Vega Launch Complex

Installation and Instruction Manual

Jacquesmomo

Vega Launch Complex (ELV)
Update for the CSG (Guyana Space Center) at Kourou

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This add-on is an update for the must have **Kourou-CSG** scene by ***Papyref*** and ***Mustard***. Do not forget to read the section relating to the installation, and then, also all this documentation there while you're at it. ...

This add-on is for Orbiter 2010. It is free and can be used only for recreational purposes.

Commercial use is strictly prohibited. Using this add-on and modified for private use is naturally allowed, but any publication of modification can only be made with the authorization of the author.

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Remark : All small beetles are from ©Gotlib

- 1 - INSTALLATION

A) Prior to installing this add-on :

It is necessary and essential to first install the ***Kourou CSG global*** (part1 and 2) add-on.
You will find it here : http://francophone.dansteph.com/?page=addon&id=169

B) Installation itself of this add-on :

All you have to do is to unzip the ***Kourou-CSG_ELV.zip*** file in the root folder of your Orbiter.
(Do not forget to check the option *"Use folder names"*).
Note that few files will ***and must*** be ***overwritten*** : Here are these files :

- Kourou_CSG.cfg (in the Config \ Earth \ Base \ )
- Zl1tour.msh (in the Meshes \ )
- zl1tower.ini (in the Config \ spacecraft \ )
- ariane1.ini (in the Config \ Ariane123 \ )
- ariane2.ini (in the Config \ Ariane123 \ )
- ariane3.ini (in the Config \ Ariane123 \ )

Do not worry about... There are currently no risk (em ... well I hope so)...

C) Another add-on to install :

Of course you can use this add-on alone, but as its name suggests, this add-on has been made especially for the ***Vega rocket***.
Some scenarios require the installation of this rocket.

You will find a Vega rocket modeled by ***Xosema*** on ***OrbitHangar*** at this address :
http://www.orbithangar.com/searchid.php?ID=2546

WARNING: a file from this add-on needs to be modified !!!

As the **PAD-ELV** is somewhat different from the earlier one (designed for the *Europa* rocket), the *Vega* rocket will be too low compared to the launching complex. This modification is easy to do.

Here is how to do it :

❶ With the *Windows explorer*, look for the ***"Vega.ini"*** file which is located in the (...)\Config\Vega\ folder.

❷ Edit this file with *Windows notepad* et modify the setting value of the 2nd line :
COG=**3** ⇨ COG=**8.61**

Don't forget to go in "Lauchpad"
(tab video/advanced)
then "create symbolic links".

Remarks :

- This add-on is compatible for the **D3D9 client.**
  You can download it here (be careful to select the correct version) :
  http://d3d9client.codeplex.com/
- You can download Spacecraft 3 by ***Vinka*** here :
  http://web.archive.org/web/20131206133940/http://users.swing.be/vinka/
- You can download Spacecraft 4 by ***Vinka*** here :
  http://francophone.dansteph.com/?page=addon&id=202
- You can download Multistage2015 by ***Fred18***here :
  http://www.orbithangar.com/searchid.php?ID=6838

All these modules are required (except **D3D9**) and are **included** in this add-on.

- Thanks again to ***Vinka*** and ***Fred18*** for all these awesome ***modules*** !!!
- And huge thanks to ***Pappy2*** for its beta-test...
- But a great respect for ***Papyref*** and ***Mustard*** who made this superb Base of **Kourou** that is worth visiting, and has nothing to envy to that of Cape Canaveral !...

- 2 - COMMANDS KEYS FOR THE ELV TOWER (Not to be confused with " ZLV " see page #6)

A) Moving the Tower :

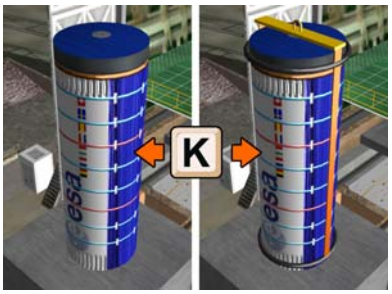
To move the Assembly Tower, or/and to open or close the doors, or/and to lower or raise the gateways, you only have a single command key : K (and also Ctrl + K).

You can at any time stop the displacement of the Tower by pressing again K, and so "freeze" the Tower, the doors, the gateways etc... as you wish (doors open or not, etc ...).

