



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 2.1.1

This section summarizes software changes made since release 2.0.1

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

- Support for Argentina, Chile, Colombia, and Mexico regulatory domains
 - Hardware support is not guaranteed
- Support for EN 304 220

2.1.2 Improvements

- Driver-based watchdog is now enabled by default
- Improved RSSI reporting in high power modules
- Pre-association power save is now supported on kernel 6.9 and later
- Setting TX power is now supported on kernel 6.12 and later
- Mixed SKB priority on management traffic no longer causes CCMP PN replay checks to drop legitimate frames

2.1.3 Known Issues

- Enterprise (EAP-TLS) roaming may stall for up to 70 seconds on the first roam back to a previously associated AP - to be resolved in release 2.2
- On kernel 4.19, SAE-secured connections may fail to establish in some 4-address mode configurations.

- DPP push-button enrollment with a second AP may fail in Japan due to an incorrect off-channel frequency mapping during chirp exchange
- After burst-mode duty cycle airtime reallocation, ping/ARP may fail for a period of time
- Uplink QoS NULL frames may occasionally collide and require retransmission following high-traffic beacons
- 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

2.1.4 Deprecated Features

- Support for Morse Micro Proprietary beacon mode has been deprecated in 2.0.1
- 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 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

2.2.1 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

2.2.2 Improvements

- Resolved 8MHz AP to STA aggregate throughput issue when airtime fairness and WDS are 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 an 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

2.2.3 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

2.2.4 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

2.3 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

2.3.1 New Features

No new features from 1.17.8

2.3.2 Improvements

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

2.3.3 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
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- 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

2.4 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

2.4.1 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.

2.4.2 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

2.4.3 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
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 - 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

2.4.4 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

2.5 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

2.5.1 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

2.5.2 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

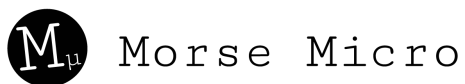
2.5.3 Known Issues

- 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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- 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 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
- 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
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 - 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

3 Revision History

Version Number	Release Date	Release Notes
1	01 Oct 2025	Release FW 1.16.4
2	19 Apr 2026	Release FW 1.17.8
3	04 May 2026	Release FW 1.17.9
4	26 Jun 2026	Release FW 2.0.1
5	03 Sep 2026	Release FW 2.1.1

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