

SMS Handling

This technical note describes the OutSystems Platform (Hub Edition) SMS handling architecture as well as the built in features related with SMS-C integration, routing, billing and customization.

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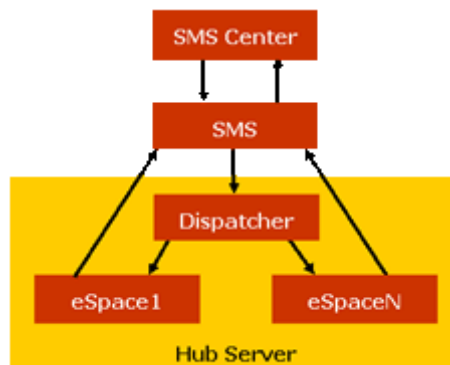
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Functional Architecture

The OutSystems Platform is capable of:

- Handle and process an SMS-MO (Mobile Originated), possibly replying with a new SMS-MT (Mobile Terminated);
- Generate new SMS-MT;
- Keep track of dialogs user/application dialogs, maintaining session status;
- Host multiple applications (eSpaces) and route the SMS-MO to the appropriate eSpace and the exact session (if any);
- Manage information about delivery reports;
- Execute custom business logic on specific events, possibly handling SMS specific properties, captured from the operator network environment.
- Integrate "out-of-the-box" with multiple SMS-Centers via multiple Large Accounts via several protocols, such as UCP or SMPP.
- Integrate with custom SMS Gateway via a custom interface.
- Handle complex incoming SMS routing algorithms, possibly sharing Large Accounts among several VAS (Value Added Services);

These features are supported as presented in the following diagram:



Each SMS-MO, according to the diagram follows the flow:

1. Is delivered from the operator network to the SMS Center;
2. The SMS Center delivers the message to an SMS Gateway via UCP, SMPP or similar protocol. The OutSystems Platform includes a built-in SMS Gateway, although it can be replaced by a 3rd party SMS Gateway;
3. The SMS Gateway posts the incoming message to the OutSystems Platform Server Dispatcher. The Dispatcher is responsible for the delivery of the message to the exact eSpace, according to [Inbound SMS Routing](#) rules. At this level an incoming message can be associated with an existing dialog status. In that case, dialog status is retrieved and can be used at the eSpace business logic level. Dialog status matching is based on the pair (MSISDN; SMS-C Large Account). Messages are posted in a HTTP/XML format. For more details, please check the [Integration with 3rd Party SMS Gateways](#) section;
4. At the eSpace level, an incoming message is processed, handling its content and properties, possibly sending a new message back to the end user.

Inbound SMS Routing

Inbound SMS Routing is configured by Large Account via the OutSystems Service Center. Using this tool, system administrators are able to configure Large Account reusability and define routing rules.

Each Large Account (called Virtual Phone in Service Center) can be associated with multiple eSpaces and eSpace can implement several entry points (called Application Phones) for multiple Virtual Phones.

From the Virtual Phone perspective, eSpace Application Phones are shared. Sharing can be done by MSISDN (routing depends on the user MSISDN) or by Keyword (routing depends on the message content).

SMS Handling

The complete routing algorithm follows the steps below:

1. The dispatcher verifies if there is an already established dialog for the (MSISDN; Large Account) pair. In that case, the eSpace to deliver the message is immediately set and dialog is restarted according to session information;
2. The user MSISDN is checked in the list of registered users of the eSpaces Application Phones shared by MSISDN. If the user belongs to such list, the message is delivered to the corresponding eSpace and a new dialog is started;
3. The message content is matched to a list of expected keywords according to the order defined in Service Center. According to the first matching keyword, the message is delivered to the correspondent eSpace entry point and a new dialog is started;
4. If none of the above rules is verified, the message will be handled according to a default handler available in the OutSystems Platform Server (Hub Server).

When the message is delivered to a specific eSpace, either in the context of an existing or new dialog, specific business logic is executed and the message is processed according to the processing rules in the eSpace definition (OML file). Please check OutSystems Service Studio documentation for further details.

The following image depicts the keyword matching definition based on Service Center. It means that, for a particular Virtual Phone, incoming messages started by listed keywords will be delivered to the associated eSpace. Matching is attempted according to Priority.

Priority	Tenant	eSpace	Entry	Keywords
1	MobileOffice	MobileOffice	MobileOfficePhone	new inbox email mail in em ma i e m contact co c<sentence> contact co c join<word> today tod tomorrow tom day<word> help
2	OutSystems	WirelessIntranet	WirelessIntranetPhone	access<word> find<word> send<number><word> fax<number><word>

SMS Properties

SMS-MO handling at application level is not exclusively based in the message content. Several associated properties are available and can be used to define new business rules. Similar business rules can be defined new SMS-MT messages issued by the OutSystems Platform.

All SMS properties can be read and written from the application business logic and are obtained from and delivered to the SMS Gateway and SMS Center. Some of the most relevant properties available are:

- MSISDN - The mobile phone subscriber number;
- Large Account - The operator large account number;
- Operator Code - The network operator identification;
- Connection - The network operator specific connection, for a specific large account;
- Billing Code - Identifies a billing class identifier that can be delivered to a 3rd party billing system;
- Billing Description - Describes the event for further processing by a 3rd party billing system, possible to be presented in the customer invoice.

Custom properties are also available for free usage when integrating with 3rd party SMS Gateways.

Delivery Report Handling

OutSystems Platform can track the status of message delivery in the network operator. Every SMS-MT can be marked to be tracked. If the message is marked to be tracked, the SMS Gateway is responsible to post back information about the message delivery status.

Every delivery status information post into the OutSystems Platform is again delivered to the Dispatcher as a new message. The delivery status information is delivered to the corresponding eSpace and specific business rules can be written to handle delivery status report information. Requiring delivery report may seriously impact the overall system performance and thus shall be carefully used.

Integration with 3rd Party SMS Gateway

As stated, the OutSystems Platform is packaged with a built-in SMS Gateway. However, there are some business scenarios where 3rd party SMS gateways, possibly provided by service providers, network operators or software manufacturers need to be used.

For those scenarios, OutSystems provides an Open API for 3rd party SMS Gateway integration. This API exposes all the programming interfaces between the OutSystems Platform Server and SMS Gateway as available for the base configuration.

System Integrators may rewrite these APIs in order to achieve full integration. Applications development is decoupled from these integration scenarios.

See Also

Check the [Third-party SMS Gateway Integration technical note](#).