Victor Executive Data Model

Table: Flight

Field	Description
Flight ID	Unique identifier of the flight
Flight Reference	Internal reference or job number
Operator ID	Link to operator record
Client ID	Link to client record

Field	Description
Aircraft ID	Link to aircraft record
Operator Name	Operator name as displayed
Aircraft Registration	Aircraft tail number
Aircraft Type	Aircraft type / model
Origin Airport Code	ICAO/IATA origin
Destination Airport Code	ICAO/IATA destination
Alternate Airport Code	Alternate airport
Route Description	Flight route
Scheduled Arrival Time Local	Scheduled local arrival
Scheduled Departure Time Local	Scheduled local departure
Estimated Arrival Time	ETA
Estimated Departure Time	ETD
Actual Arrival Time	ATA

Field	Description
Actual Departure Time	ATD
On Block Time	Aircraft on blocks
Off Block Time	Aircraft off blocks
Stand Position	Stand / apron position
Flight Status	Planned, On Ground, Ready, Departed, Closed
Flight Type	Private, Commercial, Technical, etc.
Turnaround Type	Arrival only, Departure only, Turnaround
Leg Direction	Inbound / Outbound / Both
Pax Expected	Expected passenger count
Crew Expected	Expected crew count
Security Cleared	Boolean
Customs Required	Boolean
Immigration Required	Boolean

Field	Description
HCAA Approval Required	Boolean
HCAA Approval Received	Boolean
Logbook Photo Required	Boolean
Handling Station	Handling company name
Handling Contact	Contact person
Billing Client	Billing client name
Billing Currency	Currency for invoice
Ground Time Minutes	Calculated ground time
Notes	Operational notes
Created At / By	Audit trail
Updated At / By	Audit trail

Table: Aircraft

Field	Description
Aircraft ID	Unique identifier
Registration	Tail number
ICAO Type Code	Aircraft code
Aircraft Type Name	Type name
Manufacturer	Manufacturer
Model	Model
Serial Number	Serial number
Owner Name	Owner of the aircraft
Operator ID	Link to Operator
Base Airport Code	Home base
Country of Registration	Registration country
Registration Authority	Issuing CAA
MTOW KG	Maximum takeoff weight

Field	Description
MLW KG	Maximum landing weight
Max Seats	Max passenger seats
Cabin Configuration	Cabin layout
Noise Category	Noise level (e.g. Chapter 4)
Wake Turbulence Category	L / M / H / J
Airworthiness Certificate No	Certificate number
Airworthiness Expiry Date	Expiry date
Insurance Policy Number	Policy reference
Insurance Expiry Date	Expiry date
Technical Notes	Maintenance / tech remarks
Active Flag	Boolean
Created / Updated	Audit trail

Table: Operator

Field	Description
Operator ID	Unique identifier
Operator Name	Full legal name
Operator Code	ICAO/IATA/internal code
Operator Type	AOC holder, management, private owner
AOC Number	Air Operator Certificate number
AOC Issuing Authority	Issuing CAA (e.g. HCAA, EASA)
AOC Expiry Date	Expiry / renewal date
Address / City / Country	Operator location
VAT / Tax ID	Tax identifier
Contact Email / Phone	Main contact
Operations Contact Name / Email / Phone	Operational contact
Billing Contact Name / Email / Phone	Billing contact
Default Currency	Default billing currency

Field	Description
Default Tariff Code	Pricing code
Notes	Notes
Created / Updated	Audit trail

Table: Client

Field	Description
Client ID	Unique identifier
Client Name	Full client name
Client Type	Individual, Company, Broker, Operator
Company Name	Legal company name
VAT Number / Tax ID	Tax identifier
Address / City / Country	Client location
Email / Phone	Main contacts
Contact Person	Main contact person

Field	Description
Contact Position	Role or title
Billing Address / Country	Invoice details
Billing Email / Phone	Billing contacts
Default Currency	Preferred currency
Preferred Payment Method	Wire, Card, Cash, Account
Credit Limit	Credit limit
Notes	Notes
Created / Updated	Audit trail

