

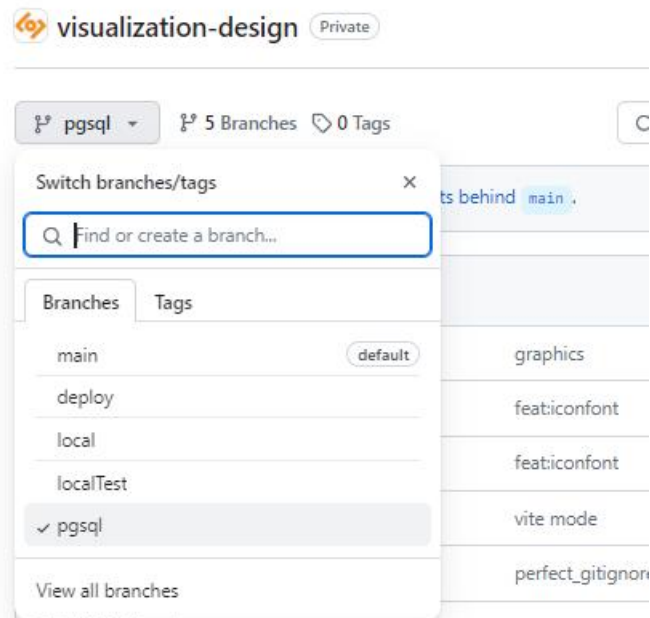
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一 下载代码

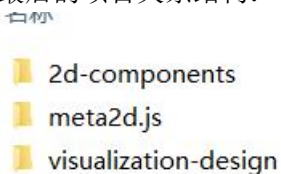
项目地址: <https://github.com/le5le-com/visualization-design>

1. 拉取代码: `git clone https://github.com/le5le-com/visualization-design.git`
2. 进入项目文件: `cd visualization-design/`
3. 确认当前是 `pgsql` 分支:



说明:

- ① `pgsql` 分支对应后端数据库使用 `pgsql`
 - ② 需要拉取核心库并将其放到该项目的同级目录下,
核心库地址: <https://github.com/le5le-com/meta2d.js>
 - ③ 若购买了控件, 需下载 `2d-components`, 并将其放到该项目的同级, 项目地址:
<https://github.com/le5le-com/2d-components>
- 最后的项目关系结构:



二 安装依赖包（快速运行）

进入到 `visualization-design` 项目, 终端运行命令

`pnpm install` //安装依赖

`pnpm start` //启动项目

pnpm 下载地址: <https://pnpm.io/installation> (中文: <https://www.pnpm.cn/installation>)

三 加载图形库

3.1 方案

方案即图纸, 通过 `/api/data/le5leV/list` 接口请求, 通过 `tags:"方案"` 区分于其他图纸。

```
const getCaseProjects = async (name: string, current = 1) => {
  const query: any = { tags: name };

  const ret: any = await axios.post(
    '/api/data/le5leV/list',
    {
      query,
      shared: 'true',
      projection: [
        {
          id: 1,
          _id: 1,
          name: 1,
          image: 1,
          price: 1,
          case: 1,
        },
      ],
      sort: { createdAt: 1 },
    },
    {
      params: {
        current,
        pageSize,
      },
    }
  );
};
```

3.2 模版

模板同场景, 通过 `tags:"模板"` 区分于其他图纸。

乐吾乐提供场景和模板的后台管理平台, 需要可以单独购买。

3.3 图表

图表主要包括 echarts 图表和乐吾乐图表

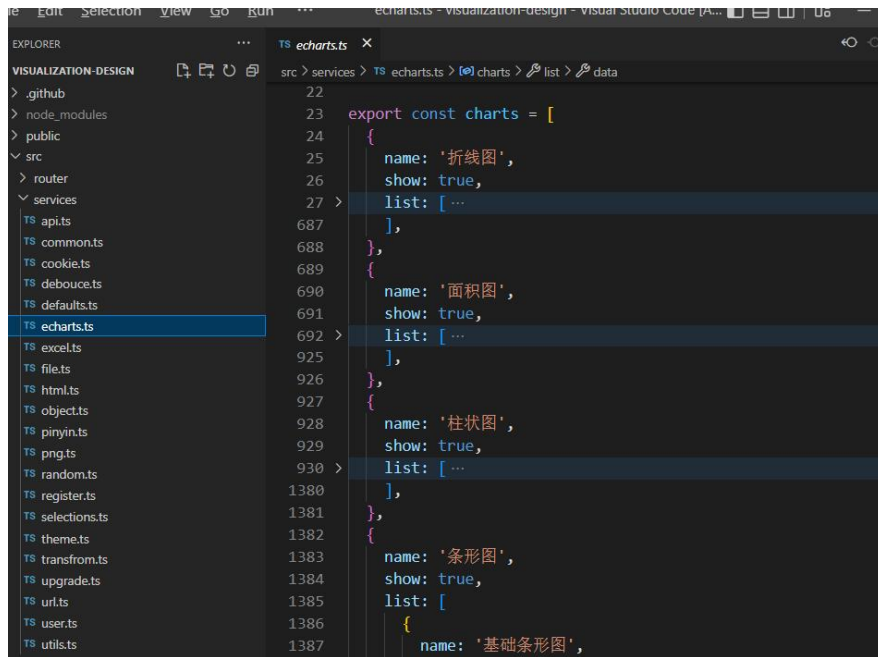
图形库使用对应的文档介绍:

Echarts 图表:

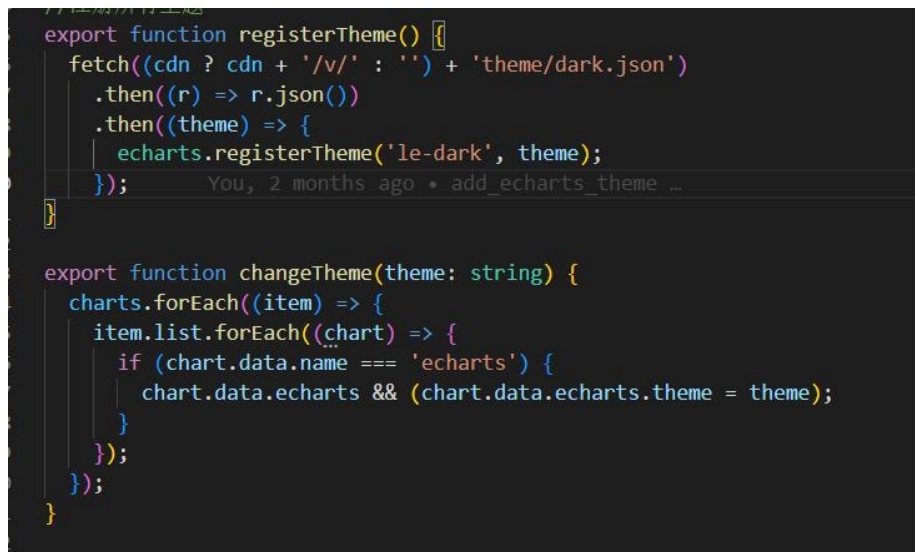
<https://doc.le5le.com/document/119754049#Echarts%E5%9B%BE%E8%A1%A8>

乐吾乐图表: <https://doc.le5le.com/document/119826189>

图表配置文件在 `src/services/echarts.ts` 文件里面。



这里有 echarts 图形库主题的注册及使用



3.4 素材

素材主要是图片资源，包括一些图片图标、装饰、标题和面板等。通过/api/assets/folders 和 /api/assets/files 接口分别请求对应文件夹和文件夹下的文件。传入参数 path:'v/material'



```

case '素材':
  groupType.value = 1;
  if (!materials.length) {
    loading.value = true;
    materials.push(...(await getFolders('v/material')));
    loading.value = false;
  }
  subGroups.value = materials;
  break;

```

```

5 export async function getFolders(name: string, isSvg?: boolean) {
6   const path = name;
7   const folders: any = await axios.post('/api/assets/folders', {
8     path,
9   });
10  };
11  if (!folders || !folders.list) {
12    return [];
13  }
14
15  const files: any = await axios.post('/api/assets/files', {
16    path,
17  });

```

3.5 图元

图元主要是指不同行业/场景下的 svg/png 组件库，接口请求同素材，传入参数 path 分别是“svg”/“png”

```

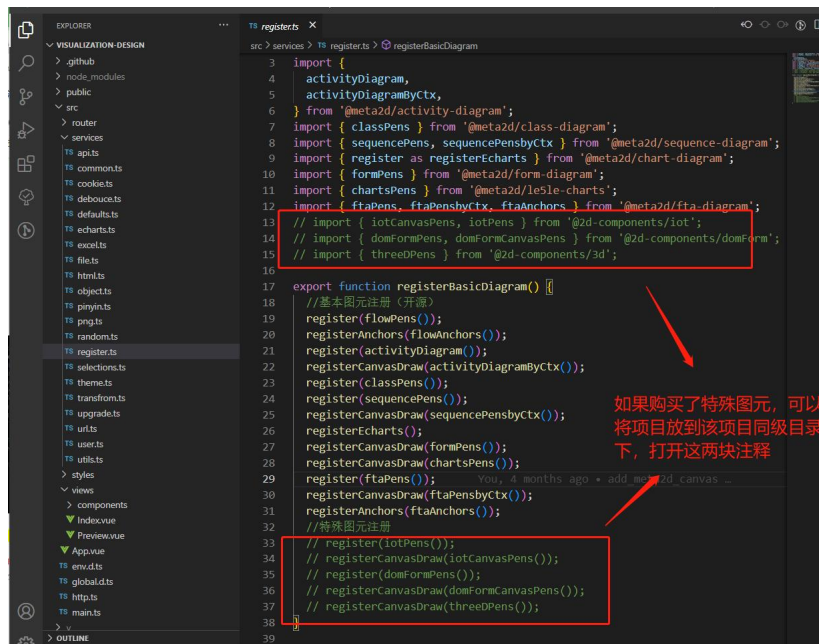
case '图元':
  if (!pngs.length) {
    loading.value = true;
    pngs.push(...(await getFolders('png')));
    pngs.push(...(await getFolders('svg', true)));
    loading.value = false;
  }
  subGroups.value = pngs;
  break;

