

**Building the future
of space logistics.**



exotrail
end-to-end space mobility



**We are an end-to-end
space mobility provider
pioneering a new era of
space logistics.**

www.exotrail.com

Redefining space logistics

Exotrail is an end-to-end space mobility operator.

We make small satellite constellations more sustainable by improving their deployment, optimising their performances, and mitigating space pollution, enabling a new world of sustainable telecommunication, earth observation, space logistics and exploration.

Our mobilityhub™ allows our customers to

Define the need

Accurately define their mobility needs with our collaborative, intuitive mission and system design software **spacestudio™**.

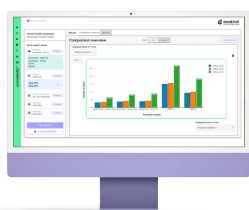
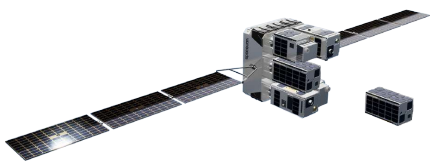
Solve the need

Solve their mobility needs with our **spacedrop™** in-space transportation and logistics service and our high-thrust, flexible and space-proven propulsion system: **spaceware™**.

Operate the solution

Operate the solution with our «flight dynamics-inside» constellation operation automation software **spacetower™**.

spacedrop™



spacestudio™



spaceware™



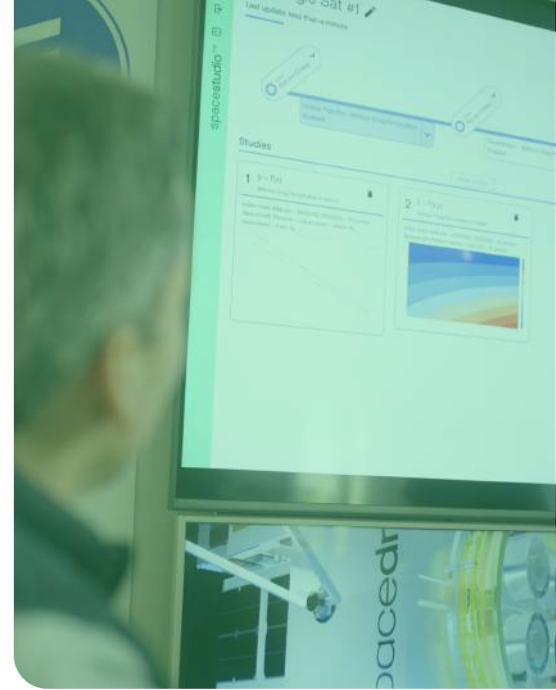
spacetower™

System and mission design with **spacestudio™**

spacestudio™ is a SaaS product built to streamline mission analysis and boost team productivity by providing an easy-to-use tool where use cases are tailored to solve specific engineering problems.

spacestudio™ contextualizes mission analysis empowering engineering teams to optimize design for their systems.

With **spacestudio™**, users can painlessly create and simulate mission planning from deployment to Deorbitation.



Why choose **spacestudio™**?

- Empower non Flight Dynamics experts to generate value autonomously.
- Rapidly iterate in your mission analysis & preliminary system design.
- Align engineering teams with cross-department sharing capabilities.
- Access **spacestudio** anywhere & anytime with fast cloud computing power

