



EMUI 9.1 Themes Tutorial

2019-01-17

Contents

This tutorial is applicable to designers who have not designed Huawei themes before or are not familiar with Huawei themes. This tutorial is intended to help designers quickly understand and master how to make Huawei themes by introducing the following aspects of theme production. Please read this tutorial carefully, thank you.

- Files in the theme package
- Common modules
- Compressing and decompressing
- Review and release processes
- Precautions

Files in the theme package

A complete 9.1 small theme package

default 9.1 theme.hwt



preview
unlock
wallpaper
com.huawei.android.launcher
description.xml
icons

Common modules only

A complete 9.1 large theme package

default 9.1 theme.hwt



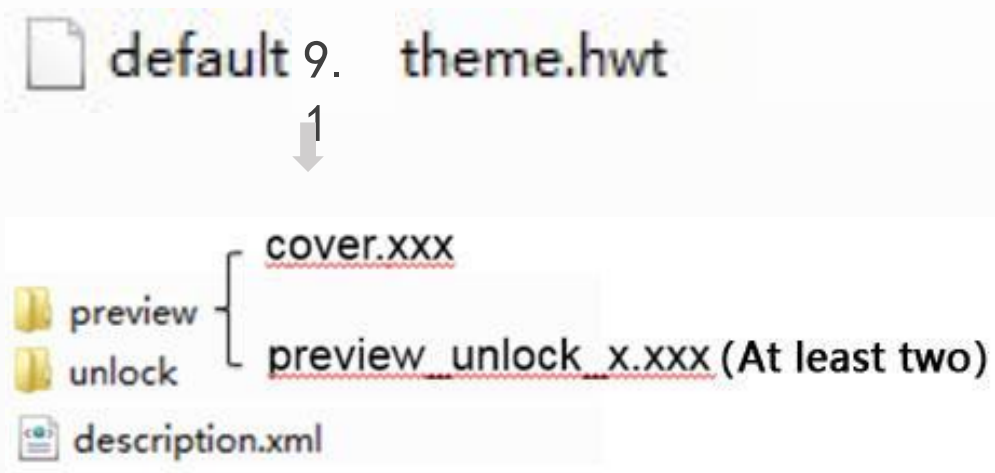
preview
unlock
wallpaper
com.android.contacts
com.android.mms
com.android.phone
com.android.phone.recorder
com.android.server.telecom
com.android.systemui
com.huawei.android.launcher
description.xml
icons

Common modules and large theme modules

Note: The size of a 9.1 theme cannot exceed 50 MB.

Files in the theme package

A complete 9.1 unlock package



Unlock modules only

A complete 9.1 icon package



Icon modules only

Note: The images in the preview folder needs to be named according to the specification, and only the preview package corresponding to the theme package can be placed. For example, the lock screen package can only place the lock screen preview images.

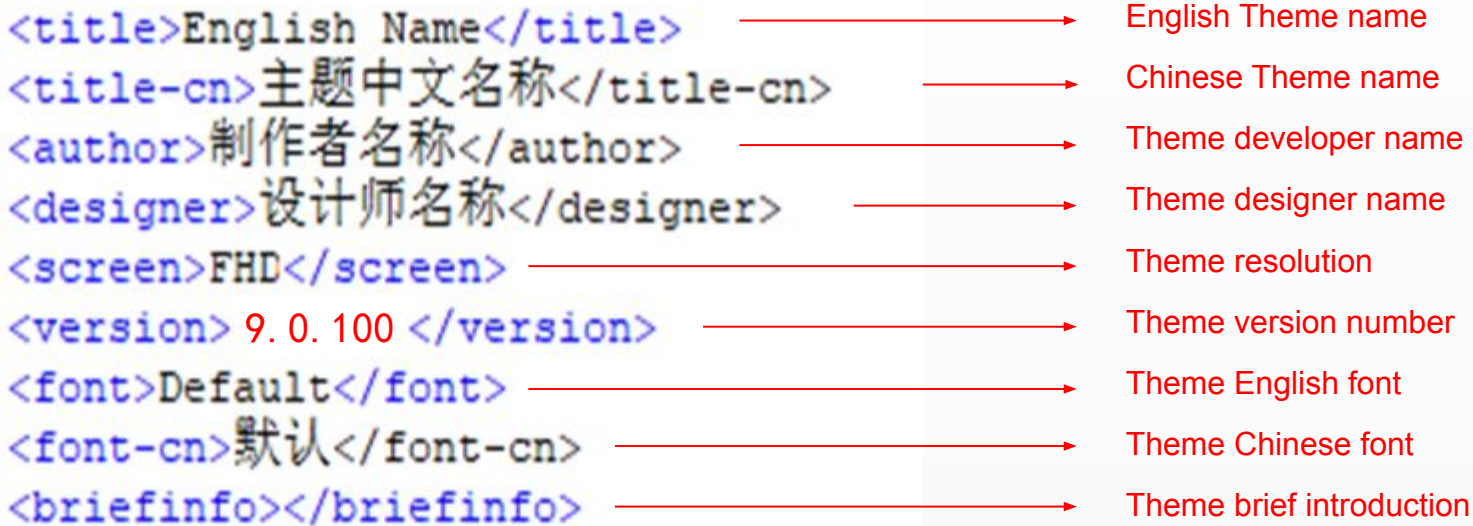
The following slides will introduce each module.

Common modules

description.xml: Description file

The description.xml file in the **small/large** theme

```
<?xml version="1.0" encoding="UTF-8"?>
<HwTheme>
  <title>English Name</title>
  <title-cn>主题中文名称</title-cn>
  <author>制作者名称</author>
  <designer>设计师名称</designer>
  <screen>FHD</screen>
  <version>9.0.100</version>
  <font>Default</font>
  <font-cn>默认</font-cn>
  <briefinfo></briefinfo>
</HwTheme>
```



<title>English Name</title>	→	English Theme name
<title-cn>主题中文名称</title-cn>	→	Chinese Theme name
<author>制作者名称</author>	→	Theme developer name
<designer>设计师名称</designer>	→	Theme designer name
<screen>FHD</screen>	→	Theme resolution
<version>9.0.100</version>	→	Theme version number
Default	→	Theme English font
<font-cn>默认</font-cn>	→	Theme Chinese font
<briefinfo></briefinfo>	→	Theme brief introduction

Note: English Theme name, Chinese Theme name, theme developer name, and theme designer name cannot be modified after the theme is released. The designer name is bound to the designer's HUAWEI Developer account. Retain the default value for theme resolution, English font, and Chinese font. The first version of the theme is 9.0.100. If the version is updated, the version number becomes 9.0.10X (X is an Arabic numeral).

The description.xml file in the **Unlock theme**

```
<?xml version="1.0" encoding="UTF-8"?>
<HwTheme>
  <title>English Name</title>
  <title-cn>主题中文名称</title-cn>
  <author>制作者名称</author>
  <designer>设计师名称</designer>
  <screen>FHD</screen>
  <version>9.0.10 </version>
  <font>Default</font>
  <font-cn>默认</font-cn>
  <briefinfo></briefinfo>
  <formatType> 1 </formatType>
</HwTheme>
```

主题类型

注意：When the designer uploads the Unlock package separately, the theme type field must be added in the description.xml. The type field of the Unlock theme is: <formatType>1</formatType>

The description.xml file in the Icon theme

```
<?xml version="1.0" encoding="UTF-8"?>
<HwTheme>
  <title>English Name</title>
  <title-cn>主题中文名称</title-cn>
  <author>制作者名称</author>
  <designer>设计师名称</designer>
  <screen>FHD</screen>
  <version>9.0.10</version>
  <font>Default</font>
  <font-cn>默认</font-cn>
  <briefinfo></briefinfo>
  <formatType>2</formatType>
</HwTheme>
```

主题类型

注意：When the designer uploads the Icon package separately, the theme type field must be added in the description.xml. The type field of the Icon theme is: <formatType>2</formatType>

Common modules

preview: Preview images

The preview is an overview of a theme. Users can determine the style of a theme through the preview.

The 9.1 theme preview consists of the following modules:

Cover (**cover.jpg**)

Icon preview (**icon_small.jpg** 、 **icon_small_1.jpg**)

First screen (preview_widget_0.jpg, preview_widget_1.jpg, and preview_widget_2.jpg)

Lock screen (**preview_unlock_0.jpg** and preview_unlock_1.jpg)

Icon (**preview_icons_0.jpg**, preview_icons_0.jpg)

Dialer (**preview_contacts_0.jpg**)

Contacts (**preview_contacts_1.jpg** and preview_contacts_2.jpg)

Messaging (**preview_mms_0.jpg** and preview_mms_1.jpg)

Notification bar (**preview_systemui_0.jpg** and preview_systemui_1.jpg)

Note: The red parts are **mandatory for 9.1 small themes**, and are the basic preview images of a theme.

