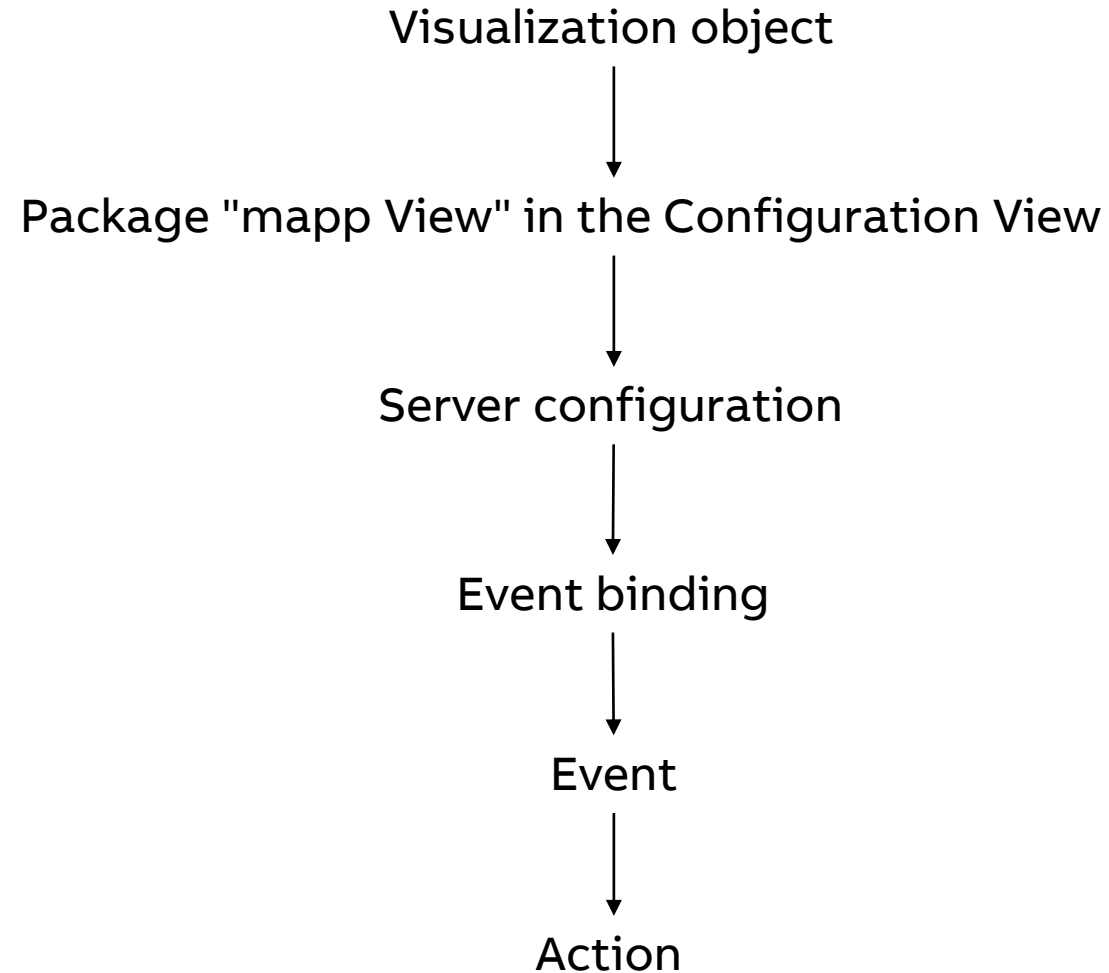
框架



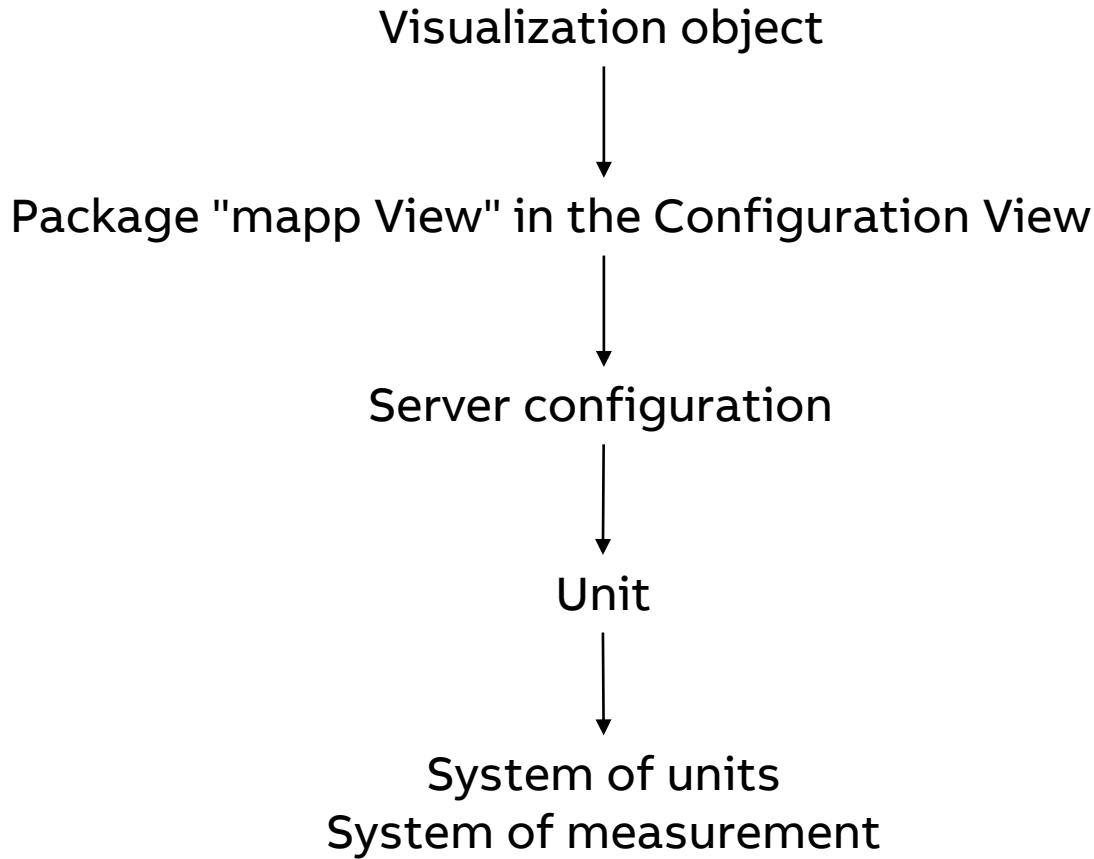
框架



框架



框架



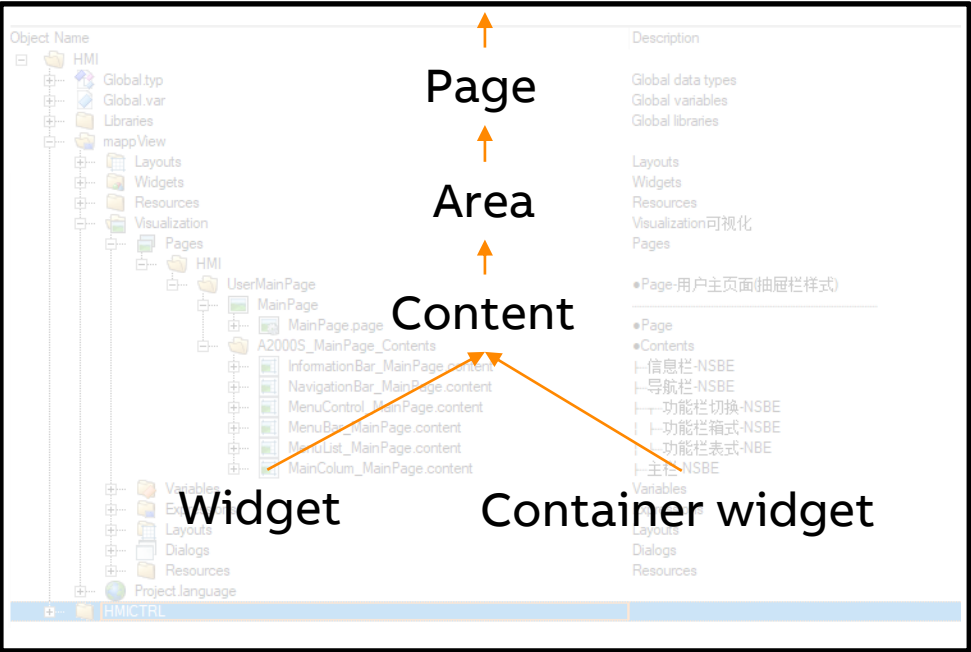
Name		Value	Value
actTemp	Enable	True	
	Audit Events	Off	
	Authorization		
	EU Range Violation		
	EU Range	<Default>	Add Role
	Engineering Unit		
	Name	degree Celsius	
	Symbol	°C	
	Unit ID	4408652	
	Namespace	http://www.opcfoundation.org/UA/units/un/cef...	
	Authorization		

mapp View项目移植

Visualization object

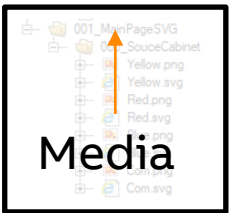
Package "mapp View" in the Logical View

Package Visualization

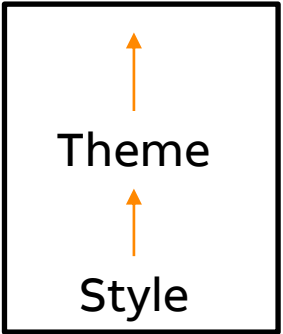


模块整体

Resources



模块整体



模块整体

mapp View项目移植

Visualization object
↑
Package "mapp View" in the Configuration View
↑
Server configuration



模块整体

Page和Content

Page路径

- Visualization-Pages-<Page Package>-<Page>

Contents路径

- Visualization-Pages-<Page Package>-<Page Content>-<Content>

注释

Object Name	Description
HMI	
Global.typ	Global data types
Global.var	Global variables
Libraries	Global libraries
mappView	
Layouts	Layouts
Widgets	Widgets
Resources	Resources
Visualization	Visualization可视化
Pages	Pages
HMI	
UserMainPage	•Page-用户主页面(抽屉栏样式)
MainPage	
MainPage.page	•Page
A2000S_MainPage_Contents	•Contents
InformationBar_MainPage.content	└信息栏-NSBE
NavigationBar_MainPage.content	└导航栏-NSBE
MenuControl_MainPage.content	└功能栏切换-NSBE
MenuBar_MainPage.content	└功能栏箱式-NSBE
MenuList_MainPage.content	└功能栏表式-NBE
MainColumn_MainPage.content	└主栏-NSBE
Variables	Variables
Expressions	Expressions
Layouts	Layouts
Dialogs	Dialogs
Resources	Resources
Project.language	
HMICTRL	

