SpaceX launches Starlink mission, deploys 60 satellites [Updated]

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- Launch of the Falcon 9 rocket on Thursday evening from Cape Canaveral, Florida.
  Trevor Mahlmann
- A Falcon 9 rocket is on the pad for Thursday night’s launch attempt.
- Here’s a closer look at the payload fairing that contains 60 satellites.
  Trevor Mahlmann
- And a wider shot of media setting up for their remote launch shots.
  Trevor Mahlmann

11:40pm ET Update: The Falcon 9 rocket launched. Its first stage landed. And then the second stage coasted for the better part of an hour before making a final burn and deploying its payload of Starlink satellites.

About 1 hour and 3 minutes after the launch, the entire stack of 60 satellites floated away from the Falcon 9’s second stage. Slowly—very slowly, it appeared—the 60 satellites began to drift apart. The SpaceX webcast ended without saying whether this deployment went as anticipated, and it probably will take some time for the Air Force to begin identifying, and tracking the individual satellites.

Enlarge / A stack of 60 Starlink satellites is released from the Falcon 9 rocket’s upper stage.
SpaceX webcast
In any case, this all made for an interesting evening in space.

Original post: After two launch attempts and a week of downtime, SpaceX has returned its Falcon 9 rocket to the launchpad for the Starlink mission. The 90-minute launch window opens at 10:30pm ET Thursday (02:30 UTC Friday), and the weather—including those pesky upper-level winds—appears likely to cooperate.

With a mass of 18.5 tons, this will be SpaceX’s heaviest launch to date for either the Falcon 9 or Falcon Heavy rocket. The rocket will attempt to boost 60 Starlink satellites, each

227kg, to an altitude of 440km. This is the company's first block of Starlink satellites for what should eventually be a much larger constellation, and they will help SpaceX gauge its performance and conduct tests of several key systems.

With six more launches, for a total of about 400 satellites, SpaceX founder Elon Musk said the Starlink constellation will reach the point of being able to offer some initial Internet connectivity to ground-based users. A dozen launches would bring "significant" connectivity, he said, and 24 launches would bring near-worldwide service.

Why is SpaceX getting into the space Internet business? Earlier this month, during a call with reporters, Musk said he anticipates Starlink will enable SpaceX's goal of building a self-sustaining city on Mars. Potential launch revenue tops out at about $3 billion a year for the company, he said, but capturing just 3 percent of the global Internet market could bring in about $30 billion. "We see this as a way for SpaceX to generate revenue that can be used to develop more and more advanced rockets," he said.

Stay for satellite deploy

The first part of Thursday night's launch will be familiar to those who have seen a Falcon 9 launch before. After the rocket's first stage sends its payload into space, it will separate and attempt to land on the *Of Course I Still Love You* droneship, which will be stationed downrange in the Atlantic Ocean.

The real novelty will come about an hour after the launch, when the Starlink satellites begin to deploy from the Falcon's upper stage. In order to save mass, each of the 60 satellites will not have its own release mechanism, such as a spring. Instead, the Falcon rocket's upper stage will begin a very slow rotation, and each of the satellites will be released in turn with a different amount of rotational inertia. "It will

almost seem like spreading a deck of cards on a table," Musk said. SpaceX is *pretty* sure this novel deployment method will work.

A webcast for the Starlink launch should begin about 15 minutes before the launch window opens, and it will include coverage of the satellite deployment.

[embedded content]
Starlink Mission.
Listing image by SpaceX webcast

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