DynamixPOS

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📘 Official Product Documentation

DynamixPOS Documentation

Complete technical, operational, and compliance documentation for DynamixPOS — a web-based, FRCS VMS/VSDC-compliant Point of Sale and retail management system for Fiji.

Document version 1.0 • FRCS VMS / VSDC • Fiji Revenue & Customs Service

CONTENTS

1. Product Overview
2. System Architecture
3. Fiscal Configuration
4. How Fiscalisation Works
5. Supported Invoice Types
6. Daily Operations
7. Refunds & Returns
8. Fiscal Receipt Format
9. Tax Labels (VAT)
10. VSDC API Reference
11. Data Stored per Transaction
12. Audit (Local & Remote)

13. Security

14. Roles & Access

15. Troubleshooting

16. Glossary

01 Product Overview

> DynamixPOS is a web-based Point of Sale (POS) and retail management system that fiscalises sales exclusively through the Fiji Revenue & Customs Service (FRCS) VSDC (Virtual Sales Data Controller) in real time.

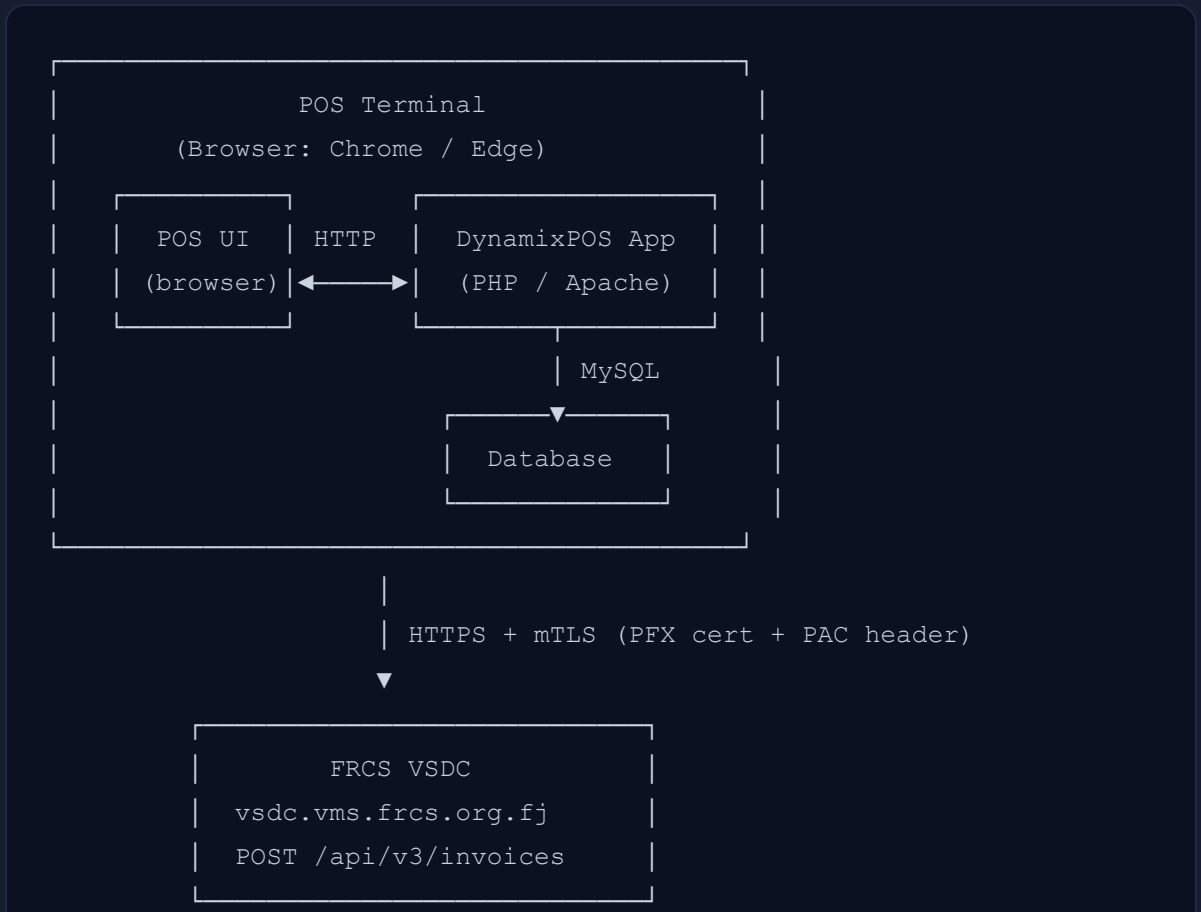
DynamixPOS is an **online, VSDC-only** solution. Every completed transaction is transmitted electronically to the FRCS VSDC over a secure mutual-TLS (mTLS) connection. The VSDC returns an official fiscal invoice number, a digital signature, a verification URL, a verification QR code, and a complete fiscal journal, all of which are stored against the transaction and printed on the customer receipt. No hardware SDC or local E-SDC is used.

