exotel
DOCS

Voice APIs

1. Answering Machine Detection (AMD)

Status: Beta. Please reach out to your Exotel account manager to have AMD enabled on your account.

Overview

Answering Machine Detection (AMD) tells you whether an outbound call was answered by a **human** or by a **machine** (such as voicemail or an IVR). This lets you take different actions depending on who picked up – for example, playing a message only when a human answers, or skipping voicemail drops.

AMD results are delivered through Exotel's call callbacks (APIs). They are **not** shown in reports or the dashboard.

How AMD works

When AMD is enabled, Exotel analyzes the audio at the start of the call – the greeting and the silences around it – to classify who answered. The classification is returned through two new parameters inside the Legs object of your callback payload:

Parameter	Description
AnsweredBy	The AMD result. Use this for your final classification.
AmdCause	The reason behind the result, including the values used for detection. Use this for debugging or understanding why a result was given.

Possible AnsweredBy values

- HUMAN – the call was answered by a person
- MACHINE – the call was answered by a machine (voicemail, IVR, etc.)
- NOTSURE – detection could not reach a definitive result
- NA – AMD was not applicable for this leg

Key behaviors

1. AMD applies only to Leg 2 (the To leg). Detection runs only on the number being dialled (Leg 2 / the To leg). Leg 1 (the From leg) will always return AnsweredBy: NA. When reading the payload, use the AnsweredBy value on Leg 2 for the human-vs-machine result.

2. AMD detection is asynchronous. Detection does not block or delay call connection or routing – the call proceeds normally while analysis happens in the background. Because detection listens to the greeting and surrounding silence, the result takes roughly **3–5 seconds** to finalize and is delivered once complete. Consume the result from the callback payload when it arrives, rather than expecting it the instant the call is answered.

Where you receive the result

A. StatusCallback terminal event

To receive the AMD status via StatusCallback, you must **subscribe to terminal events**. Once subscribed, the AMD result is included in the terminal StatusCallback payload, inside the Legs object.

Sample terminal StatusCallback payload:


```
{
  "CallSid": "f3dec10279a310e2831754a4ec841a5f",
  "ConversationDuration": "13",
  "DateCreated": "2026-05-15 16:46:13",
  "DateUpdated": "2026-05-15 16:46:50",
  "DetailedStatus": "NA",
  "DetailedStatusSubBucket": "NA",
  "Direction": "outbound-api",
  "DisconnectedBy": "Callee",
  "EndTime": "2026-05-15 16:46:50",
  "EventTime": "2026-05-15 16:46:50",
  "EventType": "terminal",
  "From": "08203612779",
  "Legs": [
    {
      "OnCallDuration": "26",
      "RingingDuration": "5",
      "Status": "completed",
      "AnsweredBy": "NA",
      "AmdCause": ""
    },
    {
```

```
      "OnCallDuration": "13",
      "RingingDuration": "4",
      "Status": "completed",
      "AnsweredBy": "HUMAN",
      "AmdCause": "HUMAN-080-880"
    }
  ],
  "PhoneNumberSid": "8224778996",
  "RecordingUrl":
"https://recordings.us3.qaexotel.com/exotelrecordings/ree5e1us3/f3dec10279a31
0...",
  "StartTime": "2026-05-15 16:46:13",
  "Status": "completed",
  "To": "08969916092"
}
```


In this example:

- Legs[0].AnsweredBy: NA → AMD was not applicable for the From leg (Leg 1).
- Legs[1].AnsweredBy: HUMAN → the To number (Leg 2) was answered by a human.

B. Passthru payload

When AMD is enabled, the Passthru payload also includes AnsweredBy and AmdCause inside the Legs object.

Sample Passthru payload:


```
{
  "CallSid": "afc75285632df2acd33b7ea1fecb1a4h",
  "CallFrom": "06203612779",
  "CallTo": "02247789996",
  "Direction": "outbound-dial",
  "DialCallDuration": 27,
  "DialCallStatus": "completed",
  "StartTime": "2026-04-17 19:02:06",
  "CurrentTime": "2026-04-17 19:02:38",
  "Legs": [
    {
      "Number": "06355212721",
      "Type": "single",
      "OnCallDuration": 18,
      "CauseCode": "NORMAL_CLEARING",
      "AnsweredBy": "HUMAN",
      "AmdCause": "HUMAN-800-800"
    }
```

```
  ]
}
```

In this example:

- AnsweredBy: HUMAN → the call was detected as answered by a human.
- AmdCause: HUMAN-800-800 → a short greeting was detected, followed by silence – typical human behavior, where the person says "Hello?" and waits for a response.

AMD Cause reference

Use AnsweredBy for your final classification, and AmdCause to understand why that classification was made. Values shown in {curly braces} are the actual measured/threshold figures used during detection.

AnsweredBy	AmdCause	What it means
MACHINE	INITIALSILENCE-{detected}-{threshold}	Long silence before any voice started. Machines often have a delay or beep before the greeting plays.
MACHINE	MAXWORDS-{wordsDetected}-{maxAllowed}	Too many words were spoken in the greeting. Machines usually have longer greetings.
MACHINE	LONGGREETING-{voiceDuration}-{greetingLimit}	The total voice duration of the greeting was too long.
MACHINE	MAXWORDLENGTH-{consecutiveVoiceDuration}	A single continuous stretch of voice without a pause was too long.
HUMAN	HUMAN-{silenceDuration}-{afterGreetingThreshold}	A short greeting was spoken, followed by silence.
NOTSURE	TOOLONG-{totalTime}	The analysis window ended before a definitive result could be detected.
NOTSURE	NOAUDIODATA-{totalTime}	No audio frames were received during the analysis window.

Accuracy

Exotel detects voicemail using heuristic algorithms based on maximum words spoken, silence, and greeting length. Detection typically takes **3–5 seconds**, with an accuracy of **60–75%**, which is on par with industry standards.

There is no consistent signaling difference between a call picked up by a human and one picked up by a machine, so detection relies on audio cues such as tone of voice and speed of words spoken.

FAQ

Q: A call went to voicemail. Will its status change to "no-answer," or stay in the success bucket?

It stays in the success bucket. The call was successfully connected and answered (by a machine), and these are billable seconds, so the call is not moved to a non-successful state. Use the AnsweredBy parameter separately to determine whether the answer was a human or a machine.

Q: Will the AMD result appear in my reports or dashboard?

No. AMD results are available only through the API callbacks (StatusCallback terminal event and Passthru payload), not in reports or the dashboard.

Q: Which leg does AMD apply to?

Only Leg 2 (the To leg). Leg 1 (the From leg) always returns AnsweredBy: NA.

Q: Is AMD real-time? Will it delay my call?

No delay. AMD is asynchronous – the call connects and proceeds normally while detection runs in the background. The result is delivered through the callback once detection completes (roughly 3–5 seconds).

2. ExoML for Programmable Voice

2.1. Authentication & Base URL

Introduction

ExoML provides developers with APIs that give low-level control over call legs, media, and bridges.

These APIs are designed for advanced voice orchestration, real-time call control, and custom contact center or voice workflows.

Base URL

All ExoML Aare served from the Exotel CPaaS API host.

Base URL format

```
https://cpaas-api.in.exotel.com/v2/accounts/{account_sid}
```

Example

```
https://cpaas-api.in.exotel.com/v2/accounts/ameyo5m
```

Important

- ameyo5m is an example Account SID

- Always use {account_sid} as a placeholder

How to get your API credentials

To use the ExoML, developers must generate API credentials from the Exotel dashboard.

Steps

1. Log in to **https://my.exotel.com**
2. Go to **Developer Settings → API Settings**
3. Copy:
    - Account SID
    - API Key
    - API Token

These credentials are required for all Call Control API requests.

Authentication

All ExoML use **HTTP Basic Authentication**.

- **Username:** API Key
- **Password:** API Token

Example

```
curl -u "<API_KEY>:<API_TOKEN>" \
https://cpaas-api.in.exotel.com/v2/accounts/<account_sid>/legs
```

Notes

- Credentials are not embedded in the URL
- Credentials are not passed in request bodies
- Every request must include Basic Authentication

Request Format

Required headers

```
Content-Type: application/json
Authorization: Basic <base64(API_KEY:API_TOKEN)>
```

URL structure

```
/v2/accounts/{account_sid}/{resource}
```

Common resources

- /legs
- /legs/{leg_sid}
- /legs/{leg_sid}/actions
- /bridges
- /bridges/{bridge_sid}
- /bridges/{bridge_sid}/actions

Example: Create a Leg

Endpoint

```
POST /legs
```

Full URL

```
https://cpaas-api.in.exotel.com/v2/accounts/{account_sid}/legs
```

Example request

```
curl -u "<API_KEY>:<API_TOKEN>" \
-H "Content-Type: application/json" \
-X POST \
https://cpaas-api.in.exotel.com/v2/accounts/<account_sid>/legs \
-d '{
  "contact_uri": "09163816621",
  "exophone": "08030752400",
  "leg_event_endpoint": "grpc://127.0.0.1:9001"
}'
```

Next Steps

Once authentication is set up, you can:

- Create and manage call legs
- Bridge multiple legs
- Control media (play, say, record, stream)
- Receive real-time call events via gRPC

Proceed to the **ExoML Introduction** section to explore individual endpoints.

2.2. Rate Limits

Introduction

To ensure platform stability and fair usage across all customers, Exotel enforces **rate limits** on API requests.

Rate limits apply **per account** and are evaluated based on **API type and request volume**.

Default Limit

Default limit for all API is **100 RPM** which can be increased based on request to us. If you exceed the rate limit, you will receive a 429 HTTP response code. Please ensure that your application adheres to the rate limits to avoid disruptions in service.

How Rate Limiting Works

- Rate limits are applied at the **account level**
- Limits may vary based on:
  - API category (Legs, Bridges, Actions, Events)
  - Region
  - Contractual plan
- Both **burst limits** and **sustained request limits** may apply

Rate Limit Exceeded Response

If a request exceeds the allowed rate limit, the API responds with:

HTTP Status Code

```
429 Too Many Requests
```

Sample Response

```
{
  "request_id": "xyz123",
```

```
  "http_code": 429,
  "response": {
    "error": {
      "code": "RATE_LIMIT_EXCEEDED",
      "message": "Rate limit exceeded. Please retry after some time."
    }
  }
}
```

Best Practices

- Implement **retry logic with exponential backoff**
- Avoid sending multiple concurrent actions on the same leg or bridge
- Batch workflows where possible instead of polling
- Use **external events (gRPC)** instead of frequent status checks

Increasing Rate Limits

If your use case requires higher throughput (for example, large-scale outbound calling or real-time orchestration):

- Contact your **Exotel account manager**
- Share:
  - Expected request volume
  - API categories used
  - Peak traffic patterns

Custom rate limits may be provisioned based on use case and plan.

Notes

- Rate limits are enforced to protect platform reliability
- Repeated violations may result in **temporary throttling**
- Rate limits apply uniformly across **production and sandbox environments**, unless explicitly stated otherwise

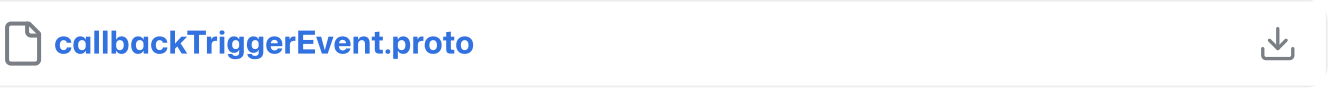
2.3. Implementing Your gRPC Endpoint for Real-Time Call Events

To integrate with **ExoML**, your team will need to implement a gRPC endpoint. Our platform uses a **gRPC-based, event-driven architecture**, which means we will push real-time call events directly to your service, offering a more efficient solution than traditional polling.

The service contract, which defines the required methods, is in the **.proto file**.

Configuration Steps:

1. **Implement the gRPC Service:**
    - Use the attached .proto schema as your service definition.
    - Your implementation must include the TriggerCallbackEvent method. This is the callback our system will invoke to push event data to you.
2. **Deploy Your Service Endpoint:**
    - The endpoint must be publicly reachable and will act as the "listener" for our events.
    - It needs to be secured with TLS (HTTPS on port 443 is standard). Mutual TLS is optional but recommended.
3. **Register Your Endpoint:**
    - Once deployed, please provide us with the public URL of your gRPC endpoint so we can complete the integration from our end.



2.4. ExoML – Introduction

Key Concepts

Concept	Description
Leg	A single call participant
Leg SID	Unique identifier for a leg
Actions	Commands executed on a leg
External Events	Async signals emitted for state changes

A **Leg** represents a single participant in a call. Every call is composed of one or more legs, which can be controlled independently using **Leg Actions**.

ExoML allows you to:

- Create a new leg (incoming or outgoing)
- Retrieve leg details
- Update leg configuration
- Execute actions such as Play, Say, Dial, Hold, Mute, Record, Stream, etc.

Base URL

```
https://cpaas-api.in.exotel.com/v2/accounts/{AccountSID}
```

Authentication

Use **Basic Authentication**.

```
Authorization: Basic <BASE64_APIKEY_APITOKEN>
Content-Type: application/json
```

API credentials are available at:
my.exotel.com → Developer Settings

Related APIs

- **POST /legs** – Create a leg
- **GET /legs/{LegSID}** – Get leg details
- **PUT /legs/{LegSID}** – Update leg
- **POST /legs/{LegSID}/actions** – Execute leg actions
- **GET /legs/{LegSID}/external_events** – Retrieve leg events

2.4.1. POST – Create a Leg

Description

Creates a **call leg**, which represents one side of a call (customer, agent, bot, or SIP endpoint).

A leg can be:

- Outbound (Exotel → destination)
- Inbound (answered and controlled via actions)
- PSTN or SIP-based

Once created, the leg can be **answered, played to, recorded, streamed, bridged, or terminated** using Leg Actions.

Endpoint

POST

```
/v2/accounts/{account_sid}/legs
```

Full URL

```
https://cpaas-api.in.exotel.com/v2/accounts/{account_sid}/legs
```

Authentication

- **Type:** HTTP Basic Authentication
- **Username:** API Key
- **Password:** API Token

Request Headers

```
Content-Type: application/json
Authorization: Basic <base64(API_KEY:API_TOKEN)>
```

Request Body Parameters

Mandatory Parameters

Parameter	Type	Description
contact_uri	string	Destination to dial. Can be a phone number or a SIP URI (sip:user@domain).
exophone	string	Exotel number or SIP identity used as the caller ID.
leg_event_endpoint	string	gRPC endpoint where leg events are delivered. Must start with grpc://.

Optional Parameters

Parameter	Type	Default	Description
network_type	string	pstn	pstn or voip. Use voip when contact_uri is a SIP URI.
custom_param	string	–	Custom value echoed back in events for correlation.
timeout	integer (sec)	30	Time allowed for the call to be answered.
setup_timeout	integer (sec)	30	Time allowed for call setup.
ring_timeout	integer (sec)	30	Time the destination is rung.
time_limit	integer (sec)	14400	Maximum duration of the leg (default: 4 hours).
amd_enable	boolean	false	Enables Answering Machine Detection.
async_amd	boolean	false	If true, AMD result is delivered asynchronously as an event.
reference_leg_sid	string	–	Used to colocate legs for low-latency bridging.
priority	string	normal	Call priority when CPS controls are enabled.

Example Request

```
curl -u "<API_KEY>:<API_TOKEN>" \
-H "Content-Type: application/json" \
-X POST \
https://cpaas-api.in.exotel.com/v2/accounts/<account_sid>/legs \
-d '{
  "contact_uri": "09163816621",
  "exophone": "08030752400",
  "leg_event_endpoint": "grpc://127.0.0.1:9001",
  "network_type": "pstn",
  "timeout": 30,
```

```
  "time_limit": 600
}'
```

Success Response

HTTP 202 – Accepted


```
{
  "request_id": "811b113c561a4d35bd8520112eb629f7",
  "method": "POST",
  "http_code": 202,
  "response": {
    "error_data": null,
    "data": {
      "leg_sid": "2QYATxQ9t4UKcUwcqJClSa9OEZ400000",
      "account_sid": "ameyo5m",
      "contact_uri": "09163816621",
      "exophone": "08030752400",
      "network_type": "pstn",
      "created_at": "2023-05-31T08:02:32Z"
    }
  }
}
```


Response Fields

Field	Description
leg_sid	Unique identifier for the created leg.
account_sid	Exotel account identifier.
contact_uri	Destination that was dialed.
exophone	Caller ID used for the leg.
network_type	Network used for the call.
created_at	Timestamp when the leg was created.

Events Create Leg can generate:

Event Name	data
“leg_connecting”	"state": "connecting"
“leg_ringing”	"state": "ringing"
“leg_answered”	"state": "connected" (if amd_enable is true) "answered_by":"BEEP/ HUMAN / MACHINE"
“amd_result_success”	(If amd_enable, async_amd both is set to true) "state": "connected", "answered_by":"BEEP/ HUMAN / MACHINE"
“leg_terminated”	"state": "terminal", "terminal_status": "completed/ busy/ no-answer/ failed"
“leg_failed_to_create”	"state": "terminal", "terminal_status": "failed"

Error Responses

HTTP Code	Meaning	Description
400	Bad Request	Missing or invalid parameters
401	Unauthorized	Invalid API Key or Token
403	Forbidden	Access not allowed for this account
404	Not Found	Account SID not found
429	Too Many Requests	Rate limit exceeded
500	Server Error	Internal error

Notes & Best Practices

- Creating a leg is **asynchronous** – wait for events to know when it is answered
- Always store the returned leg_sid
- Use custom_param to correlate calls with your internal systems
- Ensure your leg_event_endpoint is reachable before creating legs
- Use reference_leg_sid when you plan to bridge multiple legs

What's Next?

After creating a leg, you can:

- **Answer or hang up** the leg
- **Play or say** audio
- **Record or stream** the call
- **Bridge** the leg with another leg

➡ Proceed to **Leg Actions** to control the call.

2.4.2. GET – Get Leg Details

Description

Fetches the current details of a **Leg** using its leg_sid. This is useful to:

- Check the leg state (created / ringing / connected / terminal)
- Fetch timestamps (created / start / end)
- Pull additional runtime statuses (bridge / recording / play / gather / hold, etc.) via fields

Endpoint

GET

```
/v2/accounts/{account_sid}/legs/{leg_sid}
```

Full URL

```
https://cpaas-api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}
```

Authentication

- **Type:** HTTP Basic Authentication
- **Username:** API Key
- **Password:** API Token

Request Headers

```
Content-Type: application/json
Authorization: Basic <base64(API_KEY:API_TOKEN)>
```

Path Parameters

Parameter	Type	Required	Description
account_sid	string	Yes	Exotel Account SID (from Exotel dashboard)
leg_sid	string	Yes	Leg SID returned by Create a Leg

Query Parameters (Optional)

fields

Use fields to request additional runtime statuses in the response.

Type: comma-separated string

Example

```
fields=bridge_status,recording_status,tx_audio_status,rx_audio_status,hold_status,gather_status,play_status
```

Field	Description
bridge_status	Whether the leg is bridged or not
recording_status	Whether recording is active
tx_audio_status	Transmit audio status (muted/normal)
rx_audio_status	Receive audio status (muted/normal)
hold_status	Whether leg is on hold
gather_status	Whether DTMF gather is active
play_status	Whether audio playback is active

```
Tip: If you don’t pass fields, the API returns the standard leg object without the additional_info section.
```

Example Request

Basic request

```
curl -u "<API_KEY>:<API_TOKEN>" \
-X GET \
https://cpaas-api.in.exotel.com/v2/accounts/<account_sid>/legs/<leg_sid>
```

Request with fields

```
curl -u "<API_KEY>:<API_TOKEN>" \
-X GET \
"https://cpaas-api.in.exotel.com/v2/accounts/<account_sid>/legs/<leg_sid>?
fields=bridge_status,recording_status,hold_status,gather_status,play_status"
```

Success Response

HTTP 200 – OK


```
{
  "request_id": "ce7b872225b348f09e80115c1ff569a3",
  "method": "GET",
  "http_code": 200,
  "response": {
    "error_data": null,
    "data": {
      "leg_sid": "2QYATxQ9t4UKcUwcqJClSa9OEZ400000",
      "account_sid": "ameyo5m",
      "contact_uri": "09163816621",
      "exophone": "08030752400",
      "caller_id": "8030752501",
      "direction": "outbound",
      "network_type": "pstn",
      "time_limit": 600,
      "state": "connected",
      "date_created": "2026-01-19T08:02:32Z",
      "date_updated": "2026-01-19T08:03:06Z",
      "start_time": "2026-01-19T08:02:35Z",
      "additional_info": {
        "recording_status": "not_recording",
        "hold_status": "normal",
        "gather_status": "not_gathering",
        "play_status": "not_playing",
        "bridge_status": "not_bridged"
      }
    }
  }
}
```

Response Fields

Core Fields

Field	Description
leg_sid	Unique identifier for the leg
account_sid	Exotel account identifier
contact_uri	Destination of the leg (phone/SIP URI)
exophone	Caller ID / Exotel number used
caller_id	Resolved caller ID presented
direction	inbound or outbound
network_type	pstn or voip
time_limit	Max time allowed for the leg
state	Current leg state (example: connected, terminal)
date_created	When leg was created
date_updated	Last update time
start_time	When leg connected/started (if applicable)

additional_info (only if fields requested)

Field	Description
recording_status	Recording status
hold_status	Hold status
gather_status	DTMF gather status
play_status	Playback status
bridge_status	Bridge connection status
tx_audio_status	Transmit audio status (if requested)
rx_audio_status	Receive audio status (if requested)

Error Responses

HTTP Code	Meaning	Description
400	Bad Request	Invalid fields value or malformed request
401	Unauthorized	Invalid API Key / Token
403	Forbidden	Access not allowed for this account
404	Not Found	Leg SID not found
429	Too Many Requests	Rate limit exceeded
500	Server Error	Internal error

Notes & Best Practices

- Use Get Leg Details for **polling** only when needed – prefer events for real-time status
- Always log request_id for debugging
- If you need runtime action statuses (play/record/bridge/hold), always pass fields

2.4.3. GET – Get Events for a Leg

Description

Retrieve all external events generated for a specific **Leg**, including lifecycle events and action-level events.

This API is useful for debugging, auditing, and reconstructing the event timeline for a leg.

Method

GET

Endpoint

```
/v2/accounts/{AccountSID}/legs/{LegSID}/external_events
```

Full URL

```
https://cpaas-
api.in.exotel.com/v2/accounts/{AccountSID}/legs/{LegSID}/external_events
```

Authentication

Use **Basic Authentication**.

```
Authorization: Basic <BASE64_APIKEY_APITOKEN>
```

API credentials can be found in **my.exotel.com → Developer Settings**.

Request Query Parameters

Parameter Name	Mandatory / Optional	Type	Description
event_name	Optional	String	Filters events by a specific event name (e.g., leg_answered, recording_started)

Sample Request

```
GET /v2/accounts/{AccountSID}/legs/{LegSID}/external_events
```

Sample Request with Filter

```
GET /v2/accounts/{AccountSID}/legs/{LegSID}/external_events?
event_name=leg_answered
```

Response

Response Parameters

Parameter Name	Type	Description
sid	string	Unique SID of the leg
event_type	string	Type of event (leg_action_event, leg_lifecycle_event)
account_sid	string	Account SID associated with the leg
external_events	array	List of external event objects

External Event Object

Each item in external_events contains:

Field	Type	Description
endpoint_response	boolean	Whether the event was successfully delivered
error	string	Error message, if delivery failed
date_created	string (ISO-8601)	Event creation timestamp
date_updated	string (ISO-8601)	Event update timestamp
event_info	object	Detailed event metadata

Event Info Object

Field	Type	Description
event_sid	string	Unique SID of the event
event_type	string	Event type (leg_action_event, leg_lifecycle_event)
event_name	string	Name of the event
event_timestamp	object	Timestamp when the event occurred
action_sid	string	Associated action SID
action_custom_parameter	string	Custom parameter passed during action execution
data	object	Event-specific payload

Sample Response


```
{
  "request_id": "ce7b872225b348f09e80115c1ff569a3",
  "method": "GET",
  "http_code": 202,
  "response": {
    "error_data": null,
    "data": {
      "sid": "2q47dakkScvff1IbPdpp7KJSe6j00000",
      "event_type": "leg_lifecycle_event",
      "account_sid": "sprinklr2m",
      "external_events": [
        {
          "endpoint_response": true,
          "error": "",
          "date_created": "2024-12-11T09:41:21.98089381Z",
          "date_updated": "2024-12-11T09:41:22.186124012Z",
          "event_info": {
            "event_sid": "2q47dipYPQbEnwgEnNWxrTB6YWb00000",
            "event_type": "leg_lifecycle_event",
            "event_name": "channel_created",
            "event_timestamp": {
              "seconds": 1733148727,
              "nanos": 963868626
            },
            "action_sid": "2pfEO9kg9YCqUJlbGHjYH2GaJa400000",
            "action_custom_parameter":
"START_UNI_STREAM_ACTION_CUSTOM_PARAM",
            "data": {
              "account_sid": "sprinklr2m",
```

```
              "caller_id": "08030752501",
              "contact_uri": "09163816622",
              "custom_param": "abc",
              "date_created": "2024-12-11T09:41:21.98089381Z",
              "date_updated": "2024-12-11T09:41:22.186124012Z",
              "dc_code": "101",
              "direction": "outbound",
              "exophone": "08030752400",
              "leg_sid": "2q47dakkScvff1IbPdpp7KJSe6j00000",
              "network_type": "pstn",
              "nso_code": "a8140aaa-ce40-11ed-9a09-0242ac110003",
              "start_time": "2024-12-11T09:41:22.186124012Z",
              "state": "created",
              "time_limit": 14400
            }
          }
        }
      ]
    }
  }
}
```


Notes for Developers

- Events are returned in **chronological order**
- This API is **read-only** and does not affect leg execution
- Useful for:
  - Debugging failed actions
  - Verifying event delivery
  - Building event-replay or analytics pipelines

2.4.4. Leg Actions

Description

Leg Actions allow you to **control an existing leg** after it has been created. Using these actions, you can answer, hang up, play audio, record, gather DTMF, stream audio, bridge calls, and more.

All leg actions are executed via a **single Actions API** using an **EXOML payload**.

