

# THE COMPLETE RCS IMPLEMENTATION GUIDE

From Setup to First Message in 5 Days

A step-by-step technical and strategic guide for businesses ready to upgrade their customer messaging.

## WHAT'S INSIDE:

- Brand verification checklist
- API integration walkthrough
- Message template best practices
- Fallback configuration guide
- Testing and launch checklist



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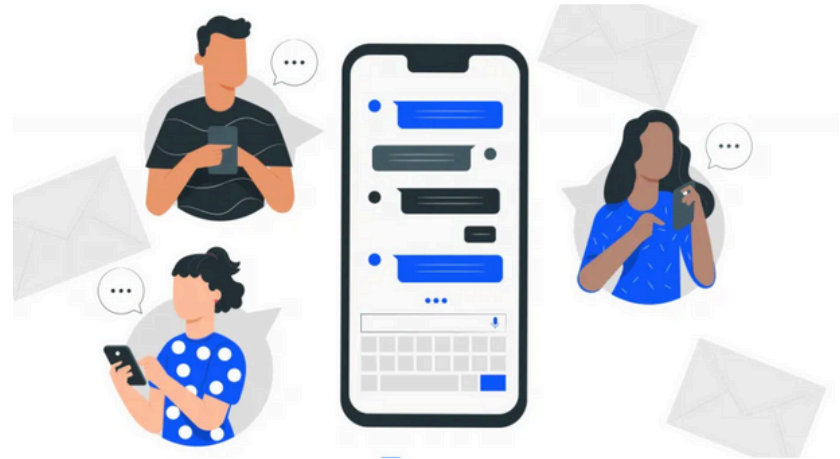
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# CHAPTER 1: INTRODUCTION TO RCS

## WHAT IS RCS?

Rich Communication Services (RCS) is the next-generation messaging protocol designed to replace SMS. It operates through carrier networks and native messaging apps, delivering rich media experiences without requiring app downloads.



## Key Feature

### Feature

- Verified Sender
- Rich Media
- Interactive Elements
- Read Receipts
- Typing Indicators
- Automatic Fallback

### Description

- Brand name, logo, and verification badge
- Images, videos, GIFs, PDFs up to 100MB
- Buttons, carousels, suggested replies
- Confirmation when messages are viewed
- Real-time conversation feedback
- SMS/MMS delivery when RCS unavailable

### DEVICE SUPPORT

- Android devices with Google Messages
- iOS 18+ devices (added September 2024)
- Combined global reach: 1.2+ billion devices

## BUSINESS BENEFITS

**3x**

Higher engagement  
rates vs SMS

**40%**

Increase in  
trust metrics

**50%**

Reduction in steps  
to conversion

RCS addresses the fundamental limitations of SMS while maintaining the reach and reliability that made text messaging essential for business communication.



## CHAPTER 2: PRE-IMPLEMENTATION CHECKLIST

Before you begin, gather the following materials and information.

### BRAND ASSETS

#### Company logo

- Minimum 224 × 224 pixels
- PNG format with transparent background
- High resolution for clear display

#### Brand description

- Up to 100 characters
- Clear, professional language

#### Brand color codes

- Primary and secondary hex values

#### Privacy policy URL

- Must be publicly accessible
- Must mention messaging communications

#### Terms of service URL

- Must be publicly accessible

### BUSINESS DOCUMENTATION

- ☐ Business registration certificate
- ☐ Tax identification number
- ☐ Authorized signatory details
- ☐ Business address verification

### TECHNICAL REQUIREMENTS

- ☐ Development environment access
- ☐ API integration capability (REST API experience)
- ☐ Webhook endpoint for status callbacks
- ☐ SSL certificate for secure communications
- ☐ Server infrastructure for message handling

### USE CASE DEFINITION

- ☐ Primary messaging use cases identified  
Examples: Order confirmations, appointment reminders, promotions
- ☐ Message templates drafted: Include text, media, and button configurations
- ☐ Fallback SMS content prepared Condensed versions for non-RCS devices
- ☐ Success metrics defined CTR targets, conversion goals, and response rate

# CHAPTER 3: BRAND VERIFICATION PROCESS

## STEP 1: SUBMIT BRAND INFORMATION

Provide the following through the Signalmash dashboard:

- Brand Name: [Your Company Name]
- Brand Description: [Brief description, max 100 characters]
- Logo URL: [Link to hosted logo file]
- Website: [Your company website]
- Privacy Policy: [URL to privacy policy]
- Terms of Service: [URL to terms]

## STEP 2: DOCUMENTATION UPLOAD

Upload business verification documents:

- Business registration certificate
- Government-issued ID of authorization representative
- Proof of business address (utility bill or bank statement)

## STEP 3: CARRIER REVIEW

Signalmash submits your application to carrier partners:

<u>Carrier</u>	<u>Typical Review Time</u>
• AT&T	2-3 business days
• T-Mobile	2-4 business days
• Verizon	3-5 business days
• Other carriers	2-5 business days

## STEP 4: APPROVAL NOTIFICATION

Upon approval, you receive:

- Agent ID for message sending
- API credentials (API Key and Secret)
- Webhook secret for signature verification
- Access to production environment

## COMMON REJECTION REASONS

- ✗ The logo does not meet size requirements (must be 224×224px minimum)
- ✗ Business name mismatch with documentation
- ✗ Privacy policy missing required disclosures
- ✗ Website not accessible or under construction
- ✗ Incomplete business documentation

## HOW TO AVOID DELAYS

- ✓ Ensure logo is exactly 224 × 224 pixels or larger
- ✓ Business name must match registration exactly
- ✓ Privacy policy must mention SMS/RCS messaging
- ✓ Website must be live and accessible
- ✓ All documents must be current and legible

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## CHAPTER 4: API INTEGRATION GUIDE

- **BASE URL**

Production: <https://api.signalbash.com/v1>

Sandbox: <https://sandbox.api.signalbash.com/v1>

- **AUTHENTICATION**

All API requests require a Bearer token in the Authorization header:

- **Authorization: Bearer YOUR\_API\_KEY**

Security Note: Store your API key securely. Never expose it in client-side code or public repositories.

## SENDING A BASIC TEXT MESSAGE

```
curl -X POST
https://api.signalbash.com/v1/rcs/messages \
-H "Authorization: Bearer YOUR_API_KEY" \
-H "Content-Type: application/json" \
-d '{
  "to": "+1234567890",
  "agent_id": "YOUR_AGENT_ID",
  "content": {
    "type": "text",
    "text": "Hello from Signalbash RCS!"
  }
}'
```

## RESPONSE (SUCCESS):

```
{
  "id": "msg_abc123xyz",
  "to": "+1234567890",
  "agent_id": "YOUR_AGENT_ID",
  "status": "queued",
  "channel": "rcs",
  "created_at": "2025-01-15T10:30:00Z"
}
```

## SENDING A RICH CARD

```
{
  "to": "+1234567890",
  "agent_id": "YOUR_AGENT_ID",
  "content": {
    "type": "rich_card",
    "card": {
      "title": "Your Order Has Shipped",
      "description": "Order #12345 is on its way.\nExpected delivery: Jan 20, 2025.",
      "media": {
        "url": "https://cdn.example.com/product.jpg",
        "height": "MEDIUM"
      },
      "suggestions": [
        {
          "type": "action",
          "action": {
            "type": "open_url",
            "text": "Track Order",
            "url": "https://example.com/track/12345"
          }
        },
        {
          "type": "action",
          "action": {
            "type": "dial",
            "text": "Contact Support",
            "phone_number": "+1234567890"
          }
        }
      ]
    }
  }
}
```



## SENDING A CAROUSEL

```
{
  "to": "+1234567890",
  "agent_id": "YOUR_AGENT_ID",
  "content": {
    "type": "carousel",
    "card_width": "MEDIUM",
    "cards": [
      {
        "title": "Product 1",
        "description": "Description and price",
        "media": {
          "url": "https://cdn.example.com/product1.jpg",
          "height": "MEDIUM"
        },
        "suggestions": [
          {
            "type": "action",
            "action": {
              "type": "open_url",
              "text": "View",
              "url": "https://example.com/product1"
            }
          }
        ]
      },
      {
        "title": "Product 2",
        "description": "Description and price",
        "media": {
          "url": "https://cdn.example.com/product2.jpg",
          "height": "MEDIUM"
        }
      }
    ]
  }
}
```

```
"suggestions": [
  {
    "type": "action",
    "action": {
      "type": "open_url",
      "text": "View",
      "url": "https://example.com/product2"
    }
  }
]
```

