

# Freeme Audio 说明文档

## Freeme Audio 说明文档

- 简介
- 情景模式
- 声音资源
- 音量保存
- 设置模块
- FAQ
  - 重启时重置系统音量
  - 修改默认音量
  - Audio模式自动切换
  - 如何修改声音资源文件
  - 如何不显示音量条

## 简介

本文档旨在总结目前 **FreemeOS** 针对Android Audio的 **Feature** 改动

## 情景模式

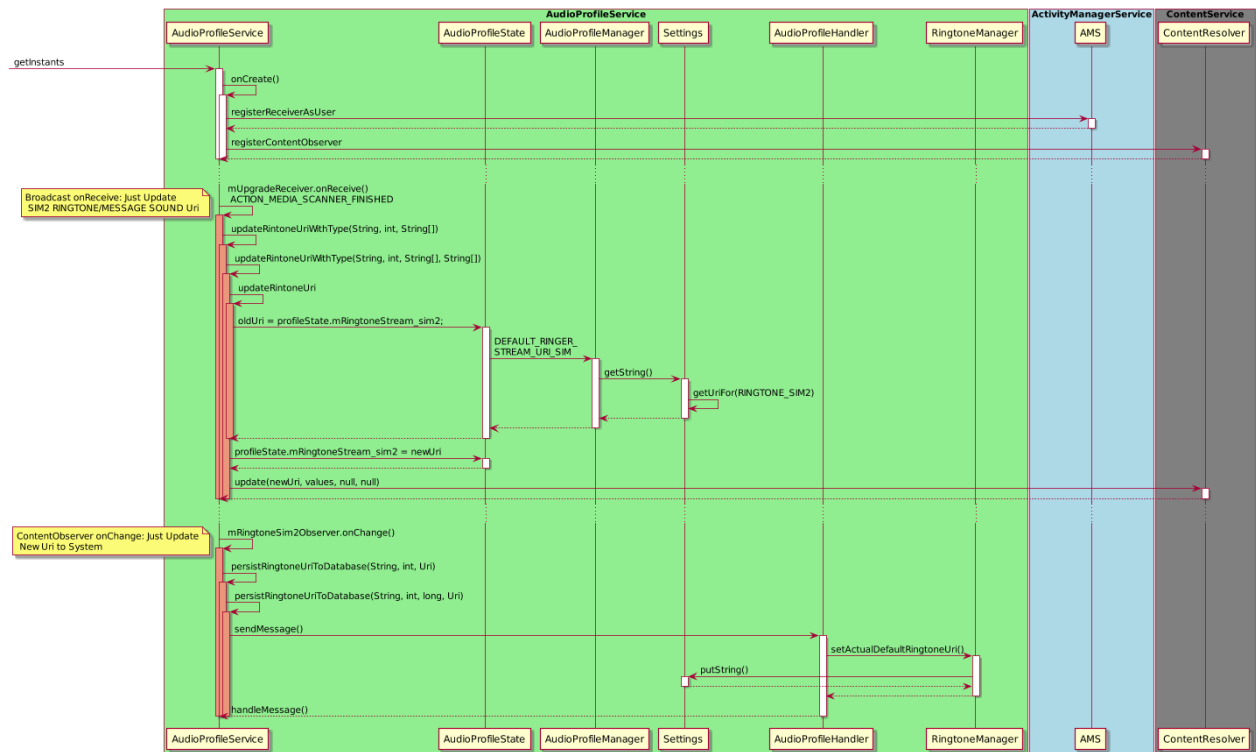
### 1. 新增音量类型

- sim卡1消息铃声
- sim卡2 消息铃声、来电铃声

```
// 新增情景模式涉及模块整理
frameworks/base/
|---services/core/java/com/
|
|---android/server/
|
|---audio/AudioService.java
|
|---mediatek/audioprofile/AudioProfileService.java
|
|---media/java/com/
|
|---mediatek/audioprofile/
|
|---AudioProfileManager.java
|
|---AudioProfileState.java
|
|---android/media
|
|---AudioSystem.java
|
|---AudioManager.java
|
|---MediaScanner.java
|
|---RingtoneManager.java

build/target/product/full_base.mk
build/target/product/core_base.mk
```

- AudioProfileService** 在检测到文件扫描结束和铃声路径改变时，会触发以下调用（其中涉及情景模式类型的模块都需要添加，图中已**sim2**铃声为例）



