

iMessaging® System

User Manual

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iMessaging® System

Introduction

The *i*Messaging® System was designed to pave the way for SMS services to become centralized. The system presents a great leap forward in the way it offers one organization the ability to provide SMS services in a centralized manner without the need for implementing any software at the customer side.

The system offers a cost-effective alternative to traditional integration procedures, grounding one organization to extend their services to all types of corporations and institutions. In turn reaching all available levels of customers.



The state of the art of the system is its simplicity and ease of use. The User Interface (UI) design professionals ensured the highest possible standards are achieved. We take care to make sure that customers get what they want with the minimum number of clicks.

The system includes a comprehensive management system through its administration module. The module includes but is not limited to; management of system users, audit trial reports, customizable key-word variables, and maker-checker authorization procedure. The enables the set organization to rest assured the highest measures of security protocols are achieved.

iMessaging® System Overview

iMessaging® System Highlights

The iMessaging® System is composed the following:

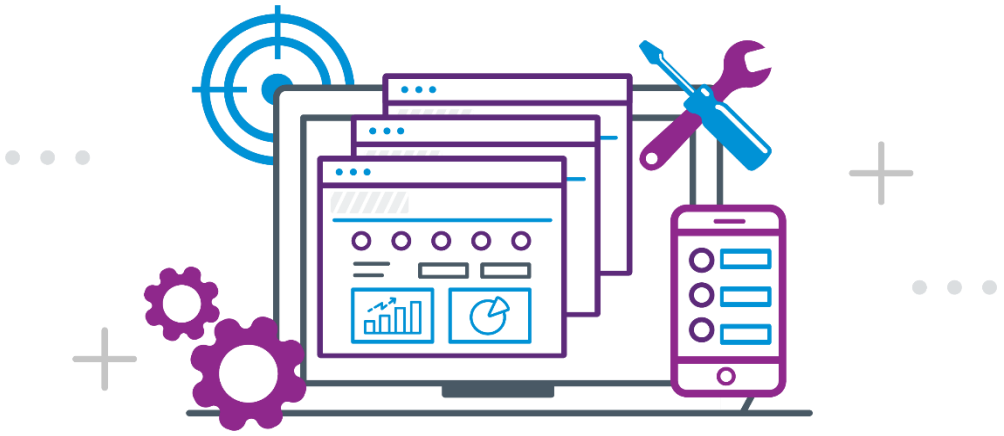
- Administration Portal
- End-User Portal
- Gateway Servers and APIs

iMessaging® System Interface

The *i*Messaging® Portal interface is designed with the highest possible user-experience standards, all-the-while ensuring simplicity and consistency across each feature and service is achieved.

The benefits of having high UI/UX standards:

- Ensuring end-users are in-control of the interface.
- Ability to backtrack through the interface.
- Consistency
- Predictability, where end-users fully understand the outcome of each action

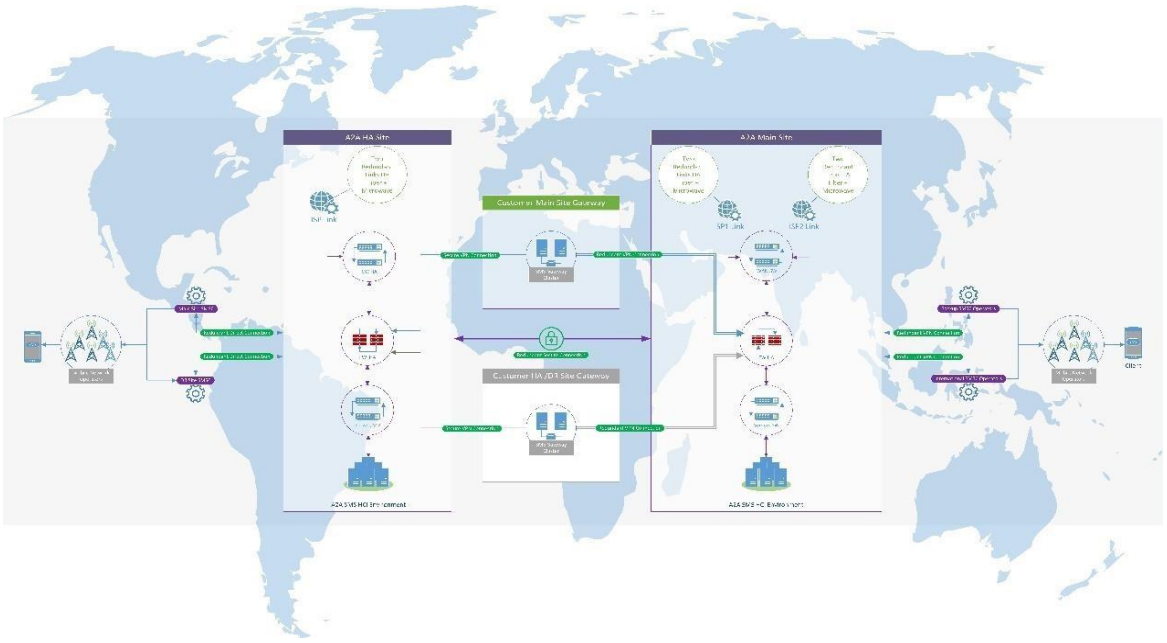


The interface is customized as per the organization's needs.

iMessaging® System Setup

Overall Setup

The diagram below shows system infrastructure for *i*Messaging® System:



iMessaging® System Setup Features

The *i*Messaging® System was developed by to be hosted at the premises of Mobile Network Operators or at the any cloud. It has been designed to overcome the limitations inherent in text messaging from the point of view of security and reliability. It also raises the level of the service to a point where it can be considered a useful and dependable tool for all industries.

This is a unique setup that has been continually refined and updated for the past years. This system is being used by the vast majority of financial institutions and GSM operators.

Redundancy and High Throughput

The *i*Messaging® System is a redundant setup that is connected to the SMS-C at GSM Operator through multiple high through-put ports. The ports provided by GSM Operator are finely tuned to guarantee the highest possible level of service, even during the most demanding of peak times.

Secure Connectivity

is a banking solutions company, and we understand that security and privacy are a primary concern for all institutions. All communications with the *i*Messaging® System are secure and based on IPSec Site-to-Site connections for API connections.

iMessaging® System Features

*i*Messaging® System provides many features that help institutions and customers to achieve their business needs quickly and efficiently. Below are the system main features:

- Designed with the highest possible user-experience standards, all-the-while ensuring simplicity and consistency across each feature and service is achieved.
- All interfaces are easy and efficient to use and provide advanced help tools Delivering a high-quality customer experience.
- quickly and preferred method for interacting with SMS and provides simple interface with multiple protocols.
- adapted to different environments, configurations, and connections.
- High Availability and Backup Connections
- High throughput with Intelligent distribution of load
- Advanced Push notification engine
- International SMS Delivery to all GSM operators in the Globe
- Support multiple and Dynamic Sender ID.
- Support the integration with any system using different protocols and APIs.
- SMS Tracking and Delivery Reports
- Asynchronous Gateway with Multithreaded Listener
- SMS Priority and Queue Management
- Support all Messages Formats including multilingual, concatenated, Emoji and flash messages.
- Support Bulk SMS, different text batches and template-based message text with many advanced features
- Powerful Marketing tool with Send Multi to send marketing messages as one bulk rather than send each message individually.
- Secure Connectivity
- Repeated and Inappropriate Message Filtering
- Advanced Reporting system and message Archiving
- Conditions and Business Rules features
- Support messages retry schema on the GSM operators SMSC.

SMS Priority and Queue Management

The software that resides at GSM operator premises has sophisticated algorithms that intelligently manage the distribution of load on the SMS-C ports. For example, the system automatically gives priority to transaction alert messages over marketing messages. Also, the system guarantees optimized performance when handling large number of financial SMS messages by routing them based on the queue capacity.

Send Multi (Marketing Tool)

This unique feature in the system provides a powerful and reliable tool for marketing campaigns and message broadcasts. This is fully compatible with the iMessaging® System that resides in the bank company. When your company prepare a marketing campaign or a broadcast message, the systems do not send each message individually. Instead, the text of the message is sent once along with the list of recipients. Once this information is received by the Server, the messages will be constructed and sent reliably without interruption. For large broadcasts with tens of thousands of recipients, this method of sending is invaluable, as it guarantees that all of the messages are sent reliably and quickly. It also allows for a decreased load on the communication lines.

Sender ID Management

The system provides full management for the Sender IDs per account and per institution.

Repeated and Inappropriate Message Filtering

The message filter is an important part of the system. It is a last line of defence put there to avoid any negative impact on the relationships between the connected banks and their customers. In the unlikely event that inappropriate messages are prepared by an individual your company, these will be blocked once they are received by the iMessaging® Server and a public relations disaster will be averted.

On rare occasions, repeated messages could be sent to one or more customers due to software glitches or human error. The iMessaging® Server filter has algorithms that can detect this and block the repeated messages from being delivered to the users.

Message Tracking and Archiving

On occasions, when text messages are sent to users, those messages do not get delivered successfully due to multiple reasons, which include the phone being switched off or out of reach. When this happens, the SMS-C used by the sending MNO will keep trying to send the messages for the next 24 hours. The Message Tracking module extends this process to multiple days through its database advanced connectivity protocols with the SMS-C.

If there is a complete failure in delivering a message, the system will keep a record with all the details in its database so that the banks can refer to this information in the future. Our experience has taught us that these records are a valuable resource to be used by banks in handling customer concerns and queries.

iMessaging® Portal - End-User

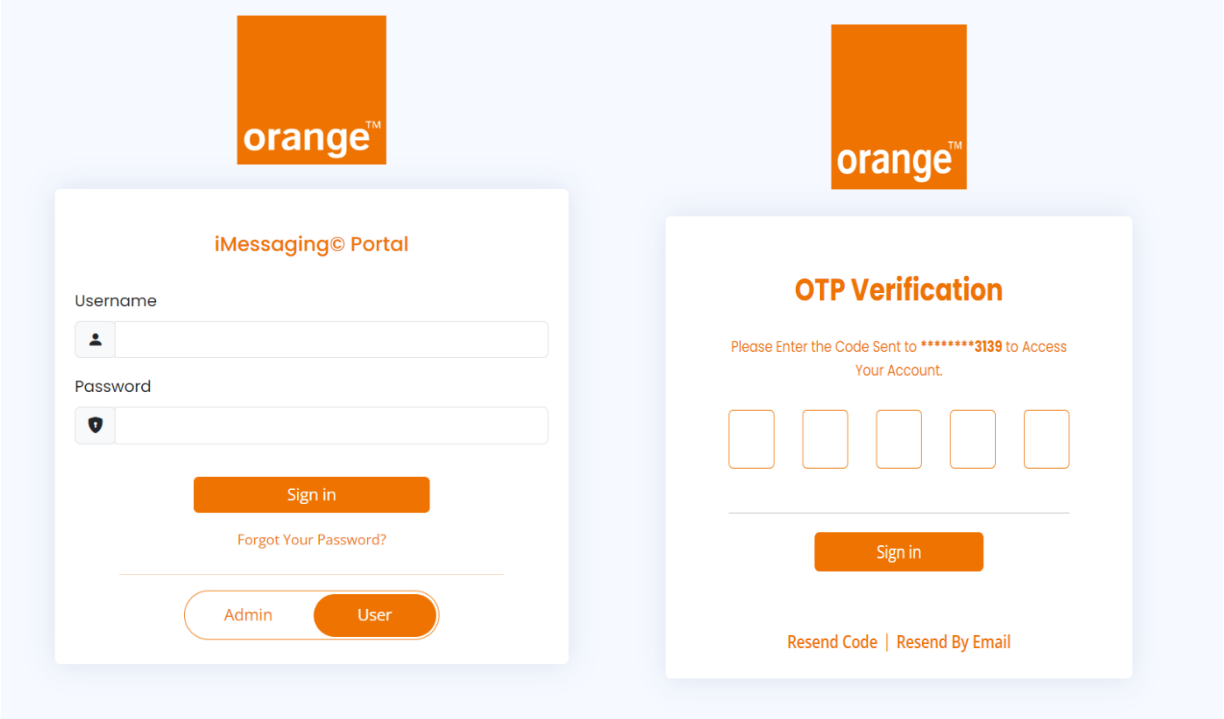
iMessaging® Portal – End-User Module

The end-user module offers various features, each suited to accommodate the possible activities and inquiries of any organization. The portal also includes the ability to backtrack through old records and reports. The portal is composed of the following sections, and will be further explained below:

