Payout Management System Documentation

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🎯 Overview

The Callastar Payout Management System provides a complete solution for managing creator payments, from booking payment to final payout. The system implements a **7-day holding period** for security and dispute management, followed by a **manual admin approval process** for payout requests.

Key Features

- ✅ **Automatic Payment Hold**: All payments are held for 7 days after booking
- ✅ **Creator Payout Requests**: Creators can request payouts for available balance
- ✅ **Admin Approval Workflow**: Admins manually process payout requests
- ✅ **Stripe Integration**: Direct transfers to creator Stripe Connect accounts
- ✅ **Webhook Automation**: Automatic status updates from Stripe
- ✅ **Analytics Dashboard**: Comprehensive platform metrics and insights

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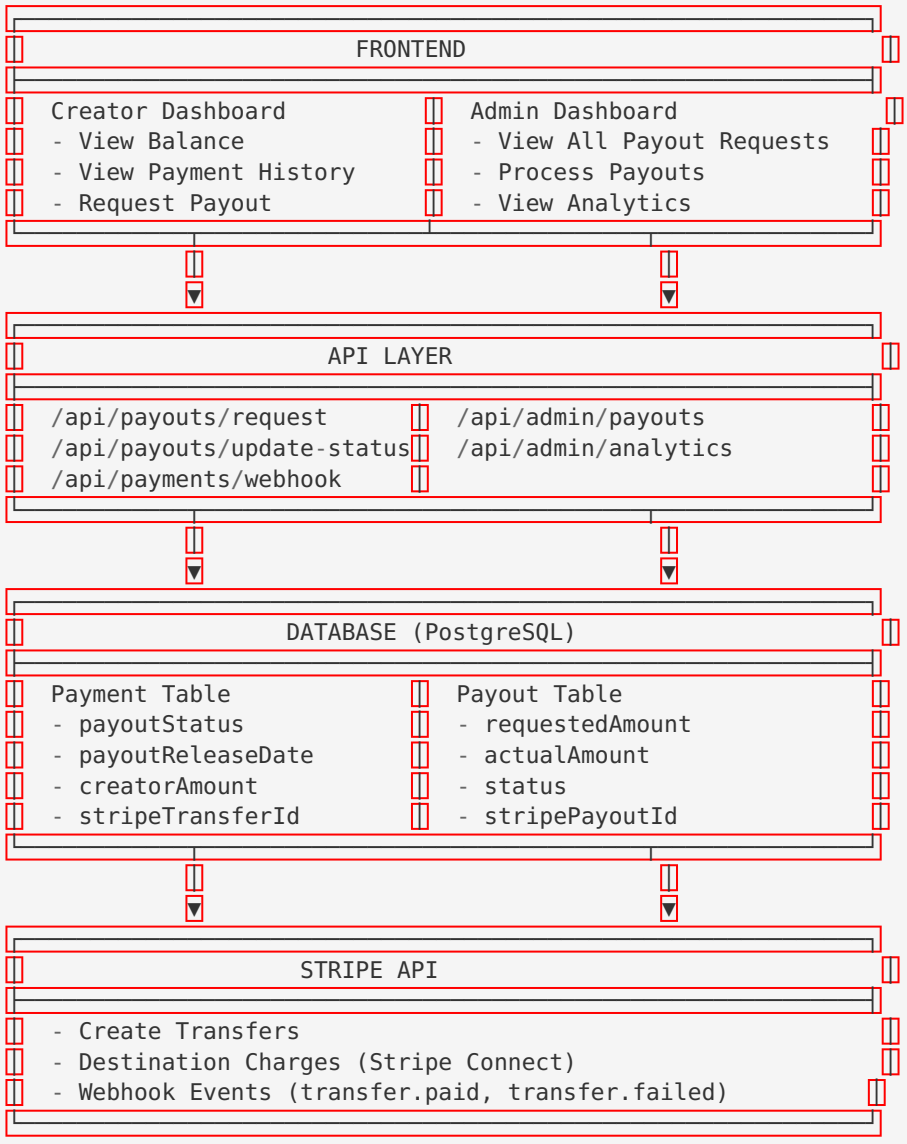
🏗️ System Architecture

