National MOTECH System (NMS)

MOTECH-IVR System Interface Specifications

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1 Introduction & Overview

1.1 Overview

National MOTECH System (**NMS**) is a system that shall deliver three maternal and child health IVR services, namely Mobile Kunji, Mobile Academy and Kilkari; at a pan India level via a Toll Free, centralized long-code.

- **Mobile Academy** service is an inbound IVR mobile training course on reproductive, maternal, newborn and child health (RMNCH) for Front Line Workers (FLWs), designed to expand their knowledge of life-saving preventative health and enhance their capacity to communicate and engage effectively with families. FLWs can access the course from any phone by dialing a toll free long code, and complete it at their convenience.
- **Mobile Kunji** service includes an IVR based mobile service and a printed deck of illustrated cards on a ring, which together communicate essential audio-visual information on pregnancy and newborn health. Each card carries a unique long code and a card number printed on it. User has to dial the long code and enter the card number to access the specific audio content. Mobile Kunji is designed for use during counseling sessions with families and seeks to build support for healthy practices within families and communities.
- **Kilkari** service is an IVR subscription service that delivers time-sensitive audio information about maternal and child health to the mobile phones of husbands, their pregnant wives, and mothers of young children for upto 72 weeks, linked to the woman's stage of pregnancy or and child's age. The service covers the critical time period – where the most deaths occur - from the 2nd trimester of pregnancy until the child is one year old.

IVR services shall be powered by an open-source platform called **MOTECH** (**Mobile Technology for Community Health**). The MOTECH platform has been developed by the Grameen Foundation, a not-for-profit organization headquartered in the United States. The MOTECH platform combines the integration capabilities of an Enterprise Service Bus (ESB) with a flexible open source application development framework.

1.2 Objective of this document

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

1.3 Key Assumptions

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

1.4 Open Issues

#	Issue	Owner	Status	Remarks
1.	The VXML files retrieved by the IVR can be cached for some duration so that the same	IMI Team	Closed	VXML files are static files. IVR platform shall

	need not be requested again on every call.			cache the same. 22.01.15: motech shall not host the vxml files. The vxml files shall reside on ivr system.
2.	The static course structure retrieved by IVR from NMS_MoTech_MA can be cached for some specific duration at IVR. (It is possible to maintain course version and in call IMI can get course version and if it is different it can fetch the complete course) IMI team suggests to retrieve the course structure chapter wise.	IMI Team	Closed	Course structure to be retrieved by DVP at start up time. For course version in each call API to be called by DVP. 22.01.2015: motech shall provide a get course version api. During the call, ivr system shall check course version and if it does not match with the version existing on ivr then it shall fetch the course structure
3.	Once an anonymous user calls in, her details are entered into the system. Will she be known as 'active user' during next call or will continue to be anonymous?	BBC	Closed	Shall be covered in Requirement doc. No impact on this document.
4.	The MA/MK course is played to the user depending upon her usage availability. Given the maximum allowed usage and the usage consumed, can IVR take decision on whether to play the course?	IMI Team	Closed	IVR System shall take the decision to allow call or not based on maximum usage and usage consumed
5	If MoTech does not have information about language preference of the user, can IVR prompt user to enter Language_Location code?	BBC	Closed	User Testing results awaited 22.01: as per user testing results 2 digit location language code shall be entered by user in such a case
6	Data types of callId to be decided	Aricent/IMI team	Closed	Call ID is 15 digits number
7	Is language_location code required in response to the Get User API?	Aricent/IMI team	Closed	Depends on item 5 22.01: yes
8	Is state required in response to the Get User API?	Aricent/IMI team	Closed	22.01: state information is not returned
9	Is language required in response to the Get User API?	Aricent/IMI team	Closed	22.01: Language is not required. Language location code is enough
10	Do we need registration status in get User API?	Aricent/IMI team	Closed	22.01: not required
11	Is it required to validate circle of caller in MOTECH?	BBC	Closed	22.01: not needed

12	Is retry logic needed for SMS	BBC	Closed	19.01: Prakhar clarified that retry for SMS is not needed 22.01: retry is required. Shall be updated in requirement
13	callStartTime and callEndTimeformat to be discussed with IVR	Aricent/IMI team	Closed	Epoch time format shall be used
14	Is it needed to send the call details at the end of incoming calls for subscription creation and deactivation? However call details in these cases are not needed for the reporting.	Aricent	Closed	22.01: Not needed
15	There is a field called callStatus in Inbox access reports. The values for this field are not clear.	BBC	Closed	callStatus is kept in callDetail API, but is not needed in Kilkari Inbox Access Report.
16	What shall be the format of subscriptionId?	Aricent	Closed	Subscription id will be UUID which will be sent over interface as 36 chars, e.g. **de305d54-75b4-431b-adb2-eb6b9e546013**
17	Format of send SMS message need to be agreed with IVR	Aricent/IMI team	Closed	JSON API. Updated in this document.
18	Outbound call option need to be finalized	Aricent/GF/ IMI team	Closed	Document sent by IMI.
19	Content table format to be finalized	IMI team	Closed	Updated table is included in the document
20	Operator codes to be provided	IMI team	Closed	Updated table is included in the document
21	callDisconnectReason to be provided by IMI team	IMI team	closed	Updated.
22	If course version changes, will there be an impact on an existing user's flow who has already completed a few chapters? Should the book marks be ignored and start from chapter 1? Or should we continue as per the bookmarks?	BBC	Closed	All the bookmarks shall be reset for all users whenever the version is changed.
23	FTP Server – will ftp server be provided by Aricent?	Aricent/ IMI	Closed	It is decided to use SCP instead of FTP
24	FileCopyStatus Notification API & CDR File Upload API URLs to be shared by Aricent	Aricent	Closed	Updated
25	Do we need multiple FTP accounts? In such case Server ID needs to be passed in the APIs. If only one FTP account is used, we can ignore that parameter	Aricent	Closed	ServerId parameter is now removed. Instead IVR platform shall store the location (path) to copy the files in its configuration. And SCP shall be used instead of FTP
26	Frequency of retries for HTTP timeout to be agreed	Aricent/BBC/IMI	Closed	To be discussed and agreed in the meeting. 30-Jan: 3 retries

				1. First try – After 5 minutes 2. Second retry – after 10 minutes 3. Third retry – after 20 minutes
27	Process for Alarms/Emails to be sent in case of failure needs to be agreed	BBC	Open	Action on Sanchit to check whether email server shall be available in data center or not
28	Checksum algorithm to be used	IMI/Aricent	Closed	MD5 shall be used

1.5 Action Points

#	Issue	Owner	Status	Remarks
1.				

1.6 Pending Items

#	Item	Owner	Status	Remarks
1.	OBD part need to be merged with this document.	IMI/Aricent	closed	
2	Content table need to be filled up. This will require mapping of languageLocationCode, content name, content file and content duration for MA, MK and Kilkari. Additionally card number for MK is also needed in mapping.	BBC/IMI	Pending	
3	Language Location codes mapping to circle, state and district is to be provided	BBC	Pending	
4	URL for SMS notification need to be provided by GF	GF	Pending	

1.7 Revisions

#	Version	Date	Functional Area	Owner	Notes
1.	0.1	24/12/2014	Kilkari	Manish	This is template version with sample API for Kilkari Subscription
2	0.2	08/01/2015	MA/MK/Kilkari	Aricent Team	Added the scenarios for MA/MK and Kilkari services
3	0.3	16/01/2015	MA/MK/Kilkari	Aricent Team	Incorporated the review comments received in workshop
4	0.4	17/01/2015	MA/MK/Kilkari	Aricent Team	Merged the inputs received from IMI team for SMS sending and Outbound calls
5	0.5	19/01/2015	MA/MK/Kilkari	Aricent Team	Added open issues
6	0.6 - .19	22/01/2015	MA/MK/Kilkari	Aricent Team	Updated with comments received in workshop on 22.01.2015.
7	0.20	27/01/2015	MA/MK/Kilkari	Aricent Team	Updates from IMI
8	0.21	29/01/2015	MA/MK/Kilkari	Aricent Team	Incorporated review comments of

					Rob, Ravi and Koshal
9	0.22	30/11/2015	MA/MK/Kilkari	Aricent Team/IMI team	Updated the document with comments during workshop OBD document merged with this document.
10	0.23	02/02/2015	MA/MK/Kilkari	Aricent Team/IMI team	Updated with review comments from Rob
11	1.0	03/02/2015	MA/MK/Kilkari	Aricent Team/IMI team	Track changes accepted and 1.0 version created
12	1.1	11/02/2015	MA	Aricent Team	Updated course structure, version and bookmark APIs

2 MA Service

2.1 Use cases

This section details the use cases/scenarios for interaction between IVR system and Mobile Academy service (NMS_MoTech_MA).

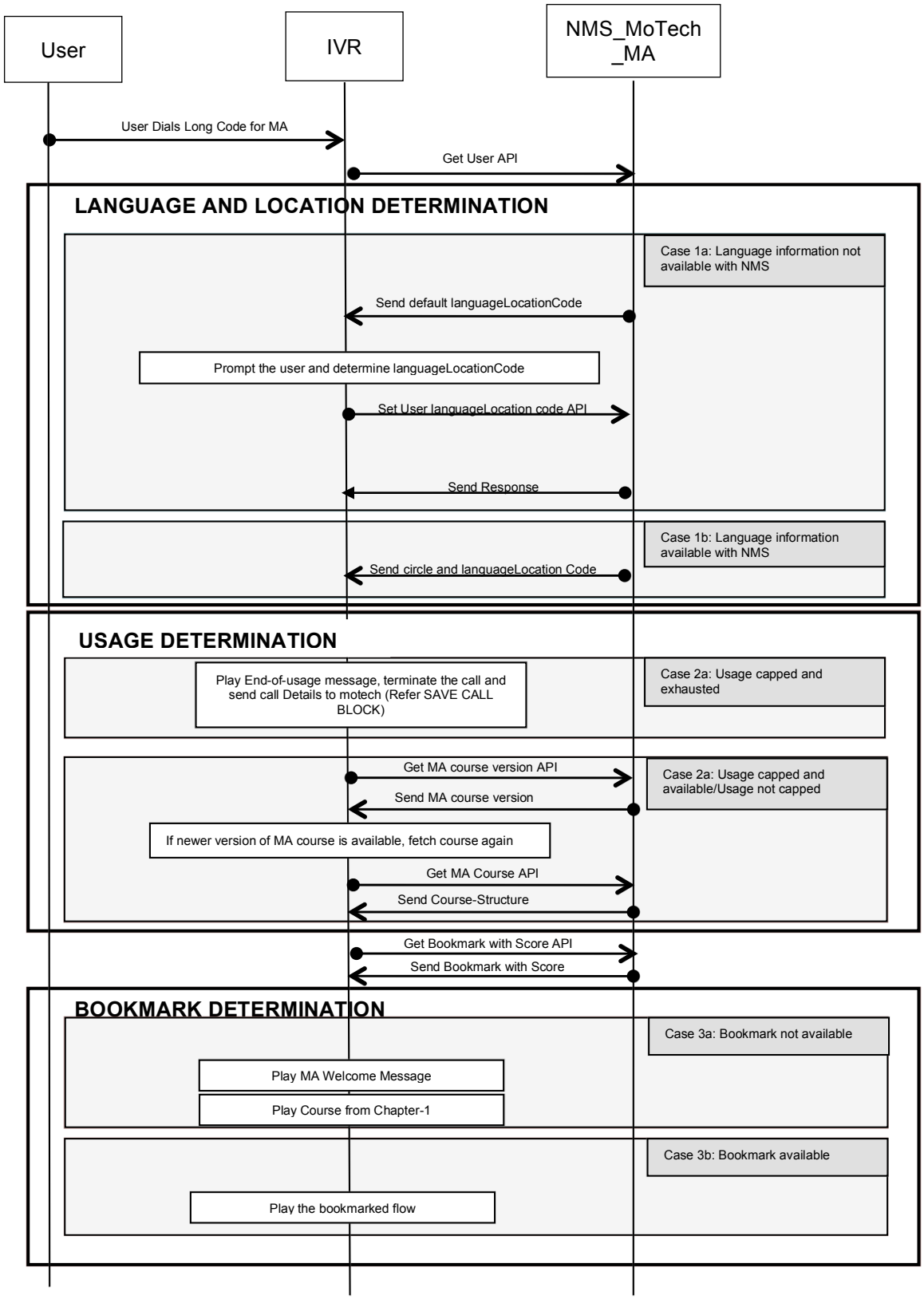
2.1.1 FLW/Anonymous User Calls MA

When a user calls MA, based on the B-party number (long-code or toll free number received from the network) IVR Platform shall identify the service as MA service and will answer the call. The figure below shows the interaction scenario between IVR System and Motech MA service.

