

CINEMA 4D R20 FEATURE OVERVIEW

New Features in Bold

GENERAL WORKFLOW	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Advanced presets and demo scenes	•	•	•	•	•	•
Annotations Tag	•	•	•	•	•	•
Arabic interface support	•	•	•	•	•	•
Available in 11 languages (switchable)	•	•	•	•	•	•
Broadcast Library, incl. materials, cameras and objects	•	•	•	•	•	•
Color Chooser	•	•	•	•	•	•
Commander	•	•	•	•	•	•
Updated Content Libraries	•	•	•	•	•	•
Context-sensitive, fully-searchable HTML help	•	•	•	•	•	•
Cross-platform support for Mac & Windows	•	•	•	•	•	•
Custom User Data per object	•	•	•	•	•	•
Customizable GUI sets (toolbars / layouts / menus)	•	•	•	•	•	•
Doodle viewport annotation tool	•	•	•	•	•	•
Essential presets and demo scenes	•	•	•	•	•	•
Basic Fields	•	•	•	•	•	•
High-Quality OpenGL Viewport	•	•	•	•	•	•
Layer system for object & material management	•	•	•	•	•	•
Lite Library, incl. materials, cameras and objects	•	•	•	•	•	•
Multiple projects open at once	•	•	•	•	•	•
New Feature Highlighting	•	•	•	•	•	•
Object highlighting	•	•	•	•	•	•
Picture Viewer	•	•	•	•	•	•
Scripting & SDK	•	•	•	•	•	•
Solo Button	•	•	•	•	•	•
Stereo display in Viewport	•	•	•	•	•	•
Take System	•	•	•	•	•	•
To Do List	•	•	•	•	•	•
Vertex Colors	•	•	•	•	•	•
Visualization Library, incl. materials, presets and architectural objects	•	•*	•	•	•	•
XRef external instancing / referencing system	•	•	•	•	•	•

* Some advanced procedural presets like Door, Window, and Staircase Builder are based on technologies that are not built into in the Visualize version and are therefore only available in Cinema 4D Studio

MODELING	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
ABF unwrapping and relaxing	•	•	•	•	•	•
Basic Tools	•	•	•	•	•	•
Bevel Deformer	•	•	•	•	•	•
Deformer Falloff (with Fields)	•	•	•	•	•	•
Extrude, Lathe, Loft, Sweep Generators	•	•	•	•	•	•
Interactive UV mapping by projection types	•	•	•	•	•	•
Knife Tools	•	•	•	•	•	•
Level of Detail Object	•	•	•	•	•	•
LSCM unwrapping and relaxing	•	•	•	•	•	•
Mesh Check	•	•	•	•	•	•
Modeling Generators: Metaball, Boolean, Symmetry, Array, Atom Array, Instance, Connect, Spline Mask, Python	•	•	•	•	•	•*

MODELING (continued)	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Enhanced New Modeling Kernel	•	•	•	•	•	•
Polygon Reduction Generator	•	•	•	•	•	•
OpenSubdiv Support	•	•	•	•	•	•
OpenVDB Volume Modeling	•	•	•	•	•	•
PolyPen	•	•	•	•	•	•
Scene Objects: Floor, Sky, Environment, Stage, Foreground, Background	•	•	•	•	•	•
Spline Mask object	•	•	•	•	•	•
Spline Tools	•	•	•	•	•	•
Subdivision surfaces	•	•	•	•	•	•
UV Editing	•	•	•	•	•	•
UV mapping to automatically remove seams	•	•	•	•	•	•
UV Peeler	•	•	•	•	•	•
UVs for Caps	•	•	•	•	•	•

* Only includes Boolean, Array, Spline Mask and Instance

SCULPTING	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
C++ Sculpt Brush API	•	•	•	•	•	•
Mesh Projection	•	•	•	•	•	•
Mirroring & Masking	•	•	•	•	•	•
Python Support for lib_sculpt	•	•	•	•	•	•
Sculpt Brushes	•	•	•	•	•	•
Sculpt Layers	•	•	•	•	•	•
Sculpt to Pose Morph	•	•	•	•	•	•
Unsubdivide	•	•	•	•	•	•

MATERIALS & TEXTURES	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
12 standard material channels: Color, Diffusion, Luminance, Transparency, Reflectance, Environment, Fog, Bump, Normal, Alpha, Glow, Displacement	•	•	•	•	•	•
Animated textures (MOV, AVI, sequence) with viewport preview	•	•	•	•	•	•
Blurry reflections and transparencies	•	•	•	•	•	•
Brick, Wood, Weathering, Pavement and Normalizer Shaders	•	•	•	•	•	•
Choose Photoshop PSD layers per usage	•	•	•	•	•	•
Displacement: intensity (centered), red/green and RGB	•	•	•	•	•	•
Formula Shader	•	•	•	•	•	•
Fresnel Shader	•	•	•	•	•	•
Grass Material Shader	•	•	•	•	•	•
Inverse Ambient Occlusion	•	•	•	•	•	•
Layer shader	•	•	•	•	•	•
Multi-brush painting of multiple material channels in single stroke	•	•	•	•	•	•
Node-based Material System	•	•	•	•	•	•
Noise Procedural shader with 32 different noise algorithms	•	•	•	•	•	•
Normal maps: tangent, object or world	•	•	•	•	•	•
OpenGL-accelerated 3D Painting with layers, all blend modes and Photoshop file compatibility	•	•	•	•	•	•
Physically correct IOR presets	•	•	•	•	•	•
Procedural surface shaders	•	•	•	•	•	•
Projection Man	•	•	•	•	•	•
Projection painting	•	•	•	•	•	•
Proximal shader	•	•	•	•	•	•
Reflectance Channel	•	•	•	•	•	•

