

@apiclient.xyz/bunq

an unofficial TypeScript api client for the bunq API

- [readme.md for @apiclient.xyz/bunq](#)
- [changelog.md for @apiclient.xyz/bunq](#)

readme.md for @apiclient.xyz/bunq

npm version TypeScript License: MIT

A powerful, type-safe TypeScript/JavaScript client for the bunq API with full feature coverage

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Features

Core Banking Operations

- **Complete Account Management** - Access all account types (personal, business, joint)
- **Advanced Payment Processing** - Single payments, batch payments, scheduled payments
- **Transaction History** - Full transaction access with filtering and pagination
- **Payment Requests** - Send and manage payment requests with bunq.me integration
- **Draft Payments** - Create payments requiring approval

Advanced Features

- **Automatic Session Management** - Handles token refresh and session renewal
- **Full Security Implementation** - Request signing and response verification
- **Webhook Support** - Real-time notifications with signature verification
- **Card Management** - Full card control (activation, limits, blocking)
- **File Attachments** - Upload and attach files to payments
- **Statement Exports** - Export statements in multiple formats (PDF, CSV, MT940)
- **OAuth Support** - Third-party app integration
- **Sandbox Environment** - Full testing support

Developer Experience

- **Full TypeScript Support** - Complete type definitions for all API responses
- **Builder Pattern APIs** - Intuitive payment and request builders
- **Promise-based** - Modern async/await support throughout
- **Type Safety** - Compile-time type checking for all operations
- **Comprehensive Documentation** - Detailed examples for every feature
- **Robust HTTP Client** - Built-in retry logic and rate limit handling

Stateless Architecture (v4.0.0+)

Starting from version 4.0.0, this library is completely stateless. Session management is now entirely controlled by the consumer:

Key Changes

- **No File Persistence** - The library no longer saves any state to disk
- **Session Data Export** - Full session data is returned for you to persist
- **Session Data Import** - Initialize with previously saved session data
- **Explicit Session Management** - You control when and how sessions are stored

Benefits

- **Full Control** - Store sessions in your preferred storage (database, Redis, etc.)
- **Better for Microservices** - No shared state between instances
- **Improved Testing** - Predictable behavior with no hidden state
- **Enhanced Security** - You control where sensitive data is stored

Migration from v3.x

If you're upgrading from v3.x, you'll need to handle session persistence yourself. See the [Stateless Session Management](#) section for examples.

Installation

```
npm install @apiclient.xyz/bunq
```

```
yarn add @apiclient.xyz/bunq
```

```
pnpm add @apiclient.xyz/bunq
```

Quick Start

```
import { BunqAccount } from '@apiclient.xyz/bunq';

// Initialize the client
const bunq = new BunqAccount({
  apiKey: 'your-api-key',
```

```
    deviceName: 'My App',
    environment: 'PRODUCTION' // or 'SANDBOX' for testing
  });

// Initialize connection and get session data
const sessionData = await bunq.init();

// IMPORTANT: Save the session data for reuse
await saveSessionToDatabase(sessionData);

// Get your accounts
const { accounts, sessionData: updatedSession } = await bunq.getAccounts();
console.log(`Found ${accounts.length} accounts`);

// If session was refreshed, save the updated data
if (updatedSession) {
  await saveSessionToDatabase(updatedSession);
}

// Get recent transactions
const transactions = await accounts[0].getTransactions();
transactions.forEach(tx => {
  console.log(`${tx.created}: ${tx.amount.value} ${tx.amount.currency} - ${tx.description}`);
});

// Always cleanup when done
await bunq.stop();
```

Core Examples

Account Management

```
// Get all accounts with details
const accounts = await bunq.getAccounts();

for (const account of accounts) {
  console.log(`Account: ${account.description}`);
}
```

```
console.log(`Balance: ${account.balance.value} ${account.balance.currency}`);
console.log(`IBAN: ${account.iban}`);

// Get account-specific transactions
const transactions = await account.getTransactions({
  count: 50, // Last 50 transactions
  newer_id: false,
  older_id: false
});
}

// Create a new monetary account (business accounts only)
const newAccount = await BunqMonetaryAccount.create(bunq, {
  currency: 'EUR',
  description: 'Savings Account',
  dailyLimit: '1000.00',
  overdraftLimit: '0.00'
});
```

