

[WIP] Kerbal Joint Reinforcement - Next

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By Rudolf Meier, April 26 in Add-on Development

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Rocket Scientist



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Posted April 26 (edited)

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Kerbal Joint Reinforcement - Next

Finally a new version of Kerbal Joint Reinforcement is available. It is not just an update to the classic Kerbal Joint Reinforcement or a continuation. The code has been rewritten in major parts.

The main goals were

for users

- To improve the performance. First: Inside the mod itself. It acts quicker and executes all the tasks faster. Second: In the game. It tries to build less needless joints. This improves the the performance of your game and should provide better and more stable results.
- To be more stable. To do that the mod does now build the extra joints in a completely new way. Instead of just building a joint and try to keep everything in place as it is right now, it builds the joints according to the original construction plans of the ship and tries to keep the parts not "where they are now" but "where the should be".

for modders

- Additionally it offers a debug version with a tool to make all joints visible. This helps in finding problems with either the ship construction or a variety of bugs (like the undocking bug, some procedural fairing anomalies and autostrut problems).
- Modders can make their mod compatible with KJRn by simply following the steps described later. KJRn doesn't have to know the mod in advance.

Debug Version

There is a debug version available. It contains an additional gui to control KJRn and to show all the joints in the scene.

How To Get It

this mod is CKAN Indexed (only release versions)

Download: <https://github.com/meirumeiru/Kerbal-Joint-Reinforcement/releases>

Source: <https://github.com/meirumeiru/Kerbal-Joint-Reinforcement>

License: GPL-3.0

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Info For Developers

➤ **Reveal hidden contents**

Edited June 14 by Rudolf Meier



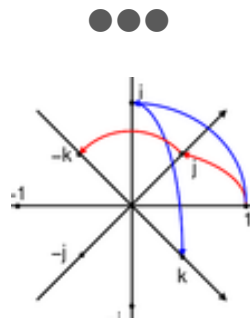
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You, DylanSemrau, Stone Blue and 1 other like this



peteletroll

Bottle Rocketeer



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Posted April 26

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Could you add the ModuleDockRotate and ModuleNodeRotate exemptions to your config.xml? They both extend ModuleBaseRotate, so if the exemption logic handles extensions you just have to add ModuleBaseRotate.

I know I can file a pull request, but I've been coding all the afternoon... 🤖



Quote

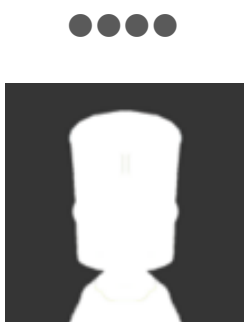
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Rudolf Meier

Rocket Scientist



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On 4/26/2019 at 3:26 PM, peteletroll said:



Could you add the ModuleDockRotate and ModuleNodeRotate exemptions to your config.xml? They both extend ModuleBaseRotate, so if the exemption logic handles extensions you just have to add ModuleBaseRotate.

I know I can file a pull request, but I've been coding all the afternoon... 🤖

I will post information about how this has to be done. But there will be no exceptions like those you know from early KJR versions.



Quote

peteletroll and Stone Blue like this



peteletroll

Bottle Rocketeer

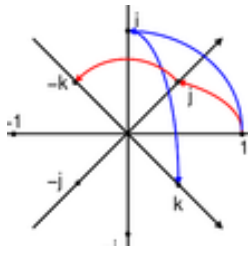


Posted May 4

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A couple very technical questions:

1) Are extra KJR joints implemented as PartJoint or



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ConfigurableJoint?

2) In the case of NodeRotate parts, the PartModule that controls the PartJoint motion, and that implements IJointLockState, can be either on the Host or Target part of the PartJoint instance. So, in this vessel structure:

```
vessel root Part <- PartJoint <- part <- PartJoint <- ... <-  
target Part <- moving PartJoint <- host Part <- PartJoint <-  
...
```

will both target Part and host Part need a IsJointUnlocked() that returns true, or one of them is enough, and which one?

... I hope I made myself clear...

... more questions...

