BluOS Release Notes

These release notes document the minimum requirements for controlling a BluOS player. They also list the recent changes to the BluOS operating system. Your players should always be running the latest version of BluOS.

Minimum System Requirements

iOS version 15.0.

Android version 6.0.

macOS version 12.0.

Windows version 10.

Minimum Software Requirements

BluOS Controller for iOS, version 4.18.0.

BluOS Controller for Android, version 4.18.0.

BluOS Controller for macOS, version 4.18.0.

BluOS Controller for Windows PC, version 4.18.0.

BluOS Releases

BluOS 4.18.26. Released November 24, 2026.

- Support for YouTube Music.
- Updated time zone values for Alberta, British Columbia, and Manitoba.
- Product improvements and feature enhancements.

BluOS 4.18.18. Released October 20, 2026.

- Support for Apple Music.
- Support for Alarms on OEM Partner products.
- Support for Josh.AI VoiceCast Integration.
- Support for Steady Brand music service.

- Updated stereo pairing for general improvements.
- Product improvements and feature enhancements.

BluOS 4.16.25. Released September 8, 2026.
- Updates to top panel controls.
- This release applies to the PSB Speakers iQ1 and iQ2 only.

BluOS 4.16.22. Released August 25, 2026.
- Performance improvements and feature enhancements.

BluOS 4.16.20. Released July 28, 2026.
- Initial support for the PSB iQ1.
- Output and gain improvements when using the Phono Pre-Amplifier on the PSB iQ1 & iQ2.
- Added options for left/right channel switching on the PSB iQ1 & iQ2.
- This release applies to the PSB iQ1 and iQ2 only.

BluOS 4.16.18. Released July 22, 2026.
- Initial support for the PSB iQ2.
- Improvements specific to the Bluesound PULSE FLEX (2025).
- This release applies to the Bluesound PULSE FLEX (2025) and PSB iQ2 only.

BluOS 4.16.16. Released July 21, 2026.
- Addressed timing & volume inconsistencies when switching between Analog Direct inputs on the NAD M66.
- This release applies to the NAD M66 only.

BluOS 4.16.12. Released June 23, 2026.
- Performance improvements specific to the Bluesound NODE ICON.
- This release applies to the Bluesound NODE ICON only.

BluOS 4.16.10. Released June 15, 2026.
- Fixed Bluetooth handling and playback on the NAD M33 V2.
- This release applies to the NAD M33 V2 only.

BluOS 4.16.6. Released May 19, 2026.
- Initial support for the NAD CI-S2 and CI-SA2-120.
- Expanded alarm functionality, allowing them to be set as Alarms or Schedules.
- Guided setup for Presets, Alarms and Schedules.
- Performance improvements and feature enhancements.

BluOS 4.14.17. Released April 7, 2026.
- Fix for Bluetooth Headphones, when playing content above 16 bits.
- Fixed Centre Volume Trim handling, when operating with or without the Centre Channel.
- This release applies to the Bluesound NODE NANO, POWERNODE EDGE and POWERNODE (2025) only.

BluOS 4.14.13. Released March 10, 2026.

- Improved handling when HDMI eARC transitions between formats.
- This release applies to the Bluesound NODE ICON only.

BluOS 4.14.12. Released March 10, 2026.

- Addressed playback issues when changing sample rates across Qobuz Connect & Spotify Connect.
- Addressed a logic issue where NAD Players would boot to BluOS, instead of their last used input.
- Fixed Library & USB requests, when attempting to load large play queues.
- Adjusted Replay-Gain handling against larger positive and negative values.
- Performance improvements and feature enhancements.

BluOS 4.14.9. Released February 24, 2026.

- New Internet radio service, increasing coverage of missing stations.
- Updating handling for Dirac Live Bass Management & Bass Control filters.
- Compliance measures for the EU Data Act.
- New BluOS Playlist Backup & Restore options, for loading and storing your backups onto iOS & Android.
- Added Listening Modes to the Bluesound POWERNODE (2025).
- Added Centre Trim option to the Bluesound PULSE CINEMA.
- Added Tone Controls to the Bluesound PULSE CINEMA & PULSE CINEMA MINI.

BluOS 4.12.35. Released February 10, 2026.

