



# MM6108 Linux Software Release Notes

Linux Firmware and Driver Package



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# 1 Overview

The purpose of this document is to provide a summary of new software features and improvements implemented in the latest Linux firmware and driver.

## 2 Software Change Summary

### 2.1 Release 2.0.1

This section summarizes software changes made since release 1.17.9

|                                                                             |
|-----------------------------------------------------------------------------|
| Long Term Support (LTS) Linux Kernels supported in this release             |
| 6.12.21, 6.6.31, 6.1.21, 5.15.61, 5.10.11, 5.4.83, 4.19.66, 4.14.98, 4.9.80 |

#### 2.1.1 New Features

- Brazil's regulatory domain
- Failsafe boot error mode
  - Allows the firmware to enter a failsafe mode and report boot errors (e.g., invalid BCF)
- Added a new option allowing suppression of all status frames during standby, useful for deployments that do not require standby state reporting
- The driver now exposes the list of supported regulatory domains via sysfs
- The Linux mac80211 pull interface is now enabled by default for kernels 6.2 and above

#### 2.1.2 Improvements

- Resolved 8MHz AP to STA aggregate throughput issue when airtime fairness and WDS is enabled
- hostapd\_s1g and wpa\_supplicant\_s1g no longer require morse\_cli
- A station in standby will no longer immediately enter snooze after initiating an SA exchange
- Resolved issue where a change in TX power may not always be applied
- An AP will no longer release broadcast traffic until it has successfully transmitted the beacon.
- Resolved an early-stage hardware lockup, causing crash notifications to not be received
- Early wake timing after a beacon miss is now correctly adjusted for long beacon intervals
- Improved the reliability of beacon loss detection and reduced false disconnections
- Stations now return to sleep promptly after a single-frame transmission to a power-saving AP
- The maximum BCF size has been increased from 1024 to 2048 bytes
- The STA will now exit standby for re-association when a TSF reset (BSS restart) is detected, avoiding stale association state after an AP restart

- The STA can now be configured to send a protected 802.11 disassociation frame to the AP upon standby wake, enabling cleaner re-association flows.
- NDP probe requests and responses now support 2 MHz operation, rather than always defaulting to 1 MHz
- A watchdog-based recovery mechanism has been added for SDIO or SPI bus failures, allowing the driver to reset and reinitialize the bus without a full system restart
- The driver now tracks beacon offload DTIM state correctly across suspend/resume cycles, preventing DTIM count drift after wake
- The firmware path is now accessible via sysfs rather than debugfs, making it available in production configurations where debugfs is not mounted
- The driver now tells MMRC when a packet was not acknowledged, improving rate selection under lossy conditions.
- Management frames are now always enqueued at the highest TID on the hardware TX path, preventing CCMP PN replay drops caused by mixed SKB priorities
- The driver now correctly handles the case where an association response is not acknowledged, retrying the association rather than leaving the STA stuck

### 2.1.3 Known Issues

- With AP Power Save enabled, the DTIM beacon TIM bit may be sent twice when buffered broadcast traffic is present, and beacon generation failures (ret: -11) have been observed
  - The -11 error is benign and does not impact operation
- AP command page exhaustion error seen intermittently in 1 MHz with low MCS
- ACS occasionally selects an unexpected 8 MHz channel due to noise spikes
- With enable\_short\_bcn\_as\_dtim\_override enabled, STAs wake on excess normal beacons and listen interval behavior is incorrect
- Ping failures may be observed in 802.11s mesh with fragmentation
- TCP performance in an 802.11s mesh with MM8108 devices may be lower than with MM6108 only
- hostapd will not start if using India regulatory domain and a local operating class 6
  - Global operating class 66 will work
- ARP resolution can take up to one second after a roaming event
- In rare cases, DPP may fail and must be retried
- ThinLMAC mode does not support fragmentation in this release
- When using SPI with an 8 MHz channel bandwidth, throughput stabilization may require more than 10 seconds
- When ThinLMAC is used on a host without cryptographic acceleration support (e.g., ARMv8 Cryptography Extensions for AES and SHA), the maximum throughput in an 8 MHz channel will be lower than on a host with cryptographic acceleration support
- When removing the Morse Micro driver, the Linux kernel may report the following benign warning:

- WARNING: CPU: 1 PID: 11976 at net/mac80211/main.c:1397  
ieee80211\_free\_ack\_frame+0x60/0x64
- An AP may intermittently fail a TWT operation certification test, but will pass upon retry
- An AP may occasionally omit sending a broadcast ARP request prior to a ping, resulting in a delayed response
- In rare instances, an iPerf session may require restarting after a channel switch announcement
- When an AP and multiple STAs are transmitting significant traffic, the CAC STA association time may be longer than usual
- Using CTS-to-self (instead of RTS/CTS) can cause high ping loss
  - Workaround: Enable RTS/CTS
- UDP throughput over IPv6 is lower than IPv4 when using 4 MHz and 8 MHz channels
- Mixed configurations of U-APSD and non-UAPSD access categories are not supported
  - Workaround: All access categories must use the same configuration
- iPerf will not start if the beacon interval is set to 5,000 or higher
  - Workaround: Configure the beacon interval to less than 5,000
- In rare cases, the STA may associate more slowly than expected and report an “MFP required” error
- In regulatory domains with duty-cycle restrictions (e.g., in the EU and Japan):
  - Burst Mode is recommended, since without it, MCS10 does not provide usable bandwidth
  - MBSSID is not supported