## SDK INSTALLATION

Node.js:

```
npm install @signalmarsh/rcs-sdk
```

Python:

```
pip install signalmarsh-rcs
```

Java (Maven):

```
<dependency>
<groupId>com.signalmarsh</groupId>
<artifactId>rcs-sdk</artifactId>
<version>1.0.0</version>
</dependency>
```

PHP:

```
composer require signalmarsh/rcs-sdk
```

# CHAPTER 5: MESSAGE TYPES AND TEMPLATES

## TYPE 1: TEXT MESSAGES

Best for: Alerts, OTPs, simple notifications

Property	Value
<ul style="list-style-type: none"><li>Character Limit</li><li>URL Preview</li><li>Read Receipts</li><li>Verified Sender</li></ul>	<ul style="list-style-type: none"><li>8,000 characters</li><li>Automatic</li><li>Supported</li><li>Yes</li></ul>

Example:

```
{
  "content": {
    "type": "text",
    "text": "Your verification code is 123456. Valid for 10 minutes."
  }
}
```

## TYPE 2: RICH CARDS

Best for: Order confirmations, promotions, announcements

Components	Specification
<ul style="list-style-type: none"><li>Title</li><li>Description</li><li>Media</li><li>Buttons</li></ul>	<ul style="list-style-type: none"><li>200 characters max</li><li>2,000 characters max</li><li>1 image or video</li><li>Up to 4</li></ul>

## Media Specifications

Type	Formats / Sizes
<ul style="list-style-type: none"><li>Images</li><li>Videos</li><li>Aspect Ratios</li></ul>	<ul style="list-style-type: none"><li>JPEG, PNG, GIF (max 2MB)</li><li>MP4, WebM (max 100MB)</li><li>2:1, 16:9, 7:3</li></ul>

Example:

```
{
  "content": {
    "type": "text",
    "text": "Your verification code is 123456. Valid for 10 minutes."
  }
}
```

## Media Height Specifications

Height	Pixels / Use Case
<ul style="list-style-type: none"><li>Short</li><li>Medium</li><li>Tall</li></ul>	<ul style="list-style-type: none"><li>112 dp - Icons, logos</li><li>168 dp - Product images</li><li>264 dp - Hero images, promotions</li></ul>

### TYPE 3: CAROUSELS

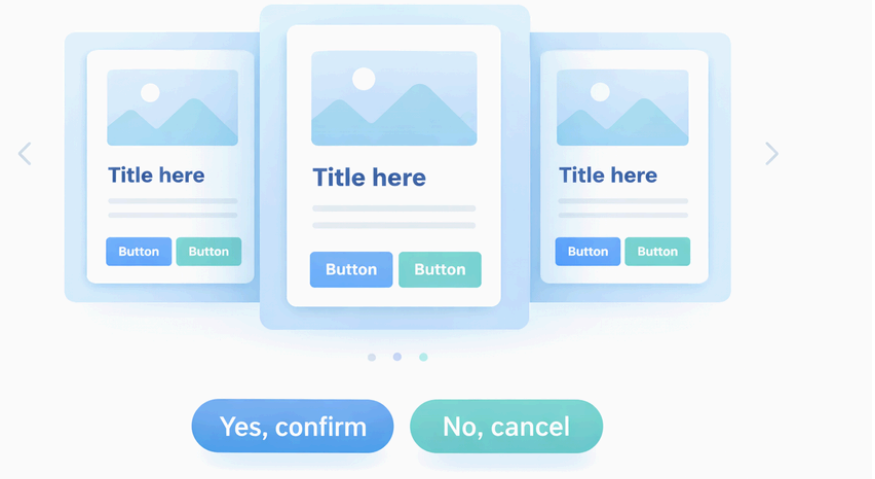
Best for: Product catalogs, menus, multiple options

#### SPECIFICATIONS:

- Minimum cards: 2
- Maximum cards: 10
- Consistent media dimensions required across all cards

#### Card Width Options:

- SMALL – Compact display
- MEDIUM – Standard display (recommended)