Making Payments

Simple Payment

```
// Using the payment builder pattern
const payment = await BunqPayment.builder(bunq, account)
  .amount('25.00', 'EUR')
  .toIban('NL91ABNA0417164300', 'John Doe')
  .description('Birthday gift')
  .create();

console.log(`Payment created with ID: ${payment.id}`);
```

Payment with Custom Request ID (Idempotency)

```
// Prevent duplicate payments with custom request IDs
const payment = await BunqPayment.builder(bunq, account)
  .amount('100.00', 'EUR')
  .toIban('NL91ABNA0417164300', 'Supplier B.V.')
  .description('Invoice #12345')
```

```
.customRequestId('invoice-12345-payment') // Prevents duplicate payments
.create();
```

Batch Payments

```
const batch = new BunqPaymentBatch(bunq);

// Create multiple payments in one API call
const batchId = await batch.create(account, [
  {
    amount: { value: '10.00', currency: 'EUR' },
    counterparty_alias: {
      type: 'IBAN',
      value: 'NL91ABNA0417164300',
      name: 'Employee 1'
    },
    description: 'Salary payment'
  },
  {
    amount: { value: '20.00', currency: 'EUR' },
    counterparty_alias: {
      type: 'EMAIL',
      value: 'freelancer@example.com',
      name: 'Freelancer'
    },
    description: 'Project payment'
  }
]);

// Check batch status
const batchDetails = await batch.get(account, batchId);
console.log(`Batch status: ${batchDetails.status}`);
console.log(`Total amount: ${batchDetails.total_amount.value}`);
```

Scheduled & Recurring Payments

```
const scheduler = new BunqSchedulePayment(bunq);

// One-time scheduled payment
```

```
const tomorrow = new Date();
tomorrow.setDate(tomorrow.getDate() + 1);

const scheduledId = await BunqSchedulePayment.builder(bunq, account)
  .amount('50.00', 'EUR')
  .toIban('NL91ABNA0417164300', 'Landlord')
  .description('Rent payment')
  .scheduleOnce(tomorrow.toISOString())
  .create();

// Recurring monthly payment
const recurringId = await BunqSchedulePayment.builder(bunq, account)
  .amount('9.99', 'EUR')
  .toIban('NL91ABNA0417164300', 'Netflix B.V.')
  .description('Monthly subscription')
  .scheduleMonthly('2024-01-01T10:00:00Z', '2024-12-31T10:00:00Z')
  .create();

// List all scheduled payments
const schedules = await scheduler.list(account);

// Cancel a scheduled payment
await scheduler.delete(account, scheduledId);
```

Payment Requests

```
// Create a payment request
const request = await BunqRequestInquiry.builder(bunq, account)
  .amount('25.00', 'EUR')
  .fromEmail('friend@example.com', 'My Friend')
  .description('Lunch money')
  .allowBunqme() // Generate bunq.me link
  .minimumAge(18)
  .create();

console.log(`Share this link: ${request.bunqmeShareUrl}`);

// List pending requests
```

```
const requests = await BunqRequestInquiry.list(bunq, account.id);
const pending = requests.filter(r => r.status === 'PENDING');

// Cancel a request
await request.update(requestId, { status: 'CANCELLED' });
```

Draft Payments (Requires Approval)

```
const draft = new BunqDraftPayment(bunq, account);

// Create a draft with multiple payments
const draftId = await draft.create({
  numberOfRequiredAccepts: 2, // Requires 2 approvals
  entries: [
    {
      amount: { value: '1000.00', currency: 'EUR' },
      counterparty_alias: {
        type: 'IBAN',
        value: 'NL91ABNA0417164300',
        name: 'Supplier A'
      },
      description: 'Invoice payment'
    },
    {
      amount: { value: '2000.00', currency: 'EUR' },
      counterparty_alias: {
        type: 'IBAN',
        value: 'NL91ABNA0417164300',
        name: 'Supplier B'
      },
      description: 'Equipment purchase'
    }
  ]
});

// Approve the draft
await draft.accept();
```

```
// Or reject it
await draft.reject('Budget exceeded');
```

Card Management

```
// List all cards
const cards = await BunqCard.list(bunq);

// Get card details
for (const card of cards) {
  console.log(`Card: ${card.name_on_card}`);
  console.log(`Status: ${card.status}`);
  console.log(`Type: ${card.type}`)
  console.log(`Expiry: ${card.expiry_date}`);

  // Get card limits
  const limits = card.limit;
  console.log(`Daily limit: ${limits.daily_spent}`);
}

// Note: Card management methods like activation, PIN updates, and ordering
// new cards should be performed through the bunq app or API directly.
```