Payment Status Flow

```
BOOKING PAYMENT
    ↓
PAYMENT CREATED (status: SUCCEEDED)
    ↓
HELD (7 days security period)
    ↓ (automatic after 7 days via cron job)
READY (available for payout)
    ↓ (creator requests payout)
PAYOUT REQUEST CREATED (status: PENDING)
    ↓ (admin processes request)
PROCESSING (Stripe transfer initiated)
    ↓ (Stripe webhook confirms)
PAID (funds transferred to creator)
```

Component Architecture



💰 Payment Flow

1. Initial Booking Payment

When a user books a call:

1. **Payment Intent Created**:
   - Uses Stripe Connect Destination Charges
   - 10% platform fee automatically deducted
   - 90% designated for creator

2. **Payment Record Created** (via webhook):
   ```typescript
   {
     status: 'SUCCEEDED',
     payoutStatus: 'HELD',
     payoutReleaseDate: currentDate + 7 days,
     amount: 70.00,          // Total amount in EUR
     platformFee: 7.00,      // 10% platform fee
     creatorAmount: 63.00    // 90% for creator
   }
   ```

2. Holding Period (7 Days)

- Payments remain in `HELD` status for 7 days
- Protects against chargebacks and disputes
- **Cron Job** runs daily via `/api/payouts/update-status`:
  ```bash
  # Checks if payoutReleaseDate has passed
  # Updates payoutStatus from HELD → READY
  ```

3. Creator Payout Request

When release date is reached:

1. Creator sees available balance in dashboard
2. Creator clicks “Request Payout” button
3. Enters amount to withdraw (up to available balance)
4. System creates **Payout Request**:
   ```typescript
   {
     status: 'PENDING',
     requestedAmount: 63.00,
     stripeAccountId: 'acct_xxx',
     requestedAt: new Date()
   }
   ```

4. Admin Processing

Admin reviews and processes requests:

1. Views pending requests in `/dashboard/admin/payouts`
2. Verifies creator’s Stripe account status
3. Clicks “Process” button

4. System:
   - Creates Stripe Transfer to creator account
   - Updates payout status to `PROCESSING`
   - Updates payment records to `PROCESSING`

5. Stripe Transfer Completion

Stripe webhook handles completion:

1. **`transfer.paid` event received**:
   - Updates payout status to `PAID`
   - Updates payment records to `PAID`
   - Sends notification to creator
   - Sends email confirmation

2. **`transfer.failed` event received**:
   - Updates payout status to `FAILED`
   - Reverts payment records to `READY`
   - Notifies creator of failure

🗄️ Database Schema

Payment Model

```
model Payment {
  id                    String        @id @default(cuid())
  bookingId             String        @unique
  amount                Decimal       @db.Decimal(10, 2)
  stripePaymentIntentId String
  status                PaymentStatus @default(PENDING)
  platformFee           Decimal       @db.Decimal(10, 2)
  creatorAmount         Decimal       @db.Decimal(10, 2)
  createdAt             DateTime      @default(now())

  // Payout tracking
  payoutStatus          PayoutStatus  @default(HELD)
  payoutReleaseDate     DateTime?
  stripeTransferId      String?
  payoutDate            DateTime?

  booking Booking @relation(fields: [bookingId], references: [id])

  @@index([payoutStatus])
}
```

Payout Model

```
model Payout {
  id              String       @id @default(cuid())
  creatorId       String
  requestedAmount Decimal      @db.Decimal(10, 2)
  actualAmount    Decimal?     @db.Decimal(10, 2)
  stripePayoutId  String?
  stripeAccountId String?
  status          PayoutStatus @default(PENDING)

  // Tracking dates
  requestedAt     DateTime     @default(now())
  processedAt     DateTime?
  completedAt     DateTime?
  failedAt        DateTime?

  // Metadata
  failureReason   String?      @db.Text
  notes           String?      @db.Text
  processedBy     String?

  createdAt       DateTime     @default(now())
  updatedAt       DateTime     @updatedAt

  creator Creator @relation(fields: [creatorId], references: [id])

  @@index([creatorId])
  @@index([status])
}
```

PayoutStatus Enum

```
enum PayoutStatus {
  PENDING      // Initial state, awaiting payment
  HELD         // Payment succeeded, funds held for 7 days
  READY        // Holding period passed, ready for transfer
  PROCESSING   // Transfer in progress
  PAID         // Successfully transferred to creator
  FAILED       // Transfer failed
  CANCELLED    // Cancelled (refund/dispute)
}
```

🔌 API Endpoints

Creator APIs

`GET /api/payouts/request`

Get creator's balance and payment details.

