aic8800 linux driver编译错误修改举例说明

1. 重定义错误

```
In file included from /home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_defs.h:32:0,
                 from /home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_msg_tx.h:16,
                 from /home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_msg_tx.c:13:
/home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_compat.h:278:8: 错误：'struct ieee80211_wmm_param_ie'重定义
 struct ieee80211_wmm_param_ie {
        ^
In file included from include/net/cfg80211.h:24:0,
```

此错误提示struct ieee80211_wmm_param_ie和内核头文件中cfg80211.h中的struct ieee80211_wmm_param_ie重定义。

可以在内核头文件中查看结构体定义是否一致，如果一致的话，去掉驱动中的定义。

如果不一致，根据内核中的定义来修改驱动。

解决方法：当前结构体和内核中定义一致，去掉驱动中的定义。

```
277
278 #if 0
279 struct ieee80211_wmm_param_ie {
280         u8 element_id; /* Element ID: 221 (0xdd); */
281         u8 len; /* Length: 24 */
282         /* required fields for WMM version 1 */
283         u8 oui[3]; /* 00:50:f2 */
284         u8 oui_type; /* 2 */
285         u8 oui_subtype; /* 1 */
286         u8 version; /* 1 for WMM version 1.0 */
287         u8 qos_info; /* AP/STA specific QoS info */
288         u8 reserved; /* 0 */
289         /* AC_BE, AC_BK, AC_VI, AC_VO */
290         struct ieee80211_wmm_ac_param ac[4];
291 } __packed;
292 #endif
```

2. 参数不一致

```
/home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_msg_rx.c:978:13: 错误：提供给函数 'cfg80211_roamed'的实参太多
         , GFP_ATOMIC);
               ^
In file included from /home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_defs.h:20:0,
                 from /home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_msg_rx.c:14:
include/net/cfg80211.h:5505:6: 附注：在此声明
 void cfg80211_roamed(struct net_device *dev, struct cfg80211_roam_info *info,

/home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_msg_rx.c: 在函数 'rwnx_rx_sm_disconnect_ind'中:
/home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_msg_rx.c:1060:13: 错误：提供给函数 'cfg80211_disconnected'的实参太少
         cfg80211_disconnected(dev, ind->reason_code, NULL, 0,

In file included from /home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_defs.h:20:0,
                 from /home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_msg_rx.c:14:
include/net/cfg80211.h:5521:6: 附注：在此声明
 void cfg80211_disconnected(struct net_device *dev, u16 reason,
```

此错误提示cfg80211_roamed参数太多以及cfg80211_disconnected参数太少。

2.1 cfg80211_roamed修改

查看cfg80211.h中cfg80211_roamed的函数声明，如下：

```
/**
 * cfg80211_roamed - notify cfg80211 of roaming
 *
 * @dev: network device
 * @info: information about the new BSS. struct &cfg80211_roam_info.
 * @gfp: allocation flags
 *
 * This function may be called with the driver passing either the BSSID of the
 * new AP or passing the bss entry to avoid a race in timeout of the bss entry.
 * It should be called by the underlying driver whenever it roamed from one AP
 * to another while connected. Drivers which have roaming implemented in
 * firmware should pass the bss entry to avoid a race in bss entry timeout where
 * the bss entry of the new AP is seen in the driver, but gets timed out by the
 * time it is accessed in __cfg80211_roamed() due to delay in scheduling
 * rdev->event_work. In case of any failures, the reference is released
 * either in cfg80211_roamed() or in __cfg80211_romed(), Otherwise, it will be
 * released while diconneting from the current bss.
 */
void cfg80211_roamed(struct net_device *dev, struct cfg80211_roam_info *info,
                     gfp_t gfp);
```

```
/**
```
使用uname -a或者uname -r查看内核版本如下：

```
[aic@aic aic8800]$ uname -a
Linux aic 3.10.0-957.el7.x86_64 #1 SMP Thu Nov 8 23:39:32 UTC 2018 x86_64 x86_64 x86_64 GNU/Linux
```
当前内核版本为3.10，根据代码，修改如下：

```
953                                 GFP_ATOMIC);
954         }
955     else {
956 #if LINUX_VERSION_CODE >= KERNEL_VERSION(4, 12, 0) || CONFIG_CENTOS
957         struct cfg80211_roam_info info;
958         memset(&info, 0, sizeof(info));
959         if (rwnx_vif->ch_index < NX_CHAN_CTXT_CNT)
960             info.channel = rwnx_hw->chanctx_table[rwnx_vif->ch_index].chan_def.chan;
961         info.bssid = (const u8 *)ind->bssid.array;
962         info.req_ie = req_ie;
963         info.req_ie_len = ind->assoc_req_ie_len;
964         info.resp_ie = rsp_ie;
965         info.resp_ie_len = ind->assoc_rsp_ie_len;
966         cfg80211_roamed(dev, &info, GFP_ATOMIC);
967 #else
968         struct cfg80211_roam_info info;
969         memset(&info, 0, sizeof(info));
970         if (rwnx_vif->ch_index < NX_CHAN_CTXT_CNT)
971             info.channel = rwnx_hw->chanctx_table[rwnx_vif->ch_index].chan_def.chan;
972         info.bssid = (const u8 *)ind->bssid.array;
973         info.req_ie = req_ie;
974         info.req_ie_len = ind->assoc_req_ie_len;
975         info.resp_ie = rsp_ie;
976         info.resp_ie_len = ind->assoc_rsp_ie_len;
977         cfg80211_roamed(dev, &info, GFP_ATOMIC);
978 #endif /*LINUX_VERSION_CODE >= KERNEL_VERSION(4, 12, 0)*/
979     }
```