3)

Does KerbalJointReinforcement.KJRManager.CycleAllAutoStrut() call stock Vessel.CycleAllAutoStrut(), or do I have to call it myself right before, or after?

4) Where and when exactly do I have to call AssemblyLoader.loadedAssemblies.TypeOperation()?



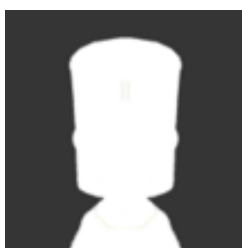
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Rudolf Meier

Rocket Scientist



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Posted May 4 (edited)

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On 5/4/2019 at 1:50 PM, peteletroll said:



1) Are extra KJR joints implemented as PartJoint or ConfigurableJoint?

ConfigurableJoint... I think the launch-clamp reinforcement uses FixedJoint at the moment. But in general it's ConfigurableJoint and I think that is what it will be always in the future.

On 5/4/2019 at 1:50 PM, peteletroll said:

2) In the case of NodeRotate parts, the PartModule that controls the PartJoint motion, and that implements IJointLockState, can be either on the Host or Target part of the PartJoint instance. So, in this vessel structure:

```
vessel root Part <- PartJoint <- part <- PartJoint <- ...  
<- target Part <- moving PartJoint <- host Part <-  
PartJoint <- ...
```

will both target Part and host Part need a IsJointUnlocked() that returns true, or one of them is enough, and which one?

um... depends.

KJRn is doing it correctly and you only need to implement it on the moving Part.

But the autostruts of KSP have a bug (<https://bugs.kerbalspaceprogram.com/issues/18356>). Sometimes you need to do more to work around it. Or, simply don't use autostruts and use KJRn.

On 5/4/2019 at 1:50 PM, peteletroll said:

3)
Does KerbalJointReinforcement.KJRManager.CycleAllIAutoStrut() call stock Vessel.CycleAllAutoStrut(), or do I have to call it myself right before, or after?

No, it does not call it. It doesn't matter if you call it before or after. I think most users won't use KJRn and autostruts together anyway.

On 5/4/2019 at 1:50 PM, peteletroll said:

4) Where and when exactly do I have to call AssemblyLoader.loadedAssemblies.TypeOperation()?

Whenever you want. You can also do it in an initialization

function (e.g. in the OnAwake).

Edited May 4 by Rudolf Meier



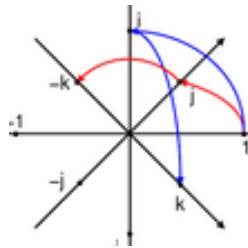
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allista and peteletroll like this



peteletroll

Bottle Rocketeer



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Posted May 4 (edited)

Report post

May I install/uninstall KJRn whenever I want without affecting my saved games?



On 5/4/2019 at 2:52 PM, Rudolf Meier said:



KJRn is doing it correctly and you only need to implement it on the moving Part.

Is the moving part the host Part or the target Part? That is, the part farther from or closer to the root Part?

(sorry for being such a nitpick...)

Edited May 4 by peteletroll



Quote



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Rudolf Meier

Rocket Scientist



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Posted May 4

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On 5/4/2019 at 2:57 PM, peteletroll said:



May I install/uninstall KJRn whenever I want without affecting my saved games?

yes



On 5/4/2019 at 2:57 PM, peteletroll said:



Is the moving part the host Part or the target Part?
That is, the part farther from or closer to the root

Part?

It's the part you are building. So, for Infernal Robotics for example it's the servo itself. If a part moves, then it moves itself. Often the static part of such constructs are just "illusions" ... like meshes that are not moved or are moved in the opposite direction so that they appear to be static.

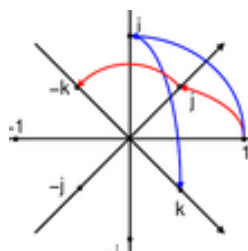


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peteletroll

Bottle Rocketeer



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On 5/4/2019 at 3:09 PM, Rudolf Meier said:



It's the part you are building.

OK, there's a basic difference between Infernal Robotics and DockRotate/NodeRotate: DR acts directly on the PartJoints between different parts. So, there's no "moving part", but there's a "moving joint between two parts". If a part's IsJointUnlocked() returns true, what are the KJRn joints that get disabled?