Response:

```
{
  "availableBalance": 126.00,
  "pendingBalance": 63.00,
  "totalPaid": 315.00,
  "stripeConnected": true,
  "payments": {
    "ready": [...],
    "held": [...],
    "paid": [...]
  },
  "pendingPayoutRequests": [...]
}
```


`POST /api/payouts/request`

Create a payout request.

Request:


```
{
  "amount": 126.00
}
```


Response:


```
{
  "success": true,
  "message": "Demande de paiement de 126.00€ créée avec succès",
  "payout": {
    "id": "payout_xxx",
    "amount": 126.00,
    "status": "PENDING"
  }
}
```


Admin APIs

`GET /api/admin/payouts`

List all payout requests with filters.

Query Parameters:
- `status` : Filter by status (PENDING, PROCESSING, PAID, FAILED)
- `creatorId` : Filter by creator ID

Response:

```
[
  {
    "id": "payout_xxx",
    "creatorName": "John Doe",
    "creatorEmail": "john@example.com",
    "stripeAccountId": "acct_xxx",
    "requestedAmount": 126.00,
    "availableBalance": 126.00,
    "status": "PENDING",
    "requestedAt": "2025-12-25T10:00:00Z"
  }
]
```

`POST /api/admin/payouts`

Process a payout request.

Request:

```
{
  "payoutId": "payout_xxx",
  "notes": "Processed manually"
}
```

Response:

```
{
  "success": true,
  "message": "Paiement de 126.00€ transféré avec succès",
  "payout": {
    "id": "payout_xxx",
    "amount": 126.00,
    "stripePayoutId": "tr_xxx",
    "status": "PAID"
  }
}
```

`GET /api/admin/analytics`

Get platform analytics and metrics.

Query Parameters:
- `period` : Number of days (default: 30)

Response:

```
{
  "revenue": {
    "total": 7000.00,
    "period": 700.00
  },
  "platformFees": {
    "total": 700.00,
    "period": 70.00
  },
  "payouts": {
    "pending": { "count": 5, "amount": 315.00 },
    "completed": { "count": 20, "amount": 1260.00 }
  },
  "topCreators": [...]
}
```


Cron Job API

`POST /api/payouts/update-status`

Update payment status from HELD to READY (runs daily).

Headers:

```
Authorization: Bearer <CRON_SECRET>
```

Response:


```
{
  "message": "Updated 5 payments to READY status",
  "updatedCount": 5,
  "paymentIds": ["pay_1", "pay_2", ...]
}
```

🎨 User Interfaces

Creator Dashboard (`/dashboard/creator/payouts`)

Features:
- **Balance Cards**: Available, Pending, Total Paid
- **Request Payout Button**: Creates payout request
- **Payment Lists**:
- Ready payments (can be included in payout)
- Held payments (with countdown)
- Paid history
- **Payout Request Status**: Shows pending requests

Admin Payout Management (`/dashboard/admin/payouts`)

Features:
- **Summary Cards**: Pending, Processing, Completed amounts
- **Payout Requests Table**:
- Creator details

- Requested vs available balance
- Request date
- Status badge
- Action buttons
- **Process Button**: Initiates Stripe transfer
- **Stripe Dashboard Link**: Opens creator's Stripe account
- **Status Filtering**: Filter by status

Admin Analytics (`/dashboard/admin/analytics`)

Features:
- **Period Selector**: 7, 30, 90, 365 days
- **Revenue Metrics**:
- Total revenue
- Platform fees
- Creator earnings
- **Payout Metrics**:
- Pending amount
- Completed payouts
- Current balances
- **Charts**:
- Revenue over time
- Payment status distribution
- **Top Creators**: Highest earners in period

🔔 Webhook Integration

Stripe Webhook Configuration

1. **Configure Webhook Endpoint**:
   `https://your-domain.com/api/payments/webhook`

2. **Required Events**:
   - `payment_intent.succeeded` - Initial payment capture
   - `transfer.paid` - Payout completed successfully
   - `transfer.failed` - Payout failed

3. **Webhook Secret**:
   `bash`
   `# Add to .env`
   `STRIPE_WEBHOOK_SECRET=whsec_xxxxx`