IVR shall process the VXML for MA call flow available with it and shall proceed with the call as detailed below.
Scenario is as follows:

- User dials the MA 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 defiled in the VXML for MA.

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


User
IVR
NMS_MoTech _MA
User Dials Long Code for MA
Get User API
LANGUAGE AND LOCATION DETERMINATION
Case 1a: Language information not available with NMS
Send default languageLocationCode
Prompt the user and determine languageLocationCode
Set User languageLocation code API
Send Response
Case 1b: Language information available with NMS
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 MA course version API
Send MA course version
Case 2a: Usage capped and available/Usage not capped
If newer version of MA course is available, fetch course again
Get MA Course API
Send Course-Structure
Get Bookmark with Score API
Send Bookmark with Score
BOOKMARK DETERMINATION
Case 3a: Bookmark not available
Play MA Welcome Message
Play Course from Chapter-1
Case 3b: Bookmark available
Play the bookmarked flow

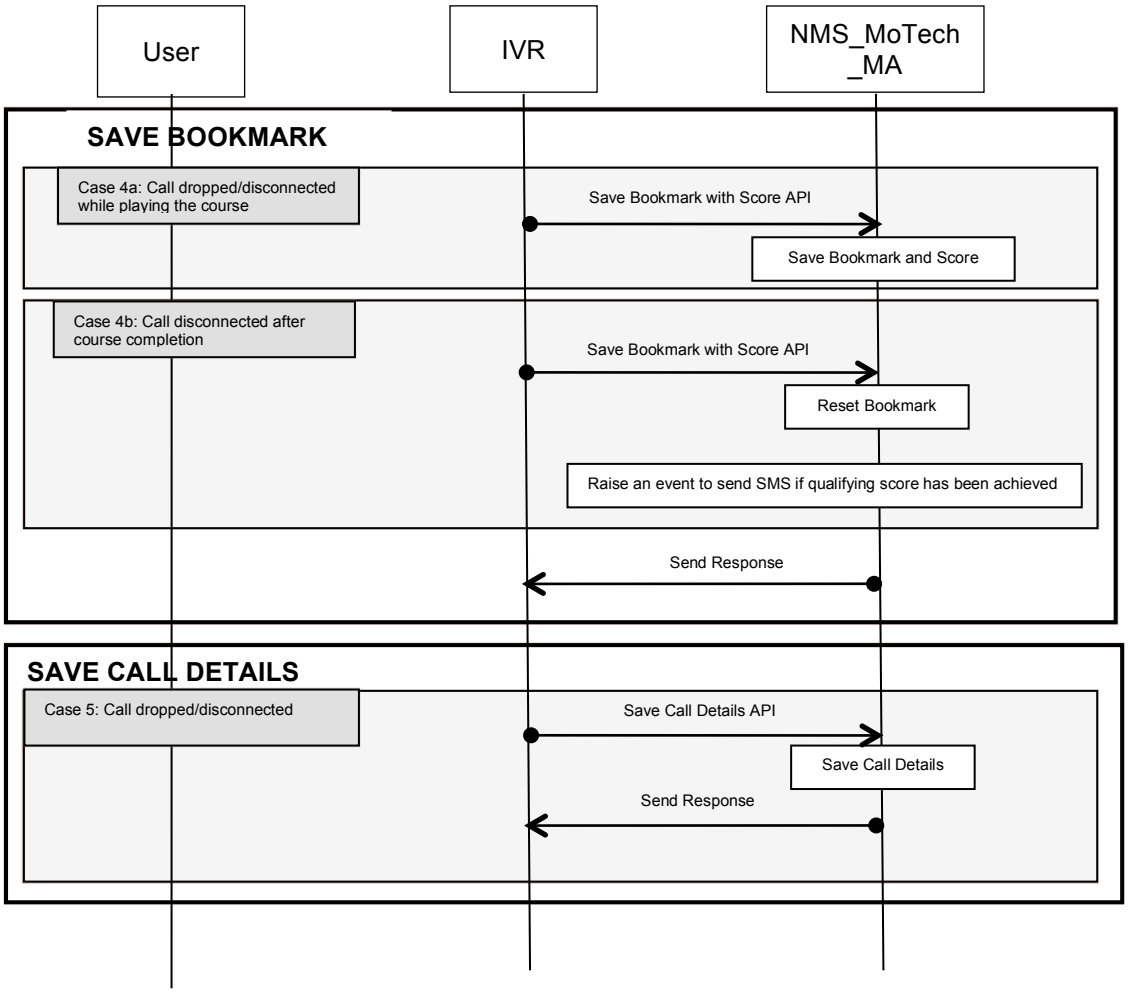


Figure 1: MA Call Flow

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 NMS 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 MA Course Version" API on MoTech to get the version of MA course structure.
If a newer version of course is available or course structure is not available with IVR, it shall invoke "Get MA 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 MA 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 MA course completely and shall disconnect the call herself after listening to her 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.
- 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, MA 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 IMI for sending a message to end user is discussed in the following section.

2.1.2.1 Submit SMS request

NMS MA 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:

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

NMS MA 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 IMI solution, if a delivery notification url is configured. Notification shall be sent in one of the two following conditions:

1. **'DeliveryImpossible'**: Unsuccessful delivery i.e. message could not be delivered before it expired.
2. **'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 NMS_MoTech_MA (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/mobileacademy/user?callingNumber=9999999900&operator=A&circle=AP&callId=123456789012345

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 time Out

HTTP Timeout Category	Description
Online	Refer 6

2.2.1.1.3 Query Parameters

#	Parameter Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digits)	NA	10-digit mobile number of the caller
2	operator	Yes	String(Max 255 characters)	Refer 5.4	operator of caller
3	circle	Yes	String(Max 255 characters)	Refer 5.3	Circle from where the call is originating.
4	callId	Yes	Number(15 digits)	NA	unique call id 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	{ "circle": "AP", "defaultLanguageLocationCode": 10, "currentUsageInPulses": 0, "maxAllowedUsageInPulses": 3600, "endOfUsagePromptCounter": 0, "maxAllowedEndOfUsagePrompt": 2 }	200	Application/json	

	OR
	
	{
	"circle"": "AP",
	"languageLocationCode": 10,
	"currentUsageInPulses": 200,
	"maxAllowedUsageInPulses": 3600,
	"endOfUsagePromptCounter": 0,
	"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

2.2.1.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	circle	Yes	String (Max 2 chars)	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	Integer	Refer 7.2	Code for uniquely identifying user location and language details. This element

					present if language location code is determined.
3	defaultLanguageLocationCode	No	Integer	Refer 7.2	Default language location code set for circle. This element present if language location code is not determined.
4	currentUsageInPulses	Yes	Integer	NA	No. of pulses consumed for MA service
5	maxAllowedUsageInPulses	Yes	Integer	-1 for uncapped	Indicates maximum allowed usage (in pulses) for a user.
6	endOfUsagePromptCounter	Yes	Integer	NA	Indicates no. of times end of usage message has been played to user.
7	maxAllowedEndOfUsageProm pt	Yes	Integer	NA	Max number of times the End Of Usage prompt shall be played to the user.
8	failureReason	No	String		Reason for the request failure

2.2.2 Get MA Course API

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

2.2.2.1 Get MA Course – Request

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

Method: GET

2.2.2.1.1 Validations

None

2.2.2.1.2 Http time Out

HTTP Timeout Category	Description
Online	Refer 6

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 MA Course – Response

Response Status	Body Example	HTTP Status Code	Content Type	Description

Successful	{
	"name": "MobileAcademyCourse",
	"courseVersion": 1422951856,
	"chapters": [
	{
	"name": "Chapter01",
	"content": {
	"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_LessonEndMenu01",
	"file": "ch1_l1_op.wav"
	}
	}
	},
	{
	"name": "Lesson02",
	"content": {
	"lesson": {
	"id": "Chapter01_Lesson02",
		200	Application/ json	This example demonstrates the example of course where course has one chapter, 4 lessons and 4 questions.

```
                "file": "ch1_l2.wav"
            },
            "menu": {
                "id": "Chapter01_LessonEndMenu02",
                "file": "ch1_l2_op.wav"
            }
        }
    },
    {
        "name": "Lesson03",
        "content": {
            "lesson": {
                "id": "Chapter01_Lesson03",
                "file": "ch1_l3.wav"
            },
            "menu": {
                "id": "Chapter01_LessonEndMenu03",
                "file": "ch1_l3_op.wav"
            }
        }
    },
    {
        "name": "Lesson04",
        "content": {
            "lesson": {
                "id": "Chapter01_Lesson04",
                "file": "ch1_l4.wav"
            },
            "menu": {
                "id": "Chapter01_LessonEndMenu04",
                "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	""Internal Error""

2.2.2.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	name	Yes	String	NA	Name of the MA course.
2	courseVersion	Yes	Integer	NA	Last modification date of MA 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 01 to 11.
6	chapters>>chap	Yes	Object	NA	Contains details about end menu

	ter>>content				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 chapterId varies from 01 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 chapter depending upon the user's score in the quiz.
11	chapters>>chapter>>content>>score>>id	Yes	String	NA	This is a id for the Score files of the chapter in the format "Chapter<ChapterId>_Score", where chapterId varies from 01 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>>chapter>>lessons	Yes	Array<Lesson>	NA	Specifies the list of lessons in a given chapter alongwith 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	Yes	String	NA	This is a id for the Content file of the lesson in the format "Chapter<ChapterId>_Lesson<LessonId>", where ChapterId varies

	>>lesson >>id				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>>lesson >>content >>menu >>id	Yes	String	NA	This is a id for the End menu file of the lesson in the format ”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	chapters>> 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>	Yes	String	NA	Specifies the name of question associated to a particular chapter

	>questions>>question>>name				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 DTMF input in answer to above question.

2.2.3 Get MA Course Version API

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

2.2.3.1 Get MA Course Version – Request

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

Method: GET

2.2.3.1.1 Validations

None

2.2.3.1.2 Http time Out

HTTP Timeout Category	Description
Online	Refer 6

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 MA Course Version – Response

Response Status	Body Example	HTTP Status Code	Content Type	Description

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

Failure	{
	"failureReason" : "<Description of the failure reason>"
	}
		500	Application/json	"Internal Error"

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/mobileacademy/bookmarkWithScore?callingNumber=9999999900&callId=123456789012345

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 time Out

HTTP Timeout Category	Description
Online	Refer 6

2.2.4.1.3 Query Parameters

#	Parameter Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digits)	NA	10-digit mobile number of the caller
2	callId	Yes	Number (15 digits)	NA	15 digit call ID

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

				In case mandatory parameter is missing "<Parameter Name: Not Present>" shall be returned in failure reason
		500		In case of internal motech error "Internal Error" shall be retuned in failure reason

2.2.4.2.1 Body Elements

#	Parameter Name	Mandatory	Data type	Range	Description
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	Object		Chapter Number 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

The IVR shall invoke this API to send bookmark and quiz scores details to MoTech.

2.2.5.1 Save Bookmark with Score – Request

URL: http://<motech:port>/motech-platform-server/module/mobileacademy/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 time Out

HTTP Timeout Category	Description
Offline	Refer 6

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": 123456789012345,
    "bookmark": "Chapter01_Lesson01",
    "scoresByChapter": {
            "1": 2,
            "2": 1,
            "3": 0
    }
}
```

2.2.5.1.6 Body Elements

#	Parameter Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digits)	NA	10-digit mobile number of the caller (including the Country Code as 91)
2	callId	Yes	Number (15 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 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		Chapter Number as key (String) and its score as value (Integer). If this field is not received in request then existing score data in MoTech will not be modified.

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 CallDetails API

IVR shall invoke this API to send MA call details to MoTech.