- Updated EQ for the Bluesound PULSE FLEX (2025).
- Updated Front Row for the Bluesound PULSE FLEX (2025).
- This release applies to the Bluesound PULSE FLEX (2025) only.

BluOS 4.12.33. Released December 22, 2025.

- Updated EQ for the Bluesound PULSE FLEX (2025).
- This release applies to the Bluesound PULSE FLEX (2025) only.

BluOS 4.12.31. Released December 17, 2025.

- Standby timing fix for the PULSE CINEMA and PULSE CINEMA MINI.
- Improved Dolby ATMOS tuning on the PULSE CINEMA and PULSE CINEMA MINI.
- This release applies to the Bluesound PULSE CINEMA and PULSE CINEMA MINI only.

BluOS 4.12.29. Released December 10, 2025.

- Updated handling for PULSE CINEMA and PULSE CINEMA MINI Home Theater Groups.
- Improvements to Dolby decoding.
- This release applies to the Bluesound PULSE CINEMA and PULSE CINEMA MINI only.

BluOS 4.12.16. Released January 13, 2026.

- Support for FITRADIO on Bluesound Professional players.

- This release applies to Bluesound Professional B100S, B400S, B160, B170S, BSP200, BSP500, BSP1000, BSC300, BSW150 and BSP125 only.

BluOS 4.12.11. Released October 7, 2025.

- Resolved issues with legacy filters in DIRAC two-channel NAD Players.
- Adjusted subwoofer volume leveling across all Players.
- Performance improvements and feature enhancements.

BluOS 4.12.4. Released September 23, 2025.

- Spotify Lossless.
- Qobuz Connect.
- Initial support for the Bluesound POWERNODE (2025).
- Queue Builder Mode.
- Improved accessibility support in BluOS Controller iOS/Android.

BluOS 4.10.19. Released August 5, 2025.

- Updates to BluOS and Local Library playlists.
- Fixes for IR learning with certain remotes.
- TIDAL and Deezer improvements.

BluOS 4.10.14. Released July 16, 2025.

- Improved handling when the NAD M50.2 exits standby.
- This release applies to NAD M50.2 only.

BluOS 4.10.13. Released July 14, 2025.

- Fix for radio stations using ICY audio.
- Improvements to presets with defined volume level.
- Dirac updates.

BluOS 4.10.11. Released July 8, 2025.

- Core system refinements.
- Grouping improvements.
- Improved stability.
- Music service updates.
- Security updates.

BluOS 4.8.22. Released April 15, 2025.

- Dirac Live Ready support for the Bluesound NODE (Gen 3) & NODE X.
- This release applies to the Bluesound NODE (Gen 3) & NODE X only.

BluOS 4.8.21. Released March 4, 2025.

- DSD support for the Bluesound NODE (Gen 3), NODE X, POWERNODE EDGE, POWERNODE (Gen 3) and PSB Alpha iQ.

BluOS 4.8.19. Released February 5, 2025.

- Updated Dirac Live support for the M66.
- Performance improvements and feature enhancements.
- This release applies to the NAD M66 only.

BluOS 4.8.17. Released January 28, 2025.

- Performance improvements and feature enhancements.

BluOS 4.8.15. Released January 14, 2025.

- Dirac Live Ready support for the Bluesound NODE (Gen 5) & NODE ICON.
- This release applies to the Bluesound NODE (Gen 5) & NODE ICON only.

BluOS 4.8.10. Released December 3, 2024.

- Updates for the Bluesound NODE ICON.
- This release applies to the Bluesound NODE ICON only.

BluOS 4.8.9. Released November 25, 2024.

- Improvements to HDMI Input compatibility on the ROKSAN Caspian.
- This release applies to the ROKSAN Caspian only.

BluOS 4.8.7. Released November 19, 2024.

- Initial support for the Bluesound NODE ICON, CYRUS 40 ST and ROKSAN Caspian.
- Gain control on M66 analog inputs.
- DSD support for the Bluesound NODE ICON, NODE (Gen 5) and NODE NANO.

BluOS 4.6.7. Released October 7, 2024.

- Improved boot timing on the BCS300.
- This release applies to the Bluesound Professional BCS300 only.

BluOS 4.6.6. Released September 30, 2024.

- Improvements to Standby and Trigger In on the M66.
- Auto Sense support for the M66.
- Support for the USB DIRAC microphone on the M10v3.
- This release applies to the NAD M66 & M10v3 only.

