

Falcon Ledger Testnet End-to-End Test Report

Falcon Team

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Figure 1: Falcon Logo

1 Falcon Ledger Testnet — End-to-End Test Report

Report date: 2026-07-05

Application: Falcon-faucet-wallet (qXRP-faucet-wallet / Falcon-faucet-wallet)

See also: README · ROADMAP · Whitepaper **Network:** Falcon Ledger Testnet (Network ID **1001**)

RPC: <http://46.224.0.140:6005>

Validated ledger at report time: ~83,188

This document records manual end-to-end testing across wallet creation, P2P transfers, Sepolia bridge flows, liquidity pool operations, DEX limit orders, instant AMM swaps, and outbound transfers. All Falcon-ledger results below were verified on-ledger via `account_tx`, `account_info`, `account_lines`, and `amm_info`.

1.1 Executive summary

Area	Status	Notes
Passkey wallet create / unlock	PASS	Falcon keys generated client-side; seed encrypted with WebAuthn passkey
Faucet drip	PASS	2,000 FALCON per request (configurable)
P2P FALCON send/receive	PASS	Including QR scan for recipient address
P2P F-USDC send/receive	PASS	Requires recipient trust line to issuer
Sepolia wallet (passkey EVM)	PASS	Created inside Bridge panel; keys device-encrypted
Sepolia ETH / USDC receive	PASS	Standard EVM deposits to derived <code>0x</code> address
Bridge In (Sepolia USDC → F-USDC)	PASS	Lock contract + relay mint verified (e.g. 90 F-USDC)
Bridge Out (F-USDC → Sepolia USDC)	PASS	Payment to issuer + <code>sepolia-withdraw</code> memo; relay releases USDC
Send Out (Sepolia USDC to external <code>0x</code>)	PASS	From in-app Sepolia wallet

Area	Status	Notes
AMM pool create / deposit / withdraw	PASS	FALCON + F-USDC pair; partial LP withdraw tested
DEX limit orders	PASS	Passive (Post only), crossing (default), partial fills, dust cancel
Instant swap (AMM path)	PASS	Buy and sell F-USDC via Payment/AMM
Tx history asset labels	PASS (fixed 5b5011f)	F-USDC payments no longer show as - FALCON

Overall: The integrated Falcon + Sepolia testnet stack is functioning end-to-end. Remaining caveats are documented in Known issues.

1.2 Test environment

1.2.1 Falcon ledger

Parameter	Value
Network name	Falcon Ledger Testnet
Network ID	1001
Public RPC	http://46.224.0.140:6005
Native asset	FALCON (display); on-ledger XRP drops
F-USDC currency code	QUC
F-USDC issuer	rfftKWuA7Dk7PF1YrH8NA7262oY3tejht
Faucet account	rwzhiWW4GYK2sQVR5Lw4iDpYLANB5krJXY
AMM pool account	rwwcutHZ17aRYZbgWGHZx7eGsRUyqRj1g5
Signing	Client Falcon keys + optional signer proxy for server routes

1.2.2 Sepolia (EVM bridge)

Parameter	Value
Chain ID	11155111
RPC	https://ethereum-sepolia-rpc.publicnode.com
Explorer	https://sepolia.etherscan.io
Sepolia USDC	0x1c7D4B196Cb0C7B01d743Fbc6116a902379C7238
Lock contract	0x2dae31Cbf2E3a418d617081985661fCD0117b75C
USDC decimals	6
Withdraw memo type	sepolia-withdraw
Relay script	scripts/bridge-withdraw-relay.py

1.2.3 Labeling conventions (UI)

Context	Label
Swap, DEX, Pool, Wallet P2P	F-USDC (Falcon-ledger IOU)
Bridge panel only	Sepolia USDC (EVM ERC-20)
Native	FALCON

1.3 Test wallets

1.3.1 Primary (Wallet A)

Field	Value
Falcon address	rpUWZzFqJeZ5hmpHwL6QuUbN8rux8SrdBv
Balance at report	8,000.87 FALCON, 93.52 F-USDC
Sequence	22516
Role	Main test wallet; pool LP (~57% share after tests); DEX/AMM/bridge actor
Creation	Passkey-secured Falcon wallet via Wallet tab