Authentication

- **Type:** HTTP Basic Authentication
- **Username:** API Key
- **Password:** API Token

Request Headers

```
Content-Type: application/json
Authorization: Basic <base64(API_KEY:API_TOKEN)>
```

Request Body Structure

Field	Type	Required	Description
exoml	string	Yes	XML describing the action
action_custom_param	string	No	Custom value echoed back in events

Base URL

```
https://cpaas-api.in.exotel.com/v2/accounts/{account_sid}
```

Example

```
https://cpaas-api.in.exotel.com/v2/accounts/ameyo5m
```

Common Endpoint

All Leg Actions are executed using:

POST

```
/v2/accounts/{account_sid}/legs/{leg_sid}/actions
```

Full URL

```
https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions
```

Common Request Body

Parameter	Type	Required	Description
action_custom_param	string	No	Custom value echoed back in external events
exoml	string	Yes	EXOML XML defining the action

Common Response

HTTP 202 – Accepted

```
{
  "request_id": "abc123",
  "http_code": 202,
  "response": {
    "data": {
      "leg_sid": "LEG_SID"
    }
  }
}
```

Common Error Responses (applies to all actions)

HTTP Code	Description
400	Invalid EXOML or parameters
401	Authentication failed
403	Not authorized
404	Leg not found
429	Rate limit exceeded
500	Internal server error

External Events (General)

- Events are delivered asynchronously to the configured leg_event_endpoint (gRPC).
- Each action emits one or more action-specific events (listed in child pages).

2.4.4.1. Categorized Overview

Introduction

Leg Actions are executed on an active **call leg** to control **media**, **call state**, **routing**, **recording**, and **real-time integrations**.

Use this page to **quickly discover the right action** before diving into detailed API reference pages.

A. Media & Interaction Actions

These actions control **what the participant hears, says, or inputs** during a call.

- **<StartPlay>** Plays an audio file from a URL to the leg.
- **<StopPlay>** Stops an ongoing audio playback.
- **<Say>** Converts text to speech and plays it to the leg. Supports **Amazon Polly** and **Google TTS**.
- **<StopSay>** Stops an ongoing text-to-speech playback.
- **<PlaySequence>** Plays a sequence of media actions (e.g., Play → Say → Play) in order.
- **<Gather>** Collects DTMF digits (for IVR menus, PIN entry, confirmations).
- **<SendDigits>** Plays DTMF tones *out* to the leg (used to interact with downstream IVRs).

B. Call State Control

These actions manage the **lifecycle and audio state** of a call leg.

- **<Answer>** Picks up an incoming leg.
- **<Hangup>** Terminates the leg immediately.
- **<Mute> / <UnMute>** Mutes or unmutes audio on the leg. Supports direction control: in, out, or both.
- **<Hold> / <UnHold>** Places the leg on hold and resumes it. Supports optional **Music on Hold (MOH)** using nested <StartPlay>.

C. Connectivity & Routing

Advanced actions for **connecting legs, conferencing, and supervision**.

- **<Dial>** Creates a new outbound leg and bridges it to the current leg. Supports PSTN and VoIP destinations.
- **<JoinBridge>** Moves the leg into an existing multi-party bridge.
- **<LeaveBridge>** Removes the leg from a bridge.
- **<StartMonitoring>** Allows a supervisor to **listen** or **whisper** on another leg (rxAudio: muted / enabled).
- **<StopMonitoring>** Stops an active monitoring session.

D. Recording Actions

These actions manage **call recordings** at the leg level.

- **<StartRecording>** Starts recording audio on the leg. Supports multiple formats and storage options (S3 / HTTPS).
- **<StopRecording>** Stops an active recording and finalizes the recording file.

E. Streaming & Real-Time Integrations

Used for **voice bots, real-time analytics, and AI processing**.

- **<StartStream>** Streams live audio from the leg to a WebSocket endpoint.Supports unidirectional and bidirectional streaming.
- **<StopStream>** Stops an active audio stream.

F. Control & Event Routing

Actions that affect **control ownership and event delivery**.

- **<Refer>** Updates the external **event delivery endpoint (gRPC)** for the leg.Used when control needs to be transferred between systems.

Quick Summary Table

Category	Actions
Media & Interaction	StartPlay, StopPlay, Say, StopSay, PlaySequence, Gather, SendDigits
Call State Control	Answer, Hangup, Mute, UnMute, Hold, UnHold
Connectivity & Routing	Dial, JoinBridge, LeaveBridge, StartMonitoring, StopMonitoring
Recording	StartRecording, StopRecording
Streaming	StartStream, StopStream
Control & Event Routing	Refer

2.4.4.2. Request, cURL & Response Payloads

Endpoint (All Actions)

POST

```
/v2/accounts/{account_sid}/legs/{leg_sid}/actions
```

Full URL

```
https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions
```

Authentication

```
Authorization: Basic <BASE64_APIKEY_APITOKEN>
Content-Type: application/json
```

<Answer>

Request Payload

```
{
  "action_custom_param": "answer_call",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Answer></Answer>
</Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "answer_call",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Answer></Answer>
```

```
</Flow>"
}'
```

<Dial>

Request Parameters

Attribute	Required	Description
contactUri	Yes	Destination number or SIP URI
exophone	Yes	Caller ID
networkType	No	pstn or voip
absorbDtmf	No	Absorb DTMF during dial

Request Payload

```
{
  "action_custom_param": "test_dial",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Dial
contactUri=\"9791111865\" exophone=\"02048566335\" networkType=\"pstn\"
absorbDtmf=\"true\"></Dial></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "test_dial",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Dial
contactUri=\"9791111865\" exophone=\"02048566335\" networkType=\"pstn\"
absorbDtmf=\"true\"></Dial></Flow>"
}'
```

<Gather>

Request Parameters

Attribute	Required	Description
numDigits	No	Number of digits to collect
timeoutInSec	No	Timeout duration
finishOnKey	No	Key to terminate input

Request Payload

```
{
  "action_custom_param": "collect_digits",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Gather
numDigits=\"4\" timeoutInSec=\"10\" finishOnKey=\"#\"></Gather></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "collect_digits",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Gather
numDigits=\"4\" timeoutInSec=\"10\" finishOnKey=\"#\"></Gather></Flow>"
}'
```

<Hangup>

Request Payload

```
{
  "action_custom_param": "hangup_call",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Hangup></Hangup>
</Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
```

```
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "hangup_call",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Hangup></Hangup>
</Flow>"
}'
```

<Hold>

Request Payload

```
{
  "action_custom_param": "hold_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Hold></Hold>
</Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "hold_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Hold></Hold>
</Flow>"
}'
```

<JoinBridge>

Request Parameters

Attribute	Required	Description
bridgeSid	Yes	Bridge identifier
absorbDtmf	No	Absorb DTMF

Request Payload

```
{
  "action_custom_param": "join_bridge",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><JoinBridge
bridgeSid=\"BRIDGE_SID\" absorbDtmf=\"true\"></JoinBridge></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "join_bridge",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><JoinBridge
bridgeSid=\"BRIDGE_SID\" absorbDtmf=\"true\"></JoinBridge></Flow>"
}'
```

<LeaveBridge>

Request Payload

```
{
  "action_custom_param": "leave_bridge",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><LeaveBridge>
</LeaveBridge></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "leave_bridge",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><LeaveBridge>
</LeaveBridge></Flow>"
}'
```

<Mute> / <UnMute>

Request Parameters

Attribute	Required	Description
direction	No	in, out, both

Request Payload

```
{
  "action_custom_param": "mute_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Mute
direction=\"out\"></Mute></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "mute_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Mute
direction=\"out\"></Mute></Flow>"
}'
```

<PlaySequence>

Request Parameters

Nested media actions only.

Request Payload

```
{
  "action_custom_param": "play_sequence",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><PlaySequence>
<StartPlay>https://example.com/audio.wav</StartPlay><Say>Hello</Say>
</PlaySequence></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "play_sequence",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><PlaySequence>
<StartPlay>https://example.com/audio.wav</StartPlay><Say>Hello</Say>
</PlaySequence></Flow>"
}'
```

<Refer>

Request Parameters

Attribute	Required	Description
legEventEndpoint	Yes	gRPC endpoint

Request Payload

```
{
  "action_custom_param": "refer_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Refer
legEventEndpoint=\"grpc://host:port\"></Refer></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "refer_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Refer
legEventEndpoint=\"grpc://host:port\"></Refer></Flow>"
}'
```

<Say>

Request Payload

```
{
  "action_custom_param": "say_text",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Say>Hello</Say>
</Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "say_text",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Say>Hello</Say>
</Flow>"
}'
```

<SendDigits>

Request Parameters

Attribute	Required	Description
duration	No	Tone duration (ms)
between	No	Gap between digits

Request Payload

```
{
  "action_custom_param": "send_digits",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><SendDigits
duration=\"100\" between=\"500\">1234#</SendDigits></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
```

```
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "send_digits",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><SendDigits
duration=\"100\" between=\"500\">1234#</SendDigits></Flow>"
}'
```

<StartMonitoring>

Request Parameters

Attribute	Required	Description
monitoringLegSid	Yes	Target leg SID
rxAudio	No	muted / enabled

Request Payload

```
{
  "action_custom_param": "start_monitoring",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StartMonitoring
monitoringLegSid=\"LEG_SID\" rxAudio=\"muted\"></StartMonitoring></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "start_monitoring",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StartMonitoring
monitoringLegSid=\"LEG_SID\" rxAudio=\"muted\"></StartMonitoring></Flow>"
}'
```

<StartPlay>

Request Parameters

Attribute	Required	Description
Body (URL)	Yes	Public or authenticated audio file URL

Request Payload

```
{
  "action_custom_param": "start_play",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow>
<StartPlay>https://example.com/audio.wav</StartPlay></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "start_play",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow>
<StartPlay>https://example.com/audio.wav</StartPlay></Flow>"
}'
```

<StartRecording>

Request Parameters

Attribute	Required	Description
direction	No	in, out, both
format	No	wav, mp3
storageType	No	https, s3
storageURL	No	Upload endpoint

Request Payload

```
{
  "action_custom_param": "start_recording",
```

```
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StartRecording
direction=\"both\" format=\"wav\" storageType=\"https\"
storageURL=\"https://example.com/upload\"></StartRecording></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "start_recording",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StartRecording
direction=\"both\" format=\"wav\" storageType=\"https\"
storageURL=\"https://example.com/upload\"></StartRecording></Flow>"
}'
```

<StartStream>

Request Parameters

Attribute	Required	Description
streamType	Yes	unidirectional / bidirectional
streamUrl	Yes	WebSocket endpoint

Request Payload

```
{
  "action_custom_param": "start_stream",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StartStream
streamType=\"bidirectional\" streamUrl=\"wss://example.com/stream\">
</StartStream></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
```

```
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "start_stream",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StartStream
streamType=\"bidirectional\" streamUrl=\"wss://example.com/stream\">
</StartStream></Flow>"
}'
```

<StopMonitoring>

Request Payload

```
{
  "action_custom_param": "stop_monitoring",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopMonitoring>
</StopMonitoring></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "stop_monitoring",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopMonitoring>
</StopMonitoring></Flow>"
}'
```

<StopPlay>

Request Payload

```
{
  "action_custom_param": "stop_play",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopPlay>
</StopPlay></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "stop_play",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopPlay>
</StopPlay></Flow>"
}'
```

<StopRecording>

Request Payload

```
{
  "action_custom_param": "stop_recording",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopRecording>
</StopRecording></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "stop_recording",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopRecording>
</StopRecording></Flow>"
}'
```

<StopSay>

Request Payload

```
{
  "action_custom_param": "stop_say",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopSay>
</StopSay></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "stop_say",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopSay>
</StopSay></Flow>"
}'
```

<StopStream>

Request Parameters

Attribute	Required	Description
streamSid	Yes	Stream identifier

Request Payload

```
{
  "action_custom_param": "stop_stream",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopStream
streamSid=\"STREAM_SID\"></StopStream></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "stop_stream",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopStream
streamSid=\"STREAM_SID\"></StopStream></Flow>"
}'
```

<UnHold>

Request Payload

```
{
  "action_custom_param": "unhold_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><UnHold></UnHold>
</Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "unhold_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><UnHold></UnHold>
</Flow>"
}'
```

<UnMute>

Request Parameters

Attribute	Required	Description
direction	No	in, out, both

Request Payload

```
{
  "action_custom_param": "unmute_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><UnMute
direction=\"out\"></UnMute></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/legs/{leg_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
```

```
--data '{
  "action_custom_param": "unmute_leg",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><UnMute
direction=\"out\"></UnMute></Flow>"
}'
```

2.4.4.3. Leg Actions – External Events

Introduction

This page lists all **external events emitted by Leg Actions.** Events are delivered asynchronously to the configured **leg event endpoint**.

Answer

Event Name	Event Type	Description
leg_answered	leg_action_event	Triggered when the leg is successfully answered
answer_failed	leg_action_event	Triggered when the answer action fails

Hangup

Event Name	Event Type	Description
leg_terminated	leg_lifecycle_event	Triggered when the leg is terminated
hangup_failed	leg_action_event	Triggered when hangup fails

Dial

Event Name	Event Type	Description
dial_initiated	leg_action_event	Triggered when dial action starts
dial_success	leg_action_event	Triggered when dial is successful
dial_completed	leg_action_event	Triggered when dial flow completes
dial_failed	leg_action_event	Triggered when dial fails

StartPlay

Event Name	Event Type	Description
play_started	leg_action_event	Triggered when playback starts
play_completed	leg_action_event	Triggered when playback completes
play_interrupted	leg_action_event	Triggered when playback is interrupted
play_failed_to_start	leg_action_event	Triggered when playback fails to start

StopPlay

Event Name	Event Type	Description
play_interrupted	leg_action_event	Triggered when playback is stopped
play_failed_to_stop	leg_action_event	Triggered when playback fails to stop

StartSay (Say)

Event Name	Event Type	Description
say_started	leg_action_event	Triggered when TTS starts
say_completed	leg_action_event	Triggered when TTS completes
say_interrupted	leg_action_event	Triggered when TTS is interrupted
say_failed_to_start	leg_action_event	Triggered when TTS fails to start

StopSay

Event Name	Event Type	Description
say_interrupted	leg_action_event	Triggered when TTS is stopped
say_failed_to_stop	leg_action_event	Triggered when stopping TTS fails

Gather

Event Name	Event Type	Description
gather_initiated	leg_action_event	Triggered when gather is initiated
gather_started	leg_action_event	Triggered when digit collection starts
gather_success	leg_action_event	Triggered when digits are successfully collected
gather_failed	leg_action_event	Triggered when gather fails
gather_interrupted	leg_action_event	Triggered when gather is interrupted

SendDigits

Event Name	Event Type	Description
digits_sent	leg_action_event	Triggered when DTMF digits are sent
digits_failed_to_send	leg_action_event	Triggered when DTMF sending fails

StartRecording

Event Name	Event Type	Description
recording_started	leg_action_event	Triggered when recording starts
recording_stopped	leg_action_event	Triggered when recording stops
recording_failed_to_start	leg_action_event	Triggered when recording fails to start
recording_available	leg_action_event	Triggered when recording file is available

StopRecording

Event Name	Event Type	Description
recording_stopped	leg_action_event	Triggered when recording stops
recording_failed_to_stop	leg_action_event	Triggered when stopping recording fails
recording_available	leg_action_event	Triggered when recording file is available

Hold

Event Name	Event Type	Description
hold_success	leg_action_event	Triggered when leg is placed on hold
hold_failed	leg_action_event	Triggered when hold fails

UnHold

Event Name	Event Type	Description
unhold_success	leg_action_event	Triggered when leg is resumed
unhold_failed	leg_action_event	Triggered when resume fails

Mute

Event Name	Event Type	Description
mute_success	leg_action_event	Triggered when audio is muted
mute_failed	leg_action_event	Triggered when mute fails

UnMute

Event Name	Event Type	Description
unmute_success	leg_action_event	Triggered when audio is unmuted
unmute_failed	leg_action_event	Triggered when unmute fails

JoinBridge

Event Name	Event Type	Description
leg_joined_bridge	leg_action_event	Triggered when leg joins the bridge
leg_failed_to_join_bridge	leg_action_event	Triggered when joining bridge fails

LeaveBridge

Event Name	Event Type	Description
leg_left_bridge	leg_action_event	Triggered when leg leaves the bridge
leg_failed_to_leave_bridge	leg_action_event	Triggered when leaving bridge fails

StartMonitoring

Event Name	Event Type	Description
monitoring_initiated	leg_action_event	Triggered when monitoring is initiated
monitoring_started	leg_action_event	Triggered when monitoring starts
monitoring_failed	leg_action_event	Triggered when monitoring fails

StopMonitoring

Event Name	Event Type	Description
monitoring_stopped	leg_action_event	Triggered when monitoring stops
monitoring_failed_to_stop	leg_action_event	Triggered when stopping monitoring fails
referred	leg_action_event	Triggered when control is transferred

StartStream

Event Name	Event Type	Description
stream_initiated	leg_action_event	Triggered when streaming is initiated
stream_started	leg_action_event	Triggered when streaming starts
stream_stopped	leg_action_event	Triggered when streaming stops
stream_failed	leg_action_event	Triggered when streaming fails

StopStream

Event Name	Event Type	Description
stream_stopped	leg_action_event	Triggered when streaming stops
stream_failed_to_stop	leg_action_event	Triggered when stopping stream fails
referred	leg_action_event	Triggered when control is transferred

Refer

Event Name	Event Type	Description
referred	leg_action_event	Triggered when event endpoint is updated

Notes for Developers

- Events are **asynchronous**
- Receipt of a 202 Accepted response does **not** guarantee success
- Always rely on **external events** to determine action outcome

2.5. Bridge APIs - Introduction

Introduction

A **Bridge** represents a multi-party audio conference that allows multiple **Legs** to be connected together.
Bridges are commonly used for **conferencing**, **agent handoffs**, **supervisor monitoring**, and **multi-leg call flows**.

Bridge APIs allow you to:

- Create a bridge
- Retrieve bridge details
- Update bridge configuration
- Dynamically join or remove legs using **Leg Actions**

Key Concepts

- A bridge exists independently of legs
- A bridge becomes **active** when at least one leg joins
- Legs are added or removed using:
  - <JoinBridge>
  - <LeaveBridge>
- Bridge state changes are emitted as **external events**

Base URL

```
https://cpaas-api.in.exotel.com/v2/accounts/{AccountSID}
```

Authentication

Use **Basic Authentication**.

```
Authorization: Basic <BASE64_APIKEY_APITOKEN>
```

```
Content-Type: application/json
```

API credentials can be found in **my.exotel.com → Developer Settings**.

Related APIs

- **POST /bridges** – Create a bridge
- **GET /bridges/{BridgeSID}** – Get bridge details
- **PUT /bridges/{BridgeSID}** – Update bridge configuration
- **Leg Actions** – JoinBridge / LeaveBridge

Notes for Developers

- Bridge updates apply only to **future participants**
- Active legs are not dropped when updating bridge configuration
- Use **JoinBridge / LeaveBridge** Leg Actions to manage participants

2.5.1. POST – Create a Bridge

Description

Creates a new bridge that can be used to connect multiple legs.

Method

POST

Endpoint

```
/v2/accounts/{AccountSID}/bridges
```

Request Parameters

Parameter Name	Mandatory / Optional	Type	Description
bridge_type	Optional	string	Type of bridge (default: audio)
max_participants	Optional	number	Maximum number of legs allowed
recording	Optional	boolean	Enable or disable recording

Request Payload

```
{
  "bridge_type": "audio",
  "max_participants": 10,
  "recording": false
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{AccountSID}/bridges' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
```

```
  "bridge_type": "audio",
  "max_participants": 10,
  "recording": false
}'
```

Response Payload

```
{
  "request_id": "abc123",
  "http_code": 201,
  "response": {
    "data": {
      "bridge_sid": "BRIDGE_SID",
      "bridge_type": "audio",
      "state": "created",
      "date_created": "2024-12-11T09:41:21Z"
    }
  }
}
```

2.5.2. GET – Get Bridge Details

Description

Retrieves information about an existing bridge.

Method

GET

Endpoint

```
/v2/accounts/{AccountSID}/bridges/{BridgeSID}
```

Request Parameters

No request parameters

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{AccountSID}/bridges/{BridgeSID}' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>'
```

Response Payload

```
{
  "request_id": "def456",
  "http_code": 200,
  "response": {
    "data": {
      "bridge_sid": "BRIDGE_SID",
      "bridge_type": "audio",
      "state": "active",
      "participants": 2,
      "date_created": "2024-12-11T09:41:21Z"
    }
```

```
  }
}
```

2.5.3. PUT – Update a Bridge

Description

Updates the configuration of an existing bridge.

Method

PUT

Endpoint

```
/v2/accounts/{AccountSID}/bridges/{BridgeSID}
```

Request Parameters

Parameter Name	Mandatory / Optional	Type	Description
recording	Optional	boolean	Enable or disable recording
max_participants	Optional	number	Update max participant limit

Request Payload

```
{
  "recording": true,
  "max_participants": 15
}
```

cURL

```
curl --location --request PUT 'https://cpaas-
api.in.exotel.com/v2/accounts/{AccountSID}/bridges/{BridgeSID}' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "recording": true,
```

```
  "max_participants": 15
}'
```

Response Payload

```
{
  "request_id": "ghi789",
  "http_code": 200,
  "response": {
    "data": {
      "bridge_sid": "BRIDGE_SID",
      "recording": true,
      "max_participants": 15,
      "state": "active",
      "date_updated": "2024-12-11T10:02:11Z"
    }
  }
}
```

2.5.4. Bridge Actions

Description

Bridge Actions allow you to control an existing **bridge** after it has been created.
Using these actions, you can play audio announcements, perform text-to-speech, start or stop recordings, and route bridge-level events to external systems.

Bridge Actions apply **to all legs currently joined to the bridge**, making them ideal for conferencing, announcements, and supervisory use cases.

All Bridge Actions are executed via a single **Actions API** using an **EXOML payload**.

Authentication

Type: HTTP Basic Authentication

- **Username:** API Key
- **Password:** API Token

Request Headers

```
Content-Type: application/json
Authorization: Basic <base64(API_KEY:API_TOKEN)>
```

Request Body Structure

Field	Type	Required	Description
exoml	string	Yes	XML describing the bridge action
action_custom_param	string	No	Custom value echoed back in external events

Base URL

```
https://cpaas-api.in.exotel.com/v2/accounts/{account_sid}
```

Example

```
https://cpaas-api.in.exotel.com/v2/accounts/ameyo5m
```

Common Endpoint

All Bridge Actions are executed using:

POST

```
/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions
```

Full URL

```
https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions
```

Common Request Body

Parameter	Type	Required	Description
action_custom_param	string	No	Custom value echoed back in external events
exoml	string	Yes	EXOML XML defining the bridge action

Common Response

HTTP 202 – Accepted

```
{
  "request_id": "abc123",
  "http_code": 202,
  "response": {
    "data": {
      "bridge_sid": "BRIDGE_SID"
    }
```

```
  }
}
```

```
Bridge Actions are asynchronous.
 Final success or failure is communicated via external events.
```

Common Error Responses (applies to all bridge actions)

HTTP Code	Description
400	Invalid EXOML or parameters
401	Authentication failed
403	Not authorized
404	Bridge not found
429	Rate limit exceeded
500	Internal server error

External Events (General)

- Events are delivered asynchronously to the configured **bridge_event_endpoint** (gRPC)
- Each bridge action emits one or more **action-specific events**
- Event details are documented in individual Bridge Action pages

Supported Bridge Actions

- Refer
- StartPlay
- StopPlay
- StartSay
- StopSay
- StartRecording
- StopRecording

Notes for Developers

- Bridge Actions affect **all participants** in the bridge
- Media actions apply to **current and future legs**
- Use **Leg Actions (JoinBridge / LeaveBridge)** to manage bridge membership
- Prefer Bridge Actions for **announcements and conferencing**, not individual control

2.5.4.1. Categorized Overview

Description

Bridge Actions allow you to control **media playback, announcements, recordings, and event routing** for all participants connected to a bridge.
These actions apply **at the bridge level**, not to individual legs.

All Bridge Actions are executed using:

```
POST /v2/accounts/{AccountSID}/bridges/{BridgeSID}/actions
```

A. Media & Interaction Actions

These actions control what **all participants in the bridge hear**.

<StartPlay>

Plays an audio file (from a URL) to **every leg currently joined** to the bridge.

<StopPlay>

Stops any currently playing audio on the bridge.

<StartSay> (Say)

Converts text to speech and plays it to **all participants** in the bridge.

<StopSay>

Stops an ongoing text-to-speech playback on the bridge.

B. Recording Actions

These actions control **bridge-level recording**, capturing audio from all participants.

<StartRecording>

Starts recording the bridge audio.
Supports configurable format and storage destinations.

<StopRecording>

Stops the ongoing bridge recording and finalizes the recording file.

C. Event Routing & Control

These actions control how **bridge events** are delivered to external systems.

<Refer>

Registers a gRPC endpoint to receive **external events** for the bridge.
Used for real-time monitoring, analytics, or orchestration engines.

Summary — Bridge Action APIs

Category	Actions
Media & Interaction	StartPlay, StopPlay, StartSay, StopSay
Recording	StartRecording, StopRecording
Event Routing	Refer

Key Differences vs Leg Actions

Aspect	Bridge Actions	Leg Actions
Scope	All participants	Single participant
Media playback	Broadcast	Individual
Recording	Conference-level	Per leg
Event routing	Bridge-wide	Per leg

Notes for Developers

- Bridge Actions are **asynchronous**
- Action success/failure is communicated via **Bridge External Events**

- Media actions affect **current and future participants**
- Use **Leg Actions (JoinBridge / LeaveBridge)** to manage membership

2.5.4.2. Request, cURL & Response Payloads

Endpoint (All Bridge Actions)

POST

```
/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions
```

Full URL

```
https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions
```

Authentication

```
Authorization: Basic <BASE64_APIKEY_APITOKEN>
Content-Type: application/json
```

Common Response Payload (All Actions)

```
{
  "request_id": "abc123",
  "http_code": 202,
  "response": {
    "data": {
      "bridge_sid": "BRIDGE_SID"
    }
  }
}
```

Actions are asynchronous. Confirm success/failure via **external events**.

<Refer>

Request Parameters

Attribute	Required	Description
bridgeEventEndpoint	Yes	gRPC endpoint where bridge events should be delivered

Request Payload