- Login Page
- Dashboard
- Text Messages
- Reports
- Survey
- Outbox & scheduled Messages
- Account

Login Page

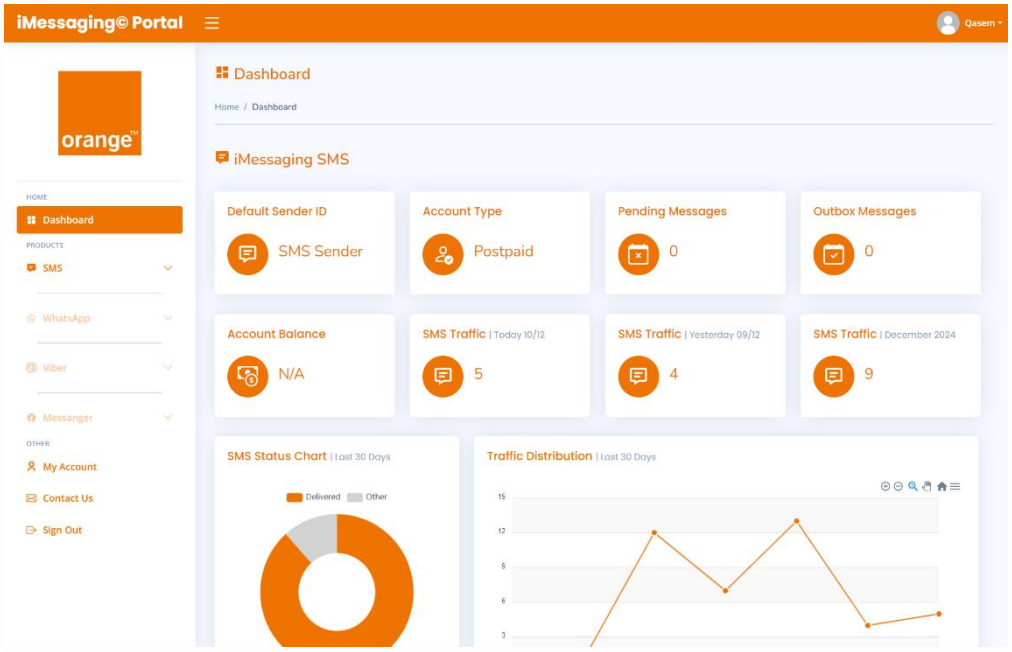
The login page allows a user to access the system, and it is authenticated by Multi-factor Authentication (MFA), the user account created by the system administrator and the OTP message sent to the predefined mobile number.



Dashboard

The landing page after login is the dashboard screen. The dashboard contains rich statistical data that gives an overview of the following:

- Default sender ID: Shows the user's default ID.
- Account type: prepaid or postpaid.
- Outgoing messages: Shows the number of queued messages and scheduled messages.
- Pending messages: Shows the number of pending messages.
- Balances: Display the user's current balance if the account is prepaid.
- Messages sent: The number of messages for a specific period.
    - Today: The total number of messages sent today
    - Yesterday: Total number of messages sent yesterday
    - This month: The total number of messages sent this month.
- 30-day message status graph.
- Message count chart for 30 days.
- A map of the countries to which messages were sent for 30 days.



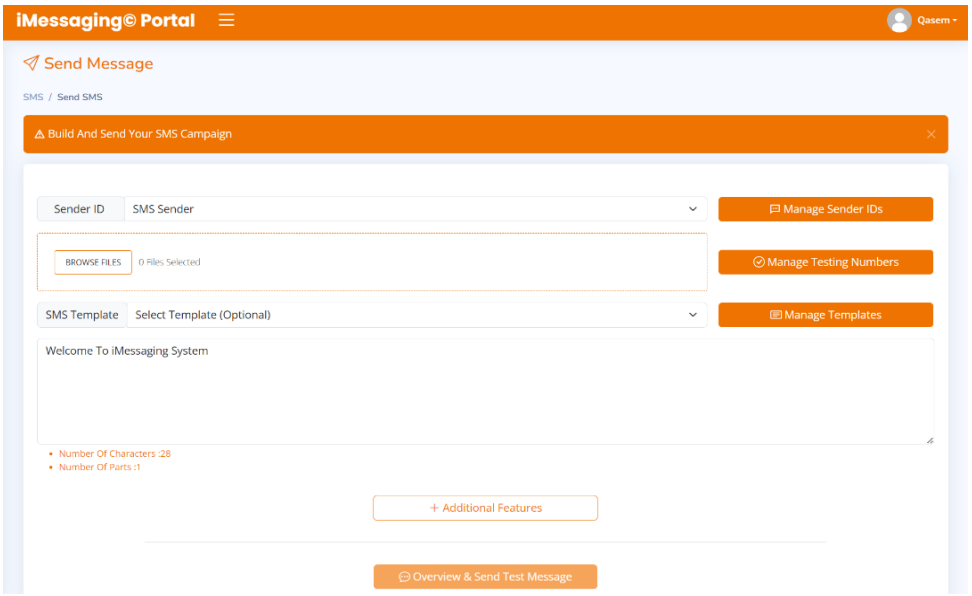
Text Messages

The ability to Request Sender IDs, send SMS messages individually and in-bulk, monitor the out-going and scheduled messages, and generate Templates are explained further in this section.

Send Message

The Send Message feature allows the organization to send text messages individually and in-bulk using any file format including text and Excel. The text and excel format files include all numbers intended to receive this message.

The Sender ID are predefined for the institution that goes through the process of a maker-checker, where the operator approval is required in order to define new Sender IDs.



The end-user can define message templates to use instantaneously and on the spot.

The end-user has the option to schedule the message to be sent at a later date and time by defining the following:

- Month in MM/DD/YYYY format
- Time in MM:SS format

The scheduled messages can be monitored by accessing the Scheduled Messages feature. And the system supports uploading batches up to 10 million dials per batch.

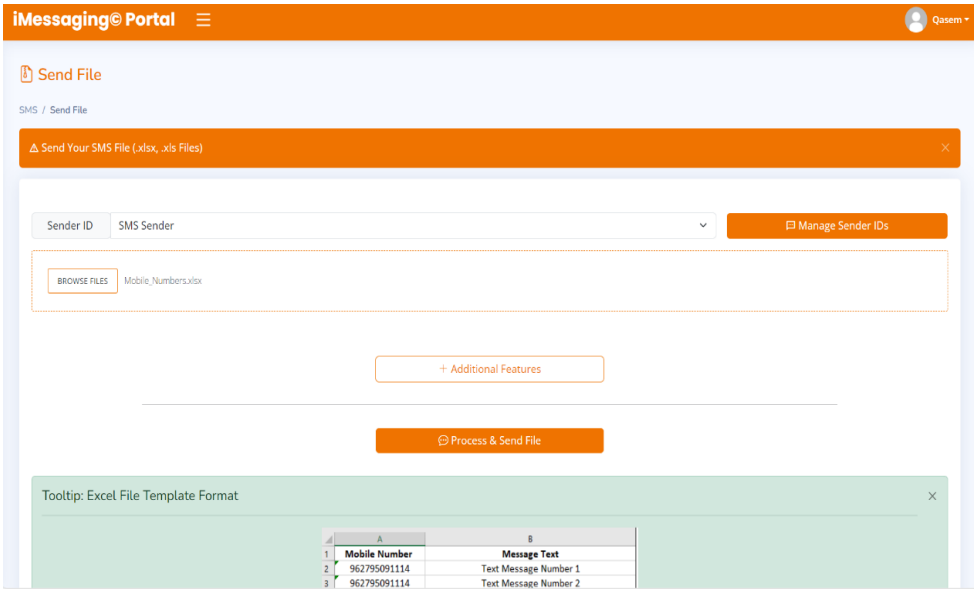
Send File

Send File offers the end-user with the ability to send different SMS messages to different entities. The process includes selecting a Sender ID and uploading an excel file in the following format:

- The first column includes the mobile numbers.
- The second column includes the text messages corresponding to the mobile numbers.

The upload of the excel file is subject to validation and will determine if any errors in the file exist.

The end-user has the option to schedule the message to be sent at a later date and time similar to the Send Message feature.



Send Template

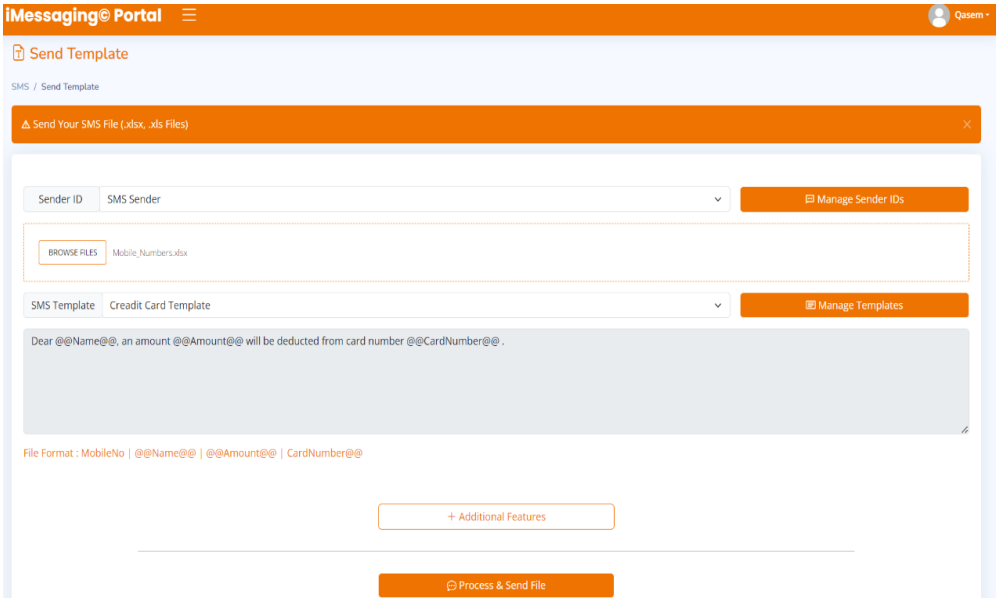
This feature has predefined parameters that allows the end-user to send detailed SMS messages to induce knowledge on a particular subject. These parameters included within the ready templates are customizable as per the institution's needs.