2.2 cfg80211_disconnected修改

查看cfg80211.h中cfg80211_disconnected的函数声明

```
/**
 * cfg80211_disconnected - notify cfg80211 that connection was dropped
 *
 * @dev: network device
 * @ie: information elements of the deauth/disassoc frame (may be %NULL)
 * @ie_len: length of IEs
 * @reason: reason code for the disconnection, set it to 0 if unknown
 * @locally_generated: disconnection was requested locally
 * @gfp: allocation flags
 *
 * After it calls this function, the driver should enter an idle state
 * and not try to connect to any AP any more.
 */
void cfg80211_disconnected(struct net_device *dev, u16 reason,
                           const u8 *ie, size_t ie_len,
                           bool locally_generated, gfp_t gfp);

/**
```

当前内核版本为3.10，根据代码，修改rwnx_compat.h如下：

```
207
208 #if 0// LINUX_VERSION_CODE < KERNEL_VERSION(4, 2, 0) && (!defined CONFIG_CENTOS)
209 #define cfg80211_disconnected(dev, reason, ie, len, local, gfp) \
210     cfg80211_disconnected(dev, reason, ie, len, gfp)
211 #endif
```

或者：

```
208 #if LINUX_VERSION_CODE < KERNEL_VERSION(4, 2, 0)
209 #define cfg80211_disconnected(dev, reason, ie, len, local, gfp) \
210     cfg80211_disconnected(dev, reason, ie, len, local, gfp)
211 #endif
```

3. 未声明或者未定义

```
/home/aic/work/drivers/aic8800/aic8800_fdrv/rwnx_compat.h:205:27: 错误：'IEEE80211_NUM_BANDS'未声明(在此函数内第一次使用)
#define NUM_NL80211_BANDS IEEE80211_NUM_BANDS
```

查看内核头文件，已经存在NUM_NL80211_BANDS的声明：

```
/**
 * enum nl80211_band - Frequency band
 * @NL80211_BAND_2GHZ: 2.4 GHz ISM band
 * @NL80211_BAND_5GHZ: around 5 GHz band (4.9 - 5.7 GHz)
 * @NL80211_BAND_60GHZ: around 60 GHz band (58.32 - 64.80 GHz)
 * @NUM_NL80211_BANDS: number of bands, avoid using this in userspace
 *      since newer kernel versions may support more bands
 */
enum nl80211_band {
        NL80211_BAND_2GHZ,
        NL80211_BAND_5GHZ,
        NL80211_BAND_60GHZ,

        NUM_NL80211_BANDS,
};
```

修改如下：

```
203
204 #if 0//LINUX_VERSION_CODE   < KERNEL_VERSION(4, 7, 0)
205 #define NUM_NL80211_BANDS IEEE80211_NUM_BANDS
206 #endif
207
```

修改如下：

```
204 #if 0//LINUX_VERSION_CODE   < KERNEL_VERSION(4, 7, 0)
205 #define NUM_NL80211_BANDS IEEE80211_NUM_BANDS
206 #endif
```