Test Project

Session 3 - Smart-City

IT Software Solutions for Business

Submitted by:
Simon Maximilian Brebeck - Amazon Web Services, Independent Test Project Designer
Benjamin Frost, Independent Test Project Validator

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Contents

This Test Project consists of the following documentation and files:

- WSC2026_TP03_S3_actual_en.pdf (Test Project instructions – this document)
- WSC2026_TP03_S3_API_actual_en.pdf (Specification for the API)
- WSC2026_TP03_S3_StyleGuide_actual_en.pdf (colors, typography, spacing and component states)
- images/map.jpg (the city map, 1408 × 768 – all API coordinates are pixels on this image)

Introduction

In this Test Project you will build the Smart-City Emergency Dispatch desktop application. The operator monitors a live city map of emergencies, takes emergency telephone calls from the public, dispatches units to incidents and resolves them.

The server is authoritative for all world state. The client renders what the API reports and never simulates progression locally: it must not advance incidents, move units or change call state with its own timers.

The application presents three tabs – a map, an incident grid and a telephone console – together with a separate per-incident detail window, all sharing the same live data.

Instructions to the Competitor

By the end of the session you will need the following deliverables ready to submit so that the Dispatch system is finished on time.

- Follow the provided style guide throughout all parts of the system.
- Provide appropriate validation and error messages throughout. Where the API rejects an action (HTTP 400), surface the server's returned message to the operator, unaltered.
- Make sure that all relevant buttons and links are working at the end of the session.
- Use appropriate naming conventions for all parts of the system.
- The server is authoritative: never simulate incident, unit or call progression on the client.

Deliverables

1 Application Start-Up and Live Data

- Poll the states (/api/state) and calls (/api/calls) every 2000 ms.
- The server is authoritative for all state; render exactly what the API reports.
- Show a connection indicator and recover automatically if the API is briefly unavailable.

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2 Map Screen

Render the city map (images/map.jpg, 1408 × 768) with two marker layers – incidents and stations. All coordinates are map pixels (relative to its original size).

- Colour each incident marker by type: fire = red, crime = blue, medical = orange.
- An incident with status unacknowledged blinks between its own type color and white (e.g., a fire blinks red/white).
- An incident in any other status renders as a flat type colour at reduced opacity, with a small badge showing its status so the non-blinking statuses remain distinguishable from one another.
- Resolved incidents are hidden by default and can be shown via the filters.
- Render each station by its type and show how many of its units are currently available.
- Clicking an incident marker opens the incident detail window.

