Metro Ticket Generating System

Deployment, Documentation & Final Presentation

Introduction

This final phase marks the transition of the **Metro Ticket Generating System** from a development environment to a stakeholder-ready deployment. Phase 5 focuses on rigorous troubleshooting, the creation of a comprehensive technical blueprint, and the preparation of a visual demonstration. The goal is to ensure the system is not only functional but also maintainable, scalable, and clearly documented for future administrators and developers.

Troubleshooting & Debugging

Before final deployment, the system underwent deep technical validation to ensure reliability.

- **Logic Debugging:** Debugged QR encoding issues and potential fare mismatches using logs and print statements within the scripts.
- **Flow Execution Logs:** Traced every step of the **Metro Project** flow using Flow Designer's **Execution Details** to verify that condition paths for record creation triggered correctly.

- **Dynamic UI Validation:** Verified that selecting the "Recharge Metro Card" option correctly hides journey-specific fields and reveals smart card input variables, ensuring a focused user experience and data accuracy.

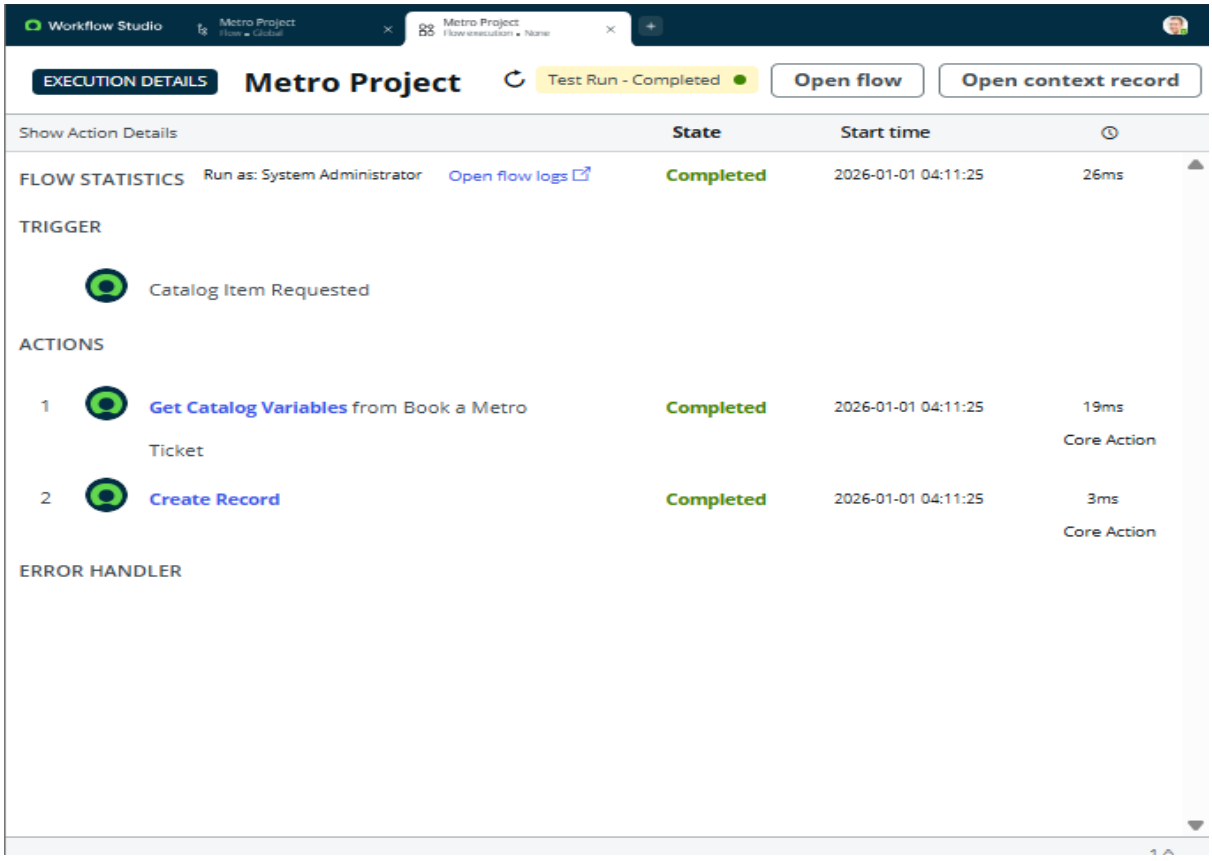


Figure 1: A screenshot of Flow Designer Execution Details showing a "Completed" path.

