Wash Academy

MOTECH-IVR System Interface Specifications

Revision History

Version	Description of changes	Changed by	Date
0.1	First Draft	Sai Rahul	03-Dec-2017

1 Introduction & Overview

1.1 Overview of Project

Wash Academy is service is an inbound IVR mobile training course for Swachchagrahis. Swachchagrahis can access the course from any phone by dialling a toll free long code, and complete it at their convenience.

IVR services shall be powered by an open-source platform called **MOTECH** (**Mobile Technology for Community Health**).

1.2 Objective of this document

This Interface Specification describes the interface between MOTECH Implementation modules and IVR System that will be developed for Wash Academy.

1.3 Key Assumptions

- The mapping of circle, state, district, languageLocationCode and Language is available in Motech database.
- While uploading aSwachchagrahi in MoTech database, verify that its location details are available. Also verify that his location is mapped to a Language else the Swachchagrahi record shall be rejected.
- callId is same in every request coming from IVR for the same call.

2 The Service

2.1 Use cases

This section details the use cases/scenarios for interaction between IVR system and Motech for Wash Academy service.

2.1.1 Swachchagrahi/Anonymous user calls Wash academy

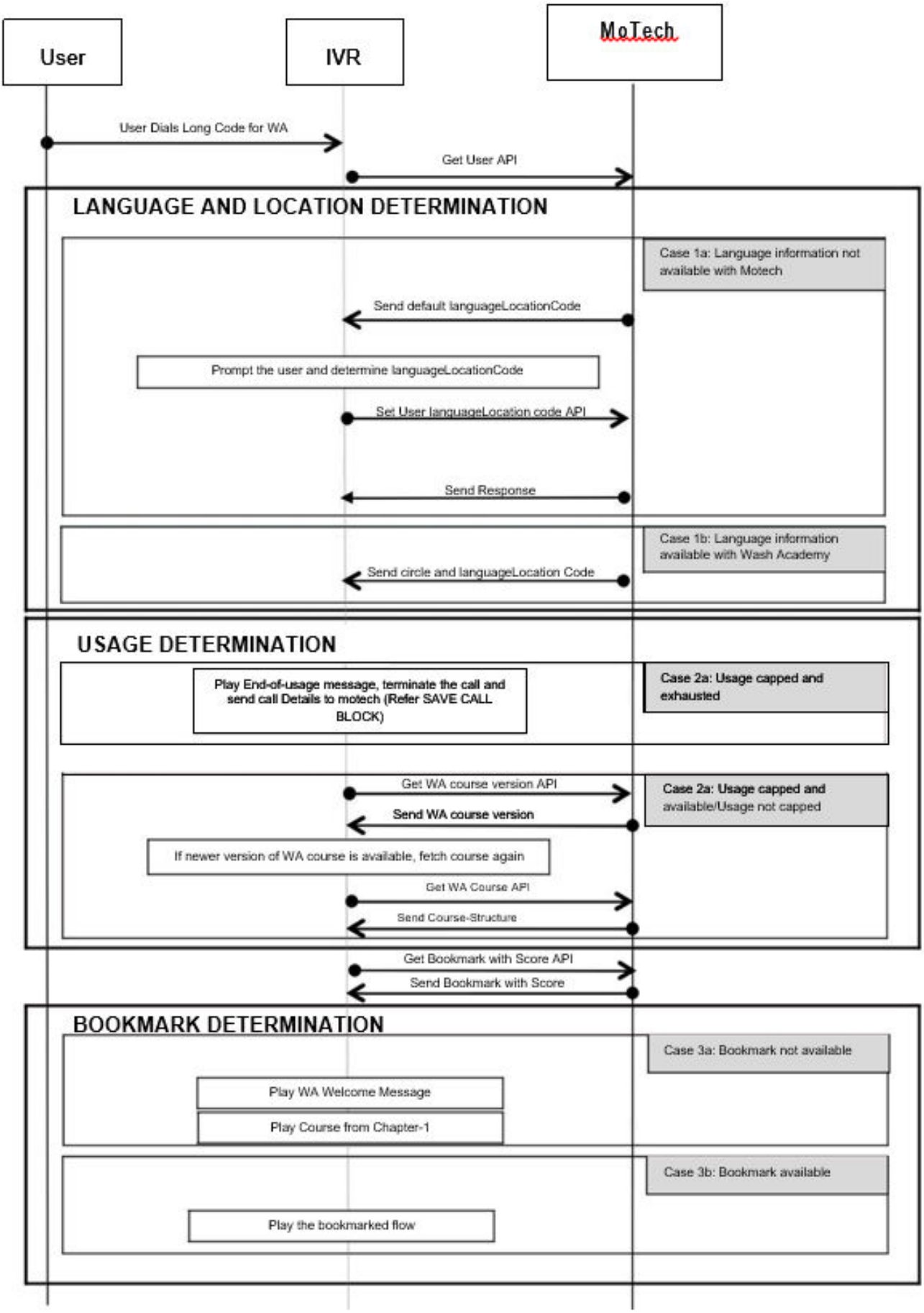
When a user calls Wash academy, based on the long-code or toll free number, IVR Platform shall identify the service and will answer the call. The figure below shows the interaction scenario between IVR System and Motech service.

IVR shall process the VXML for Wash academy call flow available with it and shall proceed with the call as detailed below.

Scenario is as follows:

- User dials the WA long code and call terminates at IVR System
- IVR system shall check its service configuration and identify that the long code corresponds to a MA service and answers the call (as per the service configuration)
- IVR System shall proceed with the call flow defined in the VXML for WA.

If there is any error related to format of the API parameters or any other error such as Motech not reachable, during this scenario then IVR shall terminate the call without proceeding further.