### TYPE 4: SUGGESTED REPLIES

Best for: Surveys, quick responses, guided conversations

#### SPECIFICATIONS:

- Maximum chips: 11
- Characters per chip: 25

Example:

```
{
  "suggestions": [
    {
      "type": "reply",
      "reply": {
        "text": "Yes, confirm",
        "postback_data": "confirm_yes"
      }
    }
  ]
}
```

```
    },
    {
      "type": "reply",
      "reply": {
        "text": "No, cancel",
        "postback_data": "confirm_no"
      }
    }
  ]
}
```

SUGGESTED ACTIONS REFERENCE

Action Type	Parameters
• open_url	text, url
• dial	text, phone_number
• view_location	text, latitude, longitude, label
• share_location	text
• create_calendar_	event text, title, description, start_time, end_time

Example:

```
{
  "content": {
    "type": "text",
    "text": "Your verification code is 123456. Valid for 10 minutes."
  }
}
```

CHAPTER 6: FALLBACK CONFIGURATION

WHY FALLBACK MATTERS

Not all devices support RCS. Fallback ensures 100% message deliverability by automatically converting to SMS or MMS when RCS is unavailable.

FALLBACK TYPES

Type	Use case
• sms	Plain text fallback for text messages
• mms	Media fallback for rich cards

CONFIGURATION EXAMPLE

```
{
  "fallback": {
    "enabled": true,
    "type": "sms",
    "text": "Your order #12345 has shipped. Track at: example.com/track/12345"
  }
}
```

FALLBACK TRIGGERS

- Device does not support RCS
- RCS delivery fails after timeout (default: 24 hours)
- Carrier network issues
- User has RCS disabled in settings

## BEST PRACTICES

- Always enable fallback for critical messages
- Keep SMS fallback under 160 characters when possible
- Include essential information and shortened URLs
- Test fallback rendering on multiple devices
- Use URL shorteners for tracking

## FALLBACK CONTENT COMPARISON

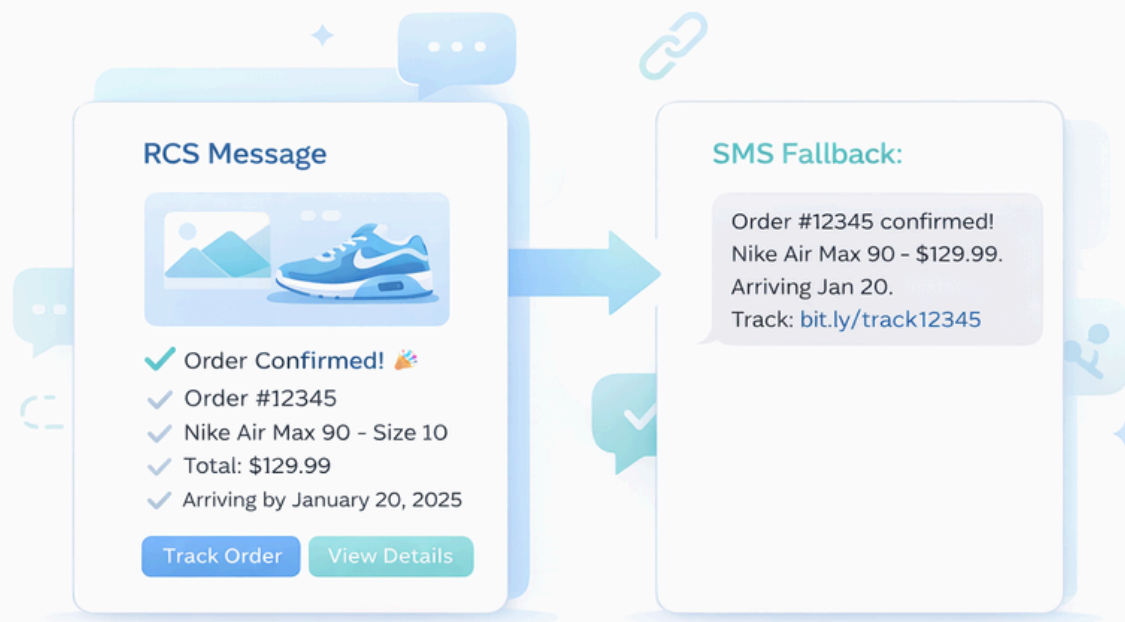
RCS Message:

[PRODUCT IMAGE]

- Order Confirmed! 🎉
- Order #12345
- Nike Air Max 90 – Size 10
- Total: \$129.99
- Arriving by January 20, 2025
- Track Order] [View Details]

