

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