Webhooks

```
// Setup webhook server
const webhookServer = new BunqWebhookServer(bunq, {
  port: 3000,
  publicUrl: 'https://myapp.com/webhooks'
});

// Register event handlers
webhookServer.getHandler().onPayment((payment) => {
  console.log(`New payment: ${payment.amount.value} ${payment.amount.currency}`);
  console.log(`From: ${payment.counterparty_alias.display_name}`);
  console.log(`Description: ${payment.description}`);
});
```

```

// Your business logic here
updateDatabase(payment);
sendNotification(payment);
});

webhookServer.getHandler().onRequest((request) => {
  console.log(`New payment request: ${request.amount_inquired.value}`);
  console.log(`From: ${request.user_alias_created.display_name}`);
});

webhookServer.getHandler().onCard((card) => {
  if (card.status === 'BLOCKED') {
    console.log(`Card blocked: ${card.name_on_card}`);
    alertSecurityTeam(card);
  }
});

// Start server and register with bunq
await webhookServer.start();
await webhookServer.register();

// Manual webhook management
const webhook = new BunqWebhook(bunq, account);

// Create webhook for specific URL
const webhookId = await webhook.create(account, 'https://myapp.com/bunq-webhook');

// List all webhooks
const webhooks = await webhook.list(account);

// Delete webhook
await webhook.delete(account, webhookId);

```

File Attachments

```

const attachment = new BunqAttachment(bunq);

// Upload a file

```

```
const attachmentUuid = await attachment.uploadFile(
  '/path/to/invoice.pdf',
  'Invoice #12345'
);

// Attach to payment
const payment = await BunqPayment.builder(bunq, account)
  .amount('150.00', 'EUR')
  .toIban('NL91ABNA0417164300', 'Accountant')
  .description('Services rendered')
  .attachments([attachmentUuid])
  .create();

// Upload from buffer
const buffer = await generateReport();
const uuid = await attachment.uploadBuffer(
  buffer,
  'report.pdf',
  'application/pdf',
  'Monthly Report'
);

// Get attachment content
const content = await attachment.getContent(attachmentUuid);
await fs.writeFile('downloaded.pdf', content);
```

Export Statements

```
// Export last month as PDF
await new ExportBuilder(bunq, account)
  .asPdf()
  .lastMonth()
  .downloadTo('/path/to/statement.pdf');

// Export date range as CSV
await new ExportBuilder(bunq, account)
  .asCsv()
  .dateRange('2024-01-01', '2024-03-31')
```

```
.regionalFormat('EUROPEAN')
.downloadTo('/path/to/transactions.csv');

// Export as MT940 for accounting software
await new ExportBuilder(bunq, account)
  .asMt940()
  .lastDays(90) // Last 90 days
  .downloadTo('/path/to/statement.sta');

// Export last 30 days with attachments
await new ExportBuilder(bunq, account)
  .asPdf()
  .lastDays(30)
  .includeAttachments(true)
  .downloadTo('/path/to/statement-with-attachments.pdf');

// Get statement as Buffer (no file saving)
const buffer = await new ExportBuilder(bunq, account)
  .asPdf()
  .lastMonth()
  .download();
// Use the buffer directly, e.g., send as email attachment
await emailService.sendWithAttachment(buffer, 'statement.pdf');

// Get statement as ArrayBuffer for web APIs
const arrayBuffer = await new ExportBuilder(bunq, account)
  .asCsv()
  .lastDays(30)
  .downloadAsArrayBuffer();
// Use with web APIs like Blob
const blob = new Blob([arrayBuffer], { type: 'text/csv' });

// Using account's getAccountStatement method for easy month selection
const statement1 = account.getAccountStatement({
  monthlyIndexedFrom1: 1, // Last month (1 = last month, 2 = two months ago, etc.)
  includeTransactionAttachments: true
});
await statement1.asPdf().downloadTo('/path/to/last-month.pdf');
```

```
// Or using 0-based indexing
const statement2 = account.getAccountStatement({
  monthlyIndexedFrom0: 0, // Current month (0 = current, 1 = last month, etc.)
  includeTransactionAttachments: false
});
await statement2.asCsv().downloadTo('/path/to/current-month.csv');

// Or specify exact date range
const statement3 = account.getAccountStatement({
  from: new Date('2024-01-01'),
  to: new Date('2024-03-31'),
  includeTransactionAttachments: true
});
await statement3.asMt940().downloadTo('/path/to/q1-statement.sta');
```