Table: Crew

Field	Description
Crew ID	Unique identifier
Flight ID	Related flight
Operator ID	Related operator

Field	Description
Crew Role	Role on board (Captain, FO, etc.)
Rank	CPT / FO / FA etc.
Full Name	Name on documents
Nationality	Nationality
Document Type / Number / Expiry	Passport / ID info
Licence Number / Authority / Expiry	Licence details
Crew Onboard Arrival / Departure	Flags
Visa Required / Number / Expiry	Visa details
Customs / Immigration / Security Cleared	Flags
Base Airport	Home base
Employer Name	Employer
Notes	Notes
Created / Updated	Audit trail

Table: Passengers

Field	Description
Passenger ID	Unique identifier
Flight ID	Related flight
Sequence Number	Order on manifest
Full Name	Passenger name
Nationality	Nationality
Document Type / Number / Expiry	ID info
Visa Required / Number / Expiry	Visa info
Arrival Leg / Departure Leg	Flags
Embarkation / Disembarkation	Airport codes
Baggage Count / Weight	Info
Main Contact Flag	Boolean
Customs / Immigration / Security Cleared	Flags
Special Assistance / Remarks	Notes

Field	Description
Checked In / Boarded / Offloaded	Flags
Notes	Free text
Created / Updated	Audit trail

Table: Services

Field	Description
Service ID	Unique identifier
Flight ID	Related flight
Service Type	Fuel, Catering, Cleaning, etc.
Requested / Start / Completed Time	Timestamps
Status	Requested, In Progress, Completed
Provider Name / Contact	Provider info
Quantity / Unit / Unit Price	Billing info
Total Price / Tax / Currency	Financials

Field	Description
Linked Invoice ID	Connection to invoice
Notes	Notes
Created / Updated	Audit trail

Table: Documents

Field	Description
Document ID	Unique identifier
Flight ID	Related flight
Document Type	GD, Manifest, Form 731, HR, INV
File Path / URL	Location of document
QR Code Value	QR reference (Flight + Document)
Status	Draft, Generated, Signed, Archived
Generated / Signed At	Timestamps
Linked Authority	Authority reference

Field	Description
Remarks	Notes
Created / Updated	Audit trail

Table: Authority Status

Field	Description
Authority Status ID	Unique identifier
Flight ID	Related flight
Authority Type	Immigration, Customs, Security, HCAA, etc.
Authority Name	Specific department
Status	Not Started, In Progress, Completed
Officer Name / ID	Optional details
Reference Number	Clearance reference
Linked Document ID	Document proof
Notes	Notes

Field	Description
Created / Updated	Audit trail

Table: Invoice

Field	Description
Invoice ID	Unique identifier
Invoice Number	Invoice number
Flight ID	Related flight
Client ID	Related client
Issue / Due Date	Dates
Currency	Invoice currency
Subtotal / Tax / Total	Amounts
Status	Draft, Sent, Paid
Payment Method / Terms	Details
Paid / Outstanding Amount	Values

Field	Description
Notes	Notes
Created / Updated	Audit trail

Table: Invoice Line

Field	Description
Invoice Line ID	Unique identifier
Invoice ID	Related invoice
Service ID	Linked service
Charge Code / Description	Line text
Quantity / Unit / Unit Price	Billing values
Tax Rate / Amount	Tax info
Total Amount	Line total
Notes	Notes
Created / Updated	Audit trail

Table: Handling Request

Field	Description
Handling Request ID	Unique identifier
Flight ID	Related flight
Airport Code	ICAO/IATA airport
Requested By	Name / company / contact
Arrival / Departure Handling Required	Flags
Pax / Crew / Ramp / Fuel / Catering / Transport	Requests
Parking Type / Duration	Info
Status	Draft, Submitted, Confirmed, Cancelled
Confirmed By / At	Confirmation info
Notes	Internal or client notes
Created / Updated	Audit trail