```

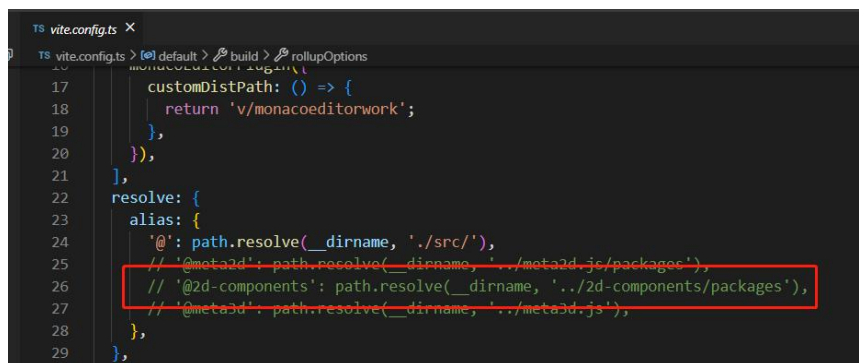
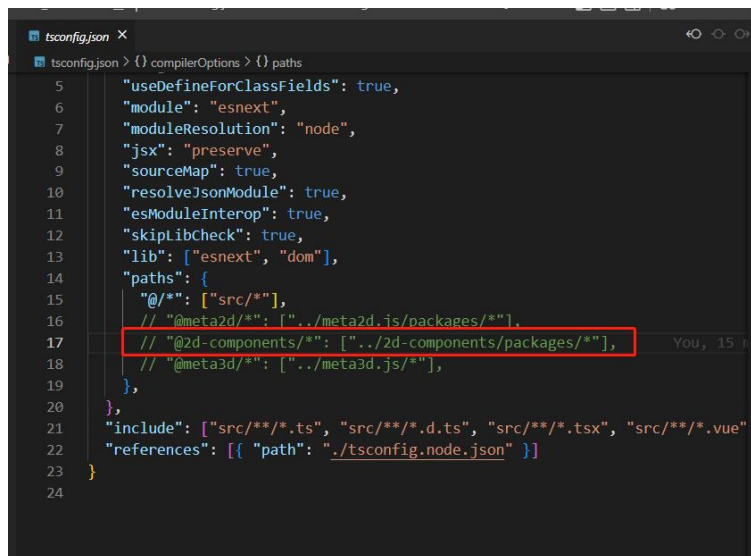
3.6 控件

控件主要是指一些控件图元，包含基础图元和特殊图元（需要单独购买）。图形库属性的详细介绍可以查看文档：<https://doc.le5le.com/document/119754049>

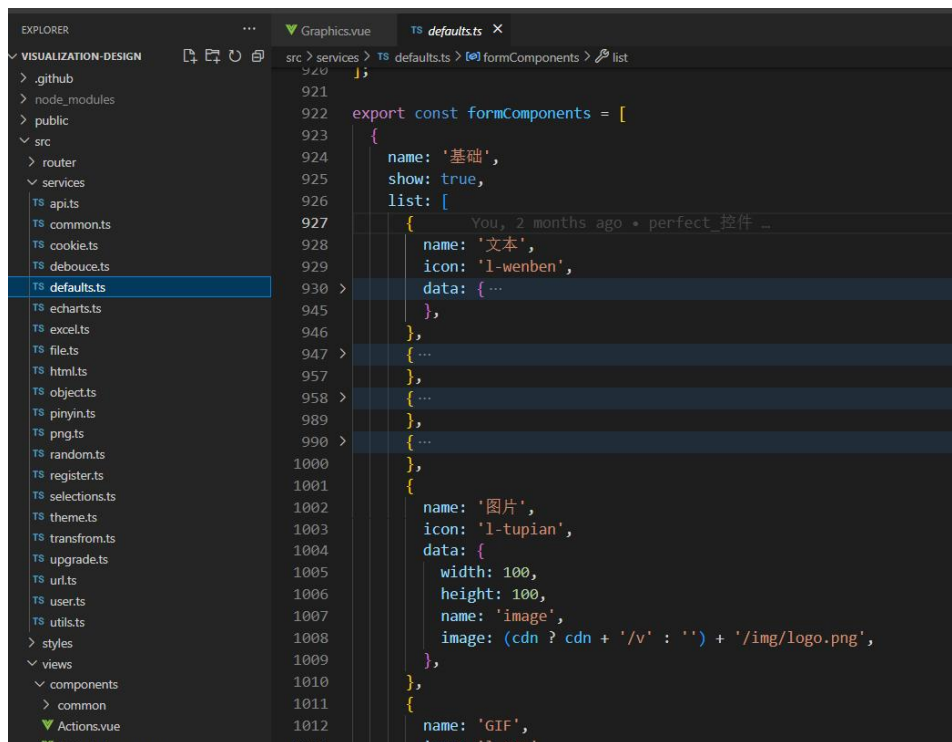
图元的注册是在 `src/services/register.ts` 文件里



如果购买了**特殊图元**，需要取消下面框选位置的注释：



图形库的配置是在 `src/services/defaults` 文件里。

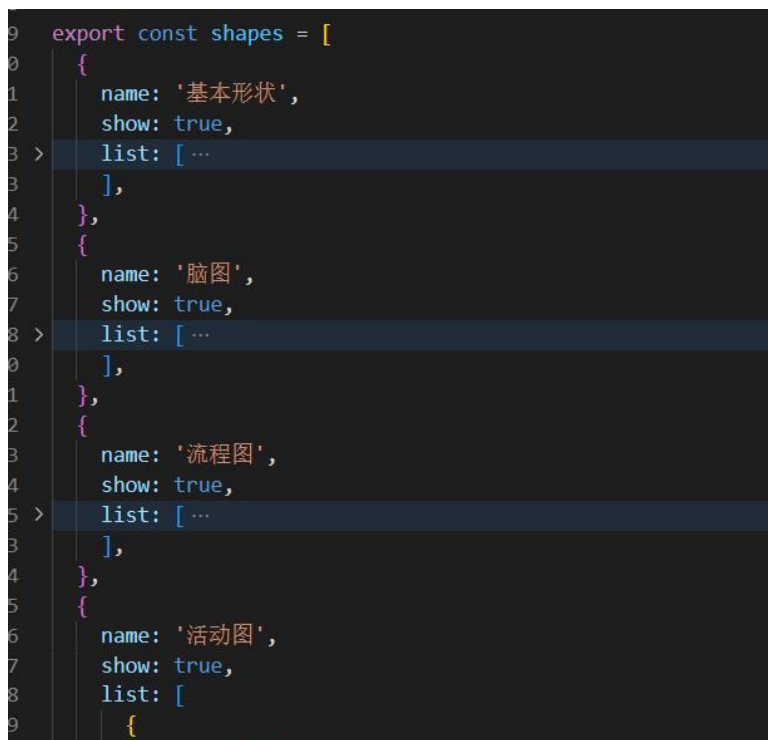


3.7 图形

图形主要是核心库开源的基础图元，具体可见文档：

<https://doc.le5le.com/document/119754049>

注册同控件，配置文件如下：



3.8 我的资源

3.8.1 方案

```
subGroups.value = await getUserProjects('le5leV');
groupType.value = 1;
await getPrivateProjects('le5leV');
userLastName = name;
```

通过/api/data/folders/list 请求文件夹列表及文件夹下的方案，/api/data/le5leV/list 接口传入 folder 为空字符串，请求默认文件夹下的方案。

3.8.2 模版

```
subGroups.value = await getUserProjects('le5leV-template');
groupType.value = 1;
await getPrivateProjects('le5leV-template');
userLastName = name;
```

同方案，通过 tags 区分是方案还是模版

```
tags: type === 'le5leV-template' ? '模板' : '方案',
},
```

3.8.3 组件

```
case '组件':
  subGroups.value = await getUserComponents();
  groupType.value = 1;
  await getPrivateGraphics();
  userLastName = name;
  break;
```

主要是通过 /api/data/folders/list 请求文件夹列表及文件夹下组件，通过 /api/data/le5leV-components/list 接口请求默认文件夹下的组件

3.8.4 图片

```
case '图片':
  loading.value = true;
  subGroups.value = await getImageList();
  loading.value = false;
  userLastName = name;
  break;

const getImageList = async () => {
  let ret: { list: any[] } = await axios.post('/api/directory/list', {
    fullpath: '/大屏',
  });
  if (!ret) {
    return [];
  }
  let list = [];
  for (let i of ret.list) {
    if (i.fullpath.indexOf('缩略图') === -1) {
      list.push(i);
    }
  }
  return await Promise.all(...);
};
```

获取云盘下所有图片资源。

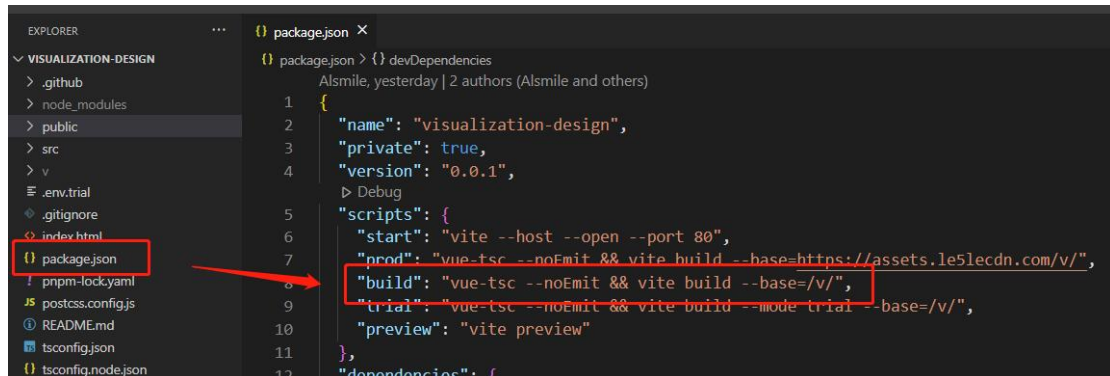
3.8.5 3D

自定义的 3d 场景，通过/api/data/le5le3d/list 接口请求 3d 场景

```
case '3D':
  subGroups.value = [
    {
      name: '3D',
      list: [],
    },
  ];
  groupType.value = 1;
  await getPrivateGraphics();
  userLastName = name;
  break;
```

四 编译打包

运行命令：pnpm run build



五 源码结构说明

整个项目分为两个页面：①Index.vue 大屏编辑页面 ②Preview.vue 大屏预览页面（运行页面）

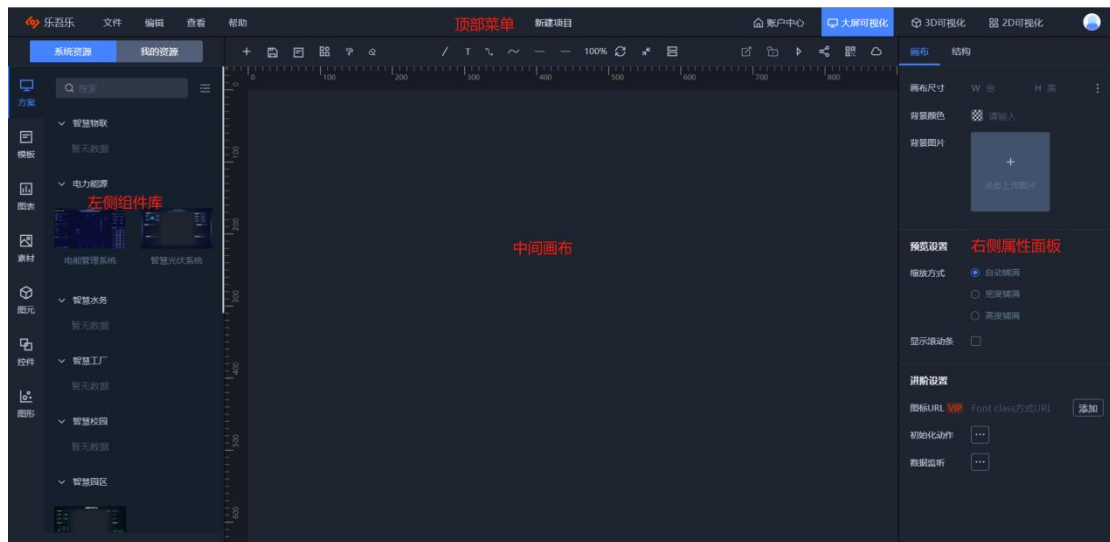


5.1 编辑器页面

编辑器页面整体结构如下：



对应运行页面：



5.1.1 头部菜单

1. 目录: components/Header.vue
2. 源码说明:



- ① 右侧包含 logo 及公司名、文件、编辑、查看、帮助,都是通过下拉组件实现
以文件为例,可以在每个选项的 click 事件定位到对应执行的代码内容。

```

<t-dropdown
  :minColumnWidth="200"
  :maxHeight="560"
  :delay2="[10, 150]"
  overlayClassName="header-dropdown"
  trigger1="click"
>
  <a> 文件 </a>
  <t-dropdown-menu>
    <t-dropdown-item @click="newFile">
      <a>新建文件</a>
    </t-dropdown-item>
    <t-dropdown-item @click="load(true)">
      <a>打开文件</a>
    </t-dropdown-item>
    <t-dropdown-item divider="true" @click="load">
      <a>导入文件</a>
    </t-dropdown-item>
    <t-dropdown-item>
      <a @click="save()">保存</a>
    </t-dropdown-item>
    <t-dropdown-item>
      <a @click="save(SaveType.SaveAs)">另保存</a>
    </t-dropdown-item>
    <t-dropdown-item divider="true">
      <a @click="downloadJson">下载JSON文件</a>
    </t-dropdown-item>
    <t-dropdown-item>

```

方法中可能用到了一些开源库（例如：下载文件用到了 `file-saver` 库）、调用了核心库方法，具体开发者自行阅读执行逻辑。

② 中间输入大屏图纸的名称

```

<div style= width: 148px; flex-shrink: 0 ></div>
<input v-model="data.name" @input="onInputName" />
Alsmile, 4 months ago • init
<a href= "/assets/account" target= "blank">

```

③ 右侧是一些导航链接，包括账户中心、乐吾乐其他产品、登录/用户菜单

5.1.2 左侧组件库

1. 目录：components/Graphics.vue
2. 源码说明：

```

<div class="input-search">
  <div class="btn">
    <t-icon name="search" />
  </div>
  <t-input
    v-model="search"
    @change="onSearch"
    @enter="onSearch"
    placeholder="搜索"
  />

  <div class="ml-16">
    <t-tooltip content="展开/折叠">
      <t-icon
        name="menu-fold"
        class="hover"
        style="font-size: 16px"
        @click="onFold"
      />
    </t-tooltip>
  </div>
</div>

```

① 顶部的左侧搜索框用于从下面选中的组件中搜索内容，右侧按钮控制下面选中的组件整体的展开/折叠



搜索框执行代码如图：主要通过 visible 属性控制组件的显示/隐藏

```

<t-input
  v-model="search"
  @change="onSearch"
  @enter="onSearch"
  placeholder="搜索"
/>

```

```

5  const onSearch = () => {      Alsmile, last month • search ing
6  |   debounce(searchGraphics, 300);
7  | };
8
9  const searchGraphics = async () => {
10 |   if (search.value) {
11 |     activePanels[activeGroup.value].splice(
12 |       0,
13 |       activePanels[activeGroup.value].length
14 |     );
15 |   }
16
17 |   for (const group of subGroups.value) {
18 |     for (const item of group.list) {
19 |       if (search.value) {
20 |         item.visible = searchObjectPinyin(item, 'name', search.value);
21 |       } else {
22 |         item.visible = true;
23 |       }
24 |     }
25
26 |     if (search.value) {
27 |       activePanels[activeGroup.value].push(group.name);
28 |     }
29 |   }
30 | };
31

```

右侧按钮通过控制当前活动面板 activePanels key 的内容控制下面面板的展开/折叠。

```

<t-tooltip content="展开/折叠">
  <t-icon
    name="menu-fold"
    class="hover"
    style="font-size: 16px"
    @click="onFold"
  />
</t-tooltip>

```



```
const onFold = () => {
  if (!activatedPanels[activatedGroup.value]) {
    return;
  }

  if (activatedPanels[activatedGroup.value].length) {
    activatedPanels[activatedGroup.value] = [];
  } else {
    activatedPanels[activatedGroup.value] = [];
    for (const item of subGroups.value) {
      activatedPanels[activatedGroup.value].push(item.name);
    }
  }
};
```

② 下面组件库，不同的类型对应不同的组件库/场景/模版内容。



通过监听点击选中，根据 name 去请求不同的数据，展示对应的内容。


```
const groupChange = async (name: string) => {
  activatedGroup.value = name;
  groupType.value = 0;
  switch (name) {
    > case '方案': ...
    > case '模板': ...
    > case '图表': ...
    > case '控件': ...
    > case '素材': ...
    > case '图元': ...
    > case '图形': Alsmile, 3 months ago • 场景
    > case '组件': ...
    > case '图片': ...
    > case '3D': ...
  }
}
```

5.1.3 中间画布

① 顶部二级菜单



右侧是快捷按钮 新建、保存为大屏、保存为我的组件、格式刷和清除格式。

可以通过点击事件跳转到对应方法的执行，例如格式刷主要调用了核心库方法。

```
const oneFormat = () => {
  if (one.value) {
    one.value = false;
  } else {
    one.value = true;
    meta2d.setFormatPainter();
  }
  if (always.value) {
    always.value = false;
    one.value = false;
  }
};

const alwaysFormat = () => {
  always.value = true;
};

const clearFormat = () => {
  always.value = false;
  one.value = false;
  meta2d.clearFormatPainter();
};
```

中间是连线、视图、数据源管理相关操作

可以通过调用核心库方法将图纸切换到连线状态，下图代码表示控制关闭/打开连线状态

```

const oneDraw = () => {
  if (oneD.value) {
    oneD.value = false;
    if (!alwaysD.value) {
      meta2d.finishDrawLine();
      meta2d.drawLine();
      meta2d.store.options.disableAnchor = true;
    }
  } else {
    oneD.value = true;
    meta2d.drawLine(meta2d.store.options.drawingLineName);
    meta2d.store.options.disableAnchor = false;
  }
  if (alwaysD.value) {
    meta2d.finishDrawLine();
    meta2d.drawLine();
    oneD.value = false;
    alwaysD.value = false;
    meta2d.store.options.disableAnchor = true;
  }
};

```

通过修改 options 配置默认连线样式，下图代码表示修改连线类型。

```

const changeLineType = (value: string) => {
  currentLineType.value = value;
  if (meta2d) {
    meta2d.store.options.drawingLineName = value;
    meta2d.canvas.drawingLineName && (meta2d.canvas.drawingLineName
    meta2d.store.active?.forEach((pen) => {
      meta2d.updateLineType(pen, value);
    });
  }
};

```

通过调用核心库方法改变当前视图大小

```

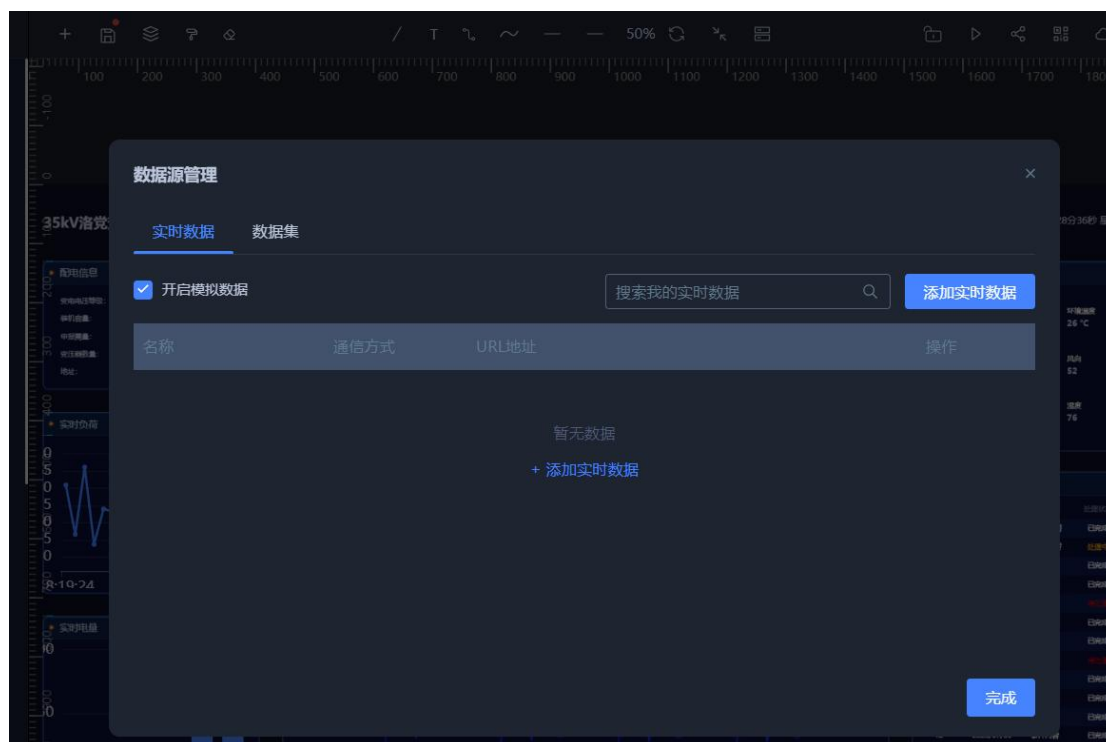
export const onScaleWindow = () => {
  // meta2d.fitView();
  meta2d.fitSizeView(true, 32);
};

export const onScaleFull = () => {
  meta2d.scale(1);
  // meta2d.centerView();
  const { x, y, origin, center } = meta2d.store.data;

  meta2d.translate(-x - origin.x, -y - origin.y);
  meta2d.translate(meta2d.store.options.x || 0, meta2d.store.
};

```

数据源管理主要包括实时数据和数据集管理



右侧包含锁定画布、运行、分享、云发布等。

主要是项目业务内容，涉及到大屏的正式发布，需要结合部署人员一起探讨。

② 核心画布

```

<div id="meta2d"></div>

```

```

onMounted(() => {
  meta2d = new Meta2d('meta2d', meta2dOptions);
  registerBasicDiagram();
  open(true);
  meta2d.on('active', active);
  meta2d.on('inactive', inactive);
  meta2d.on('scale', scaleSubscriber);
  meta2d.on('add', lineAdd);
  meta2d.on('opened', openedListener);

  meta2d.on('undo', patchFlag);
  meta2d.on('redo', patchFlag);
  meta2d.on('add', patchFlag);
  meta2d.on('delete', patchFlag);
  meta2d.on('rotatePens', patchFlag);
  meta2d.on('translatePens', patchFlag);

  // 所有编辑栏所做修改
  meta2d.on('components-update-value', patchFlag);
  meta2d.on('contextmenu', onContextMenu);
  meta2d.on('click', canvasClick);

  timer = setInterval(autoSave, 60000);

  window.onbeforeunload = () => {
    autoSave();
  };
});