```
{
  "action_custom_param": "refer_bridge",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Refer
bridgeEventEndpoint=\"grpc://host:port\"></Refer></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "refer_bridge",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Refer
bridgeEventEndpoint=\"grpc://host:port\"></Refer></Flow>"
}'
```

<StartPlay>

Request Parameters

Attribute	Required	Description
Body (URL)	Yes	Public or authenticated audio file URL

Request Payload

```
{
  "action_custom_param": "start_play",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow>
<StartPlay>https://example.com/audio.wav</StartPlay></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "start_play",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow>
<StartPlay>https://example.com/audio.wav</StartPlay></Flow>"
}'
```

<StopPlay>

Request Payload

```
{
  "action_custom_param": "stop_play",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopPlay>
</StopPlay></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "stop_play",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopPlay>
</StopPlay></Flow>"
}'
```

<StartSay> (Say)

Request Payload

```
{
  "action_custom_param": "start_say",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Say>Hello
everyone</Say></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "start_say",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><Say>Hello
everyone</Say></Flow>"
}'
```

<StopSay>

Request Payload

```
{
  "action_custom_param": "stop_say",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopSay>
</StopSay></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "stop_say",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopSay>
</StopSay></Flow>"
}'
```

<StartRecording>

Request Parameters

Attribute	Required	Description
format	No	wav, mp3
storageType	No	https, s3
storageURL	No	Upload endpoint

Request Payload

```
{
  "action_custom_param": "start_recording",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StartRecording
format=\"wav\" storageType=\"https\"
storageURL=\"https://example.com/upload\"></StartRecording></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "start_recording",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StartRecording
format=\"wav\" storageType=\"https\"
storageURL=\"https://example.com/upload\"></StartRecording></Flow>"
}'
```

<StopRecording>

Request Payload

```
{
  "action_custom_param": "stop_recording",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopRecording>
</StopRecording></Flow>"
}
```

cURL

```
curl --location 'https://cpaas-
api.in.exotel.com/v2/accounts/{account_sid}/bridges/{bridge_sid}/actions' \
--header 'Authorization: Basic <BASE64_APIKEY_APITOKEN>' \
--header 'Content-Type: application/json' \
--data '{
  "action_custom_param": "stop_recording",
  "exoml": "<?xml version=\"1.0\" encoding=\"UTF-8\"?><Flow><StopRecording>
</StopRecording></Flow>"
}'
```

2.5.4.3. Bridge Actions - External Events

Description

This page lists **external events emitted for Bridge Actions**. Use these events to confirm whether a bridge action succeeded or failed.

Refer (On Bridge)

Event Name	Event Type	Description
referred	bridge_action_event	The URL was updated successfully.

StartPlay

Event Name	Event Type	Description
play_started	bridge_action_event	The play started on the bridge.
play_completed	bridge_action_event	File has completely played out on the bridge and now play has stopped.
play_interrupted	bridge_action_event	Play was stopped manually by another action.
play_failed_to_start	bridge_action_event	The file failed to play on the bridge.

StopPlay

Event Name	Event Type	Description
play_interrupted	bridge_action_event	Play was stopped successfully, before the file was completed.
play_failed_to_stop	bridge_action_event	StopPlay action was not completed.

StartSay

Event Name	Event Type	Description
say_started	bridge_action_event	The say started on the bridge.
say_completed	bridge_action_event	Text has completely played out on the bridge and now say has stopped.
say_interrupted	bridge_action_event	Say was stopped manually by another action.
say_failed_to_start	bridge_action_event	The message failed to start playing out on the bridge.

StopSay

Event Name	Event Type	Description
say_interrupted	bridge_action_event	Say was stopped successfully, before the message was played out.
say_failed_to_stop	bridge_action_event	StopSay action was not completed.

StartRecording

Event Name	Event Type	Description
recording_started	bridge_action_event	Indicates that the recording has started.
recording_stopped	bridge_action_event	Indicates that the recording has stopped.
recording_failed_to_start	bridge_action_event	Indicates a failure to start the recording process.
recording_available	bridge_action_event	Indicates that the recording is available.

StopRecording

Event Name	Event Type	Description
recording_failed_to_stop	bridge_action_event	Indicates a failure to stop the recording process.
recording_stopped	bridge_action_event	Indicates that the recording has stopped.
recording_available	bridge_action_event	Indicates that the recording is available.

3. Voice SDKs

3.1. IP-PSTN intermix: Customer onboarding and WebRTC SDK integration

Overview

Exotel's WebRTC SDK provides an easy-to-integrate SoftPhone SDK for web applications. The SDK allows you to embed a fully functional softphone within your web applications which can be an in-house web portal or a CRM Application, enabling seamless communication between your users and customers. The softphone supports both inbound and outbound calling, along with programmatically making calls- via dial-pad in the widget and by clicking to call in your CRM. By following the simple integration steps provided, you can quickly enhance your applications with powerful voice communication capabilities.

Here's a short **video** displaying the WebRTC SDK capabilities:

Benefits of the WebRTC SDK

1. **Bulk user creation using a single API** - The users for IP calling can be created at once, with the help of bulk user creation API.
2. **SIP ID and password creation/management for the users**- The SIP credentials of the users would be created and maintained by Exotel. Users just need to log in to their CRMs and get started with the IP calling.

3. **SSO experience for the users -** Users just need to log in once to their CRMs and need not separately login to Exotel. On successful login to the CRMs, the users would be authenticated and the WebSDK would be initialised and registered for the IP calling.
4. **IP calling within your CRMs** - The users would be able to take the SIP calls from the widget embedded within the CRMs and need not toggle between multiple tabs.
5. **UI widget for calling**- The widget for incoming/outgoing call popup would be shown to the users where they would get options to accept/reject the calls along with the hold/mute buttons.
6. **The ability for the users to switch off/on their SIP device**- Users can switch between IP and PSTN calling as per their network availability with the help of a toggle button.
7. **On-call statuses, status callbacks, call details etc.**- All the call details would be available post each call for you to analyze the calls.

Onboarding process

Please follow the below-mentioned steps to use and configure the IP-PSTN WebRTC SDK for VoIP calls:

Pre-requisites

In order to have a successful integration with the IP-PSTN WebRTC SDK, you must complete the following prerequisites:

1. **New Services Agreement**
   To comply with the Government of India regulations, Exotel has obtained a Unified License for Virtual Network Operator (UL-VNO) under a separate entity named 'Veeno Communications Pvt. Ltd.' Therefore, a new Services Agreement needs to be signed with 'Veeno Communications Pvt. Ltd.' for using VoIP services. Your account manager or the Exotel point of contact will help you with this step.

2. **New account creation (even for existing customers)**

Due to the regulatory reason/s mentioned in point 1 above, you are required to sign-up for a new account to use IP-PSTN intermixing for VoIP calls. VoIP services cannot be provided under the existing account/s which you may have already created with us. Your account

manager or the Exotel point of contact will help you with this step.

3. **New KYC to be registered (Bangalore ONLY for now)**

- In addition to the four documents required to complete the KYC for an account, accounts with VOIP services enabled for them also require a Customer Acquisition Form(CAF) to be completed as part of KYC. It is supported on the Exotel dashboard as one of the document requirements on the KYC page.
- KYC needs to be done separately for each city for VoIP accounts. This primarily means that the following 2 documents need to be produced fresh every time a new city KYC is to be done:

1. Address proof (The address needs to be of the city from where the numbers need to be purchased)
2. Customer Acquisition Form (CAF)

- For more details on where the KYC/Verification docs need to be uploaded and what documents qualify for KYC, **this link** should be referred to. Please get in touch with your account manager or the Exotel point of contact for any queries regarding this process.

4. **New Exophones (Virtual Numbers) to be purchased**
   Virtual Number purchase is coupled with individual region/city KYC status. i.e. number purchases will only be allowed from regions where the KYC is completed.

NOTE: Currently, the only city available for KYC and number purchase is Bangalore

For more details on how to procure a new Exophone, please refer to **this support article**

5. **Call flows creation/migration and linking with Virtual Number/s**
   Once the new account is created and the virtual number/s is purchased, you would need to create the call flows for the inbound scenarios.
   Reference article - **Link**

   If you already have an account with Exotel with call flows created for the inbound scenarios and wish to use the same call flows in the new account for IP calling, the call flows would need to be migrated. Reference article - **Link**

https://support.exotel.com/support/solutions/articles/3000112569-can-i-transfer-my-exophone-and-the-call-flows-from-one-account-to-another-

Once the call flows are created/migrated, you can link the call flows to the virtual numbers so that any customer calls landing on those virtual numbers follow the required call flow path.

6. **Browser compatibility with the WebRTC SDK**

- Windows OS: Google Chrome, Mozilla Firefox and Microsoft Edge
- Linux OS: Google Chrome and Mozilla Firefox
- Mac OS: Google Chrome, Mozilla Firefox, Safari (>V11)

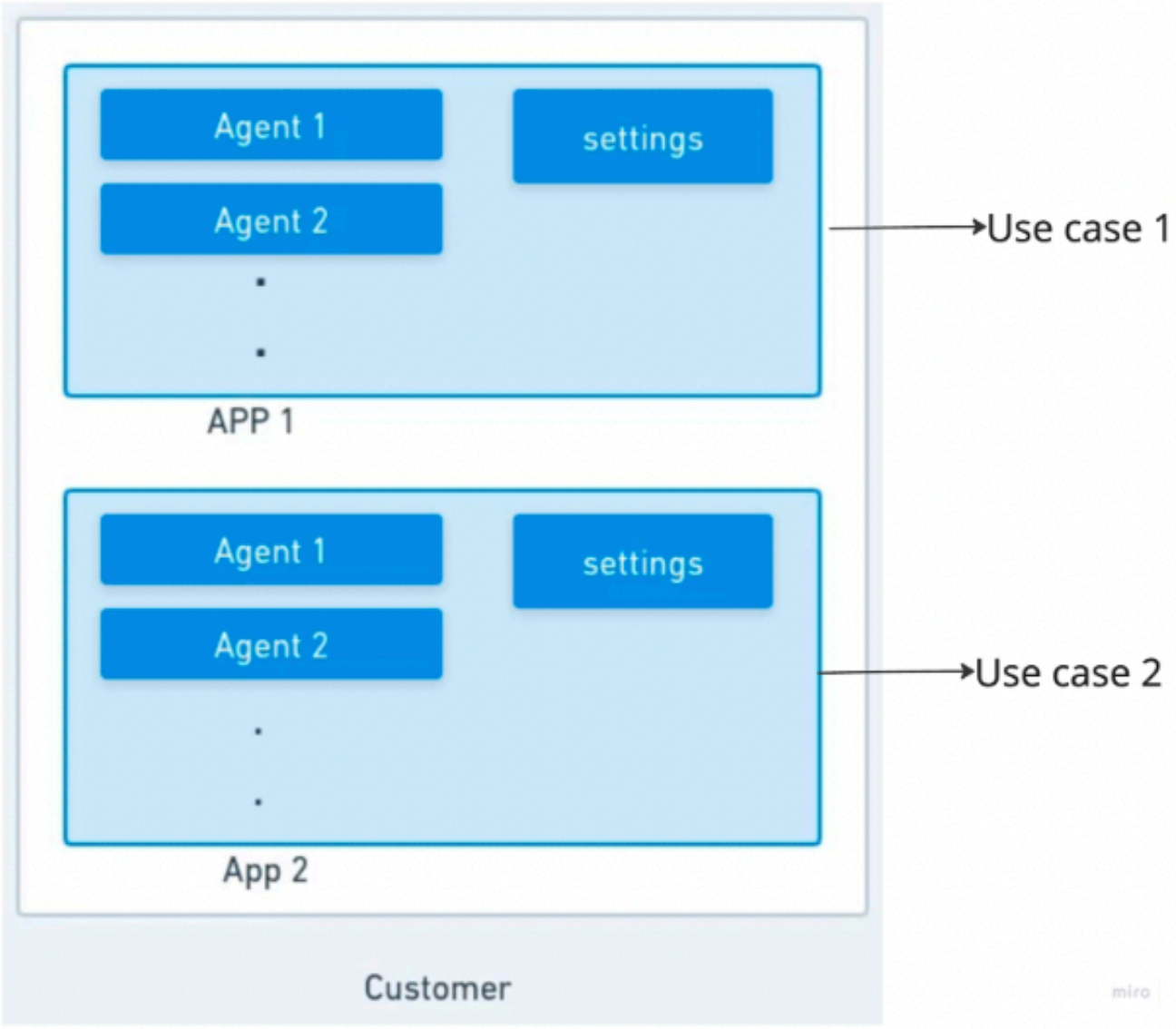
Integration steps for the WebRTC SDK

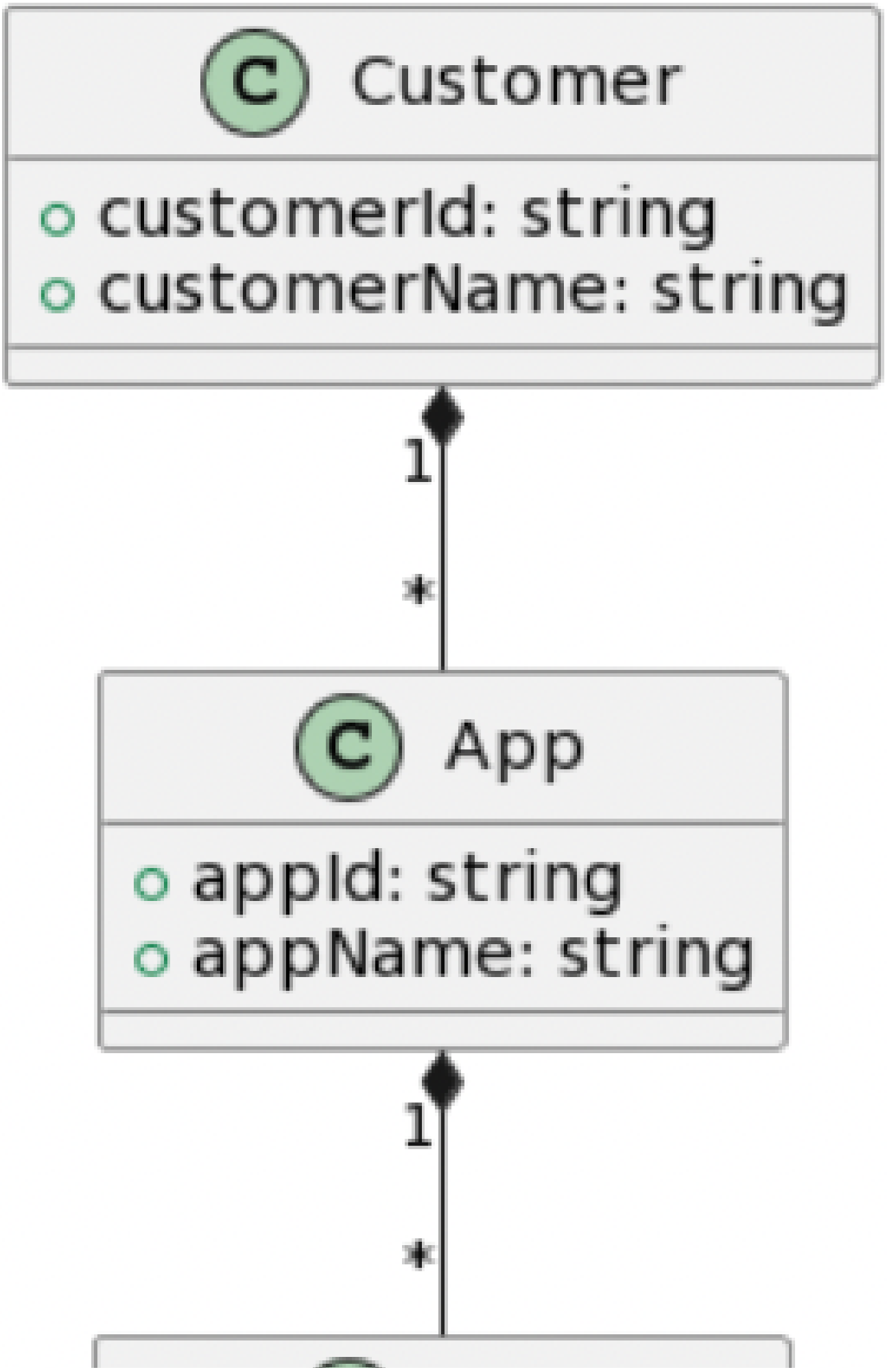
After the above-mentioned prerequisites are done, you would be able to fetch the API key and API token for your account, from the Exotel dashboard. In addition to this, you'll need a client id and client secret to generate authentication token/s for successfully authenticating your future API requests by our platform. Please reach out to the Exotel tech support team or your account manager for help in generating the client id and client secret.

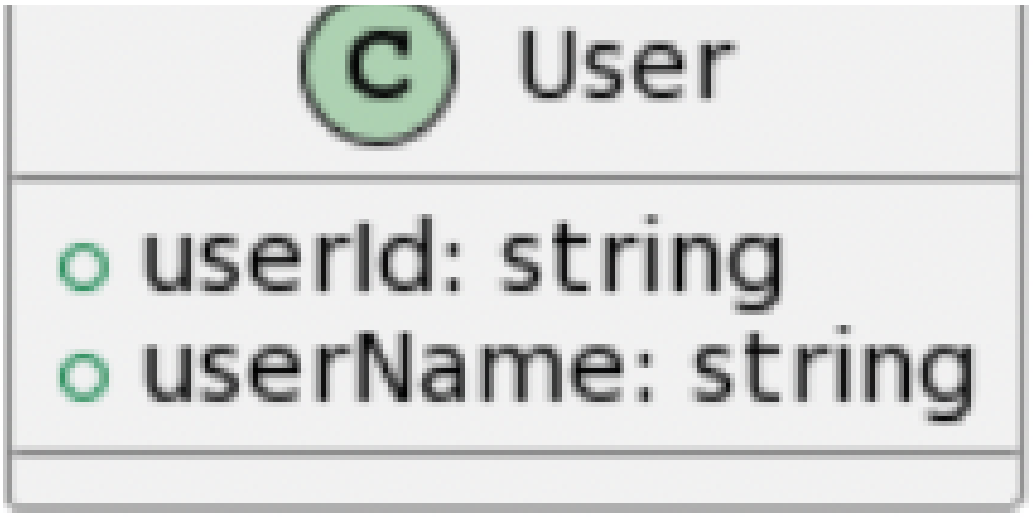
Once the client id and the client secret are available, please use the following API to generate the authentication token which can be used with your future API requests-

Create Authentication Token

The creation of the following resource hierarchy is required for registering with our VoIP platform to enable VoIP calling:


Agent 1
Agent 2
settings
APP 1
Use case 1
Agent 1
Agent 2
settings
App 2
Use case 2
Customer
miro


Customer
customerId: string
customerName: string
1
*
App
appId: string
appName: string
1
*



1. You are required to create a customer entity (steps mentioned below). A unique customer entity in Exotel's platform allows us to achieve resource separation between different customers.
    1. Use the following APIs to manage the Customer entity for VOIP calling**: Create, Get and Delete APIs for the Customer entity**
2. After step one, you will then need to create at least one, or more, Applications within the customer entity. Application creation is required to support multiple use cases within your single CRM/3rd party application account. ***For example, if your sales and support teams are mapped to a single CRM account which is mapped to a single Exotel account, but the users within these teams and their VOIP settings are to be maintained differently; then creating an Application for each of these teams would help you manage the VOIP calling requirements for both these teams separately using the same CRM account mapped to one Exotel account***. The creation of more than one Application is completely optional.
    1. Use the following APIs to manage Application(s) within the Customer entity**: Register, Get and Delete APIs for the App entity**
    2. Use the following APIs to manage Application settings**: Add, Get, and Delete APIs for App settings**
3. After step 2, you will need to add the user(s) within the Application(s). User addition through the Application results in the addition of these users into the Exotel system and

the creation of their SIP credentials, which will be used to authenticate and verify a user while enabling their VoIP calling.

    1. Use the following APIs to manage Users within Application/s: **Register, Get, Delete, and Update user device APIs for Users**

4. After step 3, you will need to configure call flows in the Exotel App Bazaar as per Step 5 in the pre-requisites- 'Call flows creation/migration and linking with Virtual Number/s'. If you want Exotel to pass various details related to the incoming call when the call is initiated, terminated or missed, please provide the following URL in the 'Create popup...' section while configuring the 'Connect' applet during the call flow creation process: **https://integrationscore.mum1.exotel.com/v2/integrations/call/inbound_call/{appId}?type={}**

Note: The type can be popup, incomingcallhungup & missedcall, please refer to this detailed API documentation to understand. In case of multiple applications within your account, please use the application ID for the app under which you want the calling to happen.

5. Once the users are created, you will need to integrate the WebRTC SDK by following the steps from the following **GitHub repository**.
6. Finally, whitelist the following ports, domains and IP addresses in all the networks' firewall where the WebSDK will be running

Type	Port/Endpoint
HTTP	tcp/80
HTTPS / TLS	tcp/443
SIP Gateway IP	voip.in1.exotel.com
Media Server Ports	udp/10000 - 40000
Media Server IP - Bangalore, KA	61.246.82.75, 14.194.10.247
Media Server IP - Mumbai, MH	182.76.143.61, 122.15.8.18
HTTPS for API management	integrationscore.mum1.exotel.com

7. Click to Call functionality is a part of the WebRTC SDK and will be functional on the integration of the SDK with your calling application.

Pricing

IP-PSTN intermixing is available only with an 'Unlimited Calling Plan' by paying a fixed per-user per month price. Please get in touch with your Exotel account manager to understand the pricing applicable to your requirements.

FAQs

1. **Do I need to sign a new MSA for VOIP calling?**

Yes. This is required because Exotel has a Pan India UL VNO license under the entity named "Veeno Communications Private Limited". Hence, there will be a new MSA to be signed between the customer and the Veeno entity.

2. **Do I need to create a new account for VOIP calling?**

Yes. All customers, including existing customers, will have to create a new account if they need VOIP calling. As VOIP calling is being offered through the Veeno entity, thus, a new customer account has to be created under Veeno as the existing account under Exotel Techcom Pvt. Ltd. cannot provide VOIP calls with the Veeno infrastructure.

3. **What is the process to create an account under Veeno?**

In the alpha phase, the account creation will be aided by the Exotel account management/sales team. Post alpha phase, the account creation for Veeno/VOIP calling will follow the same process followed today for non-VOIP accounts.

4. **Can I use the virtual numbers/Exophones that I have in my existing account for VOIP calling?**

No, new numbers have to be purchased under the new Veeno account. Existing numbers from non-Veeno accounts cannot be used under Veeno accounts because there is a separate number inventory for Veeno and it cannot be mixed with the non-Veeno number inventory as per the government regulations.

5. **If I have IVR/call flows in my existing account, do I need to create/replicate new IVR/call flows under the new Veeno account?**

The Exotel team will do everything possible to migrate the IVR/call flows from your existing account to the new Veeno account.

6. **What is the size of WebSDK?**

It is 1.4MB

7. **What would be the 'app user ID' for adding users in Exotel through the SDK?**

The email ID of the user should be used as the user id for the app while adding the users in Exotel through the SDK.

8. **Can the users be added via the Exotel dashboard?**

No, the users should be added only by following the steps mentioned for user creation in this support article. This process will ensure that the users' SIP credentials are created and managed successfully at our end.

9. **What are the prerequisites for the users to start calling via WebSDK?**

The users will need to log in to the third-party application with valid credentials. On successful login, the users will see their SIP device as switched on for making VOIP calls. They can toggle it off/on to switch between SIP and PSTN calling.

10. **How can the user stop making/receiving calls via WebSDK?**

The user will have to toggle off the SIP calling button
OR

The user will have to log off from the third-party application. This would automatically unregister and initialize the SDK for calling.

11. **What will happen if the user is not able to make/receive VoIP calls due to poor network connectivity?**

In such a case, the user can switch to PSTN calling with the help of a toggle button which means the mobile device of the user would become the primary device for calling

12. **How do I connect a user to a flow?**The WebSDK doesn't support dialling to a flow directly. This would require you to use the "Outgoing call to connect number to a call

flow" API and pass the SIP ID in the From parameter and pass the flow link in the Url parameter.

3.2. Client webSDK

3.2.1. Introduction

Introduction

Exotel Webrtc SDK library enables you to add the voip calling feature into your web app. This document outlines the integration and usage. The Exotel Webrtc SDK package is layered. We have web-client-sdk that provides higher level APIs and callbacks to register/unregister, receive calls and operate on calls like mute/unmute, hold/unhold. And we have webrtc-core-sdk that provides the underlying state machine and SIP protocol stack.

The current document provides API and Callback details for the web-client-sdk.

Licensing

You need an exotel account to use the voip calling functionality with this websdk. Contact exotel support for demo and account creation.

Exotel organization npm account : **@exotel-npm-dev**

For using the above organizational account for publishing , an invitation will be required. And for the same please contact the account manager or hello@exotel.com

Glossary

Terminology	Description
App	Web Application
VOIP	Voice over IP
Client	User / Subscriber / Client signing up to use the web app
Customer	Exotel’s customer licensing the SDK

3.2.2. Getting Started

Software Package

The Exotel Webrtc SDK software package includes

- @exotel-npm-dev/webrtc-client-sdk library from npm repository
- Integration Guide
- Sample application for reference

Add Web Client SDK Library to Project

Install the compatible node.js and npm versions. For example, on ubuntu 20.04, following versions are compatible

- nodejs version: >=14.x
- npm version: 6.14.4

Once nodejs is installed, download the packages from the repository and install them in your npm modules directory. To download the library from the repository follow the steps given below,

Step 1: After successful login, install the webrtc-sdk library.