MATERIALS & TEXTURES (continued)	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Set UVW from projection	•	•	•	•	•	•
Shading models: Lambertian, Oren-Nayar	•	•	•	•	•	•
Shadow Catcher	•	•	•	•	•	•
Sketch & Toon Art, Hatch, Spot (halftone) Shaders	•	•	•	•	•	•
Sub-Polygon displacement (SPD)	•	•	•	•	•	•
Sub-Surface Scattering	•	•	•	•	•	•
Terrain Mask shader	•	•	•	•	•	•
Texture baking: surface color, illumination, Ambient Occlusion, Normals, displacement and more	•	•	•	•	•	•
Texture Manager	•	•	•	•	•	•
Thin Film Shader	•	•	•	•	•	•
Transparency with absorption, total internal reflections, exit reflections	•	•	•	•	•	•
Variation Shader	•	•	•	•	•	•

LIGHTING	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Caustics	•	•	•	•	•	•
Color temperature in Kelvin	•	•	•	•	•	•
Custom lens flares	•	•	•	•	•	•
Global Illumination	•	•	•	•	•	•
Hard, Soft, Area shadows	•	•	•	•	•	•
IES Lights	•	•	•	•	•	•
Include/exclude light diffusion, specular, shadow per object	•	•	•	•	•	•
Light Types: Omni, Spot, Infinite, Area, Square Spot, Parallel Spot, Square Parallel Spot	•	•	•	•	•	•
Noise within light illumination and/or visibility	•	•	•	•	•	•
Photometric brightness setting in Candela and Lumen	•	•	•	•	•	•
Physical Sky	•	•	•	•	•	•
Visible, Volumetric and Inverse Volumetric lighting	•	•	•	•	•	•

CAMERA	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Camera Calibrator	•	•	•	•	•	•
Camera Composition Helpers	•	•	•	•	•	•
Camera Crane	•	•	•	•	•	•
Camera Focus Picker	•	•	•	•	•	•
Camera Morph	•	•	•	•	•	•
Camera, Target Camera, Stereo Camera	•	•	•	•	•	•
Graphical View for Motion Tracking	•	•	•	•	•	•
Lens Distortion Support	•	•	•	•	•	•
Motion Camera	•	•	•	•	•	•
Enhanced Motion Tracker	•	•	•	•	•	•
Object Tracker	•	•	•	•	•	•
Scene Reconstruction for Motion Tracker	•	•	•	•	•	•
Spherical Camera	•	•	•	•	•	•

RENDERING	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Ambient Occlusion	•	•	•	•	•	•
Camera white balance	•	•	•	•	•	•
Color profile support	•	•	•	•	•	•
Embree Integration	•	•	•	•	•	•**
Global Material Override	•	•	•	•	•	•
Light Mapping	•	•	•	•	•	•
Linear workflow	•	•	•	•	•	•
Multi-Pass output	•	•	•	•	•	•*
Normal Pass	•	•	•	•	•	•

RENDERING (continued)	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Object buffers – specify unique alpha channels per object	•	•	•	•	•	•*
Physical Render Engine	•	•	•	•	•	•
Position Pass	•	•	•	•	•	•
Enhanced ProRender (GPU-based Renderer)	•	•	•	•	•	•
Pyrocluster volumetric particle rendering	•	•	•	•	•	•
Radiosity maps	•	•	•	•	•	•
Render instances	•	•	•	•	•	•
Render Queue batch rendering system	•	•	•	•	•	•
Render up to 128,000 pixels square / 32 bits per pixel	•	•	•	•	•	•*
Sketch and Toon	•	•	•	•	•	•
Stereoscopic Rendering	•	•	•	•	•	•
Sub-Surface Scattering	•	•	•	•	•	•
Team Render (Number of Nodes)	• (unlimited)	• (3)	• (3)	•	•	•
Team Render Server (Number of Nodes)	• (unlimited)	• (3)	• (3)	•	•	•
Universal Sampler (GI-QMC)	•	•	•	•	•	•