1.3.2 Secondary (Wallet B)

Field	Value
Falcon address	rLShrj7rvo2ZtjM9BkXNdh9GfnNT7YuC8i
Balance at report	1,010.99 FALCON, 68 F-USDC
Sequence	23772
Role	Counterparty for cross-wallet DEX limit orders and P2P sends

1.3.3 Sepolia (EVM)

Field	Value
Address	0x0521dda874c45a8a6a93311bc0a206678134f937
Role	Bridge In source, Bridge Out destination, Send Out source
Creation	Passkey-encrypted EVM wallet inside Swap → Bridge panel
Funding	Test Sepolia ETH (gas) + Sepolia USDC from faucet/external

1.3.4 F-USDC issuer / bridge operator

Field	Value
Address	rfftKWuA7Dk7PF1YrH8NA7262oY3tejhgq
Role	Mints F-USDC on bridge-in; receives F-USDC on bridge-out

1.4 1. Wallet creation and unlock

1.4.1 1.1 Create Falcon wallet (passkey)

Step	Action	Expected	Result
1	Open Wallet tab on HTTPS origin	Passkey API available	PASS
2	Choose create new wallet	Platform passkey prompt	PASS
3	Complete WebAuthn registration	Falcon keypair generated on-device; <code>falcon_secret</code> shown once	PASS

Step	Action	Expected	Result
4	Save encrypted wallet to IndexedDB	Wallet listed; address derived	PASS
5	Reload page; unlock with passkey	Seed decrypted; dashboard loads	PASS

Security notes (testnet only):

- Seed encrypted with passkey-derived key material (PRF when available).
- `falcon_secret` must be backed up manually; passkey alone re-opens stored wallet on same device/origin.
- Testnet passkey fallback (`rawId`) documented in `src/lib/passkey.ts` — not for mainnet funds.

1.4.2 1.2 Faucet bootstrap

Step	Action	Expected	Result
1	Request faucet for new address	+2,000 FALCON (default drip)	PASS
2	Verify <code>account_info</code>	<code>tesSUCCESS</code> ; balance increases	PASS

Early faucet payments to Wallet A (examples):

Ledger	Amount	Hash (prefix)
22490	2,000 FALCON	6A4DC733...
22912	2,000 FALCON	9AD4D1B6...
72495	2,000 FALCON	5D84D9C8...

1.4.3 1.3 Trust line for F-USDC

Step	Action	Expected	Result
1	<code>TrustSet</code> to issuer <code>rfftKWu...</code> currency QUC	Trust line created	PASS (seq #22490, ledger 22501)

1.5 2. Peer-to-peer transfers (Falcon ledger)

1.5.1 2.1 FALCON P2P

Test	From	To	Amount	Seq	Ledger	Hash	Result
B → A receive	<code>rLShr...</code>	<code>rpUWZ...</code>	1,000 FALCON	23770	83053	CF70300E...	PASS

UI: Wallet Send supports manual address entry and QR scan (`jsqr`). `Permissions-Policy: camera=(self)` set in `next.config.mjs`.

1.5.2 2.2 F-USDC P2P

Test	From	To	Amount	Seq	Ledger	Hash	Result
B → A receive	rLShr...	rpUWZ...	50 F-USDC	23771	83058	C6CDBD63...	PASS

Precondition: Recipient must have F-USDC trust line (Wallet A satisfied).

Bug fixed (2026-07-05): Recent Transactions showed - **FALCON** for F-USDC payments because `fmtDrops()` was applied to IOU Amount objects. Fix in commit 5b5011f — `parseTxAmount()` in `src/lib/tx-display.ts` distinguishes drops vs QUC IOU.

Expected UI after fix:

- +1,000 **FALCON** (incoming Payment)
- +50 **F-USDC** (incoming Payment)

1.6 3. Sepolia wallet and inbound EVM funds

1.6.1 3.1 Create Sepolia wallet

Step	Action	Expected	Result
1	Swap → Bridge → create Sepolia wallet with passkey	0x0521...f937 derived	PASS
2	Keys encrypted and stored on device	No MetaMask required	PASS

1.6.2 3.2 Receive Sepolia ETH and USDC

Asset	Method	Result
Sepolia ETH	External faucet / transfer to 0x0521...f937	PASS (gas for approve/deposit/send)
Sepolia USDC	ERC-20 transfer to same address	PASS (used for bridge-in tests)

Balances displayed in Bridge panel via `fetchSepoliaBalances()`; UI uses floor formatting to avoid rounding display errors (e.g. 259.99985 shown correctly).

