



Alcons C-series

Experiencing cinema as it is intended!

The logical next step in Digital Cinema sound reproduction

The market

In today's cinema market, several developments are taking place, that greatly effect the importance of cinema sound reproduction. Developments that are relating to the technical-, commercial- as well as the marketing side of the cinema industry.

After the digitalization of cinema over the last few years and further developments in projection (3D, 4k, laser), the industry focus has turned to audio, triggered by new surround concepts, such as Dolby Atmos and Auro-3D. At the same time, digitalization of the complete B-chain, automation, networks and remote-monitoring play a more important role than ever.

Another (commercial) result of digital cinema is the changing role of the cinema from simply presenting movies, towards re-developments like 3D experience and "alternative programming" presentations, like live broadcast/transmissions (soccer/football, sports), (video) conferences (business seminars/presentations), musical events (concerts, record launches), and more.

The marketing side of the cinema industry sees increased competition between cinema exhibitors. In the increased

competition, exhibitors are experiencing that emphasis of quality over price is essential for long-term profitability; Differentiation in concepts ("premium theatres" a.o.) brings opportunities to distinguish themselves from the next-door cinema.

And last, but definitely not least, patrons' expectations have raised tremendously; The combination of "CD-quality" sound/vision (BlueRay, DVD, HD-audio), together with the sensitive-priced surround-sound home-theatre systems, make cinema compete with the "living-room experience".

Cinema has to do utmost efforts to exceed customers expectations.

With these new (digital) developments entering the cinema market, new challenges have arrived for existing equipment; Requirements of the sound system have changed; Speech, music and effect should be reproduced with finest detail and fullest dynamics. With the digital cinema sound standard stating "non-compressed" 24-bit sound format, current loudspeaker reproduction systems, utilizing compression-driver technology, are not capable of reproducing all digital cinema has to offer.





Kp1 Kino Bergen, Norway



CRA30 Cinemarray™ screen system

The company

Alcons Audio is a Dutch company, active in development and manufacturing of professional sound systems for quality-conscious clients in the cinema, installation and touring industry.

The relatively young company (est. 2002), is built on vast experience of the “team members”, each having (in average) 25+ years experience in the different aspects of development, manufacturing and marketing of professional sound systems.

The R&D department of Alcons Audio features a unique combination of extensive know-how in transducer-, acoustics and system design, as well as DSP and amplifier technology. This combination has led in the past to impressive cinema products, such as world’s first pro-ribbon-loaded cinema sound system, first large cinema system with a depth of only 10”/25cm and now, the first large-format cinema system utilizing line-source technology throughout.

Although young of age, the Alcons company’s systems can be found in reference installations around the globe; Lucasfilm Singapore, Deluxe Digital London, NBC Universal London and Beijing, Berlinale Palast Berlin (Theater am Potsdamer Platz), OsloKino Colosseum Norway, Factory Post studios London, Norwegian Film Institute, Fraunhofer Institute Germany, Savannah Film Festival USA, Pathé cinemas, Vue cinemas The Netherlands, Cinemaxx cineas Mannheim Germany, Eye Filminstitute The Netherlands, QFX cinemas Nepal, FLIX cinema Indonesia to name just a few.



Vue Alkmaar The Netherlands (Dolby Atmos®)



CinemaxX Mannheim Germany



Berlinale Palast Berlin (Dolby Atmos®)

The product

New challenges require new thinking: Understanding the relationship between speaker and amplifier, Alcons Audio now brings an evolutionary Digital Cinema sound system program, with speakers, amplifiers and dedicated processing.

Specifically looking at the "end" of the B-chain, current speaker systems are not suitable for reproduction of what non-compressed digital sound sources have to offer; Not only frequency response, but also transient response is an important "ingredient" for detail and (speech)intelligibility. And dynamic response is essential in Digital Cinema reproduction, with 24-bit dynamic range. Note that all current sound systems are still based on 90 year old (compression) driver loudspeaker technology for mid/high frequency reproduction!

Alcons Audio's R&D has taken up the challenge implementing her know-how to design new cinema sound solutions from ground-up to enhance the Digital Cinema experience.