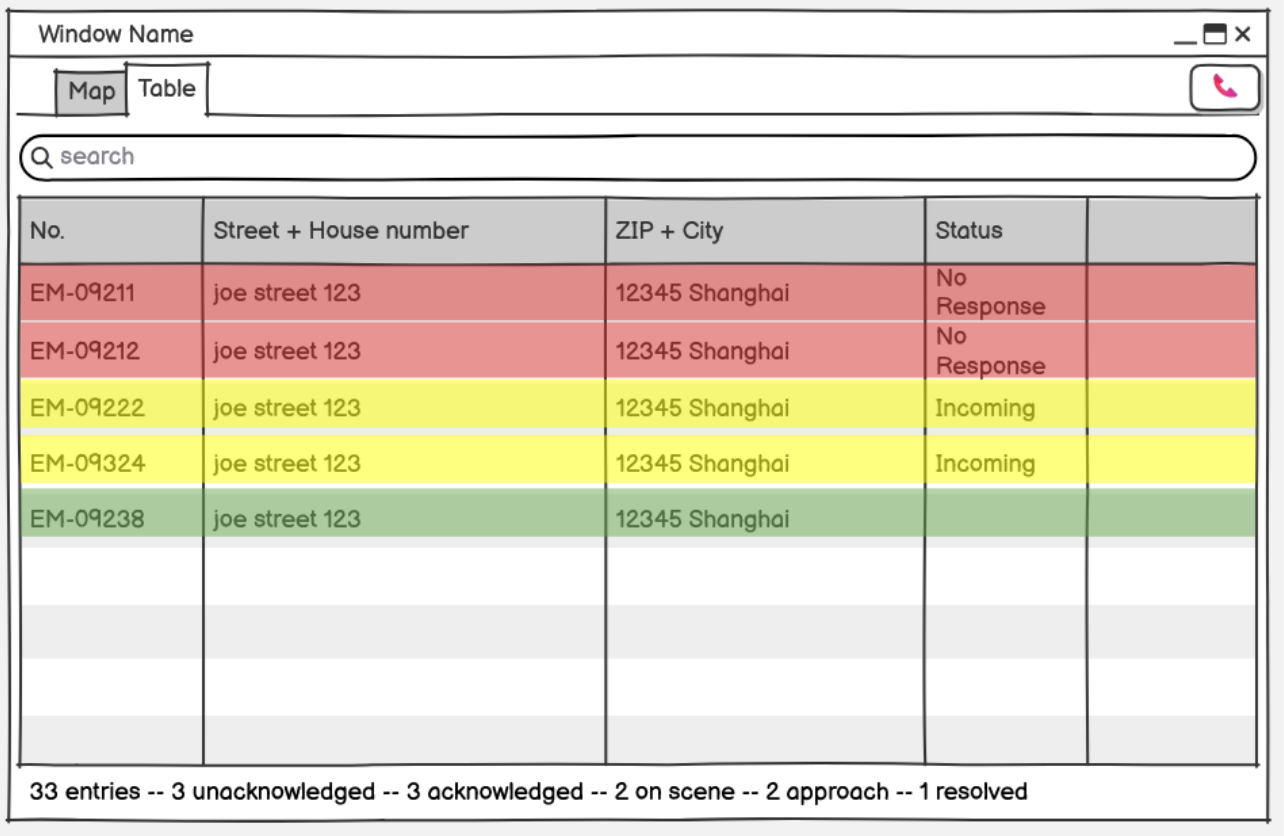


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3 Incident Grid

Provide a data grid (table) listing every incident.

- Show the columns: id, type, subtype, severity, status, reported time, assigned units and description.
- Colour-code the type cell by incident type, and provide a separate status column colour-coded by status.
- Add a debounced live search for easy searching of incidents using properties (id, type, status, description) with specific property filtering using
  --id=<id> --type=<type> --status=<status> --description=<description>
- Clicking a row opens the incident detail window.



4 Filters

Provide a filter panel for the map and incident grid.