```

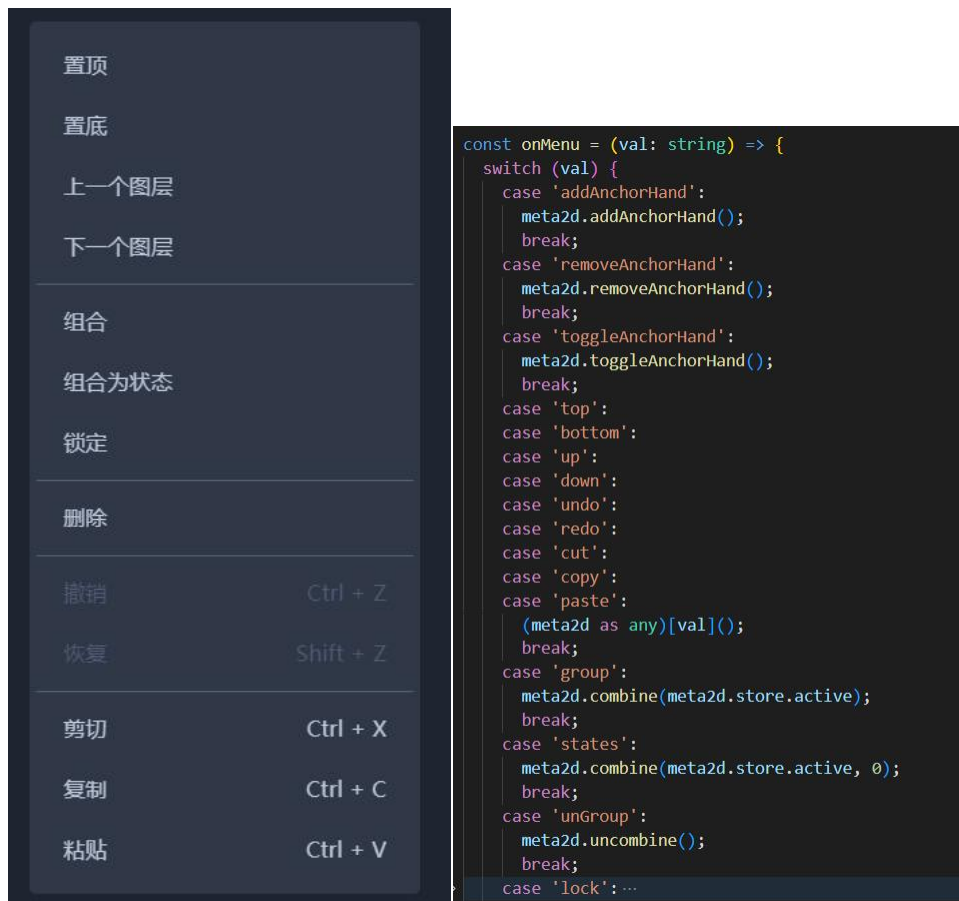
创建meta2d实例

注册图形库

监听画布消息

自动保存图纸

③ 右键菜单 (components/ ContextMenu.vue)



主要是通过调用核心库方法，具体方法说明可查看官方文档：

<https://doc.le5le.com/document/119882449#%E5%87%BD%E6%95%B0>

5.1.3 右侧属性面板

5.1.3.1 不选中图元

① 目录 components/FileProps.vue

② 源码说明：

1. 画布板块

画布板块主要分为，基本设置（包括大屏尺寸、背景颜色和背景图片）、预览设置（设置预览时/运行时的缩放方式、是否显示滚动条）、进阶设置（配置图片库、初始化和数据监听）

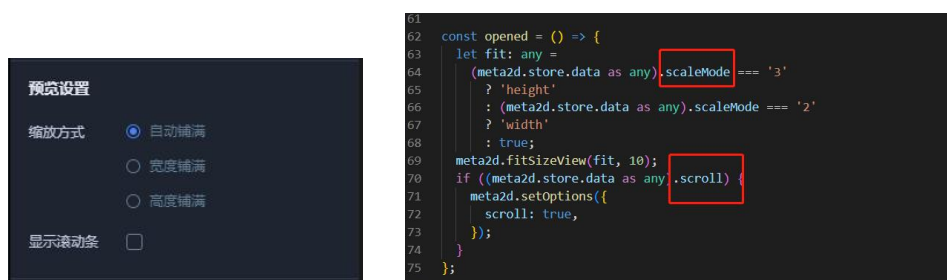


基本设置这一块，主要是通过修改 `meta2d.store.data` 下面的属性，具体说明可查看文档：
<https://doc.le5le.com/document/119882449#%E6%95%B0%E6%8D%AE%E7%BB%93%E6%9E%84>

一些特殊属性：例如背景图片的设置，调用核心库 `setBackgroundImage` 方法。



预览设置这一块主要是配置预览时，大屏页面的显示方式，属于业务属性，使用可以查看 `Preview.vue` 页面。



进阶设置首先可以配置图标地址，输入字体图标地址后，会加载对应的图标库，在选中画笔进行图标设置时可以在图标抽屉中展示请求到的图标库。

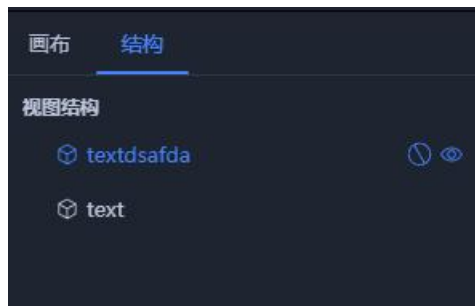


其次可以配置初始化动作，是指首次打开图纸后会执行的脚本。最后数据监听，即通信建立后获取数据的处理脚本，具体可查看文档：

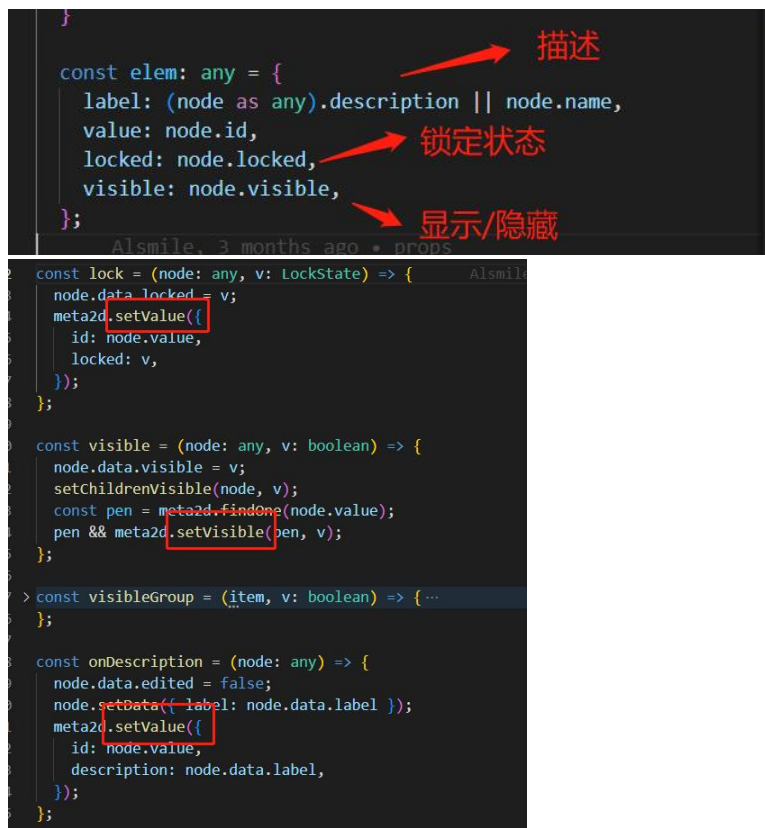
<https://doc.le5le.com/document/119620524#%E8%A7%A3%E6%9E%90%E8%87%AA%E5%AE%9A%E4%B9%89%E6%A0%BC%E5%BC%8F%E6%95%B0%E6%8D%AE>

2. 结构板块（components/ElementTree.vue）

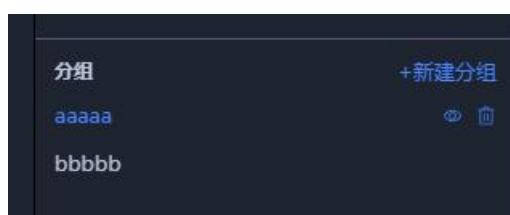
结构主要包括视图结构和分组，在视图结构可以设置画布中每个图元的描述名称、控制图元锁定状态和控制视图显示/隐藏，



主要是通过调用核心库的 setValue 和 setVisible 方法，对应的属性如下：



在分组中，可以新增/删除自定义分组名称，可以批量控制该分组对应图元的显示/隐藏。

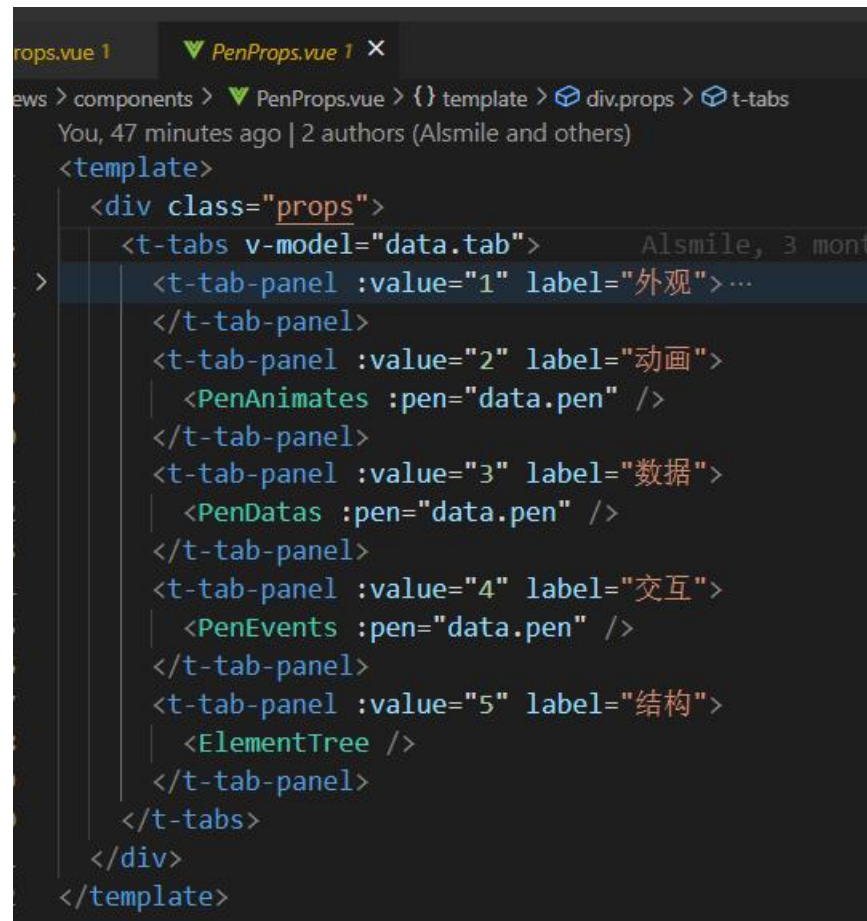


5.1.3.2 单选图元

① 目录 components/PenProps.vue

② 源码说明：

单选图元板块主要包括外观、动画、数据、交互和结构。



```
<template>
  <div class="props">
    <t-tabs v-model="data.tab">
      <t-tab-panel :value="1" label="外观">...
    </t-tab-panel>
    <t-tab-panel :value="2" label="动画">
      <PenAnimates :pen="data.pen" />
    </t-tab-panel>
    <t-tab-panel :value="3" label="数据">
      <PenDatas :pen="data.pen" />
    </t-tab-panel>
    <t-tab-panel :value="4" label="交互">
      <PenEvents :pen="data.pen" />
    </t-tab-panel>
    <t-tab-panel :value="5" label="结构">
      <ElementTree />
    </t-tab-panel>
    </t-tabs>
  </div>
</template>
```