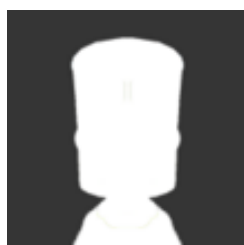
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Rudolf Meier

Rocket Scientist



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Posted May 4

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On 5/4/2019 at 3:17 PM, peteletroll said:



OK, there's a basic difference between Infernal Robotics and DockRotate/NodeRotate: DR acts directly on the PartJoints between different parts. So, there's no "moving part", but there's a "moving joint between two parts". If a part's IsJointUnlocked() returns true, what are the KJRn joints that get disabled?

KJRn is building additional joints to a part from it's children, but never from it's parent and also not between the parents and the children of such a part.

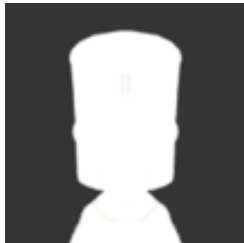
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peteletroll likes this



kcs123

Junior Rocket Scientist



Members

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2,306 posts

Posted May 7

Report post

There is one concern with upcoming DLC. It would be hard to expect that SQUAD would check for KJRn existence and make a proper function calls before/after moving parts. That would probably need to be hardcoded within KJRn, to detect stock robotic movable parts and handle joints as necesasry.

I would not recommend to re-introduce XML config file for this, it would be clumsy to maintain on the long run as it was the case with original KJR code.

+ Quote



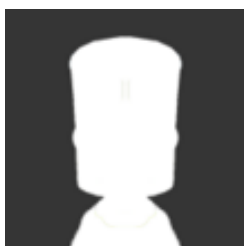
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[How to use FAR graph when you design craft ?](#) - click to

Rudolf Meier

Rocket Scientist



Members

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Posted May 7

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👇 On 5/7/2019 at 2:55 PM, kcs123 said:



There is one concern with upcoming DLC.

I'm working on solutions for that already since last year... I will show the first implementation for this soon... 🤖

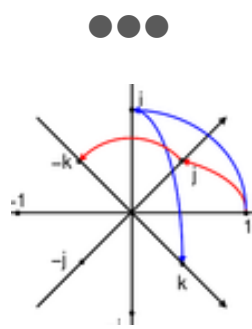
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Tyko, zer0Kerbal and kcs123 like this



peteletroll

Bottle Rocketeer



Members

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Posted May 9

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First DockRotate/KJRNext tests are successful. Expect release soon™.



Quote

You, Leandro Basi, Tyko and 1 other like this



[DockRotate](#) - Simple Stock-A-Like Robotics for Moving Stuff x ▾

Rudolf Meier

Rocket Scientist



Members

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Posted May 11 (edited)

Report post



On 5/7/2019 at 3:28 PM, Rudolf Meier said:



I'm working on solutions for that already since last year... I will show the first implementation for this soon... 🤖

the way these guys messed up the situation really rips my nerves

Edit: "these guys" -> Squad / the makers of KSP // "the situation" -> how KSP works internally

Edited May 12 by Rudolf Meier

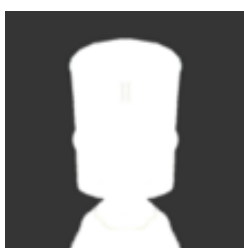


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Svm420

Bug Hunter Extraordinaire



Members

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1,987 posts

Posted May 11 (edited)

Report post



On 5/11/2019 at 7:51 PM, Rudolf Meier said:



the way these guys messed up the situation really rips my nerves

Who?

Short: I don't think so.

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Longer: I would say yes... as far as I understand the systems behind it and still remember what I read about it, I would say, that it is affecting it. But only because of the angle between the different joints. ... I guess that this can affect the solver. But just a tiny bit...

... in the end, I guess, until we have measured this, we don't know it. 🤖

And... measuring... I'm working on that, so that we get more data.

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Svm420 likes this



kcs123

Junior Rocket Scientist



Members
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2,306 posts

Posted May 12

Report post

▼ On 5/12/2019 at 7:09 AM, Rudolf Meier said:

And... measuring... I'm working on that, so that we get more data.

