



BIOS Update Release Notes

PRODUCTS: QC71A, QC71B, QC71C, QC71D (Standard BIOS)

BIOS Version 0158 - QCCFL357.0158.2022.1115.1703

About This Release:

- Date: Nov 15, 2022
- ME Firmware: Consumer 12.0.85.1869
- EC Firmware: 1.33.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - M22906EA_000000EA.pdb
 - M22906ED_000000EA.pdb

New Fixes/Features:

- Fixed issue where Potential hack of BIOS flash EBU DLL.
- Fixed issue where GRUB bootloader vulnerability.
- Fixed issue where Potential improper input validation in Intel NUC BIOS may result in escalation of privilege.

BIOS Version 0156 - QCCFL357.0156.2022.0923.1001

About This Release:

- Date: Sep 23, 2022
- ROM Image Checksum:
 - Filename = QC0156.bin Checksum = 0xB671FD55
 - Filename = QC0156.cap Checksum = 0xBB5E3B04
- ME Firmware: Consumer 12.0.85.1869
- EC Firmware: 1.33.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055

*Other names and brands may be claimed as the property of others.

- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - M22906EA_000000EA.pdb
 - M22906ED_000000EA.pdb

New Fixes/Features:

1. Fixed issue where RSB Stuffing Mitigation for Speculative Execution Vulnerability.
2. Fixed issue where iFlashV can't update DBIOS, display shows error message "Cannot update BIOS with different platform sku."
3. Fixed issue where Patch for Intel NUC 9 vulnerability.
4. Fixed issue where S3 Resume Unprotected Pointer vulnerability.

BIOS Version 0150 - QCCFL357.0150.2022.0523.1145

About This Release:

- Date: April 28, 2022
- ROM Image Checksum:
 - Filename = QC0150.bin Checksum = 0xBBCEAE95
 - Filename = QC0150.cap Checksum = 0xC0BAEF1D
- ME Firmware: Consumer 12.0.85.1869
- EC Firmware: 1.33.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - M22906EA_000000EA.pdb
 - M22906ED_000000EA.pdb

New Fixes/Features:

- Fixed issues with On-board LAN MAC address display error.
- Added ACPI Driver for CCI to fix problem of CCI starting up slowly.
- Added functionality to "F6" key so when pressing it will exit from MFG Mode function in BIOS Setup.
- Fixed OpenSSL security issues.

BIOS Version 0144 - QCCFL357.0144.2022.0124.1433

About This Release:

- Date: Jan 24, 2022
- ROM Image Checksum:
 - Filename = QC0144.bin Checksum = 0xB66D0325
 - Filename = QC0144.cap Checksum = 0xBB594E6A
- ME Firmware: Consumer 12.0.85.1869
- EC Firmware: 1.33.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - M22906EA_000000EA.pdb
 - M22906ED_000000EA.pdb

New Fixes/Features:

- **Fixed:** Issue where the system wouldn't enter hibernate when it is set to 180 min.
- **Updated:** EC firmware to 1.33.09.
- **Fixed:** Issue where the keyboard backlight turned off during boot.
- **Updated:** ME to 12.0.85.1869 for Windows 11 support.
- **Fixed:** Issue where keyboard key would not display when pressed.

BIOS Version 0140 - QCCFL357.0140.2021.0812.1143

About This Release:

- Date: August 12, 2021
- ROM Image Checksum:
 - Filename = QC0140.bin Checksum = 0xB678A2EF
 - Filename = QC0140.cap Checksum = 0xBB688E66
- ME Firmware: Consumer 12.0.65.1567
- EC Firmware: 1.31.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - M22906EA_000000EA.pdb
 - M22906ED_000000EA.pdb

New Fixes/Features:

- Fixed incorrect memory frequency displayed at 3200MHz when using 2667MHz.

BIOS Version 0138 - QCCFL357.0138.2021.0721.1705

About This Release:

- Date: July 21, 2021
- ROM Image Checksum:
 - Filename = QC0138.bin Checksum = 0xB6797878
 - Filename = QC0138.cap Checksum = 0xBB694ACE
- ME Firmware: Consumer 12.0.65.1567
- EC Firmware: 1.31.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - M22906EA_000000EA.pdb

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- o M22906ED_000000EA.pdb

New Fixes/Features:

- **Updated:** EC FW to v1.31.09 to fix battery capacity and charging issues.
- **Updated:** Changed battery charge voltage level for batteries older than 360 days.
- **Fixed:** The issue that caused some devices not to turn on after updating to BIOS 0126.
- **Fixed:** When updating the BIOS, if the *SATA Mode Selection* was set to *RAID*, the update would cause the *SATA Mode Selection* to change to *AHCI*.
- **Fixed:** Where CCI and the BIOS wouldn't remember the LED settings when the device was rebooted.
- **Fixed:** The Fn key response time.