Key capabilities

- Real-time fiscalisation of Sale and Refund invoices through the FRCS VSDC API.
- Compliant 80mm thermal fiscal receipts that reproduce the FRCS journal verbatim with a scannable QR code.
- VAT handling with FRCS tax labels (A = 9%, B = 0%, D = 15%, G = 12.5%).
- Full retail management: inventory, products, categories, brands, customers, suppliers, purchases, and reporting.
- Role-based access control and encrypted certificate storage.

02 System Architecture

DynamixPOS fiscalises **exclusively through the FRCS VSDC** (Virtual Sales Data Controller). It is an online-only solution: the application connects directly to the FRCS VSDC over the public internet via a secure mTLS API connection. DynamixPOS does **not** use, require, or support any hardware SDC device or local E-SDC appliance — all fiscalisation is performed by the FRCS VSDC service.



Layer	Technology
Application framework	PHP (CodeIgniter MVC)
Database	MySQL / MariaDB
Front end	HTML5, CSS, JavaScript, jQuery
Web server	Apache / Nginx
FRCS transport	HTTPS REST, mutual TLS, HTTP/1.1
Fiscalisation model	Online VSDC (real-time at point of sale)

03 Fiscal Configuration

This one-time step connects DynamixPOS to the FRCS VSDC. Perform it as an Administrator.

1. Open **Settings → Certificate Settings**.
2. Enter the **API URL** (VSDC endpoint).
3. Enter the **PAC** code issued by FRCS.
4. Upload the **PFX / P12 certificate** file.
5. Enter the **certificate password**.
6. Save. The system validates that all four items are present before fiscalising.

Setting (db_sitesettings)	Meaning
`pfx_url`	VSDC API endpoint URL
`pfx_pac`	PAC value sent as the `pac` request header
`pfx_certificate`	Relative path to the uploaded PFX/P12 file
`pfx_password`	PFX/P12 password

Security: The certificate file is stored outside the public asset directory and the certificate password is held in the database. Keep both confidential and restrict access to Administrators.

04 How Fiscalisation Works

DynamixPOS is an **online VSDC** solution. Each transaction is fiscalised in real time at the moment it is completed:

1. The operator completes a sale (or refund) in the POS.
2. The transaction is saved locally with a POS invoice number.
3. DynamixPOS builds the fiscal payload and sends it to the FRCS VSDC over mTLS.

4. The VSDC returns the fiscal data: SDC invoice number, invoice counter, digital signature, verification URL, verification QR code, and the fiscal journal.
5. The fiscal data is stored against the transaction and the receipt is printed.

Key rule: A transaction is only fiscally valid once the VSDC returns a fiscal invoice number and QR code. If fiscalisation fails, the receipt is not a legal fiscal invoice and the transaction must be re-fiscalised.

05 Supported Invoice Types

DynamixPOS supports the following FRCS invoice type / transaction type combinations. Each is generated from a specific screen or action in the application.

Invoice	InvoiceType	TransactionType	Where generated
Normal Sale	`NORMAL`	`SALE`	POS checkout
Normal Sale (with buyer)	`NORMAL`	`SALE`	POS checkout with a named customer
Normal Refund	`NORMAL`	`REFUND`	Sales Return against a normal sale
Normal Refund (with buyer)	`NORMAL`	`REFUND`	Sales Return (named customer)
Advance Sale	`ADVANCE`	`SALE`	POS → "Advance" button (credit sale)
Advance Refund	`ADVANCE`	`REFUND`	Sales Return against an advance sale
Proforma Sale	`PROFORMA`	`SALE`	Quotation → "Proforma Sale"
Proforma Refund	`PROFORMA`	`REFUND`	Quotation → "Proforma Refund"

Copy Refund	`COPY`	`REFUND`	Sales Return list → "Copy Refund"

Buyer identification: When a named customer (not the default walk-in) is selected, the customer id is transmitted as `BuyerId`, satisfying the "with buyer identification" requirement. Proforma documents are, by FRCS definition, non-fiscal and the journal is marked accordingly.

06 Daily Operations

Making a normal sale

1. Open the **POS** screen.
2. Add items by scanning a barcode or searching by name/SKU.
3. Select the customer (or use the default walk-in).
4. Click **Pay / Checkout** and choose the payment method(s) — Cash, Card, Cheque, or Other (split payments allowed).
5. Confirm. The sale fiscalises automatically and the fiscal receipt opens for printing.

