

REALITY VFX



Ncam Reality enables virtual production and through-the-lens VFX with real-time camera tracking, providing live previsualization of environments, set extensions and CGI elements directly in-camera while shooting.

Ncam Reality consists of a multi-sensor camera bar & tethered server. The camera bar attaches to any camera quickly and efficiently, whether handheld, Steadicam, dolly or crane mounted. Requiring minimal alignment time, and is scalable to work simultaneously over multiple cameras.

Ncam Reality doesn't require any specific fiducials or tracking markers as it automatically tracks the environment. Most importantly, this means there are no set or location modifications needed to allow Ncam to work.

Directors and DoPs enhance creative control of framing and composition, allowing immediate verification, particularly against blue and green screens.

Producers achieve greater control of VFX budgets and timescales, minimising wastage and ensuring efficient delivery, from previs to post-production.

Camera operators are empowered to deliver realistic, dynamic shots while maintaining framing.

Assistant directors can synchronise the shot by cueing both the actors and the animated CGI, improving communication and realism.

Everyone on set can understand the requirements and intent of a complicated VFX shot, allowing for

interaction and rapid review – leading to a higher quality shot with fewer takes.

The automatic “take” system captures the camera position, rotation, metadata and timecode into an industry standard file whenever the camera is recording.

The system is highly mobile and relocates rapidly, indoors and outdoors. Allowing the system to track instantly on each new set-up.

Ncam Reality integrates easily into existing virtual production workflows without interruption, providing high-quality visualisation and decision support without delaying the shoot.

- Visualise your VFX shots in real-time while shooting, guaranteeing line-up.
- Provide the Director and DoP with accurate on-set framing tools for set extensions, environments and CGI, by replacing blue and green screens.
- Give the whole crew, including actors, in-context visual feedback of the intended shot, helping with timing and perfecting realism.
- Deliver rapid post-viz/temps to editorial, improving quality and shortening the VFX post-production cycle.
- Supply accurate tracking and camera metadata to Unreal Engine 4, Unity and VFX vendors, saving both time and money.

SPECIFICATION

Main camera information

Supported cameras	Digital film cameras with HD SDI monitoring. Film cameras with HD video tap plus timecode.
Supported lenses	Prime (Spherical/Anamorphic). Zoom (Spherical/Anamorphic).
Lens metadata	LDS supported lens via SDI stream. Other lens data by direct or via encoders & Ncam smart cable. Includes, Zeiss, Fujinon, Cooke and more.
Lens profiling	Precision lens profiling & measurement of lens distortion & optical parameters. Stored and selectable from database and exported to graphics engine.
Camera configurations	Handheld, Steadicam, tripod, dolly, crane, Technocrane, Libra head, Ultimate/Russian arm.
Camera monitor feed equipment	HD 1920x1080 3G SDI with timecode. 23.98, 24, 25, 29.97, 30 fps frame rate. Progressive or PsF or Interlaced.
Composited image preview to camera	HD 1920x1080 3G SDI (wired /wireless) Frame rate (based on camera monitor output). To electronic viewfinder or field monitor.

Ncam camera bar

Configuration	Multi-sensor tracking technology; 1 bar per VFX camera.
Mounting	Position – over/underslung from front rods. Rod types: 19mm; 15mm Studio; 15mm LWS (user selectable).
Power	Powered from camera – 900mA @ 12V DC. Direct encoding via ethernet.
Operation	Tether cable to Ncam Server workstation: copper (Ethernet) – up to 100m or fibre – 2km+.

CGI source

Configuration	One Motion Builder to many Ncam Servers.
Device	Silent-running workstation.
Operating system	Windows 7 / 10 Professional.
Application software	Autodesk MotionBuilder™ 2018.
Location	Mobile – on cart, next to Ncam Server.
Communication	Ncam plug-in via Ethernet.
Live previsualization/ VFX	Environments, set extensions. CGI characters.
CGI preparation	Prep to ensure real-time operation within Motion Builder. Test CGI – prove assets in MotionBuilder with Ncam standalone renderer.

Ncam Server

Configuration	One Server per VFX camera.
Device	Silent-running bespoke workstation.
Server interface	Monitor, keyboard, mouse.
Operating system	Ncam OS based on Ubuntu 18.04.
Application software	Ncam Reality.
Location	Studio/onset – rack-mounted – controlled over KVM Mobile.
Power	4A @ 220V (8A @ 110V) AC. AC mains 50/60Hz – Heat output: 1kW (max).
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VFX - Lens Profiling		Pre-2019 Release	2019 release
Lens type	Number of Lenses	Days to profile	Days to profile
Spherical Prime Lenses	20	2	1
Spherical Zoom* Lenses	5	3	1
Anamorphic Prime Lenses	20	3	1.5
Anamorphic Zoom* Lenses	5	4	2

Rendering

Integrated real-time renderer Basic shading, Baked-in lighting, Textures, Transparency & Depth-of-field

Keying

Integrated real-time keying Blue or green screens.
Extendable 3D and image based
garbage matting.

Colour correction

Basic global colour correction of CG elements.

Outputs

- Ncam server real-time user display
- HD SDI output
- Real-time composited image of monitor video with tracked and keyed CGI
- Export to FBX, tracking point cloud & animation curves
- Routed to video village and director/producer monitors
- Automatic take system records a labelled .FBX file
- Camera position, rotation, focus, iris and zoom
- Timecode plus captured point cloud for each take
- Streaming SDK interface for VFX post-production

Ncam System Latency

2.5 video frames (Interlaced/PsF mode).
5 video frames (Progressive mode).

NCAM Motion Builder Plug-in

Support for Null Point Cloud, Vertices, Normals, Transparency, Textures, Animation, Caches

Locations

Interior In studio /on-set

Exterior Back-lot /on location

N.B. not weather/
water/blast-proof
(camera bar and lenses
require shielding /
server requires Easy-
Up or similar)

Rigging

- Ncam is mounted on 15mm or 19mm rods, specific to mounting system, Matte Boxes, Follow focuses etc.

Operation

- One Ncam technician.
- One UE/Unity operator for in-camera visualization.
- One Motion Builder operator to manage digital assets.