Binding/EventBinding路径

注释

December 19, 2023 Slide 22 ©B&R. All rights reserved

Theme和Style

通用页面Style表

CommonStylesSet

特定页面Style表

SpecialStylesSet

Object Name	Description
HMI	
Global.typ	Global data types
Global.var	Global variables
Libraries	Global libraries
mappView	
Layouts	Layouts
Widgets	Widgets
Resources	Resources
Texts	Texts
Snippets	Snippets
Themes	Themes
BuRTheme1	
BuRTheme1.theme	Empty Theme
BuRTheme_CommonStylesSet	
CommonStylesRegedit.styleset	通用风格注册表
InformationBar_MainPage_3D.styles	信息栏
NavigationBar_MainPage_3D.styles	导航栏
MenuBox.styles	箱式功能栏
MenuList.styles	表式功能栏
SpecialStylesSetRegedit	特殊风格注册表
BuRTheme_SpecialStylesSet.styleset	Styles Set
MainColum_MainPage_3D.styles	主栏
AlarmCtrl.styles	报警页面
HistoryCtrl.styles	报警历史页面
Media	Media
Visualization	Visualization可视化
Project.language	
HMICTRL	

Media

通用页面

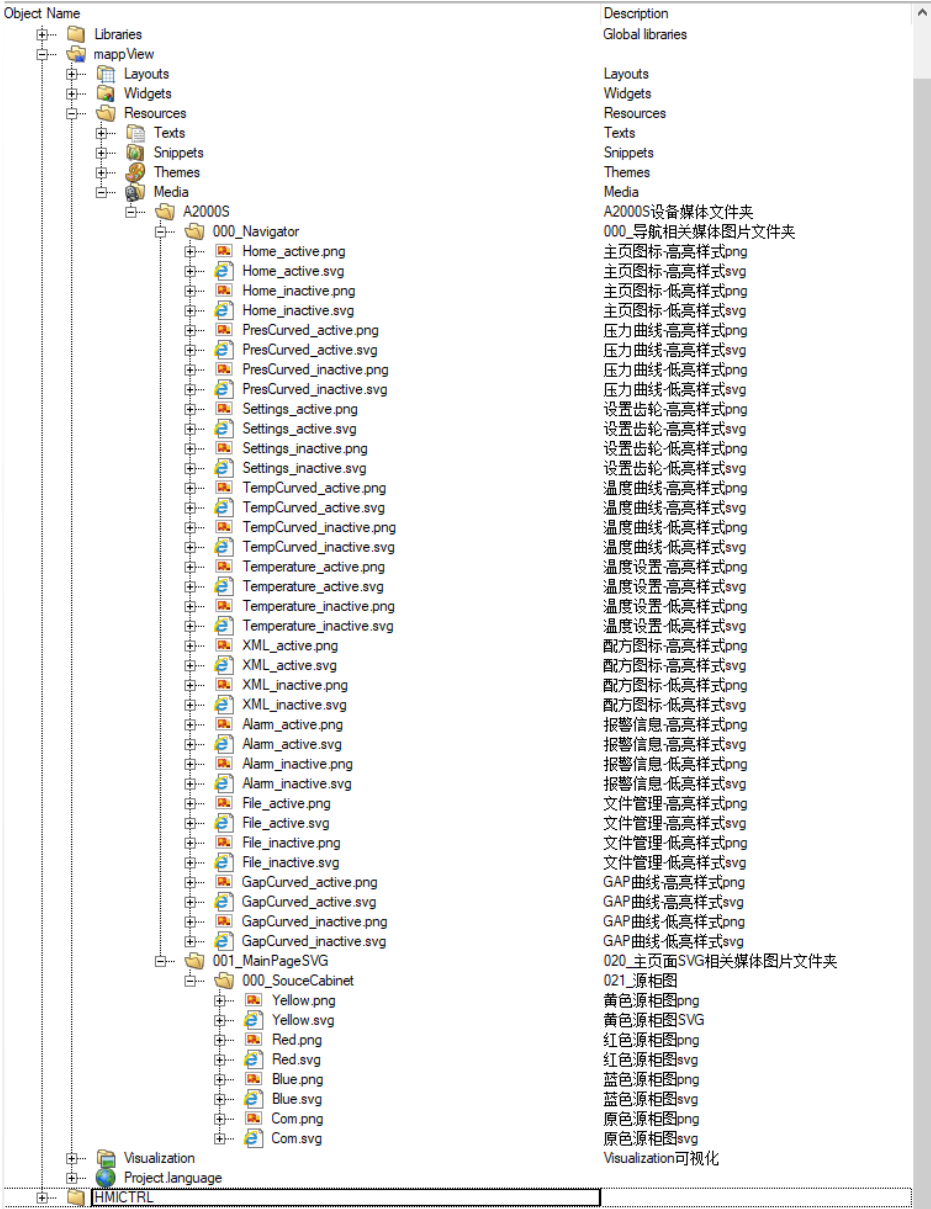
直接建立通用功能页面，并存放对应图片；

特殊页面

按照<Page>-<Content>的方式建立文件夹，并在前方标上序号；

可以移植/迭代性

同时保存SVG文件和PNG文件



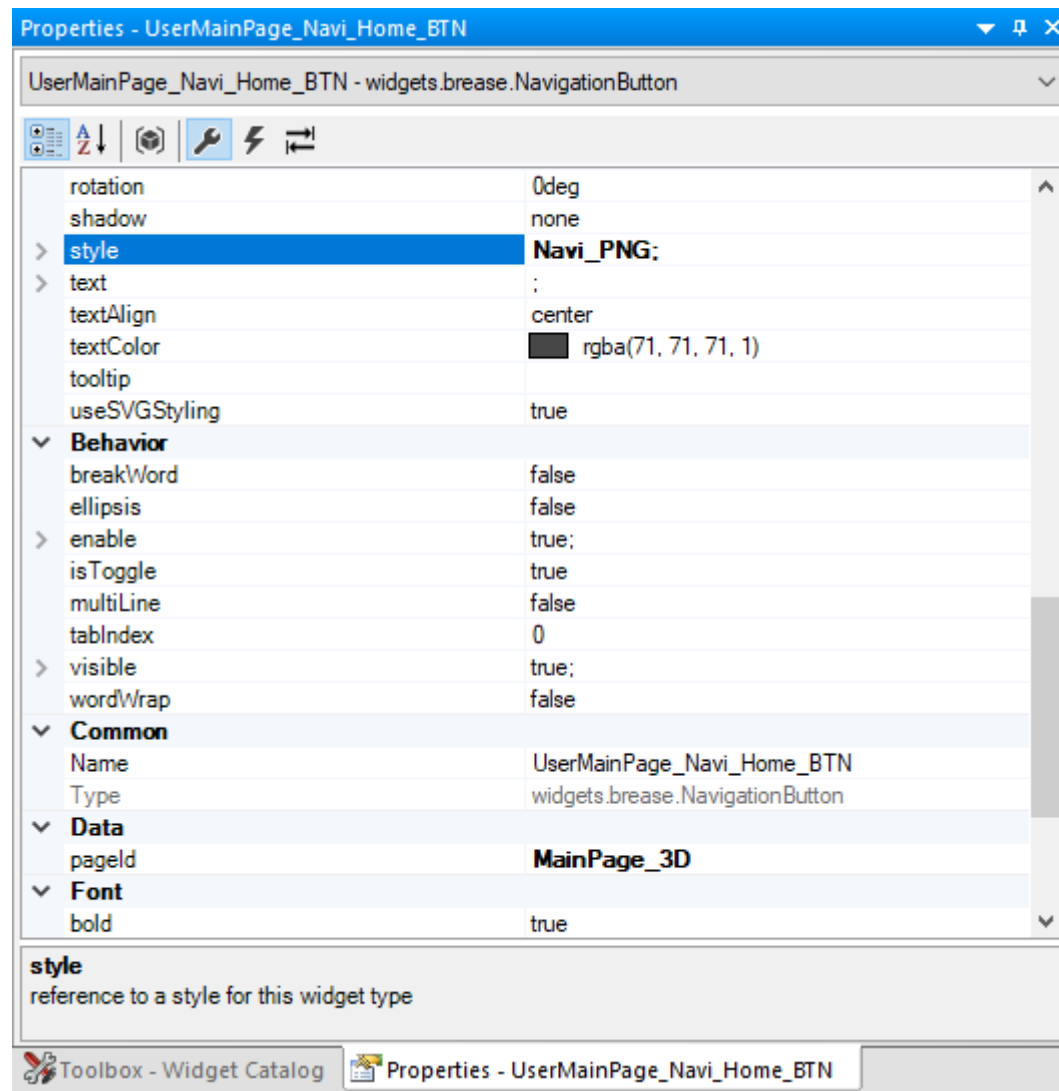
Widget

准确的控件名称

对控件正确且有逻辑的命名是维护和迭代的要点

完善的Style

降低负载，减少开发时间，移植不费力



案例程序

Logical View

Object Name

Description

mappViewTest

Global.typ

Global.var

Libraries

mappView

Layouts

Layout

WeTalk_MainPage

WeTalk_MainPage.layout

WeTalk_WebView.layout

WeTalk_Paper.layout

WeTalk_InfoBanner.layout

Visualization

Pages

WeTalk_MainPage

Page.WeTalk_MainPage

WeTalk_MainPage.page

Content.WeTalk_MainPage

MainPage_InformationBar.content

MainPage_NavigationBar.content

MainPage_MenuBar.content

MainPageMainColum.content

WeTalk_WebView

Page.WeTalk_WebView

WeTalk_WebView.page

Content.WeTalk_WebView

WeTalk_Paper

Page.WeTalk_Paper

WeTalk_Paper.page

Content.WeTalk_Paper

WeTalk_InfoBanner

Page.WeTalk_InfoBanner

WeTalk_InfoBanner.page

Content.WeTalk_InfoBanner

Variables

Expressions

Layouts

Dialogs

Resources

Widgets

Resources

Global data types

Global variables

Global libraries

Layouts

Layout

Layout-WeTalk:演示主页

Layout-WeTalk:演示主页

Layout-WeTalk:网页浏览器

Layout-WeTalk:画纸

Layout-WeTalk:信息横幅

Pages

Package-WeTalk:演示主页

Page-WeTalk:演示主页

Page-WeTalk:演示主页

AreaContents-WeTalk:演示主页

Content-WeTalk:演示主页_信息栏

Content-WeTalk:演示主页_导航栏

Content-WeTalk:演示主页_功能栏

Content-WeTalk:演示主页_主栏

Package-WeTalk:网页浏览器

Page-WeTalk:网页浏览器

Page-WeTalk:网页浏览器

AreaContents-WeTalk:网页浏览器

Package-WeTalk:画纸

Page-WeTalk:画纸

Page-WeTalk:画纸

AreaContents-WeTalk:画纸

Package-WeTalk:信息横幅

Page-WeTalk:信息横幅

Page-WeTalk:信息横幅

AreaContents-WeTalk:信息横幅

Variables

Expressions

Layouts

Dialogs

Resources

Widgets

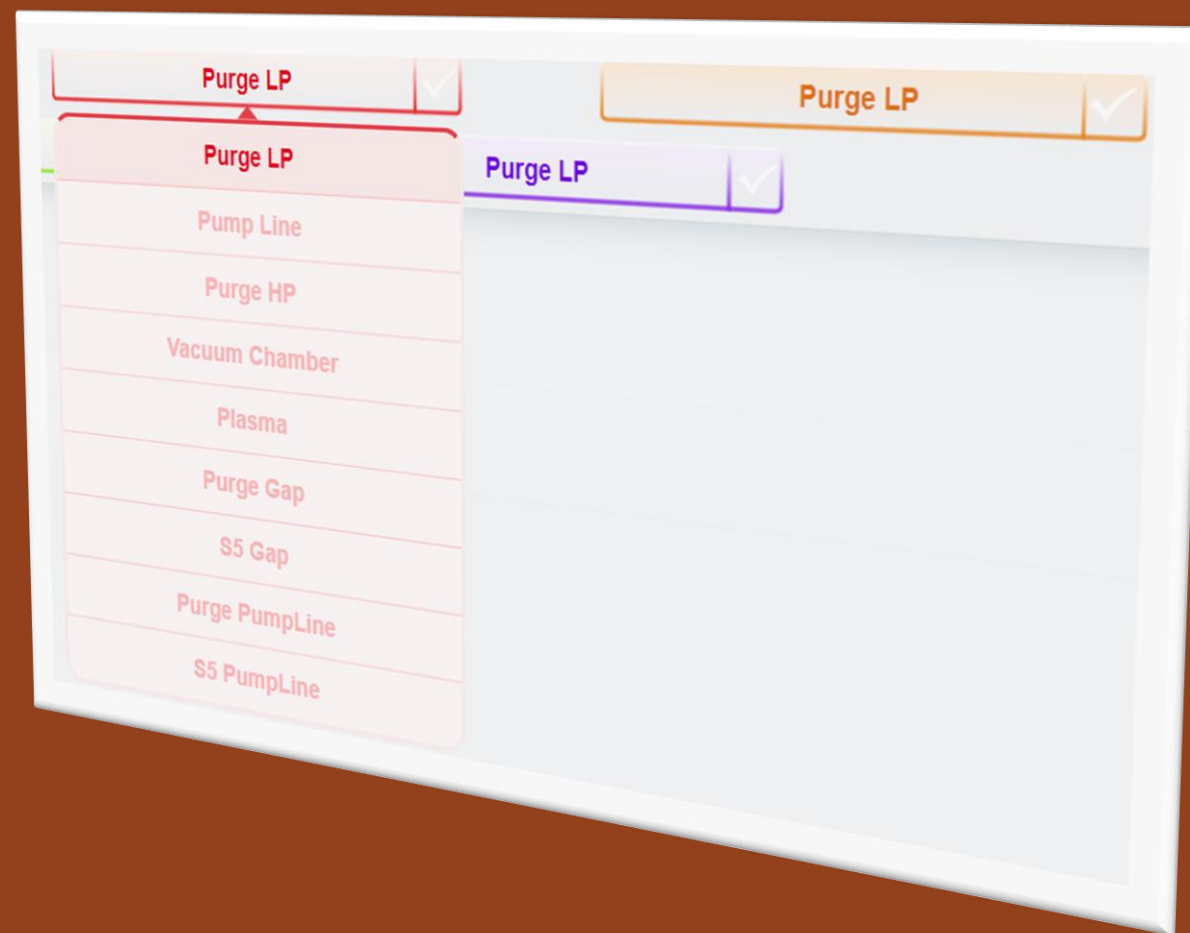
Resources

Config.mappviewcfg [mapp View Configuration]

Name	Value	Unit	Description
MappViewConfiguration			
Server configuration			
Protocol	HTTP		Use secure communication protocol.
