

# 布局组件

## 1 相对布局(DependentLayout)

### 1.1 相对于父

	水平	align_parent_left	center_in_parent	align_parent_right
垂直	align_parent_top	左上	正上	右上
	center_in_parent	正左	正中	正右
	align_parent_bottom	左下	正下	右下

```
<DependentLayout
  ...>

  <Button
    ...
    ohos:align_parent_left="true" - 左
    ohos:align_parent_top="true" - 上
    ...
  />

</DependentLayout>
```

### 1.2 相对兄弟

	水平	left_of	align_left align_right	right_of
垂直	above	左上	正上	右上
	align_top align_bottom	正左	\$id:center	正右
	below	左下	正下	右下

```
<DependentLayout
  ...>

  <Button
    ...
    ohos:left_of="$id:center"    - 左
    ohos:above="$id:center"    - 上
    ...
  />

</DependentLayout>
```

## 例程：DependentLayout

...\DependentLayout\entry\src\main\resources\base\layout\lablity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<DependentLayout
  xmlns:ohos="http://schemas.huawei.com/res/ohos"
  ohos:height="match_parent"
  ohos:width="match_parent"
  ohos:background_element="#000000">

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:align_parent_left="true"
    ohos:align_parent_top="true"
    ohos:background_element="#ff7f27"
    ohos:text="左上"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:center_in_parent="true"
    ohos:align_parent_top="true"
    ohos:background_element="#00a2e8"
    ohos:text="正上"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:align_parent_right="true"
    ohos:align_parent_top="true"
    ohos:background_element="#ff7f27"
    ohos:text="右上"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:align_parent_left="true"
    ohos:center_in_parent="true"
    ohos:background_element="#00a2e8"
    ohos:text="正左"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />
```

<Button

```
ohos:height="match_content"
ohos:width="match_content"
ohos:padding="$ohos:float:button_radius"
ohos:center_in_parent="true"
ohos:background_element="#22b14c"
ohos:text="正中"
ohos:text_size="30fp"
ohos:text_color="#ffffff"
/>
```

<Button

```
ohos:height="match_content"
ohos:width="match_content"
ohos:padding="$ohos:float:button_radius"
ohos:align_parent_right="true"
ohos:center_in_parent="true"
ohos:background_element="#00a2e8"
ohos:text="正右"
ohos:text_size="30fp"
ohos:text_color="#ffffff"
/>
```

<Button

```
ohos:height="match_content"
ohos:width="match_content"
ohos:padding="$ohos:float:button_radius"
ohos:align_parent_left="true"
ohos:align_parent_bottom="true"
ohos:background_element="#ff7f27"
ohos:text="左下"
ohos:text_size="30fp"
ohos:text_color="#ffffff"
/>
```

<Button

```
ohos:height="match_content"
ohos:width="match_content"
ohos:padding="$ohos:float:button_radius"
ohos:center_in_parent="true"
ohos:align_parent_bottom="true"
ohos:background_element="#00a2e8"
ohos:text="正下"
ohos:text_size="30fp"
ohos:text_color="#ffffff"
/>
```

<Button

```
ohos:height="match_content"
ohos:width="match_content"
ohos:padding="$ohos:float:button_radius"
ohos:align_parent_right="true"
ohos:align_parent_bottom="true"
ohos:background_element="#ff7f27"
```

```
ohos:text="右下"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
</>
```

```
</DependentLayout>
```

...\DependentLayout\entry\src\main\resources\base\layout\lability\_buddy.xml

```
<?xml version="1.0" encoding="utf-8"?>
<DependentLayout
  xmlns:ohos="http://schemas.huawei.com/res/ohos"
  ohos:height="match_parent"
  ohos:width="match_parent"
  ohos:background_element="#000000">

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:left_of="$id:center"
    ohos:above="$id:center"
    ohos:background_element="#ff7f27"
    ohos:text="左上"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:align_left="$id:center"
    ohos:above="$id:center"
    ohos:background_element="#00a2e8"
    ohos:text="正上"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:right_of="$id:center"
    ohos:above="$id:center"
    ohos:background_element="#ff7f27"
    ohos:text="右上"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:left_of="$id:center"
    ohos:align_top="$id:center"
    ohos:background_element="#00a2e8"
    ohos:text="正左"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />
```

<Button

