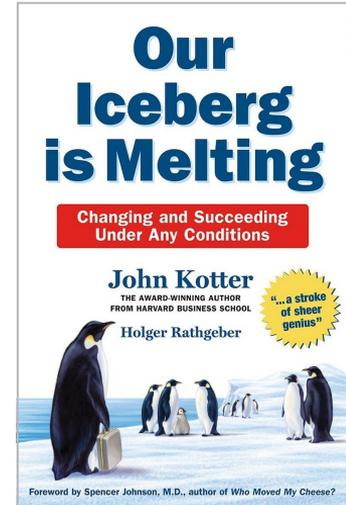


Blender Projects

Geometry Nodes and the Melting Iceberg

The Eight Step Process of Successful Change

1. Create a Sense of Urgency
2. Pull Together the Guiding Team
3. Develop the Change Vision and Strategy
4. Communicate for Understanding and Buy In
5. Empower Others to Act
6. Produce Short-Term Wins
7. Don't Let Up
8. Create a New Culture



1. Create a Sense of Urgency

- Everything nodes development on hold!
- Workshop in September 2020



Online-Ticket Bitte auf A4 ausdrucken 

 IC/EC Fahrkarte	STORNO ABSCHLIESSEN	1 Erwachsener
CIV 1080 Super Sparpreis EU	GILT NUR FÜR EINERKÄSSE SÜDS	
Reisezeit: ab 30.08.2020 - 31.08.2020		WY - BAUFREIWECHSELN VOR/NACH FORTWECHSELSTADT
VON Hennigsdorf (b Bin)	->NACH	2
Hennigsdorf (b Bin) ->Amsterdam C.		DEMIK14
VIA: <1080>(30.08.2020)NV*B-Spand 10:51 IC146*Bad Bentheim(Gr)<1184>IC*Hengelo		
Super Sparpreis EU		
1 BC 25		

Positionen	Preis	MwSt (D) 16%	MwSt (D) 9%
IC/EC Fahrkarte	32,55€	21,35€	1,05€
Reservierung	4,00€		
Summe	36,55€	21,35€	1,05€

Kreditkartenzahlung
 Betrag: 36,55 € | VISA Nr.: 4566895619 | Transaktions-Nr.: 830007
 Datum: 28.07.2020 | Gen-Nr.: 104203

Der Auftrag 4UBQMA besteht aus mehreren Online-Tickets. Die Angaben zur Zahlung erfüllen die Preise aller Online-Tickets zu dieser Auftragsnummer.
 Ihre Kreditkarte wurde mit dem oben genannten Betrag belastet. Die Buchung Ihres Online-Tickets erfolgte am 28.07.2020 18:42 Uhr. DB Fernverkehr AG/DB Regio AG, Stephaniestr. 1, 60526 Frankfurt, Steuernummer: 28/001/80002

Ihre Reiseverbindung und Reservierung Hinfahrt am 30.08.2020

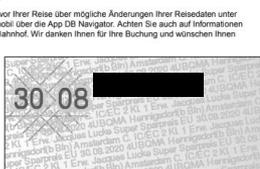
Halt	Datum	Zeit	Gleis	Produkte/Reservierung
Hennigsdorf (b Berlin)	30.08.	ab 10:10	1	RE 3625
Berlin-Spandau	30.08.	an 10:26	5	
Berlin-Spandau	30.08.	ab 10:51	4	IC 146, 1 Sitzplatz, Wg 9, Pl. 102,
Amsterdam Centraal	30.08.	an 17:00	15b	1 Fenster, Großraum, Nichtraucher, Res.Nr. 9082 0009 3329 86

Wichtige Nutzungshinweise:

- Ihre Fahrkarte gilt nur zusammen mit einem amtlichen Lichtbildausweis (z.B. Personalausweis, Reisepass, elektronischen Aufenthaltstitel, BiMA). Bei Fahrkarten mit BahnCard-Rabatt zeigen Sie bitte zusätzlich Ihre gültige BahnCard vor.
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- Es gelten die nationalen und internationalen Beförderungsbedingungen der DB AG. Innerhalb von Verkehrsverbänden und Tarifgemeinschaften gelten deren Bedingungen. Alle Bedingungen finden Sie unter: www.bahn.de/agb und www.diebfahrer.de.