Alcons' pro-ribbon transducer technology enables a non-compressed 1:1 reproduction of the movie soundtrack, from the most delicate vocals to even the largest explosions. The unusual high peak power handling caters for a 1:15 dynamic range.

But the evolutionary designs go beyond HiFi sound quality with digital dynamics; Amplifier/speaker synergy (enabling low-impedance speakers with effect of long speaker cables actively compensated), coverage control (less variation in front-to-rear SPL + wider stereo coverage), space economy (designs as slim as 7"/18cm!) and performance reliability (no blown-up speakers) are other important design parameters that are taken into account.

By implementing her recognized line-source technology into cinema sound system design (an industries' first), Alcons enhances the cinema experience even further. The acoustical coupling from this array technology reduces the typical SPL drop-off from front to rear (up to 12dB in medium-sized rooms) significantly; the resulting "proximity" effect dramatically enhances the cinema experience for the audience further away.

For the first time ever, live-concerts, performing arts theatres, (post-production) studios as well as premium cinemas around the globe are able to utilize exactly the same, unique sound system technology with high-end reference quality at any SPL.

In short; "You see more of the movie with an Alcons Audio cinema sound system!"



OsloKino Colosseum, Oslo Norway



NBC Universal London UK



Pathé Tuschinski Amsterdam, the Netherlands

Main advantages

The Alcons cinema sound systems are arguably the only Digital-Cinema ready cinema systems, for a number of reasons:

Input = output The C-series systems deliver a 1 :1 reproduction of the original source, with all stereo and position information as recorded in the studio. This makes a very significant different listening experience compared to traditional systems.

Maximum experience in every size cinema The C-series offers a dedicated (!) solution for literally every size cinema; With the Cinemarray™ concept, even cinemas above 500 seats and (way) beyond, can offer patrons all that Digital Cinema has to offer, without any compromise.

HiFi sound at Digital Cinema SPL's! The RBN pro-ribbon drivers have up to 90% less distortion than any conventional mid/high transducer @ same SPL), because of the lack of a compression chamber and the light weight diaphragm.

"Proximity-effect" for enhanced experience By implementing line-source technology, the normal (-6dB per doubling of distance) reduction of SPL coverage from front to rear is reduced; The resulting "proximity" effect dramatically improves the cinema experience for the audience further away from the screen. This technology is featured in the CR4, and Cinemarray™ system.

Perfect (speech-)intelligibility The fast transient response + the lack of compression "threshold" (the level under which the compression driver doesn't make enough compression to have actual HF output) brings perfect intelligibility and tonal balance at lowest as well as highest SPL's.

Further improved intelligibility Another advantage of the acoustical system coupling in general and the cylindrical wavefront of the pro-ribbon I-IF array in specific (in the CR4, and Cinemarray™ systems), is the very precise vertical projection, preventing unwanted ceiling reflections for further improved intelligibility.

No listening fatigue Another benefit of the superb transient response and the lack of "time-smear" (a result of the slow moving mass/diaphragm at high frequencies) is the lack of listening fatigue, even after prolonged listening hours. It's hearing instead of listening.

True 90 degree dispersion The RBN pro-ribbon drivers features Alcons' patented "Real-90" dispersion in the horizontal plane, up to and beyond 20kHz. This offers patrons a much wider stereo "sweet-spot", thus more people can enjoy true stereo.

Unique uniform sound stage By utilizing exactly the same transducer components for the surround system, as for the mid-high section of the screen system, a unique voice matched surround system with identical MF/HF components is available, for perfect screen/surround blending, resulting in a very uniform sound stage.

Digital dynamics Where conventional (compression driver) technology has an RMS-to-peak ratio of 1 :2 (i.e. 75W RMS / 150W peak), Alcons pro-ribbon drivers have an RMS-to-peak ratio of around 1 : 15 (i.e. 70W RMS / 1000W peak). Together with the ultra-low power compression (resulting from the patented heat management + the direct air contact of the voicecoil) this enables the maximum dynamic range that 24-bit Digital Cinema has to offer. The CR4, and Cinemarray™ CRA30 systems have a 2400W peak power handling.