```
ohos:id="$+id:center"  
ohos:height="match_content"  
ohos:width="match_content"  
ohos:padding="$ohos:float:button_radius"  
ohos:center_in_parent="true"  
ohos:background_element="#22b14c"  
ohos:text="正中"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
>
```

<Button

```
ohos:height="match_content"  
ohos:width="match_content"  
ohos:padding="$ohos:float:button_radius"  
ohos:right_of="$id:center"  
ohos:align_top="$id:center"  
ohos:background_element="#00a2e8"  
ohos:text="正右"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
>
```

<Button

```
ohos:height="match_content"  
ohos:width="match_content"  
ohos:padding="$ohos:float:button_radius"  
ohos:left_of="$id:center"  
ohos:below="$id:center"  
ohos:background_element="#ff7f27"  
ohos:text="左下"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
>
```

<Button

```
ohos:height="match_content"  
ohos:width="match_content"  
ohos:padding="$ohos:float:button_radius"  
ohos:align_left="$id:center"  
ohos:below="$id:center"  
ohos:background_element="#00a2e8"  
ohos:text="正下"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
>
```

<Button

```
ohos:height="match_content"  
ohos:width="match_content"  
ohos:padding="$ohos:float:button_radius"  
ohos:right_of="$id:center"  
ohos:below="$id:center"
```

```
ohos:background_element="#ff7f27"  
ohos:text="右下"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
</>
```

</DependentLayout>

...\DependentLayout\entry\src\main\java\com\minwei\dependentlayout\slice>MainAbilitySlice.java

```
public class MainAbilitySlice extends AbilitySlice {  
    @Override  
    public void onStart(Intent intent) {  
        super.onStart(intent);  
        super.setUIContent(ResourceTable.Layout_ability_main);  
    }  
    ...  
}
```

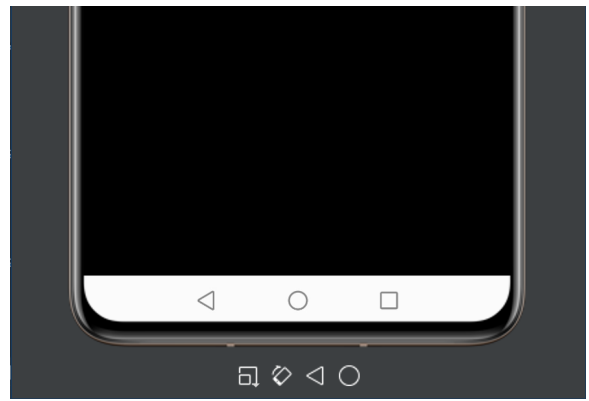
或

```
public class MainAbilitySlice extends AbilitySlice {  
    @Override  
    public void onStart(Intent intent) {  
        super.onStart(intent);  
        super.setUIContent(ResourceTable.Layout_ability_buddy);  
    }  
    ...  
}
```

运行效果如下图所示：







## 2 表格布局(TableLayout)

```
<TableLayout
  ...
  ohos:row_count="3"
  ohos:column_count="3"
  ...>

  ...

</TableLayout>
```

例程: TableLayout

...\TableLayout\entry\src\main\resources\base\layout\lability\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout
  xmlns:ohos="http://schemas.huawei.com/res/ohos"
  ohos:height="match_parent"
  ohos:width="match_parent"
  ohos:row_count="3"
  ohos:column_count="3"
  ohos:background_element="#000000">

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:background_element="#ff7f27"
    ohos:text="左上"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:background_element="#00a2e8"
    ohos:text="正上"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:background_element="#ff7f27"
    ohos:text="右上"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:background_element="#00a2e8"
    ohos:text="正左"
    ohos:text_size="30fp"
    ohos:text_color="#ffffff"
  />

  <Button
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:padding="$ohos:float:button_radius"
    ohos:background_element="#22b14c"
```

```
ohos:text="正中"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
</>
```

```
<Button
```

```
ohos:height="match_content"  
ohos:width="match_content"  
ohos:padding="$ohos:float:button_radius"  
ohos:background_element="#00a2e8"  
ohos:text="正右"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
</>
```

```
<Button
```

```
ohos:height="match_content"  
ohos:width="match_content"  
ohos:padding="$ohos:float:button_radius"  
ohos:background_element="#ff7f27"  
ohos:text="左下"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
</>
```

```
<Button
```

```
ohos:height="match_content"  
ohos:width="match_content"  
ohos:padding="$ohos:float:button_radius"  
ohos:background_element="#00a2e8"  
ohos:text="正下"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
</>
```

```
<Button
```

```
ohos:height="match_content"  
ohos:width="match_content"  
ohos:padding="$ohos:float:button_radius"  
ohos:background_element="#ff7f27"  
ohos:text="右下"  
ohos:text_size="30fp"  
ohos:text_color="#ffffff"  
</>
```

```
</TableLayout>
```

