



# Pulldownit!

## Product Sheet

## Pulldownit : Next Step in Dynamics for VFX



### What is Pulldownit?

Pulldownit is a dynamics plugin intended for destruction effects as well as massive rigid bodies simulations. By using it, digital artists are able to shatter objects in different styles, create surface cracks and simulate easily the fracture of 3D models. The power of Pulldownit solver allows computing thousands of objects in dynamics in a stable and realistic way.

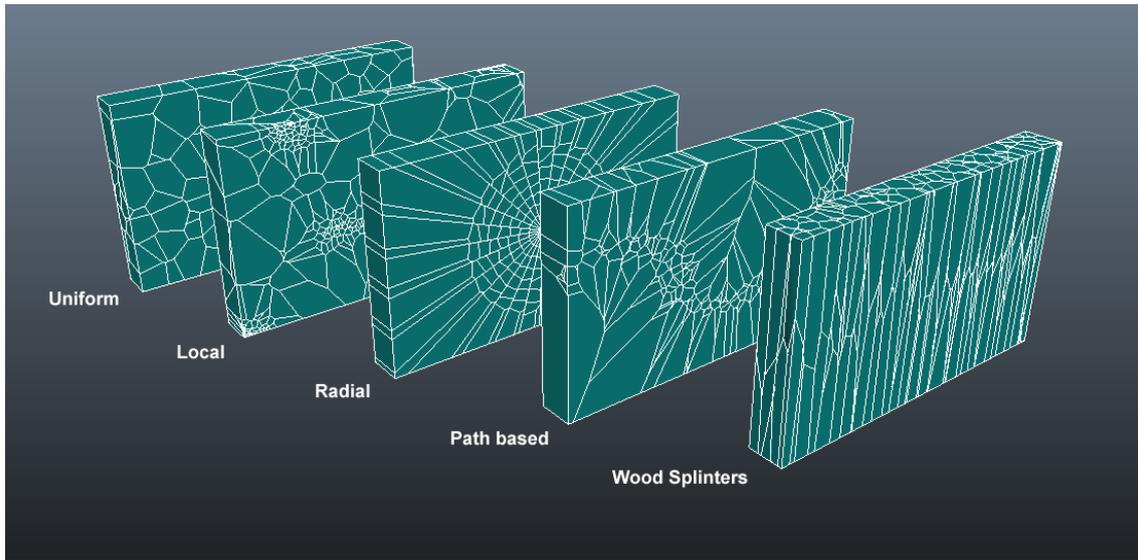
### Features

#### Shatter it!, Voronoi-based pre-cutting tool

The current pre-cutting tools in most 3D platform consist basically in clipping planes and fill holes modifiers; this could be enough for modelling purposes, but definitively quite poor for dynamics where you would like to pre-fracture an object in hundreds of shards to obtain believable results when simulating.

*Shatter It*, the Pulldownit pre-cutting tool, is designed thinking in dynamics needs; it is Voronoi-based because this scheme has showed to be the best mathematical pattern for brittle fracture, its workflow is surprisingly easy, just select a polygonal object from the viewport, input the

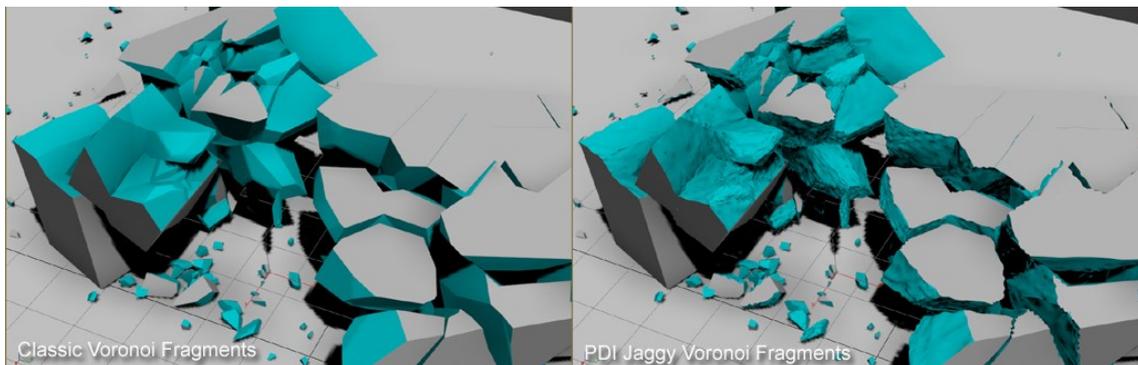
desired number of fragments and hit *Shatter It* button, concavity or holes are not an issue anymore; Its technology is able to pre-fracture a high resolution model with fine detail in seconds. In addition, UV mapping is also supported.



