

API Integration Details

Overview

FiredUp integrates with Tink using the Connectivity API v1. This document details all API endpoints used, OAuth scopes requested, and implementation specifics.

Tink API Version

| Component | Version |
|---------------|-----------------------------------------------------------|
| API | Connectivity v1 |
| Tink Link | v1 |
| Base URL | https://api.tink.com |
| Tink Link URL | https://link.tink.com |

OAuth Scopes

Client Token Scopes

| Scope | Purpose | Usage |
|----------------------------------|---------------------|----------------------|
| <code>user:create</code> | Create Tink users | One-time per user |
| <code>authorization:grant</code> | Generate auth codes | Each bank connection |

User Token Scopes

| Scope | Purpose | Required |
|--------------------------------|-------------------|----------|
| <code>accounts:read</code> | Read account list | Yes |
| <code>transactions:read</code> | Read transactions | Yes |

| Scope | Purpose | Required |
|-------------------|--------------------------|----------|
| credentials:read | Read credential status | Yes |
| credentials:write | Initial credential setup | Yes |
| balances:read | Read account balances | Yes |

Scopes NOT Requested

| Scope | Reason Not Needed |
|-----------------|------------------------------|
| payment:write | No payment initiation |
| payment:read | No payment status checks |
| beneficiaries:* | No beneficiary management |
| user:delete | Users deleted via own system |

API Endpoints Used

Authentication Endpoints

1. Get Client Access Token

```
POST https://api.tink.com/api/v1/oauth/token
Content-Type: application/x-www-form-urlencoded
```

```
client_id={CLIENT_ID}
client_secret={CLIENT_SECRET}
grant_type=client_credentials
scope=user:create,authorization:grant
```

Response:

```
{
  "access_token": "CLIENT_TOKEN",
  "token_type": "bearer",
  "expires_in": 1800,
```

```
        "scope": "user:create,authorization:grant"  
    }
```

Implementation: `tink_service.py:get_client_access_token()`

2. Create User

```
POST https://api.tink.com/api/v1/user/create  
Authorization: Bearer {CLIENT_TOKEN}  
Content-Type: application/json
```

```
{  
    "external_user_id": "hb2_{sha256_hash}",  
    "market": "PL",  
    "locale": "pl_PL"  
}
```

Response:

```
{  
    "user_id": "tink_user_id_here",  
    "external_user_id": "hb2_{sha256_hash}"  
}
```

Note: 409 Conflict is expected if user already exists.

Implementation: `tink_service.py:create_user()`

3. Generate Delegated Authorization Code

```
POST https://api.tink.com/api/v1/oauth/authorization-grant/delegate  
Authorization: Bearer {CLIENT_TOKEN}  
Content-Type: application/x-www-form-urlencoded
```

```
response_type=code  
external_user_id=hb2_{sha256_hash}  
actor_client_id=df05e4b379934cd09963197cc855bfe9  
scope=accounts:read,transactions:read,credentials:write,credentials:read,balance
```

Response:

```
{  
  "code": "authorization_code_here"  
}
```

Note: `actor_client_id=df05e4b379934cd09963197cc855bfe9` is Tink Link's official client ID.

Implementation: `tink_service.py:get_authorization_code()`

4. Exchange Code for User Token

```
POST https://api.tink.com/api/v1/oauth/token  
Content-Type: application/x-www-form-urlencoded  
  
client_id={CLIENT_ID}  
client_secret={CLIENT_SECRET}  
code={AUTHORIZATION_CODE}  
grant_type=authorization_code
```

Response:

```
{  
  "access_token": "USER_ACCESS_TOKEN",  
  "token_type": "bearer",  
  "expires_in": 7200,  
  "refresh_token": "USER_REFRESH_TOKEN",  
  "scope": "accounts:read,transactions:read,..."  
}
```

Implementation: `tink_service.py:exchange_code_for_tokens()`

5. Refresh Access Token

```
POST https://api.tink.com/api/v1/oauth/token  
Content-Type: application/x-www-form-urlencoded  
  
client_id={CLIENT_ID}
```

```
client_secret={CLIENT_SECRET}
refresh_token={REFRESH_TOKEN}
grant_type=refresh_token
```

Implementation: `tink_service.py:refresh_access_token()`

Data Endpoints

6. List Accounts

```
GET https://api.tink.com/data/v2/accounts
Authorization: Bearer {USER_ACCESS_TOKEN}
```

Response:

```
{
  "accounts": [
    {
      "id": "account_id",
      "name": "Main Account",
      "type": "CHECKING",
      "balances": {
        "available": {
          "amount": { "value": { "unscaledValue": "150000",
            "scale": "2" }, "currencyCode": "PLN" }
        }
      },
      "identifiers": {
        "iban": { "iban": "PL12345678901234567890123456" }
      }
    }
  ]
}
```

Implementation: `tink_service.py:get_accounts()`

7. List Transactions

```
GET https://api.tink.com/data/v2/transactions  
Authorization: Bearer {USER_ACCESS_TOKEN}
```

Query Parameters: | Parameter | Value | Description | |-----|-----|-----|| pageSize |
100 | Max transactions per page || pageToken | (from response) | Pagination cursor |

Response:

```
{  
  "transactions": [  
    {  
      "id": "txn_id",  
      "accountId": "account_id",  
      "amount": {  
        "value": { "unscaledValue": "-5000", "scale": "2" },  
        "currencyCode": "PLN"  
      },  
      "descriptions": {  
        "display": "ZABKA WARSZAWA",  
        "original": "ZABKA SP Z O O WARSZAWA PL"  
      },  
      "dates": {  
        "booked": "2026-01-15"  
      },  
      "categories": {  
        "pfm": {  
          "id": "expenses:food.groceries",  
          "name": "Groceries"  
        }  
      },  
      "status": "BOOKED"  
    }  
  ],  
  "nextPageToken": "token_for_next_page"  
}
```