1. 外观

外观主要内容是设置图元的样式、包括 id 位置等基本设置、文字、图片/图标、自定义属性等。

外观

动画

数据

交互

结构

ID

116fa54

名称

text

分组

aaaaa

X

217.25

Y

77.25

0

W

160

H

30

圆角

不透明度

1

外观

前景颜色

悬停颜色

选中颜色

线条

1

末端样式

连接样式

背景

纯色

线性渐变

径向渐变

请输入

阴影

文字

属性

水平翻转

垂直翻转

锚点半径 4

禁止旋转

禁止缩放

禁用锚点

鼠标提示

```
1180 };
1181
1182 const changeValue = (prop: string) => {
1183   updatePen(data.pen, prop);
1184 };
1185
1186 const changeID = (value: any) => {
1187   if (!value) {
1188     initPenData();
1189     MessagePlugin.error('id 不能为空');
1190     return;
1191   }
1192   const oldID: string = data.pen.id;
1193   try {
1194     meta2d.changePenId(oldID, value);
1195     initPenData();
1196   } catch (error) {
1197     console.warn(error.message);
1198     MessagePlugin.error('id 修改失败, 请检查 id 是否');
1199     return;
1200   }
1201 };
1202
1203 const changeRectValue = (prop: string) => {
1204   data.rect.id = data.pen.id;
1205   data.rect.ratio = data.pen.ratio;
1206   updatePen(data.rect, prop);
1207 };
1208
1209 const onFontPopupVisible = (val: boolean) => {
1210   data.fontFamilyPopupVisible = val;
1211 };
1212
1213 const onFontFamily = (fontFamily: string) => {
1214   data.pen.fontFamily = fontFamily;
1215   data.fontFamilyPopupVisible = false;
1216   changeValue('fontFamily');
1217 };
1218
1219 export const updatePen = (pen: any, prop: string, render = true) => {
1220   const v: any = { id: pen.id };
1221   v[prop] = pen[prop];
1222   if (prop === 'width' && pen.ratio) {
1223     const rect = meta2d.findOne(pen.id);
1224     v.height = (pen.width / rect.width) * rect.height;
1225     pen.height = v.height;
1226   } else if (prop === 'height' && pen.ratio) {
1227     const rect = meta2d.findOne(pen.id);
1228     v.width = (pen.height / rect.height) * rect.width;
1229     pen.width = v.width;
1230   } else if (prop === 'shadow') {
1231     if (v[prop]) {
1232       lv.shadowOffsetX && (v.shadowOffsetX = 0);
1233       lv.shadowOffsetY && (v.shadowOffsetY = 0);
1234       lv.shadowBlur && (v.shadowBlur = 0);
1235     } else {
1236       v.shadowColor = '';
1237     }
1238   } else if (prop === 'lineGradientColors') {
1239     // @ts-ignore
1240     if (meta2d.store.active[0].name === 'line') {
1241       // @ts-ignore
1242       meta2d.store.active[0].calculative.gradientColorStop = null;
1243     } else {
1244       // @ts-ignore
1245       meta2d.store.active[0].calculative.lineGradient = null;
1246     }
1247     // 不同模式切换不同的系统配色
1248   } else if (prop === 'titleFnJs') {
1249     v.titleFn = null;
1250   } else if (prop === 'dash') {
1251     v.lineDash = lineDashObj[v[prop]];
1252   }
1253   meta2d.setValue(v, { render });
1254 };
1255
1256 export const updateRect = (rect: any, prop: string, render = true) => {
1257   const v: any = { id: rect.id };
1258   v[prop] = rect[prop];
1259   if (prop === 'width' && rect.ratio) {
1260     const pen = meta2d.findOne(rect.id);
1261     v.height = (rect.width / pen.width) * pen.height;
1262     rect.height = v.height;
1263   } else if (prop === 'height' && rect.ratio) {
1264     const pen = meta2d.findOne(rect.id);
1265     v.width = (rect.height / pen.height) * pen.width;
1266     rect.width = v.width;
1267   } else if (prop === 'shadow') {
1268     if (v[prop]) {
1269       lv.shadowOffsetX && (v.shadowOffsetX = 0);
1270       lv.shadowOffsetY && (v.shadowOffsetY = 0);
1271       lv.shadowBlur && (v.shadowBlur = 0);
1272     } else {
1273       v.shadowColor = '';
1274     }
1275   } else if (prop === 'lineGradientColors') {
1276     // @ts-ignore
1277     if (meta2d.store.active[0].name === 'line') {
1278       // @ts-ignore
1279       meta2d.store.active[0].calculative.gradientColorStop = null;
1280     } else {
1281       // @ts-ignore
1282       meta2d.store.active[0].calculative.lineGradient = null;
1283     }
1284     // 不同模式切换不同的系统配色
1285   } else if (prop === 'titleFnJs') {
1286     v.titleFn = null;
1287   } else if (prop === 'dash') {
1288     v.lineDash = lineDashObj[v[prop]];
1289   }
1290   meta2d.setValue(v, { render });
1291 };
1292
1293 export const updateText = (text: any, prop: string, render = true) => {
1294   const v: any = { id: text.id };
1295   v[prop] = text[prop];
1296   if (prop === 'fontSize') {
1297     v.fontSize = text.fontSize;
1298   } else if (prop === 'fontWeight') {
1299     v.fontWeight = text.fontWeight;
1300   } else if (prop === 'fontStyle') {
1301     v.fontStyle = text.fontStyle;
1302   } else if (prop === 'fontFamily') {
1303     v.fontFamily = text.fontFamily;
1304   } else if (prop === 'textColor') {
1305     v.textColor = text.textColor;
1306   } else if (prop === 'textAlign') {
1307     v.textAlign = text.textAlign;
1308   } else if (prop === 'textBaseline') {
1309     v.textBaseline = text.textBaseline;
1310   } else if (prop === 'textDirection') {
1311     v.textDirection = text.textDirection;
1312   } else if (prop === 'textOrientation') {
1313     v.textOrientation = text.textOrientation;
1314   } else if (prop === 'textOverflow') {
1315     v.textOverflow = text.textOverflow;
1316   } else if (prop === 'textWrap') {
1317     v.textWrap = text.textWrap;
1318   } else if (prop === 'textLineHeight') {
1319     v.textLineHeight = text.textLineHeight;
1320   } else if (prop === 'textLetterSpacing') {
1321     v.textLetterSpacing = text.textLetterSpacing;
1322   } else if (prop === 'textWordSpacing') {
1323     v.textWordSpacing = text.textWordSpacing;
1324   } else if (prop === 'textFontWeight') {
1325     v.textFontWeight = text.textFontWeight;
1326   } else if (prop === 'textFontStyle') {
1327     v.textFontStyle = text.textFontStyle;
1328   } else if (prop === 'textFontFamily') {
1329     v.textFontFamily = text.textFontFamily;
1330   } else if (prop === 'textColor') {
1331     v.textColor = text.textColor;
1332   } else if (prop === 'textAlign') {
1333     v.textAlign = text.textAlign;
1334   } else if (prop === 'textBaseline') {
1335     v.textBaseline = text.textBaseline;
1336   } else if (prop === 'textDirection') {
1337     v.textDirection = text.textDirection;
1338   } else if (prop === 'textOrientation') {
1339     v.textOrientation = text.textOrientation;
1340   } else if (prop === 'textOverflow') {
1341     v.textOverflow = text.textOverflow;
1342   } else if (prop === 'textWrap') {
1343     v.textWrap = text.textWrap;
1344   } else if (prop === 'textLineHeight') {
1345     v.textLineHeight = text.textLineHeight;
1346   } else if (prop === 'textLetterSpacing') {
1347     v.textLetterSpacing = text.textLetterSpacing;
1348   } else if (prop === 'textWordSpacing') {
1349     v.textWordSpacing = text.textWordSpacing;
1350   } else if (prop === 'textFontWeight') {
1351     v.textFontWeight = text.textFontWeight;
1352   } else if (prop === 'textFontStyle') {
1353     v.textFontStyle = text.textFontStyle;
1354   } else if (prop === 'textFontFamily') {
1355     v.textFontFamily = text.textFontFamily;
1356   }
1357   meta2d.setValue(v, { render });
1358 };
1359
1360 export const updateImage = (image: any, prop: string, render = true) => {
1361   const v: any = { id: image.id };
1362   v[prop] = image[prop];
1363   if (prop === 'x') {
1364     v.x = image.x;
1365   } else if (prop === 'y') {
1366     v.y = image.y;
1367   } else if (prop === 'width') {
1368     v.width = image.width;
1369   } else if (prop === 'height') {
1370     v.height = image.height;
1371   } else if (prop === 'angle') {
1372     v.angle = image.angle;
1373   } else if (prop === 'opacity') {
1374     v.opacity = image.opacity;
1375   } else if (prop === 'filter') {
1376     v.filter = image.filter;
1377   } else if (prop === 'src') {
1378     v.src = image.src;
1379   } else if (prop === 'alt') {
1380     v.alt = image.alt;
1381   } else if (prop === 'title') {
1382     v.title = image.title;
1383   } else if (prop === 'description') {
1384     v.description = image.description;
1385   } else if (prop === 'copyright') {
1386     v.copyright = image.copyright;
1387   } else if (prop === 'license') {
1388     v.license = image.license;
1389   } else if (prop === 'author') {
1390     v.author = image.author;
1391   } else if (prop === 'email') {
1392     v.email = image.email;
1393   } else if (prop === 'phone') {
1394     v.phone = image.phone;
1395   } else if (prop === 'address') {
1396     v.address = image.address;
1397   } else if (prop === 'website') {
1398     v.website = image.website;
1399   } else if (prop === 'socialMedia') {
1400     v.socialMedia = image.socialMedia;
1401   } else if (prop === 'tags') {
1402     v.tags = image.tags;
1403   } else if (prop === 'category') {
1404     v.category = image.category;
1405   } else if (prop === 'subcategory') {
1406     v.subcategory = image.subcategory;
1407   } else if (prop === 'keywords') {
1408     v.keywords = image.keywords;
1409   } else if (prop === 'description') {
1410     v.description = image.description;
1411   } else if (prop === 'copyright') {
1412     v.copyright = image.copyright;
1413   } else if (prop === 'license') {
1414     v.license = image.license;
1415   } else if (prop === 'author') {
1416     v.author = image.author;
1417   } else if (prop === 'email') {
1418     v.email = image.email;
1419   } else if (prop === 'phone') {
1420     v.phone = image.phone;
1421   } else if (prop === 'address') {
1422     v.address = image.address;
1423   } else if (prop === 'website') {
1424     v.website = image.website;
1425   } else if (prop === 'socialMedia') {
1426     v.socialMedia = image.socialMedia;
1427   } else if (prop === 'tags') {
1428     v.tags = image.tags;
1429   } else if (prop === 'category') {
1430     v.category = image.category;
1431   } else if (prop === 'subcategory') {
1432     v.subcategory = image.subcategory;
1433   } else if (prop === 'keywords') {
1434     v.keywords = image.keywords;
1435   }
1436   meta2d.setValue(v, { render });
1437 };
1438
1439 export const updateGroup = (group: any, prop: string, render = true) => {
1440   const v: any = { id: group.id };
1441   v[prop] = group[prop];
1442   if (prop === 'x') {
1443     v.x = group.x;
1444   } else if (prop === 'y') {
1445     v.y = group.y;
1446   } else if (prop === 'width') {
1447     v.width = group.width;
1448   } else if (prop === 'height') {
1449     v.height = group.height;
1450   } else if (prop === 'angle') {
1451     v.angle = group.angle;
1452   } else if (prop === 'opacity') {
1453     v.opacity = group.opacity;
1454   } else if (prop === 'filter') {
1455     v.filter = group.filter;
1456   } else if (prop === 'src') {
1457     v.src = group.src;
1458   } else if (prop === 'alt') {
1459     v.alt = group.alt;
1460   } else if (prop === 'title') {
1461     v.title = group.title;
1462   } else if (prop === 'description') {
1463     v.description = group.description;
1464   } else if (prop === 'copyright') {
1465     v.copyright = group.copyright;
1466   } else if (prop === 'license') {
1467     v.license = group.license;
1468   } else if (prop === 'author') {
1469     v.author = group.author;
1470   } else if (prop === 'email') {
1471     v.email = group.email;
1472   } else if (prop === 'phone') {
1473     v.phone = group.phone;
1474   } else if (prop === 'address') {
1475     v.address = group.address;
1476   } else if (prop === 'website') {
1477     v.website = group.website;
1478   } else if (prop === 'socialMedia') {
1479     v.socialMedia = group.socialMedia;
1480   } else if (prop === 'tags') {
1481     v.tags = group.tags;
1482   } else if (prop === 'category') {
1483     v.category = group.category;
1484   } else if (prop === 'subcategory') {
1485     v.subcategory = group.subcategory;
1486   } else if (prop === 'keywords') {
1487     v.keywords = group.keywords;
1488   }
1489   meta2d.setValue(v, { render });
1490 };
1491
1492 export const updateCanvas = (canvas: any, prop: string, render = true) => {
1493   const v: any = { id: canvas.id };
1494   v[prop] = canvas[prop];
1495   if (prop === 'x') {
1496     v.x = canvas.x;
1497   } else if (prop === 'y') {
1498     v.y = canvas.y;
1499   } else if (prop === 'width') {
1500     v.width = canvas.width;
1501   } else if (prop === 'height') {
1502     v.height = canvas.height;
1503   } else if (prop === 'angle') {
1504     v.angle = canvas.angle;
1505   } else if (prop === 'opacity') {
1506     v.opacity = canvas.opacity;
1507   } else if (prop === 'filter') {
1508     v.filter = canvas.filter;
1509   } else if (prop === 'src') {
1510     v.src = canvas.src;
1511   } else if (prop === 'alt') {
1512     v.alt = canvas.alt;
1513   } else if (prop === 'title') {
1514     v.title = canvas.title;
1515   } else if (prop === 'description') {
1516     v.description = canvas.description;
1517   } else if (prop === 'copyright') {
1518     v.copyright = canvas.copyright;
1519   } else if (prop === 'license') {
1520     v.license = canvas.license;
1521   } else if (prop === 'author') {
1522     v.author = canvas.author;
1523   } else if (prop === 'email') {
1524     v.email = canvas.email;
1525   } else if (prop === 'phone') {
1526     v.phone = canvas.phone;
1527   } else if (prop === 'address') {
1528     v.address = canvas.address;
1529   } else if (prop === 'website') {
1530     v.website = canvas.website;
1531   } else if (prop === 'socialMedia') {
1532     v.socialMedia = canvas.socialMedia;
1533   } else if (prop === 'tags') {
1534     v.tags = canvas.tags;
1535   } else if (prop === 'category') {
1536     v.category = canvas.category;
1537   } else if (prop === 'subcategory') {
1538     v.subcategory = canvas.subcategory;
1539   } else if (prop === 'keywords') {
1540     v.keywords = canvas.keywords;
1541   }
1542   meta2d.setValue(v, { render });
1543 };
1544
1545 export const updateLayer = (layer: any, prop: string, render = true) => {
1546   const v: any = { id: layer.id };
1547   v[prop] = layer[prop];
1548   if (prop === 'x') {
1549     v.x = layer.x;
1550   } else if (prop === 'y') {
1551     v.y = layer.y;
1552   } else if (prop === 'width') {
1553     v.width = layer.width;
1554   } else if (prop === 'height') {
1555     v.height = layer.height;
1556   } else if (prop === 'angle') {
1557     v.angle = layer.angle;
1558   } else if (prop === 'opacity') {
1559     v.opacity = layer.opacity;
1560   } else if (prop === 'filter') {
1561     v.filter = layer.filter;
1562   } else if (prop === 'src') {
1563     v.src = layer.src;
1564   } else if (prop === 'alt') {
1565     v.alt = layer.alt;
1566   } else if (prop === 'title') {
1567     v.title = layer.title;
1568   } else if (prop === 'description') {
1569     v.description = layer.description;
1570   } else if (prop === 'copyright') {
1571     v.copyright = layer.copyright;
1572   } else if (prop === 'license') {
1573     v.license = layer.license;
1574   } else if (prop === 'author') {
1575     v.author = layer.author;
1576   } else if (prop === 'email') {
1577     v.email = layer.email;
1578   } else if (prop === 'phone') {
1579     v.phone = layer.phone;
1580   } else if (prop === 'address') {
1581     v.address = layer.address;
1582   } else if (prop === 'website') {
1583     v.website = layer.website;
1584   } else if (prop === 'socialMedia') {
1585     v.socialMedia = layer.socialMedia;
1586   } else if (prop === 'tags') {
1587     v.tags = layer.tags;
1588   } else if (prop === 'category') {
1589     v.category = layer.category;
1590   } else if (prop === 'subcategory') {
1591     v.subcategory = layer.subcategory;
1592   } else if (prop === 'keywords') {
1593     v.keywords = layer.keywords;
1594   }
1595   meta2d.setValue(v, { render });
1596 };
1597
1598 export const updatePage = (page: any, prop: string, render = true) => {
1599   const v: any = { id: page.id };
1600   v[prop] = page[prop];
1601   if (prop === 'x') {
1602     v.x = page.x;
1603   } else if (prop === 'y') {
1604     v.y = page.y;
1605   } else if (prop === 'width') {
1606     v.width = page.width;
1607   } else if (prop === 'height') {
1608     v.height = page.height;
1609   } else if (prop === 'angle') {
1610     v.angle = page.angle;
1611   } else if (prop === 'opacity') {
1612     v.opacity = page.opacity;