Port Number	81		Port number of mapp View webservice.
Maximal client connect...	5		Number of maximum permitted client connections in value range 0-100
Maximal B&R client co...	0		Number of maximum permitted B&R client connections in value range 0-100
Authentication mode	RBAC		Defines if the client authenticates via RBAC or MpUserX.
Diagnostic Configuration			
Activate Diagnost...	off		Enable access to diagnostics page
OPC UA system			
Server connection time...	5000	ms	Timeout to connect to the OPC UA servers before the visualization is shown.
Sampling rate groups			
default	200	ms	
slow	1000	ms	
fast	10	ms	
Initial ValueChanged e...	TRUE		ValueChanged events are also triggered for the initial value.
Session Timer			
Timer 1			
TimerId	Timer1		Unique identification that can be referenced in event binding
Interval	1000		Time in milliseconds in steps of 100 until the timer elapses
Timer mode	repetitive		
Client configuration			
ID of default visualization	WeTalk		ID of default visualization
Widget configuration			
Rendering policy	performance		Defines, how data is rendered in the browser for list widgets (Alarm, Audit,...)
Security policy	on		Defines, if data is sanitized to prevent Cross-Site-Scripting

02

创建观感友好的主题风格



风格

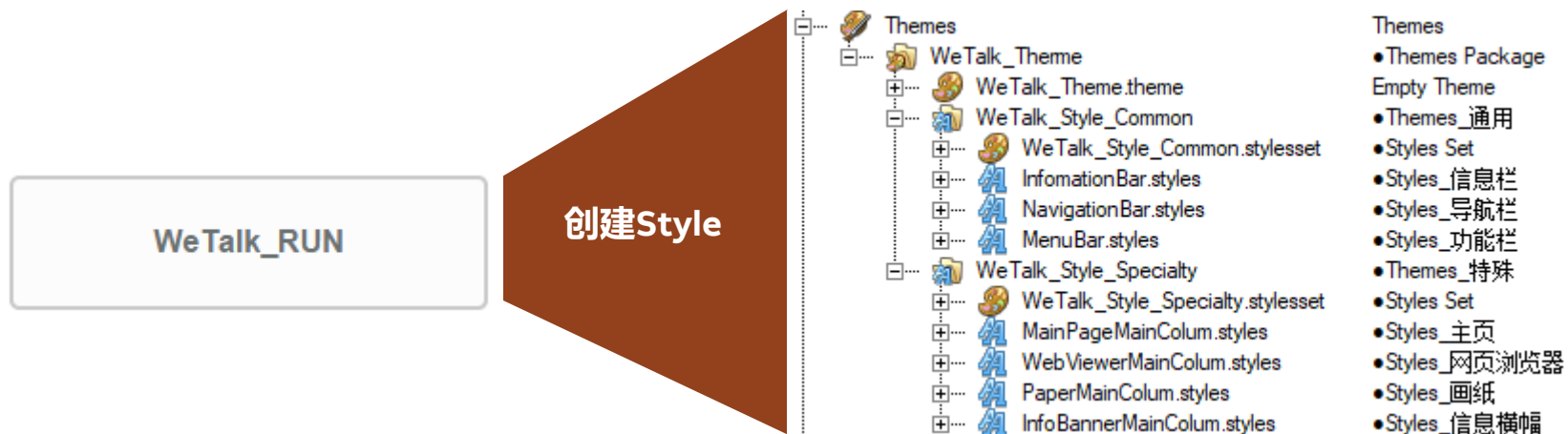
WeTalk_RUN

编辑风格

>	Accessibility
>	Appearance
	backColor
	backGround
	backGroundGradient
	borderColor
	borderStyle
	borderWidth
	cornerRadius
	disabledBackColor
	disabledBackGroundGradient
	disabledBorderColor
	disabledImageColor
	disabledTextColor
>	image
	imageAlign
	imageColor
	imageHeight
	imageWidth
	mouseDownBackColor
	mouseDownBackGroundGradient
	mouseDownBorderColor
	mouseDownBorderWidth
>	mouseDownImage
	mouseDownImageColor
	mouseDownShadow
>	mouseDownText
	mouseDownTextColor
	opacity
	rotation
	shadow
>	style
>	text
	textAlign
	textColor
	tooltip
	useSVGStyling
>	Behavior
>	Common
	Name
	Type
>	Font
	bold
	fontName
	fontSize
	italic
>	Layout

	rgba(219, 219, 219, 1)
	linear-gradient(to bottom, rgba(252,252,252,1) 0%,rgba(252,252,252,1) 100%)
	rgba(201, 201, 201, 1)
	solid
	2px
	5px 5px 5px 5px
	rgba(229, 229, 229, 1)
	linear-gradient(to bottom, rgba(252,252,252,1) 0%,rgba(252,252,252,1) 100%)
	rgba(255, 255, 255, 1) rgba(200, 200, 200, 1) rgba(200, 200, 200, 1) rgba(255, 255, 255, 1)
	rgba(0, 0, 0, 1)
	rgba(152, 152, 152, 1)
	:
	left
	rgba(0, 0, 0, 1)
	0
	0
	rgba(241, 241, 241, 1)
	linear-gradient(to bottom, rgba(241, 241, 241, 1) 0%,rgba(241, 241, 241, 1) 100%)
	rgba(201, 201, 201, 1)
	0px
	:
	rgba(0, 0, 0, 1)
	2px 2px 8px rgba(62, 79, 92, 0.75)
	:
	rgba(71, 71, 71, 1)
	100%
	0deg
	none
	default:
	WeTalk_RUN:
	center
	rgba(107, 113, 113, 1)
	true
	WeTalk_MainPage_MainColumn_WeTalkRun
	widgets.brease.Button
	true
	ab Arial
	16px
	false

