

文件与偏好数据库

1 文件

1.1 写文件

```
try {
    File file = new File(getFilesDir() + "/notes.txt");
    FileOutputStream fos = new FileOutputStream(file);
    String string = textField.getText();
    byte[] bytes = string.getBytes();
    fos.write(bytes);
    fos.close();
}
catch (Exception exception) {
    exception.printStackTrace();
}
```

1.2 读文件

```
try {
    File file = new File(getFilesDir() + "/notes.txt");
    FileInputStream fis = new FileInputStream(file);
    byte[] bytes = new byte[(int)file.length()];
    fis.read(bytes);
    fis.close();
    String string = new String(bytes);
    textField.setText(string);
}
catch (Exception exception) {
    exception.printStackTrace();
}
```

例程: File

...\File\entry\src\main\resources\base\graphic\background_scrollview.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="#ffffff"/>
  <stroke ohos:width="2vp" ohos:color="#ff7f27"/>
</shape>
```

...\File\entry\src\main\resources\base\graphic\background_button.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="#ff7f27"/>
</shape>
```

...\File\entry\src\main\resources\base\layout\lability_main.xml

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

  <ScrollView
    ohos:height="match_parent"
    ohos:weight="1"
    ohos:width="match_parent"
    ohos:padding="10vp"
    ohos:left_margin="20vp"
    ohos:right_margin="20vp"
    ohos:top_margin="20vp"
    ohos:background_element="$graphic:background_scrollview"
    ohos:rebound_effect="true">

    <TextField
      ohos:id="$+id:tf"
      ohos:height="match_content"
      ohos:width="match_parent"
      ohos:multiple_lines="true"
      ohos:hint="编辑文件"
      ohos:text_size="20fp"
    />

  </ScrollView>

  <Button
    ohos:id="$+id:btn"
    ohos:height="match_content"
    ohos:width="match_parent"
    ohos:padding="$ohos:float:button_radius"
    ohos:margin="20vp"
    ohos:background_element="$graphic:background_button"
    ohos:text="保存"
    ohos:text_size="22fp"
    ohos:text_color="#ffffff"
  />

</DirectionalLayout>
```

...\File\entry\src\main\java\com\minwei\file\slice\MainAbilitySlice.java

```
public class MainActivity extends AppCompatActivity {
    private TextView textView;
    private Button button;

    @Override
    public void onStart(Intent intent) {
        ...
        textView = (TextView)findViewById(R.id.textView);
        button = (Button)findViewById(R.id.button);

        read();

        button.setOnClickListener(component -> save());
    }
    ...
    private void read() {
        try {
            File file = new File(getFilesDir() + "/notes.txt");
            FileInputStream fis = new FileInputStream(file);
            byte[] bytes = new byte[(int)file.length()];
            fis.read(bytes);
            fis.close();
            String string = new String(bytes);
            textView.setText(string);
        }
        catch (Exception exception) {
            exception.printStackTrace();
        }
    }

    private void save() {
        try {
            File file = new File(getFilesDir() + "/notes.txt");
            FileOutputStream fos = new FileOutputStream(file);
            String string = textView.getText();
            byte[] bytes = string.getBytes();
            fos.write(bytes);
            fos.close();
        }
        catch (Exception exception) {
            exception.printStackTrace();
        }
    }
}
```

运行效果如下图所示：



2 图像文件

```
ResourceManager manager = getResourceManager();
RawFileEntry entry = manager.getRawFileEntry(
    "resources/rawfile/image.jpg");

try {
    InputStream is = entry.openRawFile();
    ImageSource src = ImageSource.create(is, null);
    PixelMap map = src.createPixelmap(null);

    Image image = new Image(this);
    image.setWidth(LayoutConfig.MATCH_PARENT);
    image.setHeight(LayoutConfig.MATCH_PARENT);
    image.setScaleMode(Image.ScaleMode.ZOOM_CENTER);
    image.setPixelMap(map);

    ((DirectionalLayout)findViewById(
        ResourceTable.Id_dir)).addComponent(image);
}
catch (IOException exception) {
    exception.printStackTrace();
}
```

例程: ImageFile

...\ImageFile\entry\src\main\resources\rawfile\image.jpg



...\ImageFile\entry\src\main\resources\base\layout\ability_main.xml

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

</DirectionalLayout>
```

...\ImageFile\entry\src\main\java\com\minwei\imagefile\slice\MainAbilitySlice.java