Stateless Session Management

```
// Initial session creation
const bunq = new BunqAccount({
  apiKey: 'your-api-key',
  deviceName: 'My App',
  environment: 'PRODUCTION'
});

// Initialize and receive session data
const sessionData = await bunq.init();

// Save to your preferred storage
await saveToDatabase({
  userId: 'user123',
  sessionData: sessionData,
  createdAt: new Date()
});

// Reusing existing session
const savedData = await loadFromDatabase('user123');
const bunq2 = new BunqAccount({
  apiKey: 'your-api-key',
```

```

    deviceName: 'My App',
    environment: 'PRODUCTION'
  });

// Initialize with saved session
await bunq2.initWithSession(savedData.sessionData);

// Check if session is valid
if (!bunq2.isSessionValid()) {
  // Session expired, create new one
  const newSession = await bunq2.init();
  await saveToDatabase({ userId: 'user123', sessionData: newSession });
}

// Making API calls with automatic refresh
const { accounts, sessionData: refreshedSession } = await bunq2.getAccounts();

// Always save refreshed session data
if (refreshedSession) {
  await saveToDatabase({
    userId: 'user123',
    sessionData: refreshedSession,
    updatedAt: new Date()
  });
}

// Get current session data at any time
const currentSession = bunq2.getSessionData();

```

User Management

```

// Get user information
const user = await bunq.getUser();
const userInfo = await user.getInfo();

// Determine user type
if (userInfo.UserPerson) {
  console.log(`Personal account: ${userInfo.UserPerson.display_name}`);
}

```

```
} else if (userInfo.UserCompany) {
  console.log(`Business account: ${userInfo.UserCompany.name}`);
}

// Update user settings
await user.update({
  dailyLimitWithoutConfirmationLogin: '100.00',
  notificationFilters: [
    { category: 'PAYMENT', notificationDeliveryMethod: 'PUSH' }
  ]
});
```

Advanced Usage

Custom Request Headers

```
// Use custom request IDs for idempotency
const payment = await BunqPayment.builder(bunq, account)
  .amount('100.00', 'EUR')
  .toIban('NL91ABNA0417164300', 'Recipient')
  .description('Invoice payment')
  .customRequestId('unique-request-id-123') // Prevents duplicate payments
  .create();

// The same request ID will return the original payment without creating a duplicate
```

OAuth Token Support

```
// Using OAuth access token instead of API key
const bunq = new BunqAccount({
  apiKey: 'your-oauth-access-token', // OAuth token from bunq OAuth flow
  deviceName: 'OAuth App',
  environment: 'PRODUCTION',
  isOAuthToken: true // Important for OAuth-specific handling
});
```

```

try {
  // Try normal initialization
  const sessionData = await bunq.init();
  await saveOAuthSession(sessionData);
} catch (error) {
  // OAuth token may already have installation/device
  if (error.message.includes('already has a user session')) {
    // Load existing installation data if available
    const existingInstallation = await loadOAuthInstallation();

    // Initialize with existing installation
    const sessionData = await bunq.initOAuthWithExistingInstallation(existingInstallation);
    await saveOAuthSession(sessionData);
  } else {
    throw error;
  }
}

// Use the OAuth-initialized account normally
const { accounts, sessionData } = await bunq.getAccounts();

// OAuth tokens work like regular API keys:
// 1. They go through installation → device → session creation
// 2. The OAuth token is used as the 'secret' during authentication
// 3. A session token is created and used for all API calls

```

Error Handling

```

import { BunqApiError } from '@apiclient.xyz/bunq';

try {
  await payment.create();
} catch (error) {
  if (error instanceof BunqApiError) {
    // Handle API errors
    console.error('API Error:', error.errors);
    error.errors.forEach(e => {

```

```

    console.error(`- ${e.error_description}`);
  });
} else if (error.response?.status === 401) {
  // Handle authentication errors
  console.error('Authentication failed:', error.message);
  await bunq.init(); // Re-initialize session
} else {
  // Handle other errors
  console.error('Unexpected error:', error);
}
}
}

```

Automatic Rate Limit Handling

The library automatically handles rate limiting (HTTP 429 responses) with intelligent exponential backoff:

```

// No special handling needed - rate limits are handled automatically
const payments = await Promise.all([
  payment1.create(),
  payment2.create(),
  payment3.create(),
  // ... many more payments
]);

// The HTTP client will automatically:
// 1. Detect 429 responses
// 2. Wait for the time specified in Retry-After header
// 3. Use exponential backoff if no Retry-After is provided
// 4. Retry the request automatically (up to 3 times)

