Technical Specification: NRDC Automated Reconciliation Integration

Organization: Nutrition for Refugee & Displaced Communities (NRDC)
Project: Automated Bank Transfer Reconciliation
Target Audience: BOA Digital Department / DPO Technical Team

1. System Overview

NRDC operates a donation marketplace built on **Next.js 15+**. Every bank transfer initiated on the platform is assigned a unique, immutable **Reference Number** (Reference Format: `NRDC-BT-[TIMESTAMP]-[RANDOM]`).

Our goal is to transition from manual verification to **automated, real-time reconciliation** via transaction notifications.

2. Integration Requirements

A. Real-Time Webhooks (Inbound)

We require a `POST` notification for every successfully posted credit transaction on the NRDC account.

- **Target Endpoint**: `https://www.nrdc.org/api/payments/bank-transfer/callback`
- **Preferred Payload Schema**:

```
{
  "transaction_id": "BANK_REF_12345",
  "amount": 1000.00,
```

```
    "currency": "KES",
    "reference": "NRDC-BT-...",
    "timestamp": "2024-01-20T10:00:00Z",
    "status": "COMPLETED"
  }
```

- **Matching Logic**: The NRDC system will match the `reference` field against our internal "Pending" donation records.

B. Transaction Query API (Polling/Fallback)

In the absence of webhooks, we require a RESTful API to periodically query account activity.

- **Primary Resource**: `GET /v1/transactions`
- **Query Parameters**: `startDate`, `endDate`, `reference_id`.
- **Response Format**: JSON.

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3. Security & Connectivity

A. Authentication

We support the following standards:

- **Client Credentials Flow (OAuth 2.0)**
- **API Key Authentication** (passed in Header)

B. Message Integrity

To prevent spoofing, we require:

- **HMAC Signatures**: Every webhook payload should be signed using a shared secret.

C. Connectivity

- **TLS**: 1.2 or higher required.
- **Whitelisting**: NRDC can provide static IP addresses for the production environment if IP-based filtering is required by the bank.

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4. Operational Requirements

1. **Narration Consistency**: The bank transfer narration must preserve the `NRDC-BT-` reference string without truncation.
2. **Sandbox Environment**: We require a UAT/Sandbox environment for end-to-end testing before production deployment.
3. **Logs**: Full audit logs of all notifications received and processed will be maintained by NRDC.

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5. Technical Contact

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