Table: FlightProgramme

Field	Description
Programme ID	Unique identifier
Flight ID	Related flight
Operator Name / Aircraft / Route	Display data
Scheduled / Estimated / Actual Times	Timeline
Status	Operational state
Pax / Crew Counts	Display counts
Handling Station	Company name
Clearance Flags	Immigration / Customs / Security
Remarks	Notes
Created / Updated	Audit trail

Table: User

Field	Description
User ID	Unique identifier
Username / Email	Login credentials
Password Hash	Encrypted password
First / Last Name	User name
Phone	Contact number
Organization ID	Reference to organization
Actor Category	Handler, Police, AirportStaff, etc.
Role ID	Default role
Is Active / Locked	Flags
Last Login / IP	Info
Two Factor Enabled / Method	Security
Created / Updated	Audit trail

Table: Role

Field	Description
Role ID	Unique identifier
Role Name / Code	Role identifiers
Description	Description of role
Access Level	Global, Airport, Flight
Feature Permissions	Booleans for specific actions
Created / Updated	Audit trail

Table: User Role Assignment

Field	Description
User Role Assignment ID	Unique identifier
User ID	Linked user
Role ID	Linked role
Scope Type	Global, Airport, Operator, Client
Scope Airport Code / Operator ID / Client ID	Access limitation

Field	Description
Permissions Flags	View/Edit rights for data categories
Valid From / Until	Validity range
Created / Updated	Audit trail

Table: Organization

Field	Description
Organization ID	Unique identifier
Organization Name	Full name
Organization Type	Airport, GroundHandler, Operator, Police, Customs, etc.
Airport Code	Airport code if relevant
Country / City / Address	Location
Contact Email / Phone	Main contact
Is Airport Operator / Handler / Authority	Flags
Default Timezone	Default time zone

Field	Description
Notes	Notes
Created / Updated	Audit trail

Access Control Matrix – Victor Executive Platform

Actor / Role	Description	Scope	What They Can See	What They Can Edit / Do	What They Cannot See
System Administrator	Internal Victor admin responsible for global configuration and maintenance	**Global**	All flights, all airports, all data (Ops, Docs, Billing, Users, Logs)	Full CRUD access, manage roles, reset users, export data, manage integrations	–

Actor / Role	Description	Scope	What They Can See	What They Can Edit / Do	What They Cannot See
Airport Authority	Airport operations or enterprise IT staff	**Airport (per ICAO code)**	All flights operating at that airport, handling requests, aircraft movements, status, security & clearance data	Can view all ground operations, update stand positions, confirm clearances, monitor timeline	Cannot access client billing or invoices
Police Authority	Border police / Immigration	**Airport (per ICAO code)**	Flights, crew & passenger manifests, GD, Form 731, security fields, timestamps	Can mark Immigration clearance as Completed, upload stamped GD	Cannot view pricing, billing, internal notes, or client/operator financial data
Customs Authority	Customs officers	Airport (per ICAO code)	Flights with international status, GD, cargo/manifest details	Can mark Customs clearance as Completed, attach signed documents	Cannot see invoices, client data, or operational costs
HCAA / Aviation Authority	Civil Aviation Authority inspectors	National (multi-airport)	Technical flights, Form 731, Aircraft & Operator data, logbook photos	Can approve or reject Form 731, update HCAA Approval fields	Cannot see billing or commercial data

Actor / Role	Description	Scope	What They Can See	What They Can Edit / Do	What They Cannot See
Security Authority	Airport security personnel	Airport (per ICAO code)	Flights, crew & pax manifests, security flags, screening times	Can mark security screening as completed, upload security clearance form	Cannot edit flight data or service items
Ground Handler (Supervisor)	**Executive handling** supervisor	**Airport / Company**	All flights assigned to their company and airport	Create/edit flights, services, passengers, crew, documents, GD generation, status updates	Cannot edit billing beyond their services, cannot see other handler data
Ground Handler (Agent)	Ramp or passenger services staff	Airport / Company	Flights assigned to them only	Edit basic operational data (times, services, pax/crew lists), generate documents	Cannot view invoices, authority sections, or other handlers' flights
Airport Operations Center (AOC)	Central coordination (airport ops room)	Airport	Overview of all flights, stands, times, statuses	Can update operational timeline, approve stand changes	Cannot view personal or financial data

