

# CINEMA 4D RELEASE 21 COMPLETE FEATURE LIST

## General

### Customer Journey

- Only one version of Cinema 4D:
  - No more Prime / Visualize / Broadcast / Studio / BodyPaint editions.
  - All functionality is in the one version, no separate editions anymore.
  - Demo and Educational versions are no longer separate downloads.
  - Demo and Educational can be upgraded to a commercial version.
- New Licensing Solutions
  - MyMaxon Account:
    - Allows Sign In / Sign Out - entitlement can be moved between devices.
    - When creating a MyMaxon account, a 14-day trial license is automatically created.
    - Real-time licensing, buy and use immediately
    - Remote license retrieval - release a license remotely via your MyMaxon web portal.
  - New Maxon License Server:
    - Runs as service on Windows and daemon on OSX/Linux.
    - Web-browser interface.
    - Different Maxon Accounts can pool their licenses on a single server.
    - Greater control over license for client and server.
    - Graphical view of license use, current and past.
    - Detailed license view of ownership and validity.
    - Extended log and info messaging.
  - RLM Licensing:
    - Greater flexibility in license selection.
- Improved Installation:
  - Online installer - faster, hassle-free installation.
  - Offline installer - small download, more languages supported, faster installation.

### Exchange

- Merge Scenes on Drag-and-Drop.
- Show Import/Export Dialog Preference (option to show / suppress dialog by default - alt-click inverts default behavior).
- File selector now appears after export settings (rather than before).
- Updated CAD format support:
  - New, Improved support for Solidworks, STEP, Catia, IGES, JT formats.
  - Option to import instances as Regular or Render Instances.
  - Import hidden objects with "\_hidden" name suffix.

## Modeling

- Caps and Bevels:
  - Improved constrained / internal bevels via Straight Skeleton Algorithm.
  - User-defined Bevel Shape via Spline UI.
  - Option to Link Start/End Caps.
  - Delaunay Cap Skinning.
  - Library of Bevel Presets.
  - Additional and more obvious automatic selection sets for Shell, Edges.
  - Caps and bevels are always created as a single object.
- Volume Builder and Volume Mesher:
  - Vector Volumes.
  - Improved UI for Volume Filters.
  - Cache Layer.
  - Spline UI to define scale along spline.
  - Curvature Vertex Map on Volume Mesher.
- Modeling Core:
  - Dramatic Speedup in migrated commands including Extrude, Extrude Inner, Split, Polygon Group to Object.
  - Migrated Tools (Point Extrude, Weld) preserve surface attributes like UVs and Vertex Colors.
  - Copy / Paste Components (points and polygons).
  - Primitive Caps (Cone, Cylinder, Capsule, Oil Tank, Torus, Tube and Figure) are now welded.
  - Landscape object pivot remains at the bottom of the generated object.
  - Improved Grow Selection command.
  - Improved performance of Isoparm Display.
  - Region-based selections support backface culling.
- UV Editor Enhancements:
  - Migrated Texture View to OpenGL:
    - Supports Anti-Aliased display of UV lines.
    - Improved redraw Speed.
    - UV Component highlighting.
  - UV Transform Gizmo.
  - UV Ruler display.
  - Quantized UV transformations.
  - Snapping support for UV points and edges.
  - Viewport selection automatically updates UV component selection.
- Connect Objects + Delete now sets the axis to the bounding box center of selected objects (Alt sets to the last selected parent).

## Materials and Rendering

- Denoiser (Intel Open Image Denoiser)
  - Albedo Pass
- Node Interface Improvements
  - Node Spaces and 3rd-Party API
  - Interactive Drag and Drop (Ctrl-Drag to Copy Nodes)
  - Rearrange Node Ports
  - I/O Nodes
  - Edit Asset mode
  - Asset protection
- Physical Render Nodes
  - Custom AOVs (Multi-Pass)
  - Line node
  - Spline Mapper node
  - Multi-Trace Ray node
  - Cells Node
  - 2D Nodes
    - Average Area
    - 2D Blur
    - Cache
    - Kernel
  - Get Context Node outputs vertex positions of sampled polygon
- ProRender
  - Node Material support
  - Volume Rendering
  - HDRI Out of Core
  - Camera animation included in Linear Motion Blur
  - New Diffuse, Direct Illumination and Wireframe Render Modes
  - New Multipasses:
    - Ambient Occlusion
    - Direct Illumination
    - Indirect Illumination
    - Direct Reflection
    - Indirect Reflection
    - Indirect Diffuse
    - Refraction
    - Volume
    - Albedo
- Interactive Tone Mapping via Picture Viewer Filter Tab
- Render Queue - Option to disable auto-renaming