```
npm install @exotel-npm-dev/webrtc-client-sdk
```

Step 2: Verify if node_modules are created inside the sample app folder. Start the npm

Step 3: In order to launch the application, run the following command. Application should start on https://localhost:3000

```
npm start
```

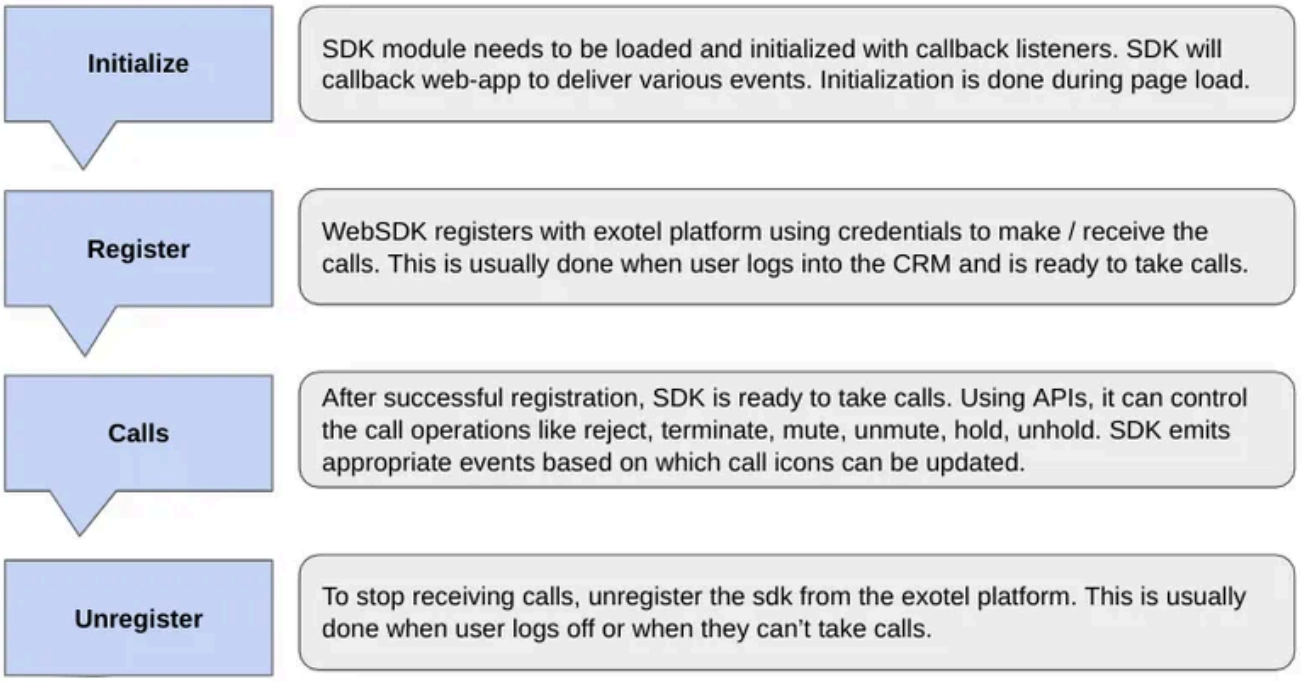
Supported Browsers

The SDK has been verified with the following browsers.

- Windows OS: Google Chrome, Mozilla Firefox and Microsoft Edge
- Linux OS: Google Chrome and Mozilla Firefox
- Mac OS: Google Chrome, Mozilla Firefox, Safari (>V11)

3.2.2.1. Web Client SDK APIs and Integration Workflow

Web Client SDK APIs and Integration Workflow



Initialize Library

WebRTC client SDK library needs to be initialized prior to using. A sample code snippet to do so is as below.

Step1: Import the exotel client library as below.

import { ExotelWebClient as exWebClient } from '@exotel/webrtc-client-sdk';

Step2: Initialize the Exotel Web Client with SipAccountInfo and Callbacks using the API initWebrtc.

// Initialise sipAccountInfo dictionary

```
const sipAccountInfo = {
      'userName': ‘Username’,
      'authUser': ‘Username’,
      'sipdomain': ‘Domain’,
      'domain': ‘HostServer’ + ":" + Port
      'displayname': ‘DisplayName’,
      'secret': ‘Password’,
      'port': ‘Port’,
      'security': ‘wss’,
    }
```

// **Initialize Callbacks:**

```
exWebClient.initWebrtc(sipAccountInfo,
                    RegisterEventCallBack,
                    CallListenerCallback,
                    SessionCallback)
```

This API also takes as input three callbacks:

- RegisterEventCallBack handles registration states as they change.
- CallListenerCallback handles call events as they occur.
- SessionCallback handles notifications for multiple tab sessions.

The details of the callbacks are explained in the corresponding flows.

Argument Details

Args	DataType
sipAccountInfo	object
RegisterEventCallBack	Callback function
CallListenerCallback	Callback function
SessionCallback	Callback function

sipAccountInfo
authUser SIP username to register. String
userName Used as a unique map index for phones. Same as authUser. String
displayName Local Displayname on Dialer. String
secret SIP Password String
sipdomain SIP public domain String
security “wss”/”ws” typically “wss” String
port 443 for Websockets. String

Opus Codec Preference - Optional

1. To enable opus codec, it can be enabled from Exotel Voip domain settings, for that we can raise a request to hello@exotel.com to enable the opus codec support.
2. Once opus codec is enabled, then and if browser is not preferring opus codec in SIP 200 OK, then we have an API to make opus codec as preferred codec.

exWebClient.setPreferredCodec("opus");

Download Logs - Optional

1. To help with debugging or sharing logs with support, whenever a user faces an issue, we can invoke the downloadLogs method.
2. This will download a ".txt" file (e.g. "webrtc_sdk_logs_2025-04-03.txt") containing 1000 logs stored in the browser's localStorage.

```
exWebClient.downloadLogs();
```

Register the SIP Phones

Before receiving / making any call, the SIP phone needs to be registered; and the API for this purpose is "DoRegister".

API Name	ExotelWebClient.DoRegister
Args	None
Exported To	Application UI

//Ensure that initWebRTC is invoked before calling DoRegister

```
exWebClient.DoRegister();
```

Once the registration has been done, the response comes in the registrationCallback with the events, “registered ”/ ”terminated” as below.

API Name	RegisterEventCallBack
Args	**Params** **Values** **Type**
state	String "registered" / “terminated” / “sent_request” / “unregistered”
phone	String Username
Exported To	Application UI

```
function RegisterEventCallBack (state, phone){
    if (state === 'registered') {
// Successful registration
      setRegState(true)
    } else if (state === 'unregistered') {
// Successful unregistration
      setRegState(false)
    } else if (state === 'terminated')  {
// Registration/Unregistration failed
      setRegState(false)
    } else if (state === 'sent_request')  {
```

```
// Registration/Unregistration Request Sent
      if (unregisterWait === "true") {
        unregisterWait = "false";
        setRegState(false)
      }
    }
  }
```

UnRegister the SIP Phones

To stop getting calls anymore, the SIP phones need to be unregistered. The API to do so is “UnRegister”.

API Name	ExotelWebClient.UnRegister
Args	None
Exported To	Application UI

//Ensure that initWebRTC is invoked before calling DoRegister.

```
exWebClient.UnRegister();
```

The response to unregistration comes in the registrationCallback as below.

API Name	RegisterEventCallBack
Args	**Params** **Values** **Type**
state	String "registered" / "unregistered" / “terminated” / “sent_request”
phone	String Username
Exported To	Application UI

```
  function RegisterEventCallBack (state, phone){
    if (state === 'registered') {
// Successful registration
      setRegState(true)
    } else if (state === 'unregistered') {
// Successful unregistration
      setRegState(false)
    } else if (state === 'terminated')  {
// Registration/Unregistration failed
      setRegState(false)
     } else if (state === 'sent_request')  {
// Registration/Unregistration Request Sent
      if (unregisterWait === "true") {
        unregisterWait = "false";
        setRegState(false)
```

```
    }
```

```
  }
```

```
 }
```

Note 1: If you have more than one phone, the second argument “phone” would give the indication as to which phone got unregistered.

3.2.2.2. Web Client SDK APIs-2

Receive Calls

Once the registration has happened, and when there is an incoming call, the callback registered for “Call Events” would get an event along with the details of the incoming call.

API Name	CallListenerCallback
Args	**Params** **Values** **Type**
callObj	Object { callId, callState, callDirection, callStartedTime, remoteDisplayName } callId {String}: sip call-id callState {String}: incoming callDirection {String}: incoming callStartedTime {String}: call start time remoteDisplayName {String}: callee name
eventType	String incoming : shows incoming call message connected : open dialer callEnded : close dialer activeSession: session continuity
phone	String Username identifying the phone to which the call is coming.
Exported To	Application UI

In the following snippet,the UI states are appropriately modified based on the call events.

```
function CallListenerCallback(callObj, eventType, phone) {
    if (eventType === 'incoming') {
// Incoming Call
      setCallComing(true)
    }  else if (eventType === 'connected') {
// Call in connected state
      setCallComing(false)
      setCallState(true)
    }  else if (eventType === 'callEnded') {
   // Call ended
      setCallComing(false)
      setCallState(false)
    } else if (eventType === 'terminated') {
// Call terminated
      setCallComing(false)
      setCallState(false)
    }
 }
```

Accept Calls

Once the incoming call event is received, based on the user action the call can be accepted. The API to do so is “Call.Answer” as below. The call object could be obtained by invoking the “getCall()” method in exWebClient object.

API Name	Call.Answer
Args	None
Exported To	Application UI

```
function acceptCallHandler() {
    call =  exWebClient.getCall()
    call.Answer();
  }
```

The response event to accept calls comes in “CallListenerCallback”. Successful acceptance results in a “connected” event. Other possible events are:

“callEnded” : Call ended locally.

“terminated” : Call terminated remotely.

```
 function CallListenerCallback(callObj, eventType, phone) {
    if (eventType === 'incoming') {
// Incoming Call
      setCallComing(true)
    }  else if (eventType === 'connected') {
// Call in connected state
      setCallComing(false)
      setCallState(true)
    }  else if (eventType === 'callEnded') {
// Call ended
      setCallComing(false)
```

```
      setCallState(false)
```

```
    } else if (eventType === 'terminated') {
```

```
// Call terminated
```

```
      setCallComing(false)
```

```
      setCallState(false)
```

```
    }
```

```
 }
```

Hangup / Reject Calls

Once the incoming call event is received, based on the user action the call can be rejected. The API to do so is “Call.Hangup” as below.

API Name	Call.Hangup
Args	None
Exported To	Application UI

```
 function rejectCallHandler() {
```

```
    call =  exWebClient.getCall()
```

```
    call.Hangup();
```

```
  }
```

For call hangup by local user, the response comes as a “callEnded” event. For call hangup by remote user,, the event comes as “terminated”.

```
function CallListenerCallback(callObj, eventType, phone) {
```

```
    if (eventType === 'callEnded') {
```

```
// Call ended
```

```
      setCallComing(false)

      setCallState(false)

    } else if (eventType === 'terminated') {

// Call terminated

      setCallComing(false)

      setCallState(false)

    }

 }
```

Mute / Unmute Calls

Once the call is in progress, based on the user action the call can be muted/unmuted. The APIs to do so are “Call.Mute” and “Call.UnMute” as below.

API Name	Call.Mute
Args	None
Exported To	Application UI

API Name	Call.UnMute
Args	None
Exported To	Application UI

You can also use a single API to toggle the mic using Call.MuteToggle.

API Name	Call.MuteToggle
Args	None
Exported To	Application UI

```
function muteHandler() {
    call =  exWebClient.getCall()
    //call.MuteToggle(); // or
    if (!callOnMute) {
      call.Mute()
      callOnMute = true
    } else {
      call.UnMute()
      callOnMute = false
    }
  }
```

There is no callback event for mute. Call remains “connected” but with the mic muted. This is a toggle operation.

Hold / Resume Calls

Once the call is in progress, based on the user action the remote user can be set on hold/unhold. The API to do so is “Call.Hold” and “Call.UnHold” as below.

API Name	Call.Hold
Args	None
Exported To	Application UI

API Name	Call.UnHold
Args	None
Exported To	Application UI

You can also use a single API to hold the remote caller using Call.HoldToggle.

```
function holdHandler() {
    call =  exWebClient.getCall()
    //call.HoldToggle(); // or
    if (!callOnHold) {
      call.Hold()
      callOnHold = true
    } else {
      call.UnHold()
      callOnHold = false
    }
  }
```

There is no callback event for call hold. Call remains in “connected” but in sendonly mode. This is a toggle operation.

Send DTMF

Once the call is in progress, based on the user action the remote user can be sent DTMF digits. The API to do so is “Call.sendDTMF” as below

API Name	Call.sendDTMF
Args	**Params** **Values** **Type**
digit	String 0-9, A-D, *, #
Exported To	Application UI

```
call =  exWebClient.getCall()
```

```
if (call) {
```

```
call.sendDTMF(digit);
```

```
}
```

Multitab Scenarios

When the webrtc sdk is loaded in multiple tabs then all the instances will register with the backend and receive incoming call alerts. There are two ways to avoid this,

- Maintain a single login session for the user in your webapp so that only one instance of the webrtc sdk is loaded. This is preferred.
- Maintain a parent-child relationship across the tabs in your webapp so that call is handled only in the parent tab.

Exotel Webrtc-SDK supports multiple tab sessions using Broadcast Channel. In this feature, session listener and session callbacks can be used to get the indication on child tabs. A SessionListener creates a broadcast channel and sends a broadcast event to each child tab for the following events, incoming / connected / callEnded / re-register. When a child tab (as per the logic maintained by the “Application Backend”.) receives a session event, it may notify but not handle the callback.

When the parent tab is destroyed, a re-register event comes to child tabs, based on the logic of the client, a child can opt to be the new parent.

Note 1: The logic of maintaining the parent and child tabs has to be in “Application Backend” by the “Customer”.

Note 2: If multitab scenario is not used, there is no need to handle the events in the session callback.

API Name	SessionListener
Args	None
Exported To	Application UI

```
SessionListener();  // To be called during initialization.
```

API Name	SessionCallback
Args	**Params** **Values** **Type**
callState	String incoming / connected / callEnded / re-register incoming : child tab to show a notification message connected : child tab to close the notification message callEnded : child tab to close the notification message re-register : child tab to register when parent tab is closed ice_gathering_state_<state>: ICE gathering state changed. <state> will be the new ICE gathering state (e.g., new, gathering, complete). ice_connection_state_<state>: ICE connection state changed. <state> will be the new ICE connection state (e.g., new, checking, connected, disconnected, failed, closed). Media_permission_denied: User denied media (microphone/camera) permissions.
phone	String username identifying the phone to which the call is coming.
Exported To	Application UI

A sample code snippet for session callback is as below.

```
function SessionCallback(callState, phone) {
      /**
       * SessionCallback is triggered whenever an incoming call arrives
       * which needs to be handled across tabs
       */
      switch(callState){
        case 'incoming':
console.log('incoming call' + phone)
          /**
           * Display a different notification popup in case of child tabs
           */
if(window.sessionStorage.getItem('activeSessionTab') !== 'parent0'){
            const message = 'Incoming call from ' + phone + ' ,Switch tab to find dialpad'
            setMessage(message);
          }
        break;
        case 'callEnded':
          /**
           * When call is either accepted or rejected then this is gets shutdown
           */
```

```
          console.log('call ended' + phone)
          setOpen(false);
        break;
        case 'connected':
          /**
           * When call is connected close the notification popup on child tabs
           */
          console.log('call connected' + phone)
          setOpen(false);
        break;
        case 're-register':
          /**
           * In case if the main/parent tab is closed then make the subsequent tab in the tab list as the parent tab
           * and send register for the same and also make that tab as the master
           */
 // ICE Gathering State Events
        case 'ice_gathering_state_new':
        case 'ice_gathering_state_gathering':
        case 'ice_gathering_state_complete':
            console.log('ICE state change:', callState, 'for call from:', phone);
            // Handle ICE state changes as needed
```

```
            break;

        // Media Permission Error
        case 'media_permission_denied':
            console.log('Media permission denied for call from:', phone);
            showErrorMessage('Microphone access is required for calls. Please allow microphone permissions.');
            break;
            window.sessionStorage.removeItem('activeSessionTab');
            window.sessionStorage.setItem('activeSessionTab', 'parent0');
            sendAutoRegistration();
          }
          break;
      }
  };
```

Device and Network Diagnostics

Initialize diagnostics.

Diagnostics can be initialized by passing two callbacks, one troubleshooting logs and one to get the responses of diagnostics back.

API Name	ExotelWebClient.initDiagnostics
Args	**Params** **Values** **Type**
diagnosticsReportCallback	Object Defined below
keyValueSetCallback	Object Defined below
Exported To	Application UI

The signature of the callbacks are as below.

diagnosticsReportCallback is for logs

```
function diagnosticsReportCallback(logStatus, logData) {
   // logStatus : Additional information on the logs, can be ignored as of now.
   // logData : Troubleshooting log to save in a file..
  }
```

`diagnosticsKeyValueCallback is for test responses, described in the following sections.`

```
  function diagnosticsKeyValueCallback(key, status, description) {
    // key : Indicates the type of response
    // status: the value/status specific to key
    // description : description specific to key
  }
```

Immediately after invoking the initDiagnostics, three parameters are returned through the diagnosticsKeyValueCallback callback.

browserVersion	browserName/browserVersion. Eg. Chrome/101.0.0.0
micInfo	Mic name returned by the browser. Eg. “Built-in Audio Analog Stereo”
speakerInfo	Speaker Name returned by the browser. Eg. “Built-in Audio Analog Stereo”

Speaker Test

Speaker test can be started by invoking the API “startSpeakerDiagnosticsTest”.

API Name	ExotelWebClient.startSpeakerDiagnosticsTest
Args	None
Exported To	Application UI

This starts a test by playing a ringtone. And as the ring tone gets played, the volume levels are passed through the callback function “diagnosticsKeyValueCallback” which can then be used to render the UI to show volume meter.

```
function diagnosticsKeyValueCallback(key, status, description) {
    //key:“speaker”
    //status: a floating point value
    //description : "speaker ok"/”speaker error”
  }
```

Once the user response is captured, it can be passed back to the API, “stopSpeakerDiagnosticsTest " as below. The responses are passed as arguments. THe

API Name	ExotelWebClient.stopSpeakerDiagnosticsTest
Args	Optional, if present, “yes”/”no”.
Exported To	Application UI

The response “yes” indicates that the user has heard the speaker's sound. “No” indicates that the user did not hear the speaker's sound. This response is further used to update the troubleshooting logs.

If no arguments are passed, only the test is terminated. No updates would be made to troubleshooting logs.

Mic Test

Mic test can be started by invoking the API “startMicDiagnosticsTest”.

API Name	ExotelWebClient.startMicDiagnosticsTest
Args	None
Exported To	Application UI

This starts a test by capturing the audio spoken on the mic. And as the audio is analyzed, the volume levels are passed through the callback function “diagnosticsKeyValueCallback” with key as “mic” which can then be used to render the UI to show mic volume meter.

```
function diagnosticsKeyValueCallback(key, status, description) {
    //key:“mic”
    //status: a floating point value
    //description : "mic ok"/”mic error”
  }
```

Once the user response is captured, it can be passed back to the API, “stopMicDiagnosticsTest " as below. The responses are passed as arguments. THe

API Name	ExotelWebClient.stopMicDiagnosticsTest
Args	Optional, if present, “yes”/”no”.
Exported To	Application UI

The response “yes” indicates that the user has been captured by the mic. “No” indicates that the user's voice could not be captured. This response is further used to update the troubleshooting logs.

If no arguments are passed, only the test is terminated. No updates would be made to troubleshooting logs.

Network Diagnostics

Network diagnosis can be started by invoking the API “startNetworkDiagnostics”.

API Name	ExotelWebClient.startNetworkDiagnostics
Args	None
Exported To	Application UI

This API starts network operations testing. The callback “diagnosticsKeyValueCallback” is called with appropriate keys after each test completion.

Web Socket Connection Callback

Returns a WSS url with status “connected” on successful connectivity.

```
function diagnosticsKeyValueCallback(key, status, description) {
```

```
    // key:“wss”
```

```
    // status = connected/disconnected
```

```
    // description = WSS URL
```

```
  }
```

User Registration Status Callback

Returns a status “connected” on successful registration of the configured “username”. This is the callback from the background registration requests. No explicit registration requests are sent specifically for diagnostics purposes.

```
  function diagnosticsKeyValueCallback(key, status, description) {
```

```
    // key:“userReg”
```

```
    // status - "registered"/"unregistered"
```

```
    // description - userName
```

```
  }
```

TCP connectivity callback

Returns a key value “tcp”with ice candidate information as description.

```
function diagnosticsKeyValueCallback(key, status, description) {
```

```
    // key:“tcp”
```

```
    // status: connected/disconnected
```

```
    // description : ice candidate line for tcp connectivity/empty string
```

```
  }
```

UDP connectivity callback

Returns a key value “udp” with ice candidate information as description.

```
  function diagnosticsKeyValueCallback(key, status, description) {

    // key:“udp”

    // key: connected/disconnected

    // description : ice candidate line for udp connectivity/empty string

  }
```

Host connectivity callback

Returns a key value “host” with ice candidate information as description for internal network.

```
 function diagnosticsKeyValueCallback(key, status, description) {

// key:“host”

// key: connected/disconnected

// description : ice candidate for the host connectivity (local facing)/empty
string

  }
```

Reflexive connectivity callback

Returns a key value “srflx” with ice candidate information as description for external network.

```
 function diagnosticsKeyValueCallback(key, status, description) {

// key:“srflx”
```

```
// key: connected/disconnected
```

```
// description : ice candidate for the reflex connectivity (remote
facing)/empty string
```

```
  }
```

Auto Reconnect

Sometimes due to network issues, websocket connections get disconnected. In that case the application has to retry the connection. To implement it we can store the state for shouldAutoRetry, and during doRegistration it could be set as true, and during explicit unregistration it could be set as false, and based on an unregistered event we can invoke doRegister API.

var shouldAutoRetry = false;

```
function registerToggle() {
   if (document.getElementById("registerButton").innerHTML === "REGISTER") {
       shouldAutoRetry = true;
       UserAgentRegistration();
   } else {
       shouldAutoRetry = false;
       exWebClient.unregister();
   }
}
function RegisterEventCallBack(state, sipInfo) {
   document.getElementById("status").innerHTML = state;
   if (state === 'registered') {
       document.getElementById("registerButton").innerHTML = "UNREGISTER";
```

```
    } else {
        document.getElementById("registerButton").innerHTML = "REGISTER";
        if (shouldAutoRetry) {
            exWebClient.DoRegister();
        }
    }
}
```

Check SDK Readiness

- To check the SDK readiness, whether SDK is ready to receive a call or not. We can invoke checkClientStatus API with a callback method.
- First it checks if the microphone is available or not, then it checks whether the websocket is connected or not, then it checks if the user is registered or not.

Args	Datatype
clientStatusCallback	Callback function with status as String

Event	Event Decription
media_permission_denied	either media device not available, or permission not given
not_initialized	sdk is not initialized
websocket_connection_failed	websocket connection is failing, due to network connectivity
unregistered,terminated	either your credential is invalid or registration keepalive failed.
initial	sdk registration is progress
registered	Ready to receive the calls
unknown	something went wrong
disconnected	websocket is not connected
connecting	Trying to connect the websocket

```
exWebClient.checkClientStatus(function (status) {
       console.log("SDK Status " + status);
 });
```

Audio Device Selection

- To get the device ID when the default device got changed, we can register callbacks
- registerAudioDeviceChangeCallback function Argument
    -

Argument	type	
audioInputDeviceChangeCallback	function	manadatory
audioOutputDeviceCallback	function	mandatory
onDeviceChangeCallback	function	optional

- In case we dont pass onDeviceChangeCallback then sdk will internally try to change the default input/output device
- If onDeviceChangeCallback is passed as third argument then sdk will not try to change the default audio/input device internally, however, OS may have change the default device at OS level.

```
exWebClient.registerAudioDeviceChangeCallback(function (deviceId) {
    console.log(`demo:audioInputDeviceCallback device changed to ${deviceId}`);
}, function (deviceId) {
    console.log(`demo:audioOutputDeviceCallback device changed to ${deviceId}`);
});
```

- During the call or before the call, to change the audio output device
- You can optionally set the `forceDeviceChange` parameter to `true`. This action will bypass the system's internal auto-switching mechanisms.

```
exWebClient.changeAudioOutputDevice(
        selectedDeviceId,
        () => console.log(`Output device changed successfully`),
        (error) => console.log(`Failed to change output device: ${error}`),
 true // optional
    );
```

- During the call or before the call, to change the audio input device
- You can optionally set the `forceDeviceChange` parameter to `true`. This action will bypass the system's internal auto-switching mechanisms.

```
function changeAudioInputDevice() {
```

```
    const selectedDeviceId = document.getElementById('inputDevices').value;
    exWebClient.changeAudioInputDevice(
        selectedDeviceId,
        () => console.log(`Input device changed successfully`),
        (error) => console.log(`Failed to change input device: ${error}`),
  true // optional
    );
}
```

- If you want the SDK to automatically detect and switch to newly plugged in audio input/output devices, you can enable this option by passing a 4th argument to `initWebrtc`.