- **Variable Alignment:** Resolved data binding issues using **Catalog Client Scripts** to ensure that station selections dynamically populated the correct fare values on the portal.

- **Form Behaviour Testing:** Confirmed that UI policies correctly managed field visibility for both "Recharge" and "Booking" paths via Service Portal preview mode.

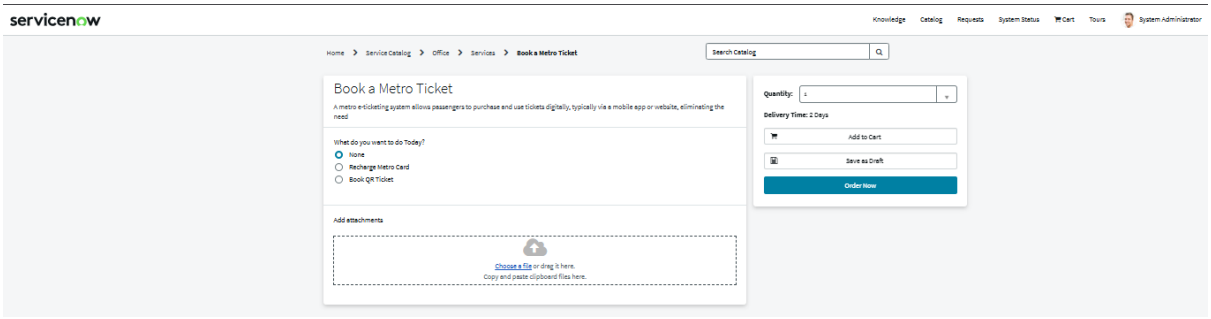


Figure 2a: Default State (None) – Shows the initial "clean" form layout where journey and card variables are hidden to minimize user effort

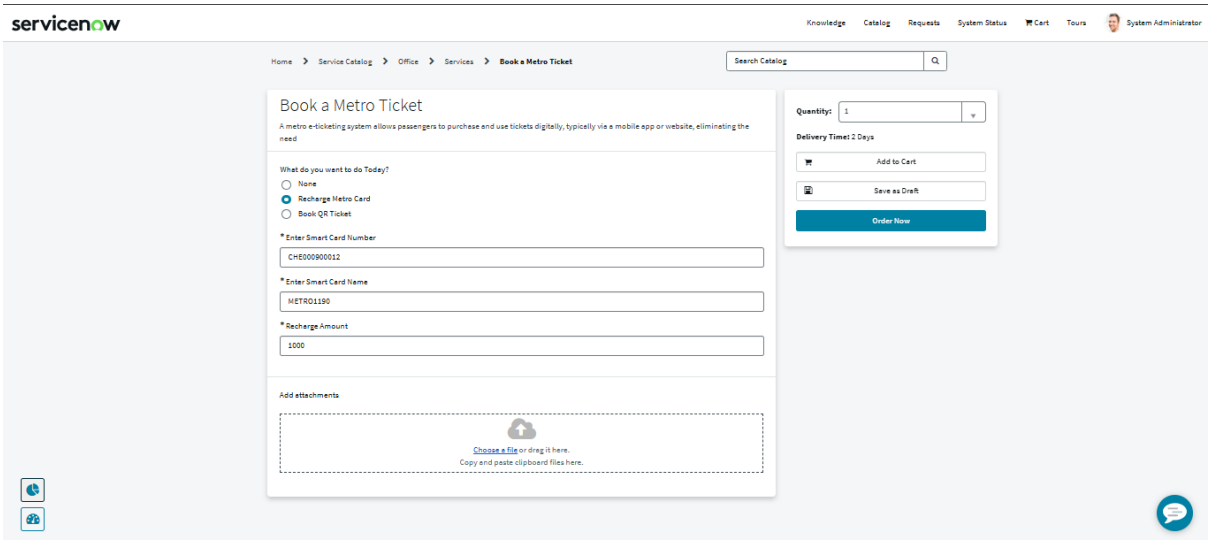


Figure 2b: Recharge Metro Card Selection – Demonstrates the dynamic reveal of Smart Card variables (Number, Name, and Amount) based on user selection.