## 2.1.4 Deprecated Features

- Support for PV1 frames has been deprecated in 1.17.8
- Support for software scan in the Linux Driver has been deprecated in 1.17.8

## 2.2 Release 1.17.9

This section summarizes software changes made since release 1.17.8.

| Long Term Support (LTS) Linux Kernels supported in this release             |
|-----------------------------------------------------------------------------|
| 6.12.21, 6.6.31, 6.1.21, 5.15.61, 5.10.11, 5.4.83, 4.19.66, 4.14.98, 4.9.80 |

### 2.2.1 New Features

No new features from 1.17.8

## 2.2.2 Improvements

- Resolved issue where in busy or congested HaLow environments, the firmware may crash when waking from snooze mode, requiring a reset via the reset pin

## 2.2.3 Known Issues

- When using WDS, throughput sharing may be affected. Setting ``max_txq_len`` to ``0`` will severely degrade performance for stations in power-saving mode.
  - No known workaround
- ARP resolution can take up to one second after a roaming event
- In rare cases, DPP may fail and must be retried
- ThinLMAC mode does not support fragmentation in this release
- When using SPI with an 8 MHz channel bandwidth, throughput stabilization may require more than 10 seconds
- When ThinLMAC is used on a host without cryptographic acceleration support (e.g., ARMv8 Cryptography Extensions for AES and SHA), the maximum throughput in an 8 MHz channel will be lower than on a host with cryptographic acceleration support
- When removing the Morse Micro driver, the Linux kernel may report the following benign warning:
  - WARNING: CPU: 1 PID: 11976 at net/mac80211/main.c:1397  
ieee80211\_free\_ack\_frame+0x60/0x64
- An AP may intermittently fail a TWT operation certification test, but will pass upon retry
- An AP may occasionally omit sending a broadcast ARP request prior to a ping, resulting in a delayed response
- In rare instances, an iPerf session may require restarting after a channel switch announcement
- When an AP and multiple STAs are transmitting significant traffic, CAC STA association time may be longer than usual
- Using CTS-to-self (instead of RTS/CTS) can cause high ping loss
  - Workaround: Enable RTS/CTS
- UDP throughput over IPv6 is lower than IPv4 when using 4 MHz and 8 MHz channels
- Mixed configurations of U-APSD and non-UAPSD access categories are not supported
  - Workaround: All access categories must use the same configuration
- iPerf will not start if the beacon interval is set to 5,000 or higher
  - Workaround: Configure the beacon interval to less than 5,000
- In rare cases, the STA may associate more slowly than expected and report an “MFP required” error
- In regulatory domains with duty-cycle restrictions (e.g., in the EU and Japan):
  - Burst Mode is recommended, since without it, MCS10 does not provide usable bandwidth
  - MBSSID is not supported

## 2.3 Release 1.17.8

This section summarizes software changes made since release 1.16.4.

| Long Term Support (LTS) Linux Kernels supported in this release             |
|-----------------------------------------------------------------------------|
| 6.12.21, 6.6.31, 6.1.21, 5.15.61, 5.10.11, 5.4.83, 4.19.66, 4.14.98, 4.9.80 |

### 2.3.1 New Features

- DHCP Rapid Commit
  - The offloaded DHCP client now supports DHCP Rapid Commit, allowing for IP address negotiation in just two frames. Needs a DHCP server on the network to support this feature.
- IEEE802.11-2024 AU channelization
  - The channelization for Australia was updated in IEEE802.11-2024
- Connection Quality Management for 802.11r
- AP Power Management (beta, feature preview, not for production)
  - Allow an Access Point to sleep between beacons. Stations must support the Maximum Away Duration Information Element (MAD IE) during association to connect to Access Points in this mode.

