

v1.0.0

Full Documentation

- UI has been totally rebuilt using Unity Toolkit.
bigup to @Munix for the UITK mod (it's now a dependency)

The fonctionnality should be almost the same. I hope there won't be too much bugs.
And I will correct any regression as soon as I can in a next version.

this new UI adds some little advantages :

- it is fully resizable (use the factor in the UITK mod configuration)
I've not tested it in 4K but I'm quite confident tahts it will be far better than it was with ImGui as everything is using vector graphics
- it is no more in front of KSP2 panels and menus.
- I think it is nicer, and more ergonomic.

That was the main motivation for this new version and I know that I couldn't continue with ImGui. Even if the work to convert it to UITK has been huge (4 full months of work). And it has been a good time to refactorize the whole code.

Other little things that is new :

- Node : Experimental settings for Node Execution has been moved in an "Experimental" Foldout in the settings
- Lift : The Lift profile is now a fold out
- Lift : The planet atmosphere color is visible in the Lift Profile
- Land : The Landing Pilot have now an option to change the max angle with current speed. The previous value was 5° max and with many Vessels it was far too precise. It's now an option in the ToucDown foldout and it's default value is 30 !
- Dock :

and What is missing :

- Drone : it has not been added in this version, cause I'd like to rework the whole pilot. and I wanted to release this version the sooner. I'll propose it back in a new version
- Dock : we can't select target using UI : it will be back soon
- Staging : I've not tested it with this version and içn case of a bug I prefered to remove it temporary. It will be back soon

v0.12.3

- Rebuild with KSP v0.2.1.0

v0.12.2 - Small fixes update :

- Fix : Corrected a weird behavior in Node Execute Pilot when deleting a node during burn.
- Node ex : corrected the pause button UI.

v0.12.1

- Fix in Node Tab. in rare case the Node was not detected properly.
- Fixed an issue with staging when loading a scene during a stage change.
- Node execution
 - The game is Unpaused on Start
 - added a button to pause the game just after execution of a node.
- Lift : added a heading correction. it will try to adapt the heading depending on the current speed direction.
The final orbit should be in the proper plane !

v0.12

- AutoStaging is off by default
- fixed an issue when switching to Tracking Station (errors in logs, thanks to @munix)
- Main Settings (UI size and Mod version) is more compact (fold out)

Lift-Off

Many upgrades Here :

- Ascent : You can configure the precision of the first Main Step.
- Costing : auto Warp when waiting for the end of Atmosphere.
- Fine adjust Ap : finally adjust if needed the AP
- Pause at the end of the ascent to help customise the final Node

each feature can be toggled on/off in the settings

Flight Plan integration

- Added a link with FlightPlan Mod. Lift-Off can be ended with a final Circularize Node. Thanks to @schlosrat

I've added buttons at the end of Lift-Off to create adjust the final Node.

- 30 s : create a node in 30s. Can be useful if the orbit is very vertical.
Ap : create a node at AP. For clear orbit

Unfortunately I've not yet succeeded in creating and executing a really precise final node for the moment.
I'll try to enhance this in future releases.

I've also met in various situation errors when creating nodes. that's why the final state of orbit is not fully automated. please check the created node before executing it.

- added Circularize buttons in the node manager when there is no current node

API

added functions to disable pilots from another mod. it can be used to adjust available nodes in the exploration mode.

here is the full api available in the K2D2_Plugin :

```
public bool isPilotEnabled(string pilotName)
public void EnableAllPilots(bool enabled)
public void EnablePilot(string pilotName, bool enabled)
public List<string> GetPilotsNames()
```

v0.11.2

- Correction of the Staging tool : working with asparagus models. (I hope)
- Docking pilot is back without the A.R
- Time Warp is now allowed during node burn execution.
K2D2 is just following the same rules as "Warp Before Node execution". A Max time warp is computed and applied.
- fixed an issue when switching to Space Center (errors in logs, thanks to @munix)
- Warp Tabs has been removed (needed to be fixed)