```
exWebClient.initWebrtc(
  sipAccountInfo,
  RegisterEventCallBack,
  CallListenerCallback,
  SessionCallback,
  true // optional: Enables auto audio device change handling
);
```

Noise Suppression

- The SDK provides control over noise suppression for improved call quality. By default, noise suppression is disabled.
- Call after DoRegister().

API Name	Args
exWebClient.setNoiseSuppression	Boolean (true / false)

```
// Enable noise suppression
exWebClient.setNoiseSuppression(true);
// Disable noise suppression
exWebClient.setNoiseSuppression(false);
```

Logger Callback

To get the SDK logs item as a callback event we can register own logger.
registerLoggerCallback is **static** methods in ExotelWebClient

RegisterLoggerCallback args

Args	Datatype
type	string
message	String
args	Array

```
exotelSDK.ExotelWebClient.registerLoggerCallback(function (type, message, args)
{
    switch (type) {
        case "log":
            console.log(`demo: ${message}`, args);
            break;
        case "info":
            console.info(`demo: ${message}`, args);
```

```
            break;
        case "error":
            console.error(`demo: ${message}`, args);
            break;
        case "warn":
            console.warn(`demo: ${message}`, args);
            break;
        default:
            console.log(`demo: ${message}`, args);
            break;
    }
});
```

Audio Volume Control

- The SDK provides granular control over different audio elements including call audio, ringtone, ringback tone, DTMF tone, and beep tone volumes.
- Volume values are normalized between 0.0 (silent) and 1.0 (maximum)
- Volume settings persist during the session but reset when the page is reloaded
- Since the notifications are global, these functions are static

Notification Audio Volume Control

- Methods to control audio output volume for notification sounds.

API Name	Args	Returns	Description
ExotelWebClient.setAudioOutputVolume	- audioElementName (string) - value (number 0.0-1.0)	None	Set notification sound volume
ExotelWebClient.getAudioOutputVolume	- audioElementName (string)	Current volume (number 0.0-1.0)	Get notification sound volume

- Valid audioElementName values:
  - "ringtone" - Incoming call ringtone
  - "ringbacktone" - Outgoing call ringback tone
  - "dtmftone" - DTMF keypad tones
  - "beeptone" - System beep sounds

```
// eg: Set ringtone volume to 50%
```

```
exotelSDK.ExotelWebClient.setAudioOutputVolume("ringtone", 0.5);
```

```
// Get current ringtone volume
```

```
const volume = exotelSDK.ExotelWebClient.getAudioOutputVolume ("ringtone");
```

Call Audio Volume Control

- Methods to control audio output volume for call audio.
- Since this method is call volume per account, this function is not static

API Name	Args	Returns	Description
exWebClient.setCallAudioOutputVolume	- value (number 0.0-1.0)	None	Set call audio volume
exWebClient.getCallAudioOutputVolume	- None	Current volume (number 0.0-1.0)	Get call audio volume

```
// eg: Set call audio volume to 80%
```

```
exWebClient.setCallAudioOutputVolume(0.8);
```

```
// Get current call audio volume
```

```
const callVolume = exWebClient.getCallAudioOutputVolume();
```

Disabling Built-in Logging

- The SDK provides a way to control all built-in logging (console output, SDK logs, and SIP.js logs) using the setEnableConsoleLogging method.
- setEnableConsoleLogging is **static** methods in ExotelWebClient:

// Disable all SDK and SIP.js logs

exotelSDK.ExotelWebClient.setEnableConsoleLogging(false);

- Default: Logging is enabled (true).
- Effect: When set to false, all SDK logs, SIP.js logs, and internal logger callbacks are suppressed.
- Note: This should be called before initializing or registering the client to ensure no logs are printed.

3.2.2.3. Sample App

https://github.com/exotel/exotel-voip-websdk-sampleapp

3.2.3. Subscriber Management API

This guide explains how to manage subscribers (end-users or agents) in your application using Exotel's Client SDK. These APIs let you create, update, fetch, and delete subscriber accounts that are used for WebRTC/VoIP calling.

Base URL: `https://api.exotel.com/v2/accounts/{accountSid}`
Auth: `Basic Auth with AccountSid:Token`

1. Create Subscribers

Create one or more subscribers in a single request (up to **25 subscribers** at a time).

Endpoint:

`POST /subscribers`

Request Body Example:

```
{
  "subscribers": [
    {
      "user_name": "alice",
      "password": "********",
      "email": "alice@example.com"
    },
    {
      "user_name": "bob",
      "password": "********",
      "email": "bob@example.com"
```

```
    }
  ]
}
```

Response Example:

```
{
  "request_id": "22c70a0c46414af9b7136491c31f95a6",
  "method": "POST",
  "http_code": 200,
  "metadata": {
    "total": 2,
    "success": 2
  },
  "response": [
    {
      "code": 200,
      "status": "success",
      "data": {
        "user_name": "alice",
        "date_created": "2023-06-05T09:32:49Z",
        "date_updated": "2023-06-05T09:32:49Z",
        "email": "alice@example.com",
        "domain": "<accountSid>.voip.exotel.com",
        "status": "inactive",
```

```
        "display_name": null,
        "dc_id": null
      }
    },
    {
      "code": 200,
      "status": "success",
      "data": {
        "user_name": "bob",
        "date_created": "2023-06-05T09:32:49Z",
        "date_updated": "2023-06-05T09:32:49Z",
        "email": "bob@example.com",
        "domain": "<accountSid>.voip.exotel.com",
        "status": "inactive",
        "display_name": null,
        "dc_id": null
      }
    }
  ]
}
```


2. Get Subscriber Details

Fetch details of subscribers by username or list with pagination.

Endpoint:

`GET /subscribers`

Query Parameters:

- user_name (optional, comma separated)
- offset (default 0)
- page_size (default 250, max 250)

Sample Request:

`GET /subscribers?user_name=alice,bob&offset=0&page_size=250`

Response Example:


```
{
  "request_id": "f293bfb68b6e4a74a0f3bab31946c59b",
  "method": "GET",
  "http_code": 200,
  "metadata": {
    "page_size": 250,
    "first_page_uri": "/v2/accounts/<accountSid>/subscribers?offset=0&page_size=250&user_name=alice,bob",
    "prev_page_uri": null,
    "next_page_uri": null
  },
  "response": [
    {
      "code": 200,
```

```
      "status": "success",
      "data": {
        "user_name": "alice",
        "date_created": "2023-06-05T09:32:49Z",
        "date_updated": "2023-06-05T09:32:49Z",
        "email": "alice@example.com",
        "domain": "<accountSid>.voip.exotel.com",
        "status": "inactive",
        "display_name": null,
        "dc_id": null
      }
    },
    {
      "code": 200,
      "status": "success",
      "data": {
        "user_name": "bob",
        "date_created": "2023-06-05T09:32:49Z",
        "date_updated": "2023-06-05T09:32:49Z",
        "email": "bob@example.com",
        "domain": "<accountSid>.voip.exotel.com",
        "status": "inactive",
        "display_name": null,
```

```
        "dc_id": null
      }
    }
  ]
}
```

3. Update Subscriber

Update details for a single subscriber.

Endpoint:

```
PUT /subscribers/{user_name}
```

Request Body Example:

```
{
  "password": "NewStrongPass@123",
  "email": "alice.updated@example.com"
}
```

Response Example:

```
{
  "request_id": "e6b64e1460ac467a9680a8967ba4b4eb",
  "method": "PUT",
  "http_code": 200,
  "response": {
    "code": 200,
    "status": "success",
    "data": {
```

```
      "user_name": "alice",
      "date_created": "2023-06-05T09:32:49Z",
      "date_updated": "2023-06-05T09:55:10Z",
      "email": "alice.updated@example.com",
      "domain": "<accountSid>.voip.exotel.com",
      "status": "inactive",
      "display_name": null,
      "dc_id": null
    }
  }
}
```

4. Delete Subscribers

Delete up to **50 subscribers** in a single request.

Endpoint:

```
DELETE /subscribers?user_name=alice,bob
```

Response Example:

```
{
  "request_id": "7c004e095c8e4ae5b32e2244a7a1fef8",
  "method": "DELETE",
  "http_code": 200,
  "metadata": {
    "total": 2,
    "success": 2
```

```
  },
  "response": [
    {
      "code": 200,
      "status": "success",
      "data": {
        "user_name": "alice",
        "date_created": "2023-06-05T09:32:49Z",
        "date_updated": "2023-06-05T09:32:49Z",
        "email": "alice@example.com",
        "domain": "<accountSid>.voip.exotel.com",
        "status": "inactive",
        "display_name": null,
        "dc_id": null
      }
    },
    {
      "code": 200,
      "status": "success",
      "data": {
        "user_name": "bob",
        "date_created": "2023-06-05T09:32:49Z",
        "date_updated": "2023-06-05T09:55:10Z",
```

```
        "email": "bob@example.com",
        "domain": "<accountSid>.voip.exotel.com",
        "status": "inactive",
        "display_name": null,
        "dc_id": null
      }
    }
  ]
}
```

Additional Notes

- Subscribers are required for **WebRTC SDK login & registration**.
- Default subscriber status is inactive until first SDK registration.
- Bulk limits: **25 on create**, **50 on delete**.
- Use strong passwords and rotate them periodically.
- Subscriber domain always follows:
  `<accountSid>.voip.exotel.com`

3.2.4. Outbound Call APIs

Integration with Exotel APIs

Refer to https://developer.exotel.com/api/make-a-call-api for exotel platform integration APIs. For example, to make a outbound call from a webclient to a pstn phone the request will be

```
curl -s -X POST https://<your_api_key>:<your_api_token>
<subdomain>/v1/Accounts/<your_account_sid>/Calls/connect -d "From=<sip_user_id>"
-d "CallerId=<caller_id>" -d "To=<phone number>"
```

Support Contact

Please write to hello@exotel.in for any support required with integration.

3.3. Client Android SDK

3.3.1. Introduction and Glossary

Introduction

ExotelVoice library enables you to add the voip calling feature into your app. This document outlines the integration steps. The library supports only peer to peer 2-way calls. Multi-party conferencing use cases are not supported.

Section 4 describes integration steps for ExotelVoice Android SDK. Section 5.1 describes the webhooks that should be supported in your application backend for number-masking workflow. Section 5.2.1 describes subscribers provisioning in the Exotel platform.

Licensing

Create a trial account in Exotel. To enable voip calling in the trial account, contact *exotel support*. Once Exotel support enables the voip capability in the account , a VOIP Exophone will be created as shown below and available in the account under the Exophones section .

ExoPhone

EXOPHONE	TYPE
095-138-86363 Pin: 7022-1678-17	Not set
080-471-12327	Landline
sip-:08-040408080	VoIP

SIP Exophones discussed later in the section refers to Exophones of Voip type as shown above.

NOTE :- SIP and VOIP are used interchangeably in the document

Glossary

Terminology	Description
App	Mobile application
Application Backend	Customer backend service for the application
Client	User / Subscriber / Client signing up to use the mobile app
Customer	Exotel's customer licensing the SDK
Voip	

3.3.1.1. Android SDK Integration

Getting Started

Software Package

The *ExotelVoice* SDK software package includes

- Android AAR file
- Integration Guide
- Sample application for reference
- JavaDoc for API reference
- Subscriber Management API Documentation

Add Exotel Voice SDK Library to Project

Method I:

- Open your Android application code in Android Studio
- Choose File -> New -> New Module -> Import exotel-voice-release.aar Package
- Provide the path to the downloaded AAR file
- Add the SDK as a dependency for the app

1. Go to File -> Project structure -> Dependencies > “+” that says “All Dependencies > Add path of AAR
2. Add Exotel Voice SDK as dependency to your application

Method II:

- Copy the AAR file to the libs folder and edit the build.gradle file to include

```
implementation project(path: ':exotel-voice-sdk')
```

- Below contents part of settings.gradle file

```
    include ':app', ':exotel-voice-sdk'
implementation fileTree(include: ['*.jar'], dir: 'libs')
```

- Add the following libraries to the build.gradle file

```
implementation 'com.google.code.gson:gson:[2.8.5]'
implementation 'dnsjava:dnsjava:[2.1.9,)'
implementation 'com.squareup.okhttp3:okhttp:[3.14.2,)'
implementation 'com.squareup.okhttp3:logging-interceptor:[3.14.2,)'
```

Target Platform

- Supported Android Version: 10.0+
- Supported Android ABIs: armeabi-v7a, arm64-v8a, x86_64 and x86

Permissions

```
<uses-permission android:name="android.permission.INTERNET" />
<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
<uses-permission android:name="android.permission.BROADCAST_STICKY" />
<uses-permission android:name="android.permission.RECORD_AUDIO" />
<uses-permission android:name="android.permission.MODIFY_AUDIO_SETTINGS" />
<uses-permission android:name="android.permission.READ_PHONE_STATE" />
<uses-permission android:name="android.permission.WAKE_LOCK" />
<uses-permission android:name="android.permission.DISABLE_KEYGUARD" />
<uses-permission android:name="android.permission.VIBRATE" />
<uses-permission android:name="android.permission.FOREGROUND_SERVICE" />
<uses-permission android:name="android.permission.BLUETOOTH"/>
<uses-permission android:name="android.permission.MANAGE_OWN_CALLS"/>
<uses-permission android:name="android.permission.POST_NOTIFICATIONS"/>
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN"/>
<uses-permission android:name="android.permission.BLUETOOTH_CONNECT"/>


//Required for Android 14 onwards
<uses-permission
android:name="android.permission.FOREGROUND_SERVICE_PHONE_CALL" />
<uses-permission
android:name="android.permission.FOREGROUND_SERVICE_MICROPHONE" />
```

Proguard Rules

The proguard rules for *ExotelVoice* are included in the AAR file. These rules will be auto included when the proguard is enabled for your application build.

Android Service

The application needs to integrate *ExotelVoice* in a service. This should be run as a foreground service when a call is in progress so that the application is not killed when it moves to the background. When the call is over, service should be moved to the background.

Refer to *VoiceAppService* in the sample application.

Use Foreground Service Types

When setting up the Foreground Service, define the foregroundServiceType attributes as phoneCall and microphone in the manifest. This will indicate that the service is responsible for handling calls and microphone access, preventing unnecessary security issues related to background access. For instance:

```
<service android:name=".VoiceAppService"
android:foregroundServiceType="phoneCall|microphone"
android:permission="android.permission.FOREGROUND_SERVICE"
android:exported="false" />
```

This setup ensures that the service continues running during an active call and has the necessary permissions to access the microphone. Additionally, after the call ends, the service can be moved to the background to release unnecessary system resources.

Managing Microphone Permission According to Android 14 Guidelines

Android 14 enforces strict restrictions on background services, particularly for microphone access. To comply with these guidelines, apps must manage foreground services effectively, ensuring they are correctly configured for both incoming and outgoing calls. This ensures smooth call functionality while maintaining security and privacy.

When the foreground service is started, it should begin with FOREGROUND_SERVICE_TYPE_PHONE_CALL. This allows the app to operate in the background while displaying the incoming call notification.

```
ServiceCompat.startForeground(this, NOTIFICATION_ID,
notification,ServiceInfo.FOREGROUND_SERVICE_TYPE_PHONE_CALL);
```

Incoming Calls

When the app is closed and an incoming call is detected, it should first start as a normal service to handle initializing the SDK

Once the user got the onIncomingCall event from the SDK and trying to answer the call, so before invoking the answer method of the SDK, the application must be in foreground and the service type must be updated to enable microphone access during the call. This will ensure that app will work seamlessly when the app is running in the background or is closed.

,

```
public void answer() throws Exception {
    VoiceAppLogger.debug(TAG, "Answering call");
    if (null == mCall) {
       String message = "Call object is NULL";
       throw new Exception(message);
    }
    try {
       updateForegroundServiceType(mCall, CallState.ANSWERING);
       tonePlayback.stopTone();
       mCall.answer();
    } catch (Exception e) {
       throw new Exception(e.getMessage());
    }
    VoiceAppLogger.debug(TAG, "After Answering call");
 }
```

Outgoing Calls

After dialing the call from the app the user will get the onCallInitiated() callback.

Once the callback is received, the service should be updated to enable microphone access for the call.

Note that , while updating the foreground service with microphone , application must be in foreground. It will ensure that , if during call, app goes into background then voice will flow properly.

```
@Override
 public void onCallInitiated(Call call) {
    VoiceAppLogger.debug(TAG, "on Call initiated");
    for (CallEvents callEvents : callEventListenerList) {
       callEvents.onCallInitiated(call);
    }
    mCall = call;
    updateForegroundServiceType(call,CallState.OUTGOING_INITIATED);
    VoiceAppLogger.debug(TAG, "End: onCallInitiated");
 }
```

Update Foreground Service Type Function

The updateForegroundServiceType method is responsible for updating the foreground service type based on the current call state. It ensures compliance with Android 14's guidelines for background services and microphone access.

```
  private void updateForegroundServiceType(Call call, CallState outgoingInitiated) {
      handler.post(new Runnable() {
          @Override
          public void run() {
              Notification notification = utils.createNotification(outgoingInitiated,
call.getCallDetails().getRemoteId(), call.getCallDetails().getCallId(),
call.getCallDetails().getCallDirection());
              if (Build.VERSION.SDK_INT < Build.VERSION_CODES.TIRAMISU) {
                  startForeground(NOTIFICATION_ID, notification);
              } else {
                  startForeground(NOTIFICATION_ID, notification,
ServiceInfo.FOREGROUND_SERVICE_TYPE_MANIFEST);
              }
          }
      });

}
```

Initialize Library

ExotelVoice Interface Class provides an entry point to initialize the voice library and set it up for handling calls.

```
// Get Exotel Voice Client
ExotelVoiceClient exotelVoiceClient = ExotelVoiceClientSDK.getExotelVoiceClient();

//set the event listener for sdk logs.
exotelVoiceClient.setEventListener(this);

// Set listener to handle events from voice client
exotelVoiceClient.setEventListener(new ExotelVoiceClientListener()  {

// Initialization success handler
void onInitializationSuccess() { ... }

// Initialization failure handler
void onInitializationFailure(ExotelVoipError exotelVoipError) { ... }

// Logs reported by the voice library
void onLog(LogLevel logLevel, String Tag, String Message) { ... }

// Log upload success handler
void onUploadLogSuccess() { ... }

// Log upload failure handler
void onUploadLogFailure(ExotelVoipError exotelVoipError) { ... }

// Authentication failure handler
void onAuthenticationFailure(ExotelVoipError exotelVoipError) { ... }
});
```

SDK initialization requires a *subscriberToken* generated by the Exotel platform. Workflow for this token generation and management is described in section *Authentication and Authorization*.

```
// Request token from application backend (example)
String subscriberToken = getAccessToken();
```

The *subscriberToken* is provided to *ExotelVoice* during initialization.

```
// Initialize client library
android.content.Context context = this.getApplicationContext();
exotelVoiceClient.initialize(
context,       // Android application context
hostname,
subscriberName,
displayName,
accountSid,        // Exotel Account SID
subscriberToken,
);
```

Client library notifies *onInitializationSuccess()* on success and *onInitializationFailure()* on failure. On expiry of *subscriberToken*, the library will post onAuthenticationFailure() at which application should request new *subscriberToken* from application backend and program in the *initialize()* API.

Parameter	**Description**
Hostname	https://miles.apac-sg.exotel.in/v2
SubscriberName	Param “subscriber_name” returned as part of the Subscriber management API to create a subscriber.
Display Name	Subscriber name.
AccountSId	Account SID param from API settings page in the Exotel Dashboard.
SubscriberToken	can be gotten from the API in the `Get Subscriber Token` section in the Subscriber Management API document. In the *subscriberToken*, both the *refresh token* and *access token* are base64 encoded.

Subscriber token format example


```
"subscriber_token":
{
"refresh_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzd
WIiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwiY2xp
ZW50X2lkIjoiNUUwNTg2NUUifQ.Hc3umVfFlKIPiJ8R9kcP9o9hE9he51le08rO22u7eqs",
"access_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzd
WIiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwic2Nv
cGUiOiJ2b2ljZSIsImNsaWVudF9pZCI6IjVFMDU4NjVFIn0.uQd_aHGBIT4XqTPfl-
567dmjQrKlmLtPag0KpGB2QMA"
}
```


Below are the sample methods to get the subsriberToken, Customers can implement this in their own method.

Use the below HTTP APIs to get the subscriber token and convert subscriber token to jobject and pass it to exotelVoiceClient.initialize();

Note:

- Copying manually generated subscriber token has issues. Best way is to make API calls in source code and pass them by converting to jobject to the exotelVoiceClient.initialize();
- Pass the **proper device ID** to the login api to avoid invalid refresh token error.
- build.gradle should be proper. Complete working build.gradle file is attached in the link https://github.com/exotel/exotel-voip-sdk-android/blob/main/build.gradle
- Device_id is the actual device id in which the app is running using below sample code. String androidId = Settings.Secure.*getString*(context.getContentResolver(), Settings.Secure.*ANDROID_ID*);

Generate access token:

Refer “Subscriber Management API” documentation section 3.1 for creating subscriber token.

Managing Calls

After successful initialization, the library is ready to handle calls. Dialing-out calls or receiving incoming calls is managed through *CallController* Interface.

```
// Get Call Controller interface
CallController callController = exotelVoiceClient.getCallController();
```

Call progress events are notified to the application through the *CallListener* Interface attached to the *CallController* object.

```
// Attach call listener
callController.setCallListener(new CallListener() {

// Handler for incoming call alert
void onIncomingCall(Call call) { ... }

// Handler for outgoing call initiated event
void onCallInitiated(Call call) { ... }

// Handler for call ringing event for outgoing call
void onCallRinging(Call call) { ... }

// Handler for call connected event
void onCallEstablished(Call call) { ... }

// Handler for call termination event
void onCallEnded(Call call) { ... }

// Handler for missed call alert
void onMissedCall(String remoteId, Date time) { ... }
});
```

Each call object provides a Call Interface to manage the call lifecycle and perform operations like answer incoming calls, hangup calls, mute, unmute, and get call statistics.

```
// Mute
call.mute();

// Terminate call
call.hangup();
```

Make Outgoing Call

To make outgoing calls, the *CallController* interface must be created and a listener interface is attached as mentioned in section *Managing Calls*. Provide sip exophone number in *dial()* API of *CallController* Interface to make outgoing calls.

```
// Get Call Controller interface
CallController callController = exotelVoiceClient.getCallController();

// Attache call progress listener
callController.setCallListener(new CallListener() { ... }

// Dial out call to remoteId
Call call = callController.dial(<sip exophone>, <custom_field>);
```

Params for dial method -

Param	Mandatory	Description
sip_exophone	Yes	ExotelVoice library always routes the call via SIP Exophone configured for your account. SIP Exophones are different from the PSTN / Mobile Exophones. They can be identified using sip: prefix. Contact exotel support to enable SIP Exophone in your account. Similar to the number masking workflow, the application backend must maintain the call context between caller and callee. On receiving the call at SIP Exophone, the exotel platform will request the callee details from the application backend to bridge the call. Refer section Dial Whom Endpoint for details.
custom_field	No	The string that will be passed here will be sent to the DialWhom Endpoint under the “CustomField” param. All alphanumeric characters are allowed along with comma `,` colon `:` and all kinds of brackets - {}()[]

Once initiated, call progress events can be monitored through *CallListener* Interface and call control operations can be performed using *Call* Interface.

Receive Incoming Call

The Mobile application receives incoming call data in Push Notification sent by your application backend. Refer section *Push Notification Endpoint* for details.

To handle the incoming call, the *ExotelVoice* library should be in an initialized state. Refer to section *Initialize Library*. After initialization, the CallController Interface should be created and the listener be attached as mentioned in section *Managing Calls*.

```
// Get Call Controller interface
CallController callController = exotelVoiceClient.getCallController();

// Attache call progress listener
callController.setCallListener(new CallListener() { ... }
```

The sample application uses Firebase Cloud Messaging to push call data to the device. Once received at the mobile app, it is sent to *ExotleVoiceClient* through *relaySessionData* API.

```
public class VoiceAppFirebaseService extends FirebaseMessagingService{
   public void onMessageReceived(RemoteMessage remoteMessage) {

      Map<String,String> callData = remoteMessage.getData();
      Map<String,String> pushNotificationData = new HashMap<>();

      pushNotificationData.put("payload", callData.get(“payload”));
      pushNotificationData.put(
"payloadVersion", callData.get(“payloadVersion”));

      exotelVoiceClient.relaySessionData(pushNotificationData);
   }
}
```

The voice library will process and validate the data and send an *onIncomingCall()* event to the application with the call object.

Application has to update their foreground service with microphone permission.

And it must be required to app in foreground mode to update the foreground service with microphone permission. Hence for this we can move application in foreground with UI element. And then update the foreground service.

The application can call the *answer()* API to accept the incoming call.

```
// Accept call
call.answer();
```

Hangup Call

The application can call hangup() API on the call object to decline an incoming call.

```
// Decline / Terminate call
call.hangup();
```

Audio Management

Before the call begins, Exotel's SDK checks the current audio output mode and sets the audio route accordingly. By default, it is in the earpiece mode. For example, If a wired headset is plugged in, audio will get routed via wired headset.

Speaker phone mode can be enabled and disabled using *Call* object APIs.

```
// change audio route to speaker
call.enableSpeaker();

// change audio route to phone earpiece
call.disableSpeaker();
```

Bluetooth mode can be enabled and disabled using *Call* object APIs. This will only work when any bluetooth device is connected to the phone.

```
// change audio route to bluetooth. Only works if a bluetooth device is connected to the phone.
call.enableBluetooth();

// change audio route to phone earpiece
call.disableBluetooth();
```

Current Audio route can be fetched using Call object API getAudioRoute. It will return

CallAudioRoute Enum i.e EARPIECE, SPEAKER, BLUETOOTH, HEADPHONES

```
// get current audio route
call.getAudioRoute();
```

Local mic can be muted and unmuted during in-call using *Call* object APIs.

```
// mute the call
call.mute();

// unmute the call
call.unmute();
```

Call State

The Call State can be accessed by calling *getLatestCallDetails().getCallState()*.

This state can be displayed on the calling screen to let the user know about the state of the call. Refer to the Call State Flow diagram.

Call State	Description	Call Back	Recommended message to display on the calling screen
NONE	This state occurs when a call object is created but not yet initiated.	-	-
OUTGOING_INITIATED	This state is set when an outgoing call is initiated. It's set after dialing and before the call starts ringing.	-	Connecting
EARLY	Indicates early media reception before the call is answered.	-	-
RINGING	The receiver's phone is ringing but hasn't been answered yet.	onCallRinging()	Ringing
CONNECTING	The call starts connecting.	-	Connecting
INCOMING	This state is set when there's an incoming call, and the system isn't idle.	onIncomingCall()	Caller ID, custom information related to the callee
ANSWERING	Occurs when the user accepts the incoming call; it's a transitional phase before the call gets established.	-	Answering
ESTABLISHED	Indicates that both parties have accepted the call, and communication is established.	onCallEstablished()	Connected
MEDIA_DISRUPTED	Occurs if there's a disruption in media transmission during an ongoing call due to issues like RTP loss. To handle such disruptions effectively ensuring continuity or termination based on severity it	onMediaDisrupted()	Reconnecting

Call State	Description	Call Back	Recommended message to display on the calling screen
	initiates reconnection procedures and moves to RECONNECTING if RTP loss persists. To ensure calls remain active during temporary disruptions it monitors RTP resumption or port renewal activities and returns to ESTABLISHED upon successful media restoration.		
RENEWING_MEDIA	This state indicates that media (RTP) is resuming or renewing after being disrupted.	onRenewingMedia()	Reconnecting
ENDING	The process of ending or dropping an ongoing or established call starts here	-	-
ENDED	Indicates that a call has ended completely, returning system status to idle.	onCallEnded: ENDED	-
-	This indicates that the media session has been cleaned up.	onDestroyMediaSession()	-

Call Statistics

Application can query the call quality statistics periodically during the call by using *getStatistics()* API of the *Call* object. It provides info about codec and the call QoS parameters like packet loss, jitter and round trip delay.

Call Details

Application can query the call details record of the call using *getCallDetails()* API of the *Call* interface. The CDR provides info on callId, call state, call duration, call end reason etc. This API can be queried only for the latest call since SDK maintains only a single call context.

Handling of PSTN calls

ExotelVoice has following behavior during PSTN calls:

- When a PSTN call is in progress, no outgoing calls are allowed by the voice client.
- When a PSTN call is in progress, any incoming VoIP call is automatically declined by the voice library and reported as a missed call to the application.
- When a VoIP call is in progress and a PSTN call lands on the phone, then the VoIP call continues if the user declines or does not respond to the PSTN call. If the user accepts the PSTN call, then the VoIP call is automatically terminated by the voice client.

Reporting Problems

The voice client library logs are stored in the application internal storage. Any issue along with the logs can be reported by app to Exotel using *uploadLogs()* API of *ExotelVoice* Interface.