User
IVR
MoTech
User Dials Long Code for WA
Get User API
LANGUAGE AND LOCATION DETERMINATION
Case 1a: Language information not available with Motech
Send default languageLocationCode
Prompt the user and determine languageLocationCode
Set User languageLocation code API
Send Response
Case 1b: Language information available with Wash Academy
Send circle and languageLocation Code
USAGE DETERMINATION
Play End-of-usage message, terminate the call and send call Details to motech (Refer SAVE CALL BLOCK)
Case 2a: Usage capped and exhausted
Get WA course version API
Send WA course version
Case 2a: Usage capped and available/Usage not capped
If newer version of WA course is available, fetch course again
Get WA Course API
Send Course-Structure
Get Bookmark with Score API
Send Bookmark with Score
BOOKMARK DETERMINATION
Case 3a: Bookmark not available
Play WA Welcome Message
Play Course from Chapter-1
Case 3b: Bookmark available
Play the bookmarked flow

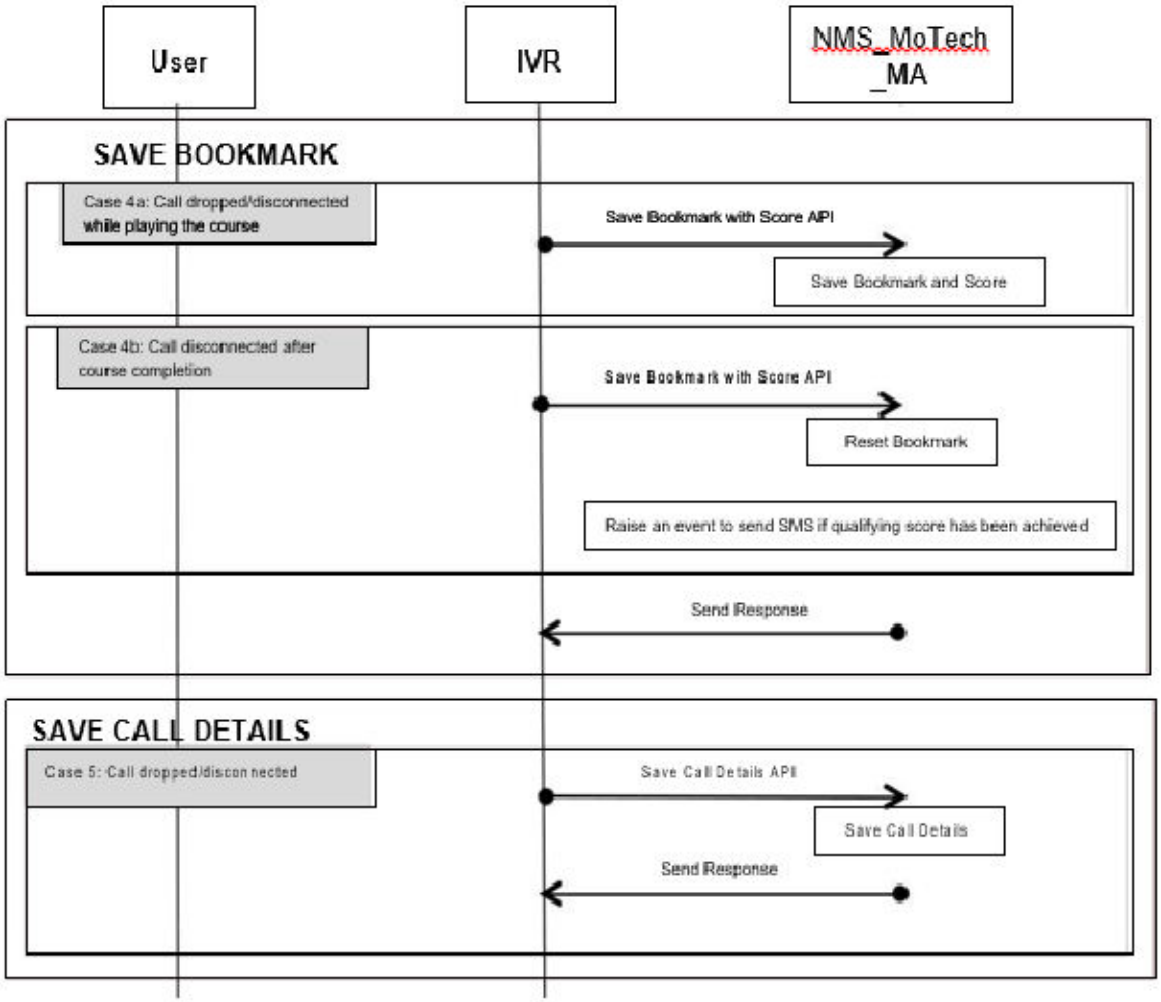


Figure 1: WA Call Flow

2.1.1.1 Language and Location Determination

The first step in VXML call flow is to determine the language preference and usage availability for the user. This section describes how language will be determined based on availability of language mapping and status of the calling user.

IVR invokes "Get User" API on Motech to determine language and usage details.

Following two possibilities are there:

2.1.1.1.1 Language information not available with NMS

Following cases are possible in this scenario:

- Anonymous user calls first time – circle not known
- Anonymous user calls first time – circle provided by IVR but circle not mapped to any languageLocationCode at Motech
- Anonymous user calls first time – circle provided by IVR but circle mapped to multiple languageLocationCodes at Motech

Each of the above case will be handled as follows:

- MoTech will return default languageLocationCode in the response to "Get User Detail" API.
- IVR shall prompt user to enter preferred languageLocationCode
- User shall enter relevant code using DTMF input.
- IVR shall invoke "Set User Language Location Code" API and shall provide user entered languageLocation code as input.
- Motech will set the code for that user in the database.

2.1.1.1.2 Language information available with NMS

Following cases are possible in this scenario:

- Anonymous user calls first time – circle information provided by IVR and circle mapped to unique languageLocation at Motech.
- Inactive user calls first time – languageLocation code retrieved based on state and district.
- User is a repeat user – anonymous or active.

In each of the above case, Motech will return circle and languageLocation code information as response to the "Get User Detail" API.

2.1.1.2 Usage Determination

This section describes the behavior of NMS based on availability of usage for the user. Usage details will be available in user details only and will be retrieved in "Get User Details" API already invoked above.

Following two cases are possible here:

2.1.1.2.1 Usage capped and exhausted

IVR shall play end-of-usage message and shall terminate the call. When the end of usage message is played, a counter which tracks the number of times the end-of-usage expiry message is played is incremented and returned to Motech system. The counter (to be defined by Motech) shall be one of the parameters returned in "Get User Details" API. The end- of-usage message shall be played if the value of the counter is less than maximum number of times the end-of-usage can be played.

IVR System shall also invoke "Save Call Details" API on Motech to save the call detail records.

2.1.1.2.2 Usage capped and available/Usage not capped

This case is applicable, when either the usage is available or the service is uncapped. In each case IVR system shall continue with the call and shall invoke "Get WA Course Version" API on Motech to get the version of WA course structure.

If a newer version of course is available or course structure is not available with IVR, it shall invoke "Get WA course" API to fetch the course structure else it will live with the existing structure only.

IVR shall then proceed with determination of bookmark for the user. The decision for starting point of the course will be made based on bookmark.

2.1.1.3 Bookmark Determination

This section describes the scenarios for bookmark determination and IVR behavior for the same. IVR shall invoke "Get Bookmark with Score" API on MoTech to get the bookmark details of the user. The bookmark represents details of course unit which is to be played.

Following two cases are there:

2.1.1.3.1 Bookmark not available

In this case, IVR shall play the WA course welcome message followed by the actual course content.