## 声音资源

### 资源配置

```

vendor/droi/freeme/frameworks/base/data/sounds/sounds.mk // freeme audio resource
vendor/droi/freeme/frameworks/base/data/sounds/original/sounds.mk // common audio resource

```

## 音量保存

`AudioSystem` 中所有的默认音量均存在于 `DEFAULT_STREAM_VOLUME` 数组中，其保存于 `Settings.db` 中

```

//SettingsProvider/src/com/android/providers/settings/DatabaseHelper.java

private void loadVolumeLevels(SQLiteDatabase db) {
//...

loadSetting(stmt, Settings.System.VOLUME_MUSIC,
    AudioSystem.getDefaultStreamVolume(AudioManager.STREAM_MUSIC));
loadSetting(stmt, Settings.System.VOLUME_RING,
    AudioSystem.getDefaultStreamVolume(AudioManager.STREAM_RING));
loadSetting(stmt, Settings.System.VOLUME_SYSTEM,
    AudioSystem.getDefaultStreamVolume(AudioManager.STREAM_SYSTEM));
loadSetting(
    stmt,
    Settings.System.VOLUME_VOICE,
    AudioSystem.getDefaultStreamVolume(AudioManager.STREAM_VOICE_CALL));
loadSetting(stmt, Settings.System.VOLUME_ALARM,
    AudioSystem.getDefaultStreamVolume(AudioManager.STREAM_ALARM));

//...
}

```

```

settings.db-backup settings.db-journal
com.android.providers.settings/databases/settings.db-
settings.db-backup settings.db-journal
droid.providers.settings/databases/settings.db-backup
SQLite version 3.8.10.2 2015-05-20 18:17:19
Enter ".help" for usage hints.
sqlite> .table
android_metadata  bookmarks          secure
bluetooth_devices  global              system
sqlite> select * from system;
1|volume_music|8
2|volume_ring|8
3|volume_system|15
4|volume_voice|4
5|volume_alarm|8
6|volume_notification|8
7|volume_bluetooth_sco|7
8|mode_ringer_streams_affected|166

```

## 设置模块

(改变模块 通知栏和声音 => 声音)

```

Settings/src/com/mediatek/audioprofile/
|-----AudioProfileSettings // 轻ROM, 界面布局
|-----Editprofile // 重ROM, 界面布局
|-----CustomRingtoneManager.java
|-----CustomRingtonePickerActivity.java // 客制化铃声选择界面
|-----CustomRingtonePreference.java // 客制化铃声条目
|-----DefaultPreference.java
|-----DefaultRingtonePreference.java
|-----RingerVolumePreference.java
|-----RingtoneProfile.java
|-----SelectSimSettings.java

Settings/res_ext/
Settings/src/com/android/settings/
|-----Settings.java
|-----SettingsActivity.java

```

## FAQ

### 重启时重置系统音量

修改文件: frameworks/base/services/core/java/com/android/server/audio/AudioService.java

```

3867 // to another stream type and its volume is never persisted. Values in settings can
3868 // only be stale values
3869 if ((mStreamType == AudioSystem.STREAM_SYSTEM) ||
3870     (mStreamType == AudioSystem.STREAM_SYSTEM_ENFORCED)) {
3871     int index = 10 * AudioSystem.DEFAULT_STREAM_VOLUME[mStreamType];
3872     synchronized (mCameraSoundForced) {
3873         if (mCameraSoundForced) {
3874             index = mIndexMax;
3875         }
3876     }
3877     mIndexMap.put(AudioSystem.DEVICE_OUT_DEFAULT, index);
3878     return;
3879 }
3880
3867 // to another stream type and its volume is never persisted. Values in settings can
3868 // only be stale values
3869 /* free me xiaocui,20160615. system volume restore The volume value when reboot
3870 if ((mStreamType == AudioSystem.STREAM_SYSTEM) ||
3871     (mStreamType == AudioSystem.STREAM_SYSTEM_ENFORCED)) {
3872     int index = 10 * AudioSystem.DEFAULT_STREAM_VOLUME[mStreamType];
3873     synchronized (mCameraSoundForced) {
3874         if (mCameraSoundForced) {
3875             index = mIndexMax;
3876         }
3877     }
3878     mIndexMap.put(AudioSystem.DEVICE_OUT_DEFAULT, index);
3879     return;
3880 }
3881 */
3882