An example here would be a Credit Card Payment template, where the below fields are required within the excel file:

- **First column: Mobile number**
- **Second column: Name**
- **Third column: Amount**
- **Fourth column: Card number**

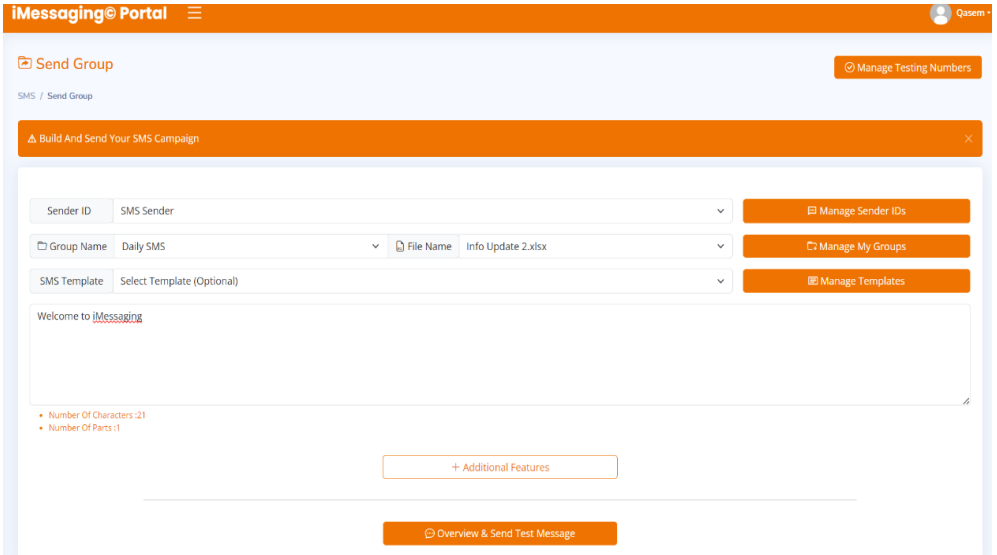
The Credit Card Payment template would deduce the following message format based on the above inputs:

"Dear **Name**, an amount of **Amount** will be deducted from card number **Card Number**"



Send Group

This feature allows the end-user to upload mobile numbers in the cloud storge and use it frequently to send SMS messages, An example you can upload credit card customers numbers one time and send messages without uploading the list again, also you can use predefined Templates.



Reports

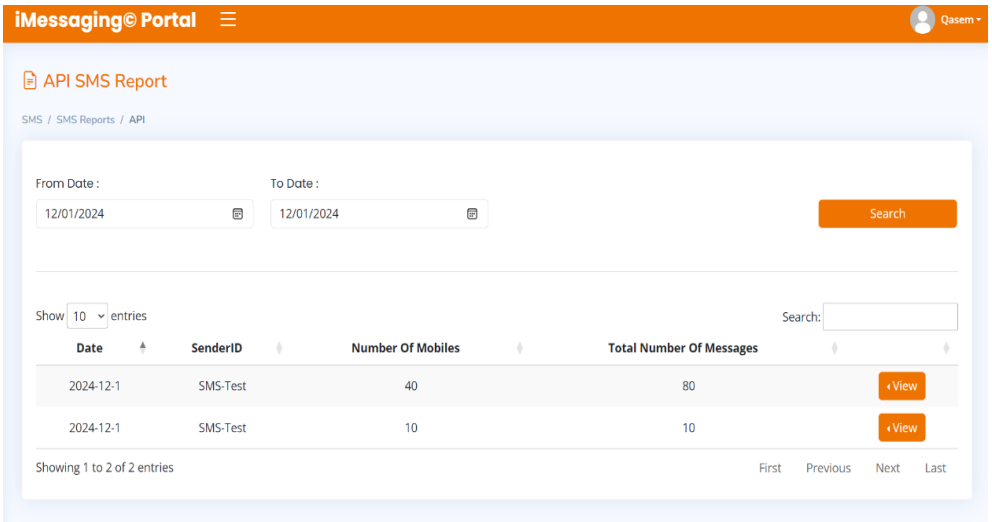
This section enables end-users to generate, view, and extract reports based on the institution's needs. These reports can be:

- Displayed
- Exported as a PDF file.
- Exported as an excel file.
- Exported as a CSV file.
- Exported as a Txt file.
- Printed
- Graphs & Analysis

The mechanism of these reports is explained further below.

API Report

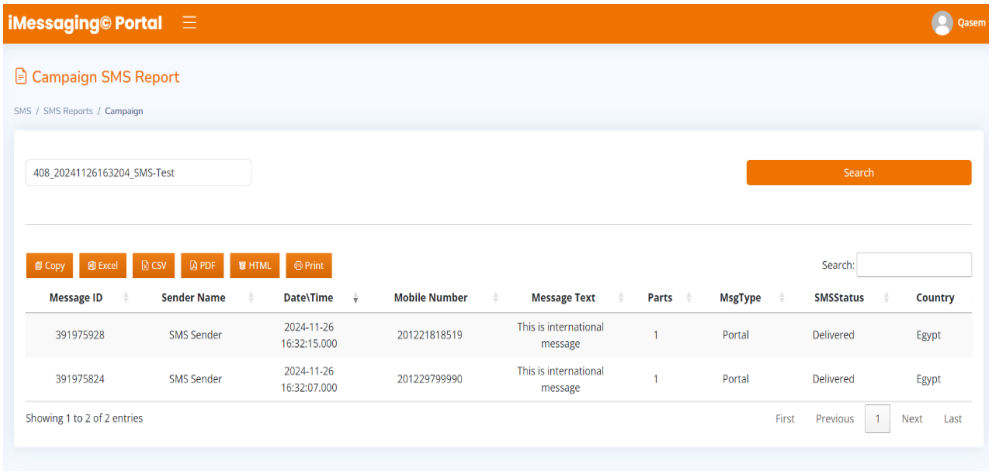
This Date interval report generates all sent SMS messages through API and based on any given date time with a start and end date time. The generated messages can then be exported into an excel, PDF or Text file.



Campaign ID

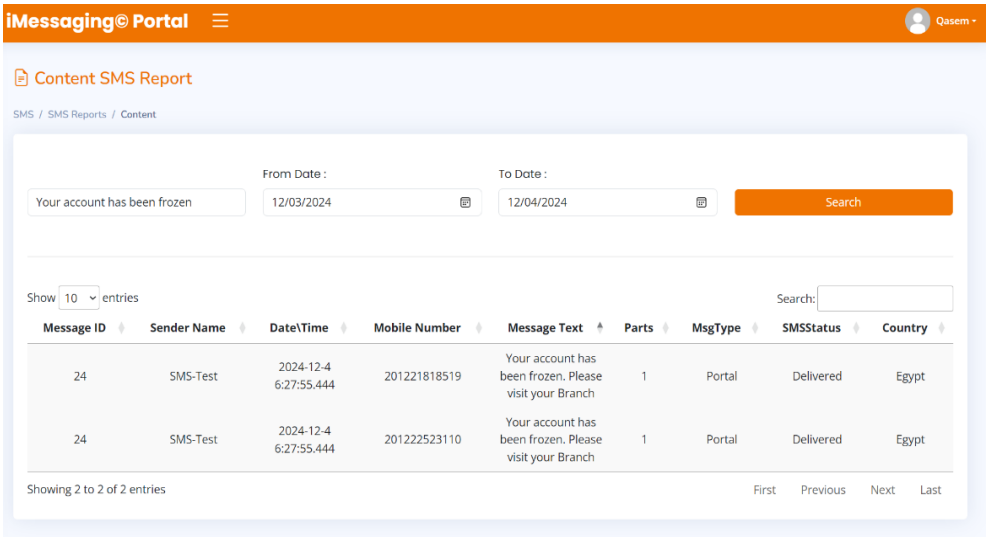
In the case of some institutions where the nature of campaign messages is frequent and abundant, the system offers the ability to search for these campaign text messages using the campaign name or any part of it as a keyword.

This includes a three level of authorization (create, verify, and authorize)



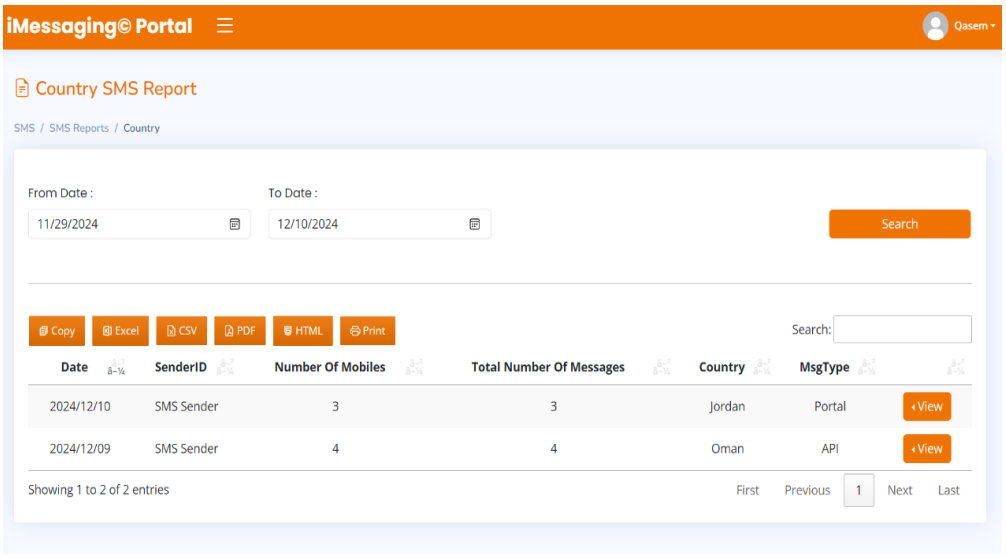
Content Report

The content report allows the users to find messages by searching for a word in the message body and can be exported as (excel, pdf, text).