2.2.6.1 Save CallDetails - Request

URL: http://<motech:port>/motech-platform-server/module/mobileacademy/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 time Out

HTTP Timeout Category	Description
Offline	Refer 6

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": "123456789012345",
   "callStartTime": 1422879903,
   "callEndTime": 1422879923,
   "callDurationInPulses": 20,
   "endOfUsagePromptCounter": 0,
   "callStatus":1,
   "callDisconnectReason": 1,
   "content": [
      {
         "type": "lesson",
         "contentName": "Chapter-01lesson-04",
         "contentFile": "ch1_l4.wav",
         "startTime": 1200000000,
         "endTime": 1222222221,
         "completionFlag": true
      },
      {
         "type": "question",
         "contentName": "chapter-01question-01",
         "contentFile": "ch1_q1.wav",
         "startTime": 1222222222,
         "endTime": 1233333332,
         "completionFlag": true
      },
      {
         "type": "chapter",
         "contentName": "NA",
         "contentFile": "NA",
         "startTime": 1233333333,
         "endTime": 1234599999,
         "completionFlag": false
      }
//...
   ]
}
```

2.2.6.1.6 Body Elements

#	Parameter Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digit)	NA	10-digit mobile number of the caller (including the Country Code as 91)
2	callId	Yes	Number (15 digits)	NA	unique call id assigned by IVR
3	operator	Yes	String (Max 255 characters)	Refer 5.4	Operator of caller
4	circle	Yes	String (Max 255 characters)	Refer 5.3	operator circle from where the call is originating
5	callStartTime	Yes	Integer	NA	Time at which call was started as timestamp in epoch format
6	callEndTime	Yes	Integer	NA	Time at which call terminated as timestamp in epoch format
7	callDurationInPulses	Yes	Integer	NA	No. of pulses consumed for MA service
8	endOfUsagePromptCounter	Yes	Integer	NA	Indicates no. of times end of usage message gas been played to user.
9	callStatus	Yes	Integer	Refer 5.2	Status of call
10	callDisconnectReason	Yes	Integer	Refer 5.1	
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>> contentFile	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.

2.2.6.2 Save Call Details API – 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 provide user languageLocation preference to MoTech.

2.2.7.1 Set User Language Location Code- Request

URL: http://<motech:port>/motech-platform-server/module/mobileacademy/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 time Out

HTTP Timeout Category	Description

Online	Refer 6

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": 123456789012345,
   "languageLocationCode": 10
}
```

2.2.7.1.6 Body Elements

#	Parameter Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digits)	NA	10-digit mobile number of the caller (including the Country Code as 91)
2	callId	Yes	Number (15 digits)	NA	
3	languageLocation Code	Yes	Integer	Refer 7.2	Language location preference provided by caller

2.2.7.2 Set 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		In case mandatory parameter is missing "<Parameter Name: Not Present>" shall be returned in failure reason
		500		In case of internal motech error "Internal

				Error" shall be returned in the failure reason

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

The Delivery Notification is sent by SMS gateway when a message is delivered or message is impossible to deliver. This HTTP URL mentioned in Send SMS API is called and the status information along with other information is passed.

2.2.8.1 Delivery Notification API – Request

URL: http://<cilent_host>/testnotify/notify

Method: Post

2.2.8.1.1 Validations

None

2.2.8.1.2 Http time Out

HTTP Timeout Category	Description
Offline	Refer 6

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

#	Parameter Name	Mandatory	Data type	Range	Description
1	**clientCorrelator**	Yes	String		Unique id sent by third-party application in the Send SMS API request
2	**callbackData**	No	String	NA	NA for NMS
3	**address**	Yes	String	NA	address in SMS send API
4	deliveryStatus	Yes	String	Refer Section 2.4.2	SMS delivery status – either successful or failed.

2.2.8.2 Delivery Notification API – 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		In case mandatory parameter is missing "<"Parameter Name": Not Present>" shall be returned in failure reason
		500		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 NMS_MoTech_MA

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

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

Method: POST

2.3.1.1.1 Validations

In case mandatory parameters are missing, http error is returned. This is explained in the API response section.

2.3.1.1.2 Http timeout

HTTP Timeout Category	Description
Offline	Refer 6

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. Ex: "Hello World"
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 thereceiptRequest element.
7	callbackData	No	String	NA	NA to NMS
8	senderName	No	String	NA	NA to NMS
9	category	No	String	NA	NA to NMS

2.3.1.2 *Send Sms API – Response*

Response Status	Body Example	HTTP Status Code	Content Type	Description

Successful	{
	"outboundSMSMessageRequest":
	{
	"deliveryInfoList":
	{
	"deliveryInfo":
	{
	"address":"9703553010",
	"deliveryStatus":" Submitted"
	},
	"resourceURL":"http://<ip:port
	>/smsmessaging/1/outbound/{send
	erAddress}/requests/urn:uuid:bdbd
	04e7-eb05-421f-abb9-
	3d731c861353/deliveryInfos"
	},
	"senderAddress":"opnhse",
	"outboundSMSTextMessage":
	{
	"message":"test message"
	},
	"clientCorrelator": "xxxxx",
	"receiptRequest":
	{
	"notifyURL": "",
	"callbackData":"$(callbackData
	)"
	},
	"senderName":"",
	""""
	}
	}
		201	application/json	Possible values of deliveryStatus is Submitted (As DND is disabled for this requirement)

Failure	{ "requestError": { "policyException": { "messageId": "SVC0001",	400	Application/json	For possible error codes, please refer table in section 2.4.1

	<pre>"code": 10001,
	"text": "An unclassified service exception"
	}
	}
	}</pre>			

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)
	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.
2	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. (Refer 2.4.2) • **text** specifies the description of the error code.

2.4 Constants

2.4.1 Send SMS API – 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 Delivery Status

Delivery Status	Description
DeliveredToTerminal	successful delivery to Terminal.
DeliveryUncertain	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.
DeliveredToNetwork	successful delivery to the network enabler responsible for routing the SMS

3 MK Service

3.1 Use cases

This section details the use cases/scenarios for interaction between IVR system and Mobile Kunji service (NMS_MoTech_MK).

3.1.1 FLW/Anonymous user Calls MK Service

When a user calls MK, based on the B-party number (long-code or toll free number received from the network) IVR Platform shall identify the service as MK service and will answer the call. The figure below shows the interaction scenario between IVR System and Motech MK service.

IVR shall process the VXML for MK call flow available with it and shall proceed with the call as detailed below
Scenario is as follows:

- User dials the MK 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 defiled in the VXML for MK.

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

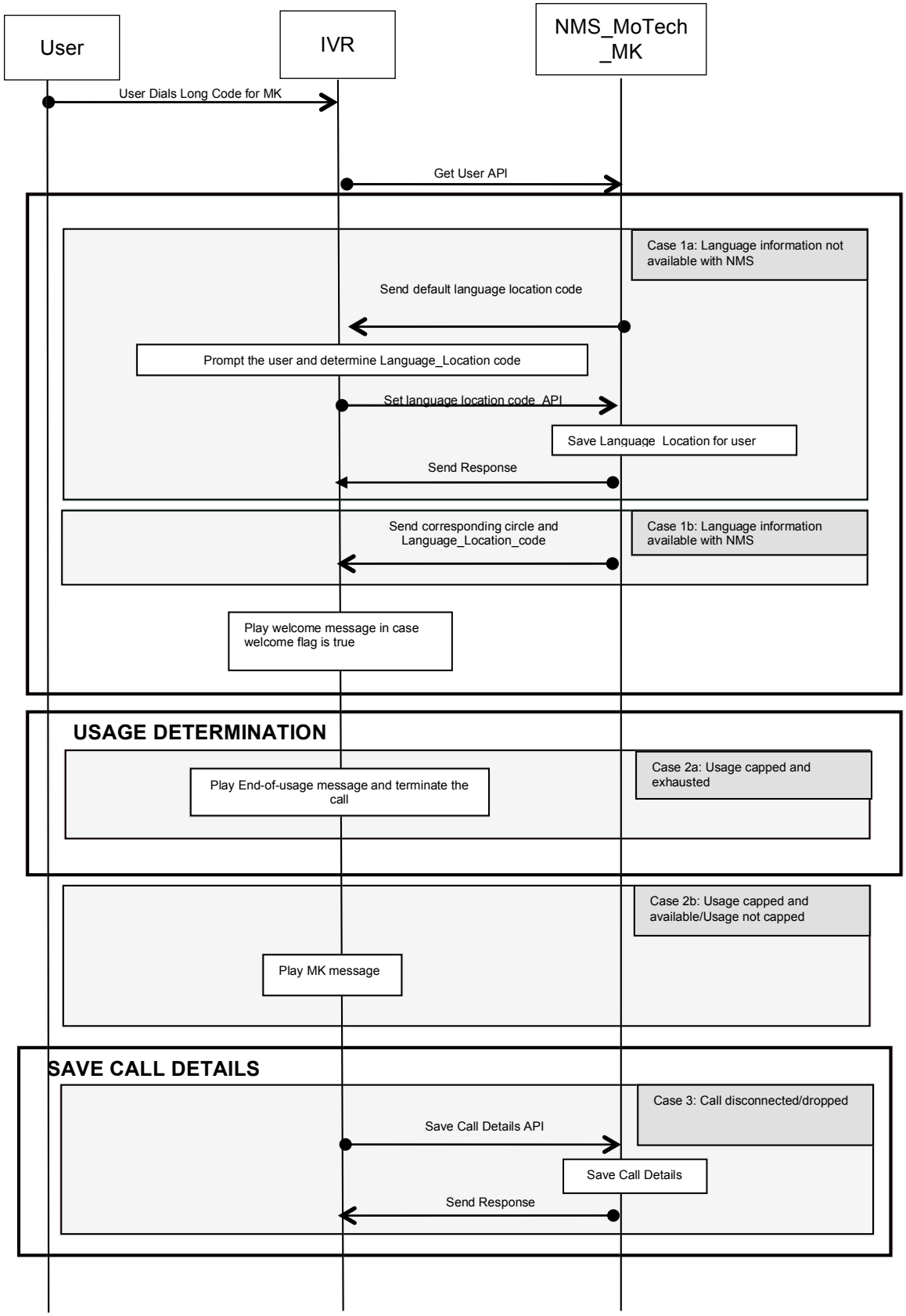


Figure 2: MK Call Flow

3.1.1.1 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 Detail" API on MoTech to determine language and usage details.

3.1.1.1.1 Language information not available with NMS

The case in which language information is unavailable in MoTech, following are the three cases which may occurs:

- Anonymous user-circle not known
- Anonymous user-circle provided by IVR but circle not mapped to any Language at MoTech
- Anonymous user-circle provided by IVR but circle mapped to multiple Languages at MoTech

Handling of the above mentioned case in MoTech can be 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.

3.1.1.1.2 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.

3.1.1.2 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.

3.1.1.2.1 Usage is 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 NMS 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.

3.1.1.2.2 Usage is uncapped/ available

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 shall play the MK content as per the MK code entered by user.

3.1.1.3 Welcome Promt Flag

MoTech shall maintain the flag for the welcome promt played for the particular user. The flag shall be sent in response of the "Get User Detail API" and IVR shall play the welcome prompt to user as per the flag.

- If the flag is true, IVR should play the welcome message.
- If the flag is false, IVR should not play the welcome message.

Once the welcome message is played, this flag shall be set to false by IVR system and same shall be conveyed to MK service using "Save Call Details API" at the end of call.

3.1.1.4 Erroneous request from IVR

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

3.1.1.5 Save Call details

On the completion of call, 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.

3.2 APIs exposed by NMS_MoTech_MK (called by IVR System)

3.2.1 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.

3.2.1.1 Get User Details – Request

URL: http://<motech:port>/motech-patform-server/module/mobilekunji/user
?callingNumber=9999999900&operator=A&circle=AP&callId=234000011111111
Method: GET

3.2.1.1.1 Validations

- NMS_MoTech shall return an appropriate http error code in following case
  - CallingNumber, operator, circle and callId are not present as query parameters.
  - CallingNumber does not contain 10 digits.