## Workflow/UI

- Interface Enhancements:
  - Support for HiDPI monitors on Windows.
  - HiDPI Viewport on Windows, Retina Viewport on macOS.
  - Improved Interface Speed (especially in Timeline).
  - Modernized Light and Dark schemes.
  - Improved menus and minor adjustments to Default layout.
  - macOS Menu Bar support.
  - macOS Dark Scheme support
  - Reset Scheme Colors option.
  - New Shortcuts:
    - Save Incremental: Ctrl+Alt+S
    - Texture View Fit to Screen: H
    - UV Transform: Ctrl+T
    - Normal Scale: M~-
    - Melt: Alt+Backspace
    - Dissolve: Ctrl+Backspace
  - Improved Default values
  - Improved OLE-based Drag and Drop file exchange
- Project Asset Inspector:
  - Supports Images, Videos, Sound files, External files, IES Lights, GI Cache, MoGraph Cache, Substances, Volumes.
  - Supports Objects, Tags, Viewports, Render Effects, Materials and Shaders.
  - Consolidate command collects all assets associated with the project.
  - Group by Asset Name, Type, Element Type, Layer, Take, Node Space, Format.
  - Info Area displays information about selected asset.
- Quickstart dialog
- Enhanced Splash Screen
- Default Material preference (choose which material type is created when double-clicking in the Material Manager).
- Asset Linking preference (always copy textures, always use absolute path).
- Color Chooser enhancements:
  - Swap Colors
  - Swatches in Color Chip Context Menu
  - Color Swatches palette can be resized
- Spline UI enhancements:
  - Double - Scale and copy existing curve
  - Symmetrize - Scale and mirror existing curve
- Commander now remembers last input
- Custom, colorizable object and tag icons
- User Data tag
- User Data Manager - save and load presets
- Attribute Manager now indicates when selected object count exceeds AM Edit limit.
- OS-specific Feature Highlighting

## MoGraph and Animation

- Field Force object:
  - Dynamics and Particle Advection (influence the velocity of particles and dynamic objects with Fields).
- Field Interface enhancements:
  - Sub-fields appear as children in field list.
  - Fields can be used as masks for another field.
  - Channel Convert Field Layer - convert between value, color and direction.
  - Normal Tags can now be used as fields, and have a field list (for use Target Effector, Field Force, etc).
- Character Animation:
  - Improved Auto-Weighting Algorithms (Bone Glow).
  - Weighting Workflow Improvements.
  - Mixamo Control Rig.
  - Connect Objects + Delete can merge Weight tags of individual objects into a single Weight tags
- Repeat, Offset Repeat and Oscillate in Track Before / After now default to 0 / unlimited repetitions.
- Align to Spline tag values can now extend beyond the 0-100% range, allowing easy repetition and parametric animation.
- Thinking Particles support for all particle forces (via PForceObject).

## SDK

- Reorganized Extensions Menu for easier access to scripts and development tools
- New licensing tools
- Python: UserData Tag to store user data parameters
- C++: Python scripts can now be executed from within C++ code
- C++: New render\_filter.framework to implement custom render filters
- C++: AutoWeightInterface allows developers to define custom auto-weight algorithms
- C++/Python: Functions to adjust AutoWeight settings and execute AutoWeighting
- C++: New Geometry Utility functions
- C++: New function to bake a 2D representation of a BaseShader - BaseShader.BakeShaderIntoBaseBitmap()
- C++: New Flag in Material Plugin registration to allow 3rd party materials to be set as the default material
- C++: New Color Utility functions
- C++: New Volume Utility functions
- C++: New Debug Utility function DiagnosticVarOutput()
- C++: New Utility function to create salt and hash for storing encrypted passwords
- C++: New Tension property in SplineData
- C++: GeUserArea enhanced to support line drawing via ellipse, bezier and polygon, additional line styles and opacity
- C++/Python: New flag to define the border style of Static Text in a GeDialog
- C++: Developers can now define BubbleHelp/Tooltips within TreeViews
- C++: CommandData virtual functions include a Parent manager GeDialog argument
- C++/Python: AOV multipasses can be created via RenderData.InsertMultipass()
- C++/Python: New method GetRecentDocumentList() returns the recently-opened documents
- C++/Python: New SceneFilter options for use with LoadDocument
- C++/Python: Functionality to define custom Object and Tag icons and icon colors (NodeData.Init() / MSG\_GETCUSTOMICONS)