运行效果如下图所示:



### 3 栈布局(StackLayout)

```
<StackLayout
  ...>

  ...

</StackLayout>
```

例程: StackLayout

...\StackLayout\entry\src\main\resources\base\layout\lability\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<StackLayout
  xmlns:ohos="http://schemas.huawei.com/res/ohos"
  ohos:height="match_parent"
  ohos:width="match_parent"
  ohos:background_element="#000000">

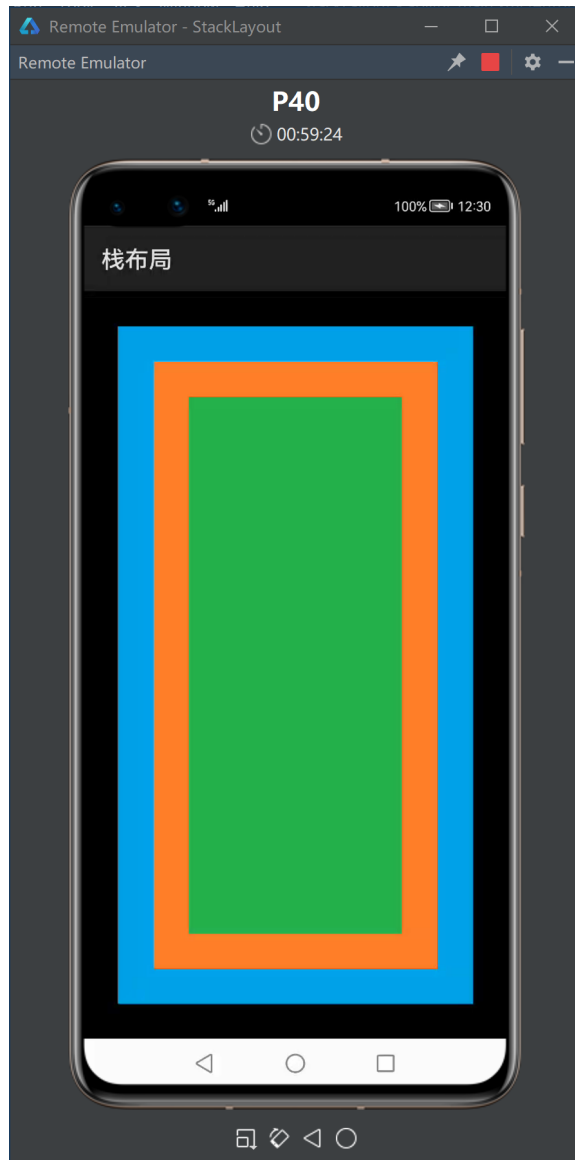
  <Button
    ohos:height="match_parent"
    ohos:width="match_parent"
    ohos:margin="30vp"
    ohos:background_element="#00a2e8"
  />

  <Button
    ohos:height="match_parent"
    ohos:width="match_parent"
    ohos:margin="60vp"
    ohos:background_element="#ff7f27"
  />

  <Button
    ohos:height="match_parent"
    ohos:width="match_parent"
    ohos:margin="90vp"
    ohos:background_element="#22b14c"
  />

</StackLayout>
```

运行效果如下图所示：



## 4 自适应布局(AdaptiveBoxLayout)

鸿蒙操作系统特有的布局。一套布局自动适配在不同设备上显示界面。

手表	手机	平板	电视
1	12	123	1234
2	34	4	
3			
4			

```
<AdaptiveBoxLayout
  ...
  ohos:id="$+id:abl"
  ...>

  <Text
    ...
    ohos:width="match_parent" - 宽度由布局决定
    ...
  />

  ...