```
// Upload logs with description from startDate and endDate
exotelVoiceClient.uploadLogs(startDate, endDate, description);
```

The API triggers *onUploadLogSuccess()* or *onUpLoadLogFailure()* callback based on the success or failure of the operation.

Reporting Call Quality Feedback

Call quality can be queried from the user and reported to the exotel platform at the end of the call.

```
// Upload logs with description from startDate and endDate
int rating = 3
CallIssue issue = BACKGROUND_NOISE
call.postFeedback(rating,issue);
```

The rating is a quality score that can take values 1 to 5.

5 - Excellent quality. No issues.
4 - Good quality. Negligible issues.
3 - Average quality. Minor audio noise.
2 - Bad quality. Frequent choppy audio or high audio delay.
1 - Terrible. Unable to communicate. Call drop, No-audio or one-way audio.

The call issue is a descriptive explanation of the issue.

NO_ISSUE	No issues observed
BACKGROUND_NOISE	Low audio clarity due to noisy audio
CHOPPY_AUDIO	Frequent breaks in audio or garbling in audio
HIGH_LATENCY	Significant delay in audio
NO_AUDIO	No audio received from far user
ECHO	Echo during the call

3.3.1.1.1. Platform Integration

Platform Integration

Customer API Endpoints

Exotel provides full control to customers to implement call routing business logic. For this, customers need to host the following HTTP endpoints to handle callbacks from Exotel platform.

Dial Whom Endpoint

Host a HTTP endpoint which will be queried by the Exotel platform to get to the destination user.

Method: GET

Request URL (Example): `https://company.com/v1/accounts/exotel/dialtonumber`

Note: This URL needs to be provided to Exotel or configured in the connect applet.

Request Body:

- CallSid - unique call identifier
- CallFrom - caller username
- CallTo - exophone
- CustomField - It will be passed only if you have sent the second optional param while making the call from the app.

Expected Response:

On success, the API should return with response code 200 OK. The response body should be a string of type *sip:<remoteId>*. “sip:” tag is needed to hint the exotel platform to connect calls over voip. At present, SIP and PSTN intermixing is not supported. Any other response is treated as failure. remoteId is the username with which the call destination subscriber was registered with Exotel platform.

Example:

Request

```
GET /v1/accounts/exotelip2ipcalling1/dialtonumber?
CallSid=743ddcf5a0552050bc37b6d0ff9613bn&CallFrom=sip:Alice&CallTo=sip:0804
0408080&CallStatus=ringing&Direction=incoming&Created=Sat,+23+Nov+2019+22:0
0:37&DialCallDuration=0&StartTime=2019-11-23+22:00:37&EndTime=1970-01-
01+05:30:00&CallType=call-
attempt&DialWhomNumber=&flow_id=249196&tenant_id=113828&From=sip:Alice&To
=sip:08040408080&CurrentTime=2019-11-23+22:00:37
```

Response


```
{
   "fetch_after_attempt": false,
   "destination": {
      "numbers": [
         "sip:1234567890"
      ]
   },
   "outgoing_phone_number": "08080808080",
   "record": false,
   "recording_channels": "dual",
   "max_ringing_duration": 30,
   "max_conversation_duration": 3600,
   "request_id": "2e48100e6b474714b1a64bfa9f5b7a55",
   "method": "GET",
   "http_code": 200,
   "code": null,
   "error_data": null,
   "status": null
}
```

Push Notification Endpoint

Exotel implements registration-less dialing where a user need not periodically register with SIP registrar for receiving incoming calls. Instead the call details are pushed to the device as push notification using which call can be established. This method is beneficial as calls will reach the user even when the app is not in foreground or swipe killed. It saves battery since it does not need to keep persistent voip connection when idle.

Exotel will provide call data as payload & payloadVersion to your push notification endpoint that needs to be pushed to the client device from your application backend.

Refer section Receive Incoming Call for handling of push notification payload.

Note - Headers are not supported in the notify endpoints.

Method: POST

Request URL (Example): `https://<your_api_key>:<your_api_token>@company.com/v1/accounts/exotel/pushtoclient`

Note: This URL needs to be configured in Exotel platform

Request Body:

- subscriberName - Name with which subscriber registered with Exotel platform
- payload - call data which should be passed to the client SDK
- payloadVersion - version of payload scheme

Expected Response:

On success, the API should return with response code 200 OK. Any other response is treated as failure.

Exotel API Endpoints

Subscriber Management

Customers can manage their subscribers in the Exotel platform using the APIs listed *"Subscriber-Management-API"* document.

For clients to be able to use voip calling features they need to be added as subscribers under your account. There are two ways in which your client registration with Exotel account happens,

Pre-provisioning

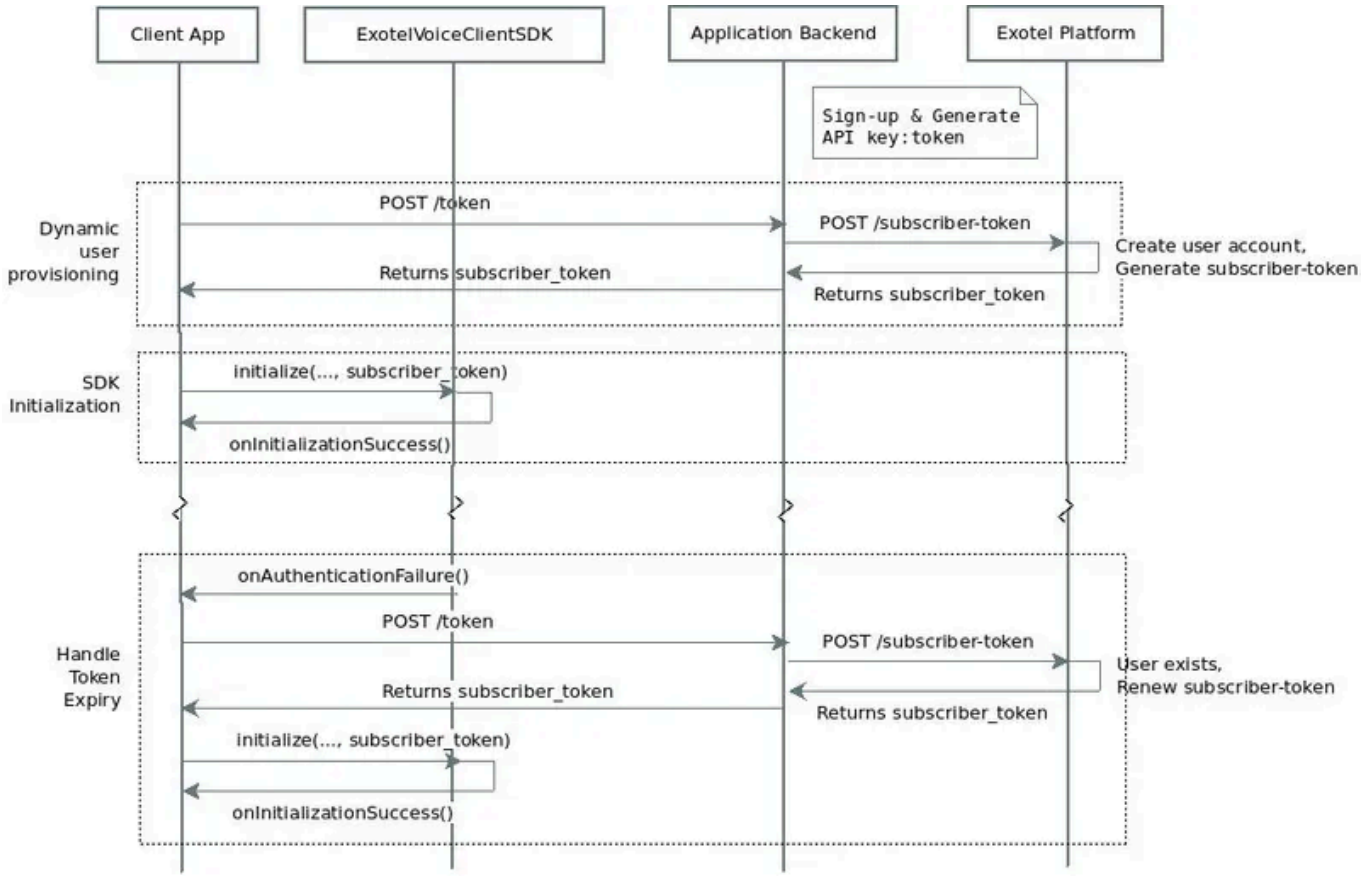
The customer pre-configures the client accounts even before the app is installed by the client. Refer to the *"Subscriber-Management-API"* document for details on creating client accounts.

Dynamic provisioning

A client account is created after the app is installed by the user and signs-up with the application backend. Refer to *Authentication and Authorization* for workflow details. Once client provisioning happens, clients can be managed using Subscriber Management APIs.

Authentication and Authorization

Access to the exotel platform by *ExotelVoice* is authenticated using a set of bearer tokens - *subscriber_token*. The Application backend must obtain these tokens from the exotel platform and provide them to the client on request. Refer to the *"Subscriber-Management-API"* document for details.



On receiving the *onAuthenticationFailure* event, the application should request a new *subscriber_token* from its backend and reinitialize the SDK as shown in section *Initialize Library*. Contact *exotel support* if you get *onAuthenticationFailure* even after token renewal.

onAuthenticationError() event provides following error types:

- AUTHENTICATION_INVALID_TOKEN - token parameters are invalid
- AUTHENTICATION_EXPIRED_TOKEN - token expired

Reference Documents

- Android JavaDoc for the *ExotelVoice* library API
- *Subscriber-Management-API* document for details on API to manage subscriber

Support Contact

Please write to hello@exotel.in for any support required with integration.

Troubleshooting Guide

Outgoing Call

I am not getting any requests on the “Dial Whom” endpoint for outgoing calls?

1. Check if *"Dial Whom"* URL was configured in *Connect Applet* and reachable.
2. Check if the call is listed in your account dashboard. If not, then
    - Check if the phone has internet connectivity.
    - Check if the SIP Exophone number was set in *CallController::dial()* API.
    - Check if C*allListener::onCallFailed()* event was received with error type CONGESTION_ERROR, which means rate limit quota was exceeded.
    - Check if *CallListener::onCallInitiated()* event was received from the SDK.
    - Check if *Call::getCallDetails()* returns non-null *sessionId* field
    - Check if
3. Report the issue to *exotel support* with *sessionId* (from App) and *Call-Reference-Id* (if available, from account dashboard)

I am hearing a ringing tone but the callee has not received the call?

Ringing tone implies that the call has reached the exotel platform.

Incoming Call

My calls are not landing on the callee app?

1. Check if the call is listed in your account dashboard and dialout happened to the remote subscriber. If not then, refer to the troubleshooting guide for outgoing calls.
2. Check if the application received push notification with call payload from your application backend. If not, then
    - Check the device OEM. If Xiaomi phones, refer to section *Problems with push notifications on Xiaomi devices*.
    - Check if *Push Notification URL* is reachable and configured in the exotel platform.
    - Check if Push Notification URL got the call payload from exotel platform.
    - Check if the call payload was sent to the target device from your backend.
3. If the call notification is received in the app, then
    - Check if the library is initialized using *ExotelVoiceClient::isInitialized()*
    - Check if payload received in push notification was programmed in the library through *ExotelVoiceClient::relaySessionData()*
4. Report the issue to *exotel support* with *Call-Reference-Id* (from account dashboard)

Problems with push notifications on Xiaomi devices

1. Your application needs to have the following additional permissions in the MIUI settings page*. Open settings (by tapping the cog icon in the top right corner), select “Manage Apps”, select “your application”
    - Enable “Autostart”
    - Select “Other permissions”
- Turn on “Show on Lock Screen”
- Turn on “Display pop-up windows while running in the background”
- Select “Battery Saver” and set “No restrictions”

* The steps here refer to MIUI Global 11.0.2 on Android 7.1. Depending on device and software version, designation and location of menu items may differ.

Ringtone not playing while receiving push notifications on Xiaomi devices

Your application needs to have the following additional permissions in the MIUI settings page*. Open settings (by tapping the cog icon in the top right corner), select “Manage Apps”, select “your application”. Go to “Notifications” → “Notification Categories”

- Enable “Allow floating notification” for ‘Exotel Voip Sample’
- Enable “Allow floating notification” for ‘io.cloudonix.sdk.ForegroundNotificationChannelName’

* The steps here refer to MIUI Global 13.0.7.0 on Android 12.016. Depending on device and software version, designation and location of menu items may differ.

Display Not Awake

Display awake is handled from the following permission defined in manifest:
<uses-permission android:name="android.permission.WAKE_LOCK" />

It has been found that the ringtone is playing but the display is not awake, the above permission can’t handle it properly. This can be handled from the application side using PowerManager implementation Light up screen when notification received android which is not handled in current app code.

Authentication

Requesting subscriber-token from exotel platform giving 4xx response?

Response Code	Troubleshooting
400	Malformed packet. Check subscriber_name format. It should be an alphanumeric string of size less than 16 characters.
401	It requires basic authentication using API key:token
403	VoIP calling is not enabled in your account. Contact exotel support.

Why is SDK reporting *onAuthenticationFailure* response for a subscriber token received from exotel platform?

1. Check the *ErrorType* in response. If it is,

- AUTHENTICATION_INVALID_TOKEN

Invalid Token.
Initialize new token

- AUTHENTICATION_EXPIRED_TOKEN

Token expired. Initialize new token

1.

3.3.1.1.2. Sample Repo

https://github.com/exotel/exotel-voip-sdk-android

3.3.2. Subscriber Management API

Introduction

This document defines the exotel platform APIs adding, updating, viewing and deleting the subscribers for VoIP Calling. Subscriber is the entity who uses the app with voip calling feature.

Subscriber provisioning in exotel can happen in two ways,

- Pre-provisioning

The customer pre-configures the client accounts even before the app is installed by the client.

- Dynamic provisioning

A client account is created after the app is installed by the user and signs-up with the application backend.

All the APIs listed in this document are privileged APIs that need API Key and API Token for authentication. API key:token are generated on sign-up with exotel platform. Please contact hello@exotel.in

Base URL

In all the APIs below, replace <base_url> with the following based on the stamp. Stamp info can be found in your Exotel dashboard under the API settings page.

- MUM Stamp - https://chaotix.mum1.exotel.in
- SGP Stamp - https://chaotix.apac-sg.exotel.in

Subscriber Response Object

The subscriber object returned in the APIs is described below

Parameter	Data Type	Description
subscriber_name	String	Subscriber name provided while creating the subscriber (Must be unique for a particular tenant) Maximum supported subscriber name length is 16 bytes and can contain numeric characters. Whitespace characters are not allowed. e.g. 123456, 9889899999 etc
status	Enum (active/ inactive)	Whether the subscriber is active or not
custom_field	String	Field to store custom metadata for the subscriber
date_created	DateTime	Time at which the subscriber was created
date_updated	DateTime	Time at which the subscriber was updated

Create Subscriber Token

Access to the exotel platform by ExotelVoiceClient is authenticated using a bearer token - *subsriber_token*. Clients must obtain this token from their application backend which in turn should fetch it from the exotel platform using the HTTPS endpoint listed here.

Method: `POST`

Request URL: `https://<base_url>/v2/accounts/<account-sid>/subscriber-token`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters:

Parameter	Data Type	Description
platform	String	Parameter (Android / iOS)
device_id	String	Device id (AndroidID / iOS UDID)
subscriber_name	String	Unique subscriber identifier

Response Type: `JSON`

Response Code:

`200 Success`

`400 Bad Request, Malformed Parameters`

`401 Unauthorized`

Response Body Parameters:

Parameter	Data Type	Description
subscriber_token	String	Token to access exotel platform
subscriber_name	String	Subscriber name used for token generation

Note - The Time-to-Live (TTL) for token expiry is as follows:

Refresh token expiry: 24 hours

Access token expiry: 30 minutes

Sample Request

`https://<base_url>/v2/accounts/exotel13m2/subscriber-token`

```
{
"platform": "android",
```

```
"device_id": "2fc4b5912826ad1",
"subscriber_name": “archit”
}
```


Sample Response


```
{
"request_id": "2f97c5e98e1d4c188c483cbfe8092869",
"method": "POST",
"http_code": 200,
“response”:
{
"code": 200,
"error_data": null,
"status": "success",
“data”:
{
 "subscriber_name": “archit”,
"subscriber_token":
{
"refresh_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzdWIiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwiY2xpZW50X2lkIjoiNUUwNTg2NUUifQ.Hc3umVfFlKIPiJ8R9kcP9o9hE9he51le08rO22u7eqs",
"access_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzdWIiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwic2NvcGUiOiJ2b2ljZS
```

```
IsImNsaWVudF9pZCI6IjVFMDU4NjVFIn0.uQd_aHGBIT4XqTPfl-567dmjQrKlmLtPag0KpGB2QMA"
```

```
}
```

```
},
```

```
}
```

```
}
```

Create Subscribers

API is used for both single or bulk subscriber account creation in exotel platform.

Method: `POST`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters:

Parameter	Data Type	Requirement	Description
subscriber_name	String	Mandatory	Unique Username for the Subscriber
custom_field	String	Optional	Field to store custom metadata for the Subscriber

Please note that POST is a bulk operation and the request is actually an array of the above.

The maximum number of subscribers which can be created in a single request is 10.

Response Type: `JSON`

Response Body Parameters: Returns multipart response for request. Refer Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers
```

```
{
  "subscribers": [
    {
      "subscriber_name": "bob",
      "custom_field": "support"
    },
    {
      "subscriber_name": "nidhi"
    },
    {
      "subscriber_name": "archit"
    }
  ]
}
```

Sample Response

```
{
"request_id": "04386e350256448dae83c6db0f749a21",
"method": "POST",
"http_code": 207,
"metadata": {
"failed": 0,
"success": 3
```

```
},
"response": [
{
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:17+05:30",
"date_updated": "2019-11-19T23:14:17+05:30",
"subscriber_name": "bob",
"status": "active",
"custom_field": "support”
}
},
{
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:17+05:30",
"date_updated": "2019-11-19T23:14:17+05:30",
"subscriber_name": "nidhi",
"status": "active",
```

```
"custom_field": null
}
},
{
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:18+05:30",
"date_updated": "2019-11-19T23:14:18+05:30",
"subscriber_name": "archit",
"status": "active",
"custom_field": null
}
}
],
}
```


Update a Subscriber

API is used to update the subscriber account parameters after it has been created. Subscriber can be marked inactive for temporary suspension.

Method: `PUT`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers/<subscriber-name>`

Authorization Type: Basic authentication using API key:token

Request Body Parameters:

Parameter	Data Type	Requirement	Description
custom_field	String	Optional	Field to store custom metadata for the subscriber
status	Enum	Mandatory	Indicates whether the subscriber is active or not enum {“active”, “inactive”}

Response Type: JSON

Response Body Parameters: Refer Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers/archit
```

```
{
```

```
  "status": "inactive",
```

```
}
```

Sample Response

```
{
```

```
"request_id": "8019271c8d98422db509c2801e63435f",
```

```
"method": "PUT",
```

```
"http_code": 200,
```

```
"response": {
```

```
"code": 200,
```

```
"error_data": null,
```

```
"status": "success",
```

```
"data": {
"date_created": "2019-11-19T23:14:18+05:30",
"date_updated": "2019-11-20T11:13:38+05:30",
"subscriber_name": "archit",
"status": "inactive",
"custom_field": null
}
}
}
```

Get Subscriber

API returns subscriber details.

Method: `GET`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers/<subscriber_name>`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters: None

Response Type: `JSON`

Response Body Parameters: On success returns Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers/archit
```

Sample Response

```
{
```

```
"request_id": "287c227674af40b38531a1c247262deb",
"method": "GET",
"http_code": 200,
"response": {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:18+05:30",
"date_updated": "2019-11-20T11:13:38+05:30",
"subscriber_name": "archit",
"status": "inactive",
"custom_field": null
}
}
}
```


List Subscribers

API returns a paginated list of subscribers.

Method: `GET`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers>?status=abc&page_size=xyz&offset=xyz`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters:

Query Parameter	Data Type	Requirement	Description
status	Enum	Optional	Status for the subscriber
page_size	uint64	Optional	Page size for response. Default and maximum value is 100
offset	uint64	Optional	Offset from which to get the records. Defaults to 0

Response Type: `JSON`

Response Body Parameters: On success returns paginated list of Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers?page=2&offset=3
```

Sample Response

```
{
"request_id": "b5f0c6780ec443d08947ba2015a06a04",
"method": "GET",
"http_code": 200,
"metadata": {
"prev_page_uri": "/v2/accounts/exotelip2ipcalling1/subscribers?offset=6&page_size=3",
"next_page_uri": "/v2/accounts/exotelip2ipcalling1/subscribers?offset=12&page_size=3",
"first_page_uri": "/v2/accounts/exotelip2ipcalling1/subscribers?offset=0&page_size=3"
```

```
},
"response": [
  {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-12-30T17:12:00+05:30",
"date_updated": "2019-12-30T17:12:00+05:30",
"subscriber_name": "shyam",
"status": "active",
"custom_field": null
}
},
  {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-12-30T17:09:41+05:30",
"date_updated": "2019-12-30T17:09:41+05:30",
"subscriber_name": "kiran",
"status": "active",
```

```
"custom_field": "test"
}
},
  {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-12-30T13:35:07+05:30",
"date_updated": "2019-12-30T13:35:07+05:30",
"subscriber_name": "mandeep",
"status": "active",
"custom_field": null
}
}
],
}
```


Delete Subscriber

API deletes a subscriber permanently.

Method: `DELETE`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers/<subscriber-name>`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters: None

Response Type: `JSON`

Response Body Parameters: On success, HTTP response 204 is returned with no response body. In case of failure 404 is returned

Sample Request

`https://<base_url>`

`/v2/accounts/exotelip2ipcalling1/subscribers/shyam`

Sample Response

(a) Success: `No body`

(b) Failure:

```
{
    "request_id": "af0087d5331f479599d2c987efe9f664",
    "method": "DELETE",
    "http_code": 404,
    "response": {
        "code": 404,
        "error_data": {
            "code": 1000,
            "description": "Subscriber not found",
            "message": "Not Found"
        },
        "status": "failure",
        "data": null
```

```
    }

}
```

3.4. Client IOS SDK

3.4.1. Integration Guide

Introduction

ExotelVoice library enables you to add the voip calling feature into your app. This document outlines the integration steps. The library supports only peer to peer 2-way calls. Multi-party conferencing use cases are not supported.

Section 4 describes integration steps for ExotelVoice IOS SDK. Section 5.1 describes the webhooks that should be supported in your application backend for number-masking workflow. Section 5.2.1 describes subscribers provisioning in the Exotel platform.

Licensing

Create a trial account in Exotel. To enable voip calling in the trial account, contact *exotel support*. Once Exotel support enables the voip capability in the account , a VOIP Exophone will be created as shown below and available in the account under the Exophones section .

ExoPhone

EXOPHONE	TYPE
095-138-86363 Pin: 7022-1678-17	Not set
080-471-12327	Landline
sip-:08-040408080	VoIP

SIP Exophones discussed later in the section refers to Exophones of Voip type as shown above.

NOTE :- SIP and VOIP are used interchangeably in the document

Glossary

Terminology	Description
App	Mobile application
Application Backend	Customer backend service for the application
Client	User / Subscriber / Client signing up to use the mobile app
Customer	Exotel's customer licensing the SDK
Voip	Voice over IP

IOS SDK Integration

Getting Started

Software Package

The *ExotelVoice* SDK software package includes

- IOS ExotelVoice.framework.zip file of the SDK
- Integration Guide
- Sample application source code for reference: exotel-voice-sample.zip
- Doc for SDK API reference: exotel-ios-voice-sample-doc.zip
- Subscriber Management API Documentation: Subscriber Management API

Add Exotel Voice SDK Library to Project

Configure ExotelVoice.Framework

- unzip ExotelVoice.framework.zip
- Copy ExotelVoice.framework folder under your project root directory

Target Platform

- Supported IOS Version: iOS 10+
- Supported IOS Sdk Arch : arm64

Permissions

- Record permission
- Notification permission

Proguard Rules - Not applicable

IOS Service

The application needs to integrate *ExotelVoice* in a service. This should be run as a foreground service when a call is in progress so that the application is not killed when it moves to the background. When the call is over, service should be moved to the background. Refer to *VoiceAppService* in the sample application.

Initialize Library

ExotelVoice Interface Class provides an entry point to initialize the voice library and set it up for handling calls.

```
// Get Exotel Voice Client
exotelVoiceClient = ExotelVoiceClientSDK.getExotelVoiceClient()

//set the event listener for sdk logs.
exotelVoiceClient?.setEventListener(eventListener: self)

// Set listener to handle events from voice client
extension VoiceAppService: ExotelVoiceClientEventListener {

// Initialization success handler
public func onInitializationSuccess() { ... }

// Initialization failure handler
public func onInitializationFailure(error: ExotelVoiceError) {...}

/// Indicates de-initialization of the SDK
public func onDeinitialized(){...}

// Logs reported by the voice library
public func onLog(level: LogLevel, tag: String, message: String) {...}


// Log upload success handler
public func onUploadLogSuccess() {...}

// Log upload failure handler
public func onUploadLogFailure(error: ExotelVoiceError) {...}

// Authentication failure handler
public func onAuthenticationFailure(error: ExotelVoiceError) {...}
}
```

SDK initialization requires a *subscriberToken* generated by the Exotel platform. Workflow for this token generation and management is described in section *Authentication and Authorization*.