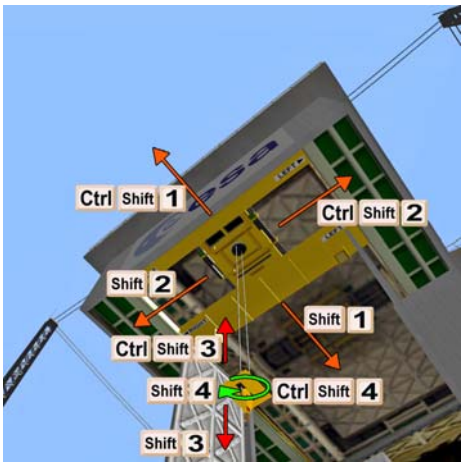
To help you, you can display a visible summary in "virtual cockpit" view (press F1 then F8).

B) The Tower Lifting Winch:

This winch is fully functional.
There are 4 scenarios for training to position the ***P80 Vega*** rocket first stage on its location into the Tower : **(4 a)** *[and **b-c-d**]* **ELV+ P80 (position 1)** *[and **2-3-4**]* scenarios.



- You can make the system of "webbing" for this stage to appear or disappear (focus on "Vega_P80" of course).
  For that, press on the K key.



- In order to operate the winch, use the following keys :

  Shift + 1 or Ctrl + Shift + 1
  Shift + 2 or Ctrl + Shift + 2
  Shift + 3 or Ctrl + Shift + 3
  Shift + 4 or Ctrl + Shift + 4

  To stop the movement of the hoist, press again on the Shift+*number* keys.

- Now, enable the *attachment points* management with $_{LEFT}$ Ctrl + A
- Then, attach (or detach) your object with $_{LEFT}$ Shift + 0 $_{NUMPAD}$ or 0 *(only with Spacecraft4)*
- Finally, turn off the *attachment points* management by pressing once again $_{LEFT}$ Ctrl + A.

Remark #1 :
You can use for the "number" key :
- the keypad (or numpad) (it must be disabled with the LED *"Num Lock"* off) with ***Spacecraft 3.***
- the upper keys of your keyboard (in addition to the numeric keypad) with the new ***Spacecraft 4.***

Remark #2 :
If you had the curiosity to edit the scenarios, you may have noticed that in scenarios about the P80 stage that the winch of the tower is set *"spacecraft**3**"*, while in other scenarios the tower is *"spacecraft**4**"*. This is intentional...

This is because with *Spacecraft**4*** when you release the stage (or other object attached to the hoist) it miraculously recovers to its original location, while with *Spacecraft**3*** the object falls down to its vertical.

This is absolutely normal and desired by ***Vinka***, following a request from me when I was modeling the Tintin's DC6...

C) The specific case of the Tower with specific command keys :

As you guessed it, the single button for controlling the tower (**K** and **Ctrl+K** keys) is very convenient because there is no need to have an exceptional memory to remember this.

But I can see some people who are going to tell me : *" Yes, but if I want to operate a particular gateway, I can't !!! What do I do with all this stuff ?..."*

So, to avoid any controversy, you can choose between the simple use of a single command key, or else the ability to have all separate controls for doing what you wish. Isn't Life beautiful ???

Of course you have a demo scenario : " *(2c) ZLV (separate animations)* ".
But if you want to customize your own scenario it is quite easy. *(Please read also the page # 6).*

Here is how to proceed :

Edit your scenario, et modify this line like that :

ELV_Tower:Spacecraft/Spacecraft4 ⇨ ZLV_Tower:Spacecraft/Spacecraft4

① Identical keys (as with the others scenarios) :

- For the Tower :

  K : for moving the tower towards the launch pad.
  Ctrl + K : for moving the tower to its remote position from the launch pad.

- For the Winch and the Hoist :

  Shift + 1 (and also with 2, 3, and 4) : for moving it in one direction.
  Ctrl + Shift + 1 (same, with 2, 3, and 4) : for moving it in the opposite direction.
  Press a second time on Shift + 1 2 3 4 or on Ctrl + Shift + 1 2 3 4 at any time to stop its movement.

② The extra Keys :

G : open / close the main gates of the Tower.

Shift + 5 : engineers on the balcony (on top) and the small access doors.

Shift + 6 : upper gateways.

Shift + 7 or 8 or 9 : lower gateways.

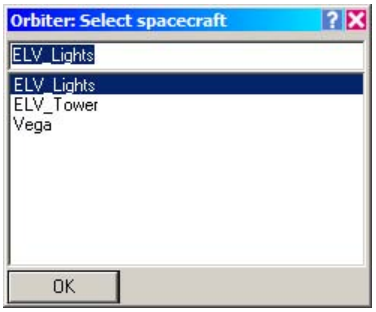
Shift + 0 : umbilicus (on / off), retraction of the protective plates, storage safety barriers and disappearance of stagnant water flues.