1.7 4. Bridge In (Sepolia USDC → F-USDC)

1.7.1 4.1 Flow

1. Approve USDC spend on lock contract 0x2dae31C....
2. Call `deposit(amount, falconAccount)` on lock contract.
3. Relay observes `DepositCreated` event and sends F-USDC Payment from issuer to Falcon address.

1.7.2 4.2 Verified bridge-in (90 F-USDC)

Leg	Account	Type	Amount	Seq	Ledger	Hash	Result
Bridge request	rpUWZ...	Payment → issuer	90 F-USDC (bridge-out path N/A — this is user-initiated bridge in via EVM)	—	—	—	—
User bridge-out memo payment (see §5)	—	—	—	—	—	—	—
Bridge in (mint)	rffftKWu... (issuer)	Payment →	90 F-USDC	5638	82676	2703FB8B..	PASS
Prior bridge-in credits	issuer	Payment → rpUWZ...	5, 75, 100, 259 F-USDC	5632–5637	various	see RPC	PASS

Round-trip context: ~90 Sepolia USDC locked on Sepolia; relay minted 90 F-USDC on Falcon (seq #5638). Earlier smaller mints (5, 75, 100, 259) also verified.

1.8 5. Bridge Out (F-USDC → Sepolia USDC)

1.8.1 5.1 Flow

1. User signs F-USDC Payment to issuer rffftKWu... with `sepolia-withdraw` memo containing Sepolia 0x destination.
2. `bridge-withdraw-relay.py` watches issuer account and calls lock contract `withdraw()` to release Sepolia USDC.

1.8.2 5.2 Verified bridge-out transactions

Amount	Seq	Ledger	Hash	Sepolia dest	Result
79.99985 F-USDC	22494	72618	D64054CD...	0x0521...f937	PASS
170 F-USDC	22501	79186	FEA9FD98...	0x0521...f937	PASS
10 F-USDC	22503	79437	DCBD9B40...	0x0521...f937	PASS
35 F-USDC	22515	82770	E470BE2F...	0x0521...f937	PASS
90 F-USDC (bridge-in trigger)	22512	82567	E51BCF4A...	issuer payment	PASS

Note: Bridge-out relay may take seconds to minutes depending on relay process polling; on-ledger Falcon payment succeeds immediately with `tesSUCCESS`.

1.9 6. Send Out (Sepolia USDC to external address)

Step	Action	Expected	Result
1	Bridge panel → Send Out	ERC-20 transfer on Sepolia USDC	PASS
2	Send to external 0x (not bridge wallet)	Recipient receives Sepolia USDC	PASS

Tested as final step after pool withdraw and bridge-out: move remaining Sepolia USDC from in-app wallet to external Sepolia address.

1.10 7. Liquidity pool (AMM)

1.10.1 7.1 Pool state after testing

Metric	Value
AMM account	rwwcutHZ17aRYZbgWGHZx7eGsRUyqRj1g5
FALCON reserves	~966.02 FALCON
F-USDC reserves	~182.48 F-USDC
LP token supply	~419,734 LP
Wallet A LP share	~57% (after 50% withdraw)
Trading fee	0.5% (500 bps)

1.10.2 7.2 Pool operations

Operation	Details	Seq	Ledger	Hash	Result
Early deposits	10 + 3,000 FALCON (bootstrap)	22491–22492	25007, 26062	ACDD508A... 6C955236...	PASS
AMM create	1,000 FALCON	22499	78562	049A540B...	PASS
Deposit	90 F-USDC + ~476.44 FALCON	22513	82694	CB59367D...	PASS
50% LP withdraw	Burned ~166,752 LP tokens	22514	82753	06AE8C47...	PASS
Secondary deposit	800 FALCON + F-USDC (Wallet B)	23766	78701	221307BA...	PASS

UI: Pool page labels consistently use **F-USDC** (commit 09b4534).