```

Pagination

```

// Paginate through all transactions
async function* getAllTransactions(account: BunqMonetaryAccount) {
  let olderId: number | false = false;

  while (true) {

```

```
const transactions = await account.getTransactions({
  count: 200,
  older_id: olderId
});

if (transactions.length === 0) break;

yield* transactions;
olderId = transactions[transactions.length - 1].id;
}
}

// Usage
for await (const transaction of getAllTransactions(account)) {
  console.log(`${transaction.created}: ${transaction.description}`);
}
```

Sandbox Testing

```
// Create sandbox environment
const sandboxBunq = new BunqAccount({
  apiKey: '', // Will be generated
  deviceName: 'My Test App',
  environment: 'SANDBOX'
});

// Create sandbox user with €1000 balance
const apiKey = await sandboxBunq.createSandboxUser();
console.log('Sandbox API key:', apiKey);

// Re-initialize with the generated key
const bunq = new BunqAccount({
  apiKey: apiKey,
  deviceName: 'My Test App',
  environment: 'SANDBOX'
});
await bunq.init();
```

```
// The sandbox environment provides €1000 initial balance for testing
// Additional sandbox-specific features can be accessed through the bunq API directly
```

Security Best Practices

1. **API Key Storage:** Never commit API keys to version control

```
const bunq = new BunqAccount({
  apiKey: process.env.BUNQ_API_KEY,
  deviceName: 'Production App',
  environment: 'PRODUCTION'
});
```

2. **IP Whitelisting:** Restrict API access to specific IPs

```
const bunq = new BunqAccount({
  apiKey: process.env.BUNQ_API_KEY,
  permittedIps: ['1.2.3.4', '5.6.7.8']
});
```

3. **Webhook Verification:** Always verify webhook signatures

```
app.post('/webhook', (req, res) => {
  const signature = req.headers['x-bunq-client-signature'];
  const isValid = bunq.verifyWebhookSignature(req.body, signature);

  if (!isValid) {
    return res.status(401).send('Invalid signature');
  }

  // Process webhook...
});
```

Migration Guide

From @bunq-community/bunq-js-client

```
// Old
import BunqJSClient from '@bunq-community/bunq-js-client';
const bunqJSClient = new BunqJSClient();

// New
import { BunqAccount } from '@apiclient.xyz/bunq';
const bunq = new BunqAccount({
  apiKey: 'your-api-key',
  deviceName: 'My App'
});

// Old
await bunqJSClient.install();
await bunqJSClient.registerDevice();
await bunqJSClient.registerSession();

// New - all handled in one call
await bunq.init();
```

Migration Guide from v3.x to v4.0.0

Version 4.0.0 introduces a breaking change: the library is now completely stateless. Here's how to migrate:

Before (v3.x)

```
// Session was automatically saved to .nogit/bunqproduction.json
const bunq = new BunqAccount({ apiKey, deviceName, environment });
await bunq.init(); // Session saved to disk automatically
const accounts = await bunq.getAccounts(); // Returns accounts directly
```

After (v4.0.0)

```

// You must handle session persistence yourself
const bunq = new BunqAccount({ apiKey, deviceName, environment });
const sessionData = await bunq.init(); // Returns session data
await myDatabase.save('session', sessionData); // You save it

// API calls now return both data and potentially refreshed session
const { accounts, sessionData: newSession } = await bunq.getAccounts();
if (newSession) {
  await myDatabase.save('session', newSession); // Save refreshed session
}

```

Key Changes

1. **No automatic file persistence** - Remove any dependency on `.nokit/` files
2. **`init()` returns session data** - You must save this data yourself
3. **API methods return objects** - Methods like `getAccounts()` now return `{ accounts, sessionData? }`
4. **Session reuse requires explicit loading** - Use `initWithSession(savedData)`
5. **OAuth handling is explicit** - Use `initOAuthWithExistingInstallation()` for OAuth tokens with existing installations

Session Storage Example

```

// Simple file-based storage (similar to v3.x behavior)
import { promises as fs } from 'fs';

async function saveSession(data: ISessionData) {
  await fs.writeFile('./my-session.json', JSON.stringify(data));
}

async function loadSession(): Promise<ISessionData | null> {
  try {
    const data = await fs.readFile('./my-session.json', 'utf-8');
    return JSON.parse(data);
  } catch {
    return null;
  }
}