Note; In practice, the "fragile-presumed" pro-ribbon diaphragm seems to be much stronger than a compression driver diaphragm, as a result from the light weight moving mass; The compression driver starts to break-up at 8 kHz. because the mass can't follow the speed. With "clarity" frequencies around 16 kHz (= twice the problem speed) often boosted more than 6 dB (= 4x the power!), the pro-ribbon driver handles this without failure, contrary to compression drivers (break-up is most common reason for compression diaphragm blow-up).

Very clean signal path As a result of the flat impedance of the pro-ribbon drivers, no impedance correction is needed in the crossover. This allows simpler filter designs, placing fewer parts/obstructions in the signal path, thus offering improved clarity and accuracy of the sound even with passive-filtered systems. The "Current-to-light" driver protection, inaudibly protects the drivers for input overload.

Truly accurate mid and bass response; The Alcons systems are SIS™ pre-wired for SIS (Signal Integrity Sensing™) circuit; In combination with the ALC controller amplifier, influences of long speaker cable lengths (typically for cinema!) are completely compensated for (system damping factor 10.000).

Optimal and reliable performance The processing "heart" in the ALC changes the stereo amp into a dedicated powered controller of the Alcons speakers, offering dedicated excursion protection, system - eq, filtering and power control, for maximum component performance.

Digital ready The ALC controller-amp has 4 individual AES3 digital signal inputs, that can handle sampling rates up to 192kHz. The custom-designed Sample Rate Converter features high-end HiFi quality sampling conversion. Internal operating sample rate is 96kHz.

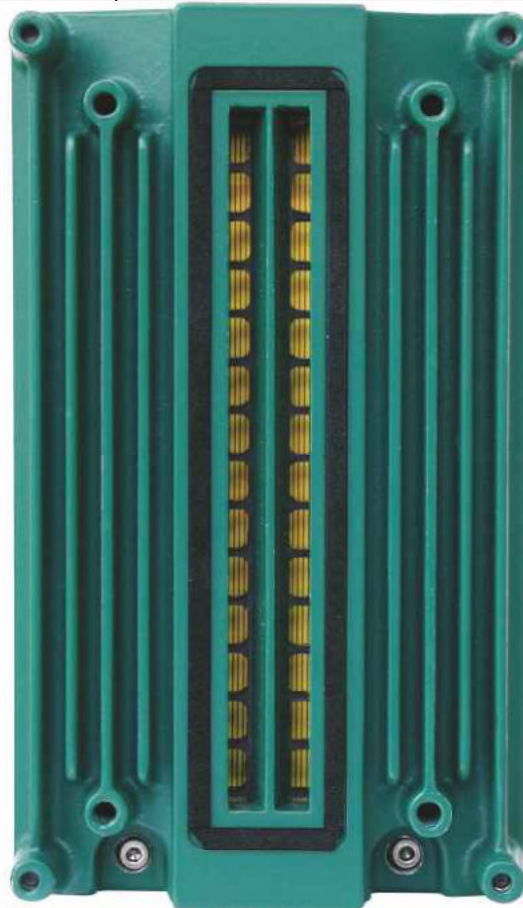
Space-economic design The ultra-thin enclosure design (CR1 7"/17cm deep, CR2 10"/25cm, CR3, CR4, 13,7"/35cm) enables mounting behind any screen. With the moveable mid-high section, the directional frequencies can be aimed at the audience, while still enjoying the shallow system depth. Extra room for more seats, raising your return-on-investment!

Maximum mounting flexibility The CR1 and CR2 systems, but also the CB151/1811211 ultra-shallow subwoofers can be stacked or flown or wall-mounted behind the screen. Virtually any set-up is possible.

Blends into any interior For cinema applications, it can be desirable to give the surround system a "stealth appearance"; Through ACO™ Architect Color Option is each system available in any RAL scheme color, to have the system blend into any interior style.

"No Hassle" warranty As Alcons truly believes in the quality of her handcrafted/computer-controlled products, the systems are backed by a 6 years limited warranty, when used with ALC amplified system controller; "we put our money where our mouth is!".