BluOS 4.6.3. Released September 17, 2024.

- New MQA Libraries.
- New chassis firmware for the NAD C 399, C 389, C 379 and C 3050.
- Initial support for the Bluesound NODE (gen 5) and NAD C700 V2.

BluOS 4.4.19. Released July 30, 2024.

- Improvements to genre handling on Qobuz, BUGS! and Napster.

BluOS 4.4.18. Released July 23, 2024.

- M66 updates.

BluOS 4.4.17. Released July 16, 2024.

- Support for TIDAL HiRes.
- Improved Amazon Music searches.

BluOS 4.4.12. Released May 29, 2024.

- DIRAC updates.
- This release applies to the NAD M10, M10v2, C389, C399, C 3050, C658 and M33 only.

BluOS 4.4.11. Released May 28, 2024.

- Support for Ukrainian Language.
- Support for WPA3 Wireless.
- Support for the NAD C379 and Bluesound Professional BCS300.
- Updated support for the NAD M66.
- Improved DAC support for Benchmark and Hegel DACs.
- Fixed issue which caused purchased Apple Music AAC tracks to be played at a quieter level.
- Improvements to the 4.0 UI.

BluOS 4.2.10. Released January 16, 2024.

- Improvements for TIDAL & TIDAL Connect.

BluOS 4.2.6. Released December 12, 2023.

- Support for HiRes FLAC over TIDAL Connect.
- Support custom TuneIn stations under 4.0.
- Improvements to playback recovery on digital inputs.
- Updated handling when setting Shuffle to Play Queue content.

BluOS 4.2.2. Released November 20, 2023.

- Updated drivers for LAN Adapters and USB Hubs.
- This release applies to the NAD T758 only.

BluOS 4.2.0. Released November 7, 2023.

- Support for Pandora.
- Support for Presto Music.

BluOS 4.0.5. Released October 31, 2023.

- Improvements to drive management & handling.
- This release applies to the Bluesound VAULT, VAULT 2 and VAULT 2i; NAD M50 and M50.2 only.

BluOS 4.0.4. Released October 23, 2023.

- Improved boot timing for BSP125/BSP200/P100/P125.
- This release applies to the Bluesound Professional BSP125, BSP200 and Bluesound PULSE FLEX and PULSE FLEX 2i only.

BluOS 4.0.3. Released October 24, 2023.

- Improvements to wireless connection methods.

- This release applies to the Roksan Attessa & DALI Sound Hub only.

BluOS 4.0.2. Released October 17, 2023.

- Support for the 4.0 user interface and user customization.
- Updated graphics and branding for streaming services.
- Updated Play Queue logic when adding content for immediate playback.
- Ability to use USB content for local Library.
- Increased maximum group size to 60 Players.

BluOS 3.20.57. Released September 20, 2023.

- Improved acoustics and audio co-efficients for Bluesound PULSE M, including Front Row.
- Initial support for Cyrus Audio Classic STREAM and Stream-XR.
- This release applies to the Cyrus Audio Classic STREAM, Stream-XR and Bluesound Pulse M only.

BluOS 3.20.53. Released June 6, 2023.

- Improvements for NAD C658 digital inputs.
- This release applies to NAD C658 only.

BluOS 3.20.52. Released May 23, 2023.

- Support for Canadian Qobuz accounts.
- Add NAD C658 volume limits.
- Grouping improvements.
- ROON improvements when using External DACs.

BluOS 3.20.49. Released April 25, 2023.

- Initial support for Bluesound NODE X.
- Improved handling when transitioning between different audio formats.
- Updates to ROON initialization.
- This release applies to the Bluesound NODE (gen 3) & POWERNODE (gen 3) only.

BluOS 3.20.46. Released March 7, 2023.

- Dirac calibration updates when using a subwoofer.
- HDMI CEC improvements.
- This release applies to NAD C 3050 LE, C389 C399, M17v2 and T777 only.

BluOS 3.20.45. Released February 28, 2023.

- Product support for C 3050 LE.
- HDMI improvements for NAD Audio Video Receivers.
- Support for QPlay music service.

BluOS 3.20.28. Released November 30, 2022.

- Update for static IP network settings.
- This release applies to NAD CI580, CI580v2; Bluesound Professional B100S, B160S, B170S, B400S, BSP200, BSP500, BSP1000; and Monitor Audio IMS-4 only.