风格

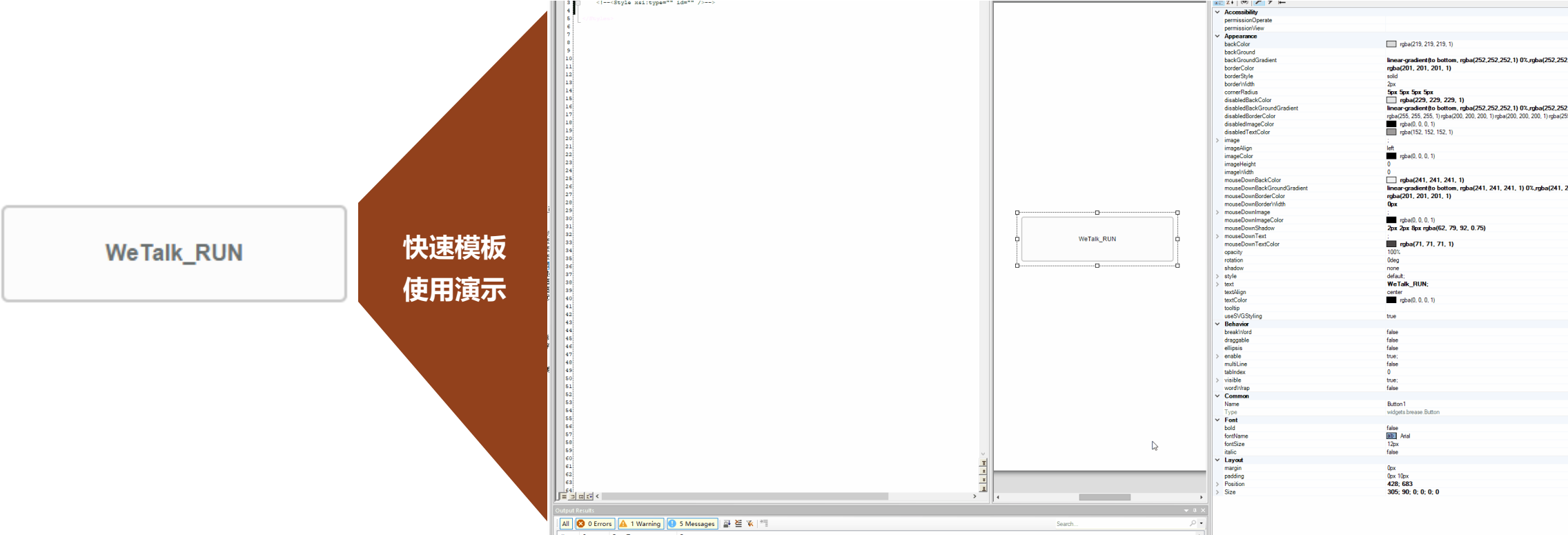


风格

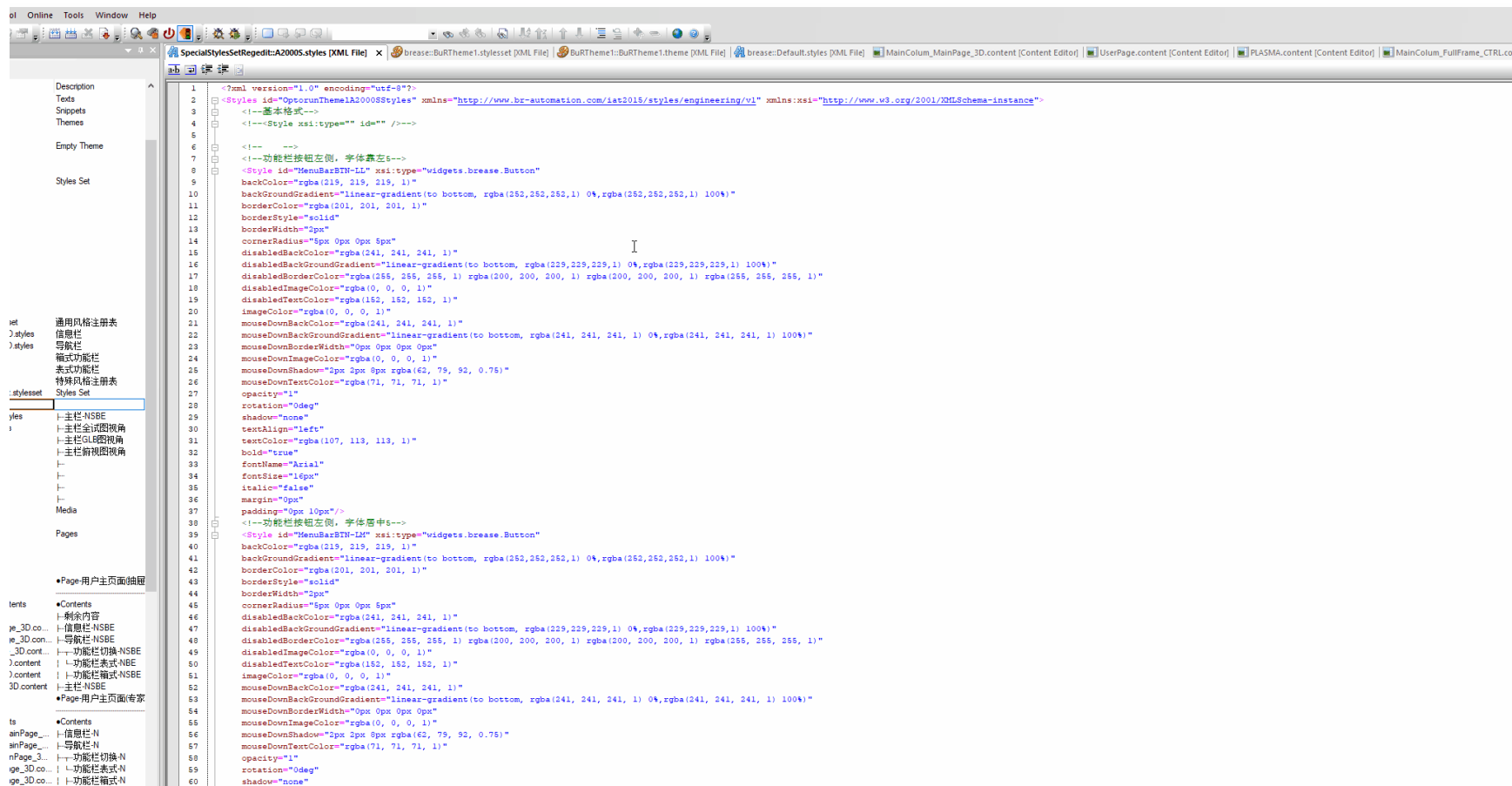
WeTalk_RUN

手动填入Style

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <Styles id="InfomationBar" xmlns="http://www.br-automation.com/iat2015/styles/engineering/v1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
3   <!--<Style xsi:type="" id="" />-->
4   </Styles>
5
6
7
8
9
10
11
12
13
14
15
```



风格



风格

?

当前报警

报警历史

查询

报警

排序

过滤

报警复位

全部确认

时间	报警信息	状态	附加信息
2023-12-07 03:10	未找到文件设备		
2023-12-07 03:10	配方数据保存失败		
2023-12-07 03:10	配方数据加载失败		

Previous

1

Next

回溯

Framework - BR自带主题

2023-12-08 11:06

Alarm

ERROR RESET

Sorting

Anonymous

Date/Time

Description

Status

Severity

2023-12-08 11:02	Warning87: S2 Leak Sensor Life Warning		40
2023-12-08 11:02	Warning86: S1 Leak Sensor Life Warning		40
2023-12-08 11:02	Warning83: S3 Leak Sensor Communication Error		40
2023-12-08 11:02	Warning82: S2 Leak Sensor Communication Error		40
2023-12-08 11:02	Warning81: S1 Leak Sensor Communication Error		40
2023-12-08 11:02	Alarm328:HG2 Communication Error		40
2023-12-08 11:02	Alarm325:Chiller5 Communication_Error		30
2023-12-08 11:02	Alarm321:Chiller4 Communication_Error		40
2023-12-08 11:02	Alarm317:Chiller3 Communication_Error		40
2023-12-08 11:02	Alarm313:Chiller2 Communication_Error		40
2023-12-08 11:02	Alarm309:Chiller1 Communication_Error		40
2023-12-08 11:02	Alarm302:HE2 Communication_Error		40
2023-12-08 11:02	Alarm300:Heat Exchange2 Alarm		40
2023-12-08 11:02	Alarm261: Valve_Vent Cleanroom Position Error		40
2023-12-08 11:02	Alarm260: Valve_VC_Exhaust Valve Position Error		40
2023-12-08 11:02	Alarm192: HG1Communication Error		40

Process

Process start at:

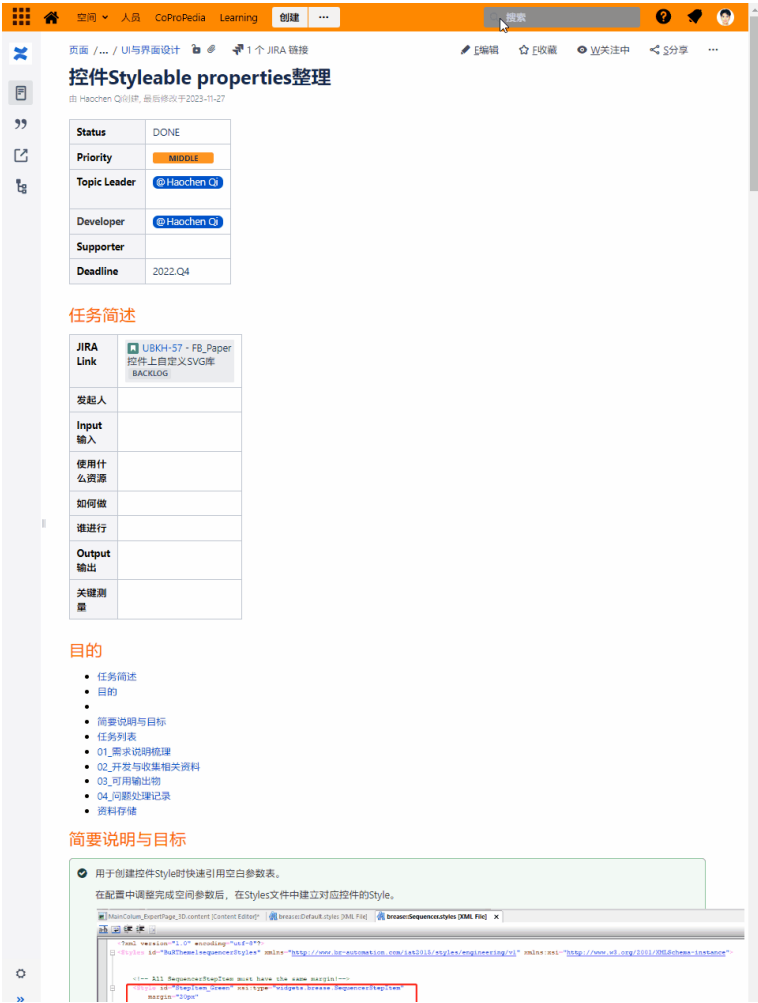
Process done at:

Remaining time:

Error Reset

演示效果

风格



<https://confluence.br-automation.com/pages/viewpage.action?pageId=310182109>

03

以三个控件的创新妙用为例

Model Viewer

三维控件

Model Viewer

三维控件