QCCFL357.0134.2021.0427.1335 Production BIOS (Lock BIOS)

About This Release:

- Date: Apr 27, 2021
- ROM Image Checksum:
 - o Filename = QC0134.bin Checksum = 0xB69787AD
 - o Filename = QC0134.cap Checksum = 0xBB875B37
- ME Firmware: Consumer 12.0.65.1567
- EC Firmware: 1.29.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - o Option ROM: 9.2.1019
 - o UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - o Option ROM: 17.5.0.4055
 - o RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - o WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - o M22906EA_000000CC.mcb

New Fixes/Features:

- **Fixed:** Battery charge level reporting and charging issues where the battery wouldn't completely charge (It may take up to three charging cycles for the battery management system to learn to read the charge correctly).
- **Updated:** EC FW to 1.29.09
- **Updated:** CPU microcode M22906EA_000000CC.mcb

BIOS Version 0128 - QCCFL357.0128.2021.0312.1538

About This Release:

- Date: Mar 12, 2021
- ROM Image Checksum:
 - o Filename = QC0128.bin Checksum = 0xB69A4F13

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- o Filename = QC0128.cap Checksum = 0xBB8A47C6
- ME Firmware: Consumer 12.0.65.1567
- EC Firmware: 1.26.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - o Option ROM: 9.2.1019
 - o UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - o Option ROM: 17.5.0.4055
 - o RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - o WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - o M22906EA_000000B4.mcb
 - o M22906ED_000000BE.mcb

New Fixes/Features:

- Updated: EC FW to 1.26.09
- Optimized: Battery charging to improve long-term life

BIOS Version 0122 - QCCFL357.0122.2020.0911.1520

About This Release:

- Date: Sep 11, 2020
- ROM Image Checksum:
 - o Filename = QC0122.bin Checksum = 0xB66A5184
 - o Filename = QC0122.cap Checksum = 0xBB5A3174
- ME Firmware: Consumer 12.0.65.1567
- EC Firmware: 1.25.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - o Option ROM: 9.2.1019
 - o UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - o Option ROM: 17.5.0.4055
 - o RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - o WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - o M22906EA_000000B4.mcb
 - o M22906ED_000000BE.mcb

New Fixes/Features:

- Enabled the option, "Display F8 for Activate windows recovery mode" as default.
- Enabled the option, "Intel(R) Speed shift technology" as default.

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BIOS Version 0120 - QCCFL357.0120.2020.0813.1334**About This Release:**

- Date: Aug 13, 2020
- ROM Image Checksum: 0xB66C3AA1
- ME Firmware: Consumer 12.0.65.1567
- EC Firmware: 1.25.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Supported Flash Devices:
 - Winbond W25Q128JV 16MB
- Microcode Updates included in .ROM File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb
- Additional Microcode Updates included only in. BIO File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Enabled: Kernel DMA protection.
- Added: Missing_RP3 ACPI table.

BIOS Version 0118 - QCCFL357.0118.2020.0720.1610**About This Release:**

- Date: July 20, 2020
- ROM Image Checksum: 0xB66AF702
- ME Firmware: Consumer 12.0.65.1567
- EC Firmware: 1.25.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .ROM File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb
- Additional Microcode Updates included only in. BIO File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Fixed: An issue with the DmiEdit tool.
- Enabled: CPU core voltage lock to enable.

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- Updated: BIOS functionality so that the BIOS can only be updated via the power cord.
- Added: F8 recovery functions.
- Fixed: Issue where GT/GTU prefix showed the incorrect sign.
- Added: Solution for DPC error when running LantencyMon

BIOS Version 0116 - QCCFL357.0116.2020.0619.1354

About This Release:

- Date: June 19, 2020
- ROM Image Checksum: 0xB66FCC58
- ME Firmware: Consumer 12.0.65.1567
- EC Firmware: 1.25.09
- PMC Firmware: 300.2.11.1025
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .ROM File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb
- Additional Microcode Updates included only in .BIO File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Update Me FW: 12.0.65.1567
- Update PMC Firmware: 300.2.11.1025

BIOS Version 0114 - QCCFL357.0114.2020.0401.1544

About This Release:

- Date: April 1, 2020
- ROM Image Checksum: 0xB661C2A7
- ME Firmware: Consumer 12.0.40.1433
- EC Firmware: 1.25.09
- PMC Firmware: 300.2.11.1020
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB

- Microcode Updates included in .BIN & .CAP Files:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Added support for: Minimum Fan Duty Cycle.
- Added support for: Battery Life Extension.
- Added support for: Undervoltage.
- Added support for: FN Lock + Esc.
- Added support for: Project Aurora

Known Errata:

- You will NOT be able to flash/recover to previous BIOS versions before 0114.

BIOS Version 0064 - QCCFL357.0064.2020.1226.1657

About This Release:

- Date: March 31, 2020
- ROM Image Checksum: 0xB68445D4
- ME Firmware: Consumer 12.0.40.1433
- EC Firmware: 1.20.09
- PMC Firmware: 300.2.11.1020
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.8.0.4507
 - RAID Option ROM: 17.8.0.4507
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .ROM File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb
- Additional Microcode Updates included only in .BIO File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Removed 1.8 seconds of delay to fix a thunderbolt yellow bang issue.
- Added Thunderbolt HRESET Sequence.