Ihre Reisezeiten können sich kurzfristig durch Bauarbeiten oder andere erfordert die Fahrplanpassagen ändern.

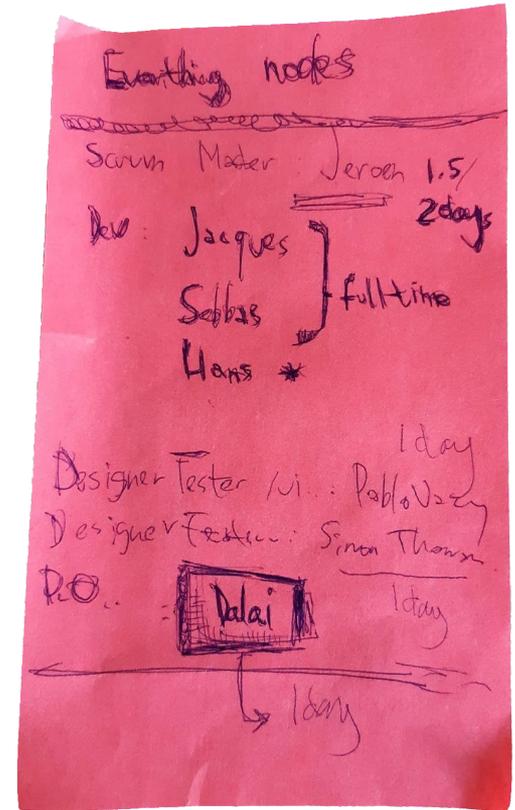
Bitte informieren Sie sich kurz vor Ihrer Reise über mögliche Änderungen Ihrer Reisezeiten unter www.bahn.de/en/plan oder mobil über die App DB Navigator. Achten Sie auch auf Informationen und Anzeigen im Zug und am Bahnhof. Wir danken Ihnen für Ihre Buchung und wünschen Ihnen eine angenehme Reise!

 **Barcode bitte nicht inkassieren!**



2. Pull Together the Guiding Team

- **Lead Developer:** Jacques Lucke
 - **Developers:** Hans Goudey, Sebastian
 - **Product Owner/Manager:** Dalai Felinto
 - **Designer Tester/UI:** Pablo Vazquez
 - **Designer Features:** Simon Thommes
 - **Scrum Master/Senior Developer:** Jeroen Bakker
-
- **Stakeholders:** Ton Roosendaal, Brecht Van Lommel



3. Develop the Change Vision and Strategy

- What would the studio love/need the most?
- Set dressing
- “Customer Need Pivot”



<p>User Story-ish</p> <p>Andy All-around artist, did VFX with Blender for the most recent open movies:</p> <ul style="list-style-type: none">• Sheep hair for Cosmos Laundromat• Breath puffing for Spring• Monolith sparkling in Spring <p>He is mostly excited about static particle scattering:</p> <ul style="list-style-type: none">• Grass• Branches• Trees• Leaves• Plants	<p>Limitations of current (scattering) system:</p> <ul style="list-style-type: none">• Objects have to be rotated 90 degrees, which makes it hard to add procedural movement on top of it<ul style="list-style-type: none">• rotating leaves• waving grasses• There is no way of fine tuning individual elements	<p>For hair he uses all but the smooth tools. One thing that would be a life changer would be a volume brush, as oppose to the existing projection brush.</p>
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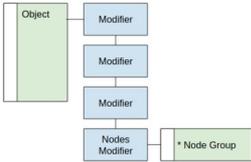


4. Communicate for Understanding and Buy In

Modifier Nodes [🔗](#)

Geometry Nodes Modifier [🔗](#)

The "Geometry Nodes Modifier", or "Nodes Modifier" for short, is a modifier to handle more complex behavior. Its logic is built with a node group owned by the modifier. The geometry node group which can be used by multiple modifiers on different objects, or shared for different projects, just like a shader node group. High level settings are exposed in the modifier stack.