The green parts are the preview images that **9.1 small theme cannot contain**.

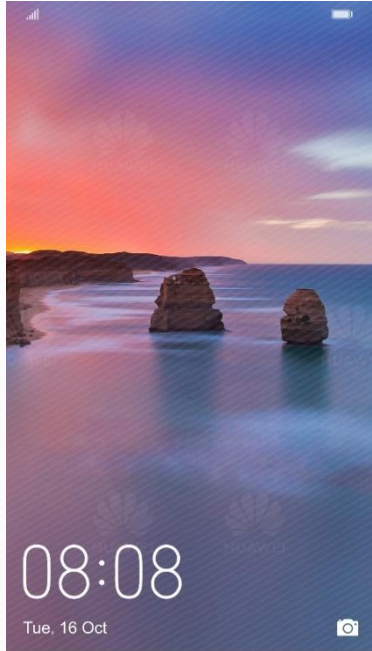
The dimension of the cover is **1080 × 1920 px**, while the size of the other preview images is **1080 × 2160 px**. For the icon preview, only replace the icons.

The cover preview image must be the same as the screen lock preview image.

Screenshots can be used for preview images after being modified. For details about modification, see **page 8**.

All the theme packages uploaded to overseas cannot contain SMS preview images, which are named as “preview_mms_X.jpg” , but still need to ensure the design and skinning of the SMS module.

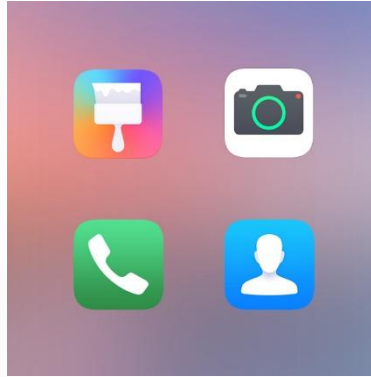
9.1 small theme preview template



cover.jpg
(Cover)



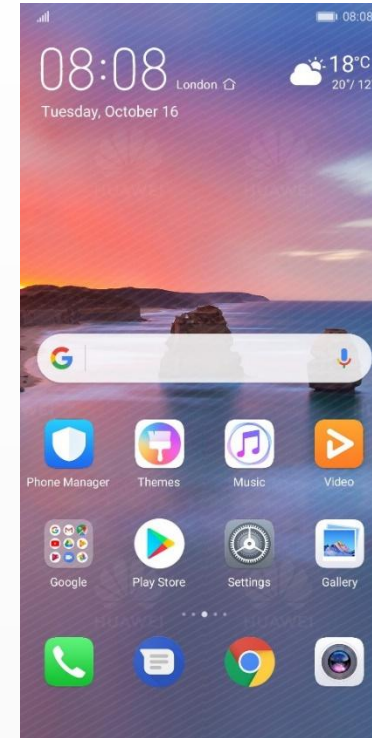
icon_small.jpg
(Small icon)



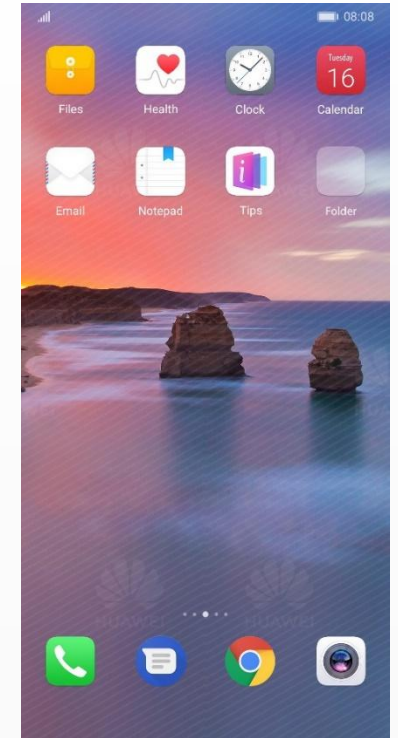
icon_small_1.jpg
(Small icon_1)



preview_unlock_0.jpg
(unlock)



preview_widget_0.jpg
(Launcher)



preview_icons_0.jpg
(icon)

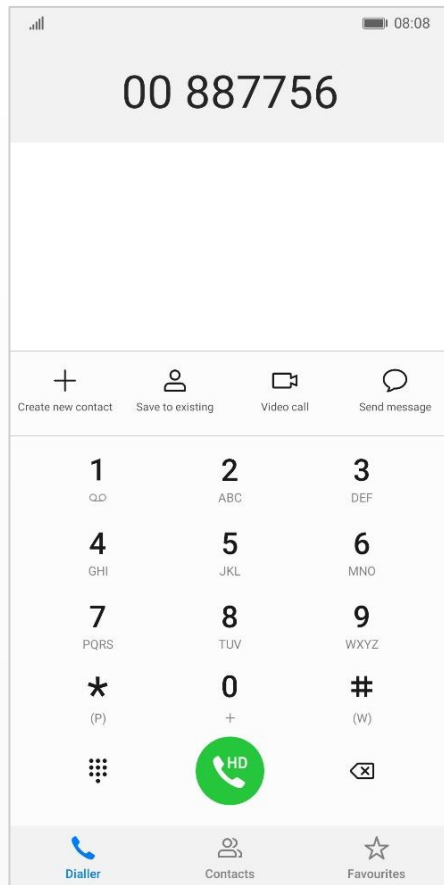
Note: For the **cover** and **unlock** preview images, no content, including status bar information and buttons, is allowed within the range of the top and bottom 80 px.

The status bar can contain only battery and time (except **cover**, **unlock**, and).

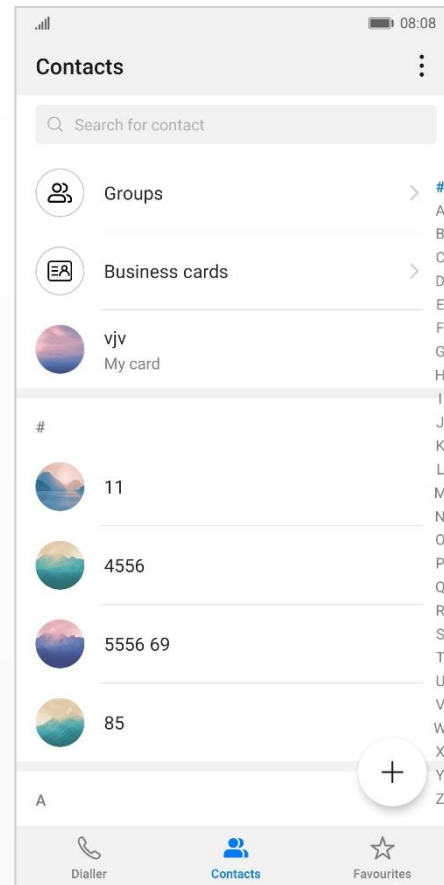
The preview image should be the same as the actual effect on the mobile phone **icon_small**.

The designer's note or description is mandatory. The preview image should be named **preview_widget_X.jpg** ("X" can be 0、1、2)

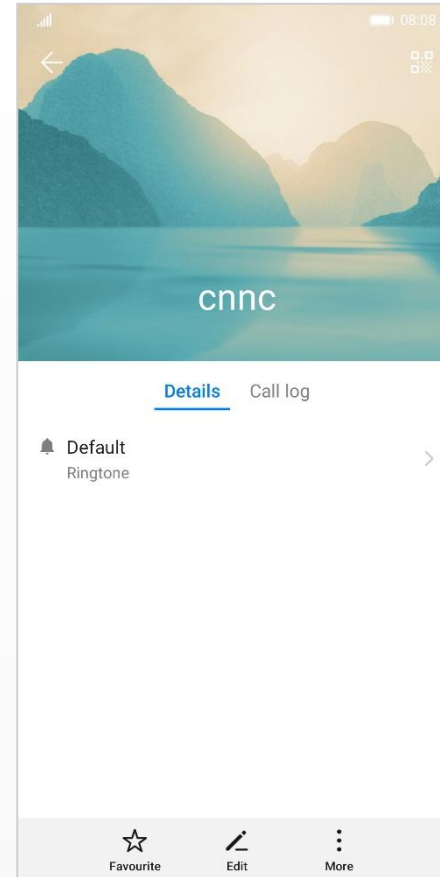
9.1 large theme preview template



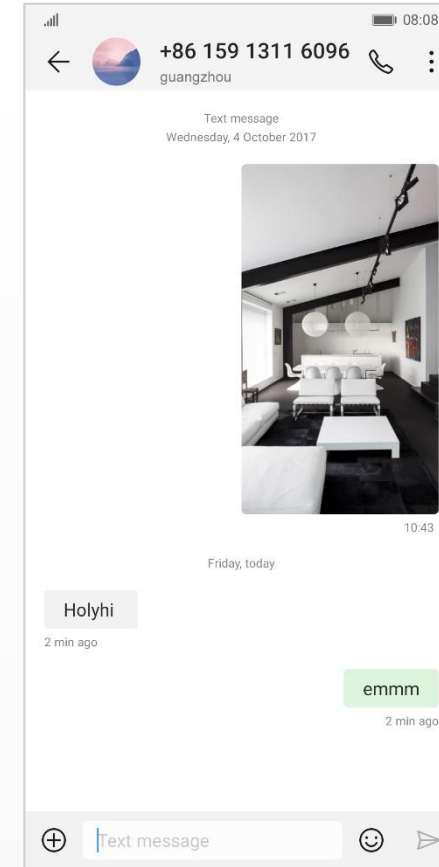
preview_contacts_0.jpg
(Dialer)