```
// Request token from application backend (example)
String subscriberToken = getAccessToken();
```

The *subscriberToken* is provided to *ExotelVoice* during initialization.

```
// Initialize client library
let content = ["DeviceId": UIDevice.current.identifierForVendor?.uuidString,
                    "DeviceType": "ios"]


exotelVoiceClient?.initialize(
   context: content as [String : Any],// iOS context
   hostname: hostname,             // Exotel Voice Platform Host URL
   subscriberName: subscriberName,   // To generate token for subscriber
   displayName: displayName,        // Display name of the subscriber
   accountSid: accountSid,          // Exotel Account SID
   subscriberToken: subscriberToken  // Token fetched from Exotel platform
)
```

Client library notifies *onInitializationSuccess()* on success and *onInitializationFailure()* on failure. On expiry of *subscriberToken*, the library will post onAuthenticationFailure() at which application should request new *subscriberToken* from application backend and program in the *initialize()* API.

Parameter	Description
Hostname	https://miles.apac-sg.exotel.in/v2
SubscriberName	Param “subscriber_name” returned as part of the Subscriber management API to create a subscriber.
Display Name	Subscriber name.
AccountSId	Account SID param from API settings page in the Exotel Dashboard.
SubscriberToken	can be gotten from the API in the `Get Subscriber Token` section in the Subscriber Management API document. In the *subscriberToken*, both the *refresh token* and *access token* are base64 encoded.

Subscriber token format example

"subscriber_token":
{
"refresh_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzdWIiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwiY2xpZW50X2lkIjoiNUUwNTg2NUUifQ.Hc3umVfFlKIPiJ8R9kcP9o9hE9he51le08rO22u7eqs",
"access_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzdWIiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwic2NvcGUiOiJ2b2IjZSIsImNsaWVudF9pZCI6IjVFMDU4NjVFIn0.uQd_aHGBIT4XqTPfl-567dmjQrKlmLtPag0KpGB2QMA"
}

Below are the sample methods to get the subsriberToken, Customers can implement this in their own method.

Use the below HTTP APIs to get the subscriber token and convert subscriber token to jobject and pass it to exotelVoiceClient.initialize();

Note:

- Copying manually generated subscriber token has issues. Best way is to make API calls in source code and pass them by converting to jobject to the exotelVoiceClient.initialize();
- Pass the **proper device ID** to the login api to avoid invalid refresh token error.
- Device_id is the actual device id in which the app is running using below sample code.

```
"device_id": UIDevice.current.identifierForVendor?.uuidString
```

Generate access token:

Refer “Subscriber Management API” documentation section 3.1 for creating subscriber token.

Stopping SDK

To de-initialize the sdk, ExotelVoiceClient exposes stop api to de-initialize the SDK.

```
exotelVoiceClient?.stop();
```

when sdk gets de-initialized,

client SDK will send callback onDeinitialized()

Managing Calls

After successful initialization, the library is ready to handle calls. Dialing-out calls or receiving incoming calls is managed through *CallController* Interface.

```
// Get Call Controller interface
callController = self.exotelVoiceClient?.getCallController()
```

Call progress events are notified to the application through the *CallListener* Interface attached to the *CallController* object.

```
// Attach call listener
extension VoiceAppService: CallListener {

// Handler for incoming call alert
public func onIncomingCall(call: Call) { . . . }


// Handler for outgoing call initiated event
public func onCallInitiated(call: Call) { . . . }


// Handler for call ringing event for outgoing call
public func onCallRinging(call: Call) {. . .}


// Handler for call connected event
public func onCallEstablished(call: Call) {. . .}


// Handler for call termination event
public func onCallEnded(call: Call) {. . .}

// Handler for missed call alert
public func onMissedCall(remoteId: String, time: Date) {. . .}
}
```

Each call object provides a Call Interface to manage the call lifecycle and perform operations like answer incoming calls, hangup calls, mute, unmute, and get call statistics.

```
// Mute
mCall?.mute()

// Terminate call
mCall?.hangup()
```

Make Outgoing Call

To make outgoing calls, the *CallController* interface must be created and a listener interface is attached as mentioned in section *Managing Calls*. Provide sip exophone number in *dial()* API of *CallController* Interface to make outgoing calls.

```
// Get Call Controller interface
self.callController = self.exotelVoiceClient?.getCallController()

// Attache call progress listener
self.callController?.setCallListener(callListener: self)

// Dial out call to remoteId
call = callController?.dial(remoteID: <value>, message: <value>)
```

Params for dial method -

Param	Mandatory	Description
remotelD	Yes	ExotelVoice library always routes the call via SIP Exophone configured for your account. SIP Exophones are different from the PSTN / Mobile Exophones. They can be identified using sip: prefix. Contact exotel support to enable SIP Exophone in your account. Similar to the number masking workflow, the application backend must maintain the call context between caller and callee. On receiving the call at SIP Exophone, the exotel platform will request the callee details from the application backend to bridge the call. Refer section Dial Whom Endpoint for details.
message	No	The string that will be passed here will be sent to the DialWhom Endpoint under the “CustomField” param. All alphanumeric characters are allowed along with comma `,` colon `:` and all kinds of brackets - {}()[]

Once initiated, call progress events can be monitored through *CallListener* Interface and call control operations can be performed using *Call* Interface. After dialing, the application can use *hangup()* API on the call object to cancel / terminate outgoing calls.

```
// Cancel / Terminate call
mCall?.hangup()
```

Receive Incoming Call

The Mobile application receives incoming call data in Push Notification sent by your application backend. Refer section *Push Notification Endpoint* for details.

To handle the incoming call, the *ExotelVoice* library should be in an initialized state. Refer to section *Initialize Library*. After initialization, the CallController Interface should be created and the listener be attached as mentioned in section *Managing Calls*.

```
// Get Call Controller interface
self.callController = self.exotelVoiceClient?.getCallController()

// Attache call progress listener
self.callController?.setCallListener(callListener: self)
```

The sample application uses Firebase Cloud Messaging to push call data to the device. Once received at the mobile app, it is sent to *ExotleVoiceClient* through *relaySessionData* API.

```
 extension AppDelegate: UNUserNotificationCenterDelegate {
func application(_ application: UIApplication,
                didReceiveRemoteNotification userInfo: [AnyHashable: Any],
                fetchCompletionHandler completionHandler: @escaping
(UIBackgroundFetchResult)
                -> Void) {

// decode json and build session data structure
      sessionData["payload"] = payload
            sessionData["payloadVersion"] = payloadVersion
            sessionData["subscriberName"] = userId


      exotelVoiceClient?.relaySessionData(payload: sessionData)


}
```

The voice library will process and validate the data and send an *onIncomingCall()* event to the application with the call object. The application can call the *answer()* API to accept the

incoming call.

```
// Accept call
mCall?.answer()
```

The application can call *hangup()* API on the call object to decline an incoming call.

```
// Decline / Terminate call
mCall?.hangup()
```

Call Kit Integration

If your app is integrated with Call Kit, refer to the following lifecycle diagram to ensure there are no conflicts.

User Interaction:

- On the left side, we see a user icon representing interactions with a sample app.
- The user initiates actions like “click dial” for outgoing calls and “accept call” or “reject call” for incoming ones.

Pre-requisites :

- **CallKit UUID** will manage by your App.

```
private static var activeUUID: UUID?
```

- **CXProviderDelegate** is subscriber by App to handle the call kit actions

```
let providerConfiguration = CXProviderConfiguration(localizedName: "Exotel Sample App")
providerConfiguration.maximumCallsPerCallGroup = 1
providerConfiguration.supportsVideo = false
providerConfiguration.supportedHandleTypes = [.phoneNumber]
providerConfiguration.ringtoneSound = "Ringtone.aif"
if let iconImage = UIImage(named: "AppIcon") {
    providerConfiguration.iconTemplateImageData = iconImage.pngData()
}

provider = CXProvider(configuration: providerConfiguration)
callController = CXCallController()
provideDelagete = ProviderDelegate(provider: provider!)
provider!.setDelegate(provideDelagete, queue: nil)
```

Here **ProviderDelegate** is custom class which has implemented the **CXProviderDelegate.**

Outgoing Calls

Start outgoing calls by calling dial() api of exotel sdk.

```
callController?.dial(remoteID: destination, message: message)
```

Then after make sure to call the start Transaction with ***CXStartCallAction*** (using the UUID).

```
let handle = CXHandle(type: .phoneNumber, value: destination)
activeUUID = UUID()
let startCallAction = CXStartCallAction(call: activeUUID!, handle: handle)
startCallAction.isVideo = video

let transaction = CXTransaction()
transaction.addAction(startCallAction)

requestTransaction(transaction)
```

1. Call-kit UI will start in background
2. Call kit delegate method for action **CXStartCallAction** will get executed

```
func provider(_ provider: CXProvider, perform action: CXStartCallAction) {

    setActiveUUID(uuid: action.callUUID)

    action.fulfill()

}
```

When sdk send **onCallRinging()** callback to app, app will start call kit timer for ringing after updating the status to ringing state.

```
provider?.reportOutgoingCall(with: activeUUID!, startedConnectingAt: nil)
```

Timer will start in call kit UI.

Incoming Calls

When relay session data (push notification data) triggers an incoming call notification, the CallKit UI should be set up to display the incoming call with options to accept or reject**.**Users should be provided with the option to accept the call. They can choose to accept the call using the function ***reportIncomingCall***.

```
class func reportIncomingCall(uuid: UUID, handle: String, hasVideo: Bool = false,
completion: ((Error?) -> Void)? = nil) {
    // Construct a CXCallUpdate describing the incoming call, including the caller.
    let update = CXCallUpdate()
    update.remoteHandle = CXHandle(type: .phoneNumber, value: handle)
    update.hasVideo = hasVideo

    // Report the incoming call to the system
    provider!.reportNewIncomingCall(with: uuid, update: update) { error in
      /*
       Only add an incoming call to an app's list of calls if it's allowed, i.e., there is no
error.
       Calls may be denied for various legitimate reasons. See
CXErrorCodeIncomingCallError.
       */
      if let error = error {
        VoiceAppLogger.error(TAG: CallKitUtils.TAG, message: "Error requesting
transaction: \(error)")
      } else {
        VoiceAppLogger.info(TAG: CallKitUtils.TAG, message: "Requested transaction
successfully:")
      }
    }
  }
```

- Upon choosing to accept the call, the system should invoke the ***CXAnswerCallAction*** to answer the call.

```
func provider(_ provider: CXProvider, perform action: CXAnswerCallAction) {
  VoiceAppLogger.info(TAG: TAG, message: "CXAnswerCallAction")
  VoiceAppService.shared.answer()
  // Signal to the system that the action was successfully performed.
  action.fulfill()
}
```

- Alternatively, users should also be provided with the option to reject the call. They can choose to reject the call using the ***CXEndCallAction***.

```
func provider(_ provider: CXProvider, perform action: CXEndCallAction) {
    VoiceAppLogger.info(TAG: TAG, message: "CXEndCallAction")
    do {
        try VoiceAppService.shared.hangup()
    } catch let error {
        VoiceAppLogger.debug(TAG: TAG, message: "Error: \(error.localizedDescription)")
    }
    // Signal to the system that the action was successfully performed.
    action.fulfill()
}
```

Connected Calls:

- Once a call is established, its status is updated in the UI.
- The timer is started in the call kit once the call is connected.

Ending Calls:

- Both the sample app and the CallKit UI can initiate the action.
- When the user ends the call, the sample app starts a transaction with ***CXEndCallAction*** (using the UUID).
- Function *hangup()* is called.

```
public func hangup() throws {
    if (nil == mCall) {
        let message = "Call Object is NULL"
        VoiceAppLogger.error(TAG: TAG, message: message)
        throw VoiceAppError(module: TAG, localizedDescription: message)
    }
    do {
        try mCall?.hangup()
    } catch {
        VoiceAppLogger.error(TAG: TAG, message: "Exception in call hangup with CallId: \
(String(describing: mCall?.getCallDetails().getCallId()))")
    }
}
```

The home view updates after ending a call.

PushKit Integration

PushKit is used to manage VoIP call notifications and handle incoming call events with CallKit.

- **Initializing PushKit**

The PushKit registry is initialized inside the **AppDelegate** class within the ***didFinishLaunchingWithOptions*** method.

```
var pushRegistry: PKPushRegistry = PKPushRegistry(queue: DispatchQueue.main)
pushRegistry.delegate = self
pushRegistry.desiredPushTypes = [.voIP]
```

- **Implementing *PKPushRegistryDelegate***

An extension of the ***AppDelegate*** class conforms to the ***PKPushRegistryDelegate*** protocol to handle PushKit-related events.

```
extension AppDelegate: PKPushRegistryDelegate {
   func pushRegistry(_ registry: PKPushRegistry, didUpdate pushCredentials:
PKPushCredentials, for type: PKPushType) {
       guard type == .voIP else { return }



   }

   func pushRegistry(_ registry: PKPushRegistry, didReceiveIncomingPushWith
payload: PKPushPayload, for type: PKPushType, completion: @escaping () -> Void) {
           completion()

       }
}
```

- **Receiving the PushKit Token**
  The ***pushRegistry(_:didUpdate:for:)*** method is triggered upon app launch or whenever the PushKit token changes. This token is unique for the device and must be sent to the backend.

```
extension AppDelegate: PKPushRegistryDelegate {
    func pushRegistry(_ registry: PKPushRegistry, didUpdate pushCredentials:
PKPushCredentials, for type: PKPushType) {
        guard type == .voIP else { return }

        let token = pushCredentials.token.map { String(format: "%02x", $0) }.joined()
        if token.isEmpty {
            VoiceAppLogger.debug(TAG: TAG, message: "PushKit Token is not generated
yet!!")
            return
        }

        VoiceAppLogger.debug(TAG: TAG, message: "PushKit token: \(token)")
        UserDefaults.standard.set(token, forKey:
UserDefaults.Keys.firebaseToken.rawValue)
    }
}
```

- **Handling Incoming Push Notifications**
  The ***pushRegistry(_:didReceiveIncomingPushWith:for:completion:)*** method is triggered when the app receives a PushKit notification. It processes the payload and triggers the CallKit UI to display the incoming call screen.

```
func pushRegistry(_ registry: PKPushRegistry, didReceiveIncomingPushWith payload:
PKPushPayload, for type: PKPushType, completion: @escaping () -> Void) {
    VoiceAppLogger.debug(TAG: TAG, message: "VoIP push received")

    ApplicationUtils.checkMicrophonePermission { isEnabled in
        guard isEnabled else {
            UserDefaults.standard.set("false", forKey: UserDefaults.Keys.isLoggedIn.rawValue)
            completion()
            return
        }
    }

    ApplicationUtils.checkNotificationsPermission { isEnabled in
        guard isEnabled else {
            UserDefaults.standard.set("false", forKey: UserDefaults.Keys.isLoggedIn.rawValue)
            completion()
            return
        }
    }

    guard let payloadDict = payload.dictionaryPayload as? [String: Any],
          let callerId = payloadDict["subscriberName"] as? String else {
        VoiceAppLogger.error(TAG: TAG, message: "Invalid payload format or missing
callerId")
        completion()
        return
    }

    VoiceAppService.shared.pushNotificationData = payloadDict

    let validateLogin = UserDefaults.standard.string(forKey:
UserDefaults.Keys.isLoggedIn.rawValue) ?? "false"
    guard validateLogin != "false" else {
        VoiceAppLogger.error(TAG: TAG, message: "User is not logged into App")
        completion()
        return
```

```
    }

    CallKitUtils.displayIncomingCall(handle: callerId)
    completion()
}
```

Answering the Call

When the user accepts the call via the CallKit UI by tapping the accept button, the ***provider(_:perform:CXAnswerAllAction)*** method in the **CXProvider** delegate is triggered. This method initializes the audio session and call the sendPushNotificationData(). method.

```
func provider(_ provider: CXProvider, perform action: CXAnswerCallAction) {
    VoiceAppLogger.info(TAG: TAG, message: "CXAnswerCallAction")

    guard let payLoad = VoiceAppService.shared.pushNotificationData,
          let userId = payLoad["subscriberName"] as? String,
          let payLoadVersion = payLoad["payloadVersion"] as? String,
          let payLoadData = payLoad["payload"] as? String else {
        VoiceAppLogger.error(TAG: TAG, message: "Missing data in payload")
        return
    }

    VoiceAppLogger.debug(TAG: TAG, message: "Handling the notification on answer
button tap")
    self.startAudioSessionIfNeeded()

    DispatchQueue.main.asyncAfter(deadline: .now()) {
        VoiceAppService.shared.sendPushNotificationData(
            payload: payLoadData,
            payloadVersion: payLoadVersion,
            userId: userId
        )
    }

    action.fulfill()
}
```

Activating the Audio Session

Calling the ***startAudioSessionIfNeeded()*** method initializes and activates the ***AVAudioSession*** to ensure it is correctly configured for voice call functionality. It uses the ***AVAudioSession*** framework to manage audio behaviors..

```
func startAudioSessionIfNeeded() {
    do {
        let session = AVAudioSession.sharedInstance()
        try session.setCategory(.playAndRecord, mode: .voiceChat, options: [.duckOthers,
.allowBluetooth, .defaultToSpeaker])
        try session.setActive(true)
    } catch {
        VoiceAppLogger.error(TAG: TAG, message: "Error starting audio session: \(error)")
    }
}
```

Incoming Call Management

After receiving an incoming call notification and displaying the CallKit UI, the app handles the call by playing a ringtone and invoking the **answer()** method to accept the call. This is managed within the ***onIncomingCall*** function.

```
public func onIncomingCall(call: Call) {
    VoiceAppLogger.debug(TAG: TAG, message: "Incoming Call Received, CallId: \
(call.getCallDetails().getCallId()) remoteId: \(call.getCallDetails().getRemoteId())")

    tonePlayback.playRingTone()
    mCall = call

    DispatchQueue.main.asyncAfter(deadline: .now() + 1) {
        self.answer()
    }
}
```

Audio Management

ExotelVoice can detect the change in audio output selection. Default audio output mode is the earpiece. When a wired headset is plugged in or a Bluetooth headset is paired with a phone, it automatically routes audio over a new route. Speaker phone mode can be enabled using *Call* object APIs.

```
// Enable speaker mode
mCall?.enableSpeaker()

// Disable speaker mode
mCall?.disableSpeaker()
```

Local mic can be muted and unmuted during in-call using *Call* object APIs.

```
// Enable speaker mode
mCall?.mute()

// Disable speaker mode
mCall?.unmute()
```

Bluetooth mode can be enabled and disabled using *Call* object APIs. This will only work when any bluetooth device is connected to the phone.

```
/// Enables bluetooth mode for the call
mCall?.enableBluetooth()

/// Disables bluetooth mode for the call
mCall?.disableBluetooth()
```

Call State

The Call State can be accessed by calling *getLatestCallDetails().getCallState()*. This state can be displayed on the calling screen to let the user know about the state of the call. Refer to

the Call State Flow diagram.

Call State	Description	Call Back	Recommended message to display on the calling screen
NONE	This state occurs when a call object is created but not yet initiated.	-	-
OUTGOING_INITIATED	This state is set when an outgoing call is initiated. It's set after dialing and before the call starts ringing.	-	Connecting
EARLY	Indicates early media reception before the call is answered.	-	-
RINGING	The receiver's phone is ringing but hasn't been answered yet.	onCallRinging()	Ringing
CONNECTING	The call starts connecting.	-	Connecting
INCOMING	This state is set when there's an incoming call, and the system isn't idle.	onIncomingCall()	Caller ID, custom information related to the callee
ANSWERING	Occurs when the user accepts the incoming call; it's a transitional phase before the call gets established.	-	Answering
ESTABLISHED	Indicates that both parties have accepted the call, and communication is established.	onCallEstablished()	Connected
MEDIA_DISRUPTED	Occurs if there's a disruption in media transmission during an ongoing call due to issues like RTP loss. To handle such disruptions effectively ensuring continuity or termination based on severity it	onMediaDisrupted()	Reconnecting

Call State	Description	Call Back	Recommended message to display on the calling screen
	initiates reconnection procedures and moves to RECONNECTING if RTP loss persists. To ensure calls remain active during temporary disruptions it monitors RTP resumption or port renewal activities and returns to ESTABLISHED upon successful media restoration.		
RENEWING_MEDIA	This state indicates that media (RTP) is resuming or renewing after being disrupted.	onRenewingMedia()	Reconnecting
ENDING	The process of ending or dropping an ongoing or established call starts here	-	-

Call Statistics

Application can query the call quality statistics periodically during the call by using *getStatistics()* API of the *Call* object. It provides info about codec and the call QoS parameters like packet loss, jitter and round trip delay.

Call Details

Application can query the call details record of the call using *getCallDetails()* API of the *Call* interface. The CDR provides info on callId, call state, call duration, call end reason etc. This API can be queried only for the latest call since SDK maintains only a single call context.

Handling of PSTN calls

ExotelVoice has following behavior during PSTN calls:

- When a PSTN call is in progress, no outgoing calls are allowed by the voice client.

- When a PSTN call is in progress, any incoming VoIP call is automatically declined by the voice library and reported as a missed call to the application.
- When a VoIP call is in progress and a PSTN call lands on the phone, then the VoIP call continues if the user declines or does not respond to the PSTN call. If the user accepts the PSTN call, then the VoIP call is automatically terminated by the voice client.

Handling of PSTN calls when Call Kit is Integrated

ExotelVoice has following behavior during PSTN calls:

- When a PSTN call is in progress, no outgoing calls are allowed by the voice client.
- The following scenarios will the handled by the Call Kit instead of the SDK -
    - When a PSTN call is in progress and a VoIP call is incoming
    - When a VoIP call is in progress and a PSTN call lands on the phone

For these scenarios, Call kit provides options to the end user to either reject and accept the incoming call or hold and accept the incoming call.

Reporting Problems

The voice client library logs are stored in the application internal storage. Any issue along with the logs can be reported by app to Exotel using *uploadLogs()* API of *ExotelVoice* Interface.

```
// Upload logs with description from startDate and endDate
exotelVoiceClient?.uploadLogs(startDate: startDate, endDate: endDate, description: description)
```

The API triggers *onUploadLogSuccess()* or *onUpLoadLogFailure()* callback based on the success or failure of the operation.

Reporting Call Quality Feedback

Call quality can be queried from the user and reported to the exotel platform at the end of the call.

```
// Upload logs with description from startDate and endDate
int rating = 3
CallIssue issue = BACKGROUND_NOISE
mPreviousCall?.postFeedback(rating: rating, issue: issue)
```

The rating is a quality score that can take values 1 to 5.