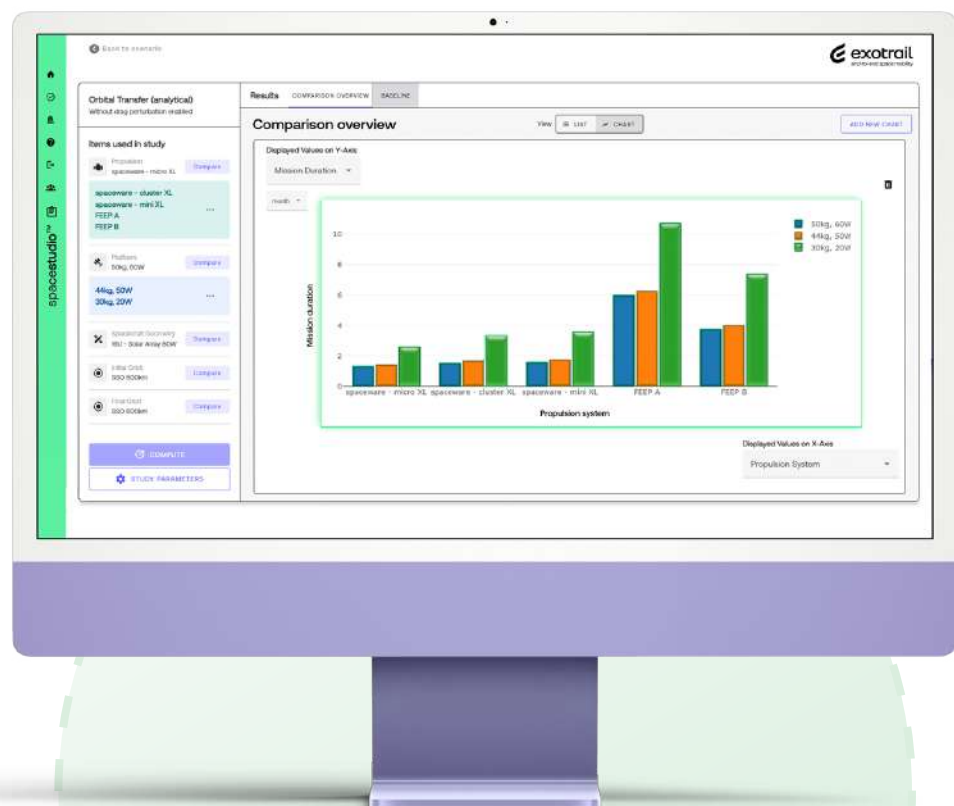
Key features

Supported integration with other system design tools with wide export/ import capabilities.

Mission analysis & orbital propagation with multiple maneuver modelling and orbit regimes (LEO, MEO, GEO).

Fast subsystem trade-offs in various system studies such as power budgets, maneuver description, earth coverage or link budgets.

They trust us



Unleash your spacecraft potential with **spaceware™**



spaceware™ is a family of high-thrust, flexible electric propulsion systems suited for all mission needs for satellites ranging from 5 kg to 1.000 kg. Whether you are looking to deploy a constellation, change the altitude or inclination of your spacecrafts, perform RAAN phasing, maintain your orbit or avoid collisions, spaceware™ will meet your needs.

Why choose spaceware™ ?

- ⊖ Demonstrated, flight proven solutions
- ⊖ Built-in flexibility with our modular approach
- ⊖ Superior thrust for faster revenue
- ⊖ Versatile solutions for different missions

Technology

The Hall Effect Technology has been used for decades and equips most of the large satellites thrusters, because it combines the high impulse of electric propulsion technology along with a very high thrust-to-power ratio.

Space-Proven

spaceware™ propulsion systems have been space-proven since 2020, finally opening legacy systems performance and reliability levels to small satellites.

	spaceware™ - nano	spaceware™ - micro	spaceware™ - micro cluster ²	spaceware™ - mini	spaceware™ - small
Power Nominal - (Range)	60 W (40-60 W)	150 W (100-150 W)	300 W (100-300 W)	450 W (300-600 W)	1000 - 1500 W
Thrust Nominal - (Range)	2.5 mN (1.4-2.5 mN)	7 mN (4-8 mN)	14 mN (4-16 mN)	18 mN (Kr) - (12-24 mN) 23 mN (Xe) - (15-30 mN)	35 - 65 mN (Kr) 50 - 80 mN (Xe)
Total impulse	>6 kN.s	>60 kN.s	>120 kN.s	>400 kN.s	>2 MN.s
Propellant Capability	Xenon	Xenon	Xenon	Krypton / Xenon / iodine	Krypton / Xenon



Our heritage

spaceware™ systems in space since 2020.

>10

Already contractualized for 2023.

>60

Platforms have baselined spaceware™ systems all around the world.

>12

They trust us



Take control of your mission with **spacedrop™**

spacedrop™

spacedrop™ is an end-to-end launch and deployment service for cubesats, as well as nano, micro and small satellites. Our spacevan™ on-orbit transfer vehicle and spaceware™ in house electric propulsion increases passenger capacity, improve deployment duration and access new orbits.

spacevan™ :a launcher agnostic solution

Exotrail offers a comprehensive end-to-end solution covering the entire journey, with the launch phase being the initial leg of the mission. Exotrail is fostering long-term relationships with multiple launch operators, a commitment reinforced by the already signed MLSA.

spacehost™

spacehost™ is our hosted payload service made from our space logistics expertise. Our commitment is to provide a simple end-to-end service. We offer regular flight opportunities to payload up to 250 kg and 1kW while enabling missions with precise maneuvers.

spacedrop™ at a glance

Flight proven subsystems

Mission success is paramount for Exotrail. The key criterion for selecting subsystems for the spacevan™ has been their flight heritage.



In house propulsion

Powered by Exotrail's designed propulsion subsystems, every spacedrop™ mission will navigate to its targets with exceptional accuracy and performance through every mission.