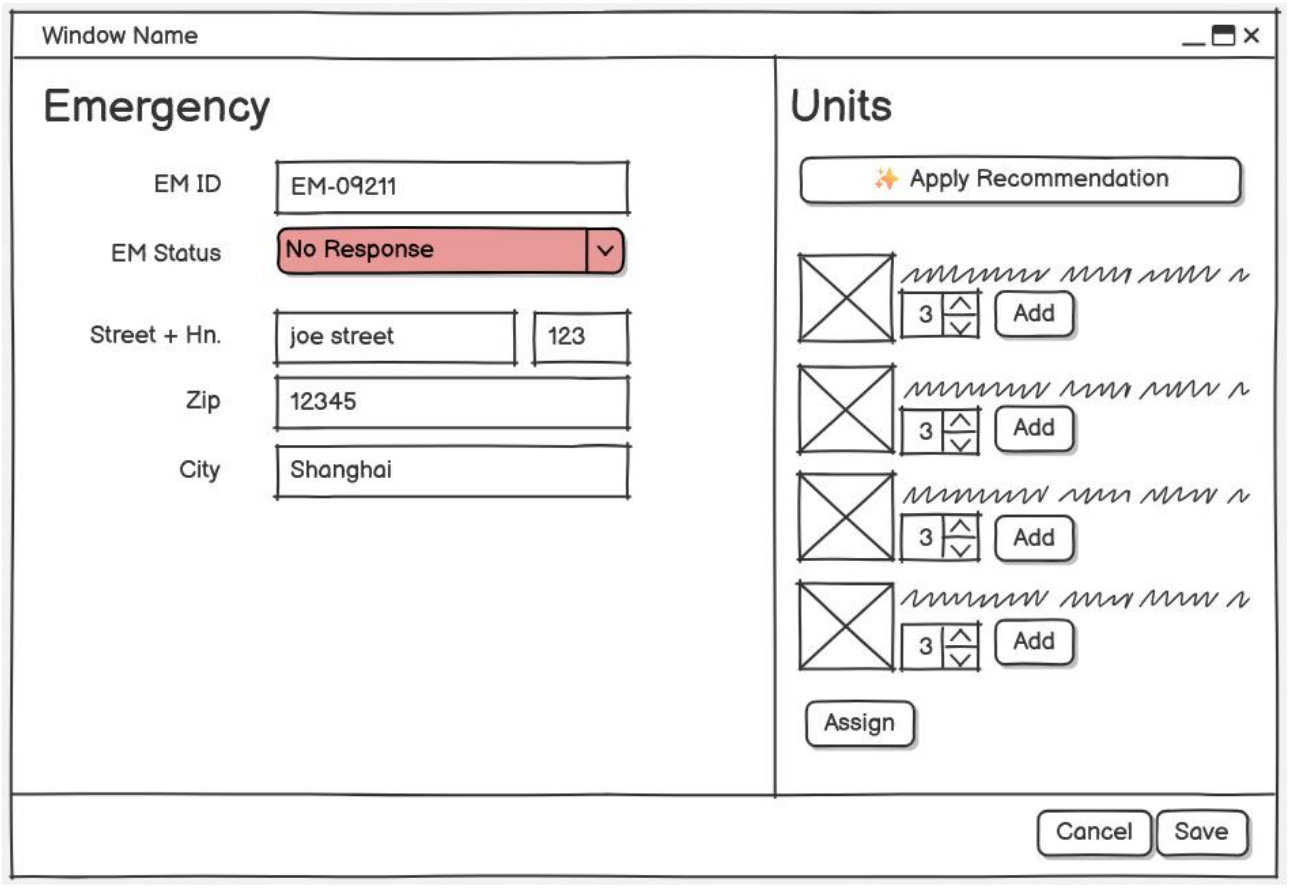
- Filter incidents by type, by severity and by status.
- Provide toggles to show or hide the incident layer and the station layer.
- Filters apply immediately.

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5 Incident Detail Window

Each incident opens in its own window, reachable from either the map or the grid. It shows the full incident data and drives the operator workflow. The available actions depend on the status reported by the API. Keep the window updating live while it is open.

- Unacknowledged: all controls are disabled except a single prominent Acknowledge button.
- Acknowledged: unit assignment is enabled:
  - List all units that exist next to the incident details.
  - A unit whose status is not available is shown but cannot be selected.
  - The operator may select one or more units across any stations.
  - An "Apply recommendation" button pre-selects a sensible composition for the incident subtype (see list below).
  - Allow users to edit the details, and assign units. Upon clicking "Save", the information is being send to the server. Validate every input. If the server rejects the assignment with 400, surface the returned error message.
- Assigned / en route / on scene: the server advances the incident and moves the assigned units across the map; display the progression as it arrives. A Resolve button is available.
- Resolved: read-only; show which units attended.