### 2.3.2 Improvements

- Improved PHY behavior to ensure smooth operation when accessing the medium
- Enhanced ACS channel selection to avoid disabled channels and improve reliability
- Improved robustness of DPP PKEX handling on slower host processors
- Enhanced driver stability by addressing memory handling during hardware restart

### 2.3.3 Known Issues

- In busy or congested HaLow environments, the firmware may crash when waking from snooze mode, requiring a reset via the reset pin
  - Workaround: Disable power save.
- When using WDS, throughput sharing may be affected. Setting `max\_txq\_len` to `0` will severely degrade performance for stations in power-saving mode.
  - No known workaround
- ARP resolution can take up to one second after a roaming event
- In rare cases, DPP may fail and must be retried
- ThinLMAC mode does not support fragmentation in this release
- When using SPI with an 8 MHz channel bandwidth, throughput stabilization may require more than 10 seconds

- When ThinLMAC is used on a host without cryptographic acceleration support (e.g., ARMv8 Cryptography Extensions for AES and SHA), the maximum throughput in an 8 MHz channel will be lower than on a host with cryptographic acceleration support
- When removing the Morse Micro driver, the Linux kernel may report the following benign warning:
  - WARNING: CPU: 1 PID: 11976 at net/mac80211/main.c:1397  
ieee80211\_free\_ack\_frame+0x60/0x64
- An AP may intermittently fail a TWT operation certification test, but will pass upon retry
- An AP may occasionally omit sending a broadcast ARP request prior to a ping, resulting in a delayed response
- In rare instances, an iPerf session may require restarting after a channel switch announcement
- When an AP and multiple STAs are transmitting significant traffic, CAC STA association time may be longer than usual
- Using CTS-to-self (instead of RTS/CTS) can cause high ping loss
  - Workaround: Enable RTS/CTS
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- Mixed configurations of U-APSD and non-UAPSD access categories are not supported
  - Workaround: All access categories must use the same configuration
- iPerf will not start if the beacon interval is set to 5,000 or higher
  - Workaround: Configure the beacon interval to less than 5,000
- In rare cases, the STA may associate more slowly than expected and report an “MFP required” error
- In regulatory domains with duty-cycle restrictions (e.g., in the EU and Japan):
  - Burst Mode is recommended, since without it, MCS10 does not provide usable bandwidth
  - MBSSID is not supported

### 2.3.4 Deprecated Features

- Support for PV1 frames has been deprecated in 1.17.8
- Support for software scan in the Linux Driver has been deprecated in 1.17.8

## 2.4 Release 1.16.4

This section summarizes software changes made since release 1.15.3.

| Long Term Support (LTS) Linux Kernels supported in this release             |
|-----------------------------------------------------------------------------|
| 6.12.21, 6.6.31, 6.1.21, 5.15.61, 5.10.11, 5.4.83, 4.19.66, 4.14.98, 4.9.80 |



## 2.4.1 New Features

- Android Packet Filters and Android Wake-on-WLAN
  - Allows Android to configure the Wi-Fi firmware to filter out unnecessary packets and only wake the main processor for relevant network activity, reducing wakeups while ensuring the device responds to important events such as keep-alives and incoming messages
- Kernel 6.12 support
  - Compilation support for the 6.12 series of the Linux kernel
- Automatic RAW configuration
  - Support for automatically grouping stations into RAW groups, negating the need to manually configure RAW
- Reattach to firmware
  - Ability to configure the driver to skip firmware download on boot if firmware is already running on the chip. This will still reset the configuration

## 2.4.2 Improvements

- DPP improvements
  - Improved frequency selection for handshaking
  - Improved reliability when announcements stop
  - The sae\_password field is no longer required for the DPP push button
- Improvements to the subband selection when an AP responds to 1 MHz probe requests
- Improved resilience to a mismatch in priority with QoS Control field
- Improvements to directed frame buffering logic when connected to power-saving 4 address mode stations
- Improvements to the channel selection when an AP responds to 2 MHz probe requests

## 2.4.3 Known Issues

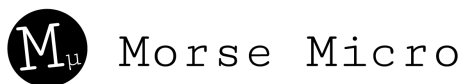
- ARP resolution can take up to one second after a roaming event
- Connection quality monitoring is not currently supported, requiring roaming to be initiated manually
- In rare cases, DPP may fail and must be retried
- ThinLMAC mode does not support fragmentation in this release
- When using SPI with an 8 MHz channel bandwidth, throughput stabilization may require more than 10 seconds
- When ThinLMAC is used on a host without cryptographic acceleration support (e.g., ARMv8 Cryptography Extensions for AES and SHA), the maximum throughput in an 8 MHz channel will be lower than on a host with cryptographic acceleration support
- When removing the Morse Micro driver, the Linux kernel may report the following benign warning:

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- In rare instances, an iPerf session may require restating after a channel switch announcement
- When an AP and multiple STAs are transmitting significant traffic, CAC STA association time may be longer than usual
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  - Workaround: Enable RTS/CTS
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- In rare cases, the STA may associate more slowly than expected and report an “MFP required” error
- In regulatory domains with duty-cycle restrictions (e.g., in the EU and Japan):
  - Burst Mode is recommended, since without it, MCS10 does not provide usable bandwidth
  - MBSSID is not supported

## 3 Revision History

| Release Number | Release Date | Release Notes     |
|----------------|--------------|-------------------|
| Version 4      | 26 Jun 2026  | Release FW 2.0.1  |
| Version 3      | 4 May 2026   | Release FW 1.17.9 |
| Version 2      | 19 Apr 2026  | Release FW 1.17.8 |
| Version 1      | 1 Oct 2025   | Release FW 1.16.4 |

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