

# TESS Mission

## Mission Overview

SpaceX is targeting launch of NASA's Transiting Exoplanet Survey Satellite (TESS) on Monday, April 16 from Space Launch Complex 40 (SLC-40) at Cape Canaveral Air Force Station, Florida. The 30-second launch window opens at 6:32 p.m. EDT, or 22:32 UTC. TESS will be deployed into a highly elliptical orbit approximately 48 minutes after launch.

A 30-second backup launch window opens on Tuesday, April 17 at 6:13 p.m. EDT, or 22:13 UTC.

Following stage separation, SpaceX will attempt to land Falcon 9's first stage on the "Of Course I Still Love You" droneship, which will be stationed in the Atlantic Ocean.



Official SpaceX TESS mission patch

## Payload

The Transiting Exoplanet Survey Satellite is NASA's next planet finder, led out of the Massachusetts Institute of Technology Kavli Institute for Astrophysics and Space Research. TESS will discover new potential planets orbiting bright host stars relatively close to Earth. In a two-year survey of the solar neighborhood, TESS will search for tell-tale dips in the brightness of stars that indicate an orbiting planet regularly transiting across the face of its star. The satellite is expected to catalog thousands of exoplanet candidates around a wide range of star types, including hundreds of planets that are less than twice the size of Earth. The TESS mission is expected to find planets ranging from small, rocky worlds to gas giants.

## Launch Facility

### Space Launch Complex 40, Cape Canaveral Air Force Station, Florida.

SpaceX's SLC-40 at Cape Canaveral Air Force Station is a world-class launch site that builds on a strong heritage. The site, located at the north end of Cape Canaveral Air Force Station, was used for many years to launch Titan rockets, among the most powerful in the U.S. fleet. SpaceX took over the facility in May 2008.

The center of the complex is composed of the concrete launch pad and flame diverter system. Surrounding the pad are four lightning towers, propellant storage tanks, and the integration hangar. Before launch, Falcon 9's stages and payload are housed inside the hangar. The payload is mated to the Falcon 9 inside SLC-40's hangar on the transporter erector. The rocket and payload are then rolled out from the hangar to the launch pad and lifted to a vertical position.



## Mission Timeline (all times approximate)

### COUNTDOWN

Hour/Min/Sec	Events
- 01:13:00	SpaceX Launch Director verifies go for propellant load
- 01:10:00	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	Flight computer commanded 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 SATELLITE DEPLOYMENT

Hour/Min/Sec	Events
00:01:16	Max Q (moment of peak mechanical stress on the rocket)
00:02:29	1st stage main engine cutoff (MECO)
00:02:32	1st and 2nd stages separate
00:02:34	2nd stage engine starts
00:03:05	Fairing deployment
00:06:29	1st stage entry burn
00:08:17	2nd stage engine cutoff (SECO-1)
00:08:20	1st stage landing
00:40:50	2nd stage engine restarts
00:41:49	2nd stage engine cutoff (SECO-2)
00:48:42	TESS deployment

## Resources

**SpaceX Contact** | James Gleeson, Sr. Manager, Communications, 202-649-2633, [media@spacex.com](mailto:media@spacex.com).

**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).