Integration Document – PaymentNotifierPlugin

# 1. 📄 Overview

The PaymentNotifierPlugin is a Flutter plugin that facilitates sending and receiving payment-related notifications through Firebase Cloud Messaging (FCM). It is designed for mobile applications that require real-time updates for transactions such as money transfers, EMI reminders, and payment alerts.  
  
Key features include:  
- Push notification support via FCM  
- TTS-based audio playback for incoming messages  
- Local notification integration for enhanced user experience  
- Minimal configuration and easy integration into any Flutter app

# 2. 🏗️ System Architecture

Components:  
- Client: Flutter app integrating PaymentNotifierPlugin  
- Backend Server: https://paymentapi.rohan.org.in/ – responsible for sending FCM messages and serving audio files  
- Third-party Services:  
 - Firebase Core & Firebase Messaging  
 - Flutter Local Notifications  
 - Audioplayers  
 - HTTP (for REST API communication)

# 3. 🔐 Authentication & Authorization

- FCM token is retrieved using FirebaseMessaging.instance.getToken().  
- Token is stored and sent to the backend when needed.  
- No OAuth2/JWT implemented yet. Future improvements may include token validation.  
- All communication should occur over HTTPS.

# 4. 🔄 Data Flow & API Integration

4.1 Endpoints Used

|  |  |  |  |
| --- | --- | --- | --- |
| Endpoint | Method | Description | Auth |
| /send | POST | Sends a push notification to a target device | FCM Token |
| /audio/<filename> | GET | Retrieves a generated TTS audio notification | Public |

4.2 /send Request Payload Example

{  
 "fromName": "Rohan",  
 "fromToken": "<sender\_FCM\_token>",  
 "message": "money\_sent",  
 "send\_lang": "en",  
 "date": "2025-07-08",  
 "toName": "Recipient",  
 "toToken": "<receiver\_FCM\_token>",  
 "amount": "500"  
}

4.3 /audio/ URL Example

/audio/audio\_1234xxxxxx.wav

# 5. 📦 Data Format & Field Mapping

|  |  |  |  |
| --- | --- | --- | --- |
| Client Field | Server Field | Type | Notes |
| fromName | fromName | String | Name of the sender |
| fromToken | fromToken | String (FCM) | FCM token of sender |
| message | message | Enum String | e.g. money\_sent, emi\_reminder |
| send\_lang | send\_lang | String | Language code for TTS playback |
| date | date | String | Optional, format YYYY-MM-DD |
| toName | toName | String | Name of the recipient |
| toToken | toToken | String (FCM) | FCM token of recipient |
| amount | amount | String | Converted from double/float |

# 6. ⚠️ Error Handling & Response Codes

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Message | Description | Recommended Action |
| 200 | OK | Request processed successfully | None |
| 400 | Bad Request | Missing/invalid parameters | Validate and retry payload |
| 500 | Server Error | Internal error or failed FCM delivery | Retry or debug server logs |

# 7. 🧪 Testing Strategy

- Use Firebase Console for test notifications  
- Use Postman or curl for backend /send POST calls  
- Validate local notification appearance and TTS playback  
  
Example:  
curl -X POST https://paymentapi.rohan.org.in/send -H "Content-Type: application/json" -d '{...}'

# 8. 🚀 Deployment Notes

- Firebase project setup required with Cloud Messaging enabled  
- google-services.json (Android) or GoogleService-Info.plist (iOS) must be added  
- Server should be deployed with HTTPS support  
  
Android permissions in AndroidManifest.xml:  
<uses-permission android:name="android.permission.INTERNET"/>  
<uses-permission android:name="android.permission.RECEIVE\_BOOT\_COMPLETED"/>  
<uses-permission android:name="android.permission.POST\_NOTIFICATIONS"/>  
  
Required Flutter packages:  
firebase\_core, firebase\_messaging, flutter\_local\_notifications, audioplayers, http, path\_provider

# 9. 📚 References

- https://firebase.flutter.dev/docs/messaging/overview/  
- https://pub.dev/packages/flutter\_local\_notifications  
- https://pub.dev/packages/audioplayers  
- https://firebase.google.com/docs/cloud-messaging/send-message

# 10. 👨‍💻 Contacts

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