3.2.1.1.2 Http time Out

HTTP Timeout Category	Description
Online	Refer 6

3.2.1.1.3 Query Parameters

#	Parameter Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digit)	NA	10-digit mobile number of the caller
2	operator	Yes	String (255 chars)	Refer 5.4	Operator of caller.
3	circle	Yes	String (255 chars)	Refer 5.3	Operator circle from where the call is originating.
4	callId	Yes	Number (15 digit)	NA	15 digit unique call id assigned by IVR

3.2.1.1.4 URL Path Placeholder Parameters None

3.2.1.1.5 Headers

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

3.2.1.1.6 Body Example

NA

3.2.1.1.7 Body Elements

None

3.2.1.2 Get User Details – Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful	{ "circle": "AP", "languageLocationCode": 10, "currentUsageInPulses": 10, "maxAllowedUsageInPulses": 2340, "welcomePromptFlag": "TRUE", "endOfUsagePromptCounter": 0, "maxAllowedEndOfUsagePrompt": 2 }""""""""""""""""""""" OR { "circle": "AP", "defaultLanguageLocationCode": 10, "currentUsageInPulses": 10,	200	Application/json	

	"maxAllowedUsageInPulses": 2340, "welcomePromptFlag": "TRUE", "endOfUsagePromptCounter": 0, "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

3.2.1.2.1 Body Example

NA

3.2.1.2.2 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	circle	Yes	String (Max 255 characters)	Refer 5.3	If the circle information is valid in request same shall be returned otherwise circle information determined by Motech shall be returned.
2	defaultLanguageLocationCode	No	Integer	Refer 7.2	Default language location code set for circle.This element present if language location code is not determined.
3	languageLocationCode	No	Integer	Refer 7.2	This element present if language location code is determined.
4	currentUsageInPulses	Yes	Integer	NA	Usage in pulses
5	maxAllowedUsageInPulses	Yes	Integer	-1 for uncapped	Maximum number of times the usage prompt can be played

6	welcomePrompt Flag	Yes	boolean	false : Not Played true : Played	Indicates welcome prompt is already played or not
7	endOfUsagePro mptCounter	Yes	Integer	NA	Number of times end of usage prompt has been played
8	maxAllowedEnd OfUsagePrompt	Yes	Integer	NA	Max number of times the End Of Usage prompt shall be played to the user.
9	failureReason	No	String		Reason for the request failure

3.2.2 Save Call Details API

This API enables IVR to send call details to NMS_MoTech_MK. This data is further saved in NMS database and used for reporting purpose.

3.2.2.1 Save Call Details – Request

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

Method: POST

3.2.2.1.1 Validations

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

3.2.2.1.2 Http timeOut

HTTP Timeout Category	Description
Offline	Refer 6

3.2.2.1.3 Query Parameters

None

3.2.2.1.4 URL Path Placeholder Parameters

None

3.2.2.1.5 Headers (Mandatory: Based on URL Design)

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.

3.2.2.1.6 Body Example


```
{
   "callingNumber": 9810320300,
   "callId": 234000011111111,
   "operator": "A",
   "circle": "AP",
   "callStartTime": 1422879843,
   "callEndTime": 1422879903,
   "callDurationInPulses": 60,
   "endOfUsagePromptCounter": 0,
   "welcomeMessagePromptFlag": true,
   "callStatus": 1,
   "callDisconnectReason": 1,
   "content": [
      {
         "mkcardNumber": 1,
         "contentName": "YellowFever",
         "audioFileName": "Yellowfever.wav",
         "startTime": 1200000000,
         "endTime": 1222222221
      },
      {
         "mkcardNumber": 2,
         "contentName": "Malaria",
         "audioFileName": "Malaria.wav",
         "startTime": 1200000000,
         "endTime": 1222222221
      }
   ]
}
```


3.2.2.1.7 Body Elements

#	Element Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digit)	NA	10-digit mobile number of the caller
2	callId	Yes	Number (15 digits)	NA	unique call id
3	operator	Yes	String (Max 255 characters)	Refer 5.4	Operator of caller
4	circle	Yes	String (Max 255 characters)	Refer 5.3	operator circle from where the call is originating
5	callStartTime	Yes	Integer	NA	Call start time as timestamp in epoch format
6	callEndTime	Yes	Integer	NA	Call termination time as timestamp in epoch format
7	callDurationInPulses	Yes	Integer	NA	Current usage in pulses
8	endOfUsagePromptCounter	Yes	Integer	NA	Number of times end of usage prompt has been played

9	welcomeMessageFlag	Yes	boolean	false – not played true – played	Welcome prompt played or not
10	callStatus	Yes	Integer	Refer 5.2	Status of call
11	callDisconnectReason	Yes	Integer	Refer 5.1	Cause of call disconnect
12	content	No	Array<callData>		List of call details
13	<callData>	Yes	Object		
14	callData>> mkCardNumber	Yes	Number (2 Digits)	Refer 7.1	MK card number.
15	callData>> contentName	Yes	String	Refer 7.1	MK Content Name
16	callData>> audioFileName	Yes	String	Refer 7.1	MK file name.
17	callData >>startTime	Yes	Integer		Time at which referred content was started to be played to user, as timestamp in epoch format
18	callData >>endTime	Yes	Integer		Time at which referred content had stopped playing, as timestamp in epoch format

3.2.2.2 Save Cal lDetails – 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

3.2.2.2.1 Body Example

NA

3.2.2.2.2 Body Elements

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

					failure

3.2.3 Set User Language Location Code API

IVR shall invoke this API to set the language location code of the user in NMS database.

3.2.3.1 Set User Language Location Code – Request

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

Method: POST

3.2.3.1.1 Validations

- NMS_MoTech shall validate the format of all the request parameters and reject the request if it is not correct.
- callingNumber, language location code and callId must be present.

3.2.3.1.2 Http time Out

HTTP Timeout Category	Description
Online	Refer 6

3.2.3.1.3 Query Parameters

None

3.2.3.1.4 URL Path Placeholder Parameters

None

3.2.3.1.5 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.

3.2.3.1.6 Body Example

```
{
   "callingNumber": 9810320300,
   "callId": 234000011111111,
   "languageLocationCode": 10
}
```

3.2.3.1.7 Body Elements

#	Element Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digit)	NA	10-digit mobile number of the caller
2	callId	Yes	Number	NA	15 digit unique call id

			(15 digits)		assigned by IVR
3	languageLocation Code	Yes	Integer	Refer 7.2	Language preference selected by caller

3.2.3.2 Set 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

3.2.3.2.1 Body Example

NA

3.2.3.2.2 Body Elements

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

3.3 APIs exposed by IVR to be called by NMS_MoTech_MK

None

3.4 Constants

None

4 Kilkari Service

4.1 Use Cases

This section covers the use cases for Kilkari Service.

4.1.1 Language and Location Determination

Kilkari service shall determine the language to be used by IVR System for a new beneficiary or an already subscribed beneficiary for an incoming IVR call.

4.1.1.1 Language information is not available at NMS-MoTech System

This scenario is applicable if:

- The caller is a new Beneficiary and its Circle information is not determined by IVR System.
- The caller is a new Beneficiary and its Circle information is determined by IVR System, but Circle to languageLocationCode mapping is not present at NMS_MoTech.
- The caller is a new Beneficiary and its Circle information is determined by IVR System, but Circles is mapped to multiple languageLocationCodes in NMS_MoTech.
- The caller is an existing beneficiary and its languageLocationCode information is not determined from the existing records.

Scenario:

- IVR System shall send the "Get Subscriber Details API" request to the NMS_MoTech System.
- NMS_MoTech system fails to determine the language and send the response with deafultLangugaeLocationCode (as National default or circle default, if circle is known).
- IVR System shall play the language selection menu in language corresponding to defaultLanguageLocationCode and prompt the DTMF input for desired languageLocationCode from beneficiary.
- After the user input, IVR System shall use the languageLocationCode as per user input.

4.1.1.2 Language information is available at NMS-MoTech System

This scenario is applicable if:

- The caller is a new Beneficiary and its Circle determined by IVR System and Circle to Language mapping is present at NMS-MoTech system.
- The caller is an existing Beneficiary and its language a determined by its existing records.

Scenario:

- IVR System shall send the "Get Subscriber Details API" request to the NMS_MoTech System.
- NMS_MoTech System shall return the subscriber details with languageLocationCode as determined either from existing records or circle to language mapping.

4.1.2 Subscription

Kilkari Service shall create a subscription record for the given Subscription-Pack and MSISDN. It shall also add the beneficiary MSISDN in the NMS_MoTech Database, if not

present already. The initial state of the subscription shall be set to "PendingActivation". Delivery of the pack messages shall start from the next day of IVR call and then the status of the subscription shall be changed to "Active".

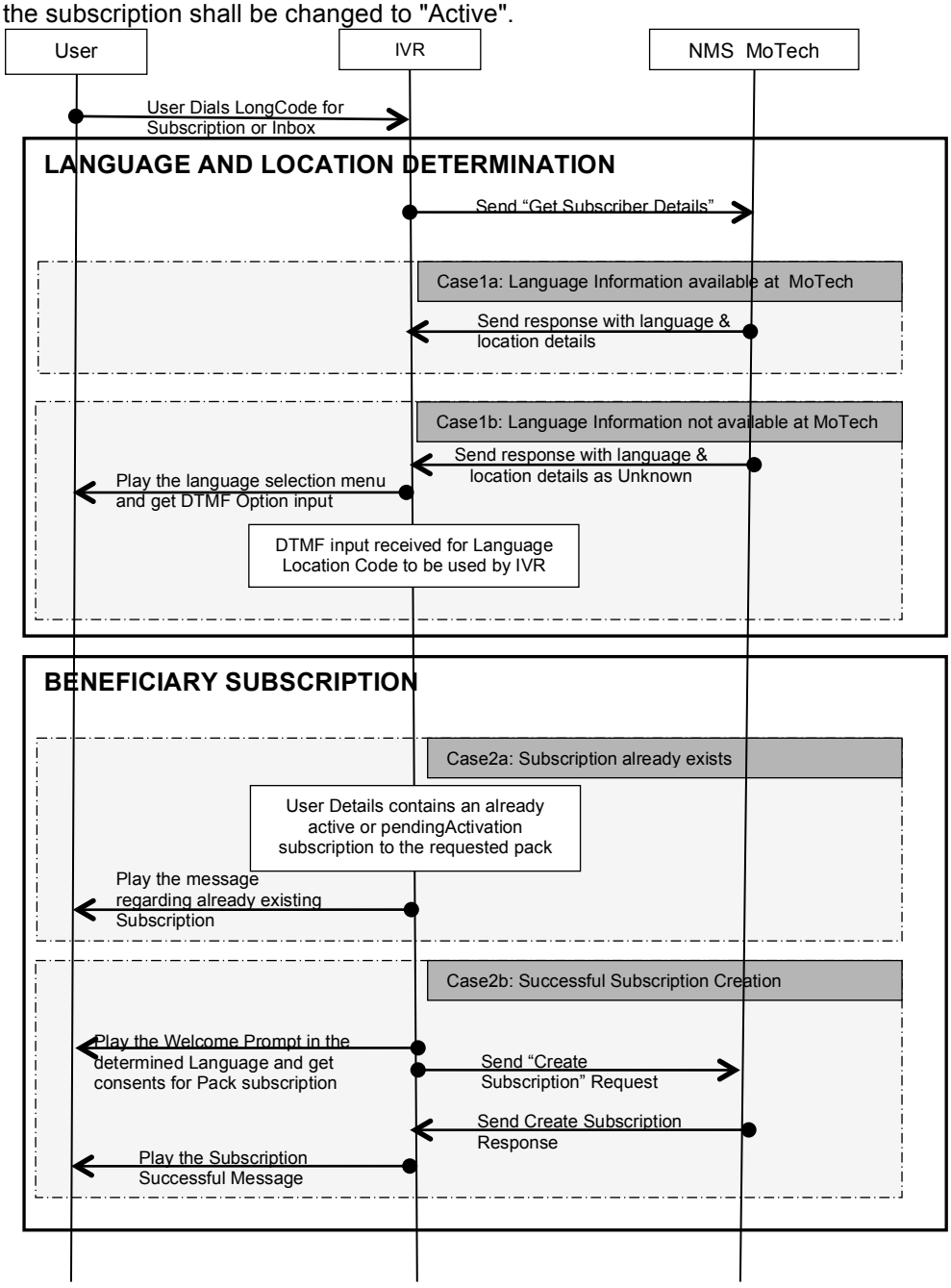


Figure 3: Language Determination and Subscription

Following two scenarios are covered under this use case:

4.1.2.1 Subscription to the same pack Already Exists

Kilkari Service shall not create new subscription for a beneficiary, to the Subscription-Pack for which Long Code is dialed, if there is an existing subscription to the same pack with status as either "Active" or "PendingActivation".

Scenario:

- User dials the Kilkari Subscription long code and call lands at IVR System
- IVR System shall send the "Get Subscriber Details API" request to the NMS_MoTech System.
- NMS_MoTech system shall return the language and location details along with list of Active/PendingActivation subscription pack of the beneficiary determined as per section 4.1.1.
- IVR System shall check if the User detail contains an "Active" / "PendingActivation" subscription to the requested pack, and then play the message to beneficiary regarding already existing subscription.

