

Report on Data Flow Diagram (DFD) Level 2 for Event Management and Ticketing System (EMTS)

Introduction

This report provides detailed Data Flow Diagram (DFD) Level 2 specifications for the Event Management and Ticketing System (EMTS). Each section elaborates on the subprocess decomposition for every Level 1 process, including entities, data stores, and data flows. The objective is to ensure a logically consistent and comprehensive model of system operations at the Level 2 layer.

1. User Management (DFD Level 2)

Reference: image9.png

1.1 Register User

This process is decomposed into the following sub-processes:

- 1.1.1 Validate User Input
- 1.1.2 Check Existing User
- 1.1.3 Create User Record
- 1.1.4 Send Confirmation

Entities and Data Stores:

User / Attendee, D1: User Data, Notification System

Data Flow Summary:

- The User / Attendee submits registration details to 1.1.1.
- Subprocess 1.1.2 queries D1: User Data to check for existing records.
- 1.1.3 creates a new user record (with hashed password) in D1: User Data.

- 1.1.4 sends a confirmation message to the User / Attendee and triggers a notification via the Notification System.
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1.2 Login User

Subprocesses:

1.2.1 Receive Credentials, 1.2.2 Validate User, 1.2.3 Generate Session, 1.2.4 Record Login

Entities and Data Stores:

User / Attendee, D1: User Data, D2: Login Logs

Data Flow Summary:

User sends login credentials to 1.2.1. The system validates them through 1.2.2 by querying D1. A session is generated (1.2.3) and the login activity is recorded in D2 (1.2.4).

1.3 Reset Password

Subprocesses:

1.3.1 Receive Request, 1.3.2 Generate & Store Token, 1.3.3 Send Reset Link, 1.3.4 Validate Token, 1.3.5 Update Password

Entities and Data Stores:

User / Attendee, Notification System, D1: User Data, D7: Password Reset Tokens

Data Flow Summary:

Tokens are generated and stored in D7. The reset link is sent via the Notification System. Upon token validation, the password is updated in D1.

1.4 Logout

Subprocesses:

1.4.1 Receive Logout Request, 1.4.2 Clear Session, 1.4.3 Record Logout

Entities and Data Stores:

User / Attendee, D2: Login Logs

Data Flow Summary:

Logout requests are received and processed, clearing user sessions and logging the activity in D2.

2. Event Management (DFD Level 2)

Reference: image12.png

2.1 Create Event

Subprocesses:

2.1.1 Receive Event Details, 2.1.2 Validate Information, 2.1.3 Check Conflicts, 2.1.4 Insert Event Record

Entities and Data Stores:

Event Organizer, D3: Event Data, Notification System

Data Flow Summary:

Event details are validated and checked for conflicts in D3. Approved events are recorded, and organizers are notified.

2.2 Edit Event

Subprocesses:

2.2.1 Receive Update, 2.2.2 Validate Changes, 2.2.3 Modify Event Record, 2.2.4 Notify System

Entities and Data Stores:

Event Organizer, D3: Event Data

Data Flow Summary:

Event updates are validated and applied to D3, with notifications sent to relevant systems.

2.3 Delete Event

Subprocesses:

2.3.1 Receive Request, 2.3.2 Validate Deletion Rights, 2.3.3 Remove Event Entry, 2.3.4 Process Refunds/Alerts

Entities and Data Stores:

Event Organizer, D3: Event Data

Data Flow Summary:

Deletion requests are verified, corresponding event entries are removed, and refund/alert processes are initiated.

2.4 View Event Status

Subprocesses:

2.4.1 Receive View Request, 2.4.2 Retrieve Status, 2.4.3 Format Status, 2.4.4 Display Status

Entities and Data Stores:

Event Organizer, D3: Event Data

Data Flow Summary:

Organizers can view real-time event information retrieved and displayed from D3.