### SMS Fallback:

Order #12345 confirmed! Nike Air Max 90 – \$129.99.  
Arriving Jan 20. Track: [bit.ly/track12345](https://bit.ly/track12345)



# CHAPTER 7: TESTING PROTOCOL

## PRE-LAUNCH TESTING CHECKLIST

### DEVICE TESTING

- Test on Android (Google Messages)
- Test on Android (Samsung Messages)
- Test on iOS 18+
- Test fallback on non-RCS device

### MESSAGE TYPE TESTING

- Text message renders correctly
- Rich card displays properly
- Carousel swipes smoothly
- All buttons function correctly
- Suggested replies work as expected
- Media loads within 3 seconds

### FALLBACK TESTING

- SMS fallback delivers
- MMS fallback displays media
- Fallback content is readable
- Links in fallback work
- Character count within limits

### WEB HOOK TESTING

- Delivery status received
- Read receipt received
- Reply webhook received
- Action webhook received
- Signature verification working

## SANDBOX ENVIRONMENT

Use sandbox mode for testing without carrier charges:

- Base URL: <https://sandbox.api.signalrash.com/v1>
- API Key: Use your sandbox API key from the dashboard

Sandbox messages are free and do not reach real devices. Use the test phone numbers provided in your dashboard for development.

# TESTING MATRIX

**\*GM = Google Messages, SM = Samsung Messages**

Test Case Fallback	Android GM	Android SM	iOS 18
• Text message	✓	✓	✓
• Rich card	✓	✓	✓
• Carousel	✓	✓	✓
• URL button	✓	✓	✓
• Dial button	✓	✓	✓
• Calendar action	✓	✓	N/A
• Location action	✓	✓	N/A
• Suggested replies	✓	✓	N/A

# CHAPTER 8: LAUNCH CHECKLIST

## FINAL PRE-LAUNCH VERIFICATION

### TECHNICAL

- ☐ Production API credentials configured
- ☐ Webhook endpoints live and tested
- ☐ Error handling implemented
- ☐ Rate limiting considered
- ☐ Logging enabled for debugging
- ☐ Retry logic implemented for failures

### CONTENT

- ☐ All templates reviewed and approved
- ☐ Fallback content finalized
- ☐ Media assets hosted on reliable CDN
- ☐ Links verified and working
- ☐ Personalization variables tested

### COMPLIANCE

- ☐ Opt-in consent collected for all recipients
- ☐ Opt-out mechanism in place (STOP keyword)
- ☐ Privacy policy updated to mention RCS
- ☐ Message frequency documented
- ☐ Content complies with carrier policies

### MONITORING

- ☐ Dashboard access configured for the team
- ☐ Alert thresholds set for failures
- ☐ Team notifications enabled
- ☐ Escalation process defined
- ☐ On-call schedule established



## RECOMMENDED ROLLOUT STRATEGY

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
01 % Traffic	10 % Traffic	25 % Traffic	50 % Traffic	100 % Traffic
24 Hours	48 Hours	72 Hours	01 Week	Full Launch
Monitor for issue	Expand if no issue	Continue monitoring	Final Validation	Production mode

### GO-LIVE APPROVAL

Before launching, confirm:

- All checklist items completed
- Stakeholder sign-off obtained
- Support team briefed
- Rollback plan documented
- Success metrics baseline established

