AdOptimize - Google Ads API Design Documentation

1. Company Overview

Company Name

AdOptimize (operated by 1Way SEO)

Business Model

AdOptimize is a subscription-based SaaS platform that helps digital advertisers monitor, analyze, and optimize their advertising campaigns across multiple platforms including Google Ads and Meta Ads.

Our platform provides:

- Real-time campaign performance dashboards
- Automated health audits and anomaly detection
- Creative fatigue analysis and recommendations
- Audience overlap analysis and optimization suggestions
- Actionable recommendations with one-click execution

Website

- Production: https://adoptimize.1wayseo.com
- Company Website: https://1wayseo.com

Target Users

- Digital marketing agencies managing multiple client accounts
- In-house marketing teams at e-commerce and SaaS companies
- Freelance advertisers and consultants

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2. Tool Access & Usage

User Types

User Type	Description	Access Level
Account Owner	Primary user who connects their Google Ads account	Full read access to all campaign data
Team Members	Invited users within the same organization	Read-only access to shared dashboards
Agency Managers	Agency users managing multiple client accounts	MCC-level access to linked accounts

Access Method

1. **OAuth 2.0 Authentication**: Users authenticate via Google OAuth to grant AdOptimize read access to their Google Ads accounts

2. **No Password Storage**: We never store Google account passwords; only OAuth refresh tokens are securely stored
3. **Revocable Access**: Users can revoke access at any time through Google Account settings or our platform

Data Access Scope
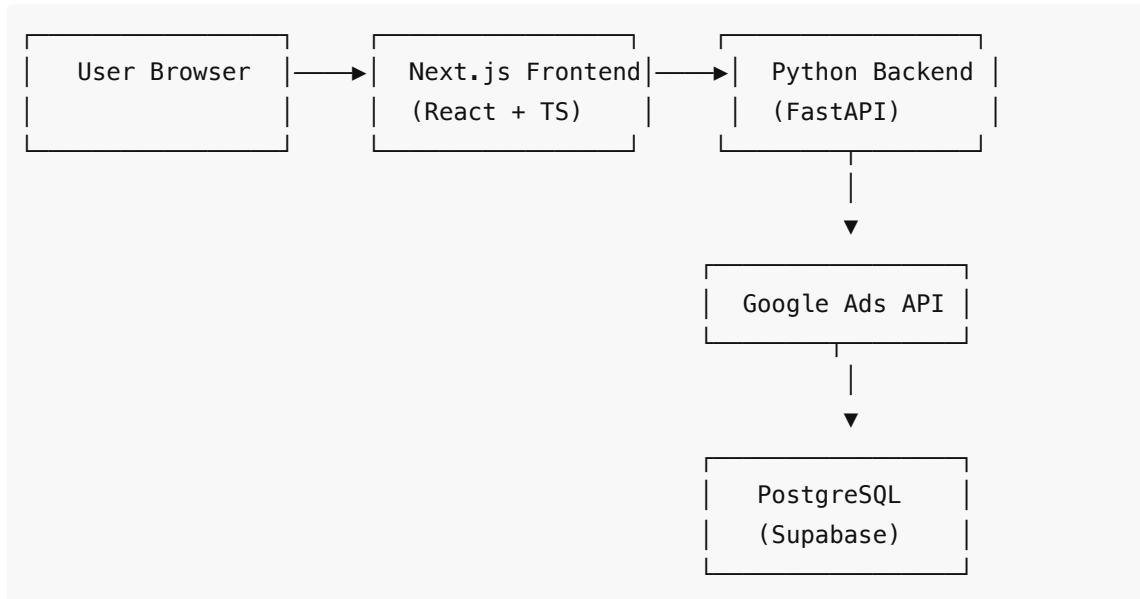
We request the following OAuth scopes:

- `https://www.googleapis.com/auth/adwords` - Read-only access to Google Ads data

Important: We do NOT request write access. All optimization actions are recommendations that users must manually apply through the Google Ads interface or explicitly approve through our platform.