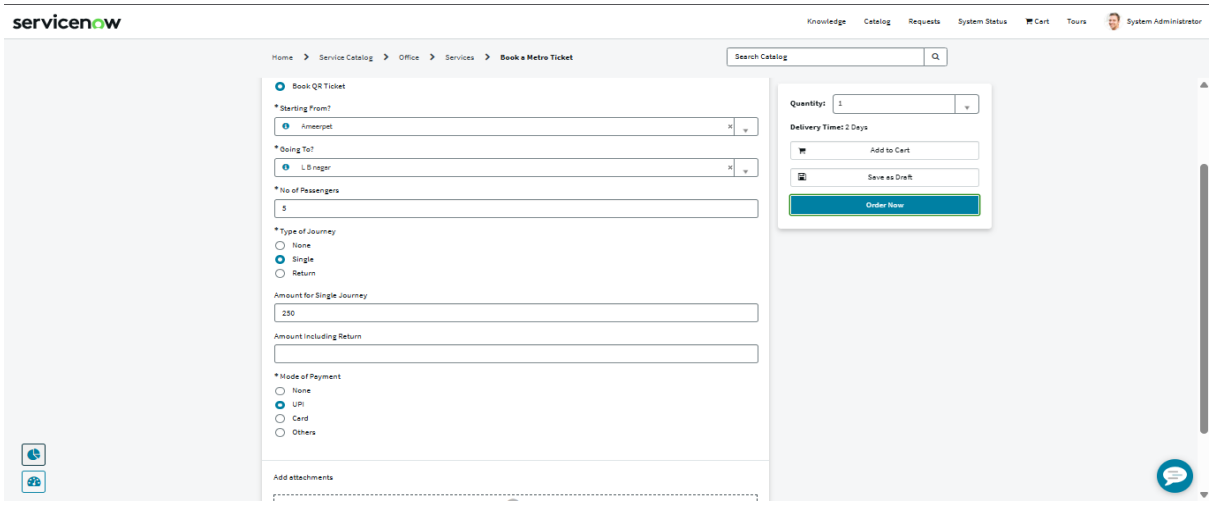


Figure 2c: Book QR Ticket Selection – Displays the journey-specific variables, including Source/Destination stations and the **Real-time Fare Preview**.

Adherence to Timelines

The project followed a disciplined **Sprint-based approach** to meet all 2025 graduation milestones:

- **Milestone 1:** Catalog Creation.
- **Milestone 2:** Form Setup & Dynamic Logic.
- **Milestone 3:** Testing, Security (ACLs), and QR Integration.
- **Milestone 4:** Deployment & Documentation.

Innovation & Maintenance

The system was built with a "Low-Code First" mindset to ensure it is easy to hand off to future IT teams:

- **No-Code Automation:** Leveraged **Flow Designer** for the entire backend lifecycle, eliminating the need for complex custom Script Includes or Business Rules.
- **Efficient Scripting:** Kept Client Scripts and UI Policies to the minimal essential use required for dynamic front-end behaviour.

Technical & Functional Blueprint

A complete repository of the system's architecture was prepared to support replicability:

- **Functional Overview:** Clear definitions of form variables, user experience flows, and the QR mapping process.
- **QR Generation Snippet**: A Client Script uses the spModal API to render a QR code using an external encoding service, passing the g_form.getUniqueValue() as the data payload.
- **Flow Designer Logic**: The "Metro Project" flow is triggered by a **Service Catalog** request. It executes two core actions: **Get Catalog Variables** to retrieve user inputs and **Create Record** to log the transaction in the backend database.

- **Technical Blueprint:** Included QR generation code snippets, Flow Designer logic snapshots, and the **Metro DataBase** custom table schema.
- **Setup Manual:** A step-by-step guide for recreating the **Catalog → Flow → ACL** structure in any new Personal Developer Instance (PDI).