Advance (credit) sale

1. Select a named customer (required — credit cannot be issued to walk-in).
2. Add items.
3. Click the **Advance** button. The sale is saved with zero payment; the amount is posted to the customer ledger as credit and fiscalised as an Advance Sale.

Proforma (quotation)

1. Create a quotation.

2. From the quotation list, choose **Proforma Sale** to fiscalise and print it as a proforma.

07 Refunds & Returns

In this system a **Sales Return** (business action) produces a **Refund** (FRCS transaction type). A refund must always reference the original fiscalised sale.

Workflow

1. Open the **Sales Return** screen and search for the original sale.
2. Only fiscalised sales can be selected for return.
3. Choose a full or partial return and adjust quantities.
4. Save. The refund fiscalises automatically, referencing the original sale's SDC invoice number and date/time.

Validations

- The original sale must exist and be fiscalised.
- The original fiscal invoice number and date/time must exist.
- Returned quantity cannot exceed the quantity originally sold.
- Duplicate (already fully returned) sales are blocked.

Refund type follows the original: A refund of a Normal Sale is a Normal Refund; a refund of an Advance Sale is an Advance Refund. A reprint of a refund is submitted as a Copy Refund.

08 Fiscal Receipt Format

The receipt prints on 80mm thermal paper and contains, in order:

1. The **fiscal journal** exactly as returned by the VSDC (business name, TIN, location, cashier, items with tax labels, totals, tax breakdown, SDC time, SDC invoice number, and invoice counter).
2. The scannable **verification QR code**, printed before the "END OF FISCAL INVOICE" line.
3. The **END OF FISCAL INVOICE** banner.

```
=========== FISCAL INVOICE ===========
               2901664754
          Business Name Pte Ltd
          Location Name
    Address, Suva, Fiji
Cashier:                          Sunil
Buyer:                               1
--------------NORMAL SALE---------------
Items
=======================================
Name    Price        Qty.          Total
Shampoo (A)
        10.00         10          100.00
---------------------------------------
Total Purchase:                   100.00
=======================================
Label        Name     Rate           Tax
A             VAT    9.00%          8.26
---------------------------------------
Total Tax:                         8.26
=======================================
SDC Time:         29/06/2026 11:08:26 pm
SDC Invoice No:      92V24F6D-Y8WELYO0-8
Invoice Counter:                  8/8NS
=======================================
       [ verification QR code ]
======== END OF FISCAL INVOICE =========
```

A customer or auditor can scan the QR code, or open the verification URL, to confirm the invoice against FRCS records.

09 Tax Labels (VAT)

The VSDC calculates VAT from the tax label on each item. DynamixPOS uses the FRCS Fiji labels:

Label	Rate	Meaning
`A`	9%	Standard VAT
`B`	0%	Zero-rated / exempt
`D`	15%	—
`G`	12.5%	—

The label is resolved from the item's tax name (if it is a valid label letter) or from the numeric tax rate. It prints beside each item and is summarised in the tax breakdown.

10 VSDC API Reference

Endpoint

```
POST https://vsdc.sandbox.vms.frcs.org.fj/api/v3/invoices
(production host issued by FRCS)
```

Authentication

Mechanism	Detail
mTLS client certificate	PFX / P12 (PKCS#12) + password
PAC header	`pac: <PAC>`
HTTP version	HTTP/1.1
TLS	Peer + host verification enabled

Request body (Normal Sale)

```
{
  "DateAndTimeOfIssue": null,
  "Cashier": "Sunil",
  "BuyerId": "1",
  "BuyerCostCenterId": "1",
  "InvoiceType": "NORMAL",
  "TransactionType": "SALE",
  "Payment": [ { "Amount": 100, "PaymentType": 1 } ],
  "InvoiceNumber": "SL160",
  "ReferentDocumentNumber": "",
  "ReferentDocumentDT": null,
  "Options": {},
  "Items": [
    { "gtin": "11111111", "name": "Shampoo",
      "quantity": 10, "labels": ["A"],
      "unitPrice": 10, "totalAmount": 100 }
  ]
}
```

Payment type codes

Code	Method
1	Cash
2	Card
3	Cheque
4	Other

Response (HTTP 200)

```
{
  "invoiceNumber": "92V24F6D-Y8WELYO0-8",
  "invoiceCounter": "8/8NS",
  "sdcDateTime": "2026-06-29T23:08:26+12:00",
  "verificationUrl": "https://...",
  "verificationQRCode": "R0lGODlh...",
  "journal": "============ FISCAL INVOICE ...",
  "signature": "...",
```

```
  "businessName": "...",
  "locationName": "...",
  "address": "...",
  "mrc": "99-3800-Y8WELYO0",
  "taxItems": [ { "label":"A","rate":9.00,"amount":8.26,"categoryName":"V
}
```


Refunds: For a REFUND, `ReferentDocumentNumber` (the original SDC invoice number) and `ReferentDocumentDT` (original SDC date/time) are mandatory and reference the original sale — not the local invoice number.