In house manufacturing

Exotrail has opted for in-house manufacturing to ensure a high cadence of spacevan delivery aligned with operators' satellite delivery schedules.

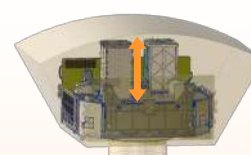
With more than 3000 m2 and a Class 8 cleanroom Exotrail provides state-of-the-art manufacturing and integration capabilities for customer payload integration aboard the spacevan™.



A design engineered to optimize customer capacity

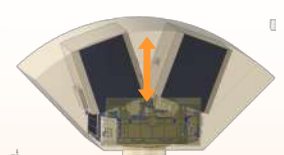
Exotrail spaceware™ hall effect thruster offers a significant advantage in terms of the required volume for its implementation. As a result, the spacevan™ platform is only 373 mm thick, providing one of the largest payload volumes on the market.

SpaceX full slot



662 mm

SpaceX full XL slot



1100 mm

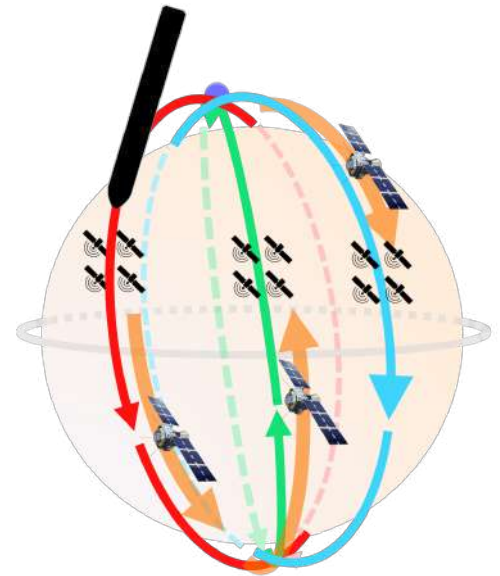
Unlock your constellation's potential with a single launch with **spacedrop™**

Boost your business case: One launch, seamless constellation deployment

Optimize your launch costs to streamline constellation deployment, balancing between deployment cost and revenue generation. The spacevan™'s best-in-class delta V opens endless opportunities for in-orbit maneuvers in the realm of constellation deployment.

Maximize Your Profits: Rapid Constellation Deployment for Quick Returns

The scarcity of launches, coupled with the turnaround time for launch operations directly influences the timeline for achieving full constellation deployment. In a single launch, spacevan™ can populate multiple planes, eliminating the need for additional launch.



A flexible payload bay

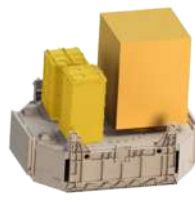
The spacevan™ can adapt to almost all configuration from cube sat to minisats.



Cubesat + 8" ring



Cubesat + in orbit demonstration



Cubesat + mini sat 15" ring

	spacevan™ LEO V2	spacevan™ GEO V1
Max Payload	200 kg	150 kg
Cubesat up to 16U	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Nanosat - 8" ring	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Nanosat - 15" ring	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Max Delta V	0,5 km/s	2,2 km/s
Max. Reachable altitude 2km for 1 m/s	1000 km	GTO to GEO in 6 months
Max. Obtainable inclination 1° for 150 m/s	3°	
RAAN Shift in SSO (15° = 1h in LTAN) 1° for 150 m/s	2h LTAN change	

Optimize your constellation with **spacestudio™**

With spacestudio™ operators can easily and rapidly optimize constellation configuration that best answers their business case.

You can compute coverage metric including revisit time and ground station contacts. spacestudio™ is a unique tool to optimize generation of revenue.

Deploy it with **spacedrop™**

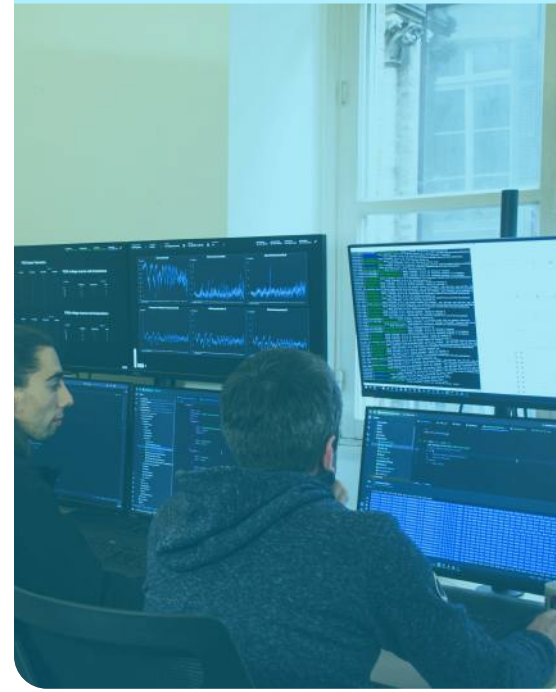


LEO, MEO, GEO
and beyond.