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

4.1.2.2 Successful Subscription Creation

Kilkari Service shall successfully subscribe a beneficiary to the Subscription-Pack for which Long Code is dialed if:

- The caller is a new beneficiary.
- The caller is existing beneficiary having no existing Active / PendingActivation subscription to the same pack as present in the request.

Scenario:

- User dials the Kilkari Subscription long code and call lands at IVR System
- IVR System shall send the "Get Subscriber Details API" request to the NMS_MoTech System.
- NMS_MoTech system shall return the language and location details determined as per section "4.1.1".
- IVR System shall check that user details does not contain any Active / PendingActivation subscription to the requested pack, then Play the Kilkari Welcome message and shall ask consent for the pack subscription.
- After the consent is given by user, IVR shall send the "Create Subscription Request API" request to the NMS_MoTech system.
- NMS_MoTech shall subscribe the user with the desired pack and send the response to IVR System.
- IVR System shall play the message to beneficiary regarding successful subscription.

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

4.1.3 Subscription Deactivation

Kilkari Service shall deactivate the beneficiary subscription corresponding to the Subscription-Pack for which it is requested at the end of OBD call delivery. Deactivation shall stop the future message delivery to the beneficiary and shall set the status of subscription as "Deactivated". This shall not remove the MSISDN and its mapping to the pack from NMS_MoTech database.

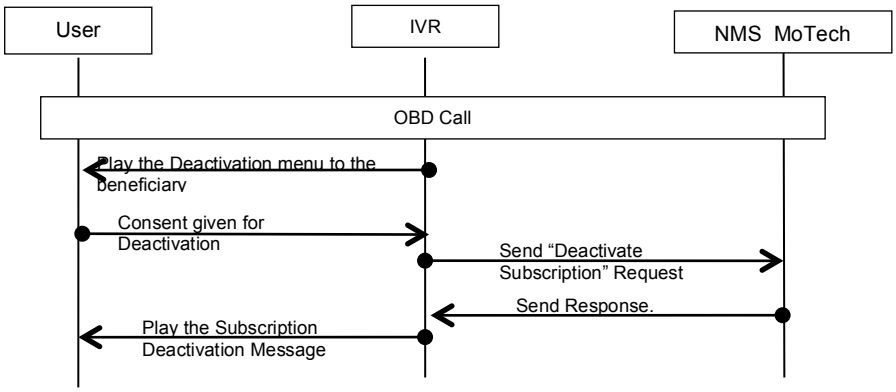


Figure 4: Subscription Deactivation

In this scenario

- IVR shall place the successful OBD call to the beneficiary for the scheduled weekly message corresponding to the Active Subscription pack of the beneficiary.
- At the end of the OBD call the beneficiary shall be prompted for Subscription Deactivation DTMF option.
- If Beneficiary opts for the deactivation of the subscription, IVR shall send the "Deactivate Subscription Request API" request to NMS_MoTech system.
- NMS_MoTech shall check that the existence of subscription for which deactivation is request in the system.
- If subscription is present and has status as "Active"/"PendingActivation" then NMS_MoTech shall deactivate the subscription.
- NMS_MoTech shall send the successful response to IVR. Further to which IVR shall play the message to beneficiary for successful deactivation of the subscription.

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

4.1.4 Inbox Service

Inbox service allows access to the Inbox messages via an Inbox access long code. Inbox shall store the last delivered message for a subscription. Inbox shall be deleted after 7 days of subscription deactivation or completion. Inbox shall not be present if a subscription is created with initial status as "PendingActivation".

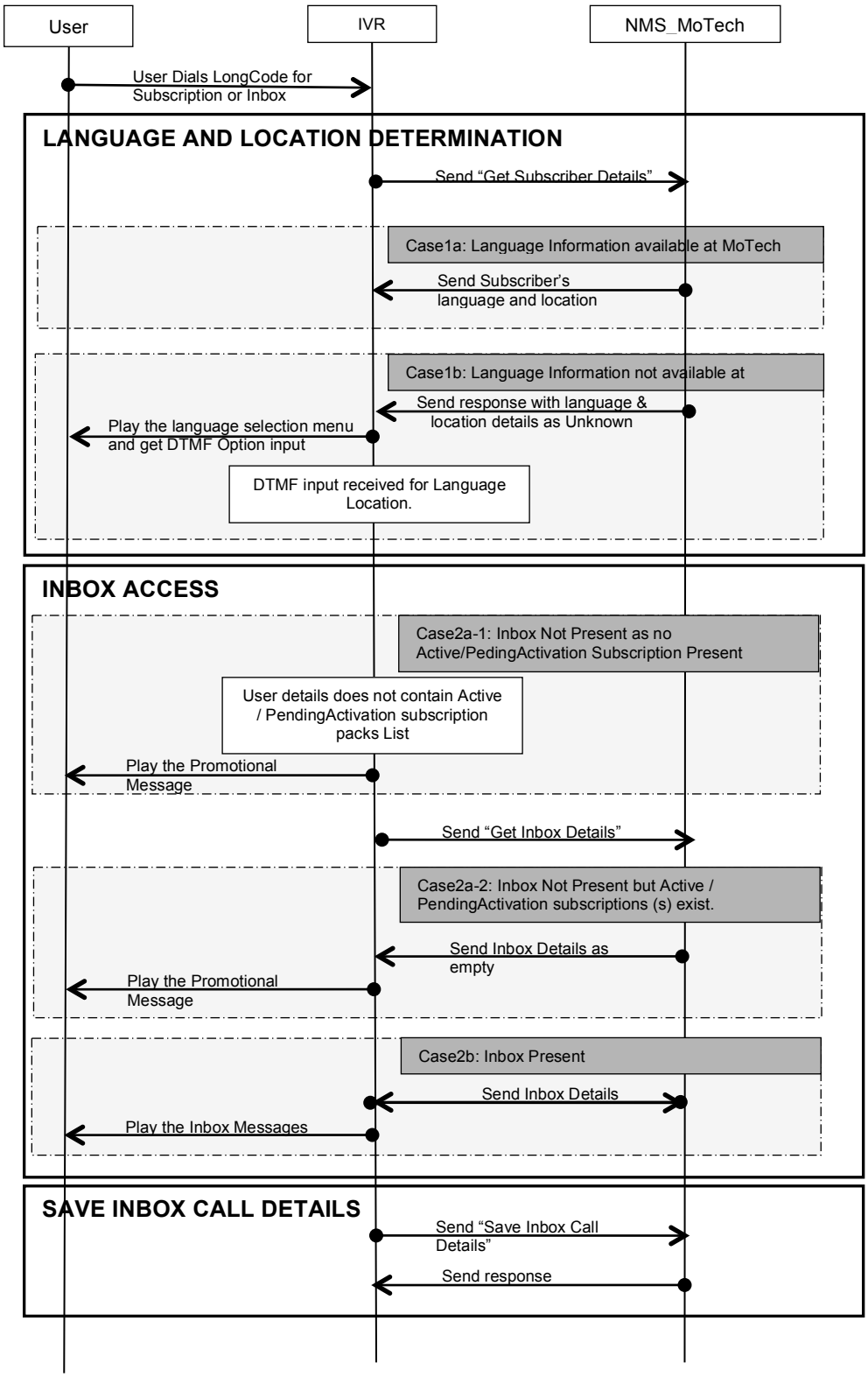


Figure 5: Inbox Service

4.1.4.1 *Inbox Access when inbox is not present.*

Beneficiary shall be able to listen to the promotional message if,

- There is no inbox corresponding to subscription(s) present for the MSISDN, either the subscription is in "PendingActivation" or has been completed/deactivated (more than 7 days before).
- The caller is a new beneficiary.

Scenario:

- User dials the Kilkari Inbox long code and call lands at IVR System
- IVR System shall send the "Get Subscriber Details API" request to the NMS_MoTech System.
- NMS_MoTech system shall return the language and location details determined as per section "4.1.1".
- If user details does not contain any subscription pack then IVR shall play the "Promotional message" to the beneficiary using the beneficiary language information.
- Else IVR System shall send the "Get Inbox Details API" request to the NMS_MoTech System with MSISDN and Circle information.
    - NMS_MoTech system shall send response without list of subscription packs.
    - IVR System shall play the "Promotional message" to the beneficiary using the beneficiary language information.

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

4.1.4.2 *Inbox Access when Inbox is present.*

If there are multiple subscriptions corresponding to a beneficiary MSISDN, and each subscription has inbox, then IVR System shall play messages from all inboxes to the beneficiary.

Scenario:

- User dials the Kilkari Inbox long code and call lands at IVR System
- IVR System shall send the "Get Subscriber Details API" request to the NMS_MoTech System.
- NMS_MoTech system shall return the language and location details determined as per section "4.1.1".
- IVR System shall send the "Get Inbox Details API" request to the NMS_MoTech System.
- NMS_MoTech system shall find all the subscriptions corresponding to the MSISDN and shall then find the inbox message (if present) for each subscription. The list of subscriptions with their status having inbox messages shall be sent to the IVR System.
- IVR System shall play the inbox messages to the beneficiary in the order messages are present in the list using the beneficiary language information.
- After the call completion or disconnect, IVR shall send the "Save Inbox Call Details" API to save the details of the inbox message listened by beneficiary.

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

4.1.5 OutBound Dialer Service

The OBD process agreed is explained below

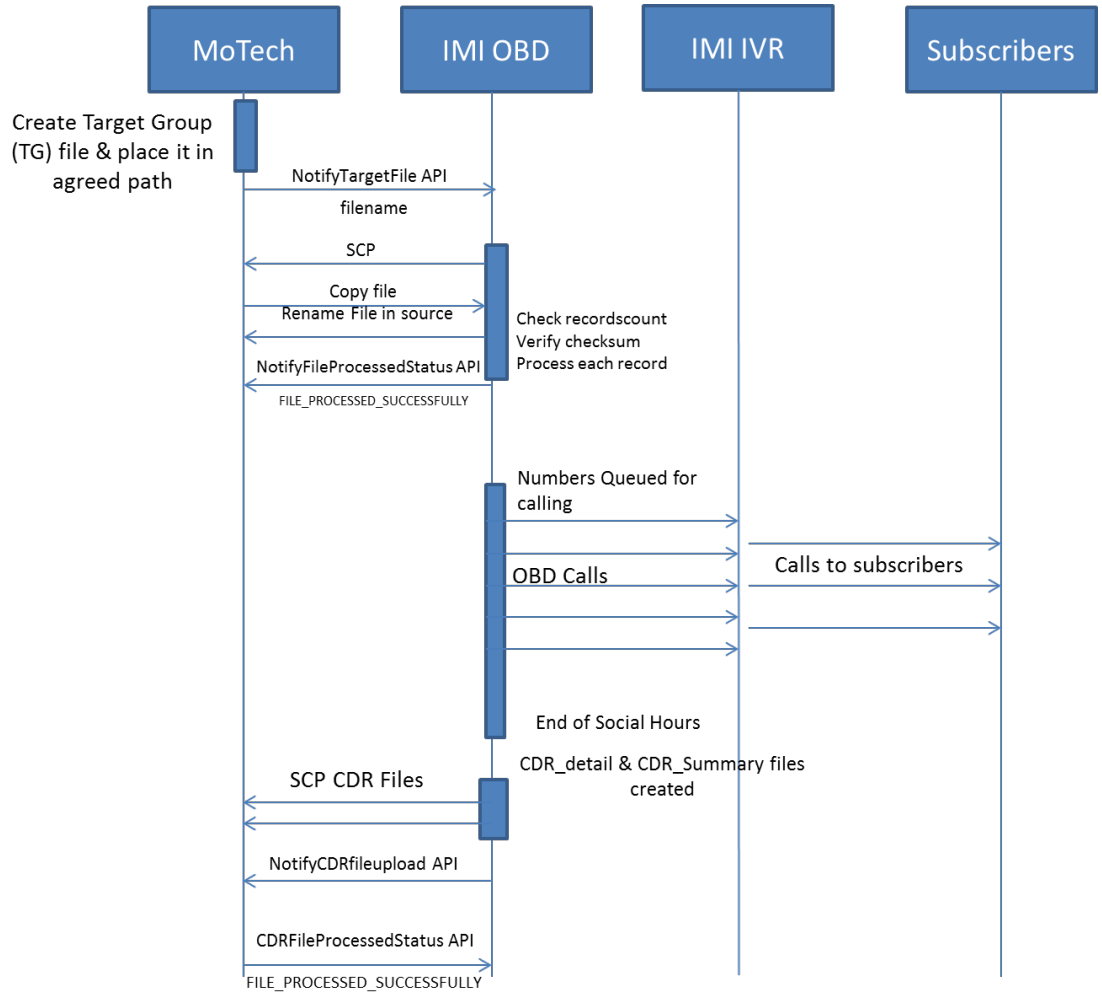


Figure 6: Kilkari Service-Integration Flow

1. NMS system generates the target group csv file with numbers to be dialed, the corresponding prompt file, priority of the OBD request, specify information needed specifically for Kilkari flow like content name, locationlanguage code and the IVR service id to be used. Each record shall have a unique id generated by NMS.
2. An IVR service is used to define following rules:
   - OBD Route to be used
   - # of Retries
   - Frequency of retry for busy
   - Frequency of retry for no answer
   - Frequency of retry for switched off
   - Frequency of retry for network error
   - Frequency of retry in any other cases
   - Notification URL
   - DND Check – Yes/No
   - Default VXML file for the service
   - <<Please refer service definition section for more details>>
3. The Target group file is stored in an agreed location with pre-agreed file naming convention. Naming convention – OBD_< MoTechGeneratedId >_<timestamp>.csv