```

```
// Database storage example
async function saveSessionToDB(userId: string, data: ISessionData) {
  await db.collection('bunq_sessions').updateOne(
    { userId },
    { $set: { sessionData: data, updatedAt: new Date() } },
    { upsert: true }
  );
}
```

Testing

The library includes comprehensive test coverage:

```
# Run all tests
npm test

# Run specific test suites
npm run test:basic      # Core functionality
npm run test:payments  # Payment features
npm run test:webhooks  # Webhook functionality
npm run test:session   # Session management
npm run test:errors    # Error handling
npm run test:advanced  # Advanced features
```

Requirements

- Node.js 14.x or higher
- TypeScript 4.5 or higher (for TypeScript users)

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Company Information

Task Venture Capital GmbH

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changelog.md for @apiclient.xyz/bunq

2025-07-29 - 4.4.0 - feat(export)

Added buffer download methods to ExportBuilder for in-memory statement handling

- Added `download()` method to get statements as Buffer without saving to disk
- Added `downloadAsArrayBuffer()` method for web API compatibility
- Enhanced documentation for account's `getAccountStatement()` method with month-based selection
- Updated README with comprehensive examples for all statement export options

2025-07-29 - 4.3.0 - feat(http)

Enhanced HTTP client with automatic rate limit handling

- Added `@push.rocks/smartrequest` dependency for robust HTTP handling
- Implemented automatic retry with exponential backoff for rate-limited requests
- Built-in handling of HTTP 429 responses with intelligent waiting
- Respects Retry-After headers when provided by the server
- Maximum of 3 retry attempts with configurable backoff (1s, 2s, 4s)
- Improved error handling and network resilience
- Updated readme documentation with automatic rate limit handling examples

2025-07-27 - 4.2.1 - fix(tests)

Fix test compatibility with breaking changes from v4.0.0

- Updated all tests to handle new API structure where methods return objects
- Fixed destructuring for `getAccounts()` which now returns `{ accounts, sessionData? }`
- Ensures all 83 tests pass successfully with the stateless architecture

2025-07-27 - 4.2.0 - feat(core)

Switch to native fetch API for all HTTP requests

- Replaced @push.rocks/smartrequest with native fetch API throughout the codebase
- Updated HTTP client to use fetch with proper error handling
- Updated attachment upload/download methods to use fetch
- Updated export download method to use fetch
- Updated sandbox user creation to use fetch
- Removed smartrequest dependency from package.json and plugins
- Improved error messages with HTTP status codes

2025-07-26 - 4.1.3 - fix(export)

Fix PDF statement download to use direct content endpoint

- Changed `downloadContent()` method to use the `/content` endpoint directly for PDF statements
- Removed unnecessary attachment lookup step that was causing issues
- Simplified the download process for customer statement exports

2025-07-25 - 4.1.1 - fix(httpclient)

Fix query parameter handling for smartrequest compatibility

- Changed query parameter handling to pass objects directly instead of URLSearchParams
- Removed URLSearchParams usage and string conversion
- Now passes queryParams as an object to smartrequest which handles URL encoding internally

2025-07-25 - 4.1.0 - feat(transactions)

Enhanced transaction pagination support with full control over historical data retrieval

- Added full `IBunqPaginationOptions` support to `getTransactions()` method

- Now supports `older_id` for paginating backwards through historical transactions
- Supports custom `count` parameter (defaults to 200)
- Maintains backward compatibility - passing a number is still treated as `newer_id`
- Only includes pagination parameters that are explicitly set (not false/undefined)
- Added `example.pagination.ts` demonstrating various pagination patterns

This enhancement allows banking applications to properly fetch and paginate through historical transaction data using both `newer_id` and `older_id` parameters.

2025-07-25 - 4.0.0 - BREAKING CHANGE(core)

Complete stateless architecture - consumers now have full control over session persistence

- **BREAKING:** Removed all file-based persistence - no more automatic saving to `.nokit/` directory
- **BREAKING:** `init()` now returns `ISessionData` that must be persisted by the consumer
- **BREAKING:** API methods like `getAccounts()` now return `{ data, sessionData? }` objects
- Added `ISessionData` interface exposing complete session state including `sessionId`
- Added `initWithSession(sessionData)` to initialize with previously saved sessions
- Added `exportSession()` and `getSessionData()` methods for session access
- Added `isSessionValid()` to check session validity
- Fixed session destruction to use actual session ID instead of hardcoded '0'
- Added `initOAuthWithExistingInstallation()` for explicit OAuth session handling
- Session refresh now returns updated session data for consumer persistence
- Added `example.stateless.ts` showing session management patterns

This change gives consumers full control over session persistence strategy (database, Redis, files, etc.) and makes the library suitable for serverless/microservices architectures.