Any of the existing modifiers can be ported to nodes, though they may need small adjustments in a per-case basis.

Geometry Node Editor

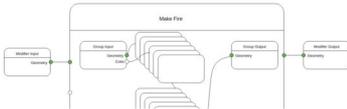
The modifier's node group is edited in the node editor. The editor is context sensitive, showing the modifier node group of the active modifier of the active object.

High Level Abstraction [🔗](#)

Modifiers are black boxes with geometry as the main input and output. External dependencies are possible on ID level. Users should be able to use the system in a high level. More general nodes contain several lower level building block nodes, with certain parameters exposed.



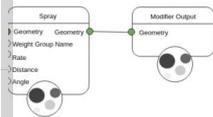
The building blocks of the system are kept inside the main node groups, abstracted away but tweak-able for advanced usage. Properties connected to the node group input are exposed in the modifier stack.



a clear flow of data. This means that each node only, then passes the resulting data to its output

ss around multiple types of data

esh objects can be passed around in the system. It is possible for the system to handle implicit settings required in some cases. Often, the modifier takes input and output geometry types. For example, a nozzle as input, and outputs foam particles. output.)



Geometry Types? [🔗](#)

Why one socket is used for all geometry data and another socket type. There are arguments in both directions. A socket makes much more sense.

Why one socket is working with at any point, and another is displayed visually.

Otherwise we might need socket types for mesh, point clouds, hair, grease pencil).

Handle different geometry types (e.g. Transform). Those

Nodes Modifier Part I: Sprites

NOVEMBER 9TH, 2020 BRANCHES, CODE DESIGN, GENERAL DEVELOPMENT, GENERAL UPDATES DALAJ FEILINTO

This initial milestone of the *Everything Nodes Project* will focus on the features that can be used by the Blender Studio. Now that the *Sprite Fright* short film has been officially announced, the use cases can finally be discussed publicly.

The *Everything Nodes Project* was started in 2019 with the *Particles Nodes Project*. The focus at the time was dynamic particles simulation. Around August it was decided to put the project on hold to make sure the design was on point. This was followed by a *particle workshop* in September where the groundwork for the design was laid.

Moving forward, the focus shifted to tangible use cases that could be validated in production. The priority then shifted to work on geometry nodes, more specifically particle scattering for set dressing. Those were the features the Blender Studio artists were looking forward to the most.

Design

The geometry nodes follow the design of the particle system projects, but its focus is more narrow, and it addresses only static particles.

The underlying design is still the same as for the particle system, with a well-defined integration in the modifier stack as well as a clear data flow.

The modifier's input and output are directly connected to the non-node-based modifiers. It also contains a node group that can be shared across different objects and Blender files.



Sprints and Agile

The team is working in a squad following the *Scrum* methodology. The project has two-week periods (sprints) where the team aims to achieve tangible results.

The initial sprint, October 19 to 30, was a mix of preparing the ground work as well as organizing the backlog for the upcoming sprints.

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Nodes and the Stone

The *everything nodes project* is incorporated in the upcoming

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Geometry Nodes [🔗](#)

Other Topics User Feedback

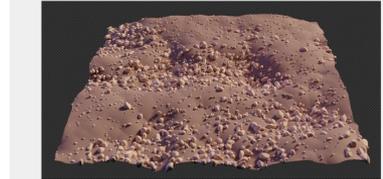
dfeilinto

The nodes modifier project is the first part of the *Everything Nodes Project*, and it has officially started in October 2020. You can read more about it in the development blog.