Webhook Handler (`/api/payments/webhook/route.ts`)

Handles three event types:

1. `payment_intent.succeeded`

- Creates Payment record
- Sets payoutStatus to HELD
- Calculates payoutReleaseDate (7 days)
- Sends confirmation emails

2. `transfer.paid`

- Updates Payout status to PAID
- Updates Payment records to PAID
- Sends success notification to creator
- Records transfer ID and date

3. `transfer.failed`

- Updates Payout status to FAILED
- Reverts Payment records to READY
- Records failure reason
- Sends error notification to creator

👨‍💼 Admin Instructions

Daily Operations

1. Check Pending Payout Requests

Navigate to `/dashboard/admin/payouts`:
- View all pending requests
- Check creator's available balance
- Verify Stripe account status

2. Process Payout Request

Steps:
1. Click "Stripe" button to verify creator's account:
- Check if payouts are enabled
- Verify bank account is connected
- Review account status

1. Click "Process" button:
   - System creates Stripe transfer
   - Status updates to PROCESSING
   - Wait for webhook confirmation

2. Verify Completion:
   - Check payout status changes to PAID
   - Verify in Stripe Dashboard
   - Creator receives email notification

3. Handle Failed Payouts

If payout fails:
1. Check failure reason in admin panel
2. Contact creator to resolve issue:
- Bank account issues
- Stripe account verification needed
- Insufficient funds (rare)
3. Creator can request again after fixing

4. Monitor Analytics

Check `/dashboard/admin/analytics` regularly:
- **Revenue Trends**: Monitor platform growth
- **Pending Payouts**: Ensure timely processing
- **Balance Health**: Check held vs ready amounts
- **Top Creators**: Identify high performers

Troubleshooting

Creator Can’t Request Payout

Possible Causes:
1. Stripe Connect not configured
- Guide creator to `/dashboard/creator/settings`
- Complete Stripe onboarding

1. No available balance
   - Payments still in HELD status
   - Check payoutReleaseDate

2. Pending request exists
   - Process existing request first
   - Only one pending request allowed

Payout Processing Fails

Possible Causes:
1. Invalid Stripe account
- Verify account ID is correct
- Check account status in Stripe

1. Stripe API error
   - Check Stripe API logs
   - Verify API keys are correct

2. Insufficient balance (rare)
   - Check platform’s Stripe balance
   - Contact Stripe support if needed

⚙️ Configuration

Environment Variables

```
# Stripe Configuration
STRIPE_SECRET_KEY=sk_test_xxxxx
STRIPE_PUBLISHABLE_KEY=pk_test_xxxxx
STRIPE_WEBHOOK_SECRET=whsec_xxxxx

# Cron Job Secret
CRON_SECRET=your-secure-secret

# App URLs
NEXT_PUBLIC_APP_URL=https://your-domain.com
NEXTAUTH_URL=https://your-domain.com

# Database
DATABASE_URL=postgresql://user:pass@host:5432/db
```

Cron Job Setup

The system uses an automated cron job to check and update payment statuses from HELD to READY when the 7-day holding period has passed.

Vercel Cron Configuration (Recommended)

1. **Create vercel.json** in project root:
   ```
   json
   {
     "crons": [
       {
         "path": "/api/payouts/update-status",
         "schedule": "0 2 * * *"
       }
     ]
   }
   ```

2. **Set CRON_SECRET in Vercel**:
   - Go to your project in Vercel Dashboard
   - Navigate to Settings → Environment Variables
   - Add new variable:
     - Name: `CRON_SECRET`
     - Value: Generate a secure random string (min 32 characters)
     - Available to: All environments (or Production only)
     - Example generation:
       ```
       bash
       # Generate secure random secret
       openssl rand -base64 32
       # or
       node -e "console.log(require('crypto').randomBytes(32).toString('base64'))"
       ```

3. **Deploy to Vercel**:
   ```
   bash
   git add vercel.json
   ```

```
   git commit -m "Add cron job configuration"
   git push origin main
   vercel --prod
```

4. **Verify Cron Setup**:
   - Go to Vercel Dashboard → Your Project → Settings → Cron
   - You should see the cron job listed with schedule “0 2 * * *”
   - Check logs after first run to verify success

Alternative: External Cron Service

If not using Vercel, you can use an external cron service like:
- **cron-job.org**
- **EasyCron**
- **AWS CloudWatch Events**
- **Server crontab**