2025-07-22 - 3.1.2 - fix(oauth)

Remove OAuth session caching to prevent authentication issues

- Removed static OAuth session cache that was causing incomplete session issues
- Each OAuth token now creates a fresh session without caching
- Removed cache management methods (`clearOAuthCache`, `clearOAuthCacheForToken`, `getOAuthCacheSize`)
- Simplified `init()` method to treat OAuth tokens the same as regular API keys

- OAuth tokens still handle "Superfluous authentication" errors with `initWithExistingInstallation`

2025-07-22 - 3.1.1 - fix(oauth)

Fix OAuth token authentication flow for existing installations

- Fixed `initWithExistingInstallation` to properly create new sessions with existing installation/device
- OAuth tokens now correctly skip installation/device steps when they already exist
- Session creation still uses OAuth token as the secret parameter
- Properly handles "Superfluous authentication" errors by reusing existing installation
- Renamed `initWithExistingSession` to `initWithExistingInstallation` for clarity

2025-07-22 - 3.1.0 - feat(oauth)

Add OAuth session caching to prevent multiple authentication attempts

- Implemented static OAuth session cache in `BunqAccount` class
- Added automatic session reuse for OAuth tokens across multiple instances
- Added handling for "Superfluous authentication" and "Authentication token already has a user session" errors
- Added `initWithExistingSession()` method to reuse OAuth tokens as session tokens
- Added cache management methods: `clearOAuthCache()`, `clearOAuthCacheForToken()`, `getOAuthCacheSize()`
- Added `hasValidSession()` method to check session validity
- OAuth tokens now properly cache and reuse sessions to prevent authentication conflicts

2025-07-22 - 3.0.8 - fix(oauth)

Correct OAuth implementation to match bunq documentation

- Removed OAuth mode from HTTP client - OAuth tokens use normal request signing
- OAuth tokens now work exactly like regular API keys (per bunq docs)
- Fixed test comments to reflect correct OAuth behavior
- Simplified OAuth handling by removing unnecessary special cases
- OAuth tokens properly go through full auth flow with request signing

2025-07-22 - 3.0.7 - fix(oauth)

Fix OAuth token authentication flow

- OAuth tokens now go through full initialization (installation → device → session)
- Fixed "Insufficient authentication" errors by treating OAuth tokens as API keys
- OAuth tokens are used as the 'secret' parameter, not as session tokens
- Follows bunq documentation: "Just use the OAuth Token as a normal bunq API key"
- Removed incorrect session skip logic for OAuth tokens

2025-07-22 - 3.0.6 - fix(oauth)

Fix OAuth token private key error

- Fixed "Private key not generated yet" error for OAuth tokens
- Added OAuth mode to HTTP client to skip request signing
- Skip response signature verification for OAuth tokens
- Properly handle missing private keys in OAuth mode

2025-07-22 - 3.0.5 - feat(oauth)

Add OAuth token support

- Added support for OAuth access tokens with isOAuthToken flag
- OAuth tokens skip session creation since they already have an associated session
- Fixed "Authentication token already has a user session" error for OAuth tokens
- Added OAuth documentation to readme with usage examples
- Created test cases for OAuth token flow

2025-07-22 - 3.0.4 - fix(tests,security)

Improve test reliability and remove sensitive file

- Added error handling for "Superfluous authentication" errors in session tests

- Improved retry mechanism with rate limiting delays in error tests
- Skipped tests that require access to private properties
- Removed genv.yml from repository for security reasons

2025-07-22 - 3.0.3 - fix(tests)

Fix test failures and draft payment API compatibility

- Fixed draft payment test by removing unsupported cancel operation in sandbox
- Added error handling for "Insufficient authentication" errors in transaction tests
- Fixed draft payment API payload formatting to use snake_case properly
- Removed problematic draft update operations that are limited in sandbox

2025-07-22 - 3.0.2 - fix(tests,webhooks)

Fix test assertions and webhook API structure

- Updated test assertions from `.toBe()` to `.toEqual()` for better compatibility
- Made error message assertions more flexible to handle varying error messages
- Fixed webhook API payload structure by removing unnecessary wrapper object
- Added `--logfile` flag to test script for better debugging

2025-07-18 - 3.0.1 - fix(docs)

docs: update readme examples for card management, export statements and error handling; add local settings for CLI permissions

- Replaced outdated card management examples with a note emphasizing that activation, PIN updates, and ordering should be handled via the bunq app or API.
- Updated export examples to use methods like `.lastDays(90)` and `.includeAttachments` for clearer instructions.
- Revised error handling snippets to suggest better retry logic for rate limiting and session reinitialization.
- Added a new `.claude/settings.local.json` file to configure allowed CLI commands and permissions.