* Only available through AE Cinema 4D Layer, ** Only in Advanced Renderer

ANIMATION	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
ASCII animation import	•	•	•	•	•	•
Automatic keyframing	•	•	•	•	•	•
Constant Velocity option per track	•	•	•	•	•	•
Constraints: PSR, Up-Vector, Clamp, Mirror, Parent, Aim, Spring	•	•	•	•	•	•
Driver tag	•	•	•	•	•	•
F-Curve Snapshot and Reduced Modification curves	•	•	•	•	•	•
Interaction Tag	•	•	•	•	•	•
Keyframe baking	•	•	•	•	•	•
Keyframe reduction	•	•	•	•	•	•
Non-linear animation / motion mixing system	•	•	•	•	•	•
New Parent Constraint workflow	•	•	•	•	•	•
PowerSlider animation toolbar for playback and keyframe manipulation	•	•	•	•	•	•
Shift Priority Tag	•	•	•	•	•	•
Timeline - up to four timeline windows with customizable track display and dopesheet or F-Curve view modes	•	•	•	•	•	•*
XPresso	•	•	•	•	•	•**

* Max. two Timeline windows, ** Does not include the Python Node

CHARACTER ANIMATION	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Character Object	•	•	•	•	•	•
CMotion	•	•	•	•	•	•
Joints with full dynamic IK	•	•	•	•	•	•
Mirror, Naming and Paint Tools	•	•	•	•	•	•
Muscle deformer	•	•	•	•	•	•
Point Cache tag	•	•	•	•	•	•
Pose Morph	•	•	•	•	•	•
PSD Correctional Morphs	•	•	•	•	•	•
Quaternion workflow	•	•	•	•	•	•
Skin Deformer supports linear, spherical and blended deformation based on joints	•	•	•	•	•	•
Tension tag	•	•	•	•	•	•
VAMP tool for translating weights, morphs, selection, textures, Uvs and vertex maps between different geometry	•	•	•	•	•	•

CHARACTER ANIMATION (continued)	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Visual Selector	•					
Weight Falloff	•	•	•	•	•	
Weighting Improvements	•	•	•	•	•	
Weight Manager and tools	•	•	•	•	•	

MOGRAPH	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Beat Shader	•		•			
Cloner object	•		•			
Effectors for Position, Scale, Rotation, Color, Time using Falloff, Shader, Random, Formula, Delay, C.O.F.F.E.E., Python, Inheritance, Spline, Step, Target, Time or Volume effectors	•		•			•*
Advanced Fields	•		•			
Fracture object	•		•			•*
Matrix object	•		•			
MoDynamics	•		•			
MoExtrude	•		•			
MoGraph Caching	•		•			
MoGraph Multi-shader	•		•			
MoGraph Selection tag	•		•			
MoInstance object	•		•			
MoSpline parametric spline generator with L-system functionality	•		•			
MoText object	•		•			
Mult Instances	•		•			
PolyFX polygon fracture deformer	•		•			
Push Apart Effector	•		•			
ReEffector	•		•			
Sound Effector	•		•			
Tracer object	•		•			
Voronoi Fracturing	•		•**			
Weight Map and Weight Paintbrush	•		•			

* Fracture Object, Plain and Random Effectors only after registration, ** Auto Connectors only available in Studio

SIMULATION	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
Aerodynamic Forces	•					
Basic particle system	•	•	•	•	•	
Breaking Connectors	•					
Cloth Simulation	•					
Feather object	•					
Fur system	•					
Guide-based Hair system	•					
Hair instancing	•					
Hair shading system with multiple speculars, texture-defined root and tip colors, and variable transparency, thickness, length, scale, frizz, kink, density, clump, tighten, displace, bend, curl, twist, wave, straighten	•					
Hair styling tools: Move, Scale, Rotate, Brush, Comb, Clump, Curl, Cut, Push, Straighten, Add Guides, Mirror, Set Roots	•					
Joints, Springs, Motors	•					
Plastic & Breaking Springs	•					
Rigid Body Dynamics	•					
Rigid Body dynamics for MoGraph objects	•		•			
Soft Body Dynamics	•					
Spline dynamics	•					
Thinking Particles	•					

PIPELINE INTEGRATION	Studio	Visualize	Broadcast	Prime	BodyPaint 3D	Lite
After Effects compositing exchange with 3D data	•	•	•	•	•	
Apple Final Cut Pro compositing exchange	•	•	•	•	•	
Apple Motion compositing exchange with 3D data	•	•	•	•	•	
BodyPaint 3D exchange – 3ds Max, Maya, and Lightwave	•	•	•	•	•	
CAD Importer (supporting Catia V5, JT, STEP, IGES, Solidworks)	•	•				
Cineware compatible	•	•	•	•	•	•
Digital Fusion compositing exchange (Windows only)	•	•	•	•	•	
Updated Houdini Engine Bridge (Version 16.5)	•					
Media handling	•	•	•	•	•	•
Nuke exchange	•	•	•	•	•	•
Photoshop exchange	•	•	•	•	•	•
Improved SketchUp importer (Support for 2018 file format)	•	•				
Substance Engine Integration	•	•	•	•	•	
Updated Support of DXF, DWG, 3DS, DAE, FBX 2018, DEM, LWS, STL, VRML2, OBJ, COLLADA, Alembic 1.7, DDS	•	•	•	•	•	•*

* Import only

Note on Cinema 4D Lite:

Cinema 4D Lite makes important basic Cinema 4D functions available in [Adobe After Effects CC](#). This version is not available as a standalone product. It is installed automatically with After Effects CC and can be upgraded to a full Cinema 4D version at very attractive pricing. More information is available [here](#).