2.1.1.3.2 Bookmark available

In this case, IVR shall play the MA course starting from bookmarked location.

2.1.1.4 Save Bookmark

This section describes how bookmark will be saved for a user when the call gets dropped/disconnected. Following cases are possible:

2.1.1.4.1 Call dropped/disconnected while playing course

While playing the course, call can get disconnected on chapter/lesson or quiz. In each of the case, following details will be sent to Motech in "Save Bookmark with Score" API:

- Id of the node to be bookmarked in course tree.
- scores of quiz being attempted till bookmark location

The Motech shall persist all this information the database and return response to IVR.

2.1.1.4.2 Call disconnected after course completion

This is the scenario when user shall listen to WA course completely and the call gets disconnected automatically after listening to the score.

In this scenario –

- The user shall listen to MA course completely.
- The course result shall be played by IVR to the user.
- The call will be terminated.
- The IVR shall invoke "Save Bookmark with Score" for sending bookmark details. The bookmark shall indicate that the course is completed and Motech creates a course completion record.
- Motech shall reset the bookmark to point to the start of course for the next call.
- If the user has achieved minimum qualifying score then Motech shall raise an event for sending SMS to the user.

The Motech shall save all this information the database and return response to IVR.

2.1.1.5 Save Call Details

Once the bookmark is saved, IVR should get the call records saved in Motech database. IVR shall invoke "Save Call Details" API and shall provide records for content being played during the call and also call statistics. Motech shall save all these records and shall respond to IVR accordingly.

2.1.1.6 Erroneous request from IVR

This is the scenario when there is some error in the request sent by IVR to Motech. In this case, Motech will respond with appropriate error code.

IVR shall handle the exception and play an error message and drop the call and shall invoke "Save Call Details" API on Motech to save call details records.

2.1.2 Sending a message to a subscriber

At the completion of course, WA service shall send a SMS to user (Anonymous/FLW) with a reference number. The SMS sent to use shall be in the native language with English characters.

The functionality exposed by IVR for sending a message to end user is discussed in the following section.

2.1.2.1 Submit SMS Request

Motech service can send a SMS to a destination address using the operation – "Send Sms Request API". The delivery notification of the SMS message can be tracked in multiple ways. They are explained in the next section.

2.1.2.2 SMS Delivery Status

Status of an SMS Delivery can be tracked in two ways:

- Pull Mode – Motech queries IVR system to check for the status of SMS delivery
- Push Mode – IVR sends notification to enterprise application when there is a definite delivery information (i.e. either delivered or delivery is impossible)

Motech service shall use Push mode to receive the delivery notification.

Push Mode – Notification URL

A notification about delivery of a message shall be sent by IVR solution, if a delivery notification url is configured. Notification shall be sent in one of the two following conditions:

- 'DeliveryImpossible': Unsuccessful delivery i.e. message could not be delivered before it expired.
- 'DeliveredToTerminal': In case of concatenated messages, only when all the SMS-parts have been successfully delivered to the terminal.

Notification URL can be defined in SendSMS'sReceiptRequest

2.2 APIs exposed by Motech (called by IVR system)

2.2.1 Get User Details API

IVR shall invoke this API when to retrieve details specific to the user identified by callingNumber. In case user specific details are not available in the database, the API will attempt to load system defaults based on the operator and circle provided.

2.2.1.1 Get User Request

URL: http://<motech:port>/motech-platform-server/module/api/washacademy/user
?callingNumber=9999999900&operator=A&circle=AP&callId=12345678901234567890123 45

Method: GET

2.2.1.1.1 Validations

Motech shall return appropriate http error code in following case

- callingNumber, operator, circle and callId are not present as query parameters.
- callingNumber does not contain 10 digits.

2.2.1.1.2 HTTP timeout

HTTP Timeout Category	Description
Online	Refer 2.5

2.2.1.1.3 Query Parameters

#	Parameter Name	Mandatory	Data type	Range	Description
1	Calling number	Yes	Number (10 digits)	NA	10-digit mobile number of the caller
2	Operator	No	String (max 255 characters)	Refer 5.4	Operator of caller
3	Circle	No	String (max 255 characters)	Refer 2.4.5	Circle from where call is originating
4	callid	Yes	String (25 characters)	NA	Unique called assigned by IVR

2.2.1.1.4 Headers

Header Name	Header Value	Mandatory	Description
Accept	application/json	Yes	It specifies the format of the content accepted by the API invoker.

2.2.1.2 Get User Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful	{ “languageLocationCode”: null, "defaultLanguageLocationCode" : “10”, “allowedLanguageLocationCodes”: [“10”, “99”, “34”], "currentUsageInPulses": 0, "maxAllowedUsageInPulses": 3600, "welcomePromptFlag": "", "endOfUsagePromptCounter": 0,	200	application/json	

	"maxAllowedEndOfUsagePrompt": 2 }			

Failure	{
	"failureReason": "<Description of the failure reason>"
	}
		400	application /json	In case parameter value is invalid "<Parameter Name : Invalid Value>" shall be returned in failure reason

		400	application /json	In case mandatory parameter is missing "<Parameter Name: Not Present>" shall be returned in failure reason
		500	application /json	In case of internal motech error "Internal Error" shall be returned in the failure reason
		403	application /json	In case when whitelisting is enabled and user's MSISDN is not found in whitelist
		501	application /json	In case when call is received from state where service is not deployed

2.2.1.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	circle	Yes	String (2 characters)	NA	If the circle information is valid in request same shall be returned otherwise circle information determined by Motech shall be returned.
2	languageLocationCode	No	String		Code for uniquely identifying user location and language details. This element present if language location code is determined.
3	defaultLanguageLocationCode	No	String		Default language location code for the circle. This element present if language location code is not determined.
4	allowedLanguagLocationCodes	No	Array of String		A list of language location codes that are valid for the circle. If no circle, then all language location codes. Only

					returned if the user has no language preference saved.
5	currentUsageInPulses	Yes	Integer	NA	Number of pulses consumed on WA service till now.
6	maxAllowedUsageInPulses	Yes	Integer	-1 if uncapped	Indicates maximum allowed usage for user in pulses
7	welcomePromptFlag	Yes	Boolean		To identify whether to play welcome prompt or not.
8	endOfUsagePromptCounter	Yes	Integer		Indicates number of times end of usage message has been played to the user.
9	maxAllowedEndOfUsagePrompt	Yes	Integer		Maximum number of times end of usage prompt should be played.
10	failureReason	No	String		Reason for the request failure

2.2.2 Get WA Course API

IVR shall invoke this API to get the WA course structure.