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3. Technical Architecture

System Overview

```
 ┌────────────────┐     ┌────────────────┐     ┌────────────────┐
 │                │     │                │     │                │
 │  User Browser  ├────►│ Next.js Frontend├───►│ Python Backend │
 │                │     │  (React + TS)  │     │   (FastAPI)    │
 └────────────────┘     └────────────────┘     └────────────────┘
                                                        │
                                                        ▼
                                               ┌────────────────┐
                                               │                │
                                               │  Google Ads API │
                                               │                │
                                               └────────────────┘
                                                        │
                                                        ▼
                                               ┌────────────────┐
                                               │                │
                                               │   PostgreSQL   │
                                               │   (Supabase)   │
                                               │                │
                                               └────────────────┘
```

Data Flow

1. **Authentication Flow**:

   - User clicks "Connect Google Ads" → Redirected to Google OAuth
   - User grants permission → Callback with authorization code
   - Backend exchanges code for access/refresh tokens
   - Tokens stored securely in encrypted database

2. **Data Sync Flow**:

   - Scheduled sync job runs every 4 hours
   - Backend uses refresh token to obtain access token
   - API calls fetch campaign, ad group, ad, and audience data
   - Data normalized and stored in PostgreSQL

- Redis cache updated for real-time dashboard queries

3. **Dashboard Query Flow**:

- User views dashboard → Frontend requests from Next.js API
- Next.js proxies to Python backend
- Backend queries cached/database data
- Aggregated metrics returned to frontend

Database Schema (Relevant Tables)

```sql
-- Stores connected Google Ads accounts
CREATE TABLE google_ads_accounts (
    id UUID PRIMARY KEY,
    user_id UUID REFERENCES users(id),
    customer_id VARCHAR(20) NOT NULL,  -- Google Ads Customer ID
    refresh_token TEXT ENCRYPTED,
    account_name VARCHAR(255),
    connected_at TIMESTAMP,
    last_sync_at TIMESTAMP
);

-- Stores synced campaign data
CREATE TABLE campaigns (
    id UUID PRIMARY KEY,
    account_id UUID REFERENCES google_ads_accounts(id),
    campaign_id VARCHAR(50) NOT NULL,
    name VARCHAR(255),
    status VARCHAR(20),
    budget_amount DECIMAL,
    impressions BIGINT,
    clicks BIGINT,
    conversions DECIMAL,
    cost DECIMAL,
    sync_date DATE
);

-- Stores synced audience data
CREATE TABLE audiences (
    id UUID PRIMARY KEY,
    account_id UUID REFERENCES google_ads_accounts(id),
    audience_id VARCHAR(50) NOT NULL,
    name VARCHAR(255),
    type VARCHAR(50),
    size BIGINT,
```

```
    health_score INTEGER
);
```

Security Measures

- All API credentials stored with AES-256 encryption
- TLS 1.3 for all data in transit
- Refresh tokens encrypted at rest
- Regular security audits and penetration testing
- GDPR and CCPA compliant data handling

4. API Integration Details

Google Ads API Services Used

Service	Purpose	Frequency
CustomerService	List accessible accounts under MCC	On account connection
GoogleAdsService	Query campaign, ad group, and ad performance	Every 4 hours
GoogleAdsService	Query audience/user list data	Every 4 hours
GoogleAdsService	Fetch account-level metrics	Every 4 hours

Sample API Queries

1. Fetch Campaign Performance

```
SELECT
  campaign.id,
  campaign.name,
  campaign.status,
  campaign_budget.amount_micros,
  metrics.impressions,
  metrics.clicks,
  metrics.conversions,
  metrics.cost_micros
FROM campaign
WHERE segments.date DURING LAST_30_DAYS
```

2. Fetch Audience Data

```
SELECT
  user_list.id,
  user_list.name,
```

```sql
  user_list.type,
  user_list.size_for_display,
  user_list.size_for_search
FROM user_list
WHERE user_list.access_reason = OWNED
```

3. Fetch Ad Performance

```sql
SELECT
  ad_group_ad.ad.id,
  ad_group_ad.ad.name,
  ad_group_ad.status,
  metrics.impressions,
  metrics.clicks,
  metrics.ctr,
  metrics.conversions
FROM ad_group_ad
WHERE segments.date DURING LAST_30_DAYS
ORDER BY metrics.impressions DESC
```

Rate Limiting Compliance

- We implement exponential backoff for API errors
- Request rate limited to 1 request per second per account
- Daily quota monitoring with alerts at 80% usage
- Batch requests used where possible to minimize API calls

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5. Feature Specifications

5.1 Dashboard Overview

Purpose: Provide a comprehensive view of account performance at a glance.