4. Once the file is created and stored the NMS system notifies DVP by calling TargetFileNotification API. Parameters like file name, checksum and number of records are passed as part of the API.
5. IVR platform copies the file from the pre-agreed location of NMS system using "SCP" and renames the file in the source location by adding a suffix "processed" to the original filename. If the file could not be copied or the file is not available a notification to NMS with is sent by calling NotifyFileProcessedStatus API with status as "FILE_NOT_ACCESSIBLE". An email/alert shall also be raised to notify the same.
6. In case file is copied successfully, following checks are performed on the file:
   - Number of records check
   - Check sum value

In case there is an error in checksum or records check - either "FILE_CHECKSUM_ERROR" or "FILE_RECORDSCOUNT_ERROR" is notified to NMS using the API NotifyFileProcessedStatus. NMS shall handle the error and re-create/resend the file notification.
7. If the file is copied successfully & checks are successful, the records of the file are processed. During processing in case there is any error in processing the records (i.e if any of the mandatory fields are either missing or not in the required format), the file shall be rejected. NotifyFileProcessedStatus API with the status – "FILE_ERROR_IN_FILE_FORMAT" is passed. In this case all the records of the file are rejected. In case there are no errors in the records "NotifyFileProcessedStatus" API is called with status as "FILE_PROCESSED_ SUCCESSFULLY"
8. In case there are no errors in the records, IVR Platform (OBD Manager component) processes the file records and places the file records in queue. The status of such OBD records is changed to "IN-QUEUE". IVR platform picks up the records as per the availability of the channels for the route and based on priority rules defined on the IVR platform.
9. In case Do Not Disturb(DND) check is enabled for the IVR OBD service, IVR platform checks the MSISDN against the numbers in the DND database before dialing out. And if the number to dial is in DND database, IVR platform shall tag the OBD record as rejected (FinalStatus=Rejected) and statuscode as OBD_DNIS_IN_DND.
10. In case the number is not in DND and the IVR platform dials the number and subscriber answers the call, static vxml associated with the service id is executed. The appropriate prompt to be played and the locationlanguage code is expected to be passed. In case the user chooses an option to unsubscribe, the un-subscription API is called through VXML. At the end of the call, Call Notification URL is triggered for the obd request and the information about the obd request is passed.
11. For failed OBD calls (due to no answer, busy or any other reason), retries(redial) shall be performed by the IVR platform as per the retry configuration defined for the particular IVR service id. While retries are pending the status of records is updated as "RETRIES-PENDING" In case the call could not be connected to the subscriber even after all retries, the final-status is updated as "FAILED" and the status-code contains the result of the last call attempt. If notification URL is defined for the request, the notification is triggered for "FAILED" calls and the information about the obd request is passed. In case no notification is defined, notification is not sent. This will not be reported as an error or alarm.
12. At the end of the social hours (when no more calls can be made), the IVR platform does the following:
   - Updated all records with status as IN-QUEUE as well as RETRIES-PENDING to FAILED. Notifications for all such records are triggered one after another (through the notification url defined for the service or the obd request)
   - Generate CDRs for the records received in the day.
13. It should be noted that in case a TargetFileNotification API is called after social hours, the file will be rejected with status code as: FILE_OUTSIDE_SOCIALHOURS
14. Call Detail Record files: Two types of CDR files are generated for each target file passed on to the IVR system
   - **CDR Summary file**
     Naming convention – Cdr_Summary_<targetgroupfile>
     Copied to – Same location from where the files were copied

This file contains one-line summary information for each request from NMS system. Below are the additional fields appended to the source file to generate the Summary CDR File.

- Final-status (Final outcome of the obd request - Success, Failed or Rejected)
- Status-code (Exact reason for failed or rejected calls)
- Attempts (Number of call attempts made)

- **CDR Detail file**

  Naming convention: CDR_detail_<targetgroupfile>
  Copied to – Same location from where the target group file was copied

  This file contains one record for each call attempt. The information included in the CDR includes: <Please refer to section CDR Detail file format for exact field names>

  - Request ID (Unique ID for each OBD request passed by NMS)
  - Msisdn(Number dialed)
  - Attempt No
  - Call ID (Unique id generated by the IVR platform for each call attempt)
  - Priority
  - Status Code (Result of the call. Refer Section 4.5)
  - Languagelocation Id
  - Content File Name
  - Message Duration (if the message was played to the subscriber)
  - Call Start Time (Time when the call attempt was initiated)
  - Call Answer Time (Time when the call was answered)
  - Call End Time(Time when the call ended)
  - Call Duration In Pulses(Total duration in pulses for the last call)
  - Circle ID (based on parameters passed)
  - Operator ID (based on the parameters passed)

15. IMI IVR Platform calls NotifyCDRfileupload API to notify about the availability of the CDR files along with checksum value and records count.
16. The CDR file is processed by MoTech and once processing is successful, IVR OBD manager is notified using the API CDRFileProcessedStatus about the successful processing with "FILE_PROCESSED_ SUCCESSFULLY". In case there is any error with either checksum, record count the appropriate file processing status is passed back. Please refer to the enumerations under "File Processing status" for the possible list of status values. Based on the status values IVR OBD platform shall recreate or resend the CDR file and its notification.

4.2 APIs Exposed by NMS_MoTech_Kilkari (called by IVR System)

4.2.1 Get Subscriber Details API

IVR shall invoke this API to get the details of the beneficiary identified by the 'callingNumber',

4.2.1.1 Get Subscriber Details API- Request

URL: http://<motech:port>/motech-platform-server/module/kilkari/user
?callingNumber=9999999900&operator=A&circle=AP&callId=123456789123456

Method: GET

4.2.1.1.1 Validations

- NMS_MoTech shall return appropriate http error code in following case
  - msisdn, operator, circle and callId are not present as query parameters.

- msisdn does not contain 10 digits.

4.2.1.1.2 Http time Out

HTTP Timeout Category	Description
Online	Refer 6

4.2.1.1.3 Query Parameters

#	Parameter Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digits)	NA	10-digit mobile number of the caller
2	operator	Yes	String (255 chars)	Refer 5.4	Operator of caller.
3	circle	Yes	String (255 chards)	Refer 5.3	Operator circle from where the call is originating.
4	callId	Yes	Number (15 digits)	NA	15 digit unique call id assigned by IVR

4.2.1.1.4 Headers

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

4.2.1.2 Get Subscriber Details API – Response

Response Status	Body Example	HTTP Status Code	Content Type	Description

Successful	{
	"circle": "AP",
	"languageLocationCode": 10,
	"subscriptionPackList": [
	"48WeeksPack",
	"72WeeksPack"
	]
	}
	
	Or
	
	{
	"circle": "AP",
	
	"defaultLanguageLocationCode":
	10
	}
	
	Or
	
	{
	"circle": "99",
	
	"defaultLanguageLocationCode":
		200	Application/json	

	10 }			

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

4.2.1.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	circle	Yes	String	Refer 5.3	If the circle information is valid in request, same shall be returned otherwise circle information determined by NMS_MoTech shall be returned.
2	defaultLanguageLocationCode	No	Integer	Refer 7.2	The default language location code.. This element is not present if languageLocationCode is not determined.
3	languageLocationCode	No	Integer	Refer 7.2	Code for uniquely identifying user location and language details. This element is present only if languageLocationCode is determined.
4	subscriptionPackList	No	Array<String> [Max 2]	"48WeeksPack" "76WeeksPack"	List of Active / PendingActivation Subscription packs of the beneficiary. This element is Not present if no such subscriptions exist.
5	failureReason	No	String		Reason for the request

					failure

4.2.2 Get Inbox Details API

IVR shall invoke this API to get the Inbox details of the beneficiary, identified by 'callingNumber'.

4.2.2.1 Get Inbox Details API- Request

URL: http://<motech:port>/motech-platform-server/module/kilkari/inbox
?callingNumber=9999999900&callId=123456789123456

Method: GET

4.2.2.1.1 Validations

- NMS_MoTech shall return appropriate http error code in following case
  - msisdn, operator, circle and callId are not present as query parameters.
  - msisdn does not contain 10 digits.

4.2.2.1.2 Http time Out

HTTP Timeout Category	Description
Online	Refer 6

4.2.2.1.3 Query Parameters

#	Parameter Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digits)	10 Digits (all digits must be present)	10-digit mobile number of the caller
2	callId	Yes	Number (15 digits)	NA	15 digit unique call id assigned by IVR

4.2.2.1.4 Headers

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

4.2.2.2 Get Inbox Details API – Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful	{ "inboxSubscriptionDetailList": [{ "subscriptionId": "12345678-9…", "subscriptionPack": "48WeeksPack", "inboxWeekId": "2_2", "contentFileName":	200	Application/json	

	"xyz.wav"
	},
	{
	"subscriptionId": "11111111-1…",
	"subscriptionPack": "76WeeksPack",
	"inboxWeekId": "10_1",
	"contentFileName": "xyz.wav"
	}
	]
	}			

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

4.2.2.2.1 Body Elements

#	Element Name	Mandatory	Data type	Range	Details
1	inboxSubscriptionDetailList	No	Array<SubscriptionDetail>		List of details of subscriptions having inbox. If not present then IVR shall play promotional message.
2	<subscriptionDetail>		Object		Details of a subscription.
3	subscriptionDetail>>subscriptionId		String(36 Chars)		Id of the subscription as generated by NMS_MoTech system
4	subscriptionDetail>>subscritpionPack		String	"48WeeksPack" "76WeeksPack"	Type of the pack.
5	subscriptionDetail>>inboxWeekId		Number(2 Digits)	NA	Id of the inboxed message which is the last message attempted for delivery.

6	subscriptionDetail>>contentFileName		String		Name of the content file to be played for inbox message
7	failureReason	No	String		Reason for the request failure

4.2.3 Create Subscription Request API

IVR shall invoke this API to request the creation of the subscription of the beneficiary.

4.2.3.1 Create Subscription Request API- Request

URL: http://<motech:port>/motech-platform-server/module/kilkari/subscription

Method: POST

4.2.3.1.1 Validations

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

4.2.3.1.2 Http time Out

HTTP Timeout Category	Description
Online	Refer 6

4.2.3.1.3 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.

4.2.3.1.4 Body Example

```
{
   "callingNumber": 9999111122,
   "operator": "A",
   "circle": "AP",
   "callId": 123456789123456,
   "languageLocationCode": 10,
   "subscriptionPack": "48WeeksPack"
}
```

4.2.3.1.5 Body Elements

#	Element Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digits)	10 Digits (all digits must be present)	10-digit mobile number of the caller.
2	operator	Yes	String (Max	Refer 5.4	Operator of caller

			255 chars)		
3	circle	Yes	String (Max 255 chars)	Refer 5.3	Operator circle from where the call is originating
4	callId	Yes	Number (15 digits)	NA	Unique call id assigned by IVR
5	languageLocationCode	Yes	Integer	Refer 7.2	Code for uniquely identifying user location and language details.
6	subscriptionPack	Yes	String	"48WeeksPack" "76WeeksPack	This specifies the subscriptionPack that user wants to subscribe.
7	failureReason	No	String		Reason for the request failure

4.2.3.2 Create Subscription Request API- 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

4.2.3.2.1 Body Elements

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

4.2.4 Deactivate Subscription Request API

IVR shall invoke this API to request the deactivation of subscription of the user (MSISDN) to the specified Kilkari Subscription Pack.

