

▮ Setup Guide - Stock Analyst AI Agent 2.0

This guide will walk you through the complete setup process for the Stock Analyst AI Agent 2.0 workflow.

▮ Prerequisites Checklist

Before you begin, ensure you have the following:

- [] **n8n instance** (version 1.0 or higher)
- [] **Google Gemini API access** (Google AI Studio account)
- [] **Twelve Data API account** (free tier available)
- [] **Chart-IMG API account** (for professional charts)
- [] **Telegram Bot** (created via @BotFather)
- [] **Basic understanding** of n8n workflows and API integrations

▮ API Keys & Credentials Setup

1. Google Gemini API Key

1. **Visit Google AI Studio:** Go to <https://ai.google.dev/>
2. **Sign in** with your Google account
3. **Create API Key:** Click "Get API Key" and create a new key
4. **Copy the key** - you'll need it for n8n credentials
5. **Set quotas:** Ensure your API has sufficient quota for requests

Important: Store this key securely and never commit it to version control.

2. Twelve Data API Key

1. **Visit Twelve Data:** Go to <https://twelvedata.com/>
2. **Sign up** for a free account
3. **Navigate to API:** Go to your dashboard and find the API section
4. **Copy your API key** - the free tier allows 8 requests per minute
5. **Check limits:** Monitor your usage to avoid hitting rate limits

Free Tier Limitations:

- 8 requests per minute
- 800 requests per day
- Basic data access

3. Chart-IMG API Key

1. **Visit Chart-IMG:** Go to <https://chart-img.com/>
2. **Create account** and sign up
3. **Get API key** from your dashboard
4. **Note pricing:** Check their pricing for your usage needs
5. **Test access:** Make a test request to verify the key works

4. Telegram Bot Setup

1. **Open Telegram** and search for @BotFather
2. **Start conversation** with BotFather
3. **Create bot:** Send `/newbot` command
4. **Choose name:** Follow prompts to name your bot
5. **Get token:** Copy the bot token provided
6. **Set commands** (optional): Use `/setcommands` to set up bot commands

Example Bot Commands:

```
analyze - Analyze a stock (e.g., /analyze AAPL)
help - Show available commands
about - About this bot
```

▮ n8n Installation & Configuration

Step 1: Import Workflow

1. **Open n8n:** Navigate to your n8n instance
2. **Go to Workflows:** Click on "Workflows" in the sidebar
3. **Import:** Click "Import from file" button
4. **Select file:** Choose `Stock_analyst_Ai_Agent_2_0.json`
5. **Import:** Click "Import" to add the workflow

Step 2: Configure Credentials

Google Gemini Credentials

1. **Navigate to Credentials:** Go to Settings > Credentials
2. **Add Credential:** Click "Add Credential"
3. **Select Type:** Choose "Google Gemini API"
4. **Configure:**

- **Name:** Google Gemini(PaLM) Api account
 - **API Key:** Paste your Google Gemini API key
5. **Save:** Click "Save" to store the credential

Telegram Bot Credentials

1. **Add new credential:** Click "Add Credential"
2. **Select Type:** Choose "Telegram Bot API"
3. **Configure:**
 - **Name:** Telegram account
 - **Access Token:** Paste your bot token from BotFather
4. **Save:** Click "Save"

Step 3: Update API Keys in Workflow

Twelve Data API Key

1. **Open workflow:** Navigate to the imported workflow
2. **Find node:** Locate "Twelve URL Generator" node
3. **Edit node:** Click to open the node editor
4. **Update system message:** Replace the API key in the system message:

```
▯ Here's the Twelve Data API Key:  
YOUR_TWELVE_DATA_API_KEY_HERE
```

5. **Save:** Click "Save" to update the node

Chart-IMG API Key

1. **Find node:** Locate "CHART IMAGE GENERATION" node
2. **Edit node:** Click to open the node editor
3. **Update headers:** In the header parameters, update:
 - **Header Name:** x-api-key
 - **Value:** YOUR_CHART_IMG_API_KEY_HERE
4. **Save:** Click "Save"

Step 4: Configure Webhook URLs

1. **Check webhook nodes:** Ensure all webhook URLs are correctly configured
2. **Update if needed:** If you're using a different n8n instance, update webhook URLs
3. **Test webhooks:** Use the "Test" button in each webhook node

Step 5: Activate Workflow

1. **Toggle Active:** Click the "Active" switch at the top of the workflow
2. **Check status:** Ensure the workflow shows as "Active"
3. **Monitor:** Watch for any error messages or issues