Scale your satellite fleet operations with **spacetower™**

spacetower™ is Exotrail's Flight Dynamics System (FDS) software, built for streamlining satellites and constellations operations.

Its built-in flexibility and scalability greatly enhance the productivity and value of your operations teams.



Why choose spacetower™?

- Avoid large upfront investments with our SaaS model.
- Scale you constellation, not your operations costs.
- Integrate seamlessly into your operational environment.
- Receive regular updates based on your feedback and Exotrail's flight heritage.

Compute

Get accurate positioning information for your satellites and update your knowledge of their modeling with precise orbit determination algorithms. Propagate trajectories, compute maneuvers and predict future orbital events.

Integrate

Customize flight dynamics to your specific mission requirements thanks to detailed system and space environment modeling. Integrate seamlessly into your operational environment using standard data exchange formats.

Automate

Automate your operational workflows with our API and Python wrapper, including station keeping and collision avoidance maneuvers.

Scale

Unlock operational efficiency at scale through our modular FDS microservices, securely deployed in a cyber-protected environment. Harness the benefits of virtually unlimited computing power thanks to a state-of-the-art cloud-native architecture.

Maneuver planning



Orbit determination

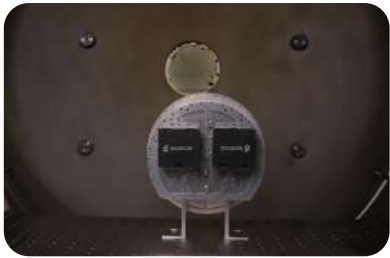
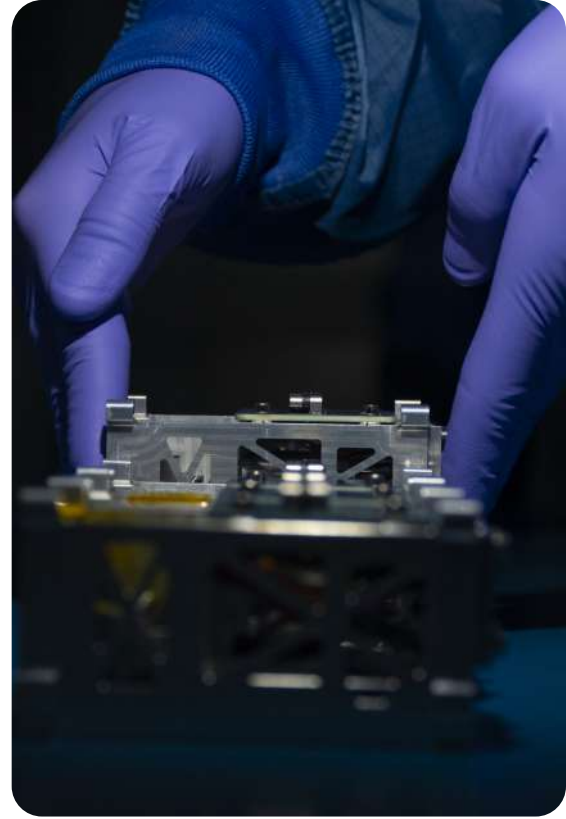


Orbit propagation and Events Prediction






Exotrail was incorporated in 2017 and has secured over €75M since then from prestigious Venture Capital funds and public grants. We have customers all across the globe for our product lines - including US, Europe and Asia.

We are expanding quickly and consist, as of today, of +100 people passionate about the space industry. We operate out of three locations: Toulouse and Massy (suburb of Paris), France and in the US.



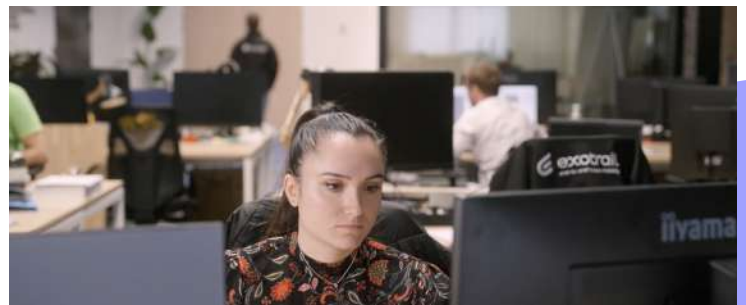
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end-to-end space mobility



Find out more **about us**



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