BluOS 3.20.25. Released October 18, 2022.

- Update for local library network share passwords.

BluOS 3.20.21. Released October 05, 2022.

- Support for Bluesound POWERNODE EDGE.
- Support for Bluesound Professional B170S.

BluOS 3.18.10. Released May 25, 2022.

- Update for NAD C658 front panel volume display.
- This release applies to NAD C658 only.

BluOS 3.18.9. Released May 17, 2022.

- Update for NAD M50 CD ejecting.
- Improvements to music library backups.
- Enhancements for grouping of multi-zone players.
- This release applies to Bluesound VAULT, VAULT 2, VAULT 2i; NAD M50, M50.2, CI580, CI580v2; Bluesound Professional B400S; and Monitor Audio IMS-4 only.

BluOS 3.18.7. Released April 26, 2022.

- Support for Bluesound HUB.
- Added balance trim to Bluesound POWERNODE (1st gen), POWERNODE 2, POWERNODE 2i, POWERNODE 2iv2, POWERNODE (3rd gen); NAD M10, M10v2, C700, CI720 and CI720v2; and Bluesound Professional B160S.
- Added more metadata for classical content on Qobuz.
- Added volume limits to NAD C399.

BluOS 3.16.8. Released April 12, 2022.

- Resolve audio output issue.
- This release applies to the SOUNDBAR+ only.

BluOS 3.16.7. Released January 31, 2022.

- Update to vacation mode.
- This release applies to the Bluesound NODE (3rd gen), POWERNODE (3rd gen) and SOUNDBAR+ only.

BluOS 3.16.5. Released January 25, 2022.

- Improved top panel handling for the NODE (gen 3) and POWERNODE (gen 3).
- Adjusted M33 gain when in bridge mode.
- Fix for grouped USB playback cutting off audio at the end of a track.

BluOS 3.16.3. Released December 28, 2021.

- Support USB connected DAC's on the NODE (3rd gen).
- This release applies to the Bluesound NODE (3rd gen) only.

BluOS 3.16.2. Released December 6, 2021.

- Add Audio Clock Trim to audio settings on NODE (3rd gen).
- Update tone controls on M10, M10v2 and M33.
- This release applies to the Bluesound NODE (3rd gen), as well as the NAD M10, M10v2 and M33 only.

BluOS 3.16.1. Released November 23, 2021.

- Support for Dolby Atmos on the SOUNDBAR+.
- New audio settings and profiles for the SOUNDBAR+.
- The addition of Tunify, a commercial music streaming service.
- Roon improvements including a new icon.

BluOS 3.14.31. Released October 13, 2021.

- Support for NAD M10v2 and C700.
- Multi-language support on front panel of C700, M10, M10v2, M33, M50.2, T758v3i, T777v3i and T778.
- Updates to Send Support Request.

BluOS 3.14.28. Released August 10, 2021.

- Support for Roksan Attessa.
- Updates for audio playback when coming out of standby.
- This release applies to the DALI Sound Hub and Roksan Attessa only.

BluOS 3.14.26. Released June 23, 2021.

- Updates to Spotify Connect and TIDAL connect.
- Improve AirPlay2 volume range on DALI Sound Hub.

BluOS 3.14.22. Released June 8, 2021.

- Improve 5GHz WiFi signal strength.
- This release applies to the Bluesound NODE (gen 3), POWERNODE (gen 3) and SOUNDBAR+ only.

BluOS 3.14.20. Released June 1, 2021.

- Support for Bluesound NODE (3rd gen) and POWERNODE (3rd gen).

BluOS 3.14.14. Released May 18, 2021.

- Improve detection of MQA files.
- This release applies to the DALI Sound Hub only.

BluOS 3.14.10. Released April 27, 2021.

- Front Panel touch screen improvements for NAD M10, M33 and T778
- Fix volume reporting on MDC BluOS players (C368, C388, C390DD, M12 and M32) when using percentage display mode and coming out of standby.
- Update for M50.2 serial port control.
- This release applies to the NAD M10, M33, M50.2, MDC BluOS and T778 only.

BluOS 3.14.5. Released April 13, 2021.

- Grouping update for Amazon Prime music accounts.
- Improvements to Bluetooth quality.