## CHAPTER 9: POST-LAUNCH OPTIMIZATION

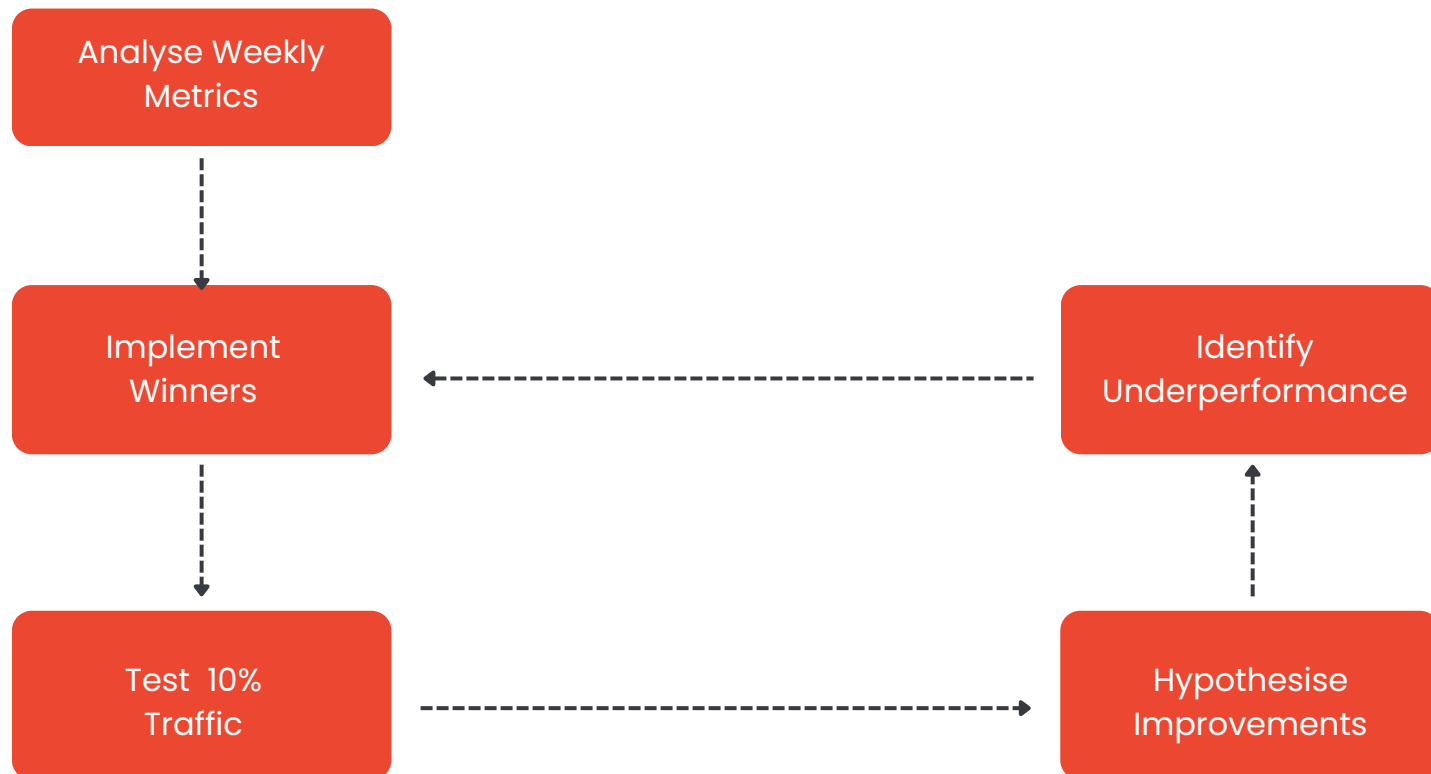
Metric	Target	How to Improve
Delivery Date	>98%	Check phone number validity
Read Rate	>60%	Optimize send timing
Click Rate	>15%	Improve CTA clarity
Fallback Rate	<20	Expected, monitor trends
Response Rate	varies	Add suggested replies
Conversion Rate	>3%	Optimize landing pages

## A/B TESTING OPPORTUNITIES

- Rich card vs. carousel for product promotions
- Button text variations ("Shop Now" vs. "View Products")
- Media height (SHORT vs. MEDIUM vs. TALL)
- Send time optimization (morning vs. evening)
- Personalization impact (name vs. no name)
- Number of buttons (2 vs. 3 vs. 4)

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## OPTIMIZATION CYCLE



### WEEKLY REVIEW CHECKLIST

- Review delivery and read rates
- Analyze click-through by template
- Check fallback rate trends
- Review customer feedback
- Identify top and bottom performers
- Plan next week's tests

## CHAPTER 10: TROUBLESHOOTING GUIDE

### COMMON ISSUES AND SOLUTIONS

#### ISSUE: Message stuck in "queued" status

Possible Causes:

- Invalid phone number format
- Incorrect agent ID
- API key permission issues

#### Solutions:

- ✓ Verify phone number is in E.164 format (+1234567890)
- ✓ Confirm agent ID matches dashboard
- ✓ Check the API key has send permissions
- ✓ Review rate limit status

#### ISSUE: Rich card not displaying

Possible Causes:

- Media URL not accessible
- File size exceeds limit
- Unsupported aspect ratio

### **Solutions:**

- ✓ Verify media URL is publicly accessible (no authentication required)
- ✓ Check file size is under 2MB for images
- ✓ Confirm aspect ratio is 2:1, 16:9, or 7:3
- ✓ Test URL directly in browser

### **ISSUE: Buttons not working**

#### Possible Causes:

- Invalid URL format
- Phone number format incorrect
- Calendar event times invalid

### **Solutions:**

- ✓ Verify URL includes https://
- ✓ Check phone number includes country code
- ✓ Confirm calendar times are in ISO 8601 format

### **ISSUE: High fallback rate**

#### Context:

- 20–30% fallback rate is normal for new campaigns
- Rate will decrease as RCS adoption grows

### **Solutions:**

- ✓ Focus on SMS fallback quality
- ✓ Monitor trends over time
- ✓ Segment reporting by carrier

### **ISSUE: Webhooks not received**

#### Possible Causes:

- Endpoint not publicly accessible
- SSL certificate issues
- Firewall blocking requests

### **Solutions:**

- ✓ Verify endpoint is publicly accessible
- ✓ Check the SSL certificate is valid
- ✓ Whitelist Signalmash IP ranges
- ✓ Review server logs for incoming requests

## APPENDIX A : API QUICK REFERENCE

Endpoint	Method	Description
/rcs/messages	POST	Send a message
/rcs/messages/{id}	GET	Get message status
/rcs/messages/batch	POST	Send batch messages
/rcs/capabilities	POST	Check device RCS support
/rcs/agents	GET	List RCS agents
/rcs/agents/{id}	GET	Get agent details

## *RATE LIMITS*

Plan	Requests/Second	Requests/Day
Launch	10	50,000
Growth	50	250,000
Scale	100	Unlimited

### **MESSAGE STATUS VALUES**

- Queued      Message accepted, pending delivery
- Sent      Message sent to carrier
- Delivered      Message delivered to device
- Read      Message opened by recipient
- Failed      Delivery failed (see error)
- Fallback      Delivered via SMS/MMS

## APPENDIX B : ERROR CODES

Code	Description
200	Success
201	Created (message queued)
400	Bad Request (invalid parameters)
401	Unauthorized (invalid API key)
403	Forbidden (insufficient permissions)
404	Not Found
429	Too Many Requests (rate limit exceeded)
500	Internal Server Error



## API ERROR CODES

Code	Description	Resolution
invalid_phone_number	Bad phone format	Use E.164 format
invalid_agent_id	Agent not found	Check dashboard
rcs_not_supported	Device lacks RCS	Enable fallback
media_too_large	File exceeds limit	Compress media
media_not_accessible	Cannot fetch media	Check URL accessibility
rate_limit_exceeded	Too many requests	Implement backoff
insufficient_balance	Low account balance	Add funds
agent_not_verified	Pending verification	Wait for approval

invalid_content	Malformed content	Check JSON structure
template_not_found	Template ID invalid	Verify template exists

*APPENDIX C: SPECIFICATIONS SUMMARY*

*CONTENT LIMITS*

Element	Limit
Text message	8,000 characters
Rich card title	200 characters
Rich card description	2,000 characters
Button label	25 characters

Element	Limit
Suggested reply text	25 characters
Buttons per card	4
Suggested replies per message	11
Cards per carousel	10

## MEDIA SPECIFICATIONS

Type	Specification
Image formats	JPEG, PNG, GIF
Image max size	2 MB
Video formats	MP4, WebM, M4V
Video max size	100 MB
Document formats	PDF
Document max size	100 MB
Aspect ratios	2:1, 16:9, 7:3
Recommended dimensions	1440 × 720 pixels

## *MEDIA HEIGHT OPTIONS*

Height	Display Pixels
SHORT	112 dp
MEDIUM	168 dp
TALL	264 dp

## About Signalmash

Signalmash provides enterprise messaging infrastructure for businesses that take customer communication seriously. With direct carrier connections, 99.9% uptime, and dedicated support, we help businesses deliver messages that matter.

## CONTACT US

Website: [www.signalmash.com](http://www.signalmash.com)

Sales: [sales@signalmash.com](mailto:sales@signalmash.com)

## READY TO GET STARTED?

Visit [signalmash.com](http://signalmash.com) to schedule a demo and see RCS in action for your business.



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