2.2.2.1 Get WA Course Request

URL: http://<motech:port>/motech-platform-server/module/api/washacademy/course

Method: GET

2.2.2.1.1 Validations

None

2.2.2.1.2 HTTP timeout

HTTP Timeout Category	Description
Online	Refer 2.5

2.2.2.1.3 Query Parameters

None

2.2.2.1.4 Headers

Header Name	Header Value	Mandatory	Description
Accept	application/json	Yes	It specifies the format of the content accepted by the API invoker.

2.2.2.2 Get WA Course Response

Response Status	Body Example	HTTP Status Code	Content Type	Description

Successful	{
	"name":"WashAcademyCourse",
	"courseVersion":1422951856,
	"chapters":[
	{
	"name":"Chapter01",
	"content":{
		200	application /json	This is an example course structure for demonstrative purposes with 1 chapter, 4 lessons and 4

	"menu":{
	"id":"Chapter01_EndMenu",
	"file":"ch1_end_op.wav"
	},
	"score":{
	"id":"Chapter01_Score",
	"files":[
	"ch1_0_ca.wav",
	"ch1_1_ca.wav",
	"ch1_2_ca.wav",
	"ch1_3_ca.wav",
	"ch1_4_ca.wav"
	]
	}
	},
	"lessons":[
	{
	"name":"Lesson01",
	"content":{
	"lesson":{
	"id":"Chapter01_Lesson01",
	"file":"ch1_l1.wav"
	},
	"menu":{
	"id":"Chapter01_LessonEnd Menu01",
	"file":"ch1_l1_op.wav"
	}
	}
	},
	{
	"name":"Lesson02",
	"content":{
	"lesson":{
	"id":"Chapter01_Lesson02",
	"file":"ch1_l2.wav"
	},
	"menu":{
	"id":"Chapter01_LessonEnd Menu02",
	"file":"ch1_l2_op.wav"
	}
	}
	},
	{
	"name":"Lesson03",
	"content":{
	"lesson":{
	"id":"Chapter01_Lesson03",
	"file":"ch1_l3.wav"
	},
				quizzes

	"menu":{
	"id":"Chapter01_LessonEnd Menu03",
	"file":"ch1_l3_op.wav"
	}
	}
	},
	{
	"name":"Lesson04",
	"content":{
	"lesson":{
	"id":"Chapter01_Lesson04",
	"file":"ch1_l4.wav"
	},
	"menu":{
	"id":"Chapter01_LessonEnd Menu04",
	"file":"ch1_l4_op.wav"
	}
	}
	}
	],
	"quiz":{
	"name":"Quiz",
	"content":{
	"menu":{
	"id":"Chapter01_QuizHeader",
	"file":"ch1_qp.wav"
	}
	},
	"questions":[
	{
	"name":"Question01",
	"correctAnswerOption":1,
	"content":{
	"id":"Chapter01_Question01",
	"question":"ch1_q1.wav",
	"correctAnswer":"ch1_q1_ca.wav",
	"wrongAnswer":"ch1_q1_wa.wav"
	}
	},
	{
	"name":"Question02",
	"correctAnswerOption":1,
	"content":{
	"id":"Chapter01_Question02",			

	"question":"ch1_q2.wav",
	"correctAnswer":"ch1_q2_ca.wav",
	"wrongAnswer":"ch1_q2_wa.wav"
	}
	},
	{
	"name":"Question03",
	"correctAnswerOption":1,
	"content":{
	"id":"Chapter01_Question03",
	"question":"ch1_q3.wav",
	"correctAnswer":"ch1_q3_ca.wav",
	"wrongAnswer":"ch1_q3_wa.wav"
	}
	},
	{
	"name":"Question04",
	"correctAnswerOption":1,
	"content":{
	"question":"ch1_q4.wav",
	"id":"Chapter01_Question04",
	"correctAnswer":"ch1_q4_ca.wav",
	"wrongAnswer":"ch1_q4_wa.wav"
	}
	}
	]
	}
	}
	]
	}			

Failure	"failureReason": "<Description of the failure reason>"}	500	application /json	In case of internal motech error "Internal Error" shall be returned in the failure reason

2.2.2.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	Name	Yes	String	NA	Name of the WA course.
2	courseVersion	Yes	Integer	NA	Last modification

					date of WA course in epoch format. It will serve as unique version for the course.
3	Chapters	Yes	Array<Chapter>	NA	Specifies the list of chapters in course along with their details. This list will contain 11 elements, one for each chapter.
4	chapters>>chapter	Yes	Object	NA	This will contain details about a particular chapter.
5	chapters>>chapter>>name	Yes	String	NA	Specifies the name of the chapter in format of 'Chapter<chapterId. Where chapterId will be from 0 to 11.
6	chapters>>chapter>>content	Yes	Object	NA	Contains details about end menu file and score files.
7	chapters>>chapter>>content>>menu	Yes	Object	NA	Contains the details about the menu file to be played at the end of the chapter.
8	chapters>>chapter>>content>>menu>>id	Yes	String	NA	This is id for the End menu file of the chapter in the format 'Chapter<ChapterId>_End_Menu' where chaptered varies from 1 to 11.
9	chapters>>chapter>>content>>menu>>file	Yes	String	NA	Name of audio file to be played at the end of chapter for prompting the user to either repeat the chapter or go to next chapter
10	chapters>>chapter>>content>>score	Yes	Object	NA	This field contains information about the different files to be played at the end of the chapter depending upon the user's score in the quiz.
11	chapters>>chapter>>content>>score>>id	Yes	String	NA	This is an id for the Score files of the chapter in the format 'Chapter<ChapterId>_Score' where chapterId varies from 0 to 11
12	chapters>>chapter>>content>>score>>files	Yes	Array<String>	NA	It contains list of audio files to be played at the time of completion of chapter depending upon the score of user in quiz. For

					instance, first file in the list specifies the file to be played if user has scored zero in quiz, Second file in the list has to be played if user has scored one in quiz and so on.
13	chapters>>lessons	Yes	Array<Lesson>	NA	Specifies the list of lessons in a chapter along with their details. The list will contain four elements, one for each lesson.
14	chapters>> chapter>>lessons >>lesson	Yes	Object	NA	This will contain details about a particular lesson of a particular chapter.
15	chapters>> chapter>>lessons >>lesson>>name	Yes	String	NA	Specifies the name of the lesson in format of "Lesson<lessonId>", where lessonId will be from 01 to 04.
16	chapters>> chapter>>lessons >>lesson>>content	Yes	Object	NA	Contains details about actual content files to be played while playing a lesson.
17	chapters>> chapter>>lessons >>lesson>>content >>lesson	Yes	Object	NA	Contains the details about the content file to be played in the lesson.
18	chapters>> chapter>>lessons >>lesson>>content >>lesson >>id	Yes	String	NA	This is a id for the Content file of the lesson in the format "Chapter<ChapterId>_Lesson<LessonId>", where ChapterId varies from 01 to 11 and LessonId varies from 01 to 04.
19	chapters>> chapter>>lessons >>lesson>>content >>lesson >>file	Yes	String	NA	Name of audio file to be played containing actual audio content for the lesson.
20	chapters>> chapter>>lessons >>lesson>>content >>menu	Yes	Object	NA	Contains the details about the menu file to be played at the end of the lesson.
21	chapters>> chapter>>lessons	Yes	String	NA	This is a id for the End menu file of the lesson in the format

