

Use Case 1: Monitor Pre-Launch Activities

Scope: Launch Simulator

Level: Flight Director Goal

Primary Actor: Flight Director

Secondary Actor: Astronaut, Engineer/Technician

Related Use Cases: None

Stakeholders & Interests:

- Flight Controller: wants to monitor the Pre-Launch Data
- Flight Controller: wants to monitor the Countdown Time
- Flight Controller: wants to assess the validity of the Countdown
 - Continue the Countdown
 - Hold the Countdown
 - Abort the Countdown
- Engineer/Technician: wants to monitor selected Pre-Launch data to ensure the System is working properly and advise the Flight Controller
- Astronaut: wants to monitor Countdown Time
- Astronaut: wants to monitor Pre-Launch Data for System awareness

Pre-Conditions: All the parts of the System are ready to begin the Countdown, the Launch Simulator is running

Post-Conditions: The Countdown is at zero, the System transitioned from Pre-Launch to Initiate Launch

Main Success Scenario:

Flight Director	System
1. Start the Pre-Launch Sequence	
	2. Request Countdown Time Entry
3. Enters the Countdown Time	
	4. Returns Countdown Time
5. Starts the Countdown	
	6. Displays Countdown Time to all actors
	7. Repeats 6 for the entire countdown
	8. Monitors Pre-Launch Data
	9. Returns Pre-Launch Data to all the actors
	10. Repeats 7,8 for the entire Countdown
	11. Alerts actors when Countdown reaches zero
12. Initiate Launch Sequence	
	13. Transitions out of Pre-Launch into Initiate Launch
	14. Informs the actors of the transition

Alternative Flows:

- *.a At anytime, the Flight Director can hold the Countdown if conditions arise that warrant that.
- *.b At anytime, if the Countdown is on hold, the Flight Director can resume the Countdown if the State of the System warrants such a transition; the Countdown continues at the time stopped
- 9c. If the System detects an anomaly in the Pre-Launch Data, then the System alerts the Users of the anomaly for the Flight Director to determine if the anomaly warrants a hold in the Countdown
- 9d. If there is a Countdown hold, and the System continues to detect an anomaly in the Pre-Launch Data sent to the Users, then the Flight Director can choose to abort the Launch, the System indicates the Aborted Launch
- 9e. If there is a Countdown hold, the Flight Director will resume the countdown if
 - 1. The Anomaly is fixed and there are no other anomalies
 - 2. The Flight Director determines the Anomaly is not a threat to the mission integrity
 - 3. The Anomaly is determined to be errant

The System alerts the Users the Countdown hold is lifted

- 9f. If the System is automated at Countdown and the System detects an anomaly, then the System can hold the Countdown, alerting the Users; the Flight Controller can override the hold and resume the Countdown
- 12c. If the System is automated at Countdown, then the System will initiate the Launch Sequence at the discretion of the Flight Controller