Actor / Role	Description	Scope	What They Can See	What They Can Edit / Do	What They Cannot See
Operator Representative	Aircraft operator / management company staff	Operator-wide	Flights related to their aircraft and crews	View full flight details, manifests, documents, upload signed docs, approve data	Cannot modify invoices or services charged by handler
Client / Broker Representative	The paying client or broker	Client-specific	Flights billed to their company	View limited flight summary, passenger lists (names only), invoices, documents (read-only)	Cannot edit any operational field or see other clients' data
Airport Security Staff	Local terminal or airside security	Airport	Flight access limited to pax/crew screening data	Mark screening complete	No access to billing or internal operations
Fuel Provider	Third-party fueling contractor	Airport	Only flights assigned to them for fuel	Update status (Requested, Completed), add delivered quantity	Cannot access pax, crew, or billing data

Actor / Role	Description	Scope	What They Can See	What They Can Edit / Do	What They Cannot See
Catering Provider	Third-party catering company	Airport	Flights assigned for catering	Update status, upload delivery receipt	Cannot access security, manifests, or invoices
Maintenance / Technical Provider	Line maintenance team	Airport / Operator	Flights under maintenance scope	Update technical completion, attach logbook photo	Cannot view pax or financial data
Billing / Accounting Staff	Internal Victor finance or handler accounting team	Company-wide	Invoice data, services, clients	Edit invoices, approve or export billing, update payments	Cannot modify flight operations or security data
Viewer / Read-Only	External auditors or observers	Scoped per organization	Read-only view of assigned flights and documents	None	Cannot edit or download sensitive data

Rule Summary

1. **Organization determines visibility**
   Each user belongs to an Organization (Organization Type = Airport, Handler, Police, Client, etc.).
   Users can only see Flights linked to their Organization's scope (airport or company).

2. **Role determines depth of access**
   Example: A "Handler Supervisor" and "Handler Agent" belong to the same Organization but have different CRUD rights.

3. **Authority users** (Police, Customs, Security, HCAA)
   → See **Flight Header + Manifests + Documents + Clearance fields only**.
   → They cannot open Service, Billing, or internal Notes tabs.

4. **Handlers**
   → Full operational editing rights (Flight, Crew, Pax, Services, Documents).
   → No access to accounting of other companies.

5. **Airport & AOC staff**
   → Read-only access across all flights at that airport, limited editing for operational coordination (stand/times).

6. **Clients & Operators**
   → See only their own aircraft and invoices, cannot modify any operational field.

7. **Victor Admins**
   → Global access, used only for maintenance and support.

User Roles and Responsibilities

Victor Executive Platform

1. Handler – The Core Operator of the Flight

The Handler is the operational owner of the flight on the ground.
Every process in the system revolves around the handler's actions.

What the Handler does:

- **Creates the Flight. Opens a new record, enters the operator, aircraft, origin, destination, times, and parking stand.**
- **Completes crew and passenger data. Adds, removes, or edits names, roles, and IDs as required.**
- **Manages all ground services: fuel, catering, GPU, transport, cleaning, hangar, de-icing, etc.**
- **Generates all operational documents (General Declaration, Passenger Manifest, Form 731, Handling Request, Invoice draft) directly from the Flight screen.**
- **Collects and uploads signed documents once approved by authorities.**
- **Updates the flight timeline: landing, on-block, off-block, and departure times.**
- **Closes the flight when the operation is complete.**

In simple terms:
The handler works in every tab of the Flight screen except billing (if restricted). Everything related to operational activity data, documents, or clearances belongs to the handler.

2. Representative The Authorized Viewer and Approver

There are two types of representatives in the platform:

- **Operator Representative represents the aircraft operator or management company.**
- **Client / Broker Representative represents the client being billed or the charter broker.**

What Representatives do:

- **They never create a Flight.**
- **They can only view flights related to their own organization (their aircraft or their billing reference).**
- **They can view all documents (GD, Manifest, Form 731, invoices) in read-only mode.**
- **They can upload signed or approved documents for archival (e.g., stamped GD, permits, approvals).**
- **They cannot modify passenger or crew data.**
- **They cannot change flight status or operational times.**

In essence:
The Representative can see, verify, and approve but not alter the operation. The handler executes; the representative reviews.