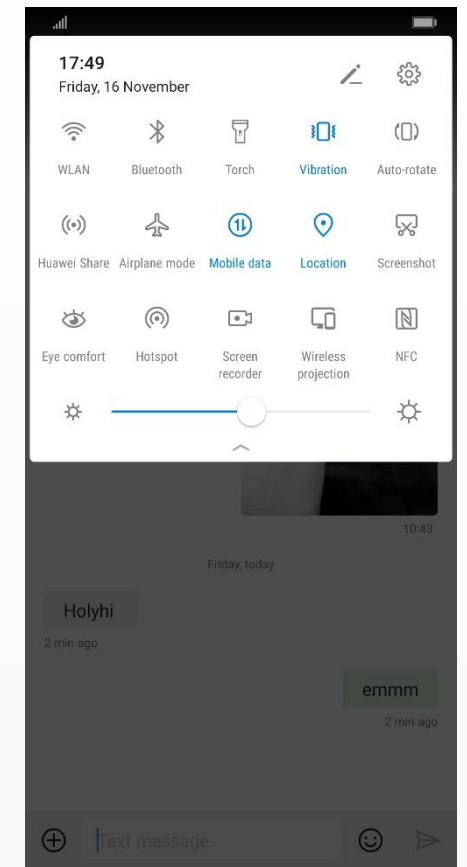
preview_contacts_1.jpg
(Contact)



preview_contacts_2.jpg
(Contact Detail)



preview_mms_0.jpg
(Message)



preview_systemui_0.jpg
(Notification)

Note: The status bar can contain only battery and time (except **cover**, **unlock**, and **icon_small**).
The preview image should be the same as the actual effect on the mobile phone.
The large theme must contain the above preview images.

Common modules

unlock: Lock screen components

Three unlock methods are available in EMUI 9.1 including Slide to unlock, Magazine unlock, and Combined unlock. Combined unlock is the most popular unlock method among designers and users due to its high customizability. All types of Unlock, the theme.xml file must be available under the unlock folder.

Slide to unlock



The Slide to unlock package contains only one XML file. The displayed content shows the default effect. The code is fixed and designers can only modify the wallpaper, as shown in the following figure.

```
<?xml version="1.0" encoding="utf-8"?>
<HWTheme>
  <item style="slide"/>
</HWTheme>
```

Magazine unlock

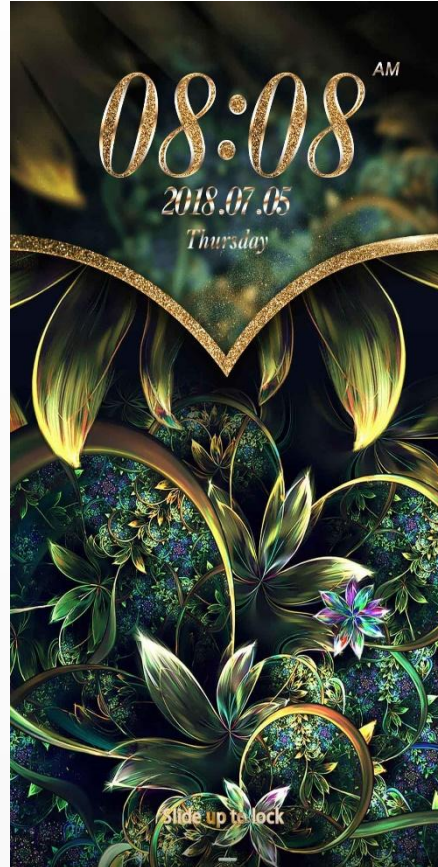
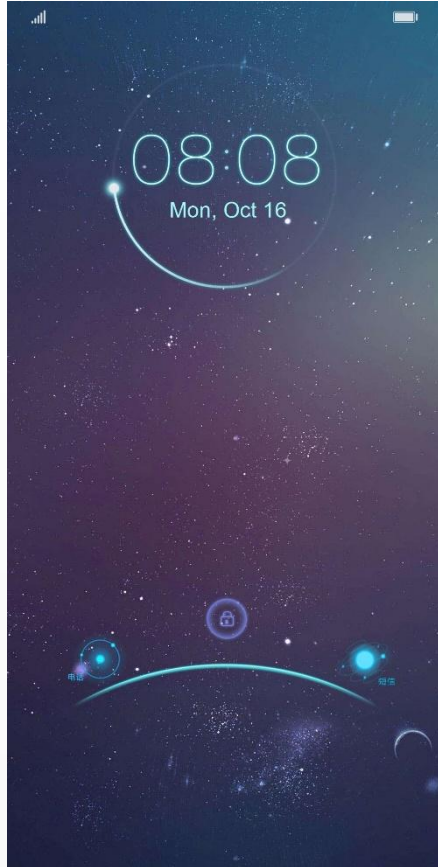


Magazine unlock is similar to Slide to unlock. The package contains only one XML file. The displayed content shows the default effect. The code is fixed and designers can only modify the wallpaper, as shown in the following figure.

```
<?xml version="1.0" encoding="utf-8"?>
<HWTheme>
  <item style="magazine"/>
</HWTheme>
```

For Magazine unlock, PSD source files are provided.

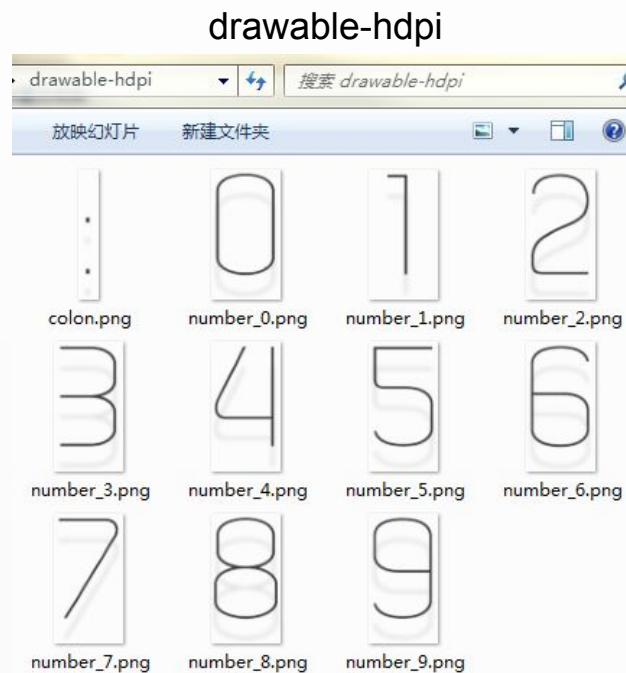
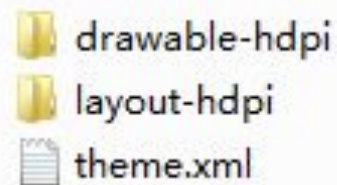
Combined unlock



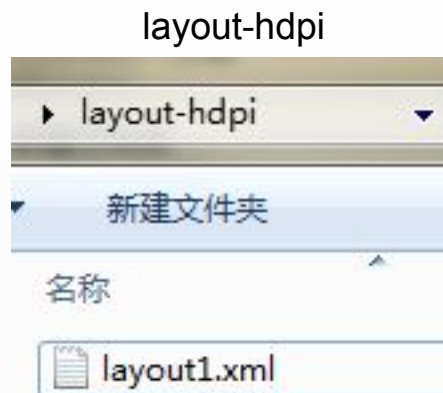
Note: The Combined unlock is currently the most widely used unlock method in the Huawei Themes store because its high customizability allows designers to customize the unlock method to obtain desired effects. The following contents can be customized for Combined unlock: wallpaper, widget, unlock mode, and layout.

Combined unlock

The Combined unlock package contains three files, as shown in the following figure:



The directory must contain at least the time slices shown in the figure above. In addition, other slices designed should also be placed in this directory.