	>>lesson>>content >>menu>>id				”Chapter<ChapterId> _LessonEndMenu<LessonId>”, where chapterId varies from 01 to 11 and LessonId varies from 01 to 04.
22	chapters>> chapter>>lessons>>lesson> >content >>menu>>file	Yes	String	NA	Name of audio file to be played at the end of lesson for prompting the user to either repeat the lesson or go to next lesson.
23	chapters>> chapter>>quiz	Yes	Object	NA	This section contains information about various files to be played during the quiz.
24	chapters>> chapter>>quiz >>name	Yes	String	NA	Specifies the name of quiz associated to a particular chapter in the format ”Quiz”.
25	chapters>> chapter>>quiz >>content	Yes	Object	NA	Contains details about file to be played as the Quiz Header
26	chapter>>quiz>>content>> menu	Yes	Object	NA	This contains detail about the file to be played before the quiz
27	chapters>>chapter >>quiz>>content >>menu >>id	Yes	String	NA	This is a id for the quiz header to be played. The format is ”Chapter<ChapterId> _QuizHeader>”, where chapterId varies from 01 to 11.
28	chapters>>chapter>>quiz >>content>>menu >>file	Yes	String	NA	Specifies the name of audio file to be played at the start of the quiz
29	chapters>>chapter>>quiz >>questions	Yes	Array<Question>	NA	Contains list of questions to be played after user has listened to all four lessons in a chapter. The list will contain four elements, one for each question.
30	chapters>> chapter>>quiz>>questions >>question	Yes	Object	NA	This contains details about a particular question of the quiz.
31	chapters>> chapter>>quiz> >questions>>question>>name	Yes	String	NA	Specifies the name of question associated to a particular chapter in the format ”Question<QuestionId>”, where QuestionId varies from 01 to 04.

32	chapters>> chapter>>quiz >>questions >>question>>id	Yes	String	NA	Specifies the id of question associated to a particular chapter in the Format ”Chapter<ChapterId> _Question<QuestionId>”, where chapterId varies from 01 to 11 & QuestionId varies from 01 to 04.
33	chapters>> chapter>>quiz >>questions >>question >>correctAnswerOption	Yes	Integer	NA	It specifies the DTMF input for correct answer to the given question.
34	chapters>>chapter>>quiz >>questions>>question >>content	Yes	Object	NA	This contains details about various files to be played during the question.
35	chapters>>chapter>>quiz >>questions>>question >>content>>question	Yes	String	NA	Specifies the name of audio file to be played for the question.
36	chapters>>chapter>>quiz >>questions>>question >>content>>correctAnswer	Yes	String	NA	Specifies the name of audio file to be played if user has provided correct DTMF input in answer to above question.
37	chapters>>chapter>>quiz>> questions>>question >>content>>wrongAnswer	Yes	String	NA	Specifies the name of audio file to be played if user has not provided correct DTML input in answer to the above question.

2.2.3 Get WA Course Version API

IVR shall invoke this API to get the WA course structure version.

2.2.3.1 Get WA Course Request

URL: http://<motech:port>/motech-platform-server/module/apiacadem/washacademyy/courseVersion

Method: GET

2.2.3.1.1 Validations

None

2.2.3.1.2 HTTP timeout

HTTP Timeout Category	Description
Online	Refer 2.5

2.2.3.1.3 Query Parameters

None

2.2.3.1.4 Headers

Header Name	Header Value	Mandatory	Description
Accept	application/json	Yes	It specifies the format of the content accepted by the API invoker.

2.2.3.2 Get WA Course Response

Response Status	Body Example	HTTP Status Code	Content Type	Description

Successful	{
	"courseVersion": 1422951856
	}
		200	application /json	

Filure	"failureReason": "<Description of the failure reason>"}	500	application /json	In case of internal motech error "Internal Error" shall be returned in the failure reason

2.2.3.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	courseVersion	Yes	Integer	NA	Last modification date of MA course in epoch format. It will serve as unique version for the course.
2	failureReason	No	String		Reason for the request failure

2.2.4 Get Bookmark with Score API

IVR shall invoke this API to get bookmark details of the user along with scores of chapters already completed.

2.2.4.1 Get Bookmark with Score Request

URL: http://<motech:port>/motech-platform-server/module/api/mobileacademy/bookmarkWithScore?callingNumber=9999999900&callId=12345678901234567890123 45

Method: GET

2.2.4.1.1 Validations

Motech shall return appropriate http error code in following case

- callingNumber, callId are not present as query parameters.
- callingNumber does not contain 10 digits.

2.2.4.1.2 HTTP timeout

HTTP Timeout Category	Description
Online	Refer 2.5

2.2.4.1.3 Query Parameters

#	Parameter Name	Mandatory	Data type	Range	Description
1	Calling number	Yes	Number (10 digits)	NA	10-digit mobile number of the caller
2	callid	Yes	String (25 characters)	NA	Unique called assigned by IVR

2.2.4.1.4 Headers

Header Name	Header Value	Mandatory	Description
Accept	application/json	Yes	It specifies the format of the content accepted by the API invoker.

2.2.4.2 Get Bookmark with Score Response

Response Status	Body Example	HTTP Status Code	Content Type	Description

Successful	{
	"bookmark": "Chapter01_Lesson01",
	"scoresByChapter": {
	"1": 2,
	"2": 1,
	"3": 0
	}
	}
		200	application /json	

Failure	"failureReason": "<Description of the failure reason>"}	400	application /json	In case parameter value is invalid "<Parameter Name : Invalid Value>" shall be returned in failure reason
		400	application /json	In case mandatory parameter is missing "<Parameter Name: Not Present>" shall be returned in failure reason
		500	application /json	In case of internal motech error "Internal Error" shall be returned in the failure reason

2.2.4.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	Bookmark	No	String	NA	Id of the node in course tree to be bookmarked. The values will be same as those captured in different node Ids in section 2.2.2.2.1. If no bookmark is available with Motech then it will not be sent in response.
2	scoresByChapter	No	Chapter		ChapterNumber as key (String) and its score as value (Integer). If scores data is not available with Motech then it will not be sent in response.