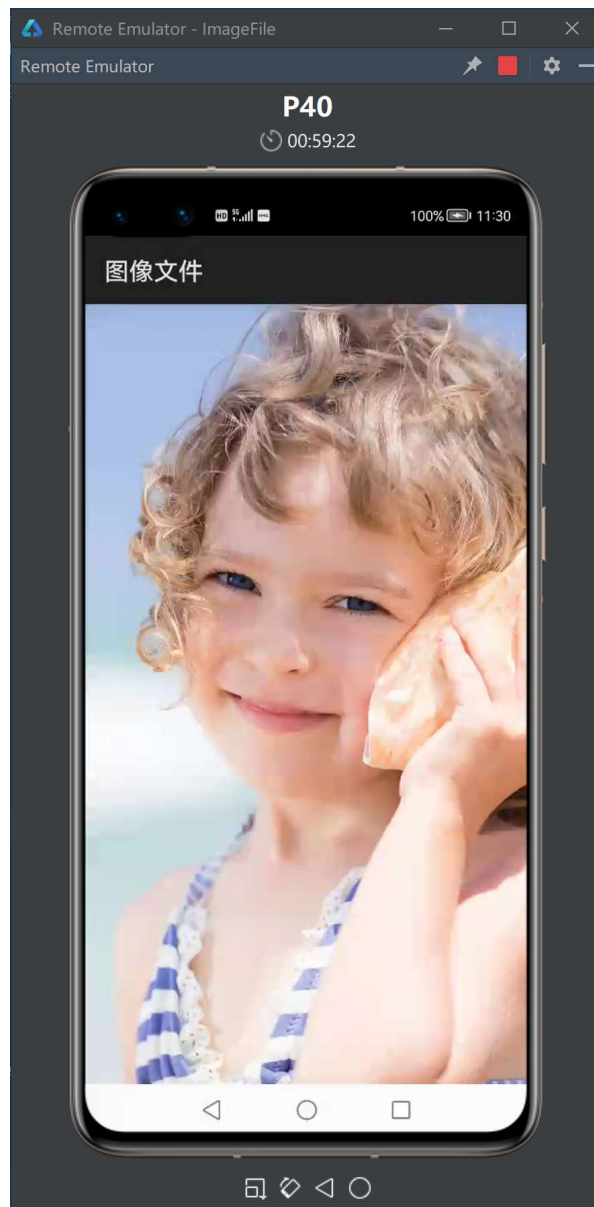
```
public class MainAbilitySlice extends AbilitySlice {
    @Override
    public void onStart(Intent intent) {
        ...
        ResourceManager manager = getResourceManager();
        RawFileEntry entry = manager.getRawFileEntry(
            "resources/rawfile/image.jpg");

        try {
            InputStream is = entry.openRawFile();
            ImageSource src = ImageSource.create(is, null);
            PixelMap map = src.createPixelmap(null);

            Image image = new Image(this);
            image.setWidth(LayoutConfig.MATCH_PARENT);
            image.setHeight(LayoutConfig.MATCH_PARENT);
            image.setScaleMode(Image.ScaleMode.ZOOM_CENTER);
            image.setPixelMap(map);

            ((DirectionalLayout)findViewById(
                ResourceTable.Id_dir)).addComponent(image);
        }
        catch (IOException exception) {
            exception.printStackTrace();
        }
    }
    ...
}
```

运行效果如下图所示：



3 偏好数据库

3.1 获取偏好数据库

```
DatabaseHelper databaseHelper =  
    new DatabaseHelper(getApplicationContext());  
Preferences preferences =  
    databaseHelper.getPreferences(preferencesFile);
```

3.2 实现观察者接口

```
class CounterObserver implements PreferencesObserver {
    private String counterKey;
    private Text txtObserver;

    public CounterObserver(String key, Text txtObserver) {
        this.counterKey = key;
        this.txtObserver = txtObserver;
    }

    @Override
    public void onChange(Preferences preferences, String s) {
        if (s.equals(counterKey))
            txtObserver.setText(
                String.valueOf(preferences.getInt(s, 0)));
    }
}
```

3.3 注册观察者对象

```
CounterObserver counterObserver = new CounterObserver(counterKey,
    (Text)findViewById(ResourceTable.Id_txtObserver));
preferences.registerObserver(counterObserver);
```

3.4 读取偏好数据库

```
preferences.getInt(counterKey, 0);
```

3.5 保存偏好数据库

```
preferences.putInt(counterKey, counter);
preferences.flushSync();
```

3.6 注销观察者对象

```
preferences.unregisterObserver(counterObserver);
```

3.7 删除偏好库文件

```
databaseHelper.deletePreferences(preferencesFile);
```

例程: Preferences

...\Preferences\entry\src\main\resources\base\layout\ability_main.xml

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

  <TableLayout
    ohos:height="match_content"
    ohos:width="match_content"
    ohos:row_count="2"
    ohos:column_count="2">

    <Text
      ohos:id="$+id:txtCounter"
      ohos:height="60vp"
      ohos:width="100vp"
      ohos:text_size="50fp"
      ohos:text_color="#ffffff"
      ohos:text_alignment="center"
    />

    <Text
      ohos:id="$+id:txtObserver"
      ohos:height="60vp"
      ohos:width="100vp"
      ohos:left_margin="25vp"
      ohos:text_size="50fp"
      ohos:text_color="#ffffff"
      ohos:text_alignment="center"
    />

    <Button
      ohos:id="$+id:btnAdd"
      ohos:height="40vp"
      ohos:width="100vp"
      ohos:top_margin="15vp"
      ohos:background_element="#00a2e8"
      ohos:text="增加"
      ohos:text_size="20fp"
      ohos:text_color="#ffffff"
    />