BIOS Version 0062 - QCCFL357.0062.2020.1226.1657

About This Release:

- Date: March 13, 2020
- ROM Image Checksum: 0xB68207FB
- ME Firmware: Consumer 12.0.40.1433
- EC Firmware: 1.20.09
- PMC Firmware: 300.2.11.1020
- Boot Guard ACM: 4351

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- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.8.0.4507
 - RAID Option ROM: 17.8.0.4507
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .ROM File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb
- Additional Microcode Updates included only in .BIO File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Added a 1.8 second delay to fix thunderbolt yellow bang.
- Updated BIOS RAID driver/RAID ROM to 17.8.0.4507.
- Fixed Hybrid sleep issues where the system couldn't enter S4 status.
- Enabled FAST_BOOT_TSE_HOTKEY_SUPPORT.
- Removed Thunderbolt HRESET Sequence.

BIOS Version 0060 - QCCFL357.0060.2019.1226.1657

About This Release:

- Date: December 26, 2019
- ROM Image Checksum: 0xB6888787
- ME Firmware: Consumer 12.0.40.1433
- EC Firmware: 1.20.09
- PMC Firmware: 300.2.11.1020
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Visual BIOS: Intel Text Setup
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .BIN & .CAP Files:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Added Thunderbolt HRESET Sequence.

BIOS Version 0058 - QCCFL357.0058.2019.1209.1324

About This Release:

*Other names and brands may be claimed as the property of others.

- Date: December 9, 2019
- ROM Image Checksum: 0xB6848D14
- ME Firmware: Consumer 12.0.40.1433
- EC Firmware: 1.20.09
- PMC Firmware: 300.2.11.1020
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .ROM File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb
- Additional Microcode Updates included only in.BIO File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Per INTEL QC PRD v1.8 releasing, BIOS update Chassis Info Type from "09h" to "0Ah".
- Fixed SSD device information.
- Fixed performance issues when using battery.
- Updated EC to version 1.20.09.

BIOS Version 0056 - QCCFL357.0056.2019.1030.1000

About This Release:

- Date: October 30, 2019
- ROM Image Checksum: 0xB6883C22
- ME Firmware: Consumer 12.0.40.1433
- EC Firmware: 1.19.09
- PMC Firmware: 300.2.11.1020
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - Option ROM: 9.2.1019
 - UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - Option ROM: 17.5.0.4055
 - RAID Option ROM: 17.5.0.4055
- Supported Flash Devices:
 - WinBond W25Q128JV 16MB
- Microcode Updates included in .ROM File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb
- Additional Microcode Updates included only in.BIO File:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Fixed the thunderbolt issue by doing the following:

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- o Added a 1 second delay.
 - o Disabled HRESET.
 - o Did not implement UCM related code.
- Added setup HDD Security.
- Fixed the Q-Key function that would randomly become Fan Boost, so that it is a mode change only.
- Added the setup items in Boot -> Secure Boot:
 - o Restore Factory Keys
 - o Reset to Setup Mode
- Updated EC to version 1.19.09.

BIOS Version 0048 - QCCFL357.0048.2019.0808.1937

About This Release:

- Date: August 8, 2019
- ROM Image Checksum: 0xB6860E2B
- ME Firmware: Consumer 12.0.40.1433
- EC Firmware: 1.16.09
- PMC Firmware: 300.2.11.1020
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - o Option ROM: 9.2.1019
 - o UEFI Driver: 9.0.1085
- Intel RST Pre-OS:
 - o Option ROM: 17.5.0.4055
 - o RAID Option ROM: 17.5.0.4055
- Microcode Updates included in .BIN & .CAP Files:
 - o M22906EA_000000B4.mcb
 - o M22906ED_000000BE.mcb

New Fixes/Features:

- Updated: EC version to 1.16.09.
- Fixed: Where the system would automatically wake up from sleep even when the lid is closed.
- Updated: EFI BIOS raid driver / Legacy OROM raid driver.
- Added: Support for wake on S3 when the top cover is opened.
- Fixed: No display on restart when using Windows® 10 19H1.

BIOS Version 0042 - QCCFL357.0042.2019.0708.1015

About This Release:

- Date: July 8, 2019
- ROM Image Checksum: 0xB68A5398
- ME Firmware: Consumer 12.0.40.1433
- EC Firmware: 1.13.09
- PMC Firmware: 300.2.11.1020
- Boot Guard ACM: 4351
- Memory Reference Code: Based on 0.7.1.104
- Integrated Graphics:
 - o Option ROM: 9.2.1019
 - o UEFI Driver: 9.0.1085
- Intel RST Pre-OS:

- Option ROM: 17.2.0.3790
 - RAID Option ROM: 17.2.0.3790
- Microcode Updates included in .BIN & .CAP Files:
 - M22906EA_000000B4.mcb
 - M22906ED_000000BE.mcb

New Fixes/Features:

- Initial production BIOS release

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