Nov 2020

1 538

Nov 2020



The initial focus of the team is to support the features required by the *Sprite Fright* project. That said I would love to see what the community can do with it as well. Feel free to use this space for that.

Feedback on the state of the tools is welcome. Be aware that the team is not equipped to handle feature requests though.

To test you can build the *geometry-nodes* branch yourself. Or download the latest official build (updated every row and then). Or check what has already landed in master.

What is ready for testing:

- Particle scattering
- Grass and flowers

Sprites:

- 1
- 2
- 3
- 4
- 5
- 6

Documentation:

- User manual
- Design

Disclaimer: Remember to keep this topic Blender-only. Posts mentioning or sharing features from other software will be deleted.

27

Contributing to the Geometry Nodes project

7 December 2020

created last commit 537 16.8k 73 1.0k 50

Nov 20 30 highlights views users stars

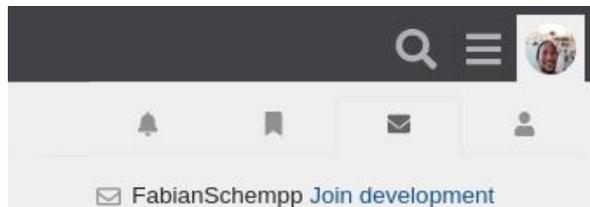
Frequent posters



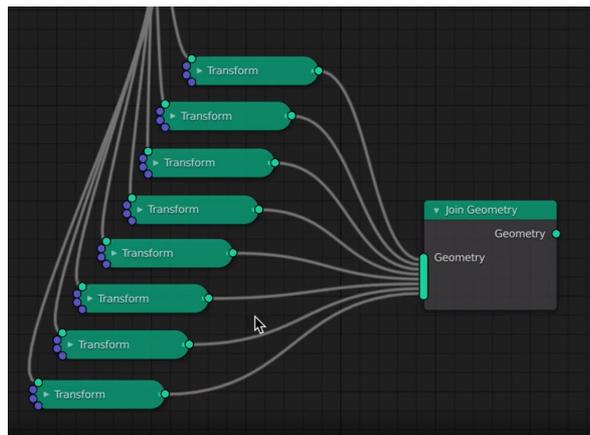
Files are also available in the

Project page. For more details on the working process check the recent post

5. Empower Others to Act



Contributor reaching out to be involved in the project.



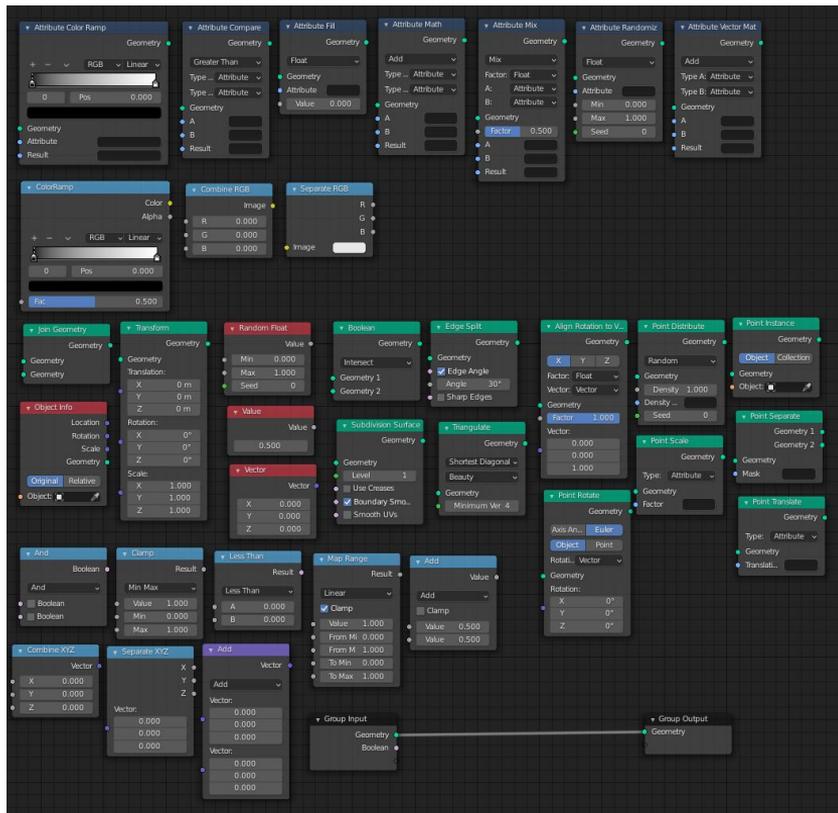
Multi Input Sockets patch by Fabian Schempp