Setup Example (Server Crontab):

```
# Edit crontab
crontab -e

# Add this line (runs daily at 02:00 UTC)
0 2 * * * curl -X POST \
  -H "Authorization: Bearer YOUR_CRON_SECRET" \
  https://your-domain.com/api/payouts/update-status
```

Testing the Cron Job

Local Testing (Development)

1. **Start development server**:
   ```
   bash
      npm run dev
   ```

2. **Test via GET request** (development only):
   ```
   bash
      # Simple GET request (no auth needed in dev mode)
      curl http://localhost:3000/api/payouts/update-status
   ```

3. **Test via POST request** (production-like):
   ```
   bash
      # With authentication
      curl -X POST \
        -H "Authorization: Bearer dev-secret" \
        http://localhost:3000/api/payouts/update-status
   ```

4. **Expected Response** (no payments to update):
   ```
   json
      {
        "success": true,
        "message": "No payments to update",
        "updatedCount": 0,
        "timestamp": "2025-12-25T02:00:00.000Z",
   ```

```
    "duration": "45ms"
  }
```

5. **Expected Response** (with payments updated):
```
json
  {
    "success": true,
    "message": "Updated 3 payments to READY status",
    "updatedCount": 3,
    "paymentIds": ["pay_1", "pay_2", "pay_3"],
    "payments": [
      {
        "id": "pay_1",
        "amount": 63.00,
        "creatorName": "John Doe",
        "releaseDate": "2025-12-18T10:00:00.000Z"
      }
    ],
    "timestamp": "2025-12-25T02:00:00.000Z",
    "duration": "123ms"
  }
```

Production Testing

1. **Manual Trigger** (for testing only):
```bash
# Get your CRON_SECRET from Vercel environment variables
CRON_SECRET="your-actual-secret-here"

# Call production endpoint
curl -X POST \
-H "Authorization: Bearer $CRON_SECRET" \
https://your-domain.com/api/payouts/update-status
```

1. **Check Vercel Logs**:
   - Go to Vercel Dashboard → Your Project → Logs
   - Filter by function: `/api/payouts/update-status`
   - Look for log entries with `[CRON]` prefix

2. **Expected Log Output**:
```
🔄 [CRON] Payout status update job started at: 2025-12-25T02:00:00.000Z
✅ [CRON] Authentication successful
🔍 [CRON] Searching for HELD payments with release date <= 2025-12-25T02:00:00.000Z
📊 [CRON] Found 3 payments ready to be updated
💰 [CRON] Payments to be updated:

1. Payment ID: pay_abc123
   Amount: €63.00
   Creator: John Doe (john@example.com)
   Release Date: 2025-12-18T10:00:00.000Z
🔄 [CRON] Updating payment statuses from HELD to READY...
```

✅✅✅ [CRON] Successfully updated 3 payments to READY status
⏱️ [CRON] Total execution time: 234ms
📅 [CRON] Next run: Tomorrow at 02:00 UTC
```

### Monitoring Cron Job Health

1. **Check Execution Logs**:
   ```bash
   # View recent cron job executions in Vercel
   vercel logs --follow /api/payouts/update-status
   ```

2. **Set Up Alerts** (Optional):
   - Use a monitoring service like Better Uptime or Cronitor
   - Configure webhook to receive cron failure alerts
   - Example with Cronitor:
   ```bash
   # Add to your cron endpoint response handling
   curl https://cronitor.link/YOUR_MONITOR_ID/complete
   ```

3. **Database Verification**:
   ```sql
   – Check for payments still in HELD status past release date
   SELECT COUNT(*) as stuck_payments
   FROM “Payment”
   WHERE “payoutStatus” = ‘HELD’
   AND “payoutReleaseDate” <= NOW();

– Should return 0 if cron is working properly
```

Troubleshooting Cron Issues

Issue: Cron Job Not Running

Symptoms: Payments stay in HELD status past release date

Solutions:
1. Check vercel.json is committed and deployed
2. Verify cron appears in Vercel Dashboard → Cron section
3. Check CRON_SECRET is set in Vercel environment variables
4. Review Vercel logs for error messages
5. Manually trigger endpoint to test:
```bash
curl -X POST \
  -H "Authorization: Bearer YOUR_CRON_SECRET" \
  https://your-domain.com/api/payouts/update-status
```

Issue: Authentication Failures

Symptoms: 401 Unauthorized in logs

Solutions:
1. Verify CRON_SECRET matches between:
- Vercel environment variables
- Your local .env file (for testing)
```

