

CRS-12 Dragon Resupply Mission

Mission Overview

SpaceX's Falcon 9 rocket will launch a Dragon spacecraft to low-Earth orbit to deliver critical cargo to and from the International Space Station for NASA.

SpaceX is targeting launch of its twelfth Commercial Resupply Services mission (CRS-12) from Launch Complex 39A (LC-39A) at NASA's Kennedy Space Center, Florida. The instantaneous launch window is on Monday, August 14 at 12:31 p.m. EDT, or 16:31 UTC. Dragon will separate from Falcon 9's second stage about 10 minutes after liftoff and attach to the space station on August 16.

Following stage separation, Falcon 9's first stage will attempt to land at SpaceX's Landing Zone 1 (LZ-1) at Cape Canaveral Air Force Station, Florida.



Official SpaceX CRS-12 mission patch

Dragon Spacecraft

Dragon will be filled with over 6,400 pounds of supplies and payloads, including critical materials to directly support dozens of the more than 250 science and research investigations that will occur during Expeditions 52 and 53.

SpaceX CRS-12 is the twelfth of up to 20 missions to the International Space Station that SpaceX will fly for NASA under the first CRS contract. In January 2016, NASA announced that SpaceX's Falcon 9 launch vehicle and Dragon spacecraft were selected to resupply the space station through 2024 as part of a second Commercial Resupply Services contract award. Under the CRS contracts, SpaceX has restored an American capability to deliver and return significant amounts of cargo, including live plants and animals, to and from the orbiting laboratory. A variant of the Dragon spacecraft, called Dragon 2, is being developed for U.S.-based crew transport to and from the space station.

ISS Capture

On August 16, International Space Station crew members will use the station's 57.7-foot (17.6-meter) robotic arm to reach out and capture the Dragon spacecraft and attach it to the station.

Return Flight

Dragon will return to Earth with more than 3,000 pounds of cargo after an approximately one-month stay at the orbiting laboratory. About five hours after Dragon leaves the space station, it will conduct its deorbit burn, which lasts up to 10 minutes. It takes about 30 minutes for Dragon to reenter the Earth's atmosphere and splash down in the Pacific Ocean off the coast of Baja California.

For more information about the mission and payloads, visit www.nasa.gov/spacex.



Mission Timeline (all times approximate)

COUNTDOWN

Hour/Min/Sec	Events
- 01:03:00	Launch Conductor takes launch readiness poll
- 01:00:00	RP-1 (rocket grade kerosene) loading underway
- 00:35:00	LOX (liquid oxygen) loading underway
- 00:07:00	Falcon 9 begins engine chill prior to launch
- 00:01:00	Command flight computer to begin final prelaunch checks
- 00:01:00	Propellant tank pressurization to flight pressure begins
- 00:00:45	SpaceX Launch Director verifies go for launch
- 00:00:03	Engine controller commands engine ignition sequence to start
00:00:00	Falcon 9 liftoff

LAUNCH, LANDING AND DRAGON DEPLOYMENT

Hour/Min/Sec	Events
00:01:08	Max Q (moment of peak mechanical stress on the rocket)
00:02:25	1st stage main engine cutoff (MECO)
00:02:28	1st and 2nd stages separate
00:02:36	2nd stage engine starts
00:02:41	1st stage boostback burn begins
00:06:09	1st stage entry burn begins
00:07:43	1st stage landing
00:09:14	2nd stage engine cutoff (SECO)
00:10:14	Dragon separates from 2nd stage
00:11:00	Dragon's solar arrays deploy
02:20:00	Dragon's Guidance, Navigation and Control bay door opens

Launch Facility

Launch Complex 39A at Kennedy Space Center, Florida

Launch Complex 39A (LC-39A) at Kennedy Space Center has a history dating back to the early 1960s. Originally built to support the Apollo program, LC-39A supported the first Saturn V launch (Apollo 4), and many subsequent Apollo missions, including Apollo 11 in July 1969. Beginning in the late 1970s, LC-39A was modified to support space shuttle launches, hosting the first and last shuttle missions to orbit in 1981 and 2011, respectively.

In 2014, SpaceX signed a 20-year lease with NASA for the use of Launch Complex 39A. Since then, the company has made significant upgrades to modernize the pad's structures and ground systems, while also preserving its important heritage. Extensive modifications to LC-39A have been made to support launches of both the Falcon 9 and Falcon Heavy launch vehicles. These upgrades will also enable LC-39A to serve as the complex from which SpaceX will launch crew rotation missions to and from the International Space Station for NASA's Commercial Crew Program.

Resources

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PHOTOS | High-resolution photos will be posted at [flickr.com/spacex](https://www.flickr.com/photos/spacex/).

WEBCAST | Launch webcast will go live about 15 minutes before liftoff at [spacex.com/webcast](https://www.spacex.com/webcast).