Features:

- Key metrics display: Spend, Impressions, Clicks, Conversions, ROAS
- Customizable date ranges: Today, 7D, 30D, 90D, Custom
- Period-over-period comparison (vs. previous period)
- Anomaly detection with visual indicators

Data Source: Aggregated from `campaigns` table, refreshed every 4 hours

5.2 Creative Performance & Fatigue Detection

Purpose: Identify ads showing performance degradation due to audience fatigue.

Features:

- Creative performance timeline charts
- Fatigue score calculation (0-100 scale)

- Automated alerts when fatigue score > 70
- Recommendations for creative refresh

Fatigue Algorithm:

```
fatigue_score = (
  ctr_decline_weight * ctr_decline_percentage +
  frequency_weight * (frequency - baseline_frequency) +
  time_weight * days_since_launch
) / 100
```

5.3 Audience Health Analysis

Purpose: Evaluate audience targeting effectiveness and identify optimization opportunities.

Features:

- Audience performance scorecards
- Overlap analysis between audiences
- Size trend monitoring
- Expansion/exclusion recommendations

Health Score Calculation:

- Based on: CPA, ROAS, conversion rate, audience size trend
- Weighted scoring with customizable thresholds

5.4 Action Center (Recommendations)

Purpose: Centralize all optimization recommendations for easy review and action.

Features:

- Priority-ranked recommendations
- Impact estimation for each action
- One-click apply (redirects to Google Ads with pre-filled settings)
- Action history and performance tracking

Recommendation Types:

- Budget adjustments
- Audience targeting changes
- Creative refresh suggestions
- Bid strategy optimizations

5.5 Account Health Audit

Purpose: Periodic comprehensive review of account configuration and performance.

Features:

- Automated weekly/monthly audits
- Issue categorization: Critical, Warning, Info
- Step-by-step repair guides
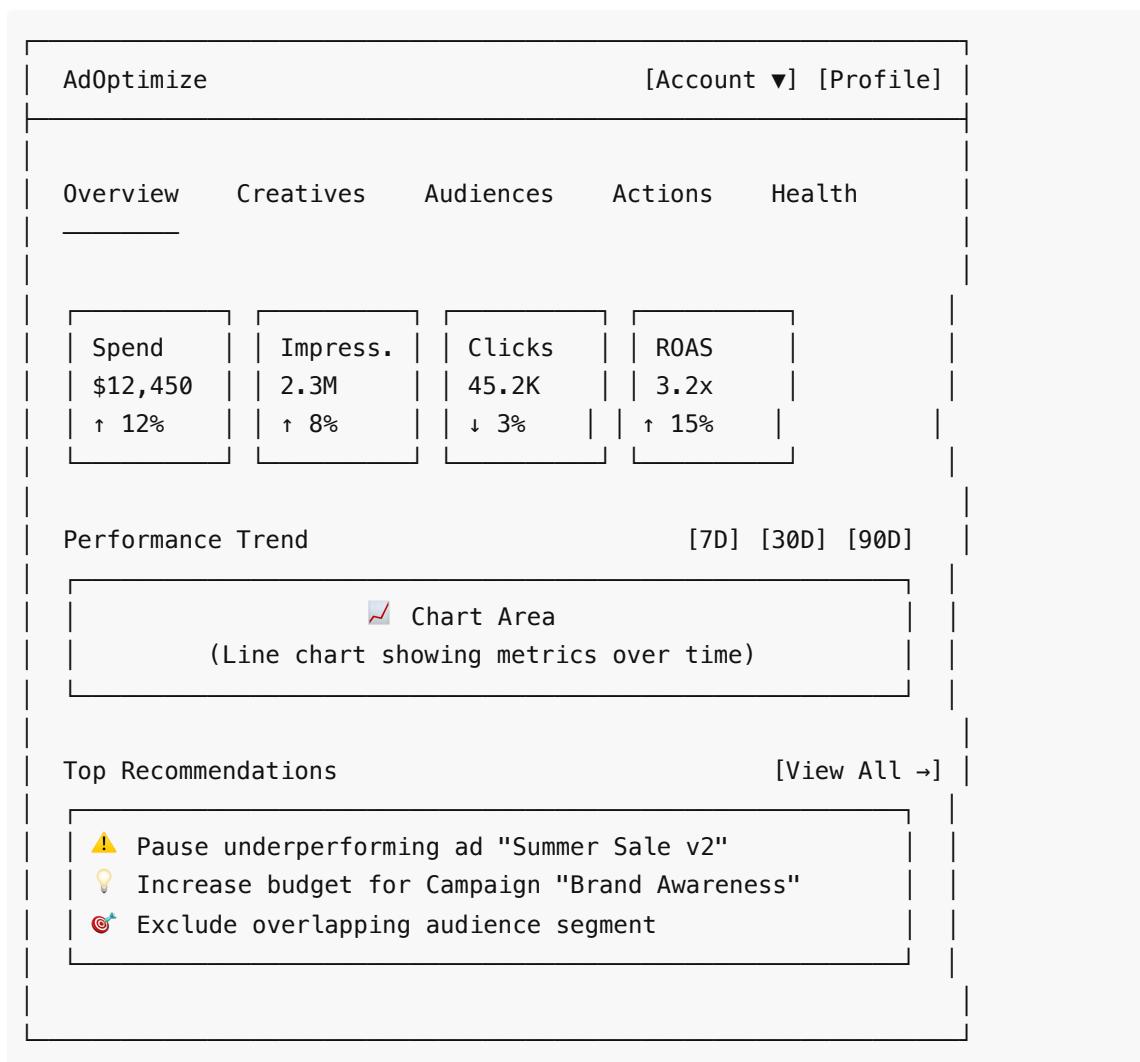
- Before/after comparison after fixes