3. Airport Group

Airport Staff / Airport Operations Center (AOC):

- **Can view all flights operating at their airport, regardless of handler.**
- **Can see header, times, parking stands, and statuses.**

- **Can modify only operational stand or gate fields if allowed.**
- **Cannot access invoices, passenger documents, or internal notes.**
- **Their main task is operational awareness knowing which aircraft are on the ground and where.**

4. Authorities Group

All authorities have view-only access to operational and identity data, with permission to mark their own clearance status.

Police / Immigration

- **See flights that are international or flagged "Immigration Required."**
- **Can view Flight Header, Crew, Passengers, GD, and Manifest.**
- **Can mark Immigration = Completed and upload stamped documents.**
- **Cannot view billing, pricing, or handler notes.**

Customs

- **View flights flagged "Customs Required."**
- **See Header, Crew, Passengers, and GD.**
- **Can mark Customs = Completed.**
- **No access to financial or operational editing.**

Security

- **See only the data required for passenger and crew screening.**
- **Can mark Security Screening = Completed and upload security clearance forms.**
- **Cannot view or edit other sections.**

HCAA / Civil Aviation Authority

- **See technical or maintenance flights (Form 731, logbook photo, approvals).**
- **Can approve or reject HCAA-related documents.**
- **Cannot access billing or commercial data.**

General Rule for Authorities:
Authorities verify legality and identity. They do not see financials or internal handling data.

5. Financial and Billing Group

Billing / Accounting Staff

- **Manage invoices and financial records only.**
- **Can view and edit invoices, services, and payment data.**
- **Cannot edit flights, crew, passengers, or authority statuses.**
- **Their job is to convert completed services into invoices and manage payments.**

Client / Broker Representative

- **View invoices related to their company.**
- **See only high-level flight info (route, date, operator).**
- **May view passenger names if contractually allowed.**
- **No access to operational fields or internal notes.**

6. Service Providers

Fuel Provider

- **Sees only flights where their company provides fuel service.**
- **Can edit the "Fuel" Service Item (quantity, status, completion time).**
- **Cannot see passengers, crew, documents, or financials.**

Catering / Transport / Maintenance Providers

- **Same logic as Fuel Provider.**
- **Each provider sees only its own assigned services under the Services tab.**
- **No access to manifests, billing, or documents.**

7. Security Staff (Airport Personnel)

- **Airport Security staff (not authority) can only access flight-level data related to security checks.**
- **Can mark passengers and crew as screened and add timestamps.**
- **Cannot view documents, manifests, or financial data.**

8. System Administration

System Admin

- **Full unrestricted access to all airports, flights, and modules.**
- **Used for system maintenance, configuration, and support.**
- **May impersonate users for debugging, but all such actions must be logged in the AuditLog.**

9. External Auditors / Read-Only Users

Auditor

- **Read-only view of assigned flights or audit projects.**
- **Can see operational and billing summaries.**
- **No editing, no downloads (view-only on screen).**
- **Access restricted to non-personal data per GDPR.**

10. Scanner / Terminal Users

Terminal or Device Users are physical scanning stations — not human operators.

- **Can only scan QR codes and upload signed PDFs or images.**
- **Cannot browse flight lists or open detailed views.**
- **Have no access to passenger or billing data.**
- **Their entire function is: scan → verify → upload.**

11. Core Logic for Developers

1. **Organization defines visibility.**
   A user can only see Flights connected to their organization's scope (airport, operator, handler, or client).
2. **Role defines permissions.**
   The role determines which tabs (Header, Crew, Pax, Docs, Services, Billing, Authorities) are editable or read-only.
3. **Handler = Operational control.**
   Full access to create, modify, and close flights.
4. **Representative = Visibility and approvals.**
   Can view and approve but not edit operational data.
5. **Authorities = Legal control only.**
   Can mark clearances (Immigration, Customs, Security, HCAA). No access to billing.

