🔔 Webhook Integration

> **Get real-time notifications when users interact with your avatars**

Connect your applications to receive instant HTTP callbacks when avatar events occur - from user conv

✨ What Are Webhooks?

Webhooks let your application **automatically respond** to avatar events:

🎤 **User joins session** → Notify your CRM
💬 **Chat message sent** → Log to database

Perfect for: Analytics, CRM integration, Slack notifications, database logging, real-time dashboards

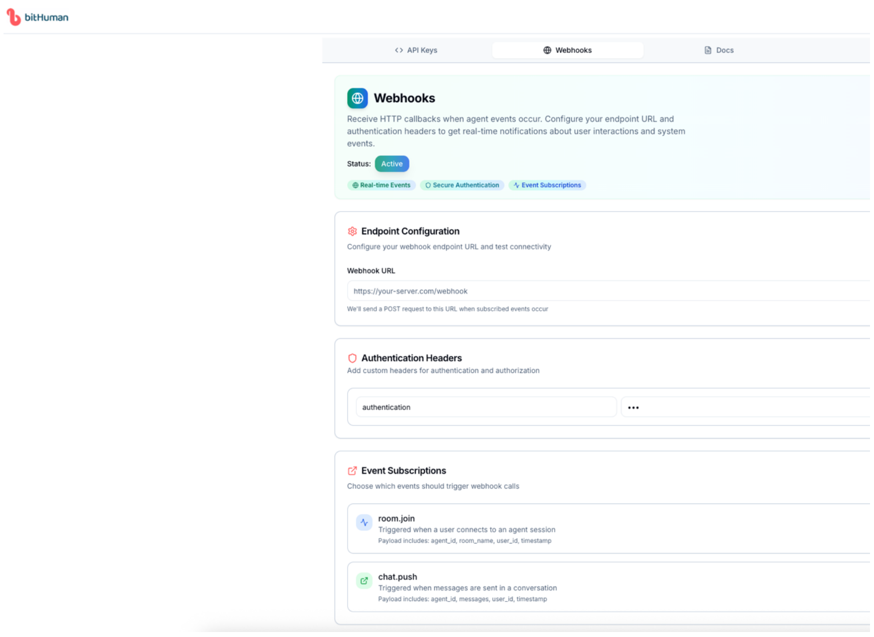
🚀 Quick Setup

1️⃣ Configure Your Endpoint

Navigate to the webhook configuration in your bitHuman developer dashboard:

Step 1: Access Developer Dashboard

Visit imaginex.bithuman.ai/#developer and navigate to the **Webhooks** section.



Webhooks

Receive HTTP callbacks when agent events occur. Configure your endpoint URL and authentication headers to get real-time notifications about user interactions and system events.

Status: Active

Real-time Events · Secure Authentication · Event Subscriptions

Endpoint Configuration

Configure your webhook endpoint URL and test connectivity

Webhook URL: https://your-server.com/webhook

We'll send a POST request to this URL when subscribed events occur

Authentication Headers

Add custom headers for authentication and authorization

authentication | •••

Event Subscriptions

Choose which events should trigger webhook calls

room.join
Triggered when a user connects to an agent session
Payload includes: agent_id, room_name, user_id, timestamp

chat.push
Triggered when messages are sent in a conversation
Payload includes: agent_id, messages, user_id, timestamp

Configure your webhook settings in the developer dashboard

Step 2: Configure Endpoint URL

Set up your webhook endpoint URL in the configuration panel:

```
POST https://your-app.com/webhook
Content-Type: application/json
```

2️⃣ Choose Events to Receive

Select which events trigger your webhook:

- ✅ **room_join** - User connects to avatar
- ✅ **chat_push** - Messages in conversation

3️⃣ Add Authentication (Recommended)

Secure your endpoint with custom headers:

```
Authorization: Bearer your-api-token
X-API-Key: your-secret-key
```

📨 Webhook Payload Examples

Room Join Event

```
{
  "agent_id": "agent_abc123",
  "event_type": "room.join",
  "data": {
    "room_name": "customer-support",
    "participant_count": 1,
    "session_id": "session_xyz789"
  },
  "timestamp": 1705312200.0
}
```