BluOS 3.14.3. Released April 8, 2021.

- Prevent M33 from accidentally entering network standby.
- Update for M50 serial port control.
- This release applies to the NAD M50 and M33 only.

BluOS 3.14.2. Released April 6, 2021.

- Support for SiriusXM and SiriusXM Music for Business.
- Support for Spotify Free.
- Support for Radio Paradise MQA stations.
- Roon improvements for grouping and signal path reporting.
- Updates to TIDAL, Qobuz, Amazon Music and Deezer.
- Improvements to Library indexing for file permissions and handling unreadable audio files.

BluOS 3.12.16. Released March 15, 2021.

- Audio playback improvements for multi-room players.
- This release applies to the Bluesound Professional B400S, NAD CI580, NAD CI580v2 and Monitor Audio IMS-4 only.

BluOS 3.12.15. Released March 11, 2021.

- Front Panel touch screen bug fixes and improvements for NAD M10, M33 and T778.
- This release applies to the NAD M10, M33 and T778 only.

BluOS 3.12.13. Released November 24, 2020.

- New Stereo Surround mode for Bluesound Home Theatre Groups.
- Updates to TIDAL and TIDAL connect to support new MQA content.
- Dirac calibration improvements for the NAD C658, M10 and M33.

BluOS 3.12.9. Released November 4, 2020.

- Update for inputs and settings on NAD M33.
- This release applies to the NAD M33 only.

BluOS 3.12.6. Released October 27, 2020.

- Restore vacation mode on supported players.
- Update BUGS music service.

BluOS 3.12.5. Released October 22, 2020.

- Update for input names on NAD M33.
- This release applies to the NAD M33 only.

BluOS 3.12.2. Released October 20, 2020.

- Support for Bluesound PULSE SUB+.

- Support for TIDAL connect.
- Expand Neil Young Archives access to all countries.

BluOS 3.10.4. Released September 21, 2020.

- Support for Bluesound Professional BSP500 and BSP1000.
- This release applies to the Bluesound Professional BSP500 and BSP1000 only.

BluOS 3.10.3. Released September 1, 2020.

- Increase subwoofer levels on POWERNODE 2 products.
- Improvements to Dirac slot management.
- Other minor fixes.

BluOS 3.10.0. Released August 18, 2020.

- Support for TIDAL My Mix.
- Updated kernel libraries.
- New grouping synchronization.
- More robust WiFi drivers.
- Updated audio libraries.
- Improvements for network stability and power management.

BluOS 3.8.19. Released August 11, 2020.

- Support for MQA streaming of JAZZ RE:FEST ONLINE 2020.

BluOS 3.8.17. Released July 7, 2020.

- Support for Xiami music service.

BluOS 3.8.13. Released May 26, 2020.

- Support for NAD Masters M33 BluOS Streaming DAC Amplifier.
- Support for Monitor Audio IMS-4.
- Support for Neil Young Archives music service.

BluOS 3.8.8. Released March 23, 2020.

- Added Dark Mode front panel display option for the NAD M10.
- Improved Ethernet performance on Bluesound PULSE FLEX players and NAD players with MDC BluOS cards.

BluOS 3.8.3. Released March 4, 2020.

- Custom Channels streaming service for commercial music.
- Support for AirPlay 2 on the NAD M12 and M32 (with MDC BluOS 2i card).
- Allow Powernode products in Home Theatre groups.
- Support for MQA CD ripping.
- Support for MQA CD playback on NAD M50 and M50.2.
- Option to disable rooms on a NAD CI580 or Bluesound Professional B400S.
- Expanded IR Learning capabilities.

BluOS 3.6.15. Released Dec. 10, 2019.

- Updates to Listening Modes and A/V Presets on AVR's.
- Other minor fixes.
- This release applies to the NAD C658, as well as NAD AVR's with the VM130 and VM300 4K HDMI cards only.

BluOS 3.6.14. Released Nov. 26, 2019.

- Added Front Row audio setting to PULSE MINI 2i and PULSE 2i.
- Added microphone input to Bluesound Professional products.
- This release applies to the Bluesound PULSE MINI 2i and PULSE 2, and the Bluesound Professional B100S, B160S and B400S only.

BluOS 3.6.12. Released Nov. 19, 2019.

- Performance improvements and feature enhancements.