</AdaptiveBoxLayout>
```

```
AdaptiveBoxLayout adaptiveBoxLayout =
    (AdaptiveBoxLayout) findComponentById(ResourceTable.Id_abl);
// 清除规则
adaptiveBoxLayout.clearAdaptiveRules();
// 添加规则，当屏幕宽度介于0~2000像素时，每行显示1列
adaptiveBoxLayout.addAdaptiveRule(0, 2000, 1);
// 添加规则，当屏幕宽度为2000像素以上时，每行显示5列
adaptiveBoxLayout.addAdaptiveRule(2000, Integer.MAX_VALUE, 5);
```

## 例程：AdaptiveBoxLayout

...\AdaptiveBoxLayout\entry\src\main\resources\base\layout\ability\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<AdaptiveBoxLayout
  xmlns:ohos="http://schemas.huawei.com/res/ohos"
  ohos:id="$+id:abl"
  ohos:height="match_parent"
  ohos:width="match_parent"
  ohos:background_element="#000000">

  <Text
    ohos:height="match_content"
    ohos:width="match_parent"
    ohos:padding="$ohos:float:button_radius"
    ohos:background_element="#00a2e8"
    ohos:text="1"
    ohos:text_size="26fp"
    ohos:text_color="#ffffff"
    ohos:text_alignment="horizontal_center"
  />

  <Text
    ohos:height="match_content"
    ohos:width="match_parent"
    ohos:padding="$ohos:float:button_radius"
    ohos:background_element="#22b14c"
    ohos:text="2"
    ohos:text_size="26fp"
    ohos:text_color="#ffffff"
    ohos:text_alignment="horizontal_center"
  />

  <Text
    ohos:height="match_content"
    ohos:width="match_parent"
    ohos:padding="$ohos:float:button_radius"
    ohos:background_element="#ffc90e"
    ohos:text="3"
    ohos:text_size="26fp"
    ohos:text_color="#ffffff"
    ohos:text_alignment="horizontal_center"
  />

  <Text
    ohos:height="match_content"
    ohos:width="match_parent"
    ohos:padding="$ohos:float:button_radius"
    ohos:background_element="#ff7f27"
    ohos:text="4"
    ohos:text_size="26fp"
    ohos:text_color="#ffffff"
    ohos:text_alignment="horizontal_center"
  />

  <Text
    ohos:height="match_content"
```



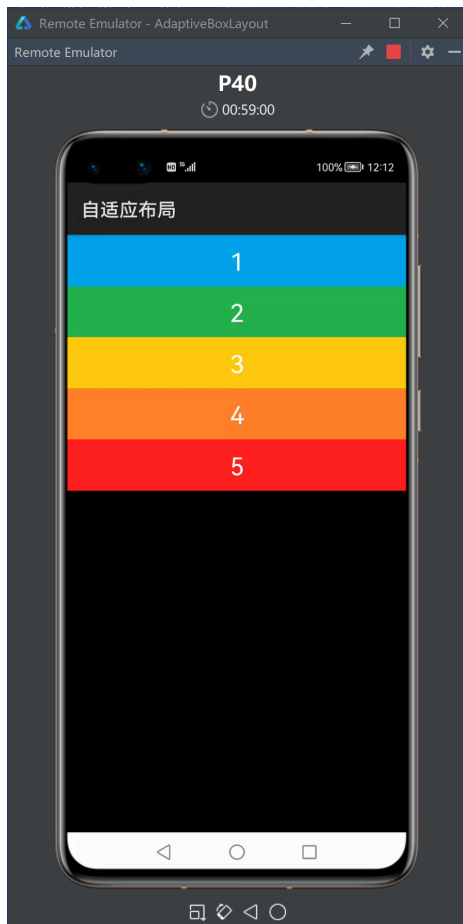
```
ohos:width="match_parent"
ohos:padding="$ohos:float:button_radius"
ohos:background_element="#ff2020"
ohos:text="5"
ohos:text_size="26fp"
ohos:text_color="#ffffff"
ohos:text_alignment="horizontal_center"
/>
```

```
</AdaptiveBoxLayout>
```

...\AdaptiveBoxLayout\entry\src\main\java\com\minwei\adaptiveboxlayout\slice\MainAbilitySlice.java

```
public class MainAbilitySlice extends AbilitySlice {
    @Override
    public void onStart(Intent intent) {
        ...
        AdaptiveBoxLayout adaptiveBoxLayout =
            (AdaptiveBoxLayout) findComponentById(ResourceTable.Id_ab1);
        adaptiveBoxLayout.clearAdaptiveRules();
        adaptiveBoxLayout.addAdaptiveRule(0, 2000, 1);
        adaptiveBoxLayout.addAdaptiveRule(2000, Integer.MAX_VALUE, 5);
    }
    ...
}
```