Audit Categories:

- Campaign structure
- Conversion tracking
- Audience configuration
- Budget allocation
- Creative diversity

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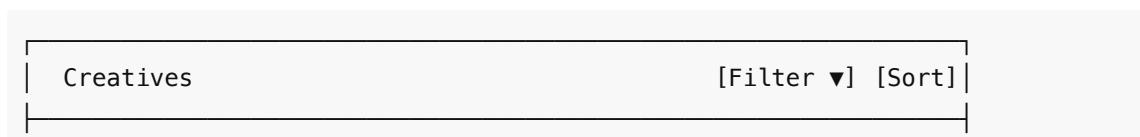
6. User Interface Mockups

6.1 Dashboard Overview

```
┌──────────────────────────────────────────────────────┐
│ AdOptimize                        [Account ▼] [Profile] │
├──────────────────────────────────────────────────────┤
│                                                        │
│  Overview    Creatives    Audiences    Actions    Health │
│  ─────────                                             │
│                                                        │
│                                                        │
│  ┌─────────┐  ┌─────────┐  ┌─────────┐  ┌─────────┐    │
│  │ Spend   │  │ Impress.│  │ Clicks  │  │ ROAS    │    │
│  │ $12,450 │  │ 2.3M    │  │ 45.2K   │  │ 3.2x    │    │
│  │ ↑ 12%   │  │ ↑ 8%    │  │ ↓ 3%    │  │ ↑ 15%   │    │
│  └─────────┘  └─────────┘  └─────────┘  └─────────┘    │
│                                                        │
│  Performance Trend                  [7D] [30D] [90D]   │
│  ┌──────────────────────────────────────────────┐    │
│  │             📈 Chart Area                     │    │
│  │        (Line chart showing metrics over time)  │    │
│  └──────────────────────────────────────────────┘    │
│                                                        │
│  Top Recommendations                    [View All →]   │
│  ┌──────────────────────────────────────────────┐    │
│  │ ⚠️  Pause underperforming ad "Summer Sale v2" │    │
│  │ 💡 Increase budget for Campaign "Brand Awareness" │ │
│  │ 🎯 Exclude overlapping audience segment        │    │
│  └──────────────────────────────────────────────┘    │
│                                                        │
└──────────────────────────────────────────────────────┘
```