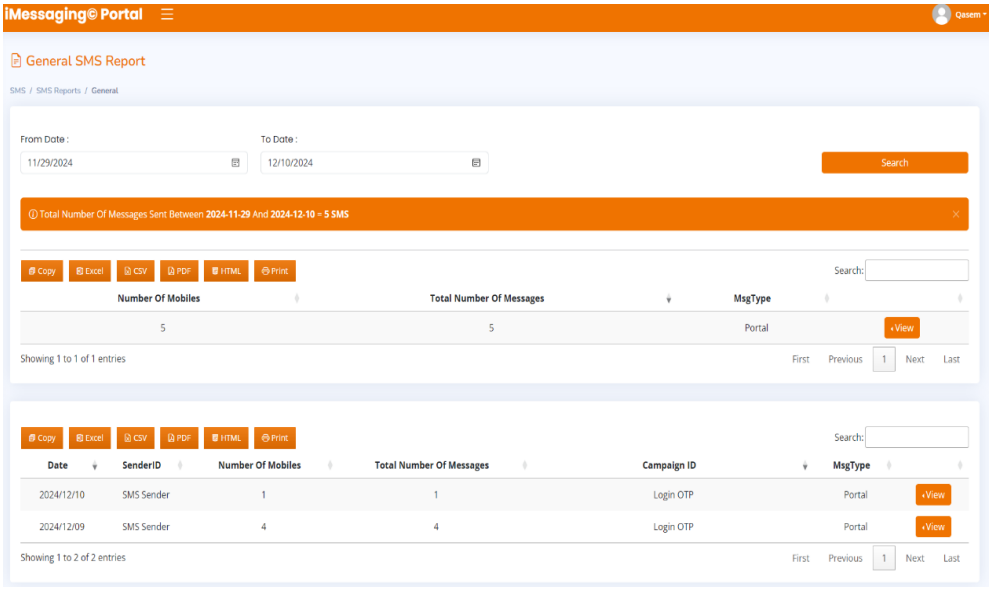
Country Report

The country report shows the messages grouped by countries and can be exported as (excel, pdf, text).



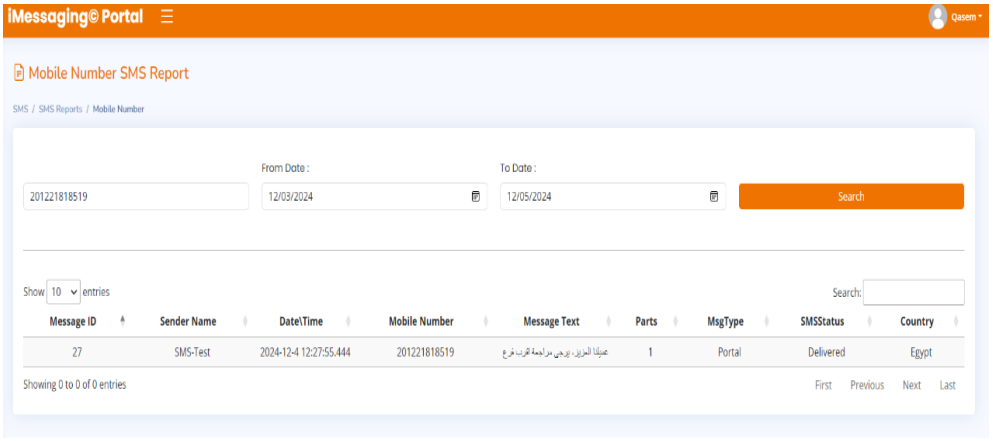
General Report

The general report shows all messages including (API, Portal) messages and can be exported as (excel, pdf, text).



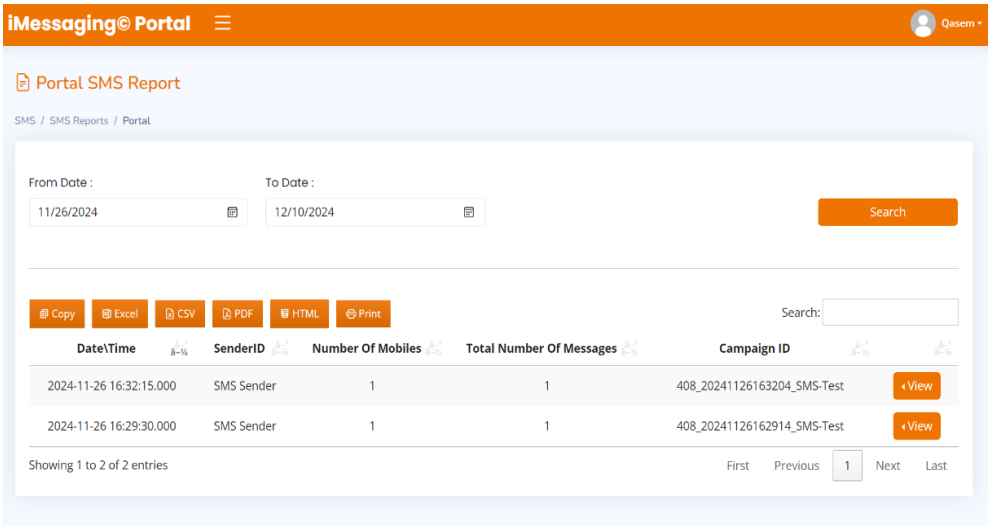
Mobile Number Report

The system offers the institution with the ability to search through any given mobile number and check the history of the messages sent to this particular user. These messages can be exported to an excel, PDF or Text file.



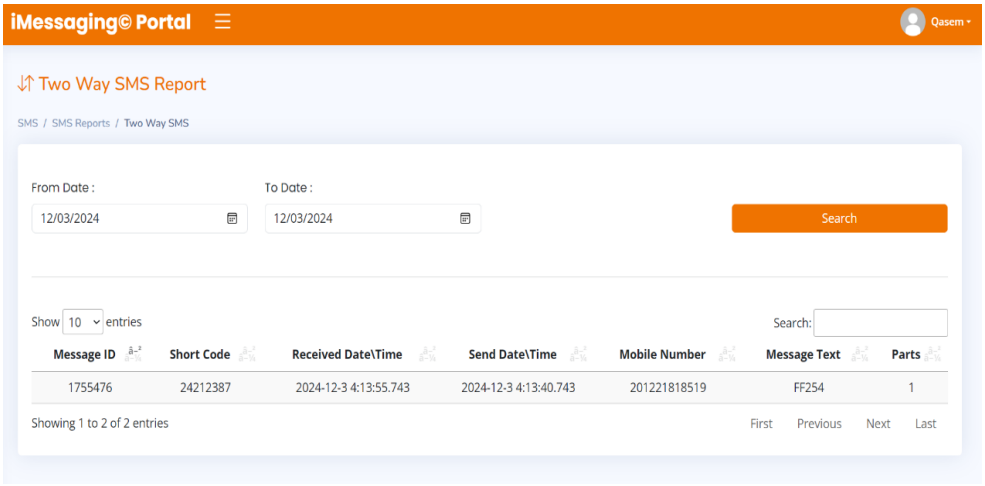
Portal Report

This portal report generates all sent SMS messages through the iMessaging portal and based on any given date time with a start and end date time. The generated messages can then be exported into an excel, PDF or Text file.



Two Way Report

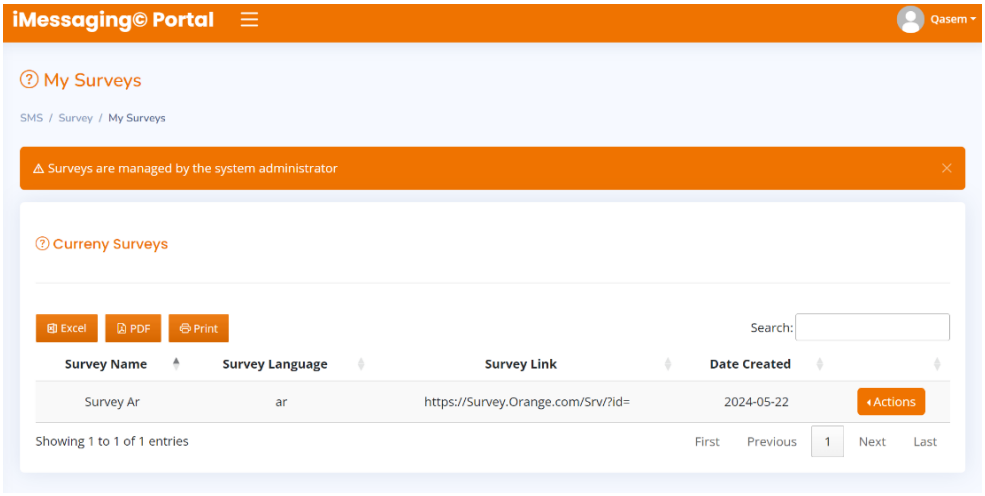
If the organization uses the service of receiving messages from customers (Two Way SMS), this page allows the user to extract reports for this service.



Surveys

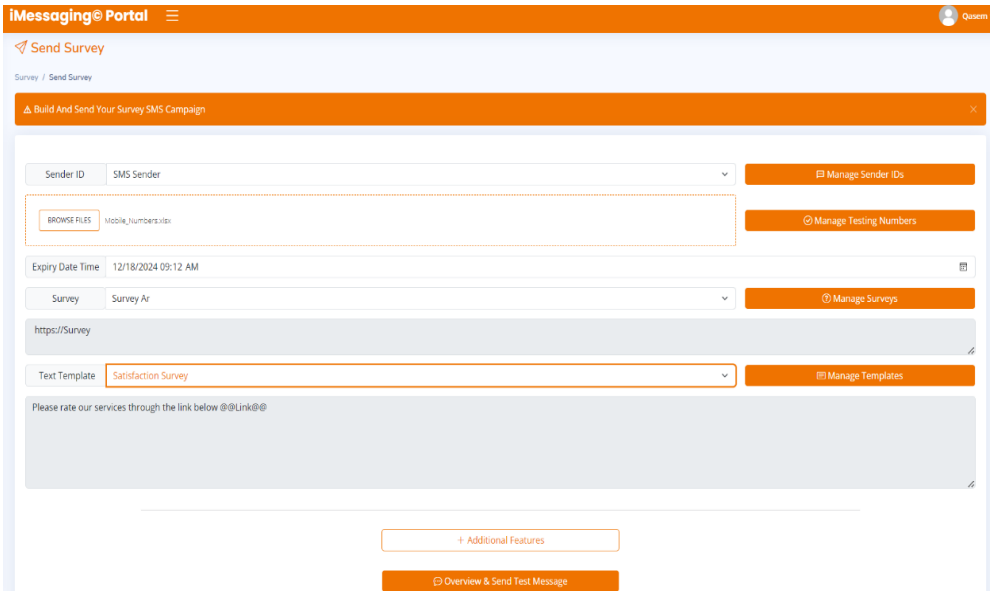
My surveys

This page displays the user's current surveys and enables the user to create, view and delete surveys.



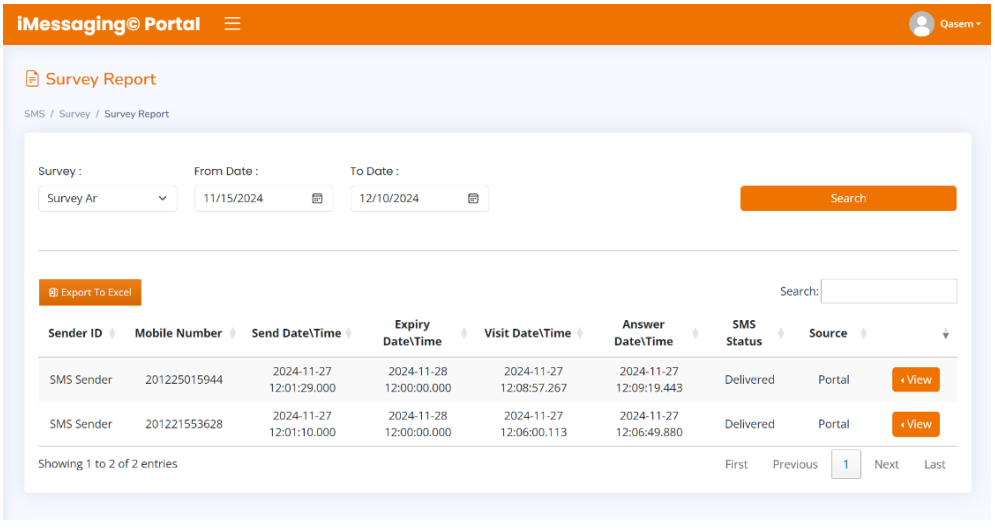
Send Survey

This feature allows the user to send a survey to customers to obtain customers' opinions about a specific service.