The XML file in this directory is used to control the slices of each component in the **drawable-hdpi** so that they can be correctly displayed. This file is the core of the Combined unlock and is the most difficult. It is recommended that starter designers use the existing code in the template and make simple modifications only. For more complicated effects, please see the [EMUI Themes High-Level Tutorial-Combined Unlock](#).

theme.xml

```
<?xml version="1.0" encoding="utf-8"?>
<HWTheme>
  <item style="amazing"/>
  <item layout="layout1"/>
  <item slideinAmaze="true"/>
  <item maxHeight="2160"/>
  <item baseVersion="6.0"/>
</HWTheme>
```

General control code of the Combined unlock. Generally, designers retain the default value.

The theme must be compatible with phones with 18:9 displays or above. Therefore, the following identification code must be added:

```
<item maxHeight="2160"/>
```

Add the following code indicating that the theme is compatible with the in-display fingerprint feature:

```
<item baseVersion="6.0"/>
```

Note: Only one unlock method is allowed for each theme package. The slices should be in PNG format.

Combined unlock – In-display fingerprint

Security area



Security area positions on current products



Note:

Security area includes:

1. Security area in red with a size **240 x 360** and whose bottom edge is **582 pixel** to the bottom edge of the screen;
2. Security area in red with a size **240 x 360** and whose bottom edge is **84 pixel** to the bottom edge of the screen;
3. Security area in red with a size **240 x 360** and whose bottom edge is **57 pixel** to the bottom edge of the screen;
4. Security area in red with a size **240 x 360** and whose bottom edge is **24 pixel** to the bottom edge of the screen;

The in-display fingerprint feature is available on selected products, but the fingerprint sensor positions, time displays, and prompt positions are different. Therefore, be sure that the operation areas do not overlap:

1. In the security area, operations such as touching and sliding cannot be performed. The edge of the hot zone cannot overlap with that of the security area.
2. An animation or prompt message on which users do not need to operate can be displayed in the security area, but should not affect the display of the fingerprint sensor icon.

Combined unlock – In-display fingerprint

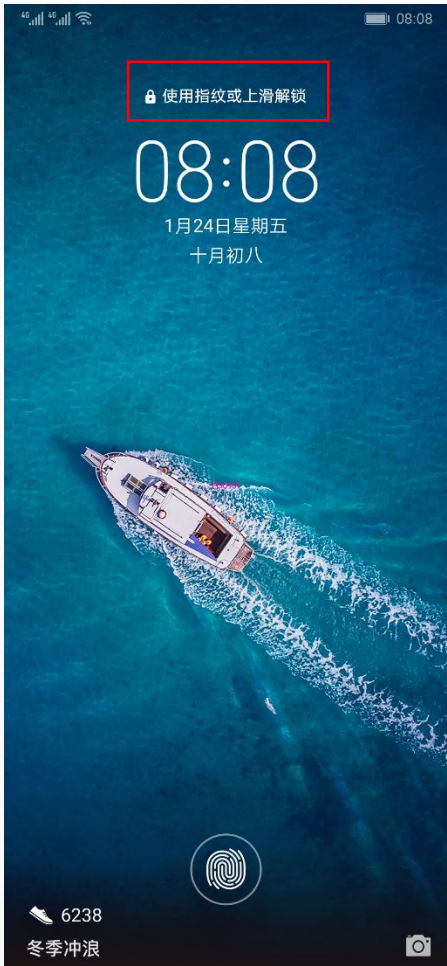
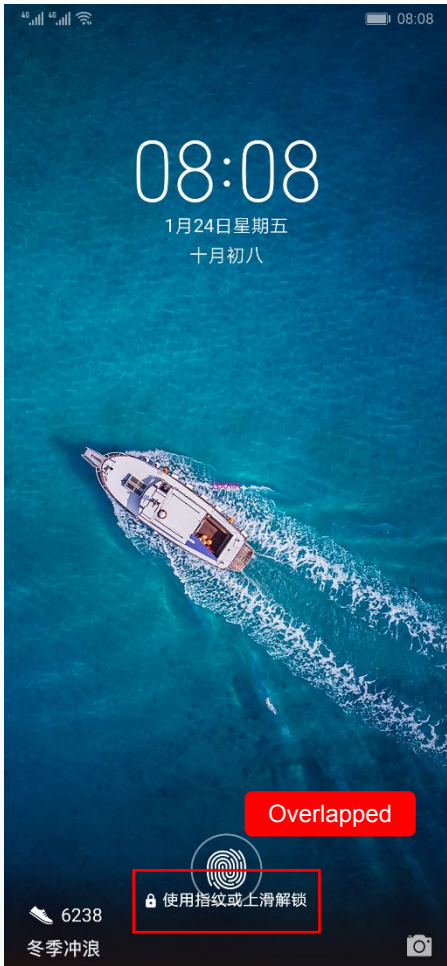
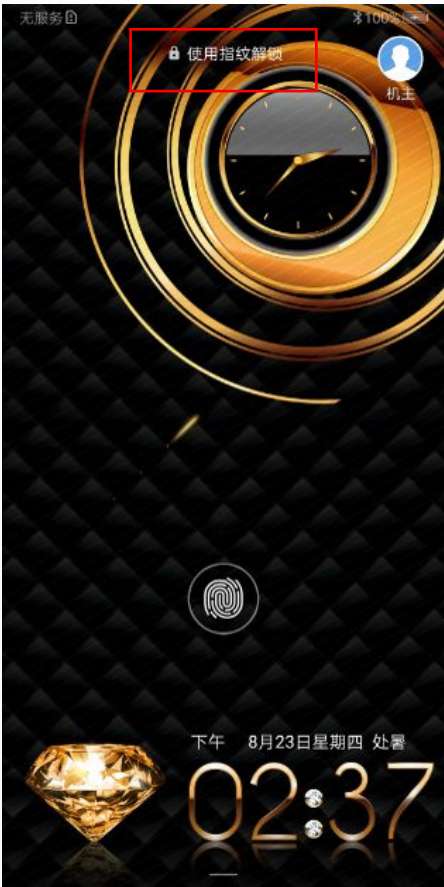
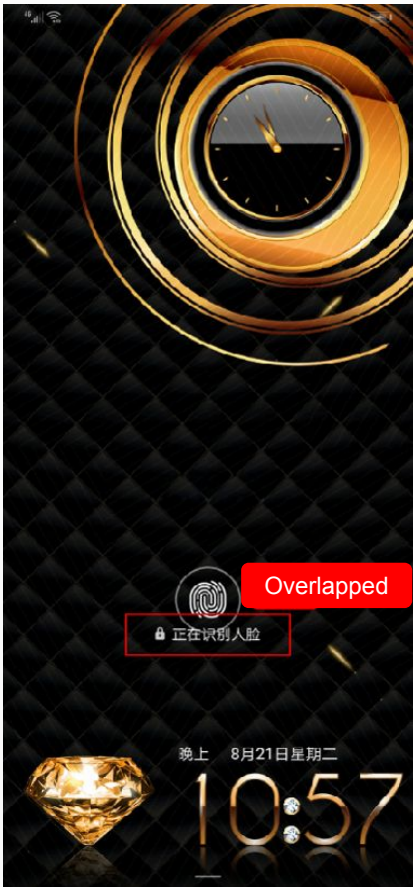
Example:

Rejected

Approved

Rejected

Approved



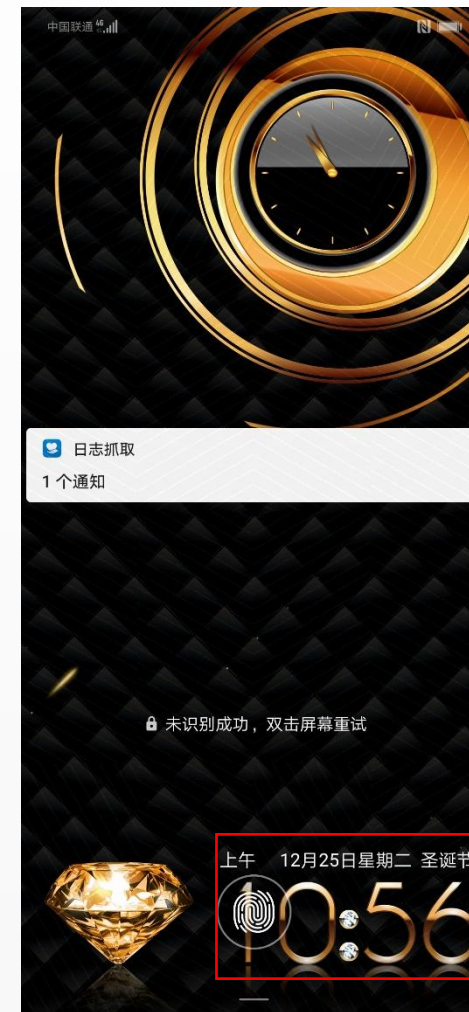
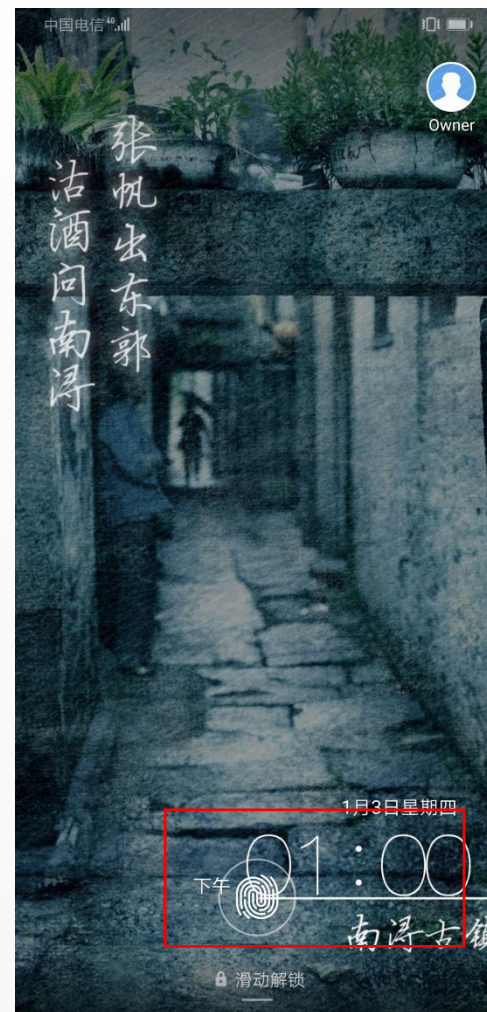
Combined unlock – In-display fingerprint