F1 **then** F8 : overview of the control keys *(«virtual cockpit mode»).*

Remark :

The umbilicals are unfortunately not automated. You have to manually retract they when launching a rocket. (Except with scenario ***(5a)Vega Launch (Auto)*** but it is with a trick that I found and that only works in this scenario).
For this I should have done a "dll" but this I can't...

- 3 - LIGHTS (PROJECTORS AND STREET LAMPS)



You can light up four sets of spotlights as well as few street lamps placed around the **ELV** launch pad.

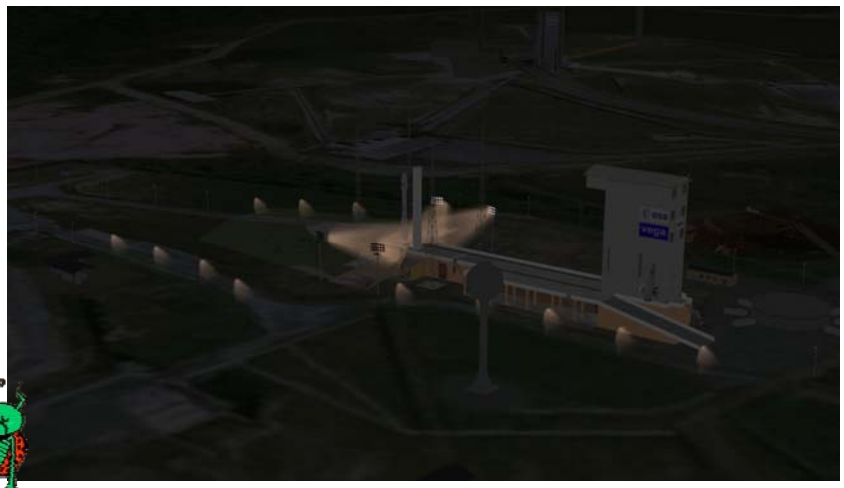
To do this :

- o press F3
- o select **ELV-Lights**
- o press the 0 *(numpad)* key during few seconds.

To decrease the intensity of the lights (and cut off) press the Del key for several seconds.

Remark :

All the street lamps are not lit : this is due to the limitation of 16 "exhaust" maxi in Orbiter.



- 4 - PROVIDED SCENARIOS

● The scenarios provided with this add-on are in the **Kourou_ELV** folder. Here is the list:

(1a) ELV (position 1)
(1b) ELV (position 2)
(1c) ELV (position 3)
(1d) ELV (position 4)

(2a) ELV (Tower moving forward)
(2b) ELV (Tower moving backward)

(3a) ELV (night-lights on)
(3b) ZLV (night-lights on)

(4a) ELV+ P80 (position 1)
(4b) ELV+ P80 (position 2)
(4c) ELV+ P80 (position 3)
(4d) ELV+ P80 (position 4)

(5) Vega Launch (Auto)
(5) Vega Launch (Auto)

These 2 scenarios require the Rocket Vega add-on installation.
(please read again the section "Installation ")

(6) No Smoking ! ***This scenario is a bonus gift...***

(7) Drive the famous 4L

● But there are also two additional scenarios located in the **Vega** subfolder.

It is just the 2 original scenarios of the ***Xosema***'s add-on ***"Vega Rocket"*** but modified with the new **ELV** Assembly Tower added. Nothing else is changed. Here's the list :

Vega - HispasetiSat to eliptic orbit (with **ELV**)
Vega - HispasetiSat to polar orbit (with **ELV**)

- 5 - HOW TO ADD THE ELV IN YOUR SCENARIOS

A) For the Tower :

You just have to add in your scenario (in BEGIN_SHIPS (...) END_SHIPS section) the following lines :

```
ELV_Tower:Spacecraft/Spacecraft4
  STATUS Landed Earth
  POS -52.5646456 5.0556790
  HEADING 355.00
  AFCMODE 7
  NAVFREQ 0 0
  CONFIGURATION 1
  CURRENT_PAYLOAD 0
END
```

Remarks :

- *On the the first line, you can either write Spacecraft **3** or **4**.*
- *Also in this first line, if you write* **ZLV_Tower** *instead of* **ELV_Tower** *the Tower is the same, but the commands for the animations are different (and animations philosophy too). Everything is explained in the scenario (2c) ZLV (separate animations), then I let you discover this for yourself.**(Read on page 5)*