For more information please visit www.alconsaudio.com or www.digitalcinemaready.info for product info and recent projects.





CR1

The "ultra-compact" 3-way pro-ribbon screen system, designed for AV / screening-rooms and cinemas up to 100 seats. Can be mounted virtually anywhere, delivering very dynamic performance from a very efficient (passive) system design.

- ▶ RBN401 pro-ribbon HF driver, 6.5" midrange and 12" woofer
- ▶ Adjustable HF driver for precise projection
- ▶ Industries most-shallow enclosure (18cm/7-in.)
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ 'Real-90' dispersion, H 90° x V 40° (nom.)
- ▶ Single-amp operation for economical powering
- ▶ Flown, stacked, wall-mount positioning
- ▶ Also available in "Front-Vent" version for baffle-wall mounting



CR2

The "compact" 3-way pro-ribbon screen system, designed for cinemas up to 200 seats. Surprisingly high output from a compact (bi-amped) system, with a depth of only 10"/25cm. 4 ohms system impedance for optimal amplifier loading.

- ▶ RBN601 pro-ribbon HF driver, 8" midrange and 15" woofer
- ▶ Adjustable HF driver for precise projection
- ▶ Ultra-shallow enclosure (25cm/10") for space economic mounting
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Dispersion H 90° x V 40° (nom.)
- ▶ Bi-amp or single-amp operation for economical powering
- ▶ Flown, stacked, wall-mount positioning
- ▶ Also available in "Front-Vent" version for baffle-wall mounting



CR3

The "medium-format" 3-way pro-ribbon screen system, designed for cinemas up to 300 seats. Powerful performance (bi- or tri-amp) with superb 1:16 ratio digital-dynamic response from 1 kHz. to beyond 20 kHz. Large waveguides for MF and HF for optimal pattern control and 15" performance woofers for extended LF response.

- ▶ Double RBN401 pro-ribbon HF driver, double 6.5" midrange and double 15" woofer
- ▶ Adjustable MHF waveguide with 10-degree pre-tilt for easy projection
- ▶ Shallow system design (35 cm/13.7") for space economic mounting
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Bi-amp filtering for economical powering or tri-amp filtering for maximum output



CR4

The "large-format" 3-way pro-ribbon screen system, designed for cinemas up to 400 seats. Superb point-source system, with unique HF array for throw extension. High-power performance (bi- or tri-amp) with incredible dynamic response (MHF section with 2400 W peak power handling).

- ▶ Triple RBN401 pro-ribbon HF driver, quad 6.5" midrange and double 15" woofer
- ▶ Unique HF array for extended throw / coverage compensation
- ▶ Adjustable MHF waveguide with 10-degree pre-tilt for easy projection
- ▶ Shallow system design (35cm/13.7") for space economic mounting
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Bi-amp filtering for economical powering or tri-amp filtering for maximum output



CRA24

Scalable medium-format line-source screen system element. Dedicated cinema line-array system, utilizing Alcons' renowned line-source technology. Room-covering arrays can be designed with multiple cabinets, for very precise projection.

- ▶ Double RBN401 pro-ribbon HF driver, double 6.5" midrange and double 12" woofer
- ▶ Designed for short to medium-throw applications
- ▶ Flat front-to-rear SPL and projection control
- ▶ Shallow system design (31,7cm/12,5") for space economic mounting
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Bi-amp filtering for economical powering
- ▶ Available in CRA24n ("narrow") and CRA24w ("wide") versions



CRA30

Scalable large-format line-source screen system element. Dedicated cinema line-array system, utilizing Alcons' renowned line-source technology. Room-covering arrays can be designed with multiple cabinets, for very precise projection.

- ▶ Triple RBN401 pro-ribbon HF driver, triple 6.5" midrange and double 15" woofer
- ▶ Designed for short to long-throw applications
- ▶ Flat front-to-rear SPL and projection control
- ▶ Shallow system design (31,7cm/12,5") for space economic mounting
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Bi-amp filtering for economical powering or tri-amp filtering for maximum output
- ▶ Available in CRA30n ("narrow") and CRA30w ("wide") versions

CRA24 array



CRA30 array





CCS6

Small-format surround. The CCS6 is a cost-efficient surround solution for small-sized rooms, with medium power output and a coaxial configuration for a conical dispersion with very smooth LF/HF blending in all directions. Available in 2 different models for specific mounting positions (on-wall, ceiling).