BluOS 3.6.6. Released Oct. 29, 2019.

- Updates for IR remote controls.

BluOS 3.6.3. Released Oct. 17, 2019.

- Performance improvements and feature enhancements.

BluOS 3.6.2. Released Oct. 15, 2019.

- Support for IDAGIO classical music streaming service.
- Support for RADIO.com radio streaming service.
- Support for Google Assistant voice control.
- Support for MQA CD ripping on the Bluesound VAULT.
- Support for additional IR settings for Music, TV, and Movie listening modes.
- Support for dedicated volume settings for wired and wireless connected headphones.
- Support for Bluesound Professional products including B100S, B160S, B400S and BSP125.

BluOS 3.4.24. Released Sept. 28, 2019.

- Performance improvements and feature enhancements.

BluOS 3.4.23. Released Sept. 23, 2019.

- Support for Amazon Music HD.

BluOS 3.4.22. Released Aug. 6, 2019.

- Performance improvements.
- This release applies to the NAD VM300 4K Video Module only.

BluOS 3.4.20. Released July 30, 2019.

- Support for AirPlay 2 on the NAD M10.
- Support for AirPlay 2 on the NAD C 658.
- Support for AirPlay 2 on the C 368 with MDC BluOS 2i.
- Support for AirPlay 2 on the C 388 with MDC BluOS 2i.

- Adjustable lip-sync delay and new A/V mode for inputs.
- Mobile app support for Bluesound Professional products.

BluOS 3.4.13. Released June 11, 2019.

- Support for Dirac Live on the NAD C658.
- Improvements to artwork handling for local music libraries.
- New networking manager that monitors player's IP addresses.

BluOS 3.4.6. Released May 8, 2019.

- Updates for external serial port device control.
- This release applies to the NAD M50.2 only.

BluOS 3.4.3. Released April 16, 2019.

- Three new Radio Paradise stations in CD-quality with the ability to skip tracks.
- Support for NUGS.net music streaming service.
- Ability to rename or hide inputs for connected analog/digital devices .
- Improved Bluetooth pairing with enabled devices on supported Bluesound Players.
- Sound quality indicator in the app for Qobuz streamed music and content.
- Support for DTS:X on MDC-equipped AVRs with the AM230 or the AM17 .
- Support for Dirac Live on the NAD M10.
- Improved streaming performance and stability for Roon.

BluOS 3.2.13. Released Feb. 25, 2019.

- Improved pairing for PULSE SOUNDBAR players and PULSE subwoofers.
- This release applies to the Bluesound PULSE SOUNDBAR and SOUNDBAR 2i only.

BluOS 3.2.10. Released Jan. 8, 2019.

- Support for the NAD C658 BluOS Streaming DAC.
- Addition of Amazon Alexa voice control.

BluOS 3.2.7. Released Dec. 19, 2018.

- Performance improvements.
- This release applies to the NAD CI580 only.

BluOS 3.2.6. Released Dec. 11, 2018.

- Support for AirPlay 2 on Bluesound 2i Players.
- Program presets and alarm with your favorite playlists from TIDAL.
- Auto-sense support for optical inputs on PULSE SOUNDBAR 2i and POWERNODE 2i.

BluOS 3.0.3. Released Oct. 30, 2018.

- Performance improvements.
- This release applies to the DALI Sound Hub only.

BluOS 3.0.2. Released Oct. 24, 2019.

- Added HDMI input to IR commands for PULSE SOUNDBAR 2i.

- Improved PULSE SOUNDBAR 2i compatibility with HDMI ARC televisions.

BluOS 3.0.0. Released Oct. 1, 2018.

- Wide, Late Night, and Dialogue audio modes on the PULSE 2i and PULSE MINI 2i
- Dual analogue line-in support for connecting audio devices to the POWERNODE 2i
- Improved acoustics and audio co-efficients for select PULSE speakers
- Qualcomm aptX® HD Bluetooth for two-way hi-res streaming on most Bluesound Gen 2i Players
- SoundMachine music service for license-free streaming in light commercial environments
- Enhanced setup wizard eases the process of adding new Players to a network
- Taihe Music Zone music service bringing millions of songs to listeners (exclusively in China)
- Updated Roon protocol for improved streaming performance and stability
- Chassis IP control for select BluOS enabled Classic and Masters Series amplifiers from NAD