3. Ticket Management (DFD Level 2)

Process: 3.0 Ticket Purchase and Confirmation

Subprocesses:

3.1.1 Select Tickets, 3.1.2 Check & Reserve Inventory, 3.1.3 Calculate Total Amount, 3.1.4 Process Payment, 3.1.5 Finalize Booking, 3.1.6 Issue Ticket

Entities and Data Stores:

User / Attendee, Payment Gateway, D3: Event Data, D5: Booking Data, D6: Payment Data, Notification System

Data Flow Summary:

Tickets are selected and reserved, payments are processed through the Payment Gateway, and confirmations are issued to users through the Notification System.

4. Notification Management (DFD Level 2)

Reference: image26.png

4.1 Generate Notification

Subprocesses:

4.1.1 Receive Trigger, 4.1.2 Determine Content & Recipient, 4.1.3 Construct Message Payload, 4.1.4 Save Message

Entities and Data Stores:

D8: Notification Data

Data Flow Summary:

Notifications are generated based on triggers, stored in D8, and forwarded for delivery.

4.2 Deliver Notification

Subprocesses:

4.2.1 Route Message, 4.2.2 Transmit Message, 4.2.3 Log Delivery Attempt

Entities and Data Stores:

User / Attendee, Event Organizer, Admin, D8: Notification Data

Data Flow Summary:

Messages are routed to recipients, transmitted, and delivery attempts logged in D8.

4.3 View Notifications

Subprocesses:

4.3.1 Receive View Request, 4.3.2 Retrieve Messages, 4.3.3 Display Notifications

Entities and Data Stores:

User / Attendee, Event Organizer, Admin, D8: Notification Data

Data Flow Summary:

Users and administrators can view stored notifications retrieved from D8.

5. Admin Management (DFD Level 2)

Reference: image20.png

5.1 Approve / Reject Events

Subprocesses:

5.1.1 View Pending Events, 5.1.2 Receive Admin Decision, 5.1.3 Update Event Status, 5.1.4 Log Decision

Entities and Data Stores:

Admin, D3: Event Data, D4: Event Approval Records, Notification System

Data Flow Summary:

Admins review event submissions, update event status, log decisions, and send notifications.

5.2 Manage Users

Subprocesses:

5.2.1 Receive CRUD Request, 5.2.2 Process Create, 5.2.3 Process Update/Delete, 5.2.4 Retrieve Users

Entities and Data Stores:

Admin, D1: User Data

Data Flow Summary:

Admins can create, update, delete, or retrieve user data from D1.

5.3 View Reports

Subprocesses:

5.3.1 Select Report Type, 5.3.2 Query Data Stores, 5.3.3 Aggregate Data, 5.3.4 Generate & Display Report

Entities and Data Stores:

Admin, D1: User Data, D3: Event Data, D9: Reports Data

Data Flow Summary:

Reports are generated by aggregating data from various stores and presented to the admin.

6. Support and Reports (DFD Level 2)

Reference: image21.png

6.1 Submit Support Query

Subprocesses:

6.1.1 Receive Query, 6.1.2 Save Query, 6.1.3 Notify Admin

Entities and Data Stores:

User / Attendee, Notification System, D10: Support Queries

Data Flow Summary:

User queries are saved in D10, and the admin is notified through the Notification System.

6.2 Resolve Query

Subprocesses:

6.2.1 Retrieve Query, 6.2.2 Receive Resolution, 6.2.3 Update Resolution, 6.2.4 Notify User

Entities and Data Stores:

Admin, Notification System, D10: Support Queries

Data Flow Summary:

Admin reviews queries, updates resolutions in D10, and sends notifications to users.

6.3 Generate System Reports

Subprocesses:

6.3.1 Receive Report Request, 6.3.2 Retrieve Report Data, 6.3.3 Format & Store Report, 6.3.4 Display Results

Entities and Data Stores:

Admin, D9: Reports Data, D3: Event Data, D10: Support Queries

Data Flow Summary:

Admins generate system-wide reports using data from multiple repositories for analysis and monitoring.

Conclusion

This detailed Level 2 DFD report offers a complete functional breakdown of the Event Management and Ticketing System (EMTS). Each subprocess and data interaction ensures a clear understanding of system flow, dependencies, and operational responsibilities across user, admin, and notification modules.