1613   } else if (prop === 'filter') {
1614     v.filter = page.filter;
1615   } else if (prop === 'src') {
1616     v.src = page.src;
1617   } else if (prop === 'alt') {
1618     v.alt = page.alt;
1619   } else if (prop === 'title') {
1620     v.title = page.title;
1621   } else if (prop === 'description') {
1622     v.description = page.description;
1623   } else if (prop === 'copyright') {
1624     v.copyright = page.copyright;
1625   } else if (prop === 'license') {
1626     v.license = page.license;
1627   } else if (prop === 'author') {
1628     v.author = page.author;
1629   } else if (prop === 'email') {
1630     v.email = page.email;
1631   } else if (prop === 'phone') {
1632     v.phone = page.phone;
1633   } else if (prop === 'address') {
1634     v.address = page.address;
1635   } else if (prop === 'website') {
1636     v.website = page.website;
1637   } else if (prop === 'socialMedia') {
1638     v.socialMedia = page.socialMedia;
1639   } else if (prop === 'tags') {
1640     v.tags = page.tags;
1641   } else if (prop === 'category') {
1642     v.category = page.category;
1643   } else if (prop === 'subcategory') {
1644     v.subcategory = page.subcategory;
1645   } else if (prop === 'keywords') {
1646     v.keywords = page.keywords;
1647   }
1648   meta2d.setValue(v, { render });
1649 };
1650
1651 export const updateDocument = (document: any, prop: string, render = true) => {
1652   const v: any = { id: document.id };
1653   v[prop] = document[prop];
1654   if (prop === 'x') {
1655     v.x = document.x;
1656   } else if (prop === 'y') {
1657     v.y = document.y;
1658   } else if (prop === 'width') {
1659     v.width = document.width;
1660   } else if (prop === 'height') {
1661     v.height = document.height;
1662   } else if (prop === 'angle') {
1663     v.angle = document.angle;
1664   } else if (prop === 'opacity') {
1665     v.opacity = document.opacity;
1666   } else if (prop === 'filter') {
1667     v.filter = document.filter;
1668   } else if (prop === 'src') {
1669     v.src = document.src;
1670   } else if (prop === 'alt') {
1671     v.alt = document.alt;
1672   } else if (prop === 'title') {
1673     v.title = document.title;
1674   } else if (prop === 'description') {
1675     v.description = document.description;
1676   } else if (prop === 'copyright') {
1677     v.copyright = document.copyright;
1678   } else if (prop === 'license') {
1679     v.license = document.license;
1680   } else if (prop === 'author') {
1681     v.author = document.author;
1682   } else if (prop === 'email') {
1683     v.email = document.email;
1684   } else if (prop === 'phone') {
1685     v.phone = document.phone;
1686   } else if (prop === 'address') {
1687     v.address = document.address;
1688   } else if (prop === 'website') {
1689     v.website = document.website;
1690   } else if (prop === 'socialMedia') {
1691     v.socialMedia = document.socialMedia;
1692   } else if (prop === 'tags') {
1693     v.tags = document.tags;
1694   } else if (prop === 'category') {
1695     v.category = document.category;
1696   } else if (prop === 'subcategory') {
1697     v.subcategory = document.subcategory;
1698   } else if (prop === 'keywords') {
1699     v.keywords = document.keywords;
1700   }
1701   meta2d.setValue(v, { render });
1702 };
1703
1704 export const updateProject = (project: any, prop: string, render = true) => {
1705   const v: any = { id: project.id };
1706   v[prop] = project[prop];
1707   if (prop === 'x') {
1708     v.x = project.x;
1709   } else if (prop === 'y') {
1710     v.y = project.y;
1711   } else if (prop === 'width') {
1712     v.width = project.width;
1713   } else if (prop === 'height') {
1714     v.height = project.height;
1715   } else if (prop === 'angle') {
1716     v.angle = project.angle;
1717   } else if (prop === 'opacity') {
1718     v.opacity = project.opacity;
1719   } else if (prop === 'filter') {
1720     v.filter = project.filter;
1721   } else if (prop === 'src') {
1722     v.src = project.src;
1723   } else if (prop === 'alt') {
1724     v.alt = project.alt;
1725   } else if (prop === 'title') {
1726     v.title = project.title;
1727   } else if (prop === 'description') {
1728     v.description = project.description;
1729   } else if (prop === 'copyright') {
1730     v.copyright = project.copyright;
1731   } else if (prop === 'license') {
1732     v.license = project.license;
1733   } else if (prop === 'author') {
1734     v.author = project.author;
1735   } else if (prop === 'email') {
1736     v.email = project.email;
1737   } else if (prop === 'phone') {
1738     v.phone = project.phone;
1739   } else if (prop === 'address') {
1740     v.address = project.address;
1741   } else if (prop === 'website') {
1742     v.website = project.website;
1743   } else if (prop === 'socialMedia') {
1744     v.socialMedia = project.socialMedia;
1745   } else if (prop === 'tags') {
1746     v.tags = project.tags;
1747   } else if (prop === 'category') {
1748     v.category = project.category;
1749   } else if (prop === 'subcategory') {
1750     v.subcategory = project.subcategory;
1751   } else if (prop === 'keywords') {
1752     v.keywords = project.keywords;
1753   }
1754   meta2d.setValue(v, { render });
1755 };
1756
1757 export const updateWorkspace = (workspace: any, prop: string, render = true) => {
1758   const v: any = { id: workspace.id };
1759   v[prop] = workspace[prop];
1760   if (prop === 'x') {
1761     v.x = workspace.x;
1762   } else if (prop === 'y') {
1763     v.y = workspace.y;
1764   } else if (prop === 'width') {
1765     v.width = workspace.width;
1766   } else if (prop === 'height') {
1767     v.height = workspace.height;
1768   } else if (prop === 'angle') {
1769     v.angle = workspace.angle;
1770   } else if (prop === 'opacity') {
1771     v.opacity = workspace.opacity;
1772   } else if (prop === 'filter') {
1773     v.filter = workspace.filter;
1774   } else if (prop === 'src') {
1775     v.src = workspace.src;
1776   } else if (prop === 'alt') {
1777     v.alt = workspace.alt;
1778   } else if (prop === 'title') {
1779     v.title = workspace.title;
1780   } else if (prop === 'description') {
1781     v.description = workspace.description;
1782   } else if (prop === 'copyright') {
1783     v.copyright = workspace.copyright;
1784   } else if (prop === 'license') {
1785     v.license = workspace.license;
1786   } else if (prop === 'author') {
1787     v.author = workspace.author;
1788   } else if (prop === 'email') {
1789     v.email = workspace.email;
1790   } else if (prop === 'phone') {
1791     v.phone = workspace.phone;
1792   } else if (prop === 'address') {
1793     v.address = workspace.address;
1794   } else if (prop === 'website') {
1795     v.website = workspace.website;
1796   } else if (prop === 'socialMedia') {
1797     v.socialMedia = workspace.socialMedia;
1798   } else if (prop === 'tags') {
1799     v.tags = workspace.tags;
1800   } else if (prop === 'category') {
1801     v.category = workspace.category;
1802   } else if (prop === 'subcategory') {
1803     v.subcategory = workspace.subcategory;
1804   } else if (prop === 'keywords') {
1805     v.keywords = workspace.keywords;
1806   }
1807   meta2d.setValue(v, { render });
1808 };
1809
1810 export const updateToolbox = (toolbox: any, prop: string, render = true) => {
1811   const v: any = { id: toolbox.id };
1812   v[prop] = toolbox[prop];
1813   if (prop === 'x') {
1814     v.x = toolbox.x;
1815   } else if (prop === 'y') {
1816     v.y = toolbox.y;
1817   } else if (prop === 'width') {
1818     v.width = toolbox.width;
1819   } else if (prop === 'height') {
1820     v.height = toolbox.height;
1821   } else if (prop === 'angle') {
1822     v.angle = toolbox.angle;
1823   } else if (prop === 'opacity') {
1824     v.opacity = toolbox.opacity;
1825   } else if (prop === 'filter') {
1826     v.filter = toolbox.filter;
1827   } else if (prop === 'src') {
1828     v.src = toolbox.src;
1829   } else if (prop === 'alt') {
1830     v.alt = toolbox.alt;
1831   } else if (prop === 'title') {
1832     v.title = toolbox.title;
1833   } else if (prop === 'description') {
1834     v.description = toolbox.description;
1835   } else if (prop === 'copyright') {
1836     v.copyright = toolbox.copyright;
1837   } else if (prop === 'license') {
1838     v.license = toolbox.license;
1839   } else if (prop === 'author') {
1840     v.author = toolbox.author;
1841   } else if (prop === 'email') {
1842     v.email = toolbox.email;
1843   } else if (prop === 'phone') {
1844     v.phone = toolbox.phone;
1845   } else if (prop === 'address') {
1846     v.address = toolbox.address;
1847   } else if (prop === 'website') {
1848     v.website = toolbox.website;
1849   } else if (prop === 'socialMedia') {
1850     v.socialMedia = toolbox.socialMedia;
1851   } else if (prop === 'tags') {
1852     v.tags = toolbox.tags;
1853   } else if (prop === 'category') {
1854     v.category = toolbox.category;
1855   } else if (prop === 'subcategory') {
1856     v.subcategory = toolbox.subcategory;
1857   } else if (prop === 'keywords') {
1858     v.keywords = toolbox.keywords;
1859   }
1860   meta2d.setValue(v, { render });
1861 };
1862
1863 export const updatePalette = (palette: any, prop: string, render = true) => {
1864   const v: any = { id: palette.id };
1865   v[prop] = palette[prop];
1866   if (prop === 'x') {
1867     v.x = palette.x;
1868   } else if (prop === 'y') {
1869     v.y = palette.y;
1870   } else if (prop === 'width') {
1871     v.width = palette.width;
1872   } else if (prop === 'height') {
1873     v.height = palette.height;
1874   } else if (prop === 'angle') {
1875     v.angle = palette.angle;
1876   } else if (prop === 'opacity') {
1877     v.opacity = palette.opacity;
1878   } else if (prop === 'filter') {
1879     v.filter = palette.filter;
1880   } else if (prop === 'src') {
1881     v.src = palette.src;
1882   } else if (prop === 'alt') {
1883     v.alt = palette.alt;
1884   } else if (prop === 'title') {
1885     v.title = palette.title;
1886   } else if (prop === 'description') {
1887     v.description = palette.description;
1888   } else if (prop === 'copyright') {
1889     v.copyright = palette.copyright;
1890   } else if (prop === 'license') {
1891     v.license = palette.license;
1892   } else if (prop === 'author') {
1893     v.author = palette.author;
1894   } else if (prop === 'email') {
1895     v.email = palette.email;
1896   } else if (prop === 'phone') {
1897     v.phone = palette.phone;
1898   } else if (prop === 'address') {
1899     v.address = palette.address;
1900   } else if (prop === 'website') {
1901     v.website = palette.website;
1902   } else if (prop === 'socialMedia') {
1903     v.socialMedia = palette.socialMedia;
1904   } else if (prop === 'tags') {
1905     v.tags = palette.tags;
1906   } else if (prop === 'category') {
1907     v.category = palette.category;
1908   } else if (prop === 'subcategory') {
1909     v.subcategory = palette.subcategory;
1910   } else if (prop === 'keywords') {
1911     v.keywords = palette.keywords;
1912   }
1913   meta2d.setValue(v, { render });
1914 };
1915
1916 export const updateCanvasGroup = (canvasGroup: any, prop: string, render = true) => {
1917   const v: any = { id: canvasGroup.id };
1918   v[prop] = canvasGroup[prop];
1919   if (prop === 'x') {
1920     v.x = canvasGroup.x;
1921   } else if (prop === 'y') {
1922     v.y = canvasGroup.y;
1923   } else if (prop === 'width') {
1924     v.width = canvasGroup.width;
1925   } else if (prop === 'height') {
1926     v.height = canvasGroup.height;
1927   } else if (prop === 'angle') {
1928     v.angle = canvasGroup.angle;
1929   } else if (prop === 'opacity') {
1930     v.opacity = canvasGroup.opacity;
1931   } else if (prop === 'filter') {
1932     v.filter = canvasGroup.filter;
1933   } else if (prop === 'src') {
1934     v.src = canvasGroup.src;
1935   } else if (prop === 'alt') {
1936     v.alt = canvasGroup.alt;
1937   } else if (prop === 'title') {
1938     v.title = canvasGroup.title;
1939   } else if (prop === 'description') {
1940     v.description = canvasGroup.description;
1941   } else if (prop === 'copyright') {
1942     v.copyright = canvasGroup.copyright;
1943   } else if (prop === 'license') {
1944     v.license = canvasGroup.license;
1945   } else if (prop === 'author') {
1946     v.author = canvasGroup.author;
1947   } else if (prop === 'email') {
1948     v.email = canvasGroup.email;
1949   } else if (prop === 'phone') {
1950     v.phone = canvasGroup.phone;
1951   } else if (prop === 'address') {
1952     v.address = canvasGroup.address;
1953   } else if (prop === 'website') {
1954     v.website = canvasGroup.website;
1955   } else if (prop === 'socialMedia') {
1956     v.socialMedia = canvasGroup.socialMedia;
1957   } else if (prop === 'tags') {
1958     v.tags = canvasGroup.tags;
1959   } else if (prop === 'category') {
1960     v.category = canvasGroup.category;
1961   } else if (prop === 'subcategory') {
1962     v.subcategory = canvasGroup.subcategory;
1963   } else if (prop === 'keywords') {
1964     v.keywords = canvasGroup.keywords;
1965   }
1966   meta2d.setValue(v, { render });
1967 };
1968
1969 export const updateCanvasLayer = (canvasLayer: any, prop: string, render = true) => {
1970   const v: any = { id: canvasLayer.id };
1971   v[prop] = canvasLayer[prop];
1972   if (prop === 'x') {
1973     v.x = canvasLayer.x;
1974   } else if (prop === 'y') {
1975     v.y = canvasLayer.y;
1976   } else if (prop === 'width') {
1977     v.width = canvasLayer.width;
1978   } else if (prop === 'height') {
1979     v.height = canvasLayer.height;
1980   } else if (prop === 'angle') {
1981     v.angle = canvasLayer.angle;
1982   } else if (prop === 'opacity') {
1983     v.opacity = canvasLayer.opacity;
1984   } else if (prop === 'filter') {
1985     v.filter = canvasLayer.filter;
1986   } else if (prop === 'src') {
1987     v.src = canvasLayer.src;
1988   } else if (prop === 'alt') {
1989     v.alt = canvasLayer.alt;
1990   } else if (prop === 'title') {
1991     v.title = canvasLayer.title;
1992   } else if (prop === 'description') {
1993     v.description = canvasLayer.description;
1994   } else if (prop === 'copyright') {
1995     v.copyright = canvasLayer.copyright;
1996   } else if (prop === 'license') {
1997     v.license = canvasLayer.license;
1998   } else if (prop === 'author') {
1999     v.author = canvasLayer.author;
2000   } else if (prop === 'email') {
2001     v.email = canvasLayer.email;
2002   } else if (prop === 'phone') {
2003     v.phone = canvasLayer.phone;
2004   } else if (prop === 'address') {
2005     v.address = canvasLayer.address;
2006   } else if (prop === 'website') {
2007     v.website = canvasLayer.website;
2008   } else if (prop === 'socialMedia') {
2009     v.socialMedia = canvasLayer.socialMedia;
2010   } else if (prop === 'tags') {
2011     v.tags = canvasLayer.tags;
2012   } else if (prop === 'category') {
2013     v.category = canvasLayer.category;
2014   } else if (prop === 'subcategory') {
2015     v.subcategory = canvasLayer.subcategory;
2016   } else if (prop === 'keywords') {
2017     v.keywords = canvasLayer.keywords;
2018   }
2019   meta2d.setValue(v, { render });
2020 };
2021
2022 export const updateCanvasPage = (canvasPage: any, prop: string, render = true) => {
2023   const v: any = { id: canvasPage.id };
2024   v[prop] = canvasPage[prop];
2025   if (prop === 'x') {
2026     v.x = canvasPage.x;
2027   } else if (prop === 'y') {
2028     v.y = canvasPage.y;
2029   } else if (prop === 'width') {
2030     v.width = canvasPage.width;
2031   } else if (prop === 'height') {
2032     v.height = canvasPage.height;
2033   } else if (prop === 'angle') {
2034     v.angle = canvasPage.angle;
2035   } else if (prop === 'opacity') {
2036     v.opacity = canvasPage.opacity;
2037   } else if (prop === 'filter') {
2038     v.filter = canvasPage.filter;
2039   } else if (prop === 'src') {
2040     v.src = canvasPage.src;
2041   } else if (prop === 'alt') {
2042     v.alt = canvasPage.alt;
2043   } else if (prop === 'title') {
2044     v.title = canvasPage.title;