- The Authorization header
2. Ensure no extra spaces in the secret
3. Check header format: `Bearer YOUR_SECRET` (note the space)

Issue: Database Timeout

Symptoms: 500 error, “Query timeout” in logs

Solutions:
1. Check database connection pool settings
2. Optimize query with proper indexes:
```sql
CREATE INDEX IF NOT EXISTS "Payment_payoutStatus_releaseDate_idx"
ON "Payment" ("payoutStatus", "payoutReleaseDate");
```
3. Add connection retry logic
4. Consider pagination for large updates

Issue: No Payments Updated But Should Be

Symptoms: Returns 0 updated but payments exist

Solutions:
1. Check timezone settings:
```typescript
// In route.ts, verify timezone handling
const now = new Date();
console.log('Current time:', now.toISOString());
```
2. Verify payoutReleaseDate is set correctly:
```sql
SELECT id, "payoutStatus", "payoutReleaseDate", NOW()
FROM "Payment"
WHERE "payoutStatus" = 'HELD';
```
3. Check for database query filters

Stripe Constants

Located in `lib/stripe.ts`:

```
export const PLATFORM_FEE_PERCENTAGE = 10;  // 10% platform fee
export const PAYOUT_HOLDING_DAYS = 7;        // 7 day hold period
```

🧪 Testing

Test Scenarios

1. Complete Payment Flow

```
# 1. Create booking and payment
# 2. Wait for payment_intent.succeeded webhook
# 3. Verify Payment created with HELD status
# 4. Check payoutReleaseDate is +7 days

# 5. Simulate cron job (or wait 7 days)
curl -X POST \
  -H "Authorization: Bearer YOUR_CRON_SECRET" \
  http://localhost:3000/api/payouts/update-status

# 6. Verify payment status changed to READY
# 7. Login as creator and request payout
# 8. Login as admin and process payout
# 9. Wait for transfer.paid webhook
# 10. Verify payment marked as PAID
```

2. Test Payout Request Validation

```
# Test: Request exceeds balance
POST /api/payouts/request
{ "amount": 999999 }
# Expected: 400 error

# Test: Stripe not configured
# Remove stripeAccountId from creator
POST /api/payouts/request
{ "amount": 10 }
# Expected: 400 error

# Test: Already has pending request
# Create request, then try again
POST /api/payouts/request
{ "amount": 10 }
# Expected: 400 error
```

3. Test Webhook Events

```
# Use Stripe CLI to forward webhooks
stripe listen --forward-to localhost:3000/api/payments/webhook

# Trigger test events
stripe trigger payment_intent.succeeded
stripe trigger transfer.paid
stripe trigger transfer.failed
```

Manual Testing Checklist

- [ ] Creator can view balance correctly
- [ ] Creator can request payout
- [ ] Admin sees pending requests
- [ ] Admin can view creator’s Stripe account

- [ ] Admin can process payout
- [ ] Webhook updates payout status
- [ ] Creator receives email notification
- [ ] Analytics show correct metrics
- [ ] Held→Ready status update works
- [ ] Failed payout reverts to READY

📝 Notes

Security Considerations

1. **Authorization**: All APIs check user role (CREATOR/ADMIN)
2. **Validation**: Request amounts validated against available balance
3. **Idempotency**: Webhook handler checks for existing payments
4. **Cron Secret**: Protected endpoint requires secret header

Performance Optimizations

1. **Indexed Fields**: payoutStatus, status, creatorId
2. **Pagination**: Limit paid payment history to last 50
3. **Caching**: Consider caching analytics for large datasets

Future Enhancements

- [ ] Automatic payout processing (optional)
- [ ] Bulk payout processing
- [ ] Custom holding periods per creator
- [ ] CSV export of payout history
- [ ] Email notifications for payout milestones
- [ ] Multi-currency support
- [ ] Scheduled payouts (weekly/monthly)

🆘 Support

For issues or questions:
1. Check Stripe Documentation (https://stripe.com/docs/connect)
2. Review application logs
3. Contact platform admin
4. Submit GitHub issue

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