6. **Airport = Coordination.**
   Operational awareness only, no document or passenger editing.

7. **Service Providers = Single service control.**
   Only see and update their own assigned Service Items.

8. **Finance = Invoices only.**
   No access to operational tabs.

9. **System Admin = Everything.**
   But all actions must be logged.

10. **Scanner = Minimal function.**
    Only QR → Upload → Done.

QR based document handling for all official forms in Victor

I would like to define how QR codes should work for all official documents in the Victor Executive platform. The goal is very simple. We do not design or replace official forms. We only complete them with data, generate PDFs, and attach a QR code so that any printed paper can always be linked back to the correct Flight and Document inside Victor.

Please implement the following logic.

First, the data model

Every document that can be printed or signed physically must have a QR identity. In practical terms this means adding and using fields such as:

Document ID
Flight ID
Document Type
Generated PDF Path
Signed PDF Path
QR Value
QR Image Path
Status (Draft, Generated, Sent, Signed, Archived)

The important part is the QR Value. It should uniquely identify the document in a way that the backend can trust. A simple approach is to encode a structured string that includes at least the following:

document type
flight id
document id
a short cryptographic checksum or signature

The exact format is up to you. The only requirement is that the backend can safely validate and map it back to a specific document record.

Second, QR generation when a document is created

When the handler generates any official document, for example:

General Declaration
Passenger Manifest
Form 731
Security form or report
HCAA related documents
Invoice if needed

the backend should do the following in one step.

Create or update the Document record for that flight and type.
Generate or update the QR Value for that document.
Generate a QR image from this QR Value.
Insert this QR image into the official PDF template of the document, in a reserved corner that does not break the official layout.
Save the final PDF file and update the document record with the Generated PDF Path and QR Image Path.

We always use the official template of the authority or airport. We are not redesigning the layout. We simply fill the fields and place a small QR stamp on the document, usually in a free corner.

The user will then see in the Flight Documents section something like:

General Declaration – status Generated
Passenger Manifest – status Generated
Form 731 – status Generated

Each of these has a button to open or print the generated PDF, which already contains the QR.

Third, scanning and uploading signed documents via QR

In the real world the document is printed, signed by the Captain and stamped by the authorities. Later it must return into Victor as a signed copy.

The scanning flow should be as follows.

The mobile app or a dedicated scanner terminal reads the QR from the paper.
The app sends the QR Value to a backend endpoint, for example
GET /api/documents/resolve-qr?value=…
The backend validates the QR Value, checks its integrity, and returns the context of the document. At minimum this

includes Flight ID, Document ID, Document Type, current Status and whether a signed upload is expected.
The client (mobile app or scanner terminal) shows a very simple screen. It does not ask the user to pick flight or document. It only allows capturing or uploading the signed PDF or image.
The uploaded file is stored as Signed PDF Path for that document and the Status changes from Generated or Sent to Signed.

There must be no manual document selection here. The QR is the source of truth. If the QR is valid, the system knows exactly which document and which flight this paper belongs to.

Fourth, permissions and who can scan

The QR mechanism should be neutral regarding the user type. The permission model will decide who is allowed to scan and upload signed documents.

Typical cases:

Handler uses the Victor app to scan and upload signed GD, Form 731, Security report, etc.
Authority staff at a fixed terminal can scan and upload their own signed and stamped copies if we allow it.
Scanner / Terminal users are special accounts that can only resolve QR and upload files, with no access to passenger, crew or billing data.

From the backend point of view this is always the same operation. Receive QR, validate it, map to Document, accept file, update status.

Fifth, printing

Printing is not handled directly by Victor. The system only needs to:

Provide the generated PDF with all data and the QR in place.
Allow the user to open it in the browser or on the device.

The actual print is done by the browser or OS. When the user prints a General Declaration, a Manifest or a Form 731, the printed paper already contains the QR, and is therefore linkable back to the correct document when scanned.