```
C:\Temp\WEB\index.html - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
mappViewTest.apj A2000S_23080201.apj index.html
1 <html>
2 <head>
3   <meta charset="UTF-8">
4   <meta name="viewport" content="width=device-width, initial-scale=1.0">
5   <!-- Get the model-viewer script ONLINE -->
6   <!-- <script type="module"
7     src="https://unpkg.com/@google/model-viewer/dist/model-viewer.min.js"></script> -->
8   <!-- Get the model-viewer script OFFLINE -->
9   <script type="module" src="../modelViewer/model-viewer.min.js"></script>
10  <style>
11    model-viewer{width:100%; height:96%; margin:0; auto;}
12  </style>
13  <!-- Script used to get a query element from the given url -->
14  <script>
15    function getParameter(parameterName){
16      let parameters = new URLSearchParams(window.location.search);
17      return parameters.get(parameterName);
18    }
19  </script>
20 </head>
21 <body>
22   <model-viewer id="Model3D" src="A2000S.glb" camera-controls disable-zoom"></model-viewer>
23
24   <script>
25     const modelViewer = document.querySelector("#Model3D");
26     modelViewer.cameraOrbit = '180deg 90deg auto';
27     /* If no queries are used, the rest of the script can be commented out */
28     /* Get the "roll" parameter from Url query */
29     const roll = getParameter("roll");
30     let text1 = "0deg 0deg ";
31     let text2 = text1.concat(roll);
32     let orientationStr = text2.concat("deg");
33     modelViewer.orientation = orientationStr;
34     /* More parameters from the url query could be used with modelViewer object */
35     /* ... */
36   </script>
37 </body>
38 </html>
length : 1,391 lines : 38 Ln : 1 Col : 1 Sel : 1,391 | 38 Windows (CR LF) UTF-8 INS
```

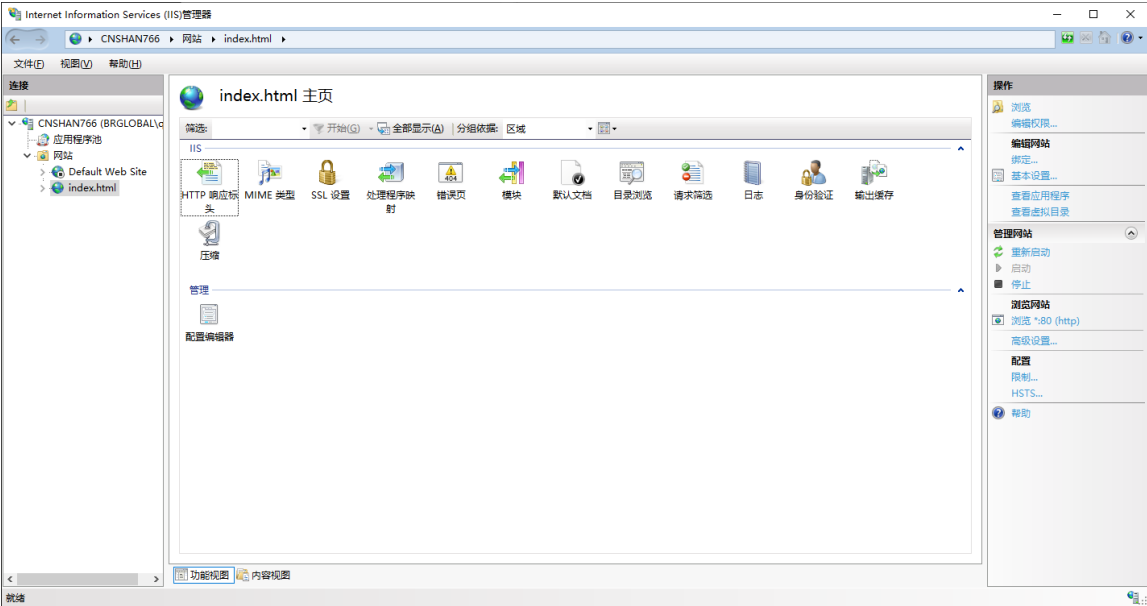
```
C:\Temp\WEB\modelViewer\model-viewer.js - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help
A2000S_SOC1Page_3D.content model-viewer.js Asset 12.svg
53349 *
53350 * Adapted from Three.js, @see https://github.com/mrdoob/three.js/blob/7e0a78beb9317e580d7fa4da9b5b12be051c6feb/sr
53351 */
53352 const reduceVertices = (model, func, initialValue) => {
53353   let value = initialValue;
53354   const vertex = new Vector3();
53355   model.traverse((object) => {
53356     let i, l;
53357     object.updateWorldMatrix(false, false);
53358     const geometry = object.geometry;
53359     if (geometry !== undefined) {
53360       if (geometry.isGeometry) {
53361         const vertices = geometry.vertices;
53362         for (i = 0, l = vertices.length; i < l; i++) {
53363           vertex.copy(vertices[i]);
53364           vertex.applyMatrix4(object.matrixWorld);
53365           value = func(value, vertex);
53366         }
53367       }
53368       else if (geometry.isBufferGeometry) {
53369         const { position } = geometry.attributes;
53370         if (position !== undefined) {
53371           const scale = getNormalizedComponentScale(position);
53372           for (i = 0, l = position.count; i < l; i++) {
53373             vertex.fromBufferAttribute(position, i);
53374             vertex.multiplyScalar(scale);
53375             vertex.applyMatrix4(object.matrixWorld);
53376             value = func(value, vertex);
53377           }
53378         }
53379       }
53380     }
53381   });
53382   return value;
53383 };
53384
53385 /* @license
53386 * Copyright 2019 Google LLC. All Rights Reserved.
53387 * Licensed under the Apache License, Version 2.0 (the 'License');
53388 * you may not use this file except in compliance with the License.
Line 38, Column 47 Spaces: 4 JavaScript
```

Model Viewer

三维控件

此电脑 > Windows (C:) > Temp > WEB

名称	修改日期	类型	大小
modelViewer	2023/8/22 10:29	文件夹	
Survival Kit-glb	2023/10/31 10:28	文件夹	
testmoudle	2023/10/31 10:28	文件夹	
A2000S.glb	2023/10/15 23:43	GLB 文件	691,264 KB
index.html	2023/9/12 11:09	Chrome HTML D...	2 KB
README.txt	2017/8/28 2:16	文本文档	1 KB



Paper

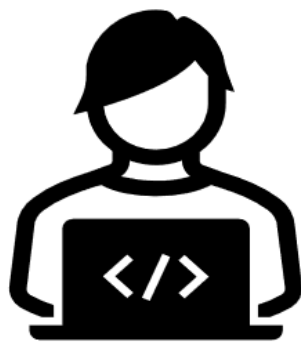
SVG控件



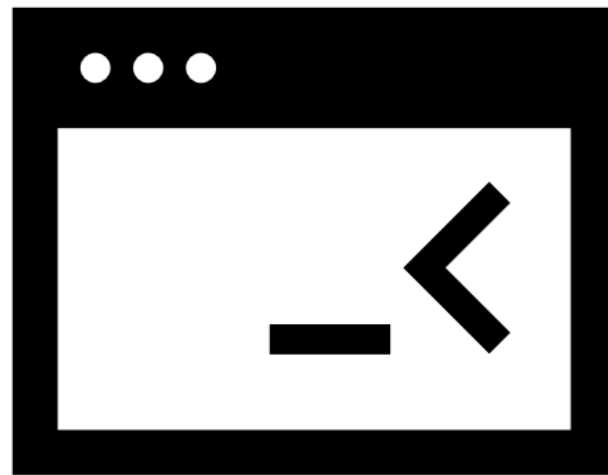
1010
1010
角度参数



SVG模板



SVG源代码



Paper控件

Paper

SVG控件

SVG头

+

角度

+

空格

+

SVG尾