```

## 修改默认音量

以 `system` 为例

- 1. 修改系统 `STREAM_SYSTEM` 默认音量

```
frameworks/base/media/java/android/media/AudioSystem.java
```

```
733 public static int[] DEFAULT_STREAM_VOLUME = new int[] {
734     4, // STREAM_VOICE_CALL
735     15, // STREAM_SYSTEM
736     8, // STREAM_RING
737     8 // STREAM_MUSIC
738 }
```

```
733 /**/ freeme.xiaocui, 20160615. notify default volume
734 public static int[] DEFAULT_STREAM_VOLUME = new int[] {
735     4, // STREAM_VOICE_CALL
736     1, // STREAM_SYSTEM
737     8, // STREAM_RING
738     8 // STREAM_MUSIC
739 }
```

- 1. 修改 `AudioProfileManager` 文件

```
frameworks/base/media/java/com/mediatek/audioprofile/AudioProfileManager.java
```

```
431 */
432 public static AudioProfileState getDefaultState(String profileKey) {
433     if (null == sDEFAULTSTATES) {
434         if (mDefaultProfileStatesGetter != null) {
435             sDEFAULTSTATES = mDefaultProfileStatesGetter.getDefaultProfileStates();
436         }
437         if (null == sDEFAULTSTATES) {
438             sDEFAULTSTATES = new HashMap<Integer, AudioProfileState>(PREDEFINED);
439             /** Default values of ringer volume for different audio profiles. */
440             final int DEFAULT_RINGER_VOLUME_GENERAL = 8;
441             final int DEFAULT_RINGER_VOLUME_SILENT = 0;
442             final int DEFAULT_RINGER_VOLUME_MEETING = 0;
443             final int DEFAULT_RINGER_VOLUME_OUTDOOR = 15;
444
445             /**/freeme xiaocui,20160526. media volume and system volume
446             final int DEFAULT_SYSTEM_VOLUME_GENERAL = 5;
447             final int DEFAULT_SYSTEM_VOLUME_SILENT = 0;
448             final int DEFAULT_SYSTEM_VOLUME_MEETING = 0;
449             final int DEFAULT_SYSTEM_VOLUME_OUTDOOR = 7;
450             /**/
451         }
452     }
453     return sDEFAULTSTATES.get(profileKey);
454 }
```

```
431 */
432 public static AudioProfileState getDefaultState(String profileKey) {
433     if (null == sDEFAULTSTATES) {
434         if (mDefaultProfileStatesGetter != null) {
435             sDEFAULTSTATES = mDefaultProfileStatesGetter.getDefaultProfileStates();
436         }
437         if (null == sDEFAULTSTATES) {
438             sDEFAULTSTATES = new HashMap<Integer, AudioProfileState>(PREDEFINED);
439             /** Default values of ringer volume for different audio profiles. */
440             final int DEFAULT_RINGER_VOLUME_GENERAL = 8;
441             final int DEFAULT_RINGER_VOLUME_SILENT = 0;
442             final int DEFAULT_RINGER_VOLUME_MEETING = 0;
443             final int DEFAULT_RINGER_VOLUME_OUTDOOR = 15;
444
445             /**/freeme xiaocui,20160526. media volume and system volume
446             final int DEFAULT_SYSTEM_VOLUME_GENERAL = 1;
447             final int DEFAULT_SYSTEM_VOLUME_SILENT = 0;
448             final int DEFAULT_SYSTEM_VOLUME_MEETING = 0;
449             final int DEFAULT_SYSTEM_VOLUME_OUTDOOR = 5;
450             /**/
451         }
452     }
453     return sDEFAULTSTATES.get(profileKey);
454 }
```