Chat Message Event

```
{
  "agent_id": "agent_abc123",
  "event_type": "chat.push",
  "data": {
    "role": "user",
    "message": "Hello, I need help with my order",
    "session_id": "session_xyz789",
    "timestamp": 1705312285.0
  },
  "timestamp": 1705312285.0
}
```

🛠️ Implementation Examples

Flask Server (Python)

```python
from flask import Flask, request, jsonify
import hmac
import hashlib

app = Flask(__name__)
WEBHOOK_SECRET = "your-webhook-secret"

@app.route('/webhook', methods=['POST'])
def handle_webhook():
    # Verify signature (recommended)
    signature = request.headers.get('X-bitHuman-Signature', '')
    if not verify_signature(request.data, signature):
        return jsonify({'error': 'Invalid signature'}), 401

    data = request.json
    event_type = data.get('event_type')

    # Handle different events
    if event_type == 'room.join':
        handle_user_joined(data)
    elif event_type == 'chat.push':
        handle_new_message(data)

    return jsonify({'status': 'success'})

def handle_user_joined(data):
    agent_id = data.get('agent_id')
    room_data = data.get('data', {})
    session_id = room_data.get('session_id')
    room_name = room_data.get('room_name')
    participant_count = room_data.get('participant_count')

    print(f"User joined agent {agent_id} in room {room_name} (session: {session_
    # Add your logic: Update CRM, send notification, etc.

def handle_new_message(data):
    agent_id = data.get('agent_id')
    message_data = data.get('data', {})
    role = message_data.get('role')
    message = message_data.get('message')
    session_id = message_data.get('session_id')

    print(f"New {role} message in session {session_id}: {message}")
    # Add your logic: Log to database, analyze sentiment, etc.

def verify_signature(payload, signature):
    expected = hmac.new(
        WEBHOOK_SECRET.encode(),
        payload,
        hashlib.sha256
    ).hexdigest()
    return hmac.compare_digest(f"sha256={expected}", signature)
```

```
if __name__ == '__main__':
    app.run(port=3000)
```

Express.js Server (Node.js)

```
const express = require('express');
const crypto = require('crypto');

const app = express();
app.use(express.json());

const WEBHOOK_SECRET = 'your-webhook-secret';

app.post('/webhook', (req, res) => {
  // Verify signature
  const signature = req.headers['x-bithuman-signature'];
  if (!verifySignature(req.body, signature)) {
    return res.status(401).json({ error: 'Invalid signature' });
  }

  const { event_type, agent_id, data } = req.body;

  switch (event_type) {
    case 'room.join':
      console.log(`User joined agent ${agent_id} in room ${data.room_name} (sess
      // Your logic here
      break;

    case 'chat.push':
      console.log(`New ${data.role} message in session ${data.session_id}: ${data
      // Your logic here
      break;
  }

  res.json({ status: 'success' });
});

function verifySignature(payload, signature) {
  const expected = crypto
    .createHmac('sha256', WEBHOOK_SECRET)
    .update(JSON.stringify(payload))
    .digest('hex');
  return crypto.timingSafeEqual(
    Buffer.from(`sha256=${expected}`),
    Buffer.from(signature)
  );
}

app.listen(3000, () => {
  console.log('Webhook server running on port 3000');
});
```

🎯 Common Use Cases

📊 Analytics Dashboard

```python
# Track user engagement metrics
def handle_chat_push(data):
    db.analytics.create({
        'agent_id': data['agentId'],
        'user_id': data['user']['id'],
        'message_type': data['message']['type'],
        'timestamp': data['timestamp'],
        'content_length': len(data['message']['content'])
    })
```

💬 Slack Notifications

```python
import requests

def handle_room_join(data):
    slack_webhook = "https://hooks.slack.com/services/YOUR/SLACK/WEBHOOK"

    message = {
        "text": f"🤖 New user joined avatar!",
        "attachments": [{
            "color": "good",
            "fields": [
                {"title": "Agent", "value": data['agentId'], "short": True},
                {"title": "User", "value": data['user']['id'], "short": True}
            ]
        }]
    }

    requests.post(slack_webhook, json=message)
```