Shatter It! introduces different cutting styles, **Uniform**, **Local**, **Path based**, **Radial** and **Wood Splinters**. **Radial** style generates a perfect pattern for breaking-glass-like effects, **Path-based** style allows for the creation of long dynamics cracks and **Local** style for creating localized damage on corners and surfaces, besides with **Conform Voronoi Reshattering** user is no longer constrained when reshattering a model, any shatter pattern can be added to the current set of fragments seamlessly, in addition conform reshattering reduce the number of straight edges in the shatter pattern, hence improving the quality of the fragments generated.



In addition the exclusive **Pdi Jagginess deformer** allows to modify the surface of the fragments, converting flat geometry into rough faces and twisted edges, getting a high-realistic look for stucco, stone or concrete materials.



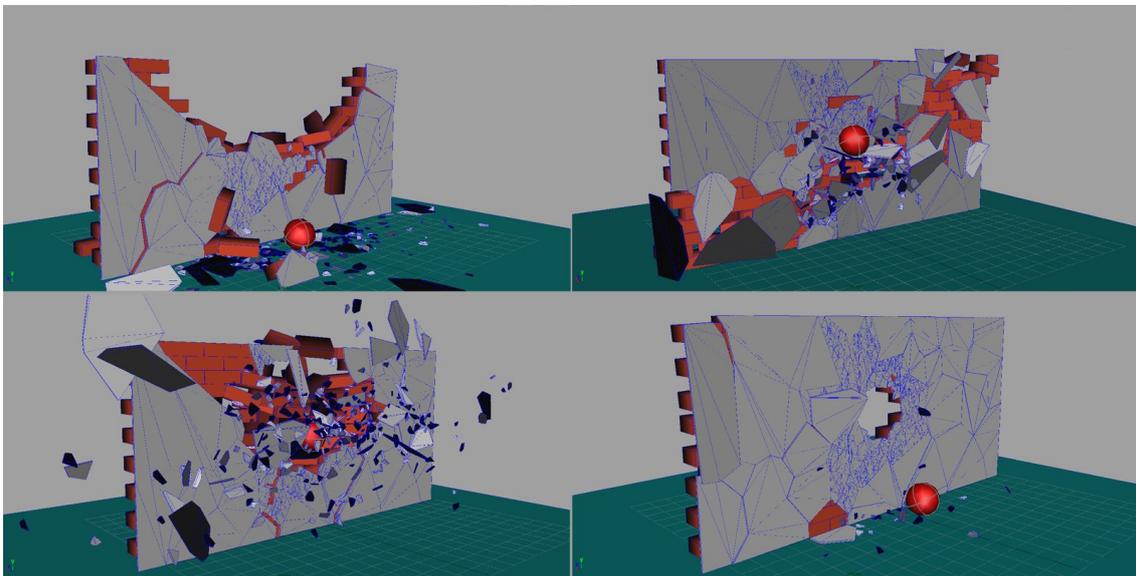
Although *Shatter It* tool can be used independently of the rest of the plug-in, Its mayor advantages comes when simulating the prefractured object with the Pulldownit solver; the shards created plug easily in dynamics, also knowing Voronoi scheme generates mostly convex shards, Pdi takes advantage of this fact to speed up the computation of fracture.

## Built-in rigid bodies and fracture solver

The rigid body solver inside Pulldownit is designed to handle **massive simulations**, that means thousands of objects in contact. Speed is the first requirement for such a goal; we have improved over the fastest methods in the literature for both mesh and convex detection, Pdi solver computes in real time for scenes made up to 200 objects and take only minutes to simulate thousands of contacts. In addition Pdi plug-in counts with group tools allowing to set up and manage big scenes.

Pulldownit makes possible to crack any kind of brittle material as stone, glass or stucco. The set up is very easy, use *Shatter it* tool to prefracture your object or just build a structure by blocks or pieces of any shape, select all of them as a fracture object and hit play, this procedure also makes the setting of texture coordinates easier. Once in simulation Pdi solver will compute all the stress forces that create cracks and finally makes the objects collapse. Fracture objects can be static as a building or dynamic as a meteor, you can create as many fracture objects as you want, and make them impact each other.