运行效果如下图所示：



# 5 位置布局(PositionLayout)

以像素坐标的形式定位布局中的组件。

```
<PositionLayout
  ...>

  <Text
    ohos:id="$+id:txt
    ...
  />

  ...

</PositionLayout>
```

```
Text txt = (Text)findViewById(ResourceTable.Id_txt);
txt.setContentPosition(100, 200);
```

原点位于窗口左上角，水平轴向右为正，垂直轴向下为正。

例程：PositionLayout

...\PositionLayout\entry\src\main\config.json

```
{
  ...
  "module": {
    ...
    "abilities": [
      {
        ...
        "configChanges": [
          "orientation"
        ]
      }
    ]
  }
}
```

...\PositionLayout\entry\src\main\resources\base\graphic\background\_text\_box.xml

```
<?xml version="1.0" encoding="utf-8"?>
<shape
  xmlns:ohos="http://schemas.huawei.com/res/ohos"
  ohos:shape="rectangle">
  <corners ohos:radius="50"/>
  <solid ohos:color="#000000"/>
  <stroke ohos:width="2vp" ohos:color="#ff7f27"/>
</shape>
```

...\PositionLayout\entry\src\main\resources\base\graphic\background\_text\_ball.xml

```
<?xml version="1.0" encoding="utf-8"?>
<shape
  xmlns:ohos="http://schemas.huawei.com/res/ohos"
  ohos:shape="oval">
  <solid ohos:color="#ff7f27"/>
</shape>
```

...\PositionLayout\entry\src\main\resources\base\layout\ability\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<PositionLayout
  xmlns:ohos="http://schemas.huawei.com/res/ohos"
  ohos:height="match_parent"
  ohos:width="match_parent"
  ohos:background_element="#00a2e8">

  <Text
    ohos:id="$+id:txtBox"
    ohos:height="665vp"
    ohos:width="327vp"
    ohos:background_element="$graphic:background_text_box"
  />

  <Text
    ohos:id="$+id:txtBall"
    ohos:height="40vp"
    ohos:width="40vp"
    ohos:background_element="$graphic:background_text_ball"
  />

</PositionLayout>
```

...\PositionLayout\entry\src\main\java\com\minwei\positionlayout\slice>MainAbilitySlice.java

```

public class MainActivity extends AppCompatActivity {
    private TextView txtBox, txtBall;

    private MoveBall moveBall;

    @Override
    public void onStart(Intent intent) {
        ...
        txtBox = (TextView)findViewById(R.id.txtBox);
        txtBall = (TextView)findViewById(R.id.txtBall);

        int l = 50, t = 50;
        txtBox.setContentPosition(l, t);
        int r = l + txtBox.getWidth();
        int b = t + txtBox.getHeight();

        int d = txtBall.getWidth();
        int x = l + (r - l) / 2 - d / 2;
        int y = t + (b - t) / 2 - d / 2;
        txtBall.setContentPosition(x, y);

        new Timer().schedule(moveBall = new MoveBall(
            this, txtBall, l, t, r, b, d, x, y), 0, 1);
    }
    ...
    @Override
    protected void onOrientationChanged(
        DisplayOrientation displayOrientation) {
        super.onOrientationChanged(displayOrientation);

        if (displayOrientation == DisplayOrientation.LANDSCAPE) {
            txtBox.setWidth(AttrHelper.vp2px(721, this));
            txtBox.setHeight(AttrHelper.vp2px(233, this));
        }
        else {
            txtBox.setWidth(AttrHelper.vp2px(327, this));
            txtBox.setHeight(AttrHelper.vp2px(665, this));
        }

        int l = (int)txtBox.getContentPositionX();
        int t = (int)txtBox.getContentPositionY();
        int r = l + txtBox.getWidth();
        int b = t + txtBox.getHeight();
        moveBall.update(r, b);
    }
}

class MoveBall extends TimerTask {
    private AppCompatActivity context;
    private TextView ball;
    private int l, t, r, b, d, x, y;