Visual Demonstration & Project Demo

To present the system to stakeholders, a multi-role demonstration was planned:

- **Portal Walkthrough:** A guided tour from the Portal Home to the **Book A Metro Services** category.

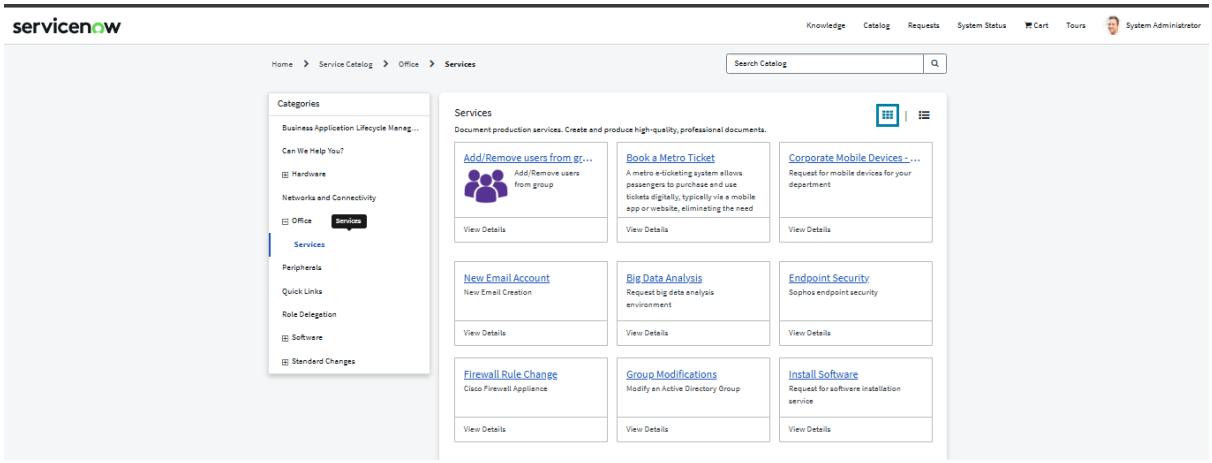
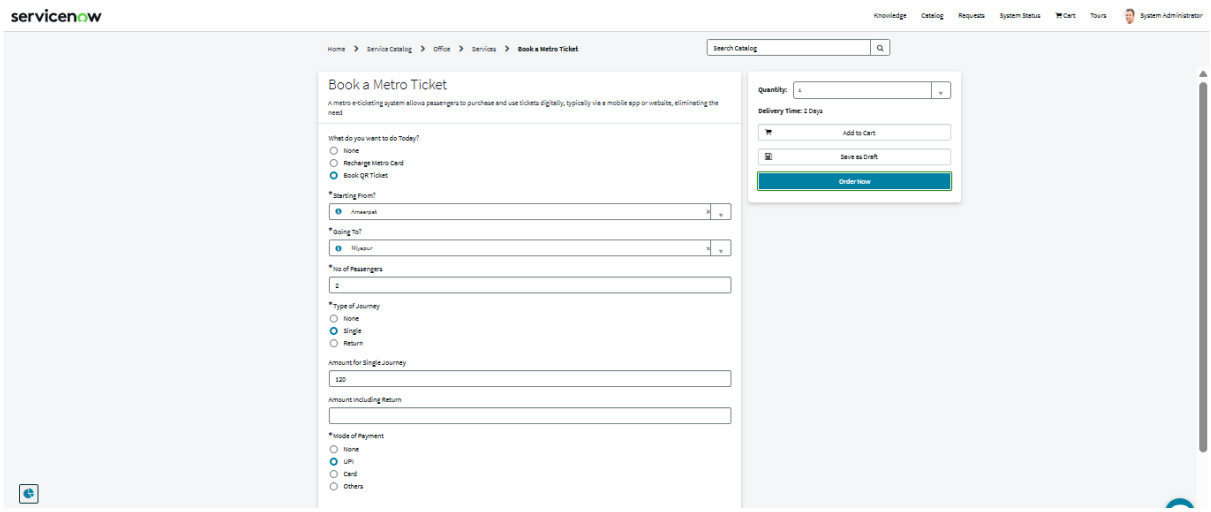


Figure 3: Service Catalog portal in service category

- **Live Submission:** A real-time demonstration of a request being submitted and the QR code rendering instantly via spModal.