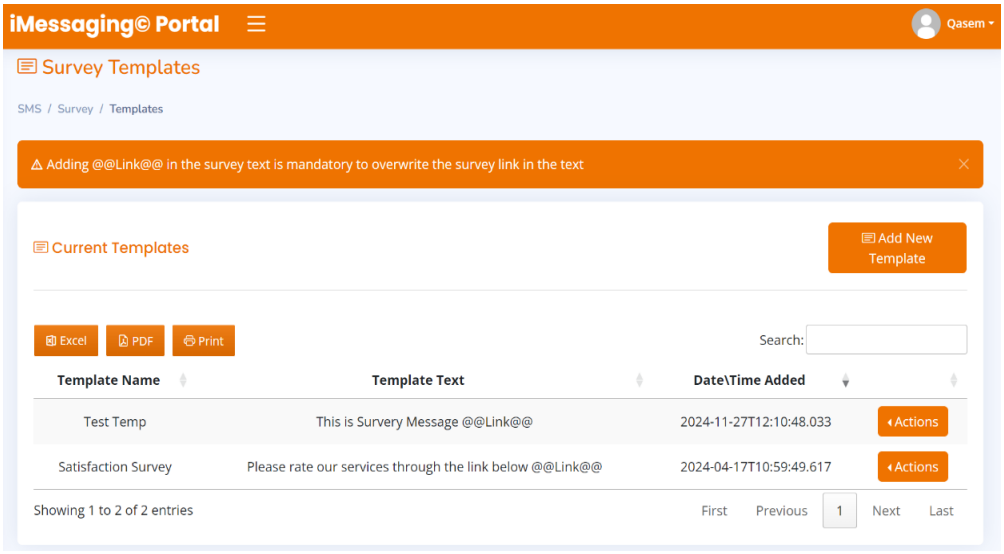
Survey Report

After sending the survey, the survey report can be generated through this page after selecting the survey and the send date.



Survey Template

This feature enables the user to create a survey template for repeated use.



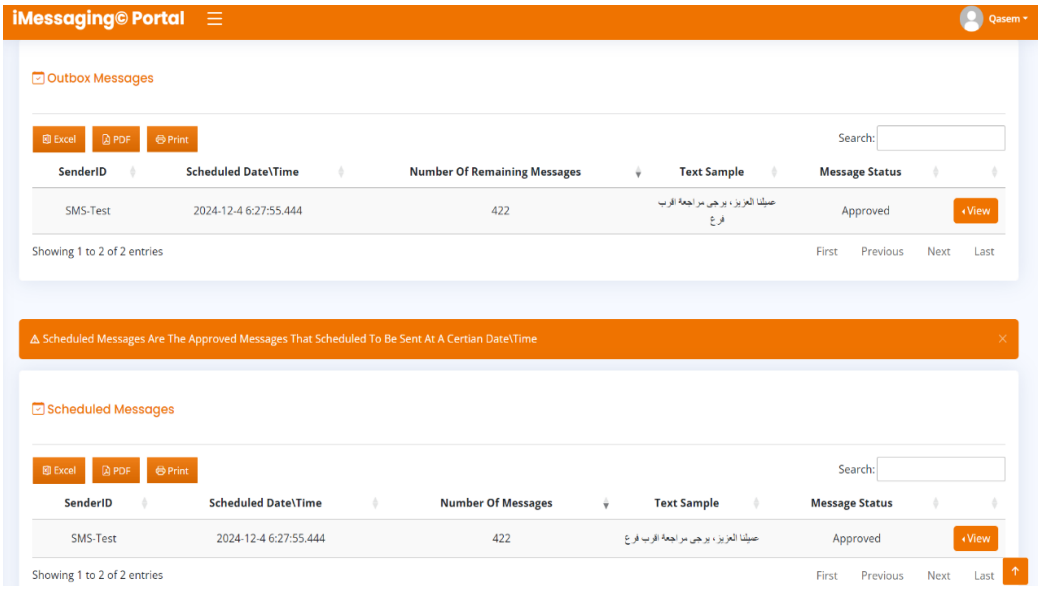
Outbox & Scheduled Messages

Outbox

- Each and every sent message through any of the aforementioned features will go through the Outbox. The Outbox shows the delivery, real-time occurrence of each message separately.

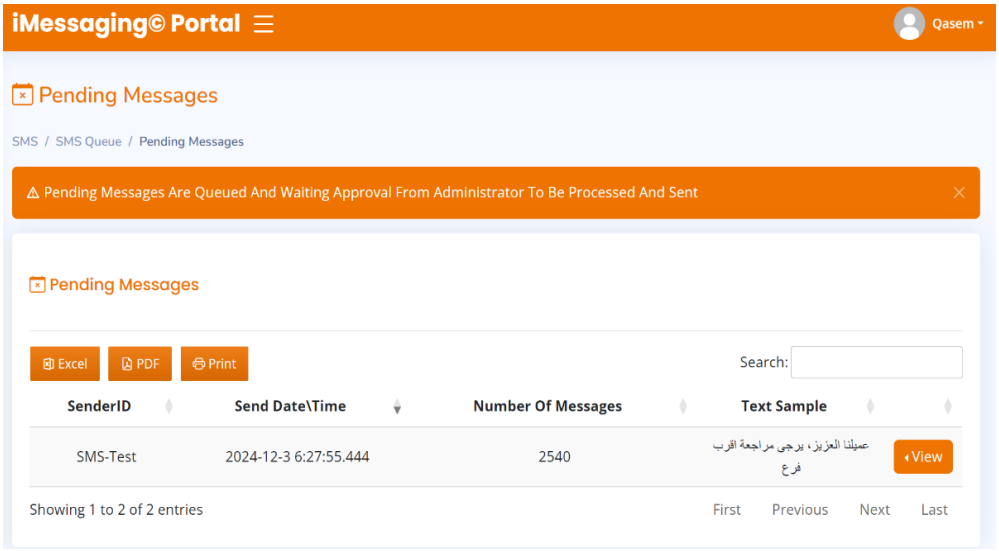
Scheduled Messages

- The Scheduled Messages section illustrates the pending messages that will be sent at a future date and time. These messages can be:
  - Reviewed
  - Exported into an excel file report.
  - Canceled
  - Paused



Pending Messages

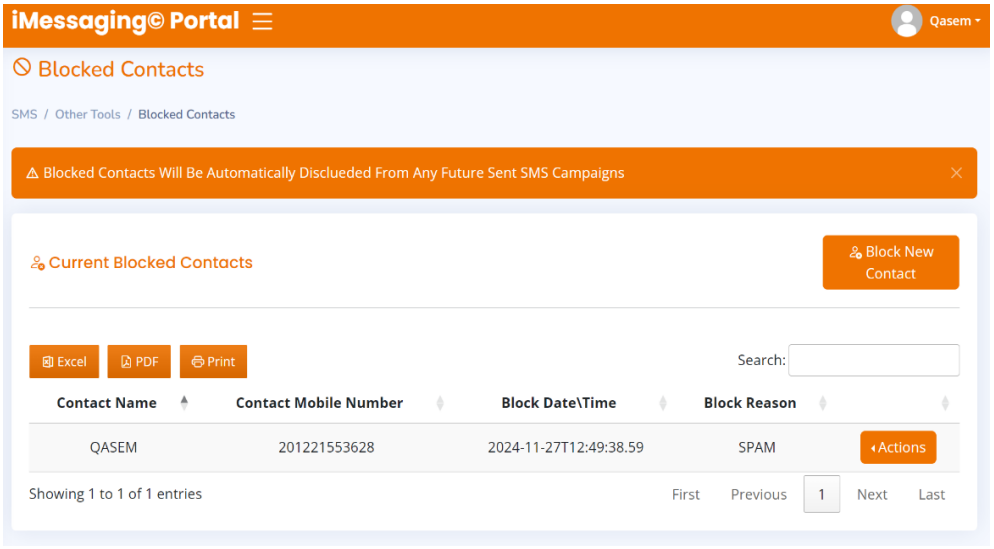
The Pending message shows the status of the message you sent and if it approved or rejected from the administration.



Other SMS Tools

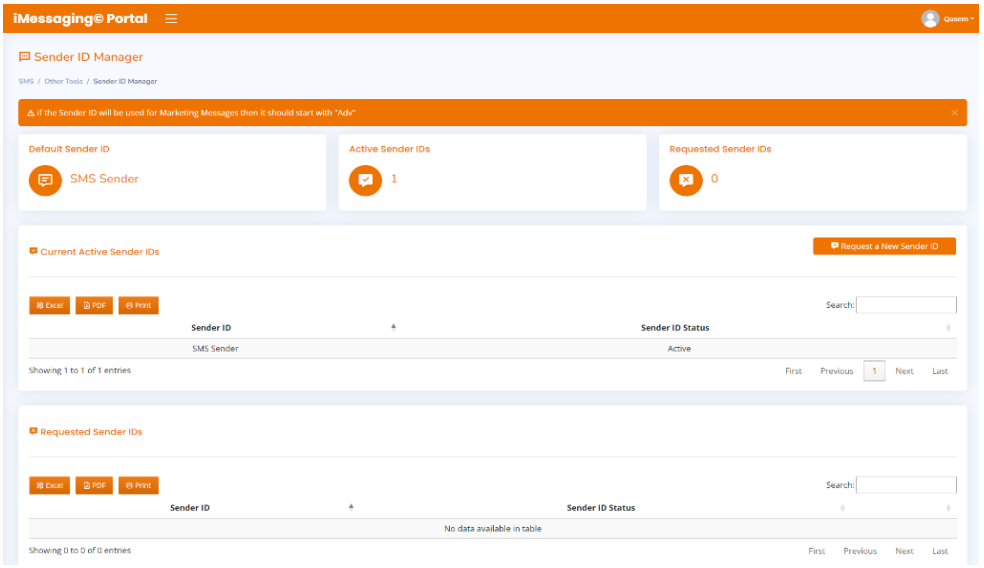
Blocked Contacts

This feature allows the user to block mobile numbers and disallow the messages to be sent to the blocked numbers.