- ▶ 1" exit compression driver with 6.5" woofer in coaxial configuration
- ▶ High power handling; 165 W. continuous (AES)
- ▶ 90° conical dispersion
- ▶ Slanted cabinet design for unobtrusive wall mounting
- ▶ Ideal for immersive surround or acoustical enhancement systems



CCS8

Medium-format surround. The CCS8 is a cost-efficient surround solution for medium-sized rooms, with higher power output and a coaxial configuration for a conical dispersion with very smooth LF/HF blending in all directions. Available in 2 different models for specific mounting positions (on-wall, ceiling).

- ▶ 1" exit compression driver with 8" woofer in coaxial configuration
- ▶ High power handling; 305 W. continuous (AES)
- ▶ 90° conical dispersion
- ▶ Slanted cabinet design for unobtrusive wall mounting
- ▶ Ideal for immersive surround or acoustical enhancement systems



CRS8/9040

Medium-format reference surround. The CRS8 is designed with the same pro-ribbon driver as in most of the C-series systems; The identical sound from 1 kHz. onwards for the screen and surround system brings a seamless blending, especially important in immersive surround systems.

- ▶ RBN401 pro-ribbon HF driver, 8" woofer
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ 'Real-90' dispersion, H 90° x V 40° (nom.)
- ▶ 10° slanted baffle for optimised projection
- ▶ Available in 8 ohms or 4 ohms version for multi-channel surround



CRS8/9090

Medium-format reference surround. The CRS8 is designed with the same pro-ribbon driver as in most of the C-series systems; The identical sound from 1 kHz. onwards for the screen and surround system brings a seamless blending, especially important in immersive surround systems.

- ▶ RBN401 pro-ribbon HF driver, 8" woofer
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ 'Real-90' dispersion, H 90° x V 90° (nom.)
- ▶ 10° slanted baffle for optimised projection
- ▶ Available in 8 ohms or 4 ohms version for multi channel surround



CCS12

Large-format surround. The CCS12 is a cost-efficient surround solution for larger-sized rooms, with high power output and a coaxial configuration for a conical dispersion with very smooth LF/HF blending in all directions. Available in 2 different models for specific mounting positions (on-wall, ceiling).

- ▶ 12" woofer with 2" compression driver in co-axial configuration
- ▶ Very high power handling; 430 W. continuous (AES)
- ▶ 80° conical dispersion
- ▶ 4 ohms impedance for efficient amplifier loading
- ▶ Ideal for immersive surround or acoustical enhancement systems



CRS12/9040

Large-format reference surround. The CRS12 is designed with the same pro-ribbon driver as in most of the C-series systems; The identical sound from 1 kHz. onwards for the screen and surround system brings a seamless blending, especially important in multi-channel surround systems.

- ▶ RBN401 pro-ribbon HF driver, 12" Neodymium woofer
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ 'Real-90' dispersion, H 90° x V 40° (nom.)
- ▶ 10° slanted baffle for optimised projection
- ▶ Available in 8 ohms or 4 ohms version for multi-channel surround



CRS12/9090

Large-format reference surround. The CRS12 is designed with the same pro-ribbon driver as in most of the C-series systems; The identical sound from 1 kHz. onwards for the screen and surround system brings a seamless blending, especially important in multi-channel surround systems.

- ▶ RBN401 pro-ribbon HF driver, 12" Neodymium woofer
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Real-90' dispersion, H 90° x V 90° (nom.)
- ▶ 10° slanted baffle for optimised projection
- ▶ Available in 8 ohms or 4 ohms version for multi channel surround



CRS12GT/60

Large-format high-output reference surround. The CRS12GT/60 is developed as surround system located closest to the screen channels in immersive surround systems. The 60° by 30° dispersion, enables a very precise projection on the critical listening area.