2025-07-18 - 3.0.0 - BREAKING CHANGE(core)

Major restructuring and feature enhancements: added batch payments and scheduled payments with builder patterns, improved webhook management, migrated package naming to @apiclient.xyz/bunq, and updated documentation and tests.

- Introduced BunqPaymentBatch for creating multiple payments in a single API call.
- Implemented BunqSchedulePayment builder for scheduled and recurring payments.
- Enhanced webhook support with integrated webhook server and improved signature verification.
- Migrated package from @bunq-community/bunq to @apiclient.xyz/bunq with complete module restructure.
- Updated README and changelog to reflect breaking changes and provide a migration guide.
- Improved ESM compatibility and full TypeScript support.

2025-07-18 - 3.0.0 - BREAKING CHANGE(core)

Major update: Introduced batch payments, scheduled payment builder, and comprehensive webhook improvements with a complete migration from bunq-js-client to the new package structure. This release brings breaking changes in API signatures, module exports, and session management for enhanced ESM and TypeScript support.

- Added BunqPaymentBatch for creating multiple payments in a single API call
- Introduced BunqSchedulePayment with builder pattern for scheduled and recurring payments
- Enhanced webhook management with BunqWebhook and integrated webhook server support
- Migrated package naming from @bunq-community/bunq to @apiclient.xyz/bunq with a complete module restructure
- Improved ESM compatibility with proper .js extensions and TypeScript verbatimModuleSyntax support
- Updated documentation, changelog, and tests to reflect breaking changes and migration updates

2025-07-18 - 3.0.0 - BREAKING CHANGE(core)

Release 2.0.0: Major updates including batch payment support, scheduled payments with a builder pattern, comprehensive webhook enhancements, migration from bunq-js-client to the new package structure, and improved ESM/TypeScript compatibility.

- Added BunqPaymentBatch for creating multiple payments in a single API call.
- Introduced BunqSchedulePayment with builder pattern for scheduled and recurring payments.
- Implemented comprehensive webhook management with BunqWebhook and built-in webhook server.
- Migrated package naming from @bunq-community/bunq to @apiclient.xyz/bunq and restructured module exports.
- Improved ESM compatibility with proper .js extension usage and TypeScript verbatimModuleSyntax support.
- Updated documentation, changelog, and tests to reflect the new API and migration changes.

2019-10-02 to 2025-07-18 - Various - Minor updates

These releases did not include any feature or bug-fix changes beyond routine updates. The following versions are summarized here: 2.0.0, 1.0.22, 1.0.7, and 1.0.6.

2020-08-25 - 1.0.21 - core

Main change: fix(core): update

- Fixed issues in the core module

2020-08-21 - 1.0.20 - core

Main change: fix(core): update

- Fixed issues in the core module

2020-08-21 - 1.0.19 - core

Main change: fix(core): update

- Fixed issues in the core module

2020-08-21 - 1.0.18 - core

Main change: fix(core): update

- Fixed issues in the core module

2020-08-20 - 1.0.17 - core

Main change: fix(core): update

- Fixed issues in the core module

2020-08-20 - 1.0.16 - core

Main change: fix(core): update

- Fixed issues in the core module

2020-06-20 - 1.0.15 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-12-15 - 1.0.14 - transactions

Main change: fix(transactions): enter a starting transaction

- Entered a starting transaction in the transactions module

2019-12-15 - 1.0.13 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-12-15 - 1.0.12 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-10-03 - 1.0.11 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-10-03 - 1.0.10 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-10-02 - 1.0.9 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-10-02 - 1.0.8 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-10-02 - 1.0.5 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-10-02 - 1.0.4 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-09-26 - 1.0.3 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-09-26 - 1.0.2 - core

Main change: fix(core): update

- Fixed issues in the core module

2019-09-26 - 1.0.1 - core

Main change: fix(core): update

- Fixed issues in the core module