mac80211 subsystem (basics)

You should read and understand the information contained within this part of the book while implementing a mac80211 driver. In some chapters, advanced usage is noted, those may be skipped if this isn't needed.

This part of the book only covers station and monitor mode functionality, additional information required to implement the other modes is covered in the second part of the book.

Basic hardware handling

TBD

This chapter shall contain information on getting a hw struct allocated and registered with mac80211.

Since it is required to allocate rates/modes before registering a hw struct, this chapter shall also contain information on setting up the rate/mode structs.

Additionally, some discussion about the callbacks and the general programming model should be in here, including the definition of ieee80211_ops which will be referred to a lot.

Finally, a discussion of hardware capabilities should be done with references to other parts of the book.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\driver-api\80211\(linux-master)(Documentation)(driver-api)(80211)mac80211.rst`**, line 32**)

Unknown directive type "kernel-doc".

```
.. kernel-doc:: include/net/mac80211.h
   :functions:
        ieee80211_hw
        ieee80211_hw_flags
        SET_IEEE80211_DEV
        SET_IEEE80211_PERM_ADDR
        ieee80211_ops
        ieee80211_alloc_hw
        ieee80211_register_hw
        ieee80211_unregister_hw
        ieee80211_free_hw
```

PHY configuration

TBD

This chapter should describe PHY handling including start/stop callbacks and the various structures used.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\driver-api\80211\(linux-master)(Documentation)(driver-api)(80211)mac80211.rst`**, line 52**)

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```
.. kernel-doc:: include/net/mac80211.h
   :functions:
        ieee80211_conf
        ieee80211_conf_flags
```

Virtual interfaces

TBD

This chapter should describe virtual interface basics that are relevant to the driver (VLANs, MGMT etc are not.) It should explain the use of the add_iface/remove_iface callbacks as well as the interface configuration callbacks.

Things related to AP mode should be discussed there.

Things related to supporting multiple interfaces should be in the appropriate chapter, a BIG FAT note should be here about this though and the recommendation to allow only a single interface in STA mode at first!

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Unknown directive type "kernel-doc".

```
.. kernel-doc:: include/net/mac80211.h
   :functions: ieee80211_vif
```

Receive and transmit processing

what should be here

TBD

This should describe the receive and transmit paths in mac80211/the drivers as well as transmit status handling.

Frame format

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```
.. kernel-doc:: include/net/mac80211.h
   :doc: Frame format
```

Packet alignment

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```
.. kernel-doc:: net/mac80211/rx.c
   :doc: Packet alignment
```

Calling into mac80211 from interrupts

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```
.. kernel-doc:: include/net/mac80211.h
   :doc: Calling mac80211 from interrupts
```

functions/definitions

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```
.. kernel-doc:: include/net/mac80211.h
   :functions:
        ieee80211_rx_status
        mac80211_rx_encoding_flags
        mac80211_rx_flags
        mac80211_tx_info_flags
        mac80211_tx_control_flags
        mac80211_rate_control_flags
        ieee80211_tx_rate
        ieee80211_tx_info
        ieee80211_tx_info_clear_status
```

```
ieee80211_rx
ieee80211_rx_ni
ieee80211_rx_irqsafe
ieee80211_tx_status
ieee80211_tx_status_ni
ieee80211_tx_status_irqsafe
ieee80211_rts_get
ieee80211_rts_duration
ieee80211_ctstoself_get
ieee80211_ctstoself_duration
ieee80211_generic_frame_duration
ieee80211_wake_queue
ieee80211_stop_queue
ieee80211_wake_queues
ieee80211_stop_queues
ieee80211_queue_stopped
```

Frame filtering

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\driver-api\80211\(linux-master)(Documentation)(driver-api)(80211)mac80211.rst**, line 140)**

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```
.. kernel-doc:: include/net/mac80211.h
   :doc: Frame filtering
```

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```
.. kernel-doc:: include/net/mac80211.h
   :functions: ieee80211_filter_flags
```

The mac80211 workqueue

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\driver-api\80211\(linux-master)(Documentation)(driver-api)(80211)mac80211.rst**, line 149)**

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```
.. kernel-doc:: include/net/mac80211.h
   :doc: mac80211 workqueue
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\driver-api\80211\(linux-master)(Documentation)(driver-api)(80211)mac80211.rst**, line 152)**

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```
.. kernel-doc:: include/net/mac80211.h
   :functions:
       ieee80211_queue_work
       ieee80211_queue_delayed_work
```