v0.11.1

- Rebuild with KSP v0.2
- Added a resize option using Matrix trick. It can be blurry but it's a quick solution for large screen.
- Added Autostaging tool !
The little S button in the toolbar can switch it on/off quickly.
The Stagin tab is only used for information on next stage. I'll try to add a little timer.
Will Active Next Stage when at least one tank is empty in the current stage.
Added a delay to avoid rotation during Lift pilot. 1-2 seconds are good values.
It can avoid a crash if a tank hit the vessel during staging.
AutoStage is a global feature, meaning it is active even if no K2D2 pilot is running. Use it with caution then
- Dock has been removed because of rendering issues of the "Augmented Reality" lines

v0.10.1

- fixes by @schlosrat to match patch kerbal 2 v1.5.0 (thanks)

v0.10.0

Docking Assistant :

1. added like "Duna Colonist's HUD" arrows and line to
 - see all docks part and help choosing the right one (in your vessel and in target)
 - see your speed !
 - see the align dock position
2. added a tool to kill the speed using the main thrust. It is usefull for the last kilometers
3. added a tool to kill speed using rcs : usefull furing the final approach
4. added a full auto docking pilot. This one really need further work but it's quite working using my small vessel.

Fix :

- fixed the soi change time in the Warp to Pilot

v0.9.4

Fix :

- rebuild with KSP2 v1.4.0

v0.9.3

Fix :

- rebuild with KSP2 v1.3.1

Features:

- Lift : added a full curve rendering of the ascent profile.

Blue color represent the atmosphere height and white the atmosphere density. Green line is the current vessel's altitude, greys are controled altitudes and cyan the end of atm

v0.9.2

Fixes : typos and repeat buttons error.

Reupload for ckan.

v0.9.1

Improvements :

== New UI library tools ==

a huge work have been made there !

- a new Heading selection control. It is an interactive horizontal compass.

You can use it in Attitude ans Lift pages

- New Fonts, and overall better font rendering and text alignment,
- All Editor Field : the value is sent to the mech, only if enter key is pressed or focus is changed. It avoid sending a wrong value while typing it (It could be dangerous during flight)
 - Yellow : not validated yet
 - Red : Invalid value, it will be replaced on enter.
 - White : not focused
- Use of repeat button to fine adjust on each control that would need it

Features:

- Drone new UI and options :
 - You can choose between Altitude or V-Speed control.
 - Values are more precises using repeat buttons, text field and a slider at the same time.
 - Rool dorward direction toward current speed. It make it easier to control.
 - New UI Infos

Try the drone pilot it is more precise than ever

- Attitude Pilot :
 - like the drone pilot use of repeat buttons, text field and a slider for the elevation.
 - Added the Compass controler for the heading

v0.9.0

Features :

- Added function to the open api : StopFlyNode and IsFlyNodeRunning. giving the ability to stop node execution
- Warp : added a little Warp to SOI Tool
- Attitude : Enhanced the Attitude controller. Is is now not only in debug mode and have a more stable way to select the direction.
can be very useful for planes.
- Lift : direction is back in main page

Improvements :

- new UI textures for Tabs && button

- new KTools Ui made for FlightPlan
 - Added Repeat Buttons for attitude selection
 - Added new version of editor fields : the value is validated only when Enter/Return is pressed. the yellow color mean than it is not yet used. No more value changes on the fly cause it could crash the vessel if wrong input were typed.
- Drone : a small Kill H-Speed tool for final precise landing.
 - Altitude Control rather than V-Speed only

Fixes :

- many little fixes when loading scene (Less NPE)

v0.8.1

Features :

- Little open API that schlorat's [FlightPlan](#) will use in next version

v0.8.0

Features :

- Lift v1 : UI is quite awfull, but it's working. It uses the KSP 2 SAS to turn in a proper direction during ascent burn
You choose in settings Start Altitude, Wanted Ap and the altitudes where to turn to 45° and 5°. All using ui and sliders.
Not quite very UI friendly, I should add an ascent profile graph..