Sixth, which documents must support QR

At minimum the QR mechanism should be implemented for:

General Declaration
Passenger Manifest
Crew Manifest if used as separate document
Form 731
Security forms and reports
HCAA approvals or technical forms linked to a Flight
Invoices if we want full traceability from paper invoice back to the system

In practice, any document that can leave the digital environment and exist as a physical paper should have a QR so that it can always come back into Victor with zero ambiguity.

Summary

Do not redesign official forms.
Use official templates and fill them with Flight, Crew, Passenger and Service data.
Attach a unique QR to every important document.
Use this QR as the only key to resolve a signed paper back to the correct Flight and Document in the system.
Make the scan and upload flow fully automatic based on the QR, without manual selection of flight or document.

Developer Brief: General Declaration (GD) – Dynamic Generation (No Form Template)

The General Declaration in Victor is not a static form.
It is a **structured digital document** generated directly from the flight data, in compliance with ICAO Annex 9 and national requirements.
The platform should not rely on a predesigned PDF form. It must instead render and export the GD dynamically from database fields.

---

1. Core Concept

The GD is not a "form" to be filled.
It is a **data-driven document** produced automatically from the Flight record, Crew list, and Passenger list.
When the user clicks *Generate General Declaration*, the backend compiles the information and renders a standardized layout for preview, print, or export (PDF / XML / JSON).

There is no fixed PDF template — only a **dynamic structure** with clean headers, data tables, and a Victor QR.

---

2. Data Structure

The GD must include the mandatory ICAO fields:

- **Operator / Owner Name**
- **Aircraft Registration and Type**
- **Flight Number / Call Sign (if any)**
- **Place of Origin**
- **Place of Destination**

- **Flight Type (Private, Non-Commercial, Technical)**
- **Date of Flight**
- **Crew List (Names, Nationality, Document Numbers)**
- **Passenger Count** (and optionally names if required)
- **Remarks** (e.g. "Private flight under non-commercial operation")
- **Captain Name and Signature Placeholder**
- **Date and Place of Signature**

Additional local compliance fields may be added:

- Handling Agent name
- Ground Handler signature block
- Security / Immigration / Customs clearance stamps (as placeholders)

---

3. Rendering Logic

When generated, the GD should appear as a clean document with:

- Victor header and Flight reference
- One data section for flight and aircraft details
- One data section for crew

- One data section for passenger summary
- Empty signature area for Captain and Authorities
- QR code bottom-right corner linking to the system record

The backend can render this via:

- HTML-to-PDF export
- Or a PDF library layout, but **no official ICAO PDF background is used**

This means the layout is clean, bilingual if required, and always generated dynamically from structured data.

---

4. QR Integration

Each generated GD gets its own QR code (as described earlier).
The QR encodes at least:

- document type = GD
- flight id
- document id
- checksum

When printed, the QR allows the paper to be scanned back into the system and automatically matched to the correct Flight + Document.

---

5. Permissions

Who can interact with GD:

Role	Action
Handler	Generate, view, print, upload signed copy
Authorities (Police / Customs / Security)	View / download / mark clearance complete
Operator Representative	View only
Client Representative	None (optional read access)
System Admin	Full access
Scanner / Terminal	QR scan → upload signed copy

---

6. Storage

The backend stores:

- JSON structure of the generated GD (so it can be re-rendered anytime)
- Generated PDF file (for print/export)
- Signed PDF (if uploaded after stamping)
- QR Value

- Status: Draft → Generated → Signed → Archived

---

7. Summary for Implementation

- Do **not** use ICAO or national static form templates.
- Generate GD dynamically from live data.
- Include all legally required fields.
- Render in a standard Victor layout (white/grey background, blue headers, QR bottom-right).
- Enable print and digital export (PDF + XML).
- Allow signed PDF upload through QR scanning.

Result

The **General Declaration in Victor** is a living, digital document:

- generated instantly from flight data,
- signed on paper if needed,
- scanned back through its QR code,
- archived as a verified record.

It is not "another form". It is the **digital version of the GD**, fully compliant, traceable, and independent of manual templates.