A screenshot of the Blender Geometry Nodes Code Review page. The page title is 'Geometry Nodes' and the subtitle is 'Code Review'. Below the title, there is a section for 'Geometry Nodes' with a 'View All' button. The main content is a list of patches, each with a unique ID, title, reviewer information, and date. The patches are listed in a table format with alternating row colors.

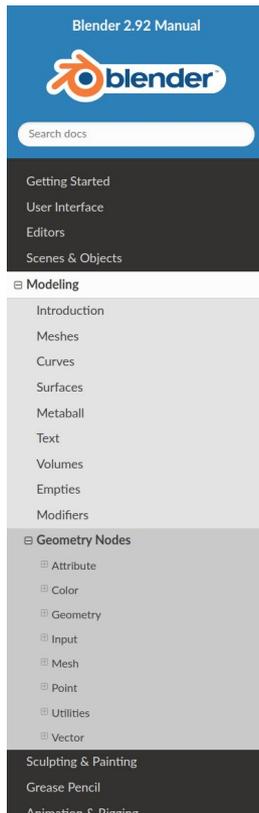
Patch ID	Title	Reviewers	Author	Date
D10154	Geometry Nodes: add Attribute Proximity node	Hans Goudey (HooglyBoogly)	Victor-Louis De G...	Tue, Jan 26, 5:05 PM
D10067	Geometry Nodes: Multi Input Sockets	Hans Goudey (HooglyBoogly), Jacques Lucke (JacquesLucke)	Fabian Schempp (f...	Mon, Jan 25, 11:15 AM
D10190	Geometry Nodes: Point Primitive Node	No Reviewers	Fabian Schempp (f...	Mon, Jan 25, 10:59 AM
D9964	Geometry Nodes: Plane Primitive Node	Hans Goudey (HooglyBoogly)	Fabian Schempp (f...	Mon, Jan 25, 1:16 AM
D10069	Geometry Nodes: Changes Join Geometry Node to use Multi Input Sockets	No Reviewers	Fabian Schempp (f...	Sat, Jan 23, 1:45 AM
D10129	Geometry Nodes: Preselection highlighting for gesture based link picking for Multi Input Sockets.	Julian Eisel (Severin), Hans Goudey (HooglyBoogly)	Fabian Schempp (f...	Sat, Jan 23, 1:43 AM
D10070	Geometry Nodes: New shader for Multi Input Socket drawing	No Reviewers	Fabian Schempp (f...	Tue, Jan 19, 12:36 AM
D10107	Fix T846224: Extra user for geometry nodes data-blocks	Jacques Lucke (JacquesLucke), Hans Goudey (HooglyBoogly)	Fabian Schempp (f...	Mon, Jan 18, 11:32 PM
D9743	Geometry Nodes: Array	Geometry Nodes	Erik Abrahamsson...	Sat, Jan 16, 11:03 AM
D10097	Geometry Nodes: Add rotation orders in the Transform Node	No Reviewers	Léo Depoix (Pilo...	Tue, Jan 12, 7:07 PM

Patches contributions by multiple community members

6. Produce Short-Term Wins



All the nodes that will be part of 2.92.

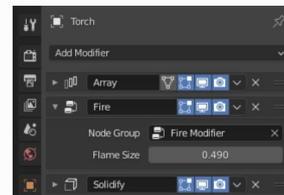


Documentation of the nodes.