```
<svg width="100" height="100" xmlns="http://www.w3.org/2000/svg">
  <g id="Layer_1">
    <title>Layer 1</title>
    <g id="svg_9" transform="rotate(90 50 50)">
      <ellipse ry="45" rx="45" id="svg_1" cy="50" cx="50" stroke="#000" fill="#fff"
transform="rotate(270 50 50)"/>
      <text xml:space="preserve" text-anchor="start" font-family="Noto Sans JP" font-size="24"
stroke-width="0" id="svg_2" y="58.94995" x="16.34611" stroke="#000" fill="#000000"
transform="rotate(270 21.8808 49.6168)">1</text>
      <text fill="#000000" stroke="#000" stroke-width="0" x="45.6211" y="87.99551" id="svg_4"
font-size="24" font-family="Noto Sans JP" text-anchor="start" xml:space="preserve"
transform="rotate(180 52.0307 78.6623)">2</text>
      <text fill="#000000" stroke="#000" stroke-width="0" x="73.17461" y="59.92812" id="svg_6"
font-size="24" font-family="Noto Sans JP" text-anchor="start" xml:space="preserve"
transform="rotate(90 79.7162 50.5949)">3</text>
      <text fill="#000000" stroke="#000" stroke-width="0" x="43.46523" y="30.0243" id="svg_8"
font-size="24" font-family="Noto Sans JP" text-anchor="start" xml:space="preserve">4</text>
    </g>
  </g>
</svg>
```

Paper SVG控件

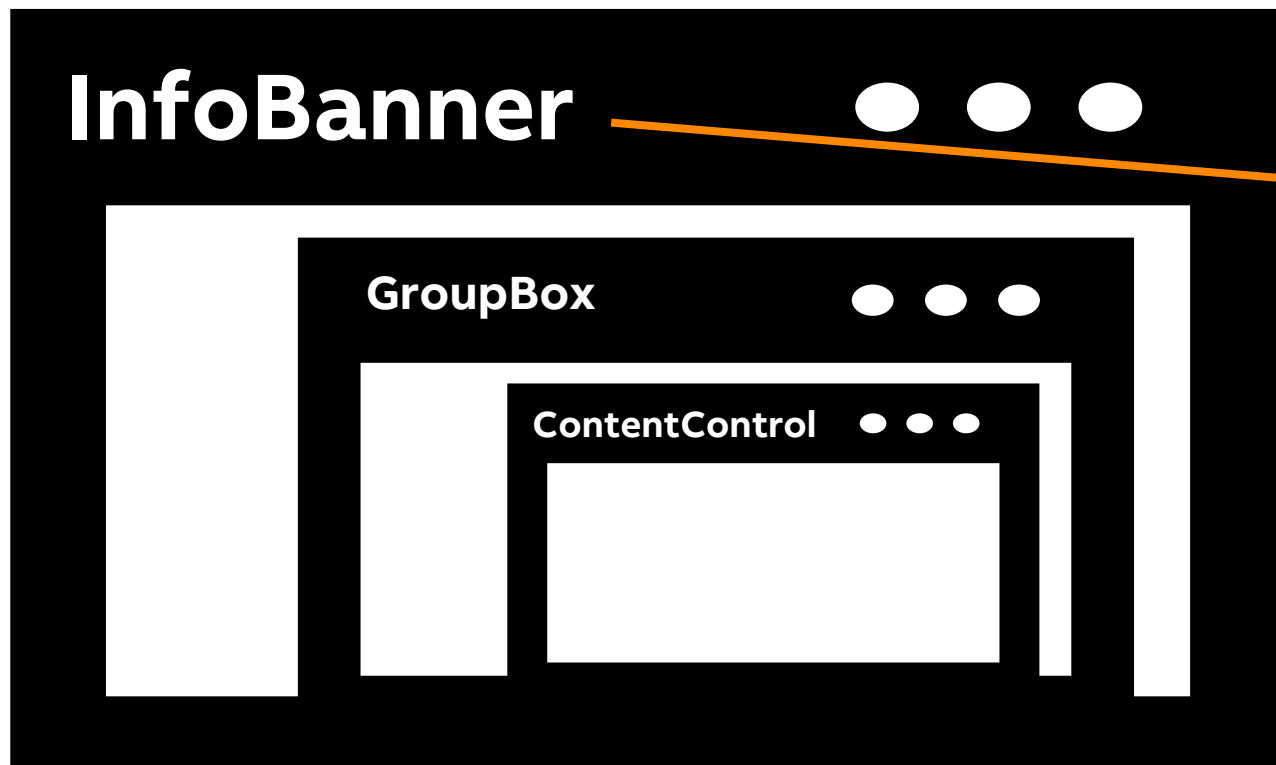
```
//Servo页面SVG操作
IF HMI_Ctrl.ConfigPage.Servo.Rotate < 360 THEN
    HMI_Ctrl.ConfigPage.Servo.Rotate := HMI_Ctrl.ConfigPage.Servo.Rotate + 0.001;
ELSE
    HMI_Ctrl.ConfigPage.Servo.Rotate := 0;
END_IF;
IF HMI_Ctrl.ConfigPage.Servo.Rotate <> atof(ADR(HMI_Ctrl.ConfigPage.Servo.Internal.Rotate)) THEN
    i := 0;
END_IF;