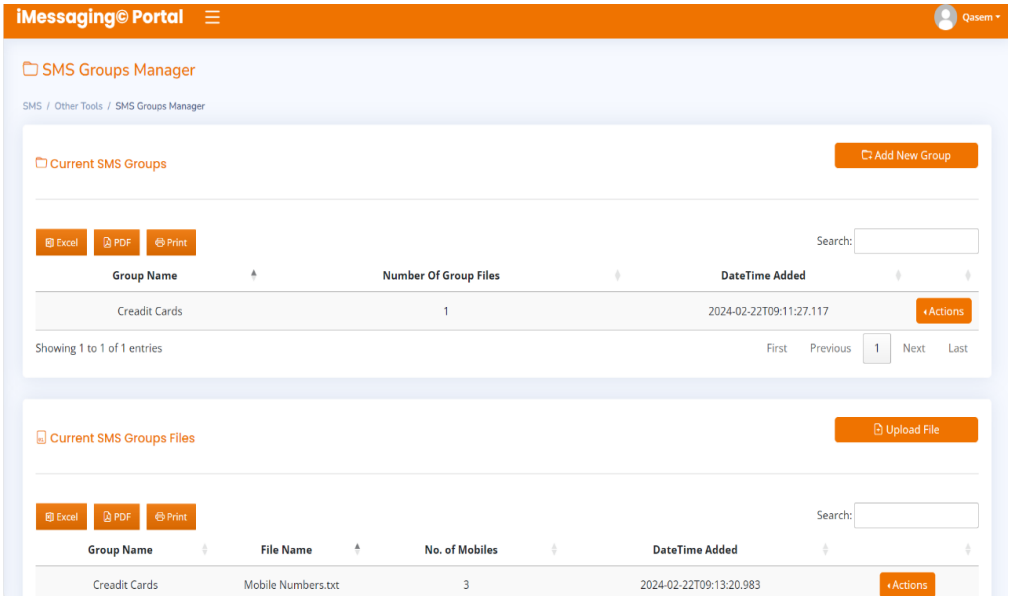
Sender ID Management

The User will have the default sender ID for his account and it is ready to use, the user can add a new sender ID to his account and it will go through the sender ID management cycle through the operator to get the approved.



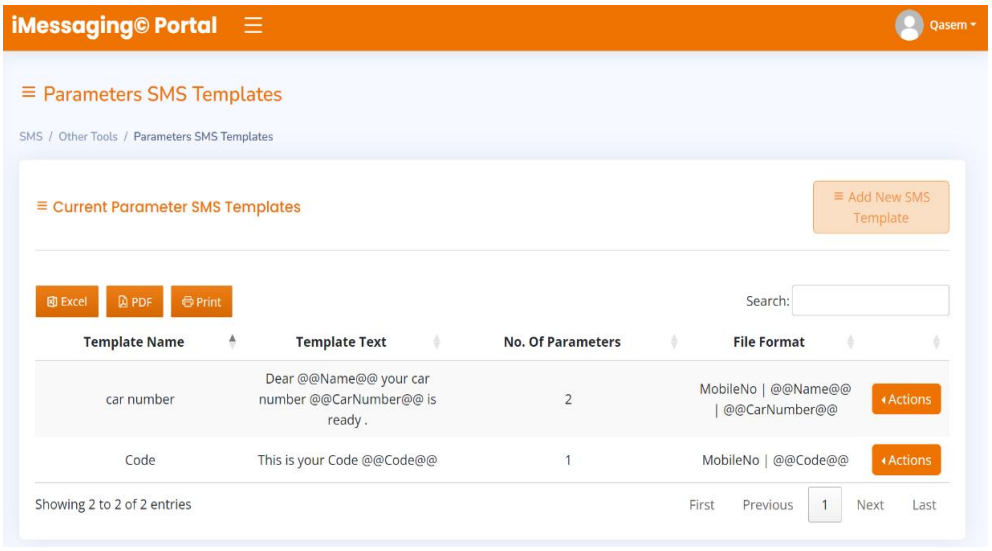
SMS Group

This page viewed the current folders and the uploaded files and allow the user to manage these files and folders (view, add, delete ..etc) .



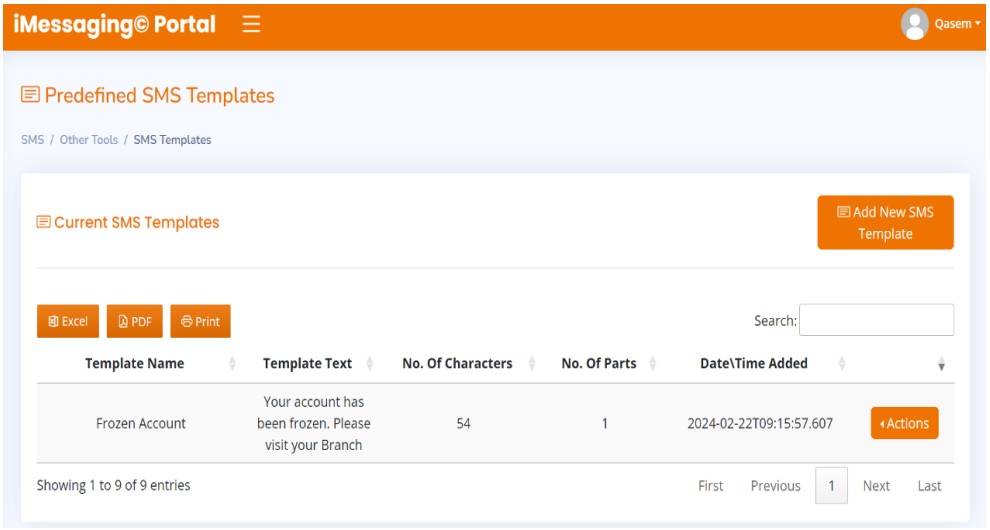
Parameters SMS Templates

This page contained all the parameters templates that been created by the user and allows the user to (view, add, delete) the templates.



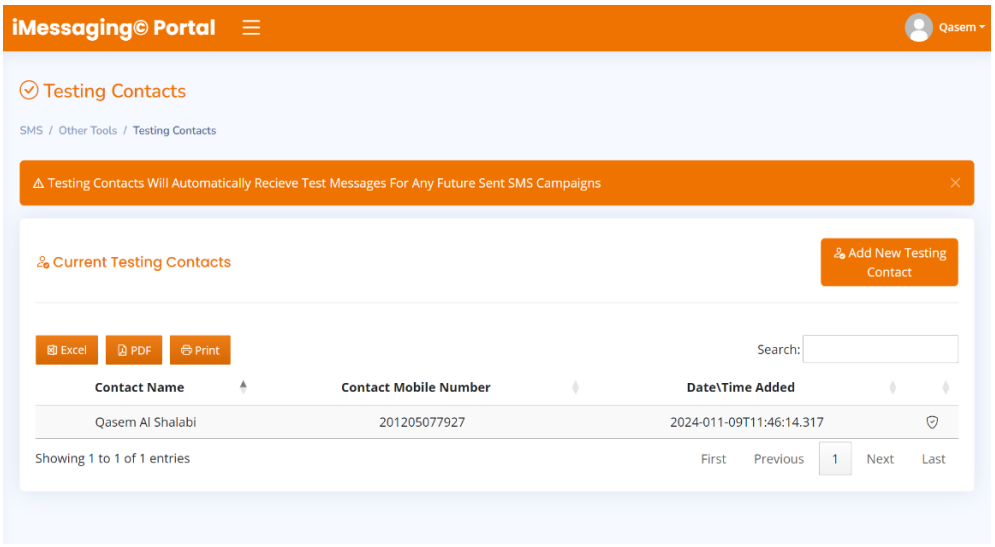
Predefined Templates

This page contained all the Predefined Templates that been created by the user and allows the user to (view, add, delete) the templates.



Testing Contacts

This feature allows users to add testing contacts when they are testing the campaigns also the testing contacts can be modified , deleted .

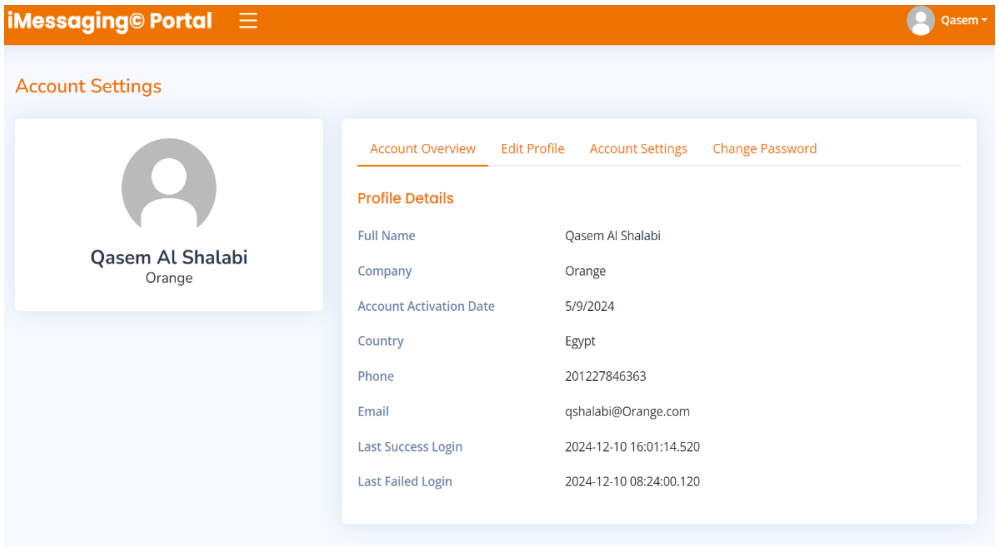


Account

This feature allows the end-user to view his/her account information, change the name of the user, mobile number, and the password.

Account Setting

The end-user can access the saved data of their account through this feature. The end-user may request for any data to be adjusted or modified.



iMessaging® Portal - Administrator

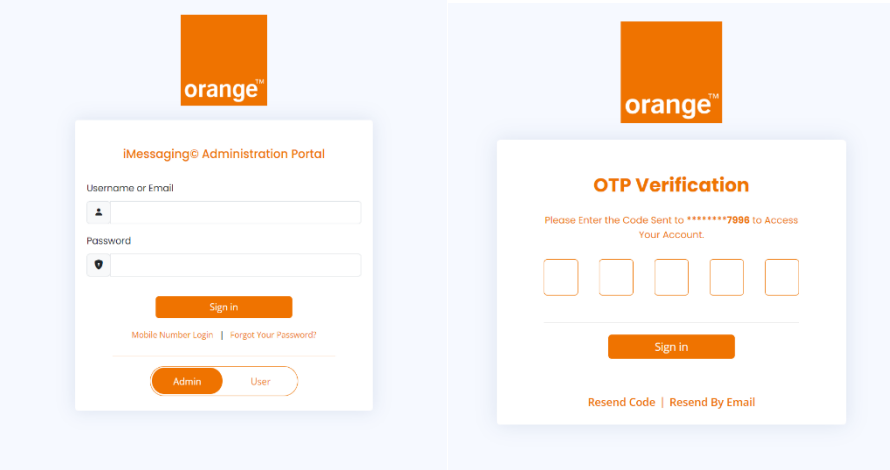
iMessaging® Portal – Administrator

The Administrator module offers various features, with a full management for all users in the organization. The administrator account is the first account created and have a full control with full permissions for all user's accounts:

- Manage Accounts: Define, Edit, Delete users accounts.
- Manage users account balances and recharge them.
- Approve Sender IDs on the Organization level.
- Full reporting for all sent messages and their details.
- Check system health and the Queues status.
- Approve pending campaigns that required Administrator approval (Maker\Checker)

Login Page

The login page allows the admin to access the system and it is authenticated by Multi-factor Authentication (MFA), the OTP message sent to the predefined mobile number.