Risk:

If an animation or prompt message on which users do not need to operate is designed to appear in the security area, fingerprint recognition and aesthetic effect can be influenced, such as that the time display may overlap with the fingerprint sensor icon. Therefore, it is not advised that designers put any information in the security area.

If situations shown in the right figures exist, the designer should not add the following code indicating that the theme is compatible with the in-display fingerprint feature:

<item baseVersion="6.0"/>



Combined unlock – Notifications



Up to 3.5 notifications are allowed, and the height should be 288 dp when collapsed.

Note: Designers should pay attention that the lock screen notifications are allowed on EMUI 9.1 themes in order to improve user experience.

Common modules

wallpaper: Wallpapers

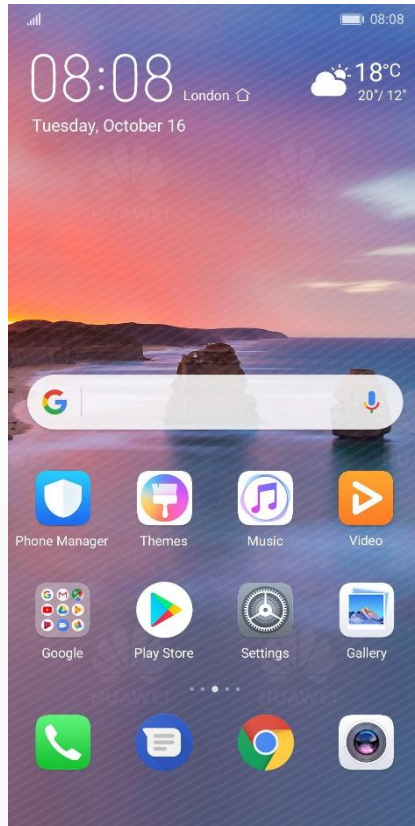
Wallpapers include lock screen wallpapers and home screen wallpapers.

Home screen wallpaper size: 2160 x 2160 px

Lock screen wallpaper size: 1080 x 2160 px

Home screen wallpaper home_wallpaper_0.jpg

Lock screen wallpaper unlock_wallpaper_0.jpg



Note: The wallpaper size should not exceed 1 MB.

Multiple wallpapers can be set.

Designers should pay attention that due to the features of EMUI 9.1, the actual effect of the lock screen wallpaper will be magnified by 10%.

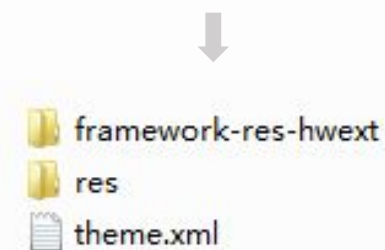
The lock screen wallpapers must be placed in **wallpaper** to be compatible with phones with 18:9 displays or above.

Common modules

com.huawei.android.launcher:
Home screen components

The **Launcher** package contains three files, as shown in the following figure:

com.huawei.android.launcher ▶

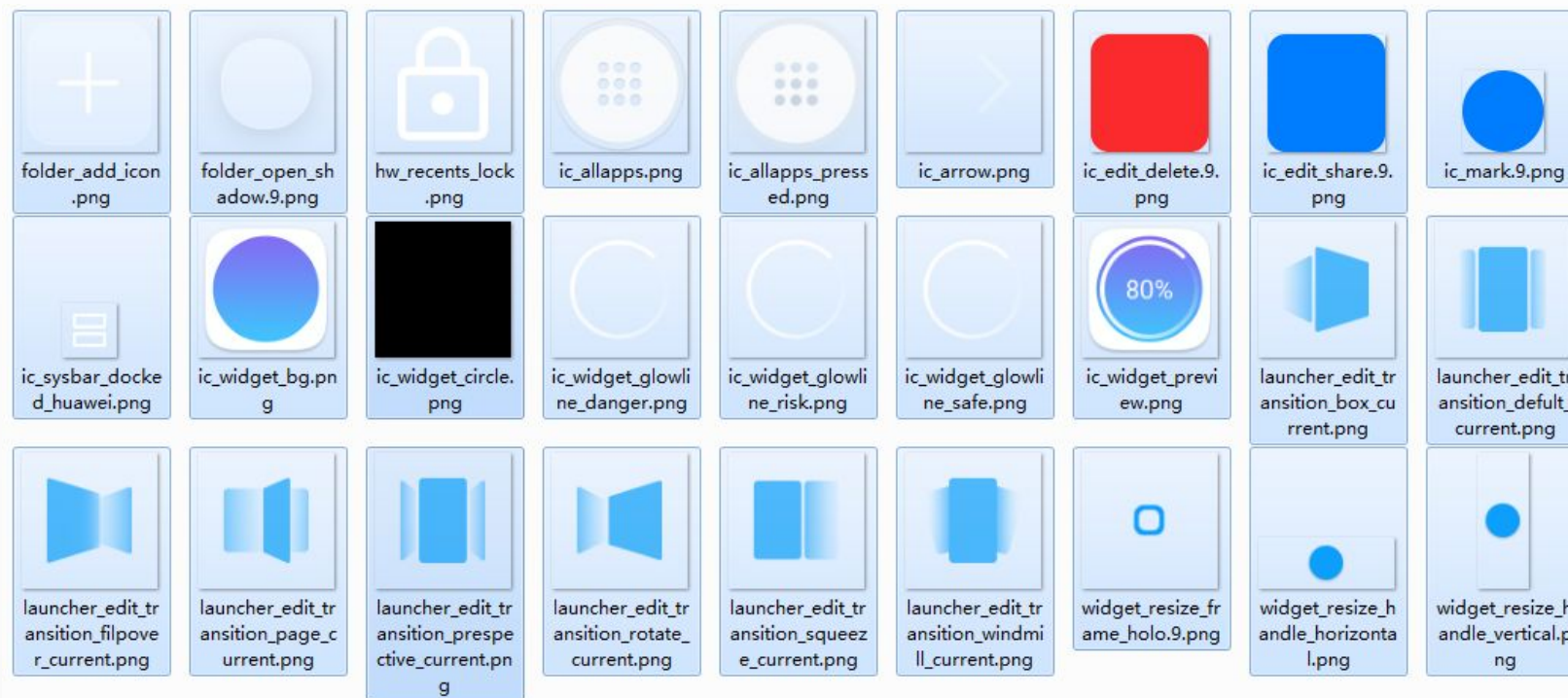


The **framework-res-hwext** folder contains the slices of common components on the **Settings** screen that can be modified by designers.

The **res** folder contains the slices of components on the home screen, as shown in the right figure.

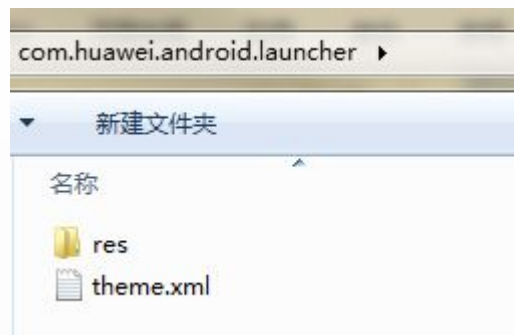
The **theme.xml** contains the code of colors used on the home screen.

com.huawei.android.launcher\res\drawable-xxhdpi



Note: The **Optimizer** is the component that themes must be compatible with.