Control is always an issue in dynamics simulation, in this sense the powerful stress tools of Pdi plug-in, allows to define the start of the cracks and the way of propagation just by setting fracture frames, in which the crack will begin, and visually select regions of the object with different hardness. **Interaction with force fields like wind, vortex, and so on is also supported.**



*Achieving different results by tweaking fracture parameters for the same set.*

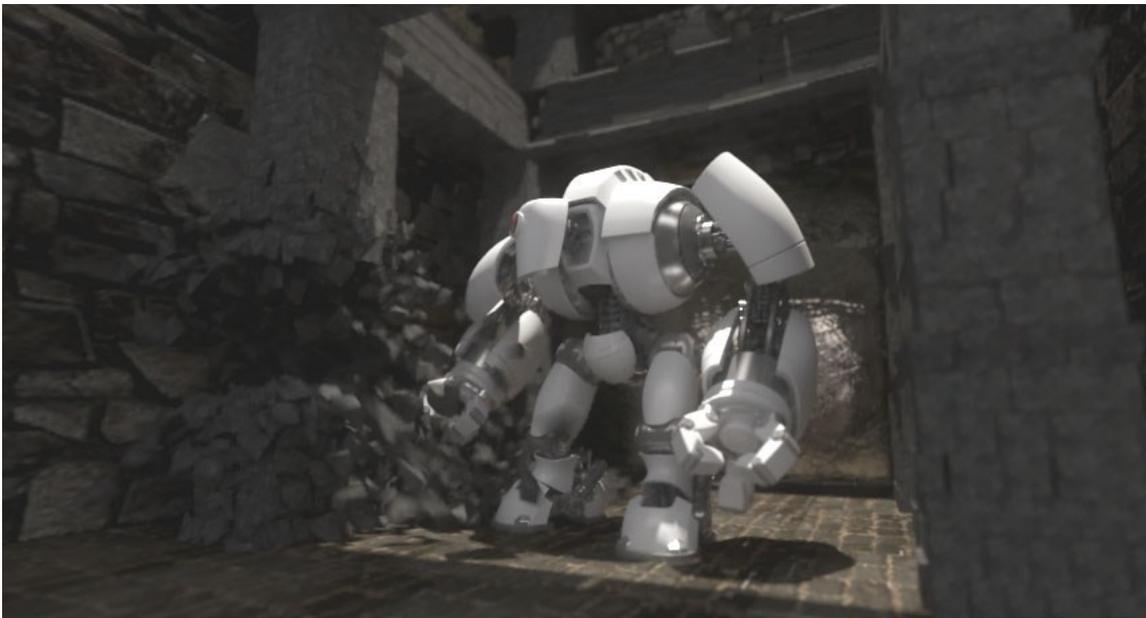
## Animators friendly

We realize that dynamics for VFX is just a necessary step to animation keys that are extremely difficult to obtain by hand. Many times we have wondered why usually dynamics solvers

demand hard constraints in the way simulations must be set, forcing animators to modify their scenes in an awkward fashion that lead to collateral issues. Being aware of this, our aim is to fit in the animator's workflow never the opposite. Pulldownit takes the geometry from the viewports "as-is", special care has been taken with parenting relationships, mesh modifiers and pivot offsets as we know they all are frequent source of problems. **Pdi computes the final result as standard animation keys** for much ease to process or export later.

The natural unpredictability of dynamics simulation makes necessary to play with the parameters back and forward until reaching the desired result, Pulldownit not only allows to reset simulation an start again as many as needed but also pause it at any frame, tweaking parameters and resume computing. Force fields as wind, turbulence, attractors or custom fields are supported and interact with pdi objects seamlessly.

Finally as it is usual to have scenes in which animated characters interacts with their environment in a physically believable way, Pulldownit allows dynamic response between key framed objects or deform meshes and the simulated ones.



*Animated character destroys a column in dynamics.*

## Licensing

The software can be licensed as node-locked or floating licenses to be used in network environments or connecting to a remote server. The license agreement includes support, fixes and updates during one year. Optionally customers can profit of custom development and simulation services.

<b>PullDownit features</b>	<b>Profesional</b>
Hard bodies dynamics	✓
Massive rbd tools	✓
Keyframed objects collision	✓
Animated meshes collision	✓
Basic fractures	✓
Advanced fractures	✓
force fields	✓
Shatter it!	✓
support	✓
fixes and updates	✓

## Technical Specifications

Operating systems:



Microsoft Windows 64 bits all versions (win 8, win 10, win 11).



Apple MAC OS X 10.11 or later

Platforms: Autodesk 3D Studio Max, Autodesk Maya.

