

Tool Map for the Scenario

1 query_flight_status

Purpose:

Get current delay, gate, ATC hold, or other disruption info for a flight.

Inputs:

- `flight_id`

Outputs:

- `delay_minutes`
 - `status` (e.g. ontime, delayed, canceled)
 - `gate_info`
 - `remarks` (e.g. ground stop, ATC hold)
-

2 query_crew_roster

Purpose:

Retrieve info on currently assigned crew for a flight.

Inputs:

- `flight_id`

Outputs:

- List of crew members (id, role, base, aircraft qualification, current duty status)
-

3 query_spare_pool

Purpose:

Find available spares that can cover the flight.

Inputs:

- `location` (e.g. ORD, SFO, DEN)
- `aircraft_type`
- `role` (captain, FO)

Outputs:

- List of candidates (crew id, location, duty status, legality status)
-

4 duty_hour_checker

Purpose:

Verify if a given crew member can legally fly the sequence given delay.

Inputs:

- `crew_id`
- `flight_id`
- `planned_delay_minutes`

Outputs:

- `legal` (true/false)
 - `reason` (if illegal: exceeded duty, insufficient rest, etc.)
-

5 book_hotel

Purpose:

Attempt to secure hotel room for stranded crew.

Inputs:

- `location`
- `crew_id`
- `night`

Outputs:

- `success` (true/false)
 - `hotel_name` or `failure_reason`
-

6 arrange_transport

Purpose:

Arrange ground transport for crew if stranded or repositioned.

Inputs:

- `from_location`
- `to_location`
- `crew_id`

Outputs:

- `success` (true/false)
- `eta`
- `provider_name` or `failure_reason`

7 policy_retriever

Purpose:

Retrieve policy or union rule guidance for exceptional cases (e.g. no legal crew found).

Inputs:

- `situation_description`

Outputs:

- `policy_text`
 - `recommended_action`
-

8 send_notification

Purpose:

Send structured summary of decisions, risks, status to human ops team.

Inputs:

- `message_text`
- `priority`

Outputs:

- `sent` (true/false)
 - `timestamp`
-

9 reposition_flight_finder (optional but useful)

Purpose:

Find possible repositioning flights for spare crew.

Inputs:

- `from_location`
- `to_location`
- `crew_id`

Outputs:

- `flight_id`
 - `dep_time`
 - `arr_time`
 - `available_seats` (true/false)
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These tools

- Cover *all reasoning points* in our scenario.
 - They let the agent:
 - Check current status.
 - Assess options.
 - Act or escalate.
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