IF i=0 THEN
    HMI_Ctrl.ConfigPage.Servo.SVG := '';
    ftoa(HMI_Ctrl.ConfigPage.Servo.Rotate,ADR(HMI_Ctrl.ConfigPage.Servo.Internal.Rotate));
    brsstrcat(ADR(HMI_Ctrl.ConfigPage.Servo.SVG),ADR(HMI_Ctrl.ConfigPage.Servo.Internal.Start));
    brsstrcat(ADR(HMI_Ctrl.ConfigPage.Servo.SVG),ADR(HMI_Ctrl.ConfigPage.Servo.Internal.Rotate));
    brsstrcat(ADR(HMI_Ctrl.ConfigPage.Servo.SVG),ADR(' '));
    brsstrcat(ADR(HMI_Ctrl.ConfigPage.Servo.SVG),ADR(HMI_Ctrl.ConfigPage.Servo.Internal.End));
    i := 2;
```

InfoBanner

信息横幅

InfoBanner

信息横幅



Actions ▾

Name ▲ ▼	Description
Close	Collapses the InfoBanner widget window with the set <i>transitionCloseTime</i> .
Open	Opens the InfoBanner widget window with the set <i>transitionCloseTime</i> .
SetVisible	Controls the visibility of the widget.
SetEnable	Controls the usability of the widget.
SetStyle	Sets a predefined style for the widget.
Toggle	Opens or closes the InfoBanner widget window.
ShowTooltip	Mode "Tooltip" can be enabled using this action. When enabled, a tooltip indicator appears inside the widget. The operation of a widget terminates mode "Tooltip".

InfoBanner

信息横幅

opcUa

()::A2000_HMIC.HMI_Ctrl.SOCSelectPage.InfoBanner_select

EventBinding_9

Operands:

Execute if: newValue = 0

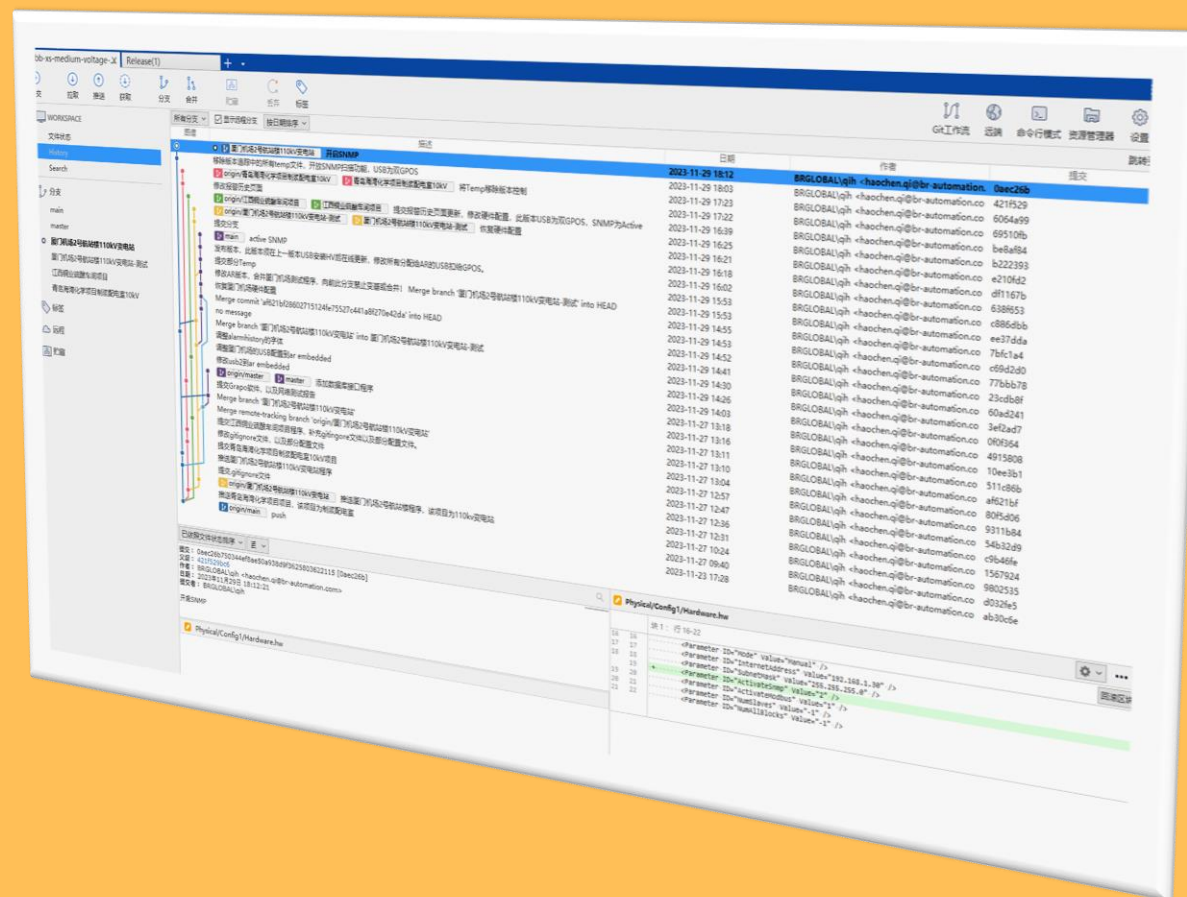
	Method:	Reference:
0.	widget Open	MainColum_SOCSelectPage_3D.IFB_SOCPage_SOC1
1.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_SOC2
2.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_SOC3
3.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_SOC4
