



ORBITAL PRIME

SPACEWERX
SHAPING OUR FUTURE IN SPACE



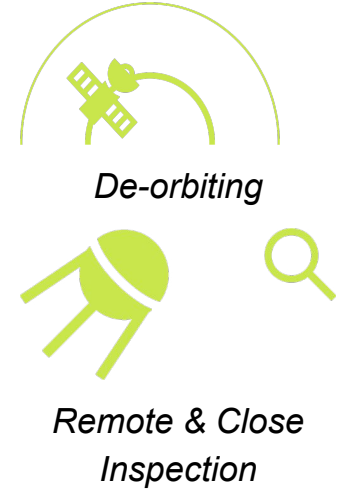
ORBITAL PRIME

Orbital Prime: Foundation for Space Logistics

Imagine an Air Force without logistics and maintenance?



Imagine the Space Force with logistics and maintenance?



Orbital Prime's objective is to seed the foundation for Space Logistics/On-orbit servicing (OSAM/ISAM) to ensure USSF has the logistics and maintenance capabilities post deployment, enabling a transition to a more resilient architecture to deliver services and maintain capabilities for all US & allied warfighters.





ORBITAL PRIME

Opportunities and Challenges in Space

Flourishing Commercial Market
 4Q21: Private Investment hit \$14.5B 
 Space Market to triple within a decade
 \$1 Trillion Annual Revenue by 2040 

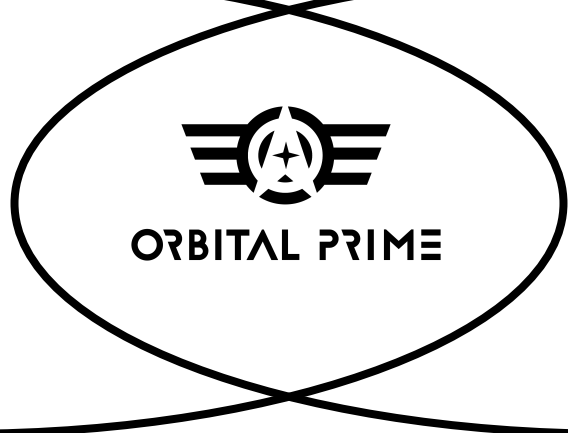
SPACEWERX
 Blend commercial innovation with USSF needs
 Prime nascent space tech sectors to advance US National Security & economic prosperity

Threat to Assured Access
 Congestion exponentially increasing
 • Debris & Mega-constellations
 Space Debris to multiply 50 times by 2100 
 International Partners driving for Sustainable Space

Commercial Business Case

DoD Application

- Debris ID & Tracking**
Communications & Coord
Sensors & Cameras
- Debris Approach**
Adv Propulsion & Maneuver
AI & Machine Learning
- Debris Attach, Capture, and Control**
Capture & Control Algorithms
Robotics
- Debris Manipulation**
De-Orbit & Re-Entry Vehicles
Repair & Repurpose



- Life Extension**
Robotics
Satellite Refueling
- RPO/Docking**
- SSA-Inspection**
AI & Machine Learning
Capture & Control Algorithms
Sensors & Cameras
- Orbit Transfer & Maneuver**
Adv Propulsion & Maneuver
Small Form Factor Power
- End of Life**
De-Orbit & Re-Entry Vehicles
Docking Mechanisms

Orbital Prime: In-Space Servicing, Assembly, and Manufacturing (ISAM)



SPACENEWS

Space Force selects 125 industry proposals for on-orbit servicing technologies

by Sandra Erwin — May 2, 2022

The Space Force created the Orbital Prime program to advance technologies for debris removal and on-orbit services. Credit: SpaceNews illustration

ORBITAL PRIME

General **David D. Thompson**
Vice Chief of Space Operations, U.S. Space Force

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00:02 05:30

Vice Chief of Space Operations, U.S. Space Force

The Space Force created the Orbital Prime program to advance technologies for debris removal and on-orbit services. Credit: SpaceNews illustration

SPACE SUSTAINABILITY

On-Orbit Servicing, Assembly, and Manufacturing

ON-ORBIT OBJECT SERVICE

Remediate the RSO by:

Repairing

Repositioning

Refueling

De-Orbiting

Removing Debris From LEO

Recycling

Mission Extension

End Of Life Servicing

ON-ORBIT OBJECT APPROACH

Approach and rendezvous with the Resident Space Object (RSO)

Inspection

Sensing

Characterization

Planning for Remote Proximity Operations and Docking

ON-ORBIT OBJECT ACQUISITION

Execute Remote Proximity Operations and Docking

Dynamic Algorithm Control

Safety Protocols

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