3	failureReason	No	String		Reason for the request failure

2.2.5 Save Bookmark with Score API

IVR shall invoke this API to save bookmark details of the user along with scores of chapters already completed.

2.2.5.1 Save Bookmark with Score Request

URL: http://<motech:port>/motech-platform-server/module/api/washacademy/bookmarkWithScore

Method: POST

2.2.5.1.1 Validations

MoTech shall validate the format of all the request parameters and reject the request if it is not correct.

2.2.5.1.2 HTTP timeout

HTTP Timeout Category	Description
Online	Refer 2.5

2.2.5.1.3 Query Parameters

None

2.2.5.1.4 Headers

Header Name	Header Value	Mandatory	Description
Content-type	application/json	Yes	It specifies the format of the content in the request.
Accept	application/json	Yes	It specifies the format of the content accepted by the API invoker.

2.2.5.1.5 Body Example

```
{
        "callingNumber": 9999988888,
        "callId": “12345678901234567890123456”,
        "bookmark": "Chapter01_Lesson01",
        "scoresByChapter": {
                "1": 2,
                "2": 1,
                "3": 0
        }
}
```

2.2.5.1.6 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	callingNumber	Yes	Number (10 digits)	NA	10-digit mobile number of the caller (excluding Country Code as 91)
2	callId	Yes	String (25 digits)	NA	Unique call id for the call.

3	Bookmark	No	String	NA	Id of the node in course tree to be bookmarked. The values will be same as those captured in different node Ids in section 2.2.2.2.1. If no bookmark is available with Motech then it will not be sent in response. On completion of course, bookmark will be set to "COURSE_COMPLETED". If bookmark is not received in request then existing bookmark data will not be modified in Motech.
4	scoresByChapter	No	Object		ChapterNumber as key (String) and its score as value (Integer). If this field is not received in request then existing bookmark data will not be modified in Motech.

2.2.5.2 Save Bookmark with Score Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful		200	application /json	
Failure	"failureReason": "<Description of the failure reason>"}	400	application /json	In case parameter value is invalid "<Parameter Name : Invalid Value>" shall be returned in failure reason
		400	application /json	In case mandatory parameter is missing "<Parameter Name: Not Present>" shall be returned in failure reason
		500	application /json	In case of internal motech error "Internal Error" shall be returned in the failure reason

2.2.5.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	failureReason	No	String		Reason for the request failure

2.2.6 Save Call Details API

IVR shall invoke this API to save bookmark details of the user along with scores of chapters already completed.

2.2.6.1 Save Call Details Request

URL: http://<motech:port>/motech-platform-server/module/api/washacademy/callDetails

Method: POST

2.2.6.1.1 Validations

MoTech shall validate the format of all the request parameters and reject the request if it is not correct.

2.2.6.1.2 HTTP timeout

HTTP Timeout Category	Description
Online	Refer 2.5

2.2.6.1.3 Query Parameters

None

2.2.6.1.4 Headers

Header Name	Header Value	Mandatory	Description
Content-type	application/json	Yes	It specifies the format of the content in the request.
Accept	application/json	Yes	It specifies the format of the content accepted by the API invoker.

2.2.6.1.5 Body Example


```
{
        "callingNumber": 9999988888,
        "operator": "A",
        "circle": "AP",
        "callId": "12345678901234567890123456",
        "callStartTime": 1422879903,
        "callEndTime": 1422879923,
        "callDurationInPulses": 20,
        "endOfUsagePromptCounter": 0,
        "callStatus":1,
        "callDisconnectReason": 1,
        "content": [
                {
                        "type": "lesson",
                        "contentName": "Chapter-01lesson-04",
                        "contentFileName": "ch1_l4.wav",
                        "startTime": 1200000000,
                        "endTime": 1222222221,
                        "completionFlag": true
                },
                {
                        "type": "question",
                        "contentName": "chapter-01question-01",
                        "contentFileName ": "ch1_q1.wav",
                        "startTime": 1222222222,
                        "endTime": 1233333332,
                        "completionFlag": true
                        “correctAnswerEntered”: true
                },
                {
                        "type": "chapter",
                        "contentName": "NA",
                        "contentFileName ": "NA",
```

```
                    "startTime": 1233333333,
                    "endTime": 1234599999,
                    "completionFlag": false
                }
                //...
        ]
}
```


2.2.6.1.6 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	callingNumber	Yes	Number (10 digits)	NA	10-digit mobile number of the caller (excluding Country Code as 91)
2	callId	Yes	String (25 digits)	NA	Unique call id for the call.
3	Operator	No	String (max 255 characters)	Refer 5.4	Operator of caller
4	Circle	No	String (max 255 characters)	Refer 2.4.5	Circle from where call is originating
5	callStartTime	Yes	Integer		Time at which call has started as an epoch timestamp.
6	callEndTime	Yes	Integer		Time at which call has ended as an epoch timestamp.
7	callDurationInPulses	Yes	Integer		Number of pulses consumed by user in WA service
8	endOfUsagePromptCounter	Yes	Integer		Indicates no. of time end of usage prompt has been played for the user.
9	callStatus	Yes	Integer	Refer 2.4.4	Status of call
10	callDisconnectReason	Yes	Integer	Refer 2.4.3	
11	content	No	Array<contentDetails>	NA	Actual call records
12	<callData>		Object	NA	
13	callData>> type	Yes	String	""lesson"", ""chapter"", ""question""	Type of content to which the record refers
14	callData>> contentName	Yes	String	NA	Actual name of the content being played.
15	callData>> contentFileName	Yes	String	NA	Audio file name of the content played
16	callData>> startTime	Yes	Integer	NA	Time at which referred content was started to be played to user, as timestamp in epoch format
17	callData>> endTime	Yes	Integer	NA	Time at which referred content had stopped playing, as timestamp in epoch format

18	callData>> completionFlag	Yes	Boolean	true – completed false – Not completed	Specifies if the related audio file has been completely listened to. In case of chapter, it signifies if the chapter has completed or not.
19	callData>>correctAnswerEntered	No	Boolean	True – question answered correctly by user False – question not answered correctly by the user	The field is relevant only if content type is 'question' and completionFlag is 'true' for the question. It specifies whether the user has answered the question correctly or not. If the user has not attempted the question then IVR need not send this field.

