

Environment Variables Configuration

This document provides a comprehensive list of all environment variables required for the WRDO Cave Ultra Build application.

Core Application Variables

Variable	Required	Category	Description	Example Value
NODE_ENV	Required	Application	Node.js environment mode	production
PORT	△ Optional	Application	Server port number	3000
NEXT_PUBLIC_APP_URL	Required	Application	Public URL of the application	https://your-app.railway.app

AI & API Integration Variables

OpenAI Configuration

Variable	Required	Category	Description	Example Value
OPENAI_API_KEY	Required	AI/OpenAI	OpenAI API key for GPT models	sk-proj-...
OPENAI_ORG_ID	△ Optional	AI/OpenAI	OpenAI organization ID	org-...
OPENAI_BASE_URL	△ Optional	AI/OpenAI	Custom OpenAI API base URL	https://api.openai.com/v1

Hume AI Configuration

Variable	Required	Category	Description	Example Value
HUME_API_KEY	Required	AI/Hume	Hume AI API key for emotion analysis	hume_...
HUME_BASE_URL	△ Optional	AI/Hume	Custom Hume AI API base URL	https://api.hume.ai/v0

ElevenLabs Configuration

Variable	Required	Category	Description	Example Value
ELEVEN-LABS_API_KEY	Required	AI/Voice	ElevenLabs API key for voice synthesis	e1_...
ELEVEN-LABS_BASE_URL	⚠ Optional	AI/Voice	Custom ElevenLabs API base URL	https://api.elevenlabs.io/v1

Abacus AI Configuration

Variable	Required	Category	Description	Example Value
ABACUS-AI_API_KEY	Required	AI/Abacus	Abacus AI API key for advanced analytics	abacus_...

Database Configuration

Variable	Required	Category	Description	Example Value
DATABASE_URL	Required	Database	PostgreSQL database connection string	postgresql://user:pass@host:5432/db

Security & Authentication

Variable	Required	Category	Description	Example Value
JWT_SECRET	Required	Security	Secret key for JWT token signing	your-super-secret-jwt-key-here
API_RATE_LIMIT	⚠ Optional	Security	API rate limit per minute	100

Railway Deployment Variables

Variable	Required	Category	Description	Example Value
RAIL-WAY_ENVIRONMENT	Required	Deployment	Railway environment identifier	production
RAIL-WAY_PROJECT_ID	Auto-set	Deployment	Railway project ID (auto-generated)	proj_...
RAIL-WAY_SERVICE_ID	Auto-set	Deployment	Railway service ID (auto-generated)	svc_...
RAIL-WAY_DEPLOYMENT_ID	Auto-set	Deployment	Railway deployment ID (auto-generated)	dep_...

Environment File Templates

Development (.env.local)

```
# Development Environment
NODE_ENV=development
PORT=3000
NEXT_PUBLIC_APP_URL=http://localhost:3000

# API Keys (Development)
OPENAI_API_KEY=your_openai_api_key_here
HUME_API_KEY=your_hume_api_key_here
ELEVENLABS_API_KEY=your_elevenlabs_api_key_here
ABACUSAI_API_KEY=your_abacusai_api_key_here

# Database (Development)
DATABASE_URL=postgresql://localhost:5432/wrdo_dev

# Security
JWT_SECRET=dev-jwt-secret-change-in-production
API_RATE_LIMIT=1000
```

Production (.env)

```
# Production Environment
NODE_ENV=production
NEXT_PUBLIC_APP_URL=https://your-app.railway.app

# API Keys (Production)
OPENAI_API_KEY=sk-proj-your-production-key
HUME_API_KEY=hume-your-production-key
ELEVENLABS_API_KEY=e1-your-production-key
ABACUSAI_API_KEY=abacus-your-production-key

# Database (Production)
DATABASE_URL=${Postgres.DATABASE_URL}

# Security
JWT_SECRET=your-super-secure-production-jwt-secret
API_RATE_LIMIT=100

# Railway
RAILWAY_ENVIRONMENT=production
```

Variable Validation

The application includes built-in validation for critical environment variables:

Required Variables Check

- Application startup will fail if any required variables are missing
- API endpoints will return 500 errors if their respective API keys are not configured
- Database operations will fail if `DATABASE_URL` is not properly set

Security Validation

- JWT operations require `JWT_SECRET` to be at least 32 characters long
- API keys are validated for proper format before making external requests
- Rate limiting is enforced based on `API_RATE_LIMIT` setting

Setup Instructions

1. Local Development

1. Copy `.env.example` to `.env.local`
2. Fill in your API keys and database URL
3. Run `npm run dev` to start development server

2. Railway Deployment

1. Set environment variables in Railway dashboard
2. Use Railway's PostgreSQL add-on for `DATABASE_URL`
3. Deploy using Railway CLI or GitHub integration

3. Environment Variable Priority

1. Railway environment variables (highest priority)

- 2. `.env` file
- 3. `.env.local` file
- 4. Default values (lowest priority)

Security Notes

- **Never commit real API keys to version control**
- Use Railway's environment variable management for production
- Rotate API keys regularly
- Monitor API usage and rate limits
- Use strong, unique JWT secrets for each environment

API Integration Status

Service	Status	Required Variables	Health Check
OpenAI	Active	<code>OPENAI_API_KEY</code>	<code>/api/chat</code>
Hume AI	Active	<code>HUME_API_KEY</code>	<code>/api/hume/analyze</code>
ElevenLabs	Active	<code>ELEVENLABS_API_KEY</code>	<code>/api/elevenlabs/synthesize</code>
Database	Active	<code>DATABASE_URL</code>	<code>/api/health</code>

Troubleshooting

Common Issues

- 1. **API Authentication Errors:** Check if API keys are correctly set and valid
- 2. **Database Connection Errors:** Verify `DATABASE_URL` format and accessibility
- 3. **Rate Limiting:** Adjust `API_RATE_LIMIT` based on your API plan limits
- 4. **CORS Issues:** Ensure `NEXT_PUBLIC_APP_URL` matches your domain

Testing Environment Variables

Run the API test script to verify all integrations:

```
npm run test:apis
```

This will test all API endpoints and report any configuration issues.