▮ Testing Your Setup

Test 1: Basic Telegram Response

1. **Open Telegram:** Go to your bot's chat
2. **Send test message:** Type any stock symbol (e.g., AAPL)
3. **Check response:** You should receive both a chart and analysis
4. **Verify timing:** Response should arrive within 10-30 seconds

Test 2: Different Stock Symbols

Test with various symbols:

- **US Stocks:** AAPL, GOOGL, MSFT
- **International:** TATAMOTORS.BSE, TSLA
- **Invalid symbols:** Test error handling

Test 3: Multiple Requests

1. **Send multiple requests:** Test rate limiting
2. **Check all responses:** Ensure all requests are processed
3. **Monitor logs:** Check n8n execution history

▮ Troubleshooting Common Issues

Issue 1: Workflow Not Triggering

Symptoms: No response from Telegram bot

Solutions:

- Check webhook configuration
- Verify bot token is correct
- Ensure workflow is active
- Check n8n logs for errors

Issue 2: API Rate Limits

Symptoms: "Rate limit exceeded" errors

Solutions:

- Upgrade Twelve Data plan
- Implement request throttling
- Add retry logic with delays
- Monitor API usage dashboard

Issue 3: Chart Generation Fails

Symptoms: No chart image sent

Solutions:

- Verify Chart-IMG API key
- Check JSON format in "CHART IMG JSON" node
- Test API endpoint manually
- Review Chart-IMG documentation

Issue 4: AI Analysis Errors

Symptoms: Empty or error responses from Gemini

Solutions:

- Check Google Gemini API quota
- Verify API key permissions
- Test with simpler prompts
- Check for API service issues

▮ Monitoring & Maintenance

Daily Monitoring

- **Check execution history** in n8n
- **Monitor API usage** across all services
- **Review error logs** for recurring issues
- **Test bot functionality** with sample requests

Weekly Maintenance

- **Update API keys** if needed
- **Review rate limits** and upgrade if necessary
- **Check for n8n updates** and new features
- **Backup workflow configuration**

Monthly Review

- **Analyze usage patterns** and optimize
- **Review API costs** and optimize plans
- **Update documentation** if workflow changes
- **Test disaster recovery** procedures

▮ Security Best Practices

API Key Security

- **Never commit API keys** to version control
- **Use environment variables** when possible
- **Rotate keys regularly** (quarterly)
- **Monitor for unauthorized usage**

Webhook Security

- **Use HTTPS endpoints** only
- **Implement webhook verification** when possible
- **Monitor webhook logs** for suspicious activity
- **Limit webhook access** to trusted sources

Data Privacy

- **Don't log sensitive data** in n8n
- **Implement data retention policies**
- **Use secure transmission** for all API calls
- **Comply with data protection regulations**

▮ Performance Optimization

Workflow Optimization

- **Minimize API calls** where possible
- **Implement caching** for frequently requested data
- **Use async processing** for non-blocking operations
- **Optimize JSON processing** nodes

API Optimization

- **Batch requests** when possible
- **Use appropriate intervals** for data fetching
- **Implement exponential backoff** for retries
- **Monitor response times**

▮ Getting Help

Documentation Resources

- **n8n Documentation:** <https://docs.n8n.io/>
- **Google Gemini API Docs:** <https://ai.google.dev/docs>
- **Twelve Data API Docs:** <https://twelvedata.com/docs>
- **Chart-IMG API Docs:** <https://chart-img.com/docs>

Community Support

- **n8n Community:** <https://community.n8n.io/>
- **GitHub Issues:** Report bugs and request features
- **Discord/Telegram:** Join project-specific channels

Professional Support

- **Paid Support:** Consider paid support for production deployments
- **Custom Development:** Hire developers for custom modifications
- **Consulting:** Get professional advice for complex setups

▮ Next Steps

Once your setup is complete:

1. **Customize analysis prompts** to match your needs
2. **Add additional stock exchanges** or data sources
3. **Implement portfolio tracking** features
4. **Add alert functionality** for price targets

5. **Create scheduled reports** for regular analysis

▮ **Setup Checklist**

Use this checklist to ensure everything is properly configured:

- ☐ n8n instance running and accessible
- ☐ Workflow imported successfully
- ☐ Google Gemini API key configured
- ☐ Twelve Data API key updated in workflow
- ☐ Chart-IMG API key configured
- ☐ Telegram bot created and token configured
- ☐ All credentials saved in n8n
- ☐ Webhook URLs configured correctly
- ☐ Workflow activated
- ☐ Basic functionality tested
- ☐ Error handling tested
- ☐ Performance optimized
- ☐ Security measures implemented
- ☐ Monitoring set up
- ☐ Documentation updated

▮ **Congratulations!** Your Stock Analyst AI Agent 2.0 is now ready to provide intelligent market analysis through Telegram!