    private int dx, dy;
}

```

```

public MoveBall(AbilitySlice context, Component ball,
    int l, int t, int r, int b, int d, int x, int y) {
    this.context = context;
    this.ball = ball;
    this.l = l;
    this.t = t;
    this.r = r;
    this.b = b;
    this.d = d;
    this.x = x;
    this.y = y;

    dx = dy = d / 100;
}

public void update(int r, int b) {
    this.r = r;
    this.b = b;
}

@Override
public void run() {
    if (x + dx <= l) {
        x = l;
        dx = -dx;
    }
    else if (x + dx >= r - d) {
        x = r - d;
        dx = -dx;
    }
    else
        x += dx;

    if (y + dy <= t) {
        y = t;
        dy = -dy;
    }
    else if (y + dy >= b - d) {
        y = b - d;
        dy = -dy;
    }
    else
        y += dy;

    context.getUITaskDispatcher()
        .asyncDispatch(new PlaceBall(ball, x, y));
}
}

class PlaceBall implements Runnable {
    private Component ball;
    private int x, y;

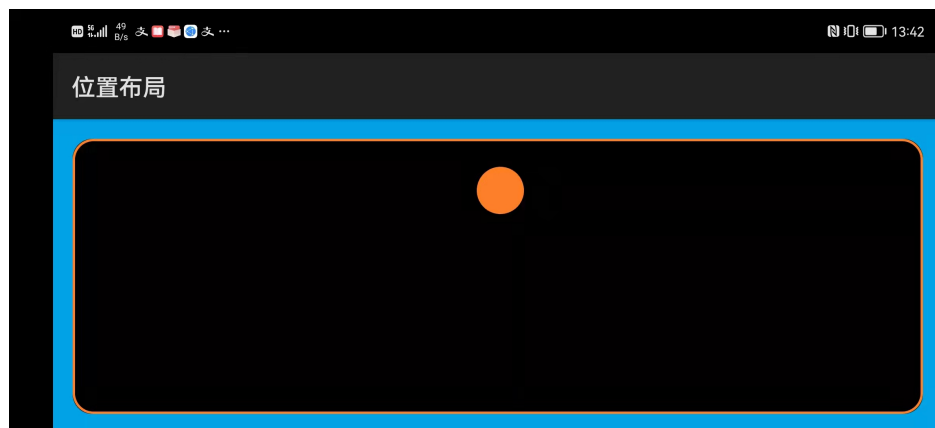
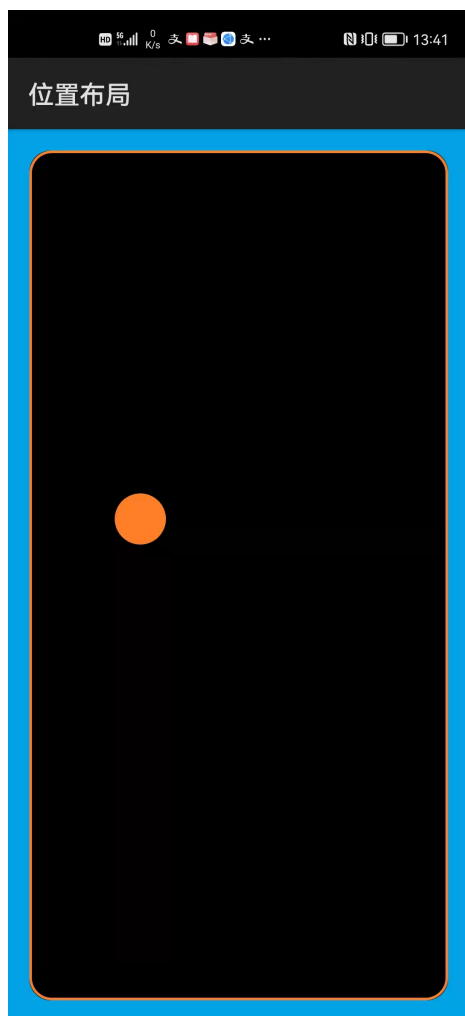
    public PlaceBall(Component ball, int x, int y) {
        this.ball = ball;
    }
}

```

```
        this.x = x;
        this.y = y;
    }

    @Override
    public void run() {
        ball.setContentPosition(x, y);
    }
}
```

运行效果如下图所示：



## 更多精彩，敬请期待.....

达内集团C++教学部  
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