B) For the Lights :

You just have to add in your scenario (*in* BEGIN_SHIPS (...) END_SHIPS *section*) the following lines :

```
ELV_Lights:Spacecraft/Spacecraft3
  STATUS Landed Earth
  POS -52.5647232 5.0566164
  HEADING 175.00
  AFCMODE 7
  PRPLEVEL 0:1.0000
  THLEVEL 2:1.000000
  NAVFREQ 0 0
  RCS 1
  CTRL_SURFACE 1
  CONFIGURATION 1
  CURRENT_PAYLOAD 0
END
```

3 Remarks :

- *On the first line, you can either write Spacecraft **3** or **4**.*
- *the* THLEVEL 2:1.000000 *line is optional. If you add this line, the lights will be already turned on.*
- *The four pylons and its electric wires used as a lightning conductor are also integrated into "ELV_lights".*

- 6 - HISTORICAL BACKGROUND

The ***V**ega **L**aunch **C**omplex* (**ELV** for short *"**E**nsemble de **L**ancement **V**ega" in French)*, sometimes called **ZLV** (for ***V**ega **L**aunch **Z**one*) is a launch complex for space rockets located on the Space Flight Center of **Kourou**, in French Guyana.

Built in 1973 for launching the *Europa 2* rockets, it was reconverted and adapted for the *Ariane 1* rockets. Then, it was renamed **ELA-1** for *"**E**nsemble de **L**ancement **A**riane **1**"* (in French).

After 25 Ariane rockets launchings, the ELA-1 was closed in July 1989. The Tower was destroyed in June 1991. On the ground, it remained only the concrete foundation block and the water reservoir.

In 1998, the European Space Agency (ESA) decided to create a new launcher less powerful as Ariane 5, in order to be able to propose lower-cost launches (U.S. $ 23 million instead of U.S. $ 123 million for a Ariane 5 double satellite launch).

The next year, it was proposed to use the ELA-3 Ariane 5's launching pad. But the complexity of this launcher did not made possible its usage. The attention then turns to ELA-2, dedicated to Ariane 4, and still used at that time. But this one is too large.
So ELA-1 had been choosing (which will be renamed as ELV with a major modification during the late of the years 2000), and will accommodate the first Vega launching planned in October 2010.

The first launch of this new launcher has occurred on February 13th, 2012 from this redesigned and renamed Launch Complex.

Contrary to what is done for Ariane 5, the new launcher is assembled directly on the launch pad in a mobile assembly tower that protects it against inclement weather. This tower has a rolling winch (the hoist available in my add-on) with a lifting capacity of 40 tons for hoisting the different components of the launcher.
The rail track used to move back the assembly tower before the launching and the launching pad were the launcher is are located on a concrete structure several meters above the launching zone. Flues located under the launcher can channeling and reject towards the sides the flames and the gases produced during the firing of the first stage.

The already completed Vega rocket launches dates are :

- 13 February 2012
- 7 May 2013
- 30 April 2014
- 11 February 2015
- 23 June 2015
- 3 December 2015

The upcoming launch of a Vega rocket is planned for next July 2016.

- 7 - BONUS : THE FAMOUS CSG RENAULT 4L

For once, I said nothing. As this car is a ***spacecraft4*** *vessel*, I let you discover it...
But I give you few indications as questions / answers.

Question : For what use is this car ?
Reply : To visit the Kourou Space Center.

Question : What is the difference between this 4L and the one witch is in the *Spacecraft vs Ucgo-UMmu* add-on ?
Reply : This new 4L (or R4) is improved somewhat, but mostly updated for Spacecraft4.
But in the other add-on (you have to test it !) there is also an **UCGO** version of this car.

Question : Is it necessary to install *SPACECRAFT4* and *CARGO-UCGO* ?
Reply : For Spacecraft, it is not necessary because the **Vinka**'s module is included with the add-on.
But if you want all the UMmu's and Cargo's features for the 4L, it better to install **Dansteph**'s ***UCGO***.

Question : How can drive this lovely car ?
Reply : Just like a space vessel...

Question : How can we refuel this car ?
Reply : Just move the car to be positioned near the Gasoline Pumps and stop.
Explanation : The pump a " **PAD** ".
Note this : The " range " from the pumps can not be set, so if the 4L is a bit distant from it, the tank is filled ... but only if you stop the car.