- ▶ RBN601 pro-ribbon HF driver, 12" Neodymium woofer
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ 'Real-90' dispersion, H 60° x V 30° (nom.)
- ▶ 10° slanted baffle for optimised projection
- ▶ Available in 8 ohms or 4 ohms version for multi-channel surround



CRS12GT/90

Large-format high-output reference surround. The CRS12GT/90 is developed as surround system located closest to the screen channels in immersive surround systems. The 90° by 40° dispersion, enables a very precise projection on the critical listening area.

- ▶ RBN601 pro-ribbon HF driver, 12" Neodymium woofer
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ 'Real-90' dispersion, H 90° x V 40° (nom.)
- ▶ 10° slanted baffle for optimised projection
- ▶ Available in 8 ohms or 4 ohms version for multi-channel surround



CB151SL

Ultra-slim compact subwoofer system using a very high quality, low power-compression 15" transducer with 4" voice-coil and 4 ohms impedance for maximum amplifier efficiency. In combination with SIS™ cable compensation of the ALC, the CB151 delivers a 1:1, natural low-frequency response.

- ▶ Single 15" long-excursion woofer
- ▶ Lowest usable frequency 19 Hz.
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Space-economic design, only 8.5"/21.7cm deep
- ▶ Also available in "Front-Vent" version for baffle-wall mounting



CB181SL

Slim subwoofer system using a very high quality, low power-compression 18" transducer with 4" voice-coil. In combination with SIS™ cable compensation of the ALC, the CB181 delivers a 1:1, natural, high-output low-frequency response of even the most dynamic impulses.

- ▶ Single 18" long-excursion woofer
- ▶ Lowest usable frequency 20 Hz.
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Space-economic design, only 10.8"/27.5cm deep
- ▶ Also available in "Front-Vent" version for baffle-wall mounting



CB211SL

Slim subwoofer system using a very high quality, low power-compression 21" transducer with very large voice-coil. In combination with SIS™ cable compensation of the ALC, the CB211 delivers a 1:1, natural high-output fundamental low-frequency enhancement.

- ▶ Single 21" very long excursion woofer w. very large voice-coil
- ▶ Lowest usable frequency 19 Hz.
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Space-economic design for easy wall / behind-screen positioning
- ▶ Also available in "Front-Vent" version for baffle-wall mounting



CB362

High-output subwoofer system using very high quality, low power-compression 18" transducers with 4" voice-coils. In combination with SIS™ cable compensation of the ALC, the CB362 delivers a 1:1, natural low-frequency response of even the most dynamic impulses.

- ▶ Reference-quality high-output Digital Cinema ready subwoofer system
- ▶ Double 18" long-excursion vented woofers with double spider
- ▶ Lowest usable frequency 20 Hz.
- ▶ Signal Integrity Sensing™ pre-wired cable compensation
- ▶ Large, centrally placed vent for improved air velocity and breathing capacity



ALC Sentinel 3

The ALC Sentinel is a combination of a DSP speaker controller and 4-channel power amplifier. The ALC units are designed to guarantee the best speaker drive, with maximum sound quality and operating reliability.

- ▶ 3 kW high-end Hi-Fi amplifier stages
- ▶ 4-in/4-out matrix routing
- ▶ 192 kHz capable AES/EBU digital inputs
- ▶ Fully-intuitive control through large colour touch-screen
- ▶ Signal Integrity Sensing™ cable compensation circuit
- ▶ ALControl™ and "Audio-over-network" (optional) prepared



ALC Sentinel 10

The ALC Sentinel is a combination of a DSP speaker controller and 4-channel power amplifier. The ALC units are designed to guarantee the best speaker drive, with maximum sound quality and operating reliability.

- ▶ 10 kW high-end Hi-Fi amplifier stages
- ▶ 4-in/4-out matrix routing
- ▶ 192 kHz capable AES/EBU digital inputs
- ▶ Fully-intuitive control through large colour touch-screen
- ▶ Signal Integrity Sensing™ cable compensation circuit
- ▶ ALControl™ and "Audio-over-network" (optional) prepared



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