Passport Scanning

Which Fields Are Auto-Filled and Where

When the user scans a passport (using MRZ OCR or NFC), the system must automatically populate specific fields in the **Passenger** or **Crew** record, and indirectly update the flight-level documents (GD, Manifest, Form 731).

The same scanning engine is used in both contexts. The only difference is whether the app is in **Passenger mode** or **Crew mode**.

1. Raw Passport / MRZ Data – What We Extract

From the passport MRZ we typically get:

- Document type (P = Passport)
- Issuing state (three-letter code, e.g. GRC, FRA)
- Surname
- Given names (may include multiple names)

- Passport number
- Nationality (three-letter code, usually same format as issuing state)
- Date of birth
- Sex (M / F / X)
- Date of expiry
- Optional personal number / ID (if present)
- Raw MRZ lines (line 1 and line 2)

This is the input to the mapping.

2. Mapping to the Passenger table

When the scan is done in **Passenger mode**, the system creates or updates a record in the **Passengers** table.

For each passport scan, map as follows:

From MRZ → To Passengers table

- surname → Last Name
- given_names → First Name and Full Name
    - First Name = first token of given_names
    - Full Name = "Surname + Given Names" exactly as printed

- sex → Gender
- date_of_birth → Date of Birth
- nationality → Nationality
- document_type (P) → Document Type = "Passport"
- passport_number → Document Number
- issuing_state → Document Country
- expiry_date → Document Expiry Date
- raw_mrz (both lines) → optional field MRZ Raw Data (for audit / re-parse)

In addition, the system can:

- Set Visa Required automatically to false for countries that do not require visa, or leave it null and let business rules decide.
- If this is a **new passenger** on the flight, increase Pax Expected on the Flight record by one.
- Pre-fill Embarkation Airport and Disembarkation Airport with the flight origin and destination by default, unless the user changes them.

So, after one scan, the Passenger record should have at minimum:

- First Name
- Last Name
- Full Name

- Gender
- Date of Birth
- Nationality
- Document Type
- Document Number
- Document Country
- Document Expiry Date

and this is enough for GD, Manifest and Form 731 to be generated correctly.

3. Mapping to the Crew table

When the scan is done in **Crew mode**, the same fields are mapped into the **Crew** table.

From MRZ → To Crew table

- surname → Last Name
- given_names → First Name and Full Name
- sex → Gender
- date_of_birth → Date of Birth
- nationality → Nationality

- document_type (P) → Document Type = "Passport"
- passport_number → Document Number
- issuing_state → Document Country
- expiry_date → Document Expiry Date
- raw_mrz → MRZ Raw Data (optional audit field)

Additional crew-only fields:

- Crew Role, Rank, Position Onboard (PIC, SIC, Cabin Crew) are **not** taken from the passport. They must be selected by the user from dropdowns after scanning.
- Licence data (Licence Number, Licence Authority, Licence Expiry Date) is also not on the passport and must be entered or selected separately.

So in Crew mode, the passport scan solves **all identity fields**, and the user then only chooses role/rank/licence.

4. Where else this data flows automatically

Once a passport scan has populated a Passenger or Crew record, that data flows automatically into:

- **General Declaration (GD)**
    - Crew section reads directly from Crew table.
    - Passenger counts and, where required, names read from Passengers table.
- **Passenger Manifest**

    - Printed manifest uses Full Name, Nationality, Document Number, Document Country, Date of Birth, Embarkation, Disembarkation.

- **Form 731**
    - Uses the same Passenger and Crew data, plus flight type and route from the Flight record.

The developer should not duplicate fields inside documents.
All documents must read from the **Passengers** and **Crew** tables.
The passport scan only ever writes into those tables, never straight into a PDF.

5. Behaviour expected in the UI

For both Passenger and Crew screens:

- When the user taps "Scan Passport", the app opens the camera or MRZ scanner.
- After a successful scan, the fields mentioned above are **auto-filled** in the form.
- The user can review and correct them if needed, then press Save.
- On Save, the corresponding Passenger or Crew record is updated, and any Draft documents (GD, Manifest, Form 731) can be regenerated with the new data.

No manual retyping of names, dates, numbers should be necessary after scanning.