Question : What are the command keys for animations ?
Reply : Same keys as for "spacecraft vessels".
You can display the list of the available spacecraft command keys by pressing F8.

Question : When lower the seat, the driver and passenger's legs go through the floor...
Reply : Well yes ... Sorry, I had to make a compromise, else I should modify all the car...
Sorry for this...

Question : Passengers are not UMmu ?
Reply : Of course they are ! Set to *"cockpit view"* to display the keys list.
Press F1 then H to display the **HUD**.
To make your UMmu exit :
- Shift+A to open the left door (as an airlock)
- Shift+C to "select" your UMmu.
- Shift+E to exit

Question : Why the UMmu I get outside is not the same as the one in the car ?
Reply : To get *Papyref* or *Jacquesmomo*, you have to install this add-on : *"UMmu Papyref et JacquesMomo"*
else a "standard" UMmu is used.
This add-on is here : http://francophone.dansteph.com/?page=addon&id=204

Question : Why can I see only one UMmu outside the car, while I made exit two of them?
Reply : As the 2 UMmus are at the same place, they are "overlaid"...
We can not change that. So to avoid this, it is recommended to move the 4L prior to exit the second UMmu.
When going back into the car, *Jacquesmomo* can be transformed into *Papyref* and vice versa.... We can not determine the order...

Question : I can't find a scenario with a "**CARGO**" payload...
Reply : Yes. To avoid a **CTD** if **CARGO-UCGO** is not installed, I didn't made a scenario with a "Cargo".
So you have to load a *"cargo"* crate...Here is how to do :
(Same as for **UM**mus : to display the command keys list, set to *"cockpit view "* then H to display the **HUD**).
- Shift+D to select a "cargo" crate (D for Disk)
- Shift+L to Load it
- Shift+R to Release it

Be sure to put the gallery on the 4L's roof with the K key !..

Question : When I switch on the headlights, the car has a tendency to move by itself.
Reply : Yes ... The headlights are a fake "hover". Even if the thrust is insignificant, the car can move a little.
(Spacecraft4 do not like a value for the thrust=0 so I set it to 0.0001).

Question : The movements of the shift lever are not very realists...
Reply : Sorry, I can not do better. Same for the needle of the speedometer, I would preferred that the movement is slower.

Question : The turn signals do not seem to work?
Reply : Well no, the signals do not work, unlike **UCGO** vehicles.

Question : That's it ?
Reply : Well yes...

A THANK YOU NOTE

A great *thank you* to ***Vinka*** for his *Spacecraft* and *Multistage* modules (and also to ***Fred18*** for his new *Multistage2015*) : they make me able to make this add-on and without they modules it will be as a **DGIV** with no wings and with no fuel... The ***Vinka****'s* kindness and availability are noteworthy, and I am impressed by his programming skills just to enjoy ourselves, ***Orbinauts***.
You will find their official manuals in these folders :

<*your orbiter*> \ Doc \ Spacecraft
<*your orbiter*> \ Doc \ multistage2015

And an especially thank you again to ***Pappy2*** who contributed for this add-on to be as accomplished as possible and... for my shorter nights !.. Our collaboration is something I appreciate and I hope to do the same for a next add-on very soon !..

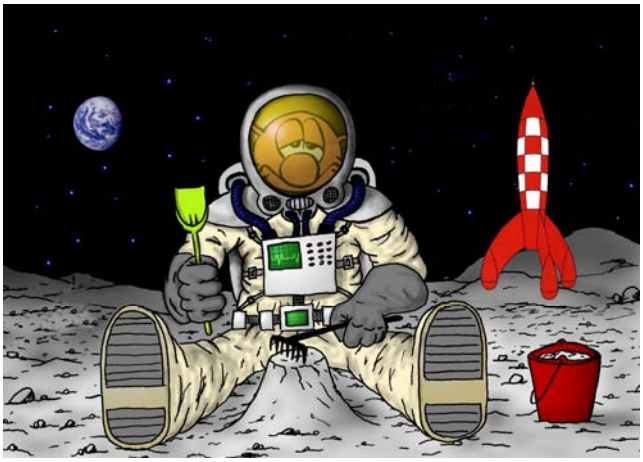
DO YOU ENJOY THIS ADD-ON ?

SO PLEASE SEND ME
A SMALL MESSAGE
ABOUT IT ON THE FORUM...

Click here to get my add-ons on Orbit Hangar Page...

Click here to get my add-ons on Dan's Orbiter Page (in French)...

I wish you a pleasant flight...



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