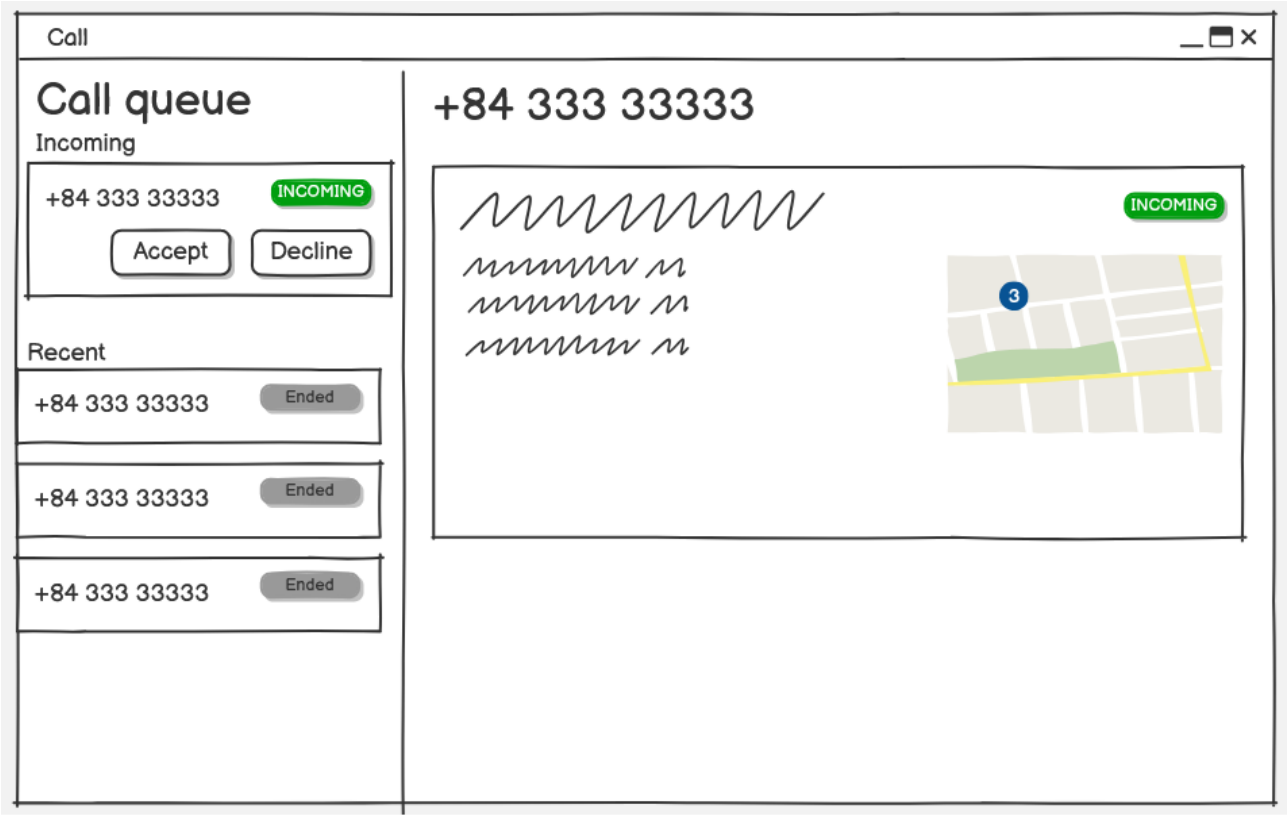


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6 Calls

Add a telephone console. Poll GET /api/calls every 2000 ms alongside GET /api/state.

- A call queue lists incoming and active calls plus recent ones (ended, declined, missed), with a badge counting ringing calls that stays visible from any tab.
- Selecting a call shows it on a call screen with the caller's name, number, reported type, description, location on a mini-map and a live timer.
- A ringing call can be accepted or declined; an active call can be ended or linked to an incident.
- Accepting a call automatically creates a new unacknowledged incident from the report (type taken from the call, a sensible default when unknown) and links the call to it, so it appears on the map and in the grid.



- Only one call may be active at a time: while a call is active, other ringing calls cannot be accepted, though they can still be declined.

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