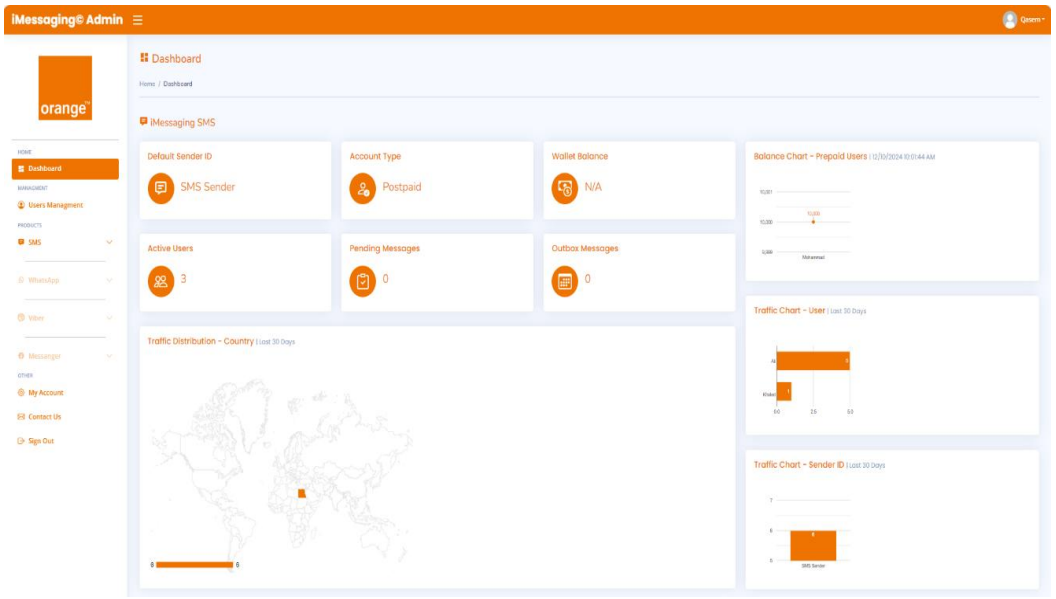
The Administrator portal is composed of the following sections:

- Dashboard
- Administrative Tools
- Reports
- Queued Messages

Dashboard

The dashboard contains a rich statistical data that sheds an overview on the following:

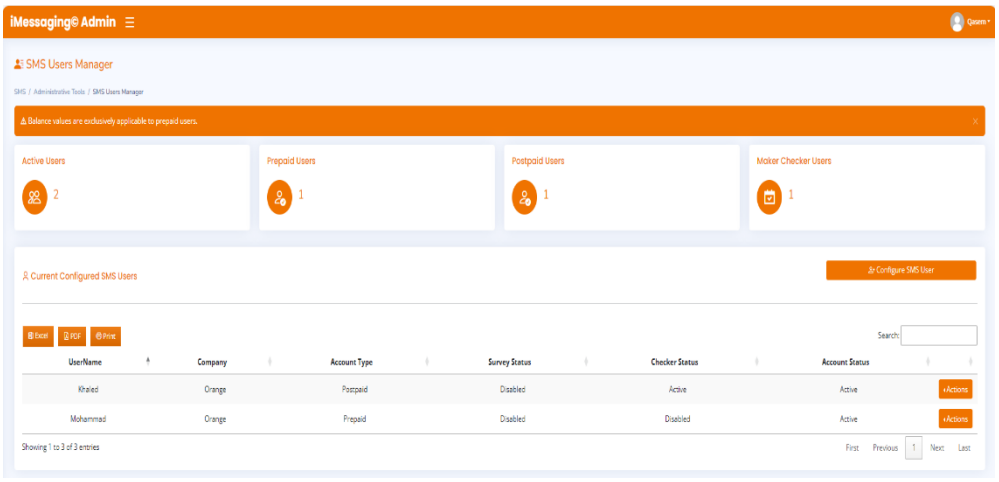
- Active Sender IDs
- Account Type (Prepaid/Postpaid)
- Available Balance for all prepaid accounts
- List of users and their Details.
- Number of Outbox messages for each user and total number of queued outbox messages
- Number of Pending messages for each user and total number of Pending messages
- Traffic distribution during the day and peak times



Administrative Tools

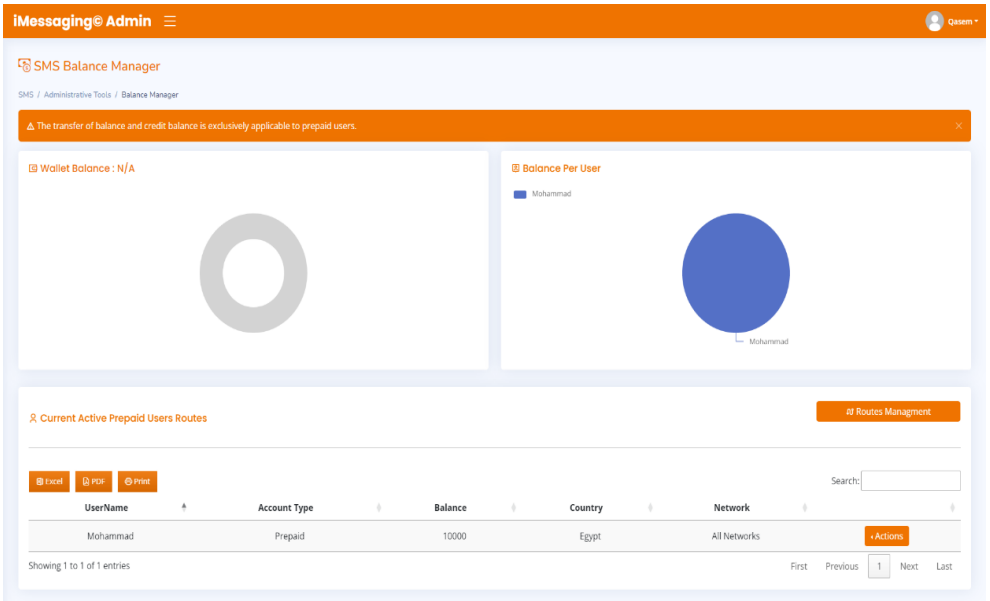
Users Management

The admin have a full control for all sub accounts and can create new ones, for the current users the admin can edit and didactive any exciting account:



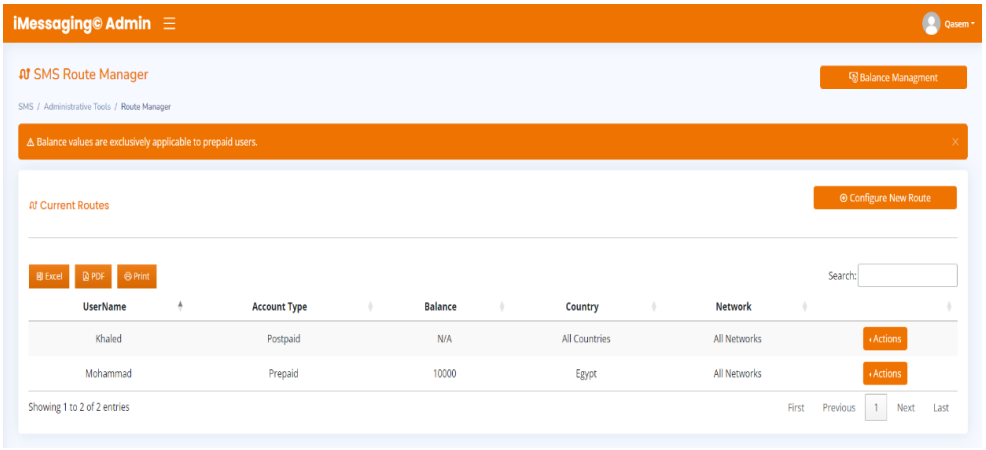
Balance Management

The admin have a full control for all sub accounts and can manage user balance, recharge and revert balance to the wallet for prepaid accounts:



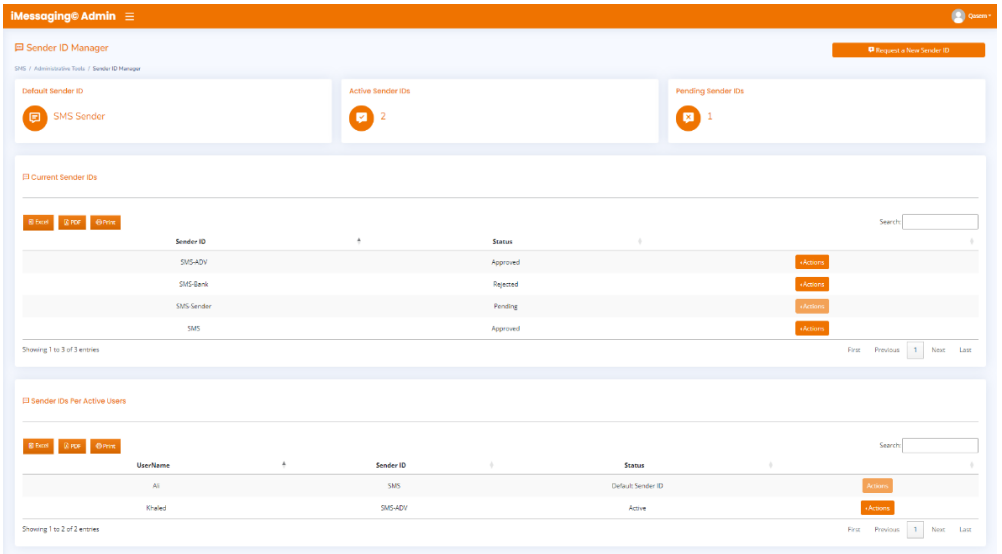
Routing Management

The admin has a full control for all sub accounts and can create new route and delete route for specific users:



Sender ID Management

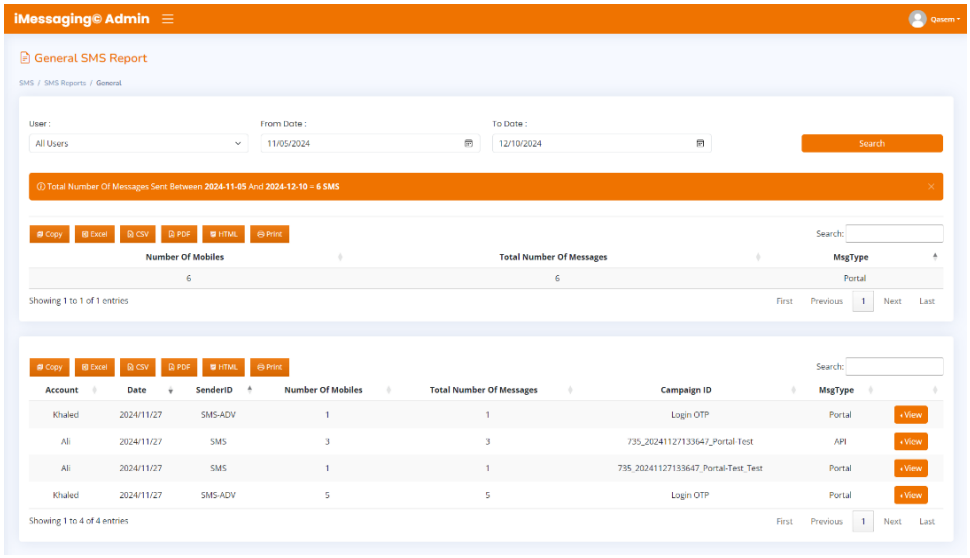
The admin has a full control for all sub accounts and can request for new sender ID's and assigned for users:



SMS Reports

The Administrator have a full reporting for all users under his account, the reports can be generated based on the below criteria:

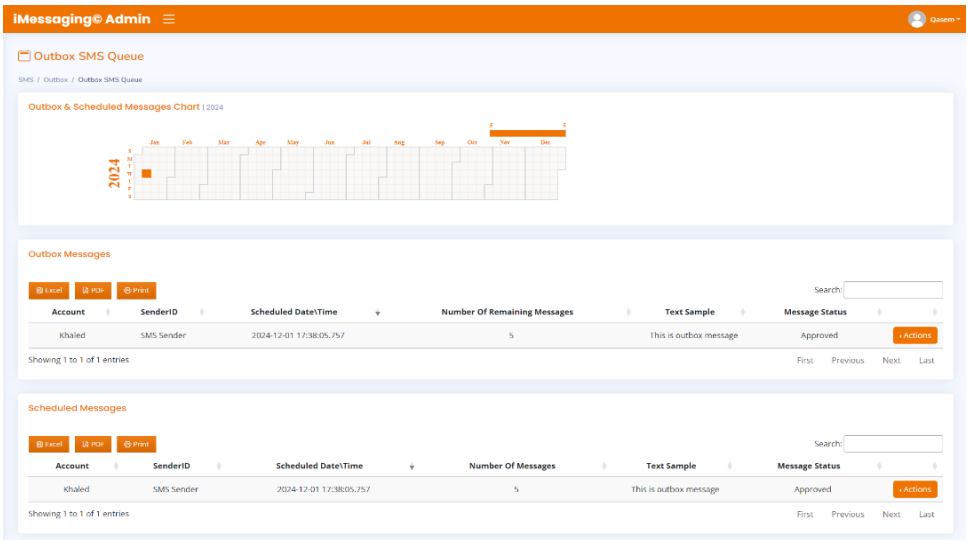
- API SMS Report
- Report by Country
- General Report (Marketing / API)
- Report by Mobile number
- Marketing Report



Outbox Messages

Outbox Messages

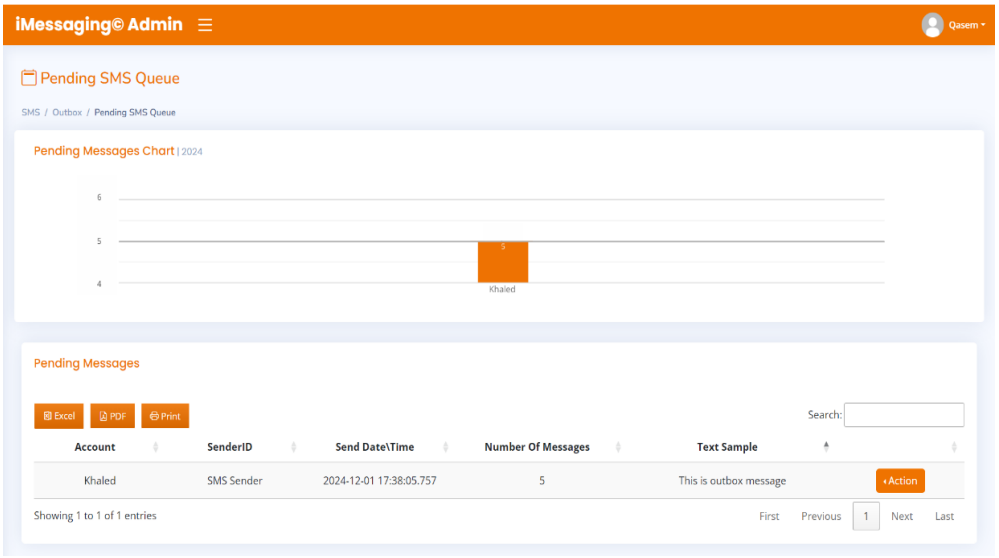
They are the messages that have been approved and It is being sent now or have been scheduled to be sent at a later time and the administration can pause/delete the message .



The system will show the status of all campaigns in the Queue.

Pending Messages

The admin can grant the access for the sub account to send SMS without verification (Maker checker disabled). When this permission is not granted, the admin needs to authorize and verify the campaign before releasing it to the customers. All messages will remain in the queue until approving them:



iMessaging® System APIs and Protocols

As the infrastructures for SMS communications and the internet are mostly divided, SMS APIs are often used to 'bridge the gap' between telecommunications carrier networks and the wider web. SMS APIs are used to allow any application to easily send and receive text messages through logic written for standard web frameworks.

*i*Messaging® System provides many APIs to allow any system to integrate with the SMS in a simple way. The APIs support most coding languages which make it the easiest SMS API solution to integrate with the customers software and applications. *i*Messaging® Programmable SMS API helps you add robust messaging capabilities to your applications. *i*Messaging® system support the below APIs and Protocols:

1- Standard SMPP Protocol

2- JSON Web Service API

3- HTTP Web Service API

4- SMTP

Standard SMPP Protocol

The SMPP (Short Message Peer-to-Peer) protocol is an open, industry standard protocol designed to provide a flexible data communications interface for the transfer of short message data between External Short Message Entities (ESME), Routing Entities (RE) and Message Centers (MC). It is a means by which applications (termed ESMEs) can send SMS messages to mobile devices and receive SMS from mobile devices.

JSON Web Service API

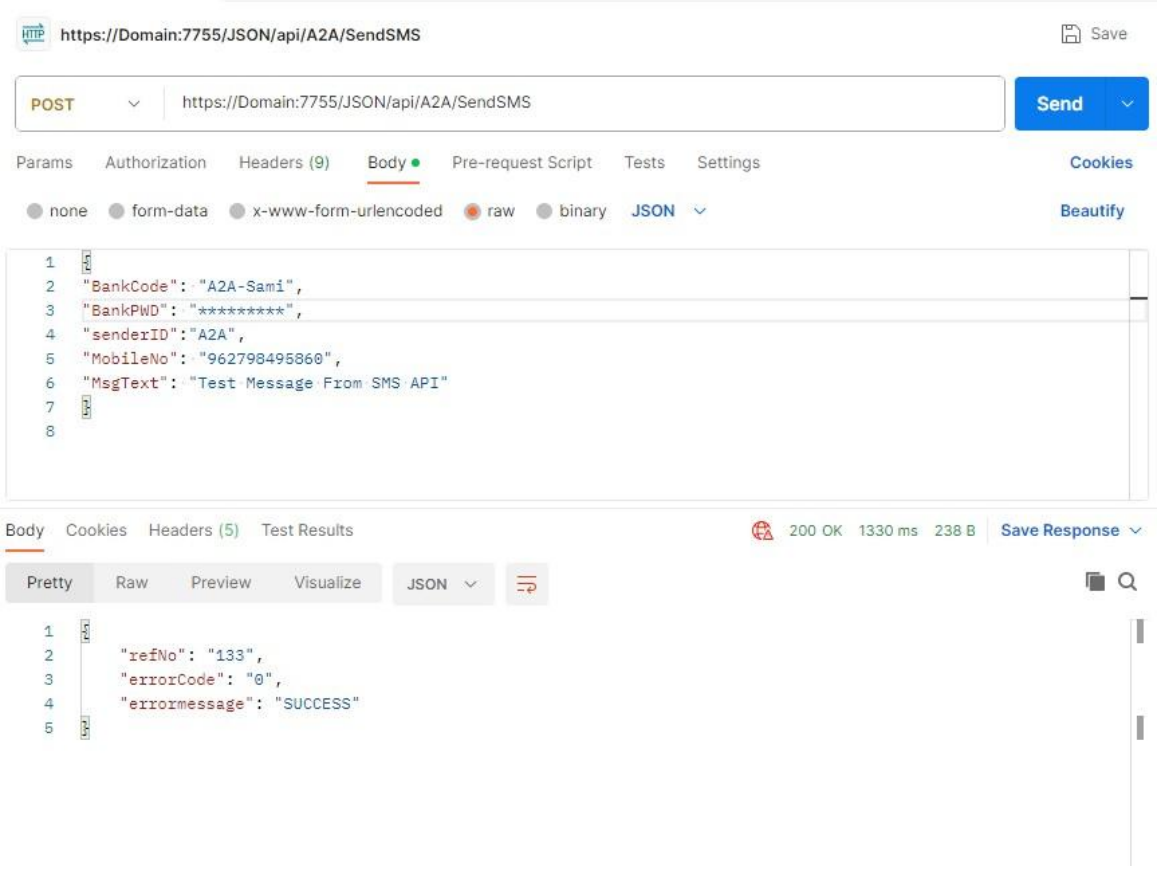
An SMS API that allows your business to integrate SMS (Short Message Service) messaging into your existing software platforms easily. SMS APIs enable you to send SMS messages quickly and easily through any website or application. An SMS API makes it possible for your business to operate 24/7, providing customer notifications and information even outside business hours.

*i*Messaging® System provides the below methods for the JSON API:

1- SendSMS: for sending high priority messages like OTP and transactional messages.

2- SendCampSMS: for sending Marketing and low priority messages.

3- SendBulkSMS: for sending batch messages with lower priority.



HTTP Web Service API

An HTTP SMS API that allows your business to integrate SMS (Short Message Service) messaging into your existing software platforms easily. SMS APIs enable you to send SMS messages quickly and easily through any website or application. An SMS API makes it possible for your business to operate 24/7, providing customer notifications and information even outside business hours.

SMTP Protocol

The Simple Mail Transfer Protocol (SMTP) is an Internet standard communication protocol for electronic mail transmission. This API is used for sending and receiving Mail messages through the *i*Messaging® system.

SMS Status API

An HTTP SMS API that allows the application to retrieve the sent messages status and to monitor the sent messages automatically.

iMessaging® System – Security

Security features

As technology continues to advance, so do the threats posed by cybercriminals and malicious actors. By exploring various security measures and their benefits, we aim to provide a comprehensive understanding of the importance of integrating robust security features into our digital infrastructure.

The iMessaging System have the below security features:

1- API access restricted through A Site-to-Site VPN or for Whitelisted IP addresses Only. Site-to-Site VPN provides more security by creating an encrypted link between VPN gateways.

2- Transport Layer Security (TLS) encryption and SSL

3- Web Application Firewalls (WAF)

4- Complex password Policy

5- Multi-Factor Authentication for the end user portal

6- Data Encryption: SMS text messages and mobile numbers encrypted in the Database.

7- Audit Log for all accounts

8- Country access Management

9- Maker\Checker for Sending Campaign message