The **folder_open_shadow.9** is a NinePatchDrawable graphic, which can be used only after NinePatchDrawable compilation.



The text inside the red box indicates the color value.

The 6-bit color value indicates the standard color value.

The first two bits of the 8-bit color value indicate transparency, FF indicates 100% transparency, while 00 indicates 0% transparency. The last six bits indicate the standard color value.

Note: Due to the feature of EMUI 9.1, the text shadow switch of <!--Home screen icon text color--> must be "true". If shadow is not needed, set the transparency to 100%.

Designers should only modify the color values.

```
<?xml version="1.0" encoding="utf-8"?>
<hwthemes>
```

```
<!-- 桌面图标字体颜色 -->
```

```
<color name="workspace_app_text_color">#FFFFFF</color>
```

```
<color name="workspace_app_text_shadowColor">#00000000</color>
```

```
<bool name="workspace_app_text_shadow">true</bool>
```

```
<!-- 文件夹内字体颜色 -->
```

```
<color name="folder_app_text_color">#FFFFFF</color>
```

```
<color name="folder_app_text_shadowColor">#000000</color>
```

```
<bool name="folder_app_text_shadow">>false</bool>
```

```
<!-- 文件夹添加应用字体颜色 -->
```

```
<color name="folderadd_text_color">#000000</color>
```

```
<color name="folderadd_text_shadowColor">#FFFFFF</color>
```

```
<bool name="folderadd_text_shadow">>false</bool>
```

```
<!-- 桌面图标投影 -->
```

```
<color name="icon_shadow">#00000000</color>
```

```
<!-- 导航点的颜色 -->
```

```
<color name="navigation_deskspot_current">#FFFFFF</color>
```

```
<color name="navigation_deskspot_normal">#b5b5b5</color>
```

```
<color name="navigation_blackspot_current">#202020</color>
```

```
<color name="navigation_blackspot_normal">#b5b5b5</color>
```

```
<!-- 动态时钟的字体颜色 -->
```

```
<color name="clock_dynamic_icon_color">#FFFFFF</color>
```

```
<!-- 一键优化百分比颜色 -->
```

```
<color name="widget_text_color">#000000</color>
```

```
<!-- 动态日历 -->
```

```
<color name="calendar_dynamic">#FFFFFF</color>
```

```
<color name="calendar_dynamic_shadow">#00FFFFFF</color>
```

```
</hwthemes>
```

Text color

Text shadow color

Text shadow switch, enabled: true,
disabled: false

Common modules

icons: Icons

EMUI 9.1 icon list

Icons include **system icons** and **third-party icons**.
The system icons include **dynamic icons** and **static icons**.

Size of all icons: **192 × 192 px**

Format of all icons: **PNG format**

Modification items when updating 8.0 themes to 9.1 themes:

a. Add icons.

com.huawei.browser (Browser)

com.huawei.honorclub.android (Honor Club)

com.huawei.android.totemweatherapp (Weather)

com.huawei.hwread.al.png (Reader)

b.Delete icons :

com.huawei.parentcontrol.parent.png (Parent control)

com.huawei.parentcontrol.png (Student mode)

com.huawei.scanner.png (Scan)

c.Optional icon :

com.huawei.hwmarket.vr.png (VR)

d.Retain the central element of the official icons.

com.hicloud.android.clone.png (Phone Clone)

Com.huawei.android.tips.png (Tips)

com.huawei.gameassistant.png (GameCenter)

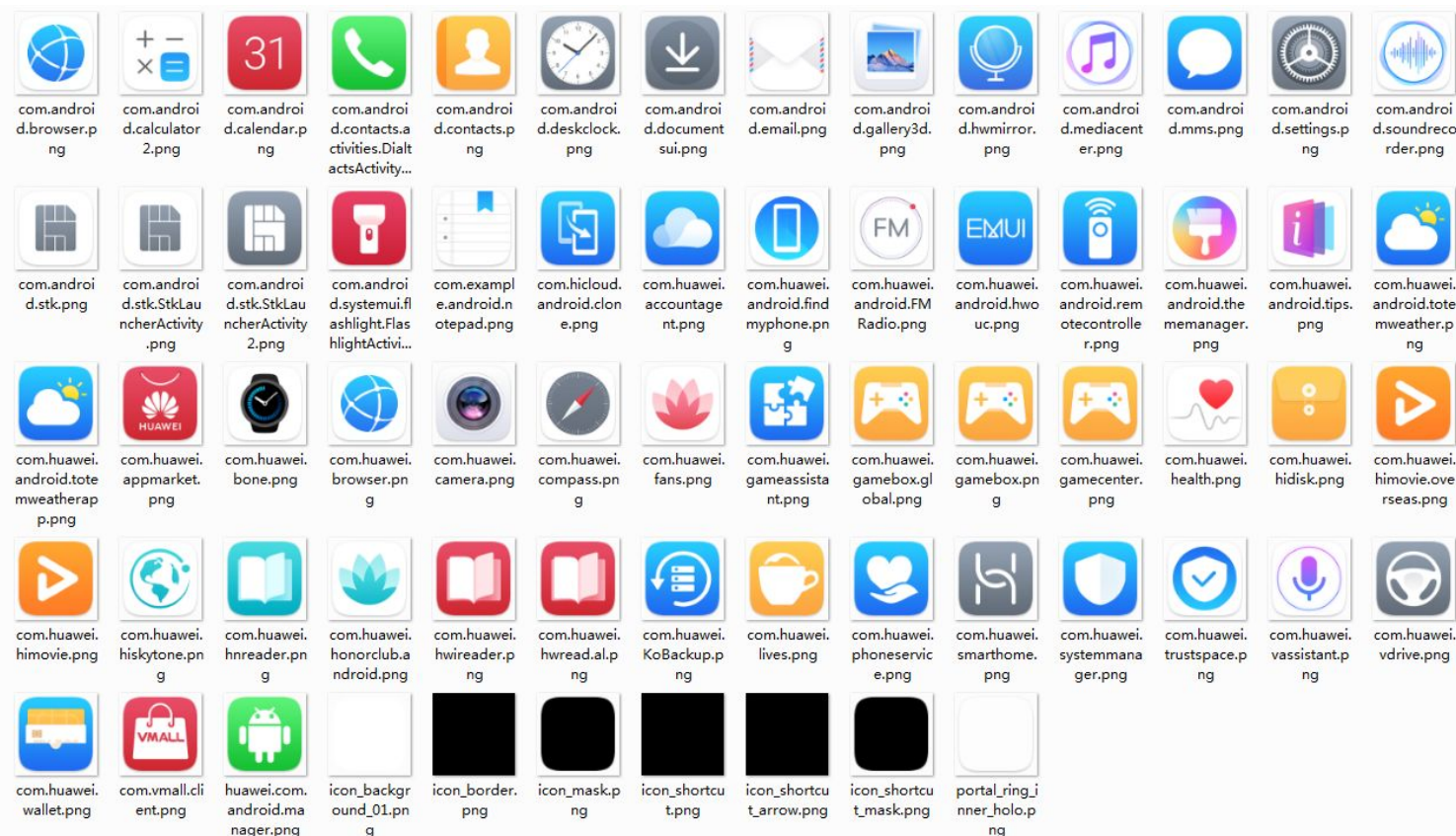
com.huawei.himovie.overseas.png (HUAWEI Video (for areas outside China))

com.huawei.himovie.png (HUAWEI Video)

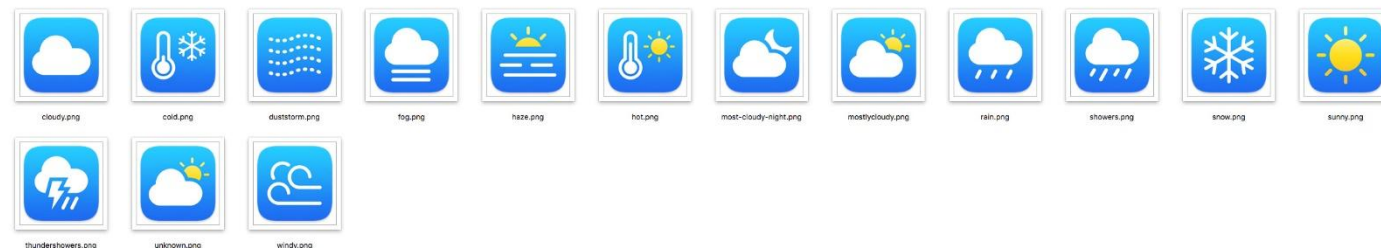
com.huawei.smarthome.png (Smart Home)

com.vmall.client.png (Vmall)