11 Data Stored per Transaction

For every sale and refund, DynamixPOS stores the fiscal data returned by the VSDC. This is the record an auditor inspects:

- Local invoice number and transaction date
- Cashier (username) and customer
- Items, quantities, prices, and tax labels
- SDC fiscal invoice number and invoice counter
- SDC date/time
- Verification URL and verification QR code
- Digital signature and encrypted internal data
- Full fiscal journal and MRC (Machine Registration Code)
- Fiscal status (success / failure)
- For refunds: the original sale's SDC invoice number and date/time

This data is retained and cannot be edited by cashiers; it forms the audit trail.

12 Audit — Local & Remote

Local audit (on-site)

1. Log in with reporting/return access (Supervisor or Administrator).
2. Open the **Sales** or **Sales Return** list — each row shows the invoice number, date, cashier, amount, and fiscal status.
3. Open any transaction's fiscal print/preview to inspect the stored journal, SDC invoice number, counter, date/time, QR, and verification URL exactly as issued by the VSDC.
4. Scan the QR or open the verification URL to confirm authenticity against FRCS on the spot.

Remote audit (FRCS server-side)

Because DynamixPOS is an online VSDC, every fiscalised transaction reaches FRCS in real time at point of sale. No manual export is required for routine remote audit.

- The verification URL / QR confirms a specific invoice against the FRCS record remotely.
- The SDC invoice number, invoice counter, and signature are the reference keys FRCS uses to locate the transaction server-side.
- Any transaction that did not reach FRCS shows a failed fiscal status locally and must be re-fiscalised.

13 Security

Area	Control
Authentication	Per-user username/password login
Authorisation	Role-based permissions per feature/action
FRCS transport	Mutual TLS with client certificate; TLS verification enabled

Certificate storage	PFX kept in a non-public directory; direct access blocked
Input handling	Input sanitisation / XSS filtering on request data
Database safety	Framework query builder / parameterised queries
Audit integrity	Fiscal fields written from the VSDC response; not editable by operators

14 Roles & Access

Role	Can do
Cashier	Log in, create sales, take payments, print receipts
Supervisor	All cashier actions + process refunds/returns, reprint invoices
Administrator	All of the above + settings, certificate/PAC configuration, user management

Each cashier must use a unique login — the cashier username is printed on every fiscal invoice and is used for accountability during an audit.

15 Troubleshooting

Symptom	Cause	Resolution
No fiscal invoice number / no QR on receipt	VSDC did not fiscalise	Check internet; confirm certificate/PAC in settings; retry
"VMS: PFX certificate not uploaded"	Fiscal settings incomplete	Complete Certificate Settings

"Original sale is not fiscalised" on return	Refunding a non-fiscalised sale	Only fiscalised sales can be refunded
"Returned quantity exceeds sold quantity"	Return quantity too high	Reduce return quantity
HTTP 401 / 403 from VSDC	PAC invalid or certificate not authorised	Verify PAC; re-issue certificate with FRCS
SSL / certificate errors	CA bundle or OpenSSL issue	Update `curl.cainfo`; ensure OpenSSL 1.1+

16 Glossary

Term	Meaning
FRCS	Fiji Revenue & Customs Service
VMS	Verification Management System
VSDC	Virtual Sales Data Controller — the FRCS online fiscalisation service used exclusively by DynamixPOS
E-SDC	Electronic Sales Data Controller (hardware/local appliance model) — **not** used by DynamixPOS
PAC	Point of Access Code (API header credential)
PFX / P12	PKCS#12 client certificate used for mTLS
SDC Invoice Number	Unique fiscal invoice number issued by the VSDC
Invoice Counter	Sequential counter issued by the VSDC (e.g. 8/8NS)
MRC	Machine Registration Code
Journal	Complete plain-text fiscal receipt returned by the VSDC

Refund	FRCS transaction type produced by a Sales Return
Proforma	Non-fiscal preliminary document (quotation)

FRCS VMS / VSDC compliant Point of Sale for Fiji. This documentation describes product behaviour; the official FRCS VMS/VSDC specification and accreditation conditions take precedence in case of any conflict.

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