```



```

4
5 const addAnimate = () => {
6   openedCollapses.value.push(props.pen.animations.length);
7   props.pen.animations.push({
8     name: '动画' + (props.pen.animations.length + 1),
9   });
10 };
11
12 const changeAnimate = (item: any) => {
13   const animate: any = animateList.find((elem: any) => {
14     return elem.value === item.animate;
15   });
16   if (!animate) {
17     return;
18   }
19   item.frames = deepClone(animate.data);
20 };
21
22 const play = (i: number) => {
23   meta2d.startAnimate(props.pen.id, i); 动画执行
24   isPlaying.value = i;
25 };
26
27 const stop = () => {
28   meta2d.stopAnimate(props.pen.id); 动画停止
29   isPlaying.value = -1;
30 };

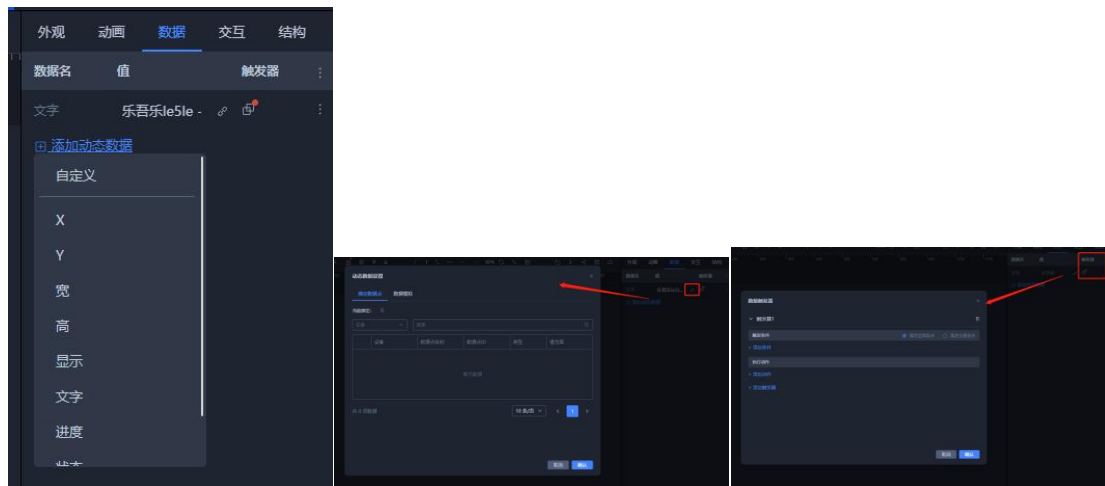
```