4.2.4.1 *Deactivate Subscription Request API- Request*

URL: http://<motech:port>/motech-platform-server/module/kilkari/subscription

Method: DELETE

4.2.4.1.1 Validations

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

4.2.4.1.2 Http time Out

HTTP Timeout Category	Description
Online	Refer 6

4.2.4.1.3 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.

4.2.4.1.4 Body Example

```
{
   "calledNumber": 9999111122,
   "operator": "A",
   "circle": "AP",
   "callId": 123456789123456,
   "subscriptionId"; "12345678-123…"
}
```

4.2.4.1.5 Body Elements

#	Element Name	Mandatory	Data type	Range	Description
1	calledNumber	Yes	Number	10 Digits (all digits must be present)	10-digit mobile number of the called beneficiary.
2	operator	Yes	String	Refer 5.4	Operator corresponding to the MSISDN
3	circle	Yes	String	Refer 5.3	Circle corresponding to the MSISDN. Unknown if not determined.
4	callId	Yes	Number (15 digits)	NA	Unique call id assigned by IVR
5	subscriptionId	Yes	String (36 Chars)	NA	Id of the subscription record generated by NMS_MoTech and sent to IVR in OBD Delivery Request.
6	failureReason	No	String		Reason for the request failure

4.2.4.2 *Deactivate Subscription Request API- 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

4.2.4.2.1 Body Elements

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

4.2.5 Save Inbox Call Details

IVR shall invoke this API to send the call detail information corresponding to the Inbox access inbound call for which inbox message(s) is played.

4.2.5.1 *Save Inbox Call Details API- Request*

URL: http://<motech:port>/motech-platform-server/module/kilkari/inboxCallDetails

Method: POST

4.2.5.1.1 Validations

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

4.2.5.1.2 Http timeOut

HTTP Timeout Category	Description
Offline	Refer 6

4.2.5.1.3 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.

4.2.5.1.4 Body Example


```
{
   "callingNumber": 9999111122,
   "operator": "A",
   "circle": "AP",
   "callId": 123456789,
   "callStartTime": 1422879837,
   "callEndTime": 1422879843,
   "callDurationInPulses": 8,
   "callStatus": 1,
   "callDisconnectReason": 1,
   "content": [
      {
         "subscriptionId": "12345678-9..",
         "subscriptionPack": "48WeeksPack",
         "inboxWeekId": "2_2",
         "contentFileName": "xyz.wav",
         "startTime": 1200000000,
         "endTime": 1222222221
      },
      {
         "subscriptionId": "11111111-1..",
         "subscriptionPack": "76WeeksPack",
         "inboxWeekId": "10_1",
         "contentFileName": "xyz.wav",
         "startTime": 1200000000,
         "endTime": 1222222221
      }
   ]
}""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
```


4.2.5.1.5 Body Elements

#	Element Name	Mandatory	Data type	Range	Description
1	callingNumber	Yes	Number (10 digits)	10 Digits (all digits must be present)	10-digit mobile number of the caller
2	operator	Yes	String (Max 255 chars)	Refer 5.4	Operator of caller
3	circle	Yes	String (Max 255 chars)	Refer 5.3	operator circle from where the call is originating
4	callId	Yes	Number (15 digits)	NA	Unique call id assigned by IVR
5	callStartTime	Yes	Integer	NA	Start time of the call as timestamp in epoch

					format
6	callEndTime	Yes	Integer	NA	End Time of the call as timestamp in epoch format.
7	callDurationInPulses	Yes	Integer	NA	Complete duration of the call in pulses.
8	callStatus	Yes	Integer	Refer 5.2	Status of the call
9	callDisconnectReason	Yes	Integer	Refer 5.1	Call disconnect reason
10	content	No	Array<callData>	Array Size : 2	List of call details. For promotional message this field shall not be present.
11	<callData>	Yes	Object		
12	callData>>subscriptionId	Yes	String (36 Chars)	NA	The subscription Id as supplied in Inbox detail.
13	callData >>subscritpionPack	Yes	String	"48WeeksPack" "76WeeksPack"	The Subscription Pack as supplied in Inbox detail.
14	callData>>inboxWeekId	Yes	Number (2 Digits)	NA	The Inbox message Id as supplied in Inbox detail.
15	callData >>contentFileName	Yes	String	Refer 7.1	The 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	failureReason	No	String		Reason for the request failure

4.2.5.2 Save Inbox Call Details API – 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

4.2.5.2.1 Body Elements

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

4.2.6 CDR File Notification API

IVR shall invoke this NMS API to notify IVR platform when a target file is ready.

4.2.6.1 cdrFileNotification API - Request

URL:
http://<motech:port>/motech-platform-server/module/kilkari/cdrFileNotification/

Method: POST

4.2.6.1.1 Validations

- MoTech shall return Failure with appropriate error code in following case
- Invalid Filename
- Any mandatory Parameters are missing

4.2.6.1.2 Http time Out

HTTP Timeout Category	Description
Offline	Refer 6

4.2.6.1.3 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.

4.2.6.1.4 Body Example


```
{
"fileName": "OBD_NMS1_20150127090000.csv",
"cdrSummary":
{
"cdrFile": "cdrSummary_OBD_NMS1_20150201090000.csv",
"checksum": "xxxxxx",
"recordsCount": 5000
},
"cdrDetail":
{
"cdrFile": "cdrDetail_OBD_NMS1_20150201090000.csv",
```

```
"checksum" : "xxxxxx",
"recordsCount": 9900
}
}
```


4.2.6.1.5 Body Elements

#	Parameter Name	Mandatory	Data type	Range	Description
1	fileName	Yes	String	NA	Filename of the target file that was originally passed by MoTech with NotifyTargetFile API
2	cdrSummary	Yes	JSON String	NA	Contains CDR file name, checksum, records count information
3	cdrDetail	Yes	JSON String	NA	Contains CDR file name, checksum, records count information

4.2.6.2 cdrFileNotification API – Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful		202	Application/json	Accepted
Failure	{ "failureReason" : "<Description of the failure reason>" }	400	Application/json	In case parameter value is invalid "Parameter – "<Parameter Name : Invalid Value>" shall be returned in failure reason
		400	Application/json	In case filename is not found "Filename invalid"
		400	Application/json	In case mandatory parameter is missing Parameter "<Parameter Name: Not Present>" shall be returned in failure reason
		500	Application/json	In case of internal error "Internal Error" shall be returned in the failure reason

4.2.6.2.1 Body Elements

#	Element Name	Mandatory	Datatype	Range	Details
1	failureReason	No	String	NA	Gives description of the failure

4.2.7 FileProcessedStatus Notification API

IVROBD shall invoke the notification API of NMS platform to update about the status of file copy after the initial checks on the file are completed.

4.2.7.1 NotifyFileProcessedStatus API - Request

URL:

http://<motech:port>/motech-platform-server/module/kilkari/obdFileProcessedStatusNotification/

Method: POST

4.2.7.1.1 Validations

NMS shall return Failure with appropriate http error code in following case

- Filename or fileProcessedStatus is missing.
- Filename is not matching with the internal data
- Invalid fileProcessedStatus
- Email/Alert shall be raised by NMS platform for such failures.

4.2.7.1.2 Http time Out

HTTP Timeout Category	Description
Offline	Refer 6

4.2.7.1.3 Body Example

```
{
   "fileProcessedStatus": 8000,
    "fileName": "OBD_NMS1_20150127090000"
}
```

4.2.7.1.4 Body Elements

#	Element Name	Mandatory	Datatype	Range	Details
1	fileProcessedStatus	Yes	numeric	Refer section 4.5.2 for list of possible values	Provides the status of the File processing.
2	fileName	Yes	String	NA	Filename of the source target file which was processed.
3	failureReason	No	String	NA	In case file is not accessible. "Unable to access file from location – "<<IP>>\<<filepath>>\<<filename>>. File: <<filename>>"

					In case of recordscount mismatch, the format would be: "Error in recordscount value: Expected value <<Passed by NMS.>>. Actual Value:<<calculated by IMI OBD>>. File: <<Filename>>"
					In case of checksum mismatch, the format would be: "Error in checksum value: Expected value <<Passed by NMS.>>. Actual Value:<<calculated by IMI OBD>>. File: <<Filename>>
					Contains the reason for rejection of the file. In the format "File:<<filename>>. Error in Record with Request ID: <<>>. Field <<fieldname>> is <<missing| invalid>>

4.2.7.2 NotifyFileProcessedStatus API - 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 error "Internal Error" shall be returned in the failure reason

4.2.7.2.1 Body Elements

#	Element Name	Mandatory	Datatype	Range	Details
1	failureReason	No	String	NA	Gives description of the failure

4.2.8 Call Notification API

This API is called by IVR Platform in following conditions are met:

1. Call Notification URL is defined for the service
2. Final-status of the OBD Request is updated as either Success, Failed or Rejected.

4.2.8.1 CallNotification API - Request

URL: <Can be specified at run-time>

Method: Post

4.2.8.1.1 Validations

2. None

4.2.8.1.2 Http time Out

HTTP Timeout Category	Description
Offline	Refer 6

4.2.8.1.3 Body Example


```
{
  "requestId": "xxxx",
  "msisdn": "9177228889",
  "attempts": 1,
  "finalStatus": 1,
  "serviceId": "Service1",
  "cli": "04066001111",
  "callRecords": [
    {
      "callid": "xxxxx",
      "attemptNo": 1,
      "callStartTime": 1200000000,
      "callAnswerTime": 1200000021,
      "callEndTime": 1200002221,
      "callDurationInPulses": 2,
      "callStatus": 1001,
      "languageLocationID": "10",
      "contentFile": "week2.wav",
      "msgPlayStartTime": 1200000000,
      "msgPlayEndTime": 1200000032,
      "circleID": "AP",
      "operatorID": "A",
      "priority": 2,
      "callDisconnectReason": 1,
      "weekId": "xx2_2"
    }
  ]
}""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
```

4.2.8.1.4 Body Elements

#	Parameter Name	Mandatory	Data type	Range	Description
1	requestId	Yes	String		Request ID of the OBD record
2	msisdn	Yes	String		Dialed Number
3	attempts	Yes	String		Total number of attempts made
4	finalStatus	Yes	Numeric	Refer 5.2	Final status of the OBD request. Possible values are – success, failed, rejected.
5	serviceId	Yes	String		Unique Id provided by IMImobile for a particular service
6	cli	Yes	String		10 Digit number displayed as CLI for the call.
7	callRecords	Yes	Array<callRecord>		Contains detailed information about each call.
8	<callRecord>	No	Object		Detail of call record
9	callRecord >> callId	Yes	String		Unique id generated by the IVR system for the call attempt
10	callRecord >> attemptNo	Yes	Numeric		Attempt number (starting from 1 for the first call. In case no attempts were made, no record will be included in the detail)
11	callRecord >> callStartTime	Yes	Integer		Gives the call attempted time in epoch format.
12	callRecord >> callAnswerTime	No	Integer		Gives the call answered time in epoch format , in case the call was answered
13	callRecord >> callEndTime	Yes	Integer		Gives the call end time in epoch format.
14	callRecord >> callDurationInPulse	Yes	Numeric		Specifies the duration of call in pulse. For unsuccessful calls, the value shall either be zero or left bank.
15	callRecord >> callStatus	Yes	Numeric	Refer sec 4.5.1	Refer Status-codes in the table
16	callRecord >> languageLocationId	Yes	Integer	Refer section 7.2	Language code of the content that is played
17	callRecord >> contentFile	Yes	String		Contentfile played (of the kilkari service)
18	callRecord >> msgPlayStartTime	Yes	Integer		Time when the play message started, as timestamp in epoch format
19	callRecord >> msgPlayEndTime	Yes	Integer		Time at the end of message play, as timestamp in epoch format
20	callRecord >> circleId	Yes	String	Refer 5.3	Circle of the called number
21	callRecord >>	Yes	String	Refer	Operator of the called

	operatorId			5.4	number
22	callRecord >> priority	Yes	Integer		Specifies the priority with which the call is to be made. By default value is 0. { Possible Values: 0-Default, 1-Medium Priority, 2-High Priority}
23	callRecord >> callDisconnectReason	Yes	String	Refer 5.1	Refer table call Disconnect Reason
24	callRecord >> weekId	Yes	String		Week id of the messaged delivered in OBD

4.2.8.1.5 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.