4.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_SOC5
5.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_GL
6.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_PL
7.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_VC1
8.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_VC2

Execute if: newValue = 1

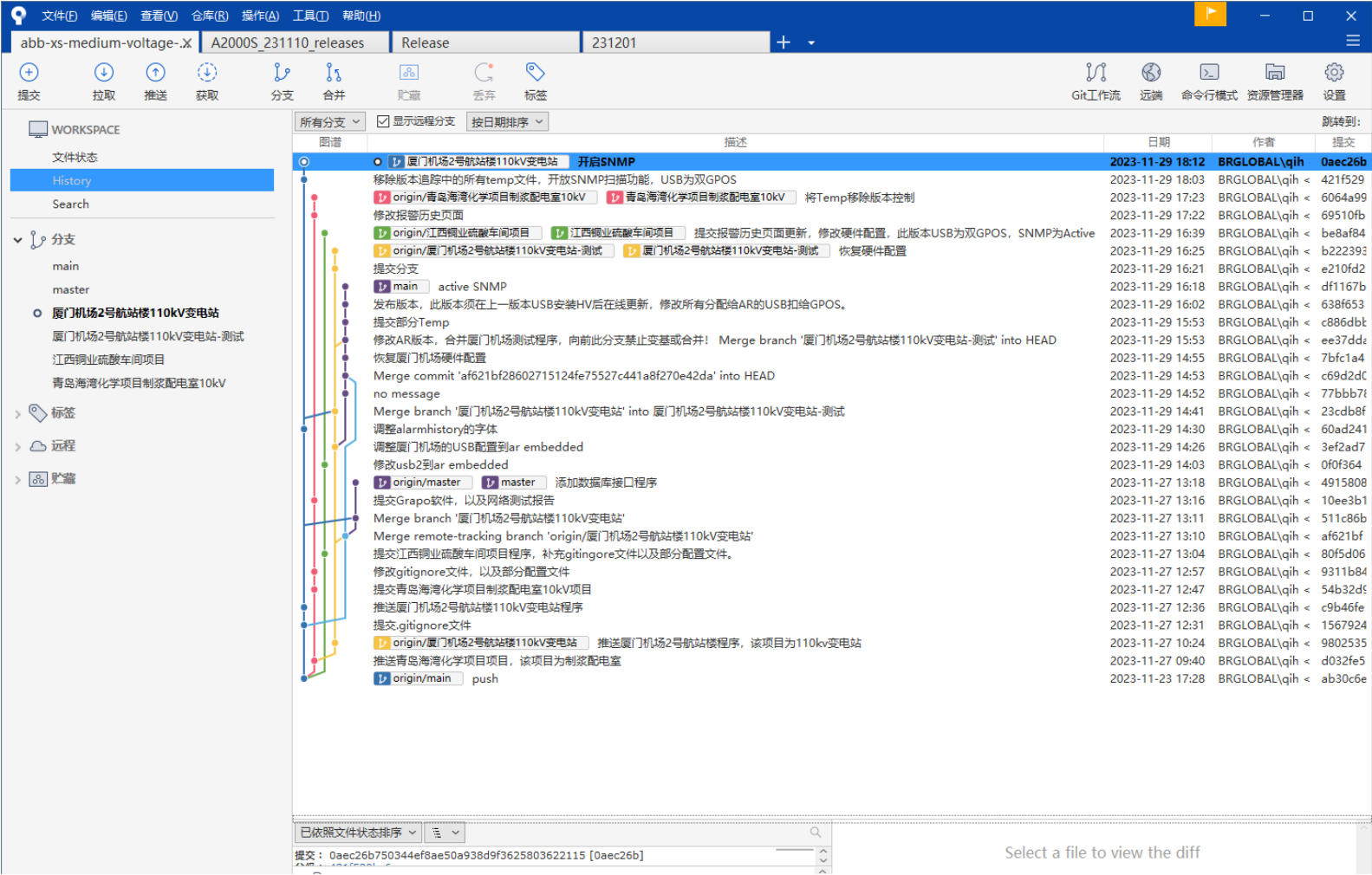
	Method:	Reference:
0.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_SOC1
1.	widget Open	MainColum_SOCSelectPage_3D.IFB_SOCPage_SOC2
2.	widget Close	MainColum_SOCSelectPage_3D.IFB_SOCPage_SOC3

04

版本控制 & mapp View



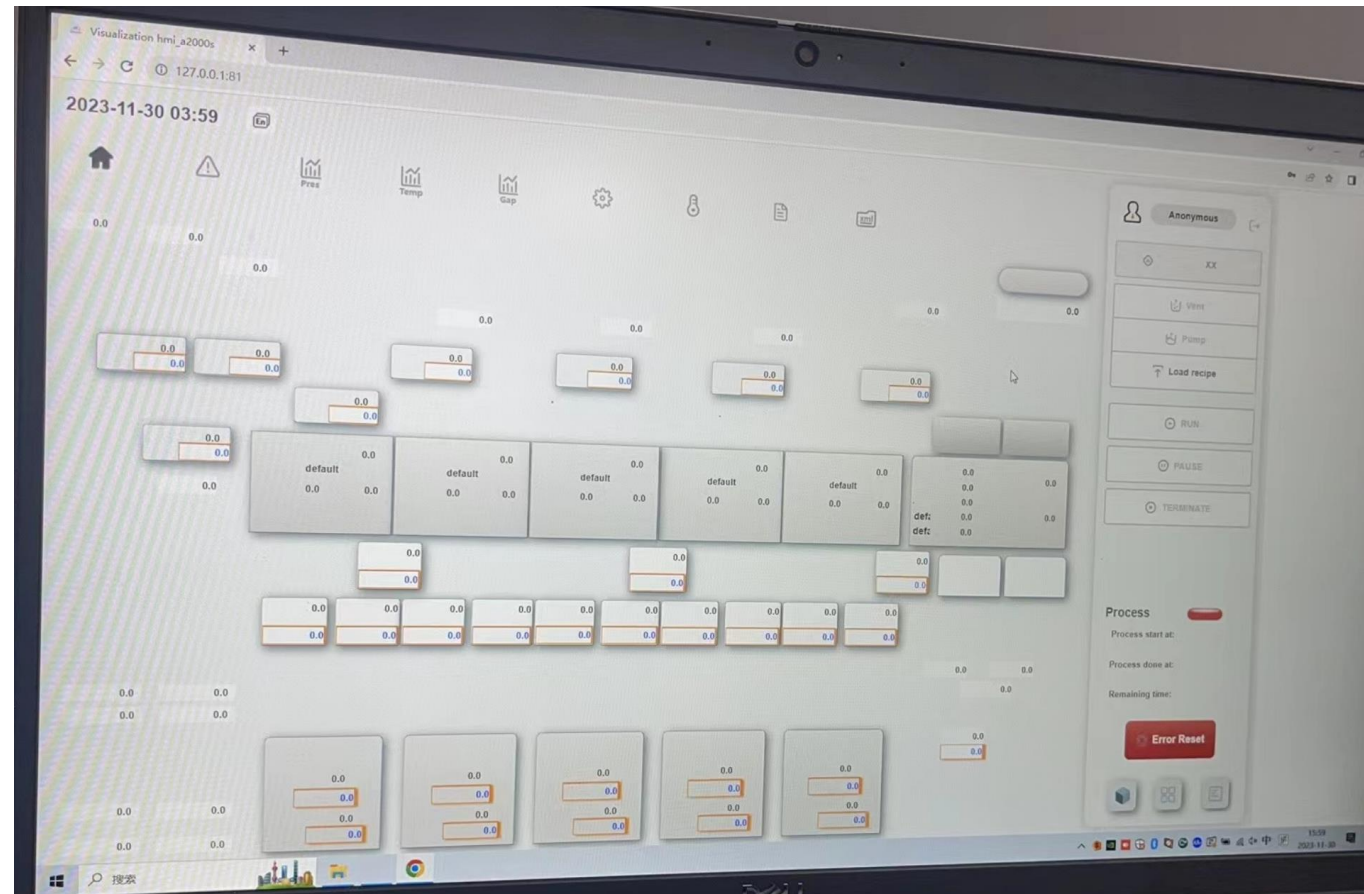
版本控制 & mapp View



往期WeTalk内容：

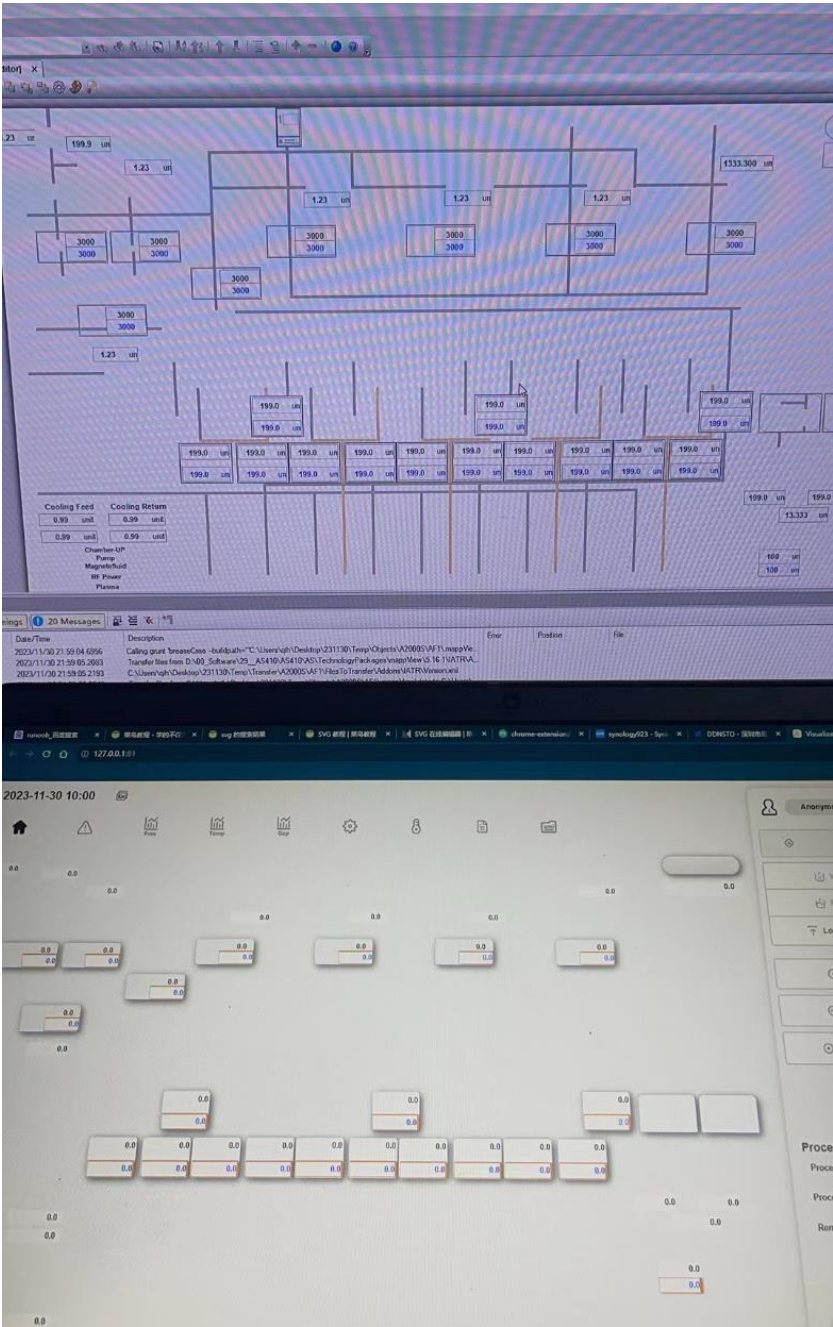
[20231110 标准化小组分享，中文帮助是怎样炼成的](#)

版本控制 & mapp View



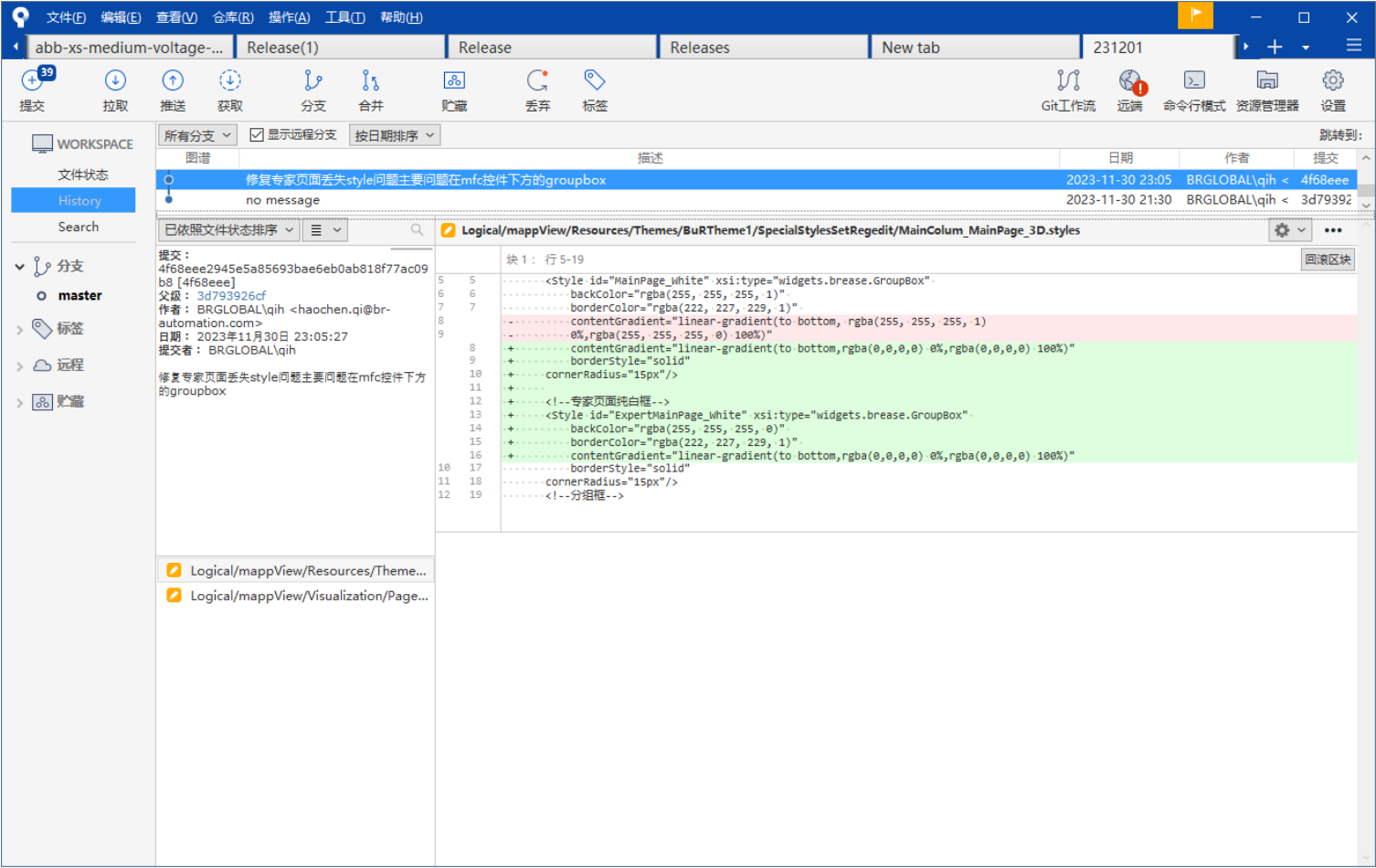
版本控制 & mapp View

常用办法：删控件定位错误

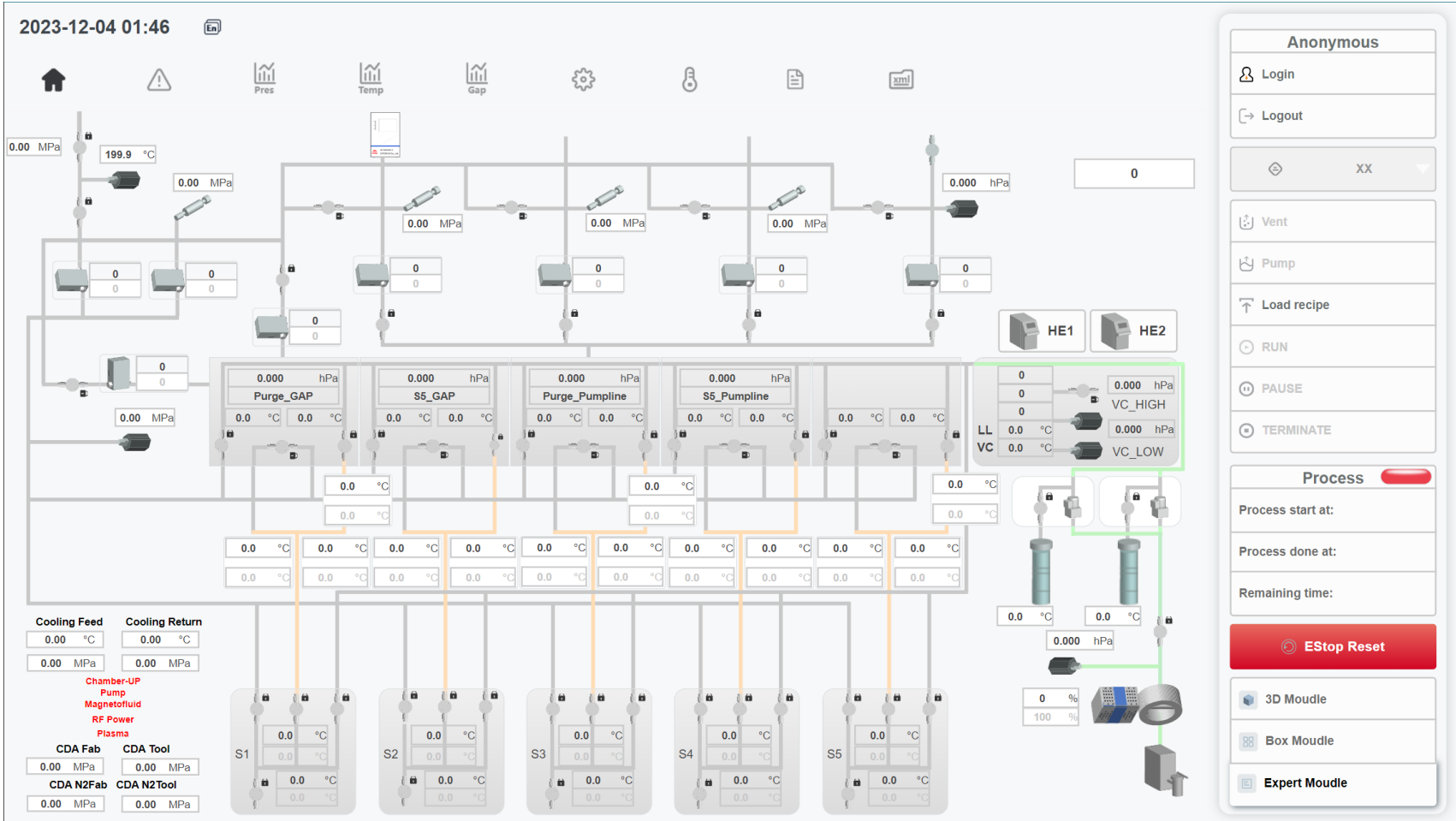


版本控制 & mapp View

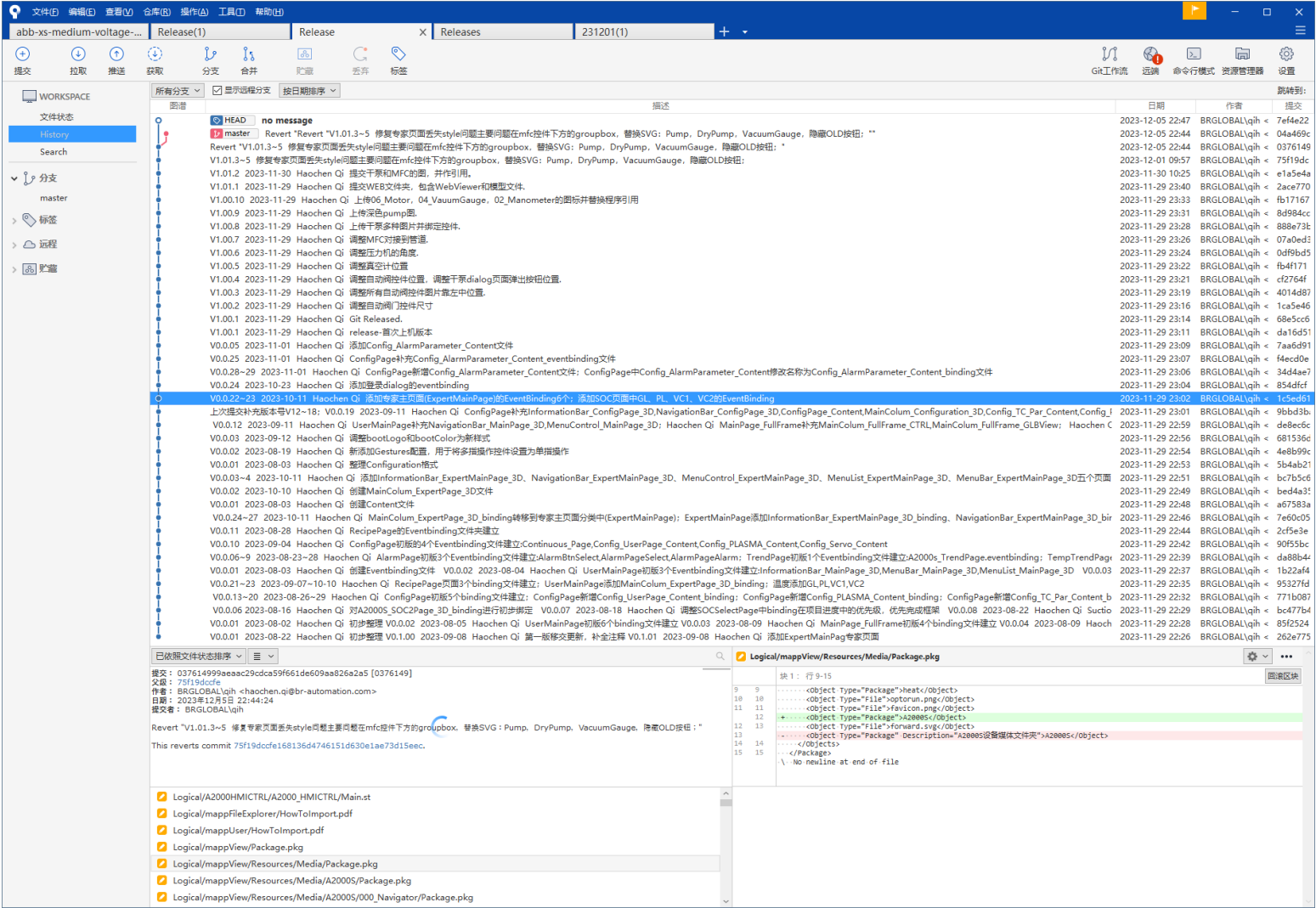
版本控制：
一秒定位错误原因！



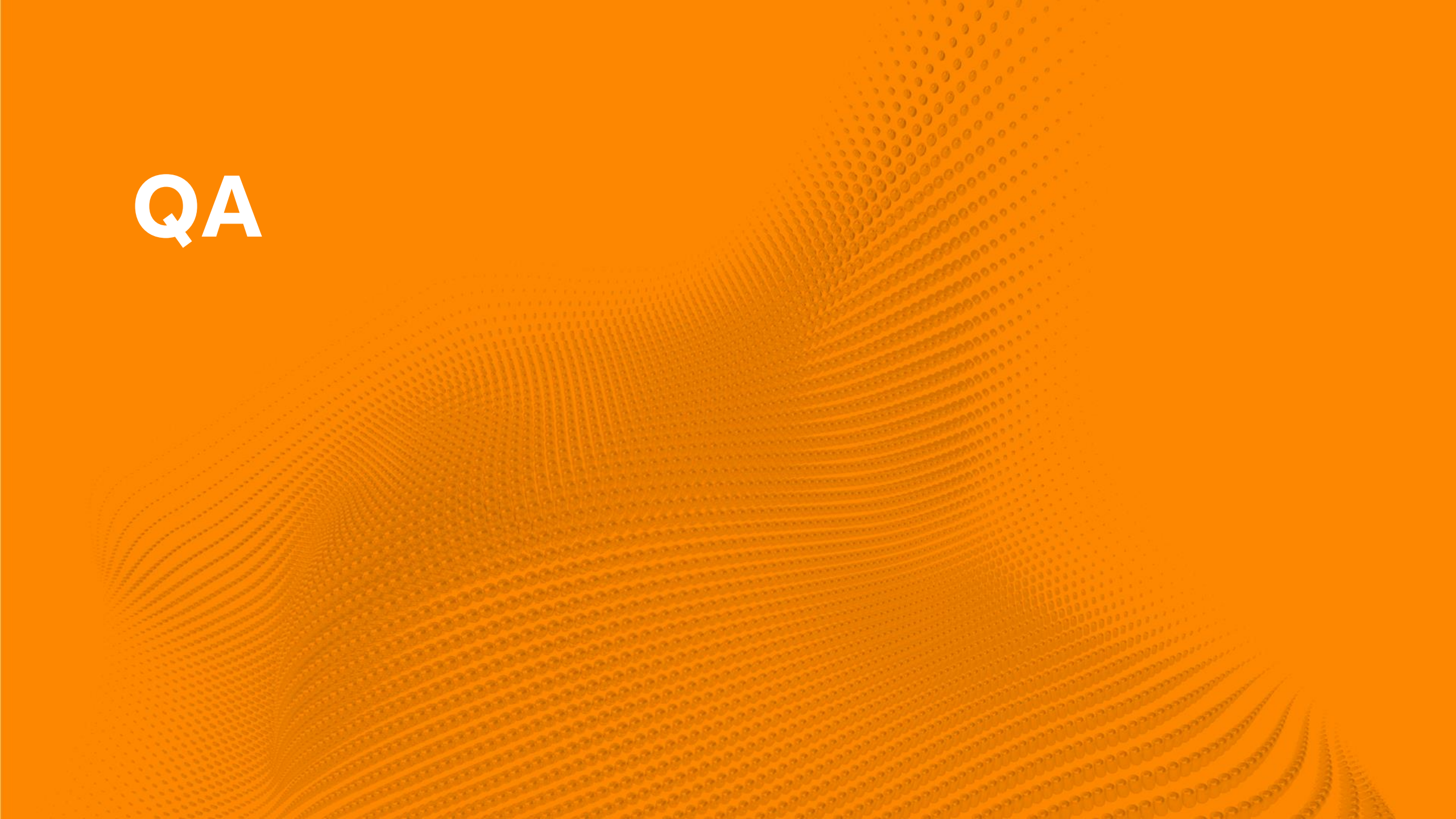
版本控制 & mapp View



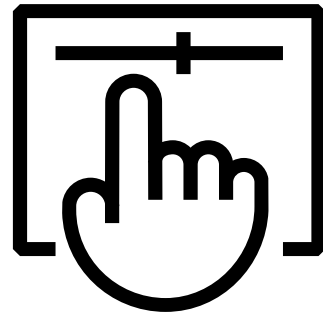
版本控制 & mapp View



QA

The background is a solid orange color. Overlaid on this is a complex pattern of dots. These dots are arranged in a grid that follows a wave-like or undulating path across the entire frame. The dots themselves are a slightly darker shade of orange, creating a subtle texture and depth. The overall effect is a modern, abstract design.

QA



mapp

View

B&R

A thick, solid orange horizontal bar positioned directly beneath the 'B&R' text.