animations 属性用于存放该节点配置的多个动画，最终动画的执行是由 frames 属性控制的，通过 startAnimate/stopAnimate 方法控制动画的执行/停止。动画相关属性介绍可查看文档：

<https://doc.le5le.com/document/119895613>

3. 数据（components/PenDatas.vue）

数据主要是绑定数据点和设置（值变化）触发器，主要是修改 pen 的 realTimes 属性，具体可以查看文档：<https://doc.le5le.com/document/135786389>



4. 交互（components/PenEvents.vue）

交互主要是配置节点的交互事件，主要修改的是 pen 的 events 属性，具体可以查看文档：<https://doc.le5le.com/document/119627190>



5. 结构

同 不选中图元 结构板块

5.1.3.3 多选图元

① 目录 components/PensProps.vue

② 源码说明：



外观主要包括对多个图元的统一锁定、显示状态的修改，对齐操作以及外观、文字等一些公共样式的统一修改。

锁定/显示主要通过调用核心库 `setValue`、`setVisible` 方法。

```
const lock = (v: LockState) => {
  data.locked = v;
  for (const item of selections.pens) {
    meta2d.setValue({
      id: item.id,
      locked: v,
    });
  }
};

const visible = (v: boolean) => {
  data.visible = v;
  for (const item of selections.pens) {
    meta2d.setVisible(item as any, v);
  }
};
```

对齐操作也是直接调用核心库开源方法，具体方法说明可见文档：

<https://doc.le5le.com/document/119882449#%E5%87%BD%E6%95%B0>

```
const align = (align: string) => {
  if (align === 'h-distribute') {
    meta2d.spaceBetween(meta2d.store.active);
  } else if (align === 'v-distribute') {
    meta2d.spaceBetweenColumn(meta2d.store.active);
  } else {
    meta2d.alignNodes(align, meta2d.store.active);
  }
};

const align2 = (align: string) => {
  if (align === 'same-size') {
    meta2d.beSameByLast(meta2d.store.active);
  } else {
    meta2d.alignNodesByLast(align, meta2d.store.active);
  }
};
```

修改公共样式和上面修改单个图元样式一样，调用核心库 `setValue` 方法，特殊属性提前处理。注意这里遍历所有 `pen` 进行 `setValue` 是没有直接 `render` 的，最后再统一 `render`。具体可以参考文档：

<https://doc.le5le.com/document/119882449#setValue>


```
src > views > components > PenPopup.vue > {} script setup > @ changeValue
864
865
866 const align = (align: string) => {
867   if (align === 'h-distribute') {
868     meta2d.spaceBetween(meta2d.store.active);
869   } else if (align === 'v-distribute') {
870     meta2d.spacebetweenColumn(meta2d.store.active);
871   } else {
872     meta2d.alignNodes(align, meta2d.store.active);
873   }
874 };
875
876 const align2 = (align: string) => {
877   if (align === 'same-size') {
878     meta2d.besameByLast(meta2d.store.active);
879   } else {
880     meta2d.alignNodesByLast(align, meta2d.store.active);
881   }
882 };
883
884 const changeValue = (prop: string) => {
885   for (const item of selections.pens) {
886     data.id = item.id;
887     updatePen(data, prop, false);
888   }
889   meta2d.render();
890 };
891
892 const onFontFamily = (fontfamily: string) => {
893   data.fontfamily = fontfamily;
894   data.fontfamilypopupVisible = false;
895   changeValue('fontfamily');
896 };
897
898 const onFontPopupVisible = (val: boolean) => {
899   data.fontfamilypopupVisible = val;
900 };
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
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六 目录介绍

6.1 Public 公共静态资源目录

public/img 项目图片资源存放

public/js 项目需要的一些离线资源包，例如 echarts 包（echarts.min.js）

public/theme echarts 图形库主题文件存放位置，具体可以查看：

<https://echarts.apache.org/zh/theme-builder.html>

public/view 编辑器“下载 html”/“vue3”等功能所需要的运行环境文件

Public/data.xlsx 数据集 Excel 示例

Public/favicon.ico 左上角 logo

Public/rotate.cur 图形节点旋转时鼠标样式

6.2 Src 开发目录

Src/assets 静态资源，fonts 下是系统字体

Src/router 路由配置

Src/services 公用服务（公用方法）

Src/styles 公用样式文件

Src/view 主要的页面，首页和预览页面

Src/App.vue 主组件

Src/global.d.ts 可以从全局范围访问的库

Src/http.ts axios 配置和网络请求/响应拦截器

Src/main.ts 入口 ts 文件

6.3 其他

Index.html 入口 html 文件

Package.json 项目依赖描述

postcss.config.js postcss 配置文件

Tsconfig.json ts 配置文件

Vite.config.ts vite 配置文件

七 运行流程

Vue 项目运行流程：index.html > App.vue 的 export 外的 js 代码 > main.js > App.vue 的 export 里面的 js 代码

想了解更多请学习 vue: <https://v3.cn.vuejs.org/>

快速修改代码：用 VS code 搜索关键字

八 代码中实现登录链接

8.1 完全自己实现后端

可以参考后端 API 接口文档：<https://doc.le5le.com/document/135061001>

8.2 购买了乐吾乐后端

参考后端使用手册运行部署后端。然后通过前后端分离模式部署即可