2.2.6.2 Save Call Details Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful		200	application /json	
Failure	"failureReason": "<Description of the failure reason>"}	400	application /json	In case parameter value is invalid "<Parameter Name : Invalid Value>" shall be returned in failure reason
		400	application /json	In case mandatory parameter is missing "<Parameter Name: Not Present>" shall be returned in failure reason
		500	application /json	In case of internal motech error "Internal Error" shall be returned in the failure reason

2.2.6.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	failureReason	No	String		Reason for the request failure

2.2.7 Set User Language Location Code API

IVR shall invoke this API to provider user language location preference to Motech.

2.2.7.1 Save Call Details Request

URL: http://<motech:port>/motech-platform-server/module/api/washacademy/languageLocationCode

Method: POST

2.2.7.1.1 Validations

Motech shall validate the format of all the request parameters and reject the request if it is not correct.

2.2.7.1.2 HTTP timeout

HTTP Timeout Category	Description
Online	Refer 2.5

2.2.7.1.3 Query Parameters

None

2.2.7.1.4 Headers

Header Name	Header Value	Mandatory	Description
Content-type	application/json	Yes	It specifies the format of the content in the request.
Accept	application/json	Yes	It specifies the format of the content accepted by the API invoker.

2.2.7.1.5 Body Example

```
{
        "callingNumber": 9999988888,
        "callId": “12345678901234567890123456”,
        "languageLocationCode": “10”
}
```

2.2.7.1.6 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	callingNumber	Yes	Number (10 digits)	NA	10-digit mobile number of the caller (excluding Country Code as 91)
2	callId	Yes	String (25 digits)	NA	Unique call id for the call.
3	languageLocationCode	Yes	String		Language location preference provided by caller

2.2.7.2 Save User Language Location Code Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful		200	application/json	
Failure	"failureReason": "<Description of the failure reason>"}	400	application/json	In case parameter value is invalid "<Parameter Name : Invalid Value>" shall be returned in failure reason
		400	application/json	In case mandatory parameter is missing "<Parameter Name: Not Present>" shall be returned in failure reason
		500	application/json	In case of internal motech error "Internal Error" shall be returned in the failure reason
		403	application	In case whitelisting is enabled

			/json	and user's MSISDN is not whitelisted.
		501	application /json	In case call is received from state where service is not deployed
		404	application /json	In case a required parameter is not found in the database, <Parameter_Not_Found> exception will be thrown.

2.2.7.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	failureReason	No	String		Reason for the request failure

2.2.8 Delivery Notification API

IVR shall invoke this API to provider user language location preference to Motech.

2.2.8.1 Delivery Notification Request

URL: http://<motech:port>/motech-platform-server/module/api/washacademy/sms/status/imi

Method: POST

2.2.8.1.1 Validations

None

2.2.8.1.2 HTTP timeout

HTTP Timeout Category	Description
Online	Refer 2.5

2.2.8.1.3 Query Parameters

None

2.2.8.1.4 Headers

Header Name	Header Value	Mandatory	Description
Content-type	application/json	Yes	It specifies the format of the content in the request.
Accept	application/json	Yes	It specifies the format of the content accepted by the API invoker.

2.2.8.1.5 Body Example

```
{
        "requestData": {
                "deliveryInfoNotification": {
                        "clientCorrelator": "xxxx",
                        "callbackData": "12345",
                        "deliveryInfo": {
                                "address": "tel: +1350000001",
                                "deliveryStatus": "DeliveredToNetwork"
```

```
                    }
                }
            }
}
```

2.2.8.1.6 Body Elements

Important elements that are to be tracked by Motech are explained below.

#	Element Name	Mandatory	Data type	Range	Details
1	clientCorrelator	Yes	String		Unique ID sent by the third part API in send SMS request API.
2	callBackData	No	String	NA	NA for WA
3	address	Yes	String	NA	Address in SMS API.
4	deliverStatus	Yes	String		Whether SMS has been delivered or not.

2.2.8.2 Save User Language Location Code Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful		200	application /json	
Failure	"failureReason": "<Description of the failure reason>"}	400	application /json	In case parameter value is invalid "<Parameter Name : Invalid Value>" shall be returned in failure reason
		400	application /json	In case mandatory parameter is missing "<Parameter Name: Not Present>" shall be returned in failure reason
		500	application /json	In case of internal motech error "Internal Error" shall be returned in the failure reason

2.2.8.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	failureReason	No	String		Reason for the request failure

2.3 APIs exposed by IVR to be called by Motech

2.3.1 Send SMS API

The application invokes the sendSms operation to send an SMS message, specified by the String message. If message is cannot be sent in single Short message, the message content will be sent as several concatenated short messages.

SMS Messages will be sent as UnicodeSMS, if message contains characters not in the GSM 7-bit character set.

2.3.1.1 Send SMS API Request

URL: http://<domain_name>/smsmessaging/v1/outbound/{senderAddress}/requests

Method: Post

2.3.1.1.1 Validations

In case any mandatory parameters are missing, error response is sent as described in API response section.

2.3.1.1.2 Http timeout

HTTP Timeout Category	Description
Offline	Refer 2.5

2.3.1.1.3 Headers

Header Name	Header Value	Mandatory	Description
Content-type	application/json	Yes	It specifies the format of the content in the request.
Accept	application/json	Yes	It specifies the format of the content accepted by the API invoker.

2.3.1.1.4 Body Example

```
{
        "outboundSMSMessageRequest": {
                "address": [
                        "tel: 9703553010",
                        "tel: 9030622480"
                ],
                "senderAddress": "tel: opnhse",
                "outboundSMSTextMessage": {
                        "message": "testmessage"
                },
                "clientCorrelator": "xxxxxx",
                "receiptRequest": {
                        "notifyURL": "",
                        "callbackData": "$(callbackData)"
                },
                "senderName": "",
                "category": ""
        }
}
```

2.3.1.1.5 Body Elements

#	Parameter Name	Mandatory	Data type	Range	Description

1	Address	Yes	String	NA	The SMS recipient's MSISDN number to which the message is to be sent. At least one address must be provided. Ex: The recipients MSISDN should include the 'tel:' protocol identifier and the country code preceded by '+'. i.e., tel:+919876543210
2	senderAddress	Yes	String	NA	Sender ID of the message
3	Message	Yes	String	NA	The text message sent to the recipient (subscriber). The message must be provided within the outboundSMSTextMessage element. Messages more than 160 character length may be sent as two or more messages by the operator.
4	clientCorrelator	Yes	String	NA	Unique identifier used by the application's request. For example, it could be a 'Transaction ID (TID)', which uniquely identifies the 'Send SMS Request' transaction. If there is a communication failure while forwarding the request, the clientCorrelator allows the application to avoid sending the same message twice during 'retry' operation.
5	messageType	Yes	Numeric	0: text 2:Binary 3: WAP 4:Unicode 7:Picture message	Specifies the type of message. For English text messages, the value should be 0.
6	notifyURL	No	URI	NA	The URL called by the gateway to which the SMS delivery notification is to be sent. If you would prefer to get the notifications, the notifyURL parameter should be sent within the receiptRequest element.
7	callbackData	No	String	NA	NA to WA
8	senderName	No	String	NA	NA to WA
9	category	No	String	NA	NA to WA