1.11 8. DEX limit orders

1.11.1 8.1 Price field semantics

- Order form price is **FALCON per F-USDC** (not F-USDC per FALCON).
- Example: “10 F-USDC per 1 FALCON” → enter **0.1** in the price field.
- UI shows inverse helper text (commit ccd8e62).

1.11.2 8.2 Order modes

Mode	Flag	Behavior	Result
Default (crossing)	—	Order matches immediately against resting book	PASS
Post only	TF_PASSIVE	Order rests on book; rejected if would cross	PASS

Default changed to cross book in commit `c772b21`; passive is opt-in via “Post only”.

1.11.3 8.3 Limit order test matrix

Test	Wallet	Side	Taker gets	Taker pays	Seq	Result
Passive ask ladder	A	Sell F-USDC	10–12 FALCON	10 F-USDC each	22495–22497	PASS (rested)
Cancel passive ask	A	Cancel	—	—	22498	PASS
Passive bid (seller)	A	Sell F-USDC	10 F-USDC	98.34 FALCON	22505	PASS (rested)
Crossing bid (buyer)	B	Buy F-USDC	101 FALCON	10 F-USDC	23767	PASS (filled #22505)
Partial fill sell	A	Sell F-USDC	88.4 F-USDC	892.84 FALCON	22508	PASS
Large bid	B	Buy F-USDC	1010 FALCON	100 F-USDC	23769	PASS
Ask/bid 8 F-USDC	A/B	Both	8 F-USDC @ 80.8 FALCON	—	22507 / 23768	PASS
Dust cancel	A	Cancel remainder	~0.0002 F-USDC dust	—	22509	PASS

Book hygiene: Dust offers below display threshold filtered from public order book (commit `c51b185`). Open orders panel shows true remaining amounts (commit `9d670c8`).

1.12 9. Instant swap (AMM / Payment path)

Quick swap tab executes Payment transactions routed through the FALCON/F-USDC AMM.

Direction	Input (approx)	Output (approx)	Seq	Ledger	Hash	Result
Buy F-USDC	~995.5 FALCON	~54 F-USDC	22510	82511	89848F53	PASS
Sell F-USDC	~99.55 F-USDC	~1,328 FALCON	22511	82544	AD5004F1	PASS

Slippage: Thin pool caused ~5.4% effective price on buy; expected on testnet with low liquidity.

UI labels: Swap page uses **F-USDC** for Falcon IOU; **Sepolia USDC** only in Bridge (commit ccd8e62).

1.13 10. UI / UX fixes shipped during test cycle

Commit	Change
ccd8e62	F-USDC labels on swap/DEX; limit price inverse helper
9d670c8	Limit orders UI persistence; open-order badge
c772b21	Default limit orders cross book; Post only opt-in
c51b185	Dust offers hidden from public book
952c27f	Wallet F-USDC P2P send
09b4534	Pool page F-USDC labels
0640297	QR scanner on wallet send (<code>jsqr</code>)
e74c652	<code>pnpm-lock.yaml</code> synced for <code>jsqr</code>
5b5011f	Tx history F-USDC amount display fix

1.14 Known issues and limitations

Issue	Severity	Workaround
AMM slippage on thin pool	Low (testnet)	Smaller trade sizes; add liquidity
Bridge-out relay latency	Low	Wait for relay poll; verify Sepolia balance
Partial-fill dust orders	Low	Cancel dust manually; filtered from public book
F-USDC requires trust line	Info	TrustSet before receive
Passkey rawId fallback	Medium (mainnet)	Testnet only per <code>passkey.ts</code> audit note
<code>pnpm</code> vs <code>npm</code> lockfile	CI	Always use <code>pnpm add</code> in this repo
Signer proxy dependency	Ops	Server routes need <code>SIGNER_PROXY_URL</code> on node1

1.15 Appendix A — Primary wallet transaction index

Full history: 39 transactions on `rpUWZzFqJeZ5hmpWL6QuUbN8rux8SrdB`U. Key sequences:

Seq	Type	Summary	Ledger	Result
22490	TrustSet	F-USDC trust line	22501	tesSUCCESS
22495–22497	OfferCreate	Passive ask ladder	77160–77171	tesSUCCESS
22498	OfferCancel	Cancel asks	77272	tesSUCCESS
22499	AMMCreate	Create pool	78562	tesSUCCESS
22505	OfferCreate	Passive sell 10 F-USDC	79912	tesSUCCESS
22507	OfferCreate	Sell 8 F-USDC	82345	tesSUCCESS
22508	OfferCreate	Partial-fill sell	82394	tesSUCCESS
22509	OfferCancel	Dust cancel	82494	tesSUCCESS
22510	Payment	AMM buy F-USDC	82511	tesSUCCESS
22511	Payment	AMM sell F-USDC	82544	tesSUCCESS

Seq	Type	Summary	Ledger	Result
22512	Payment	Bridge (90 F-USDC to issuer)	82567	tesSUCCESS
22513	AMMDeposit	90 F-USDC + 476.44 FALCON	82694	tesSUCCESS
22514	AMMWithdraw	~50% LP	82753	tesSUCCESS
22515	Payment	Bridge out 35 F-USDC	82770	tesSUCCESS
—	Payment	Mint 90 F-USDC (issuer #5638)	82676	tesSUCCESS
—	Payment	+1000 FALCON from B (#23770)	83053	tesSUCCESS
—	Payment	+50 F-USDC from B (#23771)	83058	tesSUCCESS

1.16 Appendix B — Secondary wallet transaction index

12 transactions on `rLShrj7rvo2ZtjM9BkXNdh9GfnNT7YuC8i`:

Seq	Type	Summary	Result
23765	TrustSet	F-USDC trust line	tesSUCCESS
23766	AMMDeposit	800 FALCON + F-USDC	tesSUCCESS
23767	OfferCreate	Crossing buy (filled A #22505)	tesSUCCESS
23768	OfferCreate	Bid 8 F-USDC	tesSUCCESS
23769	OfferCreate	Large bid 100 F-USDC	tesSUCCESS
23770	Payment	Send 1000 FALCON → A	tesSUCCESS
23771	Payment	Send 50 F-USDC → A	tesSUCCESS

1.17 Appendix C — Suggested regression checklist

Use this ordered checklist for future testnet releases:

- ☐ Create / unlock Falcon wallet with passkey
- ☐ Faucet drip and balance refresh
- ☐ Trust line + receive F-USDC
- ☐ P2P send FALCON and F-USDC (QR + manual)
- ☐ Verify Recent Transactions shows correct asset labels
- ☐ Create Sepolia passkey wallet; fund ETH + USDC
- ☐ Bridge In 10+ USDC
- ☐ Post-only limit order (rests)
- ☐ Crossing limit order (fills)
- ☐ Instant swap buy and sell F-USDC
- ☐ Pool deposit and partial withdraw
- ☐ Bridge Out to Sepolia address
- ☐ Send Out USDC to external 0x

1.18 Appendix D — RPC verification commands

Account balance

```
curl -s http://46.224.0.140:6005 -H 'Content-Type: application/json' \  
  -d '{"method":"account_info","params":[{"account":"rpUWZzFqJeZ5hmpHwL6QuUbN8rux8SrdbU","ledger_index"
```

Recent transactions

```
curl -s http://46.224.0.140:6005 -H 'Content-Type: application/json' \  
  -d '{"method":"account_tx","params":[{"account":"rpUWZzFqJeZ5hmpHwL6QuUbN8rux8SrdbU","limit":20}]}'
```

F-USDC trust line balance

```
curl -s http://46.224.0.140:6005 -H 'Content-Type: application/json' \  
  -d '{"method":"account_lines","params":[{"account":"rpUWZzFqJeZ5hmpHwL6QuUbN8rux8SrdbU","ledger_index"
```

AMM pool reserves

```
curl -s http://46.224.0.140:6005 -H 'Content-Type: application/json' \  
  -d '{"method":"amm_info","params":[{"asset":{"currency":"XRP"},"asset2":{"currency":"QUC","issuer":"r"
```

Generated from live testnet validation and on-ledger RPC queries. Update balances and sequences when re-running tests.