Once Ap is reached burn is stopped and you can finalize the orbit using Circle Tool.
Not precise enough for the moment it can be improved too. I usually do a second circularize to fully finalize the Final Orbit.
- Drone Flight v1 : Funny way to flight. very expensive in dv
Can Brake againsts Surface Speed or in Vertical mode you can choose your V-Speed and fly on Moons.
Still need improvements to remove horizontal speed, but really precise in playing with Vertical Speed and removing gravity.

Improvements :

- many UI details : main Tabs, added separator, ToolTip position, chapters in settings. Big Work Here.
- Added a progress bar during burn maneuvers.
- Landing v3 : better than in previous version. added a TouchDown Button to force to start the final mode.
During Touch-Down the speed depends on altitude.

There is no check of current TWR so, use slow mode for heavy landers.
I'll adapt to vessel mass and power in future versions.

Fixes :

- Correction of serious lags when Ui is opened (Int Fields and focus trouble)
- Execute Node : added more precision options and warp options. The default values where corrected
- Landing : use sea level if above ground 😊 and no U Turn facing the sky !
- Circularize : Corrected the double conic patches.

Know bugs :

- Execute node does not work on multi nodes plans ! meaning if you programmed more than one maneuver the dv computed is totally weird....
- Circularize can sometime create invalid node. please remove nodes and retry.

v0.7.2

- Landing : correction of the collision detection, more accurate but sometime not perfect, just have a try
- Execute : Added options on direction and start burn time
- UI : added Chapters in settings (more compact)

v0.7.1 : important corrections

- Rebuild with KSP v0.1.2.0 Assemblies
- Landing : Correction for KSP v0.1.2.0, Landing Touchdown was no more detected.
- Warp : Correction of WarpSpeed ratio.
- Execute : Correction of the OverBurn.

v0.7.0

- Landing v2 : multi phases landing : Quick Warp, Waiting, Brake and Touch-Down after the Brake if the altitude is still too high, another cycle will start.
- Tabs shows if an pilot is currently running
- added Hyperbolic circularize.

v0.6.0 (not released)

- Landing v1
- Corrected the underBurn in the Execute Node. thanks to @Falki from the KSP2 Modders Society.
- Position of window is saved and cannot be sent outside of Screen space.

- UI new Skin. I'm not really sure of this look. I tried to be closer to main KSP2 UI (purple and black)
- ToolTips to avoid long messages in settings
- Editor Fields in timeWarp Settings avoid sending keys to KSP2 (ex : the 1 Numpad that mute sound)
- Time warp correction : no more burn after time (I hope).

[Known_Issues]

- Circularize can create invalid nodes sometimes, still need to check when and why. (cause KSP2 to have Null Pointer Exceptions)
- During Execute node, if the direction is clearly align at the begining, warp is skipped and burn stats. quite difficult to reproduce 100%.

[TODO] before release

- Land : settings: touch down speed !

[TODO] after and perhaps

- Land : no rotation if speed is up during safe warp
- Land : bad transition between safe warp and quick warp.
- Optimisation : use a cache for settings values
- use ui_shown to Update only needed controllers
- set the node to sub controller on clicking run. (perhaps a bad idea)
- correction circularize UI

v0.5.1

- Rebuild with SpaceWarp 1.0.1 + fix the version number and KSP2 version check

v0.5.0

- Added Circularize !!! thanks to Mole

v0.4.0

- Burn dv is computed with quite good accuracy.
- [AutoManeuver] Use dV rather than time to compute burning durtion a thrust ratio.

v0.3.0

- [internal] added new classes to load and save settings easily.
- Added Settings
- Turn phase : started the sas to maneuver mode in a proper way

- Time Warp Phase : Added Settings and a more precise safe duration before burn

v0.2.1

- Rebuild for ksp2 v0.1.1

v0.2.0

- added Ugly icon in the app bar and title bar
- Renamed to K2-D2

v0.1.0

- Very first implementation.