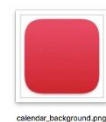
66 common icons



15 dynamic Weather icons



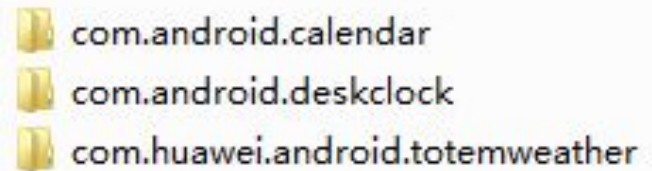
1 Calendar background



Dynamic icons

The **dynamic_icons** contains three folders.

dynamic_icons ▶



Note:

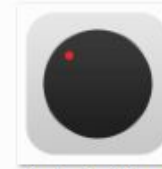
- The three dynamic icons are optional.
- The dynamic Calendar only provides the background. The specific time is automatically written by the system. Designers can change the color of the displayed time in the **theme.xml** file in the **launcher**.
- If no compatible dynamic icon is available, delete the folder to which the dynamic icon belongs. If all three dynamic icons are unavailable, delete the folder **dynamic_icons**.
- The static icons of **Calendar** and **Clock** cannot contain misleading digits. Different apps cannot use the same icon.



calendar_backg
round.png

Dynamic Calender

icons\dynamic_icons\com.android.calendar



deskclock_bg.p
ng

Dynamic Clock

icons\dynamic_com.android.deskclock



cloudy.png



cold.png



duststorm.png



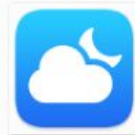
fog.png



haze.png



hot.png



most-cloudy-ni
ght.png



mostlycloudy.p
ng



rain.png



showers.png



snow.png



sunny.png



thundershowers
.png



unknown.png



windy.png

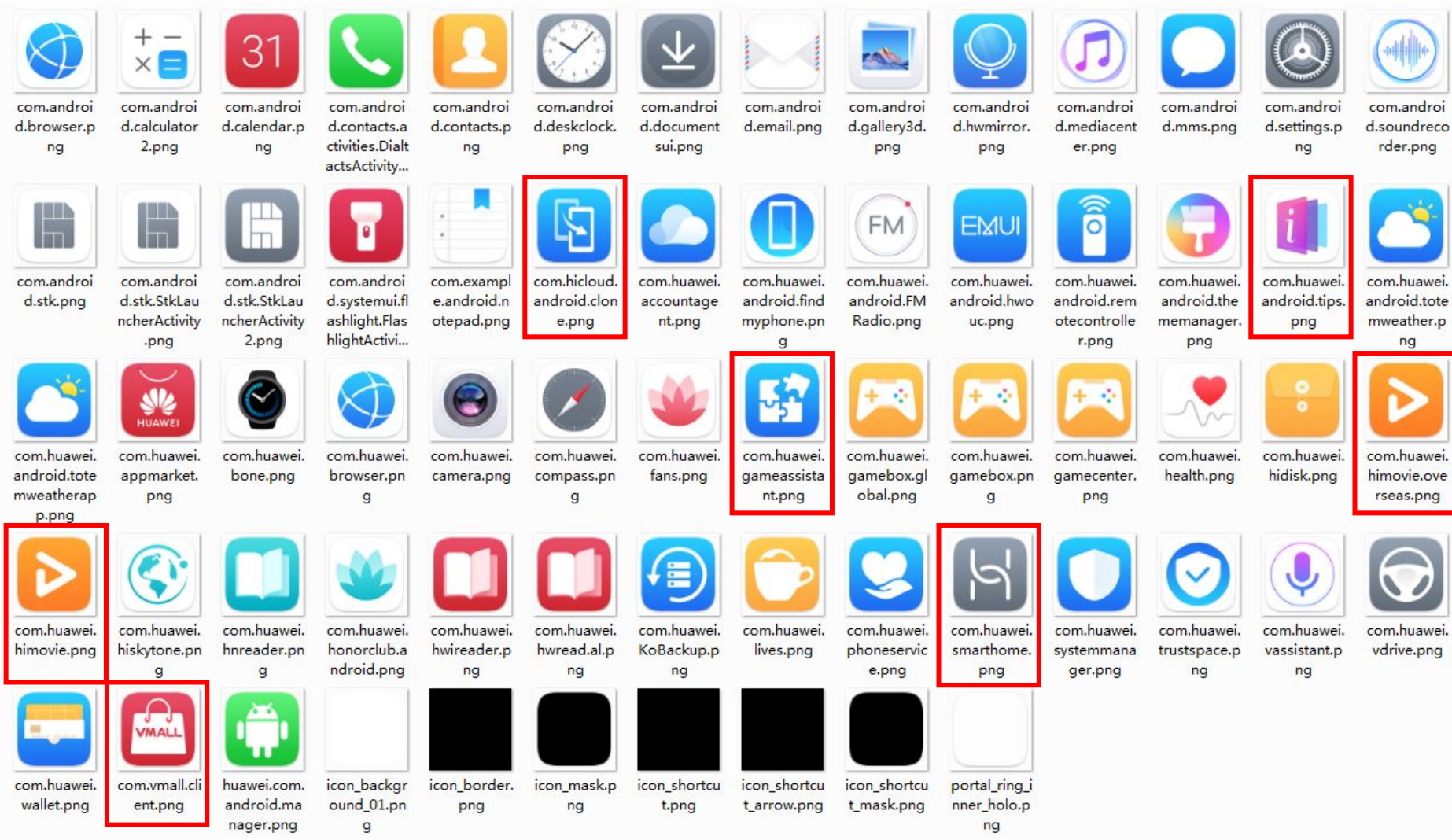
Dynamic Weather

icons\dynamic_icons\com.huawei.android.totemweather

Static icons (mandatory)

Mandatory static icons (system icons)

66 common icons



Note: The static icons of **Calendar** and **Clock** cannot contain misleading digits.

Different apps cannot use the same icon.

The system icons must be redrawn. For icons in the red boxes, designer must retain the central element of the official icons.

The Chinese names are in the PSD file.

Third-party icons

We hope that the themes can be adapted to third-party icons as many as possible. For the icons that are still incompatible, Huawei Themes provides a set of solutions: Designers can combine the background, border, and mask to produce a set of bottom plate that can unify the unadapted third-party icon style with the theme style.

A set of third-party icon bottom plate consists of `icon_background_01.png`, `icon_border.png`, and `icon_mask.png`. The three resources are all mandatory.

1. **`icon_background_01.png`** – Icon background. Designers can make multiple backgrounds (such as in different patterns or colors). The system randomly selects a background and places it under the third-party app icons. When designing the background, designers should take the dimensions of other icons into consideration to ensure that all the icon sizes are visually consistent.



2. **`icon_border.png`** – Icon border. The border should be placed on the top layer of a third-party icon and can be flexibly applied to produce multiple effects. For example, the icons on the right show the effect of antique finish or shadow transition. If such overlay effect is not required, set this border transparent.

3. **`icon_mask.png`** – Icon mask. The mask must be in black. Only the icon content within the black area will be displayed.

Note:

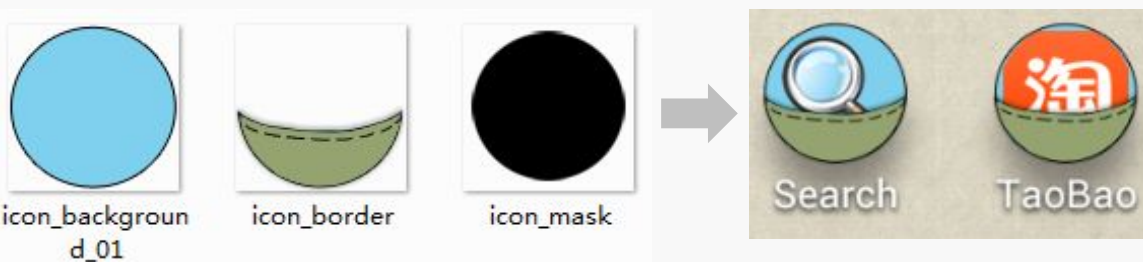
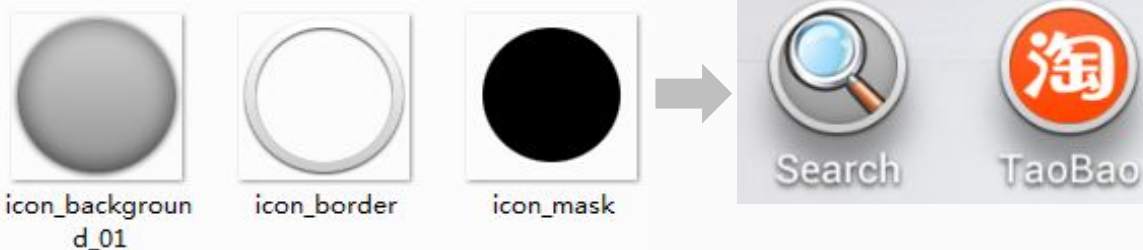
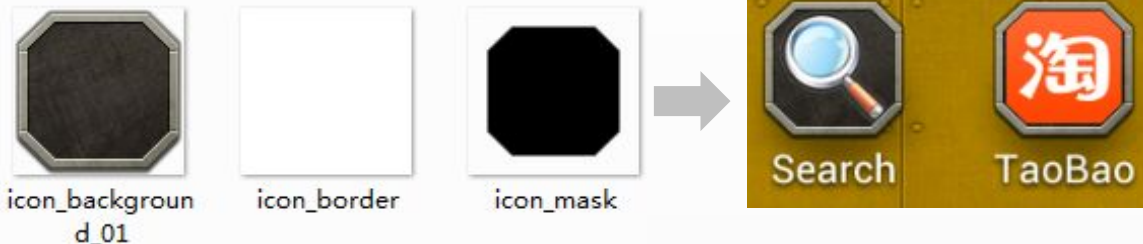
`icon_shortcut.png`, `icon_shortcut_arrow.png`, and `icon_shortcut_mask.png` are equivalent to the above.