Modeling > Geometry Nodes

Geometry Nodes

Nodes can be used to change an object's geometry in a more complex way than regular modifiers. To use them add a Geometry Nodes Modifier.



The properties of a Geometry Nodes modifier in the modifier stack.

Attribute

- Attribute Compare
- Attribute Fill
- Attribute Math
- Attribute Mix
- Attribute Vector Math
- Attribute Randomize
- Attribute Color Ramp

Color

- Color Ramp Node
- Combine RGB

6. Produce Short-Term Wins

 **Faaaaarck!** @faaaaarck · Jan 23 ...
#b3d #geometrynodes #crowdsim - Performance is really good - frame took 1 minute to render. Fireflies have to go... some armatures rotate slightly "uncanny", i animated things in the geometrynode-tree. overall i am happy. Lets get some more random people.#cgi #history #Salute



0:08 5K views 3 26 250

Early work by the community.



Show this thread

 **eric schubert** @3d_eric · Dec 30, 2020 ...
Could not find a way to get the attribute color ramp of #geometryNodes in the shader. But random colors per object work on the instances. I just mapped these to a gradient ramp.



1 1 1 1

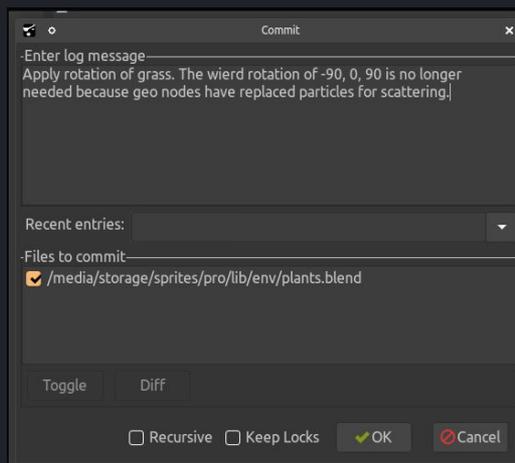
Show this thread



6. Produce Short-Term Wins

Andy Goralczyk 25 January 2021

(...) I also switched the leaf setup on the bushes from particles to geo nodes 

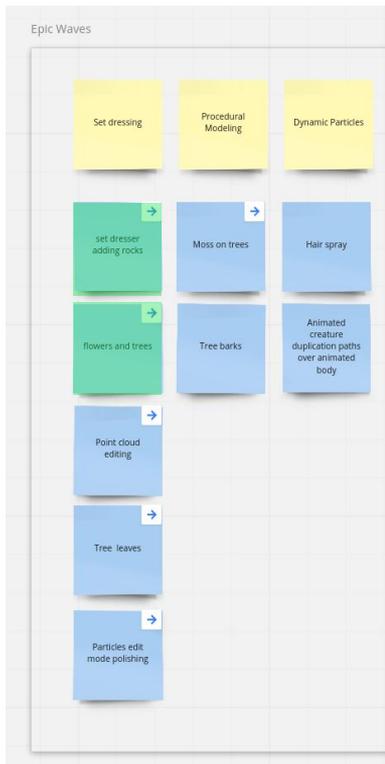


Make no mistake, this is huge! (...)