## Audio模式自动切换

按音量 - 键，默认显示为通知铃声，当减少音量到最低时，自动切换振动模式。



frameworks/base/services/core/java/com/android/server/audio/AudioService.java

```

1958         return (mStreamStates[streamType].getIndex(device) + 5) / 10;
1959     }
1960
1961     /** @see AudioManager#getUiSoundsStreamType() */
1962     public int getUiSoundsStreamType() {
1963         // return mStreamVolumeAlias[AudioSystem.STREAM_SYSTEM];
1964     }
1965
1966     /** @see AudioManager#setMicrophoneMute(boolean, int) */
1967     public void setMicrophoneMute(boolean on, String callingPackage, int userId) {
1968         // If we are being called by the system check for user we are going to cha
1969         // so we handle user restrictions correctly.
1970
1971         return (mStreamStates[streamType].getIndex(device) + 5) / 10;
1972     }
1973
1974     /** @see AudioManager#getUiSoundsStreamType() */
1975     public int getUiSoundsStreamType() {
1976         /**/ freeme xiaocui ,20160613 . modified for audioprofile change
1977         return mStreamVolumeAlias[AudioSystem.STREAM_RING];
1978     }
1979
1980     /** @see AudioManager#setMicrophoneMute(boolean, int) */
1981     public void setMicrophoneMute(boolean on, String callingPackage, int userId) {
1982         // If we are being called by the system check for user we are going to cha
1983         // so we handle user restrictions correctly.

```

## 如何修改声音资源文件

- 资源修改：文件

/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/effects/KeypressDelete.ogg	Deleted
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/effects/KeypressReturn.ogg	Deleted
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/effects/KeypressSpacebar.ogg	Deleted
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/effects/KeypressStandard.ogg	Deleted
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/original/effects/ogg/KeypressDelete.ogg	Added
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/original/effects/ogg/KeypressDelete_120_48k.ogg	Deleted
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/original/effects/ogg/KeypressReturn.ogg	Added
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/original/effects/ogg/KeypressReturn_120_48k.ogg	Deleted
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/original/effects/ogg/KeypressSpacebar.ogg	Added
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/original/effects/ogg/KeypressSpacebar_120_48k.ogg	Deleted
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/original/effects/ogg/KeypressStandard.ogg	Added
/branches/ALPS-MP-M0.MP1-V2.84_DROI6737M_65_M0/freemeos_dev/vendor/droi/freeme/frameworks/base/data/sounds/original/effects/ogg/KeypressStandard_120_48k.ogg	Deleted

- 资源修改：mk

```

141 $(LOCAL_PATH)/effects/ogg/Dock.ogg:system/media/audio/ui/Dock.ogg \
142 $(LOCAL_PATH)/effects/ogg/Effect_Tick_48k.ogg:system/media/audio/ui/Effect_Tick.ogg \
143 $(LOCAL_PATH)/effects/ogg/KeypressDelete_120_48k.ogg:system/media/audio/ui/KeypressDelete.ogg \
144 $(LOCAL_PATH)/effects/ogg/KeypressReturn_120_48k.ogg:system/media/audio/ui/KeypressReturn.ogg \
145 $(LOCAL_PATH)/effects/ogg/KeypressSpacebar_120_48k.ogg:system/media/audio/ui/KeypressSpacebar.ogg \
146 $(LOCAL_PATH)/effects/ogg/KeypressStandard_120_48k.ogg:system/media/audio/ui/KeypressStandard.ogg \
147 $(LOCAL_PATH)/effects/ogg/KeypressInvalid_120_48k.ogg:system/media/audio/ui/KeypressInvalid.ogg \

```

## 如何不显示音量条

系统提供 `LayoutParams` 属性 `FLAG_EX_NOSHOW_VOLUME` 控制窗口是否显示音量条

```
//frameworks/base/services/core/java/com/android/server/policy/PhoneWindowManager.java
public long interceptKeyBeforeDispatching(WindowState win, KeyEvent event, int policyFlags) {
    ... ..
    if(keyCode == KeyEvent.KEYCODE_VOLUME_UP ||
        keyCode == KeyEvent.KEYCODE_VOLUME_DOWN){
        if(getFlagEx(win)){
            return -1;
        }
    }
    ... ..
}

private boolean getFlagEx(WindowState win){
    boolean isShowVolume = false;
    if (win != null && win.getAttrs() != null) {
        final int flagEx = win.getAttrs().flagsEx;
        if ((flagEx & WindowManager.LayoutParams.FLAG_EX_NOSHOW_VOLUME) != 0) {
            isShowVolume = true;
            return isShowVolume;
        }
        isShowVolume = false;
    }
    return isShowVolume;
}

//frameworks/base/core/java/android/view/WindowManager.java
/** @hide */
public static final int FLAG_EX_NOSHOW_VOLUME = 0x00000010;
```