2.3.1.2 Send SMS API Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful	{ "outboundSMSMessageRequest":{ "deliveryInfoList":{ "deliveryInfo":{	201	application /json	Possible values of deliveryStatus is Submitted (As DND is disabled for this requirement)

	"address":"9703553010",
	
	"deliveryStatus":"
	Submitted"
	},
	
	"resourceURL":"http://<ip:
	port>/smsmessaging/1/outbound/{
	senderAddress}/requests/urn:uuid:
	bdbd04e7--eb05--421f--abb9-
	-3d731c861353/deliveryInfos"
	},
	
	"senderAddress":"opnhse",
	
	"outboundSMSTextMessag
	e":
	{
	
	"message":"test message"
	},
	"clientCorrelator":
	"xxxxx",
	"receiptRequest":{
	
	"notifyURL": "",
	
	"callbackData":"$(callbackD
	ata)"
	},
	"senderName":"",
	}
	}			

Failure	{
	"requestError":{
	"policyException":{
	"messageId": "SVC0001",
	"code": 10001,
	"text": "An unclassified
	service exception"
	}
	}
	}
		400	application
			/json
				For possible error
				codes, please refer
				table in section
				2.4.1

2.3.1.2.1 Body Elements

Important body elements are explained below.

#	Parameter Name	Mandatory	Data type	Range	Description

1	**deliveryStatus**	No	String	NA	Specifies the status of the SMS API request. Possible values are: 1. Submitted 2. DND (As DND check is disabled for this requirement, this status will never be returned)
2	resourceURL	No			The resource URL specifies the URL is generated by the SMS Gateway for the particular request. This URL can be used to get the status of the SMS request.
3	requestError	No	JSON String		Returned if there is any service exception in executing the SMS API. • The **messageId** specifies the type of error. In this case the error type could only be SVC0001. • The error code under **code** specifies the exact error code. • **text** specifies the description of the error code.

2.4 Constants

2.4.1 Send SMS – Error codes

Error Type	Error Code
An unclassified service exception	10001
Invalid URL pattern	10002
Sender address is required	10007
Invalid Sender Address	10008
Address is required	10009
Invalid Address	10010
Message Required	10011
Invalid Message	10012
User information not found	10015
Message length exceeded	10018

2.4.2 SMS Deliver Status

Delivery Status	Description
DeliveredToTerminal	Successful delivery to Terminal.
DeliveredUncertain	Delivery status unknown: e.g. because it was handed off to another network.
DeliveryImpossible	Unsuccessful delivery; the message could not be delivered before it expired.
DeliveryToNetwork	Successful delivery to the network enabler responsible for routing the SMS

2.4.3 Call Disconnect Reason

Disconnect Reason	Value
Normal Drop	1
VXML Runtime Exception	2
Content Not Found	3

Usage Can Exceeded	4
Error in the API	5
System Error	6

2.4.4 Call Status

Status	Value
Success	1
Failed	2
Rejected	3

2.4.5 Circle Codes

Circle name	Code	Geographic area(s) covered
Andhra Pradesh	AP	State of Andhra Pradesh, State of Telangana and Yanam district
Assam	AS	State of Assam
Bihar	BR	State of Bihar and State of Jharkhand
Delhi	DL	Delhi, Faridabad, Ghaziabad, Gurgaon and Noida
Gujarat	GJ	State of Gujarat, Daman and Diu, Dadra and Nagar Haveli
Himachal Pradesh	HP	State of Himachal Pradesh
Haryana	HR	State of Haryana (excluding Faridabad, Gurgaon and Panchkula).
Jammu and Kashmir	JK	State of Jammu and Kashmir
Kerala	KL	State of Kerala, Lakshadweep and Mahé district
Karnataka	KA	State of Karnataka
Kolkata	KO	Kolkata (includes parts of Howrah, Hooghly, North and South 24 Parganas and Nadia Districts)
Maharashtra & Goa	MH	State of Maharashtra (excluding Mumbai, Navi Mumbai and Kalyan), and State of Goa
Madhya Pradesh	MP	State of Madhya Pradesh and State of Chhattisgarh
Mumbai	MU	Mumbai, Navi Mumbai and Kalyan
North East	NE	State of Arunachal Pradesh, State of Meghalaya, State of Mizoram, State of Nagaland, State of Manipur and State of Tripura
Orissa	OR	State of Odisha
Punjab	PB	State of Punjab, Chandigarh and Panchkula
Rajasthan	RJ	State of Rajasthan
Tamil Nadu	TN	State of Tamil Nadu, Puducherry district and Karaikal district
UP (East)	UE	Eastern Uttar Pradesh
UP (West)	UW	Western Uttar Pradesh (excludes Ghaziabad and Noida) and State of Uttarakhand

West Bengal	WB	State of West Bengal (excluding Kolkata), Andaman and Nicobar Islands and State of Sikkim

2.4.6 Operator Codes

Network Operators

AC	Aircel
AT	Airtel India
CC	BSNL Mobile - CDMA
CG	BSNL Mobile - GSM
DP	DOLPHIN
ID	Idea
LM	*Loop Mobile (acquired by Airtel India)*
MT	MTS India
PG	*PING CDMA*
RC	Reliance Mobile - CDMA
RG	Reliance Mobile - GSM
RJ	Reliance Jio
SR	*Subrin Rintel*
TD	Tata DoCoMo
TN	Telenor India
VF	Vodafone India
VD	Videocon (Spectrum acquired by Airtel India)

2.5 HTTP Timeout Categories

The table below describes the handling of HTTP Timeouts for different categories:

Category	Description	Handling
Online	APIs invoked during the call where response of is required in near real time. Call is dropped in case of request timeout.	HTTP Timeout is configurable parameter. Number of retries is 0.

Offline	APIs invoked after the end of call. Retries are performed in case of request timeout.	Exponential Back-off mechanism is used to calculate the retry timeout with following configurable parameters: • InitialIntervalMillis: Timeout interval for the first retry. • MaxRetryAttempts: Maximum number of retry attempts. • Multiplier: Value to be multiplied with previous retry timeout. Example • InitialIntervalMillis: 5 Minutes. • MaxRetryAttempts : 3 • Multiplier : 2 This will result in the following retry timeouts: • First retry in 5 mins • Second retry in 10 mins • Third retry in 20 mins