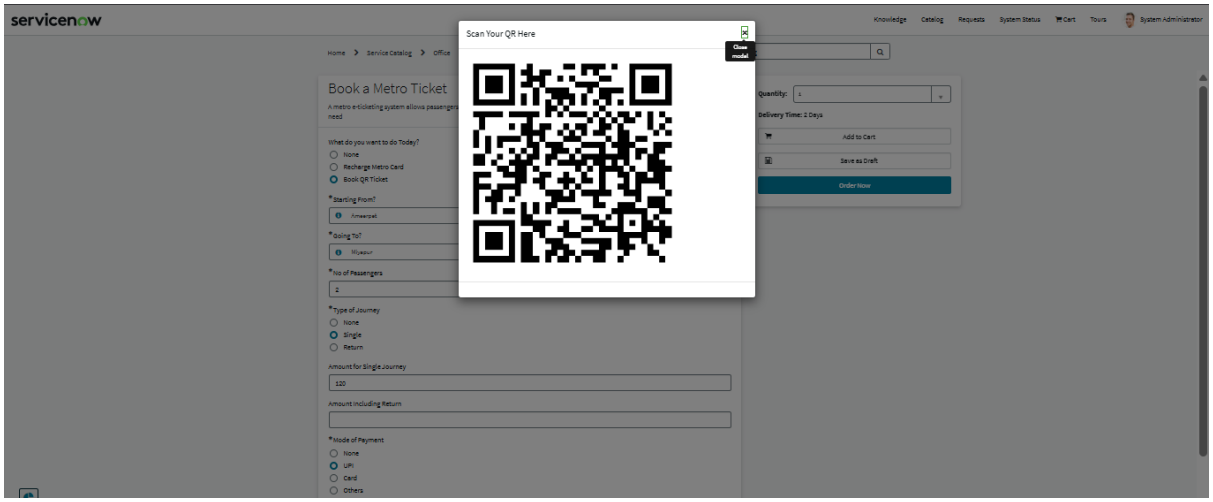


Figure 4: A screenshot of the **Service Portal** form showing the "Order Now" button and the resulting **QR Code**.

- **Data Storing:** Proof of the data being successfully logged in the backend **Metro Station's Details** table.

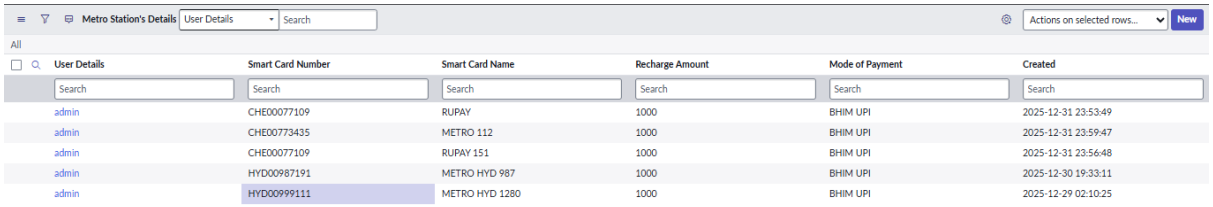


Figure 5: A screenshot of the Metro Station's Details table list view showing stored transaction data.

- **Annotated Visuals:** High-quality screenshots of the Catalog UI, QR output, and Flow logs were annotated to explain each stage clearly.

Scalability & Future Roadmap

The system is designed to grow beyond its current functional scope:

- **City-Wide Integration:** Reflects actual city metro workflows with dynamic fare bands.
- **Future Channels:** Roadmap includes implementing **SMS and Email-based ticketing** for commuters without portal access.
- **Advanced Features:** Plans for payment gateway integration and a **Travel Analytics Dashboard** for station authorities.

Conclusion

The Phase 5 successfully transitions the **Metro Ticket Generating System** from development to a fully documented, deployable solution. By combining robust troubleshooting, clear technical blueprints, and a roadmap for future scalability, the system ensures a high-quality transit experience aligned with ServiceNow best practices.