For the Chinese names of all icons, see the PSD files provided.

Only the icons with the correct package names in the theme package can be correctly identified by the system.

For details about some third-party icons provided in the template, see [Third-party Icons and Package Names](#).

Slice resource:
The dimensions should be the same as the launcher icon dimensions.





Third-party icons

The icons, as the second important module besides the lock screen, is important to the quality of a theme. We hope that the themes can be adapted to third-party icons as many as possible, and will take the number and quality of system icons and adapted third-party icons as important factors while evaluating the themes and deciding whether to recommend the theme in Huawei Themes or not.

To view the third-party icon package names, go to <https://www.wandoujia.com/>


For example, the package name of **Files** is **com.fihtdc.filemanager**.


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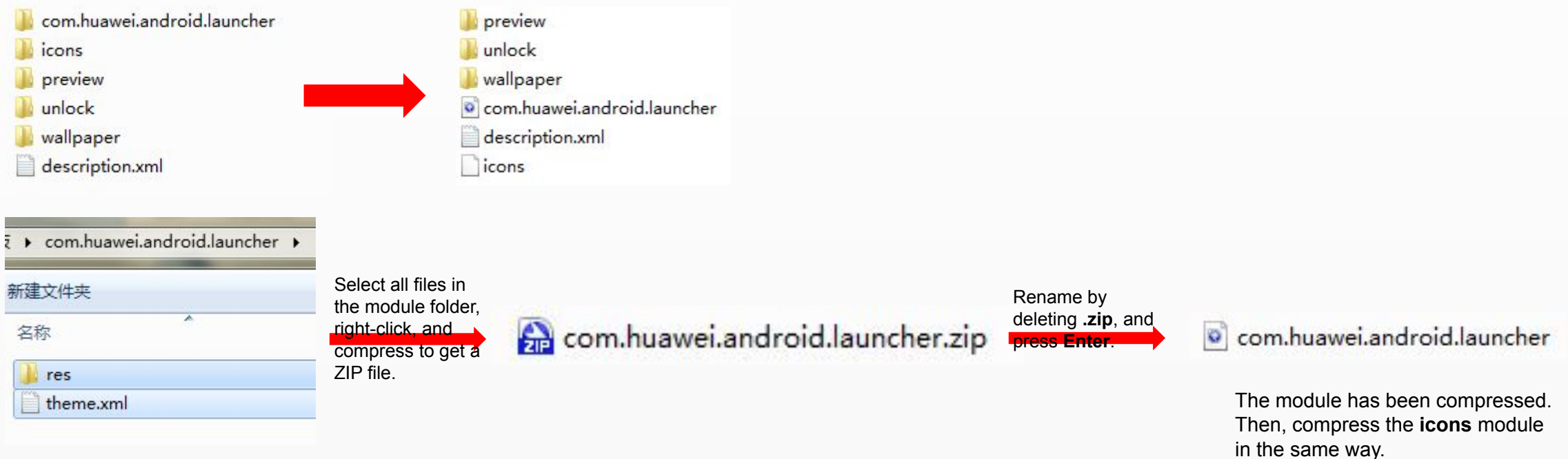
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Compressing and decompressing (taking the small theme as an example)

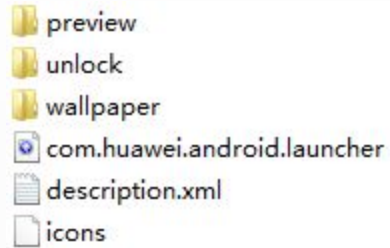
The finished theme package cannot be used directly. It must be compressed before being read by the mobile phone.

Step 1: Compress internal modules. Taking **com.huawei.android.launcher** as an example.



Note: For 9.0 large themes, except the **preview**, **unlock**, **wallpaper**, and **description.xml** files, other modules need to be compressed separately. If you modify the file name extension, the system may display a message indicating that the file will be unavailable. Ignore the message.

Step 2: Compress the files to get a complete and available theme package.



default 9.1 theme.hwt



Select all modules
in the **theme** folder,
right-click, and
compress to get a
ZIP file.



ZIP default 9.1 theme.zip

Rename the file by
changing the **.zip**
extension to **.hwt**,
and press Enter.



default 9.1 theme.hwt

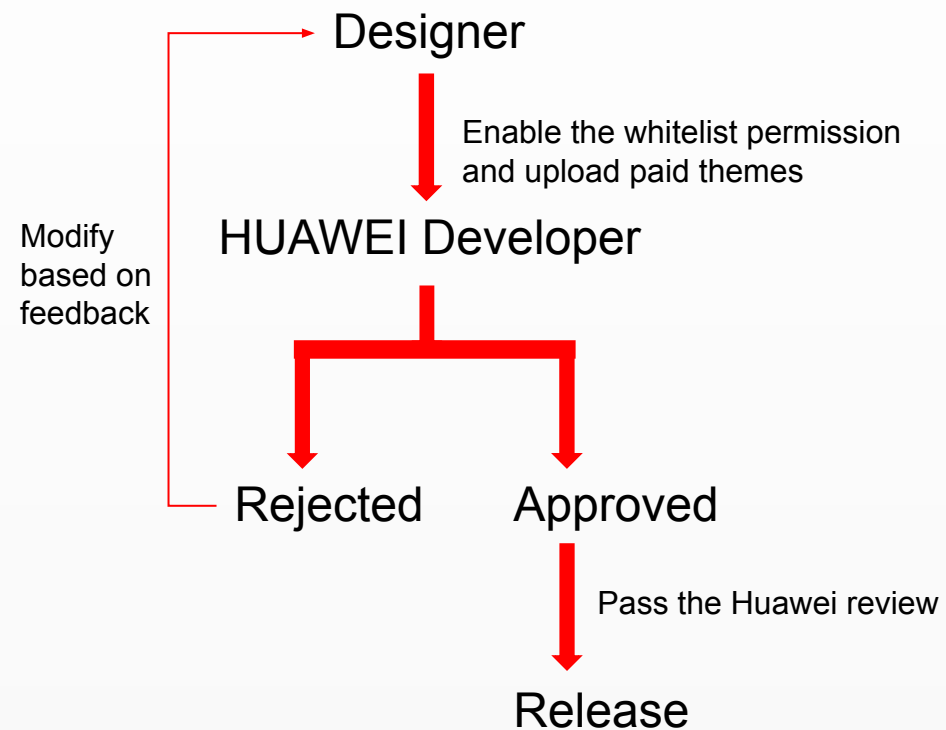
The theme package is ready.

Note:

The file name of the theme package cannot contain any Chinese characters. Otherwise, the parsing on the mobile phone will be abnormal. Generally, the package is named after the English Theme name.

To decompress the theme package, perform the steps in the reversed way.

Review and release processes



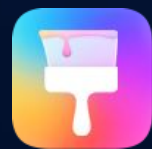
Note: 1. To apply for whitelist permission, please send the work to hwthemes@huawei.com.
2. Upload address: <https://developer.huawei.com/consumer/en/>

Precautions

- In addition to the description file, the modules in the theme package cannot contain any Chinese characters.
- Change the encoding format of all XML files to UTF-8, as shown in the following figure.



- The file must be compiled before being read correctly.
- To help new designers quickly adapt their themes to the system, the NinePatchDrawable graphics of [9.1 online large and small theme templates](#) have been compiled.
- Design themes by referring to [9.1 Online Theme Template](#), [EMUI 9.1 Small Theme Preview Template PSD](#), and [9.1 Theme Template Tutorial](#).
- You can use a computer to import the finished theme package to a Huawei phone or HONOR phone to view and test the theme (import 9.1 themes to a phone running EMUI 9.1). The import path is [Internal storage/Huawei/Themes](#). Then, you can find the theme in [Themes > Me > My themes](#).
- If you have any questions, you can join the Huawei EMUI 9.0 designer QQ group (group number: 869547778).



EMUI

emotion user interface

THANK YOU