6.2 Creative Fatigue View

```
┌──────────────────────────────────────────────────────┐
│ Creatives                          [Filter ▼] [Sort]  │
├──────────────────────────────────────────────────────┤
```

```
┌─────────────────────────────────────────────┐
│  🖼️  Summer Sale Banner                      │
│  Campaign: Seasonal Promotions              │
│                                             │
│  Fatigue Score: ███████▓ 78/100  ⚠️ HIGH    │
│                                             │
│  CTR: 1.2% (↓32% from launch)               │
│  Frequency: 4.5 (baseline: 2.0)             │
│  Days Active: 45                            │
│                                             │
│  [View Details] [Pause Ad] [Create Variant] │
│                                             │
└─────────────────────────────────────────────┘

┌─────────────────────────────────────────────┐
│  🖼️  New Product Launch                      │
│  Fatigue Score: ██▒▒▒▒▒▒ 25/100  ✅ HEALTHY │
└─────────────────────────────────────────────┘
```

6.3 Audience Health View

```
┌─────────────────────────────────────────────┐
│  Audiences                  [Type ▼] [Status]│
├─────────────────────────────────────────────┤
│                                             │
│  Health Summary                             │
│  ┌─────────────┐ ┌─────────────┐ ┌─────────────┐
│  │ Healthy: 8  │ │ Warning: 3  │ │ Critical: 1│
│  └─────────────┘ └─────────────┘ └─────────────┘
│                                             │
│  ┌─────────────────────────────────────────┐ │
│  │ 👥 High-Value Customers (Lookalike)     │ │
│  │                                         │ │
│  │ Health: ███████▓ 82/100                 │ │
│  │ Size: 1.2M users  |  CPA: $12.50  |  ROAS: 4.2x │
│  │                                         │ │
│  │ ⚠️ 35% overlap with "Website Visitors" audience │
│  │ 💡 Recommendation: Exclude overlapping segment  │
│  │                                         │ │
│  │ [View Details] [Analyze Overlap] [Apply Exclusion] │
│  └─────────────────────────────────────────┘ │
│                                             │
└─────────────────────────────────────────────┘
```

6.4 Action Center

```
┌─────────────────────────────────────────────────────────┐
│ Action Center                    [Priority ▼] [Category] │
├─────────────────────────────────────────────────────────┤
│                                                          │
│ Pending Actions: 12        Completed Today: 5            │
│                                                          │
│ ┌─────────────────────────────────────────────┐        │
│ │ 🔴 HIGH PRIORITY                              │        │
│ │                                               │        │
│ │ Pause "Summer Sale v2" creative               │        │
│ │ Reason: Fatigue score 78%, CTR dropped 32%    │        │
│ │ Est. Impact: Save $150/day, improve account quality │  │
│ │                                               │        │
│ │ [Apply Now] [Schedule] [Dismiss] [View Details] │      │
│ └─────────────────────────────────────────────┘        │
│                                                          │
│ ┌─────────────────────────────────────────────┐        │
│ │ 🟡 MEDIUM PRIORITY                            │        │
│ │                                               │        │
│ │ Increase budget for "Brand Awareness" campaign │       │
│ │ Reason: ROAS 4.5x, limited by budget          │        │
│ │ Est. Impact: +$500/day potential revenue      │        │
│ │                                               │        │
│ │ [Apply Now] [Schedule] [Dismiss]              │        │
│ └─────────────────────────────────────────────┘        │
│                                                          │
└─────────────────────────────────────────────────────────┘
```

7. Compliance & Data Handling

Data Retention

- Performance data: Retained for 13 months (aligned with Google Ads)
- Audit logs: Retained for 24 months
- User can request data deletion at any time

Privacy Compliance

- GDPR compliant: Data processing agreement available
- CCPA compliant: User data access and deletion requests honored
- No data sharing with third parties
- No use of data for advertising purposes

Terms of Service Compliance

- We comply with Google Ads API Terms of Service

- No automated bidding without explicit user approval
- No scraping or circumventing API rate limits
- Regular review of compliance requirements

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8. Contact Information

Company: 1Way SEO **Product**: AdOptimize **Website**: https://adoptimize.1wayseo.com **Technical Contact**: [Your Email] **Support**: support@1wayseo.com

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Document Version: 1.0 Last Updated: January 2025