    <Button
      ohos:id="$+id:btnDelete"
      ohos:height="40vp"
      ohos:width="100vp"
      ohos:top_margin="15vp"
      ohos:left_margin="25vp"
```

```
ohos:background_element="#ff7f27"  
ohos:text="删除"  
ohos:text_size="20fp"  
ohos:text_color="#ffffff"  
</>
```

```
</TableLayout>
```

```
</DirectionalLayout>
```

```
...\Preferences\entry\src\main\java\com\minwei\preferences\slice\MainAbilitySlice.java
```

```
class CounterObserver implements PreferencesObserver {
    private String counterKey;
    private Text txtObserver;

    public CounterObserver(String key, Text txtObserver) {
        this.counterKey = key;
        this.txtObserver = txtObserver;
    }

    @Override
    public void onChange(Preferences preferences, String s) {
        if (s.equals(counterKey))
            txtObserver.setText(
                String.valueOf(preferences.getInt(s, 0)));
    }
}

public class MainActivity extends AppCompatActivity {
    private final String preferencesFile = "MyPreferences";
    private final String counterKey = "Counter";

    private DatabaseHelper databaseHelper;
    private Preferences preferences;
    private CounterObserver counterObserver;
    private Text txtCounter;

    @Override
    public void onStart(Intent intent) {
        ...
        databaseHelper = new DatabaseHelper(getApplicationContext());
        preferences = databaseHelper.getPreferences(preferencesFile);
        counterObserver = new CounterObserver(counterKey,
            (Text)findViewById(ResourceTable.Id_txtObserver));
        preferences.registerObserver(counterObserver);

        txtCounter = (Text)findViewById(
            ResourceTable.Id_txtCounter);
        txtCounter.setText(String.valueOf(readCounter()));

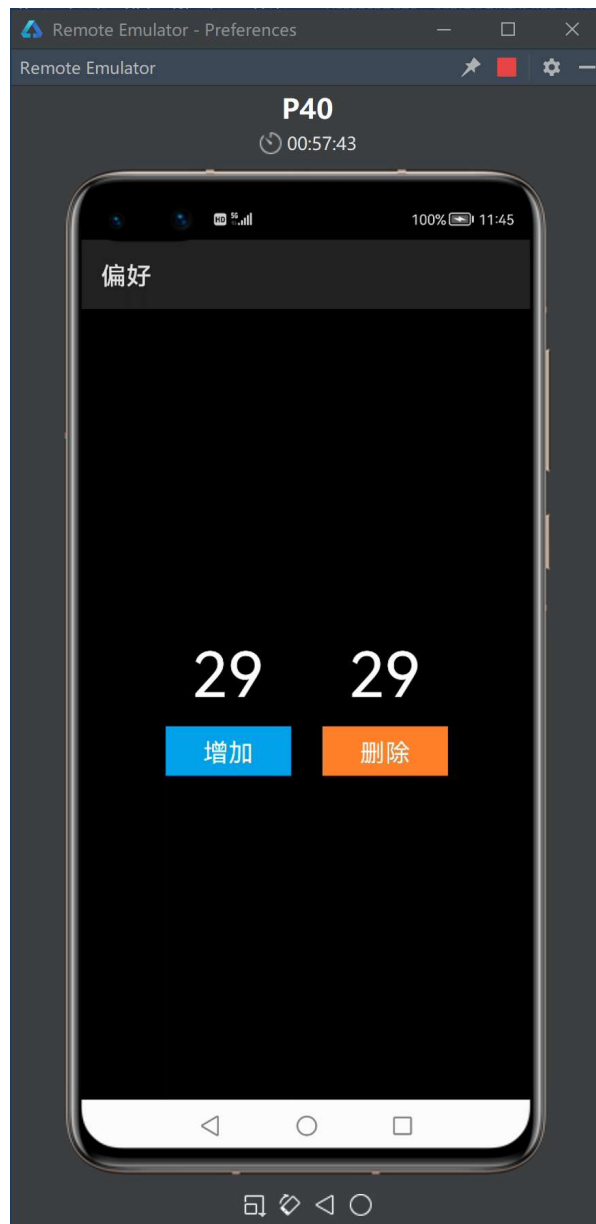
        findViewById(ResourceTable.Id_btnAdd)
            .setClickListener(new ClickedListener() {
                @Override
                public void onClick(Component component) {
                    int counter = Integer.valueOf(
                        txtCounter.getText().intValue());
                    ++counter;
                    txtCounter.setText(String.valueOf(counter));
                    saveCounter(counter);
                }
            });
    }
}
```

```
        findViewById(ResourceTable.Id_btnDelete)
            .setClickListener(new ClickedListener() {
                @Override
                public void onClick(Component component) {
                    databaseHelper.deletePreferences(preferencesFile);
                }
            });
    }
    ...
    @Override
    public void onStop() {
        preferences.unregisterObserver(counterObserver);
    }

    private int readCounter() {
        return preferences.getInt(counterKey, 0);
    }

    private void saveCounter(int counter) {
        preferences.putInt(counterKey, counter);
        preferences.flushSync();
    }
}
```

运行效果如下图所示:



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达内集团C++教学部
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