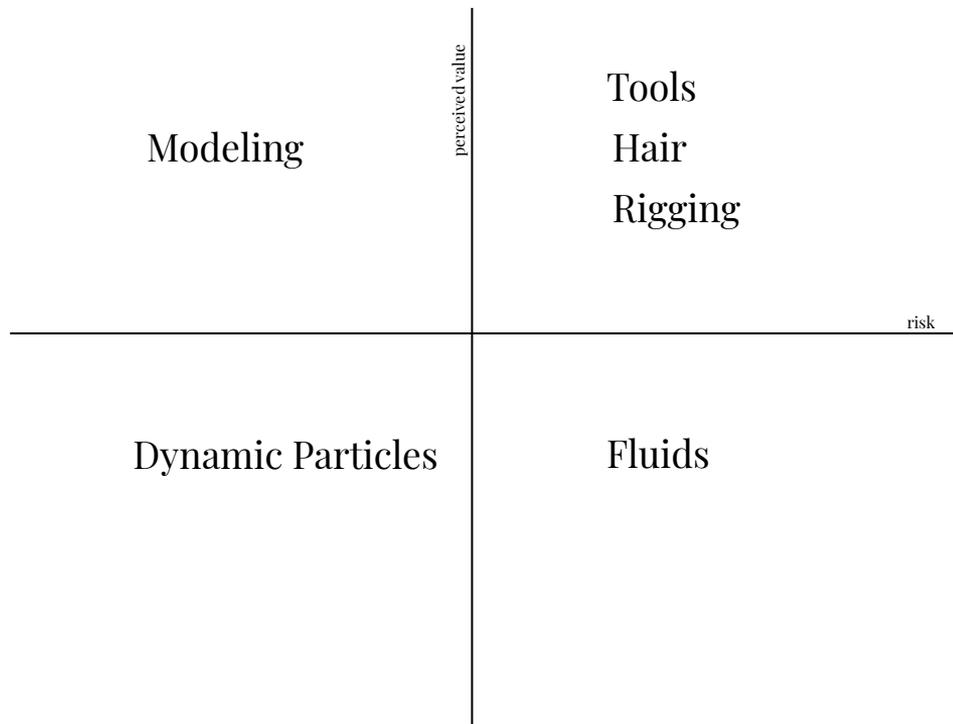
Sprite Fright production repository log.

7. Don't Let Up



- Polishing
 - Instance objects
 - Modifiers integration
 - ...
- “Debugging”
 - Spreadsheet
 - Socket inspector
 - Viewport overlay
 - Mesh preview
- Studio core requirements
 - Moss on trees
 - Tree leaves
 - Viewport/render quality
- User interface
 - Node Groups and Layers
 - Attribute search
- Everything nodes design
- ¿Attribute painting?

7. Don't Let Up



8. ~~Create a New Culture~~ What We Learned

- Close collaboration between designers, engineers and users
- Robust demos for testing and also validation
- Communication and quick iteration cycles saves time
- Design can easily become the bottleneck
- Focus and shared priorities are essential for team work
- Product over process - improvise, cut sprints short, ...
- Overcoming distance with collaboration tools

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8. Create a New Culture

1. Define the problem and set the time
2. Assemble a complete team
3. Solve the design first
4. Document and communicate
5. Community involvement
6. Build incrementally / use cases
7. Polishing and wrap up
8. Project retrospective

Thank you

The Eight Step Process of Successful Change

Set the Stage

1. Create a Sense of Urgency.
Help others see the need for change and the importance of acting immediately.
2. Pull Together the Guiding Team.
Make sure there is a powerful group guiding the change—one with leadership skills, credibility, communications ability, authority, analytical skills, and a sense of urgency.

Decide What to Do

3. Develop the Change Vision and Strategy.
Clarify how the future will be different from the past, and how you can make that future a reality.

EIGHT-STEP PROCESS OF SUCCESSFUL CHANGE

Make it Happen

4. Communicate for Understanding and Buy In.
Make sure as many others as possible understand and accept the vision and the strategy.
5. Empower Others to Act.
Remove as many barriers as possible so that those who want to make the vision a reality can do so.
6. Produce Short-Term Wins.
Create some visible, unambiguous successes as soon as possible.
7. Don't Let Up.
Press harder and faster after the first successes. Be relentless with initiating change after change until the vision is a reality.

Make It Stick

8. Create a New Culture.
Hold on to the new ways of behaving, and make sure they succeed, until they become strong enough to replace old traditions.

THE EIGHT-STEP PROCESS OF SUCCESSFUL CHANGE | 131