4.2.8.2 CallNotification API - 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 error "Internal Error" shall be returned in the failure reason

4.2.8.2.1 Body Elements

#	Element Name	Mandatory	Datatype	Range	Details
1	failureReason	No	String		Gives description of the failure

4.3 APIs Exposed by IVR System (called by NMS_MoTech_Kilkari)

4.3.1 TargetFile Notification API

NMS shall invoke this API to notify IVR platform when a target file is ready.

4.3.1.1 NotifyTargetFile API - Request

URL:
http://<IVROBDAPI:port>/obdmanager/notifytargetfile
Method: Post

4.3.1.1.1 Validations

- IVROBD Manager shall return Failure with appropriate http error code in following case
  - fileName, checksum or recordsCount is missing.
- Filename should be unique for the day.
- Email/Alert shall be raised by IVR OBD platform for such failures.

4.3.1.1.2 Http time Out

HTTP Timeout Category	Description
Offline	Refer 6

4.3.1.1.3 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.

4.3.1.1.4 Body Example

```
{
"fileName": "OBD_NMS1_20150127090000.csv",
"checksum": "xxxxxx",
"recordsCount": 5000
}
```

4.3.1.1.5 Body Elements

#	Parameter Name	Mandatory	Data type	Range	Description
1	fileName	Yes	String	NA	Filename of the target file.
2	checksum	Yes	String	NA	Checksum value of the file
3	recordsCount	Yes	Integer	NA	Total number of records in the file

4.3.1.2 NotifyTargetFile API - Response

Response Status	Body Example	HTTP Status Code	Content Type	Description
Successful		202	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 error "Internal Error" shall be returned in the failure reason

4.3.2 CDRFileProcessedStatus Notification API

NMS shall invoke the notification API of IVROBD platform to notify the receipt of the CDR files

4.3.2.1 CDRFileProcessedStatus API - Request

URL: http://<IVROBDAPI:port>/obdmanager/**NotifyCDRFileProcessedStatus**
Method: Post

4.3.2.1.1 Validations

- IVR OBD Manager shall return Failure with appropriate http error code in following case
  - Invalid Filename
  - Any mandatory Parameters are missing
  - Invalid cdrFileProcessingStatus codes.

4.3.2.1.2 Http time Out

HTTP Timeout Category	Description
Offline	Refer 6

4.3.2.1.3 Body Example

```
{
"cdrFileProcessingStatus": 8000,
"fileName": "OBD_NMS1_20150127090000"
}
```

4.3.2.1.4 Body Elements

#	Parameter Name	Mandatory	Data type	Range	Description
1	cdrFileProcessingStatus	Yes	Numeric	Refer section 4.5.2	The status of CDR file processing.
2	fileName	Yes	String	NA	Filename passed in the CDR Filenotification API

3	failureReason	Yes	String		In case file is not accessible. "Unable to access file from location – "<<IP>>\<<filepath>>\<<file name>>. File: <<filename>>"
					In case of recordsCount mismatch, the format would be: "Error in recordscount value: Expected value <<Passed by IMI.>>. Actual Value:<<calculated by NMS>>. File: <<Filename>>"
					In case of checksum mismatch, the format would be: "Error in checksum value: Expected value <<Passed by IMI.>>. Actual Value:<<calculated by NMS>>. File: <<Filename>>
					Contains the reason for rejection of the file. In the format "File:<<CDR filename>>. Error in Record with Request ID: <<>>. Field <<fieldname>> is <<missing| invalid>>.

4.3.2.1.5 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.

4.3.2.2 CDRFileProcessedStatus API - 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 error "Internal Error" shall be returned in the failure reason

4.3.2.2.1 Body Elements

#	Element Name	Mandatory	Datatype	Range	Details
1	failureReason	No	String		Gives description of the failure

4.4 File Formats

4.4.1 Target File Format

A target group file specifies the records to be dialed out. The format of the target group file is given below

#	Field Name	Mandatory	Data type	Range	Description
1	RequestId	Yes	String		A unique Request id for each obd record
2	ServiceId	Yes	String		Unique Id provided by IMImobile for a particular service
3	Msisdn	Yes	String		10 digit number to be dialed out
4	Cli	No	String		10 Digit number to be displayed as CLI for the call. If left blank, the default CLI of the service shall be picked up.
5	Priority	No	Numeric		Specifies the priority with which the call is to be made. By default value is 0. { Possible Values: 0-Default, 1-Medium Priority, 2-High Priority}
6	CallFlowURL	No	String		The URL of the VXML flow. If unspecified, default VXML URL specified for the service shall be picked up
7	ContentFileName	Yes	String		Contentfile to be played
8	WeekId	Yes	String		Week id of the messaged delivered in OBD
9	LanguageLocationCode	Yes	Integer		To identify the language
10	Circle	Yes	String		Circle of the beneficiary.

4.4.2 CDR Summary File Format

#	Field Name	Mandatory	Data type	Range	Description
1	RequestId	Yes	String		Same as the data received in the request
2	ServiceId	Yes	String		Same as the data received in the request
3	Msisdn	Yes	String		Same as the data received in the request
4	Cli	No	String		Same as the data received in the request
5	Priority	No	Numeric		Same as the data received in the request
6	CallFlowURL	No	String		Same as the data received in the request
7	ContentFileName	Yes	String		Same as the data received in the request
8	WeekId	Yes	String		Same as the data received in the request
9	LanguageLocationCode	Yes	Integer		Same as the data received in the request
10	Circle	Yes	String		Same as the data received in the request
11	FinalStatus	Yes	Numeric	Refer sec 5.2	Gives final status of the OBD request. The possible values are SUCCESS (1), FAILED(2) or REJECTED (3)
12	StatusCode	Yes	Numeric	Refer sec 4.5.1	Status code of the last call.
13	Attempts	Yes	Numeric		Total call attempts made for the OBD Request

4.4.3 CDR Detail File Format

The below is the structure of the CDR Detail file. One record will be included for each OBD Call attempt made.

#	Field Name	Mandatory	Data type	Range	Description
1	RequestId	Yes	String		Request ID of the OBD record
2	Msisdn	Yes	String		Dialed Number
3	CallId	Yes	String		Unique id generated by the IVR system for the call attempt
4	AttemptNo	Yes	Numeric		Attempt number (starting from 1 for the first call. In case no attempts were made, no record will be included in the detail)
5	CallStartTime	Yes	Integer		Gives the call attempted time in epoch format.
6	CallAnswerTime	No	Integer		Gives the call answered time in epoch format , in case the call was answered

7	CallEndTime	Yes	Integer		Gives the call end time in epoch format.
8	CallDurationInPulse	Yes	Numeric		Specifies the duration of call in pulse. For unsuccessful calls, the value shall either be zero or left bank.
9	CallStatus	Yes	Numeric	Refer sec 4.5.1	Refer Status-codes in the table
10	LanguageLocationId	Yes	Integer	Refer section 7.2	Language code of the content that is played
11	ContentFile	Yes	String		Contentfile played (of the kilkari service)
12	MsgPlayStartTime	Yes	Integer		Time in epoch format when the play message started.
13	MsgPlayEndTime	Yes	Integer		Time when the message playing
14	CircleId	Yes	String	Refer 5.3	Circle of the called number
15	OperatorId	Yes	String	Refer 5.4	Operator of the called number
16	Priority	Yes	Integer		Specifies the priority with which the call is to be made. By default value is 0. { Possible Values: 0-Default, 1-Medium Priority, 2-High Priority}
17	CallDisconnectReason	Yes	String	Refer 5.1	Refer table call Disconnect Reason
18	WeekId	Yes	String		Week id of the messaged delivered in OBD

4.5 Constants

4.5.1 OBD Status-Codes

Possible values of an OBD Call

Values	Description
1001	OBD_SUCCESS_CALL_CONNECTED
2000	OBD_FAILED_NOATTEMPT
2001	OBD_FAILED_BUSY
2002	OBD_FAILED_NOANSWER
2003	OBD_FAILED_SWITCHEDOFF
2004	OBD_FAILED_INVALIDNUMBER
2005	OBD_FAILED_OTHERS
3001	OBD_DNIS_IN_DND

4.5.2 File Processing Notifications

File processing status

Values	Description
8000	FILE_PROCESSED_SUCCESSFULLY
8001	FILE_NOT_ACCESSIBLE
8002	FILE_CHECKSUM_ERROR
8003	FILE_RECORDSCOUNT_ERROR
8004	FILE_OUTSIDE_SOCIALHOURS
8005	FILE_ERROR_IN_FILE_FORMAT

5 Common Constants

5.1 Call Disconnect Reason

Disconnect Reason	Value
Normal Drop	1
VXML Runtime exception	2
Content Not found	3
Usage Cap exceeded	4
Error in the API	5
System Error	6

5.2 Call Status

Possible values of an OBD Request

Status	**Description**

Success	1
Failed	2
Rejected	3

5.3 Circle Codes

Telecom Circle	Return Code
Andhra Pradesh Teecom Circe	AP
Assam Teecom Circe	AS
Bihar Teecom Circe	BI
Dehi Metro Teecom Circe	DE
Gujarat Teecom Circe	GU
Haryana Teecom Circe	HA
Himacha Pradesh Teecom Circe	HI
Jammu & Kashmir Teecom Circe	JK
Karnataka Teecom Circe	KA
Keraa Teecom Circe	KL
Kokata Metro Teecom Circe	KO
Madhya Pradesh Teecom Circe	MP
Maharashtra Teecom Circe	MH
Mumbai Metro Teecom Circe	MU
Northeast Teecom Circe	NE
Orissa Teecom Circe	OR
Punjab Teecom Circe	PU
Rajasthan Teecom Circe	RA
Tami Nadu Teecom Circe (Now includes Chennai)	TN
Uttar Pradesh (East) Teecom Circe	UE
Uttar Pradesh (West) Teecom Circe	UW
West Benga Teecom Circe	WB
Unknown Circle	99

5.4 Operator Codes

Operator code	operator name	Status
D	Aircel, Dishnet Wireless	
A	Bharti Airtel	
B	BSNL	
L	BPL, Loop Telecom	Currently discontinued

C	Datacom Solutions (Videocon)	
H	HFCL Infotel	Currently discontinued
I	Idea, Aditya Birla Telecom	
M	MTNL	
R	Reliance GSM	
E	Reliance CDMA	
S	S. Tel Ltd	Currently discontinued
Y	Shyam Telecom (MTS)	
P	Spice Communications	Currently discontinued
W	Swan Telecom	Currently discontinued
T	Tata Docomo, Tata Tele	
U	Uninor	
V	Vodafone	
9	Unknown	Unknown Operator

6 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 following retry timeouts: • First retry after 5 minutes. • Second retry after 10 minutes of first retry. • Third retry : 20 minutes of Second retry • No More retries.

7 APPENDIX

7.1 Content Table [IMI team]

Below is the structure of the proposed content table.

ContentID	Service Name	Circle	language location code	Content name	Content Type (prompt/ content)	Content file	Card number
100011	MA	AP	11	Chap01	Prompt	chapter01.wav	
100012	MA	TN	12	Chap01	Prompt	chapter01.wav	
100013	MA	KL	13	Chap01	Prompt	chapter01.wav	
100014	MA	AP	14	Chap01Lesson 01	Content	chap01lesson 01.wav	
100015	MA	TN	15	Chap01Lesson 01	Content	chap01lesson 01.wav	
100016	MA	KL	16	Chap01Lesson 01	Content	chap01lesson 01.wav	
200011	MK	AP	11	YellowFever	Content	yellowFever.w av	12
300011	Kilkari	AP	11	W11_1	Content	W11_1.wav	

Note: The structure remains same for all the services. As shown above, the content id is unique and generated by the system for every new content uploaded. To handle multiple languages effectively, the filename of the content should be same across all languages.

Content Name can be used by NMS reporting purposes, while content file needs to be passed to IVR (VXML) so that it can play appropriate content.

A group of districts is directly mapped to a single language, as discussed in the last meeting. Hence, the language enumerations can be same as group of districts

7.2 Language Location Code Mapping Table[Needed from BBC]

Circle	State	District	languagelocation code	Language	Default L (Y/N)