Implementation: `tink_service.py:get_transactions()`

Tink Link

Build Tink Link URL

```
https://link.tink.com/1.0/transactions/connect-accounts  
?client_id={CLIENT_ID}  
&redirect_uri={REDIRECT_URI}  
&state={STATE_TOKEN}  
&authorization_code={AUTH_CODE}  
&market=PL  
&locale=pl_PL
```

Parameters:

| Parameter | Description |
|--------------------|---------------------------------------------------------------------------------------------------|
| client_id | FiredUp's Tink client ID |
| redirect_uri | https://firedup.app/banking/tink/callback |
| state | HMAC-signed state token for CSRF protection |
| authorization_code | Code from step 3 |
| market | PL (Poland) |
| locale | pl_PL (Polish language) |

Implementation: `tink_service.py:build_tink_link_url()`

FiredUp API Endpoints

Backend Routes for Tink

| Endpoint | Method | Description |
|---------------------------|--------|--------------------------|
| /banking/tink/connect | POST | Initiate bank connection |
| /banking/tink/callback | POST | Handle OAuth callback |
| /banking/tink/connections | GET | List user's connections |

| Endpoint | Method | Description |
|--------------------------------|--------|---------------------|
| /banking/tink/connections/{id} | DELETE | Disconnect bank |
| /banking/tink/test | GET | Test/debug endpoint |

Backend Routes for Transactions

| Endpoint | Method | Description |
|------------------------------------|--------|------------------------------|
| /banking/transactions/sync | POST | Sync transactions from Tink |
| /banking/transactions | GET | List imported transactions |
| /banking/transactions/pending | GET | List unreviewed transactions |
| /banking/transactions/stats | GET | Transaction statistics |
| /banking/transactions/{id}/convert | POST | Convert to expense/income |
| /banking/transactions/{id}/accept | POST | Mark as reviewed |
| /banking/transactions/{id}/reject | POST | Reject transaction |
| /banking/transactions/bulk/accept | POST | Bulk accept |
| /banking/transactions/bulk/reject | POST | Bulk reject |
| /banking/transactions/bulk/convert | POST | Bulk convert |

Error Handling

Tink API Errors

| Status | Meaning | Action |
|---------|------------------------|--------------------------------|
| 400 | Bad Request | Log, fail immediately |
| 401 | Unauthorized | Refresh token, retry once |
| 403 | Forbidden | Log, fail immediately |
| 404 | Not Found | Log, fail immediately |
| 409 | Conflict (user exists) | Proceed (expected) |
| 422 | Validation Error | Log, fail immediately |
| 429 | Rate Limited | Retry with Retry-After header |
| 500-504 | Server Error | Retry with exponential backoff |

Custom Exceptions

```
class TinkAPIError(Exception):
    """Base exception for Tink API errors."""
    status_code: int
    endpoint: str
    response_body: str

class TinkAPICallError(TinkAPIError):
    """All retry attempts exhausted."""
    attempts: int
```

Rate Limiting

Tink Rate Limits (Sandbox)

| Limit | Value |
|-----------------|-------|
| Requests/minute | 100 |
| Requests/day | 1,000 |

FiredUp Implementation

- Respects `Retry-After` header
 - Exponential backoff (1s base, 30s max)
 - Max 3 retry attempts
 - Jitter ±25% to prevent thundering herd
-

Request Examples

Complete Connection Flow

```
# Step 1: Get client token
client_token = await tink_service.get_client_access_token()

# Step 2: Create Tink user
external_id = sanitize_external_user_id(user.email)
tink_user = await tink_service.create_user(client_token,
    external_id)

# Step 3: Get authorization code
auth_code = await tink_service.get_authorization_code(
    client_token, external_id, scopes
)

# Step 4: Store pending auth
state = generate_state_token()
store_pending_auth(state, user.id, tink_user.id, auth_code)

# Step 5: Build Tink Link URL
```

```

url = build_tink_link_url(auth_code, state, redirect_uri)

# --- User completes flow in Tink Link ---

# Step 6: Handle callback
pending = verify_and_get_pending_auth(state)
tokens = await
    tink_service.exchange_code_for_tokens(pending.auth_code)

# Step 7: Store connection
connection = TinkConnection(
    user_id=user.id,
    tink_user_id=pending.tink_user_id,
    access_token=tokens.access_token,
    refresh_token=tokens.refresh_token,
    is_active=True
)
db.add(connection)

```

Implementation Files

| File | Purpose |
|----------------------------------------------|----------------------------------|
| backend/app/services/tink_service.py | Main Tink service (~1,200 lines) |
| backend/app/services/tink_metrics_service.py | Request metrics |
| backend/app/services/audit_service.py | Audit logging |
| backend/app/routers/tink.py | Tink API routes |
| backend/app/routers/bank_transactions.py | Transaction routes |
| backend/app/models.py | Database models |

Environment Configuration

Required Variables

| Variable | Description |
|--------------------|----------------------------|
| TINK_CLIENT_ID | Tink application client ID |
| TINK_CLIENT_SECRET | Tink application secret |
| TINK_REDIRECT_URI | OAuth callback URL |

Production Values

| Variable | Production Value |
|-------------------|---------------------------------------------------------------------------------------------------|
| TINK_REDIRECT_URI | https://firedup.app/banking/tink/callback |

Document Revision

| Version | Date | Changes |
|---------|---------------|-----------------|
| 1.0 | February 2026 | Initial version |