Speaking of data ... Does latest release include KJR autostrut visualisation, if so, how to enable it ? Stock debug menu only shows stock autostruts. Haven't encountered any issues yet, though not being playing much either.

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Rudolf Meier

Rocket Scientist



Posted May 12 (edited)

Report post

▼ On 5/12/2019 at 7:31 AM, kcs123 said:



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Speaking of data ... Does latest release include KJR autostrut visualisation, if so, how to enable it ? Stock debug menu only shows stock autostruts.
Haven't encountered any issues yet, though not being playing much either.

Yes, it does...

First you can only see the different joints, in a next version I'm planning to colorize the joints according to their instability. Like this it would be (in flight) possible to see which joint was the one that had the biggest deformation.

Edited May 12 by Rudolf Meier



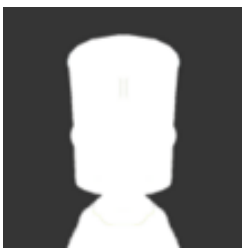
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Svm420 and kcs123 like this



Rudolf Meier

Rocket Scientist



Members

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Posted May 12

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I've uploaded the latest version... it's not yet on [CKAN](#), but for all those who want to try it, download it from Github.
The debug version is now also online.



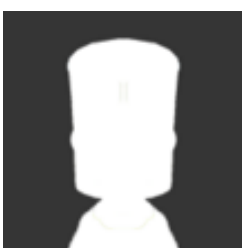
Quote

Svm420 likes this



kcs123

Junior Rocket Scientist



Members

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2,306 posts

Posted May 12

Report post



On 5/12/2019 at 7:35 AM, Rudolf Meier said:



Yes, it does...

First you can only see the different joints, in a next version I'm planning to colorize the joints according to their instability. Like this it would be (in flight) possible to see which joint was the one that had the biggest deformation.

How to enable visualisation ? Does it require some changes in config file or it is in some hidden menu ?

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Rudolf Meier

Rocket Scientist



Members

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Posted May 12

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▼ On 5/12/2019 at 9:29 AM, kcs123 said:



How to enable visualisation ? Does it require some changes in config file or it is in some hidden menu ?

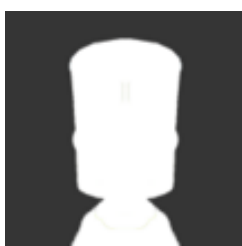
When installed, there should be a "KJR" button on the right side when in flight. (only in debug version)

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Rudolf Meier

Rocket Scientist



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Posted May 12

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hmm ... I'm not sure, but maybe the new version has a time warp problem ...

+ Quote



Rudolf Meier

Rocket Scientist

Posted May 12

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On 5/12/2019 at 10:37 AM, Rudolf Meier said:

hmm ... I'm not sure, but maybe the new version has a time warp problem ...

yes it had...

I have deleted it and re-uploaded it (same version number) ... it is better now



Quote

Svm420 likes this



Rudolf Meier

Rocket Scientist



Members

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Posted May 14

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I've uploaded 4.0.3 (almost the same as 4.0.2 except for the debug version) ... and this time it's also released on CKAN

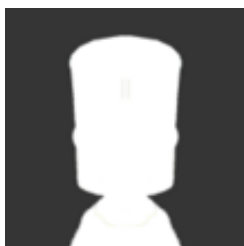


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Paadwyn

Rocketeer



Members

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Posted May 15 (edited)

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Alright, I put in the development build and tested it out.

The stutter happens on all craft. Even with the development build having all options turned off, it still stutters.

If I uninstall KJRn, the stuttering goes away. I'm wondering if it's memory related. I'm not quite full, but 10/12GB of ram being used.

I did see an error when loading a certain craft.

"Vessel SENTINEL was not loaded because it had the following parts missing: KJRAutoStrutHelper"

I've never installed Autostrut, I've got all the options currently disabled.

Which seems to happen upon exiting a vessel, not entering. It loads in the new vessel, but complains about the previous vessel not loading, but it did load.

Edited May 15 by Paadwyn

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