🗃 Database Logging

```python
# PostgreSQL with SQLAlchemy
def handle_room_join(data):
    agent_id = data.get('agent_id')
    room_data = data.get('data', {})
    session_id = room_data.get('session_id')
    room_name = room_data.get('room_name')
    participant_count = room_data.get('participant_count')
    timestamp = data.get('timestamp')

    user_session = UserSession.create({
        'agent_id': agent_id,
        'session_id': session_id,
        'room_name': room_name,
        'participant_count': participant_count,
        'started_at': timestamp
    })
    db.session.add(user_session)
    db.session.commit()
```

🔒 Security Best Practices

Signature Verification

Always verify webhook signatures to ensure requests come from bitHuman:

```python
import hmac
import hashlib

def verify_webhook_signature(payload, signature, secret):
    expected = hmac.new(
        secret.encode('utf-8'),
        payload.encode('utf-8'),
        hashlib.sha256
    ).hexdigest()

    return hmac.compare_digest(
        f"sha256={expected}",
        signature
    )
```

IP Whitelisting

Restrict webhook access to bitHuman servers:

```python
ALLOWED_IPS = ['52.14.127.', '18.216.155.']  # Example IPs

def is_allowed_ip(request_ip):
    return any(request_ip.startswith(ip) for ip in ALLOWED_IPS)
```

HTTPS Only

- ✅ Always use HTTPS endpoints
- ✅ Valid SSL certificates required
- ❌ HTTP endpoints will be rejected

🧪 Testing Your Webhook

Local Development with ngrok

```bash
# Expose local server for testing
ngrok http 3000
```

```
# Use the HTTPS URL in webhook settings
# Example: https://abc123.ngrok.io/webhook
```

Test Webhook Button

Use the **Test** button in the bitHuman dashboard to send sample events to your endpoint.

Manual Testing

```
# Test room.join event
curl -X POST https://your-app.com/webhook \
  -H "Content-Type: application/json" \
  -H "X-bitHuman-Signature: sha256=..." \
  -d '{
    "agent_id": "test_agent",
    "event_type": "room.join",
    "data": {
      "room_name": "test-room",
      "participant_count": 1,
      "session_id": "session_123"
    },
    "timestamp": 1705312200.0
  }'

# Test chat.push event
curl -X POST https://your-app.com/webhook \
  -H "Content-Type: application/json" \
  -H "X-bitHuman-Signature: sha256=..." \
  -d '{
    "agent_id": "test_agent",
    "event_type": "chat.push",
    "data": {
      "role": "user",
      "message": "Hello!",
      "session_id": "session_123",
      "timestamp": 1705312260.0
    },
    "timestamp": 1705312260.0
  }'
```

📈 Monitoring & Debugging

Response Requirements

Your webhook endpoint must:

- ✅ Return HTTP 2xx status codes
- ✅ Respond within 30 seconds
- ✅ Handle duplicate events gracefully

Automatic Retries

bitHuman automatically retries failed webhooks:

- **1st retry**: After 1 second
- **2nd retry**: After 5 seconds
- **3rd retry**: After 30 seconds
- **Max attempts**: 3 total

Debug Common Issues

Issue	Cause	Solution
Signature Invalid	Wrong secret or algorithm	Check HMAC SHA256 implementation
Timeout Errors	Slow processing	Return 200 immediately, process async
404 Not Found	Incorrect URL	Verify endpoint URL in dashboard
SSL Errors	Invalid certificate	Use valid HTTPS certificate

🎉 Ready to Integrate?

1. 🔧 **Set up your endpoint** - Create webhook handler in your app
2. 🔑 **Configure in dashboard** - Add URL and auth headers at imaginex.bithuman.ai/#developer
3. 🧪 **Test integration** - Use the test button to verify
4. 📊 **Monitor events** - Watch real-time notifications flow in

Need Help?

- 📚 **Advanced patterns**: Real-time Events Guide
- 💬 **Community support**: Discord
- 🛠️ **Technical issues**: Check our troubleshooting guide

Start receiving real-time avatar events in minutes! 🚀

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