```
5 - Excellent quality. No issues.
4 - Good quality. Negligible issues.
3 - Average quality. Minor audio noise.
2 - Bad quality. Frequent choppy audio or high audio delay.
1 - Terrible. Unable to communicate. Call drop, No-audio or one-way audio.
```

The call issue is a descriptive explanation of the issue.

NO_ISSUE	No issues observed
BACKGROUND_NOISE	Low audio clarity due to noisy audio
CHOPPY_AUDIO	Frequent breaks in audio or garbling in audio
HIGH_LATENCY	Significant delay in audio
NO_AUDIO	No audio received from far user
ECHO	Echo during the call

Platform Integration

Customer API Endpoints

Exotel provides full control to customers to implement call routing business logic. For this, customers need to host the following HTTP endpoints to handle callbacks from Exotel platform.

Dial Whom Endpoint

Host a HTTP endpoint which will be queried by the Exotel platform to get to the destination user.

Method: `GET`

Request URL (Example): `https://company.com/v1/accounts/exotel/dialtonumber`

Note: This URL needs to be provided to Exotel or configured in the connect applet.

Request Body:

- CallSid - unique call identifier
- CallFrom - caller username
- CallTo - exophone
- CustomField - It will be passed only if you have sent the second optional param while making the call from the app.

Expected Response:

On success, the API should return with response code 200 OK. The response body should be a string of type *sip:<remoteId>*. “sip:” tag is needed to hint the exotel platform to connect calls over voip. At present, SIP and PSTN intermixing is not supported. Any other response is treated as failure. remoteId is the username with which the call destination subscriber was registered with Exotel platform.

Example:

Request

```
GET /v1/accounts/exotelip2ipcalling1/dialtonumber?
CallSid=743ddcf5a0552050bc37b6d0ff9613bn&CallFrom=sip:Alice&CallTo=sip:0804
0408080&CallStatus=ringing&Direction=incoming&Created=Sat,+23+Nov+2019+22:0
0:37&DialCallDuration=0&StartTime=2019-11-23+22:00:37&EndTime=1970-01-
01+05:30:00&CallType=call-
attempt&DialWhomNumber=&flow_id=249196&tenant_id=113828&From=sip:Alice&To
=sip:08040408080&CurrentTime=2019-11-23+22:00:37
```

Response

```
{
  "fetch_after_attempt": false,
  "destination": {
    "numbers": [
      "sip:1234567890"
    ]
  },
  "outgoing_phone_number": "08080808080",
  "record": false,
  "recording_channels": "dual",
  "max_ringing_duration": 30,
  "max_conversation_duration": 3600,
  "request_id": "2e48100e6b474714b1a64bfa9f5b7a55",
  "method": "GET",
  "http_code": 200,
  "code": null,
  "error_data": null,
  "status": null
}
```


Push Notification Endpoint

Exotel implements registration-less dialing where a user need not periodically register with SIP registrar for receiving incoming calls. Instead the call details are pushed to the device as push notification using which call can be established. This method is beneficial as calls will reach the user even when the app is not in foreground or swipe killed. It saves battery since it does not need to keep persistent voip connection when idle.

Exotel will provide call data to this endpoint that needs to be pushed to the client device from your application backend.

Note - Headers are not supported in the notify endpoints.

Method: `POST`

Request URL (Example): `https://<your_api_key>:<your_api_token>@company.com/v1/accounts/exotel/pushtoclient`

Note: This URL needs to be configured in Exotel platform

Request Body:

- subscriberName - Name with which subscriber registered with Exotel platform
- payload - call data which should be passed to the client SDK
- payloadVersion - version of payload scheme

Expected Response:

On success, the API should return with response code 200 OK. Any other response is treated as failure.

Exotel API Endpoints

Subscriber Management

Customers can manage their subscribers in the Exotel platform using the APIs listed *"Subscriber-Management-API"* document.

For clients to be able to use voip calling features they need to be added as subscribers under your account. There are two ways in which your client registration with Exotel account happens,

Pre-provisioning

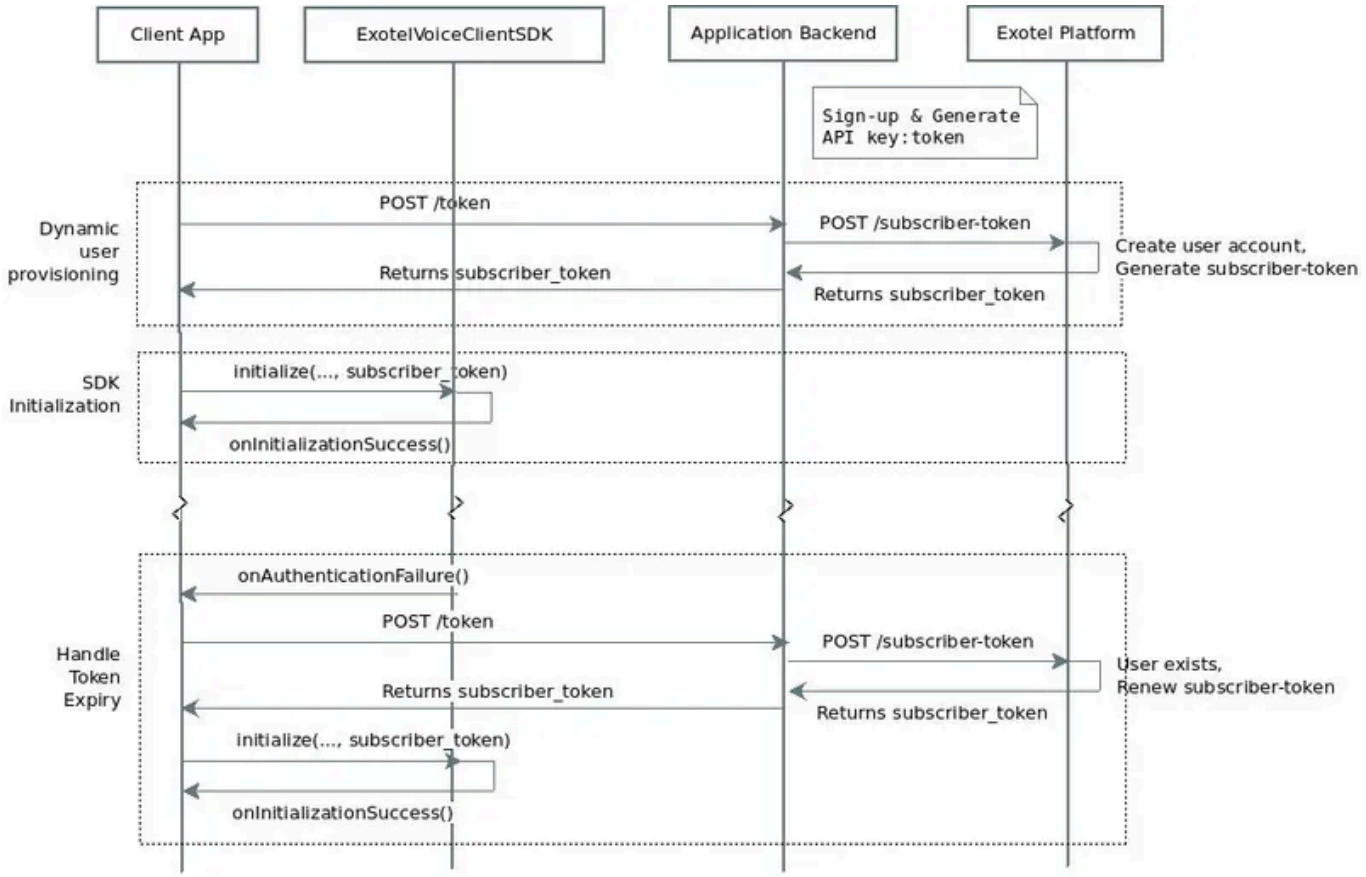
The customer pre-configures the client accounts even before the app is installed by the client. Refer to the *"Subscriber-Management-API"* document for details on creating client accounts.

Dynamic provisioning

A client account is created after the app is installed by the user and signs-up with the application backend. Refer to *Authentication and Authorization* for workflow details. Once client provisioning happens, clients can be managed using Subscriber Management APIs.

Authentication and Authorisation

Access to the Exotel platform by *ExotelVoice* is authenticated using a set of bearer tokens - *subscriber_token*. The Application backend must obtain these tokens from the Exotel platform and provide them to the client on request. Refer to the *"Subscriber-Management-API"* document for details.



On receiving the *onAuthenticationFailure* event, the application should request a new *subscriber_token* from its backend and reinitialize the SDK as shown in section *Initialize Library*. Contact *exotel support* if you get *onAuthenticationFailure* even after token renewal.

onAuthenticationError() event provides following error types:

- AUTHENTICATION_INVALID_TOKEN - token parameters are invalid
- AUTHENTICATION_EXPIRED_TOKEN - token expired

Reference Documents

- IOS JavaDoc for the *ExotelVoice* library API
- *Subscriber-Management-API* document for details on API to manage subscriber

Support Contact

Please write to hello@exotel.in for any support required with integration.

Troubleshooting Guide

Outgoing Call

I am not getting any requests on the “Dial Whom” endpoint for outgoing calls?

1. Check if *“Dial Whom”* URL was configured in *Connect Applet* and reachable.
2. Check if the call is listed in your account dashboard. If not, then
    - Check if the phone has internet connectivity.
    - Check if the SIP Exophone number was set in *CallController::dial()* API.
    - Check if C*allListener::onCallFailed()* event was received with error type CONGESTION_ERROR, which means rate limit quota was exceeded.
    - Check if *CallListener::onCallInitiated()* event was received from the SDK.
    - Check if *Call::getCallDetails()* returns non-null *sessionId* field
    - Check if
3. Report the issue to *exotel support* with *sessionId* (from App) and *Call-Reference-Id* (if available, from account dashboard)

I am hearing a ringing tone but the callee has not received the call?

Ringing tone implies that the call has reached the exotel platform.

Incoming Call

My calls are not landing on the callee app?

1. Check if the call is listed in your account dashboard and dialout happened to the remote subscriber. If not then, refer to the troubleshooting guide for outgoing calls.
2. Check if the application received push notification with call payload from your application backend. If not, then
    - Check the device logs
    - Check if *Push Notification URL* is reachable and configured in the exotel platform.
    - Check if Push Notification URL got the call payload from exotel platform.
    - Check if the call payload was sent to the target device from your backend.
3. If the call notification is received in the app, then
    - Check if the library is initialized using *ExotelVoiceClient?.isInitialized()*
    - Check if payload received in push notification was programmed in the library through *ExotelVoiceClient?.relaySessionData()*
4. Report the issue to *exotel support* with *Call-Reference-Id* (from account dashboard)

Authentication

Requesting subscriber-token from exotel platform giving 4xx response?

Response Code	Troubleshooting
400	Malformed packet. Check subscriber_name format. It should be an alphanumeric string of size less than 16 characters.
401	It requires basic authentication using API key:token
403	VoIP calling is not enabled in your account. Contact exotel support.

Why is SDK reporting *onAuthenticationFailure* response for a subscriber token received from exotel platform?

1. Check the *ErrorType* in response. If it is,

- AUTHENTICATION_INVALID_TOKEN

Invalid Token.
Initialize new token

- AUTHENTICATION_EXPIRED_TOKEN

Token expired. Initialize new token

Contact *exotel support* if the issue persists.

3.4.2. Sample Repo

https://github.com/exotel/exotel-voip-sdk-ios

3.4.3. Subscriber Management API

Introduction

This document defines the exotel platform APIs adding, updating, viewing and deleting the subscribers for VoIP Calling. Subscriber is the entity who uses the app with voip calling feature.

Subscriber provisioning in exotel can happen in two ways,

- Pre-provisioning

The customer pre-configures the client accounts even before the app is installed by the client.

- Dynamic provisioning

A client account is created after the app is installed by the user and signs-up with the application backend.

All the APIs listed in this document are privileged APIs that need API Key and API Token for authentication. API key:token are generated on sign-up with exotel platform. Please contact hello@exotel.in

Base URL

In all the APIs below, replace <base_url> with the following based on the stamp. Stamp info can be found in your Exotel dashboard under the API settings page.

- MUM Stamp - https://chaotix.mum1.exotel.in
- SGP Stamp - https://chaotix.apac-sg.exotel.in

Subscriber Response Object

The subscriber object returned in the APIs is described below

Parameter	Data Type	Description
subscriber_name	String	Subscriber name provided while creating the subscriber (Must be unique for a particular tenant) Maximum supported subscriber name length is 16 bytes and can contain numeric characters. Whitespace characters are not allowed. e.g. 123456,999999999 etc
status	Enum (active/ inactive)	Whether the subscriber is active or not
custom_field	String	Field to store custom metadata for the subscriber
date_created	DateTime	Time at which the subscriber was created
date_updated	DateTime	Time at which the subscriber was updated

Create Subscriber Token

Access to the exotel platform by ExotelVoiceClient is authenticated using a bearer token - *subsriber_token*. Clients must obtain this token from their application backend which in turn should fetch it from the exotel platform using the HTTPS endpoint listed here.

Method: `POST`

Request URL: `https://<base_url>/v2/accounts/<account-sid>/subscriber-token`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters:

Parameter	Data Type	Description
platform	String	Parameter (Android / iOS)
device_id	String	Device id (AndroidID / iOS UDID)
subscriber_name	String	Unique subscriber identifier

Response Type: `JSON`

Response Code:

`200 Success`

`400 Bad Request, Malformed Parameters`

`401 Unauthorized`

Response Body Parameters:

Parameter	Data Type	Description
subscriber_token	String	Token to access exotel platform
subscriber_name	String	Subscriber name used for token generation

Note - The Time-to-Live (TTL) for token expiry is as follows:

Refresh token expiry: 24 hours

Access token expiry: 30 minutes

Sample Request

`https://<base_url>/v2/accounts/exotel13m2/subscriber-token`

```
{
"platform": "android",
```

```
"device_id": "2fc4b5912826ad1",

"subscriber_name": “archit”

}
```


Sample Response


```
{

"request_id": "2f97c5e98e1d4c188c483cbfe8092869",

"method": "POST",

"http_code": 200,

“response”:

{

"code": 200,

"error_data": null,

"status": "success",

“data”:

{

 "subscriber_name": “archit”,

"subscriber_token":
{

"refresh_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzd
WIiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwiY2xpZW50X2lkIjoiN
UUwNTg2NUUifQ.Hc3umVfFlKIPiJ8R9kcP9o9hE9he51le08rO22u7eqs",

"access_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzdW
IiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwic2NvcGUiOiJ2b2ljZS
```

```
IsImNsaWVudF9pZCI6IjVFMDU4NjVFIn0.uQd_aHGBIT4XqTPfl-567dmjQrKlmLtPag0KpGB2QMA"
```

```
}
```

```
},
```

```
}
```

```
}
```

Create Subscribers

API is used for both single or bulk subscriber account creation in exotel platform.

Method: `POST`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters:

Parameter	Data Type	Requirement	Description
subscriber_name	String	Mandatory	Unique Username for the Subscriber
custom_field	String	Optional	Field to store custom metadata for the Subscriber

Please note that POST is a bulk operation and the request is actually an array of the above.

The maximum number of subscribers which can be created in a single request is 10.

Response Type: `JSON`

Response Body Parameters: Returns multipart response for request. Refer Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers
```

```
{
  "subscribers": [
    {
      "subscriber_name": "bob",
      "custom_field": "support"
    },
    {
      "subscriber_name": "nidhi"
    },
    {
      "subscriber_name": "archit"
    }
  ]
}
```

Sample Response

```
{
"request_id": "04386e350256448dae83c6db0f749a21",
"method": "POST",
"http_code": 207,
"metadata": {
"failed": 0,
"success": 3
```

```
},
"response": [
{
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:17+05:30",
"date_updated": "2019-11-19T23:14:17+05:30",
"subscriber_name": "bob",
"status": "active",
"custom_field": "support”
}
},
{
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:17+05:30",
"date_updated": "2019-11-19T23:14:17+05:30",
"subscriber_name": "nidhi",
"status": "active",
```

```
"custom_field": null
}
},
{
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:18+05:30",
"date_updated": "2019-11-19T23:14:18+05:30",
"subscriber_name": "archit",
"status": "active",
"custom_field": null
}
}
],
}
```


Update a Subscriber

API is used to update the subscriber account parameters after it has been created. Subscriber can be marked inactive for temporary suspension.

Method: `PUT`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers/<subscriber-name>`

Authorization Type: Basic authentication using API key:token

Request Body Parameters:

Parameter	Data Type	Requirement	Description
custom_field	String	Optional	Field to store custom metadata for the subscriber
status	Enum	Mandatory	Indicates whether the subscriber is active or not enum {“active”, “inactive”}

Response Type: JSON

Response Body Parameters: Refer Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers/archit
```

```
{
```

```
  "status": "inactive",
```

```
}
```

Sample Response

```
{
```

```
"request_id": "8019271c8d98422db509c2801e63435f",
```

```
"method": "PUT",
```

```
"http_code": 200,
```

```
"response": {
```

```
"code": 200,
```

```
"error_data": null,
```

```
"status": "success",
```

```
"data": {
"date_created": "2019-11-19T23:14:18+05:30",
"date_updated": "2019-11-20T11:13:38+05:30",
"subscriber_name": "archit",
"status": "inactive",
"custom_field": null
}
}
}
```


Get Subscriber

API returns subscriber details.

Method: `GET`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers/<subscriber_name>`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters: None

Response Type: `JSON`

Response Body Parameters: On success returns Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers/archit
```

Sample Response


```
{
```

```
"request_id": "287c227674af40b38531a1c247262deb",
"method": "GET",
"http_code": 200,
"response": {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:18+05:30",
"date_updated": "2019-11-20T11:13:38+05:30",
"subscriber_name": "archit",
"status": "inactive",
"custom_field": null
}
}
}
```


List Subscribers

API returns a paginated list of subscribers.

Method: `GET`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers>?status=abc&page_size=xyz&offset=xyz`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters:

Query Parameter	Data Type	Requirement	Description
status	Enum	Optional	Status for the subscriber
page_size	uint64	Optional	Page size for response. Default and maximum value is 100
offset	uint64	Optional	Offset from which to get the records. Defaults to 0

Response Type: `JSON`

Response Body Parameters: On success returns paginated list of Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers?page=2&offset=3
```

Sample Response

```
{
"request_id": "b5f0c6780ec443d08947ba2015a06a04",
"method": "GET",
"http_code": 200,
"metadata": {
"prev_page_uri": "/v2/accounts/exotelip2ipcalling1/subscribers?offset=6&page_size=3",
"next_page_uri": "/v2/accounts/exotelip2ipcalling1/subscribers?offset=12&page_size=3",
"first_page_uri": "/v2/accounts/exotelip2ipcalling1/subscribers?offset=0&page_size=3"
```

```
},
"response": [
  {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-12-30T17:12:00+05:30",
"date_updated": "2019-12-30T17:12:00+05:30",
"subscriber_name": "shyam",
"status": "active",
"custom_field": null
}
},
  {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-12-30T17:09:41+05:30",
"date_updated": "2019-12-30T17:09:41+05:30",
"subscriber_name": "kiran",
"status": "active",
```

```
"custom_field": "test"
}
},
  {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-12-30T13:35:07+05:30",
"date_updated": "2019-12-30T13:35:07+05:30",
"subscriber_name": "mandeep",
"status": "active",
"custom_field": null
}
}
],
}
```


Delete Subscriber

API deletes a subscriber permanently.

Method: `DELETE`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers/<subscriber-name>`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters: None

Response Type: `JSON`

Response Body Parameters: On success, HTTP response 204 is returned with no response body. In case of failure 404 is returned

Sample Request

`https://<base_url>`

`/v2/accounts/exotelip2ipcalling1/subscribers/shyam`

Sample Response

(a) Success: `No body`

(b) Failure:

```
{
    "request_id": "af0087d5331f479599d2c987efe9f664",
    "method": "DELETE",
    "http_code": 404,
    "response": {
        "code": 404,
        "error_data": {
            "code": 1000,
            "description": "Subscriber not found",
            "message": "Not Found"
        },
        "status": "failure",
        "data": null
```

```
    }

}
```

3.5. Client Flutter SDK

3.5.1. Integration Guide

3.5.2. Sample repo

https://github.com/exotel/exotel-voip-sdk-flutter

3.5.3. Subscriber Management API

Introduction

This document defines the exotel platform APIs adding, updating, viewing and deleting the subscribers for VoIP Calling. Subscriber is the entity who uses the app with voip calling feature.

Subscriber provisioning in exotel can happen in two ways,

- Pre-provisioning

The customer pre-configures the client accounts even before the app is installed by the client.

- Dynamic provisioning

A client account is created after the app is installed by the user and signs-up with the application backend.

All the APIs listed in this document are privileged APIs that need API Key and API Token for authentication. API key:token are generated on sign-up with exotel platform. Please contact hello@exotel.in

Base URL

In all the APIs below, replace <base_url> with the following based on the stamp. Stamp info can be found in your Exotel dashboard under the API settings page.

- MUM Stamp - https://chaotix.mum1.exotel.in
- SGP Stamp - https://chaotix.apac-sg.exotel.in

Subscriber Response Object

The subscriber object returned in the APIs is described below

Parameter	Data Type	Description
subscriber_name	String	Subscriber name provided while creating the subscriber (Must be unique for a particular tenant) Maximum supported subscriber name length is 16 bytes and can contain numeric characters. Whitespace characters are not allowed. e.g. 123456,9999999999 etc
status	Enum (active/ inactive)	Whether the subscriber is active or not
custom_field	String	Field to store custom metadata for the subscriber
date_created	DateTime	Time at which the subscriber was created
date_updated	DateTime	Time at which the subscriber was updated

Create Subscriber Token

Access to the exotel platform by ExotelVoiceClient is authenticated using a bearer token - *subsriber_token*. Clients must obtain this token from their application backend which in turn should fetch it from the exotel platform using the HTTPS endpoint listed here.

Method: `POST`

Request URL: `https://<base_url>/v2/accounts/<account-sid>/subscriber-token`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters:

Parameter	Data Type	Description
platform	String	Parameter (Android / iOS)
device_id	String	Device id (AndroidID / iOS UDID)
subscriber_name	String	Unique subscriber identifier

Response Type: `JSON`

Response Code:

`200 Success`

`400 Bad Request, Malformed Parameters`

`401 Unauthorized`

Response Body Parameters:

Parameter	Data Type	Description
subscriber_token	String	Token to access exotel platform
subscriber_name	String	Subscriber name used for token generation

Note - The Time-to-Live (TTL) for token expiry is as follows:

Refresh token expiry: 24 hours

Access token expiry: 30 minutes

Sample Request

`https://<base_url>/v2/accounts/exotel13m2/subscriber-token`

```
{
"platform": "android",
```

```
"device_id": "2fc4b5912826ad1",

"subscriber_name": “archit”

}
```


Sample Response


```
{

"request_id": "2f97c5e98e1d4c188c483cbfe8092869",

"method": "POST",

"http_code": 200,

“response”:

{

"code": 200,

"error_data": null,

"status": "success",

“data”:

{

 "subscriber_name": “archit”,

"subscriber_token":
{

"refresh_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzd
WIiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwiY2xpZW50X2lkIjoiN
UUwNTg2NUUifQ.Hc3umVfFlKIPiJ8R9kcP9o9hE9he51le08rO22u7eqs",

"access_token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJleG90ZWwiLCJzdW
IiOiJBcmNoaXQiLCJpYXQiOjE1NzY2NDc5OTksImV4cCI6MTU3Njc0Nzk5OSwic2NvcGUiOiJ2b2ljZS
```

```
IsImNsaWVudF9pZCI6IjVFMDU4NjVFIn0.uQd_aHGBIT4XqTPfl-567dmjQrKlmLtPag0KpGB2QMA"
```

```
}
```

```
},
```

```
}
```

```
}
```

Create Subscribers

API is used for both single or bulk subscriber account creation in exotel platform.

Method: `POST`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters:

Parameter	Data Type	Requirement	Description
subscriber_name	String	Mandatory	Unique Username for the Subscriber
custom_field	String	Optional	Field to store custom metadata for the Subscriber

Please note that POST is a bulk operation and the request is actually an array of the above.

The maximum number of subscribers which can be created in a single request is 10.

Response Type: `JSON`

Response Body Parameters: Returns multipart response for request. Refer Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers
```

```
{
  "subscribers": [
    {
      "subscriber_name": "bob",
      "custom_field": "support"
    },
    {
      "subscriber_name": "nidhi"
    },
    {
      "subscriber_name": "archit"
    }
  ]
}
```

Sample Response

```
{
"request_id": "04386e350256448dae83c6db0f749a21",
"method": "POST",
"http_code": 207,
"metadata": {
"failed": 0,
"success": 3
```

```
},
"response": [
{
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:17+05:30",
"date_updated": "2019-11-19T23:14:17+05:30",
"subscriber_name": "bob",
"status": "active",
"custom_field": "support”
}
},
{
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:17+05:30",
"date_updated": "2019-11-19T23:14:17+05:30",
"subscriber_name": "nidhi",
"status": "active",
```

```
"custom_field": null
}
},
{
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:18+05:30",
"date_updated": "2019-11-19T23:14:18+05:30",
"subscriber_name": "archit",
"status": "active",
"custom_field": null
}
}
],
}
```


Update a Subscriber

API is used to update the subscriber account parameters after it has been created. Subscriber can be marked inactive for temporary suspension.

Method: `PUT`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers/<subscriber-name>`

Authorization Type: Basic authentication using API key:token

Request Body Parameters:

Parameter	Data Type	Requirement	Description
custom_field	String	Optional	Field to store custom metadata for the subscriber
status	Enum	Mandatory	Indicates whether the subscriber is active or not enum {“active”, “inactive”}

Response Type: JSON

Response Body Parameters: Refer Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers/archit
```

```
{
```

```
  "status": "inactive",
```

```
}
```

Sample Response

```
{
```

```
"request_id": "8019271c8d98422db509c2801e63435f",
```

```
"method": "PUT",
```

```
"http_code": 200,
```

```
"response": {
```

```
"code": 200,
```

```
"error_data": null,
```

```
"status": "success",
```

```
"data": {
"date_created": "2019-11-19T23:14:18+05:30",
"date_updated": "2019-11-20T11:13:38+05:30",
"subscriber_name": "archit",
"status": "inactive",
"custom_field": null
}
}
}
```


Get Subscriber

API returns subscriber details.

Method: `GET`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers/<subscriber_name>`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters: None

Response Type: `JSON`

Response Body Parameters: On success returns Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers/archit
```

Sample Response


```
{
```

```
"request_id": "287c227674af40b38531a1c247262deb",
"method": "GET",
"http_code": 200,
"response": {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-11-19T23:14:18+05:30",
"date_updated": "2019-11-20T11:13:38+05:30",
"subscriber_name": "archit",
"status": "inactive",
"custom_field": null
}
}
}
```


List Subscribers

API returns a paginated list of subscribers.

Method: `GET`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers>?status=abc&page_size=xyz&offset=xyz`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters:

Query Parameter	Data Type	Requirement	Description
status	Enum	Optional	Status for the subscriber
page_size	uint64	Optional	Page size for response. Default and maximum value is 100
offset	uint64	Optional	Offset from which to get the records. Defaults to 0

Response Type: `JSON`

Response Body Parameters: On success returns paginated list of Subscriber Response Object

Sample Request

```
https://<base_url>/v2/accounts/exotelip2ipcalling1/subscribers?page=2&offset=3
```

Sample Response

```
{
"request_id": "b5f0c6780ec443d08947ba2015a06a04",
"method": "GET",
"http_code": 200,
"metadata": {
"prev_page_uri": "/v2/accounts/exotelip2ipcalling1/subscribers?offset=6&page_size=3",
"next_page_uri": "/v2/accounts/exotelip2ipcalling1/subscribers?offset=12&page_size=3",
"first_page_uri": "/v2/accounts/exotelip2ipcalling1/subscribers?offset=0&page_size=3"
```

```
},
"response": [
  {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-12-30T17:12:00+05:30",
"date_updated": "2019-12-30T17:12:00+05:30",
"subscriber_name": "shyam",
"status": "active",
"custom_field": null
}
},
  {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-12-30T17:09:41+05:30",
"date_updated": "2019-12-30T17:09:41+05:30",
"subscriber_name": "kiran",
"status": "active",
```

```
"custom_field": "test"
}
},
  {
"code": 200,
"error_data": null,
"status": "success",
"data": {
"date_created": "2019-12-30T13:35:07+05:30",
"date_updated": "2019-12-30T13:35:07+05:30",
"subscriber_name": "mandeep",
"status": "active",
"custom_field": null
}
}
],
}
```


Delete Subscriber

API deletes a subscriber permanently.

Method: `DELETE`

Request Url: `https://<base_url>/v2/accounts/<account-sid>/subscribers/<subscriber-name>`

Authorization Type: `Basic authentication using API key:token`

Request Body Parameters: None

Response Type: `JSON`

Response Body Parameters: On success, HTTP response 204 is returned with no response body. In case of failure 404 is returned

Sample Request

`https://<base_url>`

`/v2/accounts/exotelip2ipcalling1/subscribers/shyam`

Sample Response

(a) Success: `No body`

(b) Failure:

```
{
    "request_id": "af0087d5331f479599d2c987efe9f664",
    "method": "DELETE",
    "http_code": 404,
    "response": {
        "code": 404,
        "error_data": {
            "code": 1000,
            "description": "Subscriber not found",
            "message": "Not Found"
        },
        "status": "failure",
        "data": null
```

```
    }

}
```

4. Connectors

4.1. Accessing Call Recordings on Connectors

All call recordings on Exotel's connectors in CRMs are authenticated i.e, users would not be able to access these recordings directly by default. One of the following mechanisms would have to be adopted by your organization to access these recordings on the connectors directly -

Method 1 - IP Whitelisting (Recommended)

This security mechanism will be applicable to use cases where the access to call recordings is limited within a secure network - either on office premises or through company controlled VPN.

Customers will have to register their IP addresses on Exotel's end (via hello@exotel.com). Only these IPs will be allowed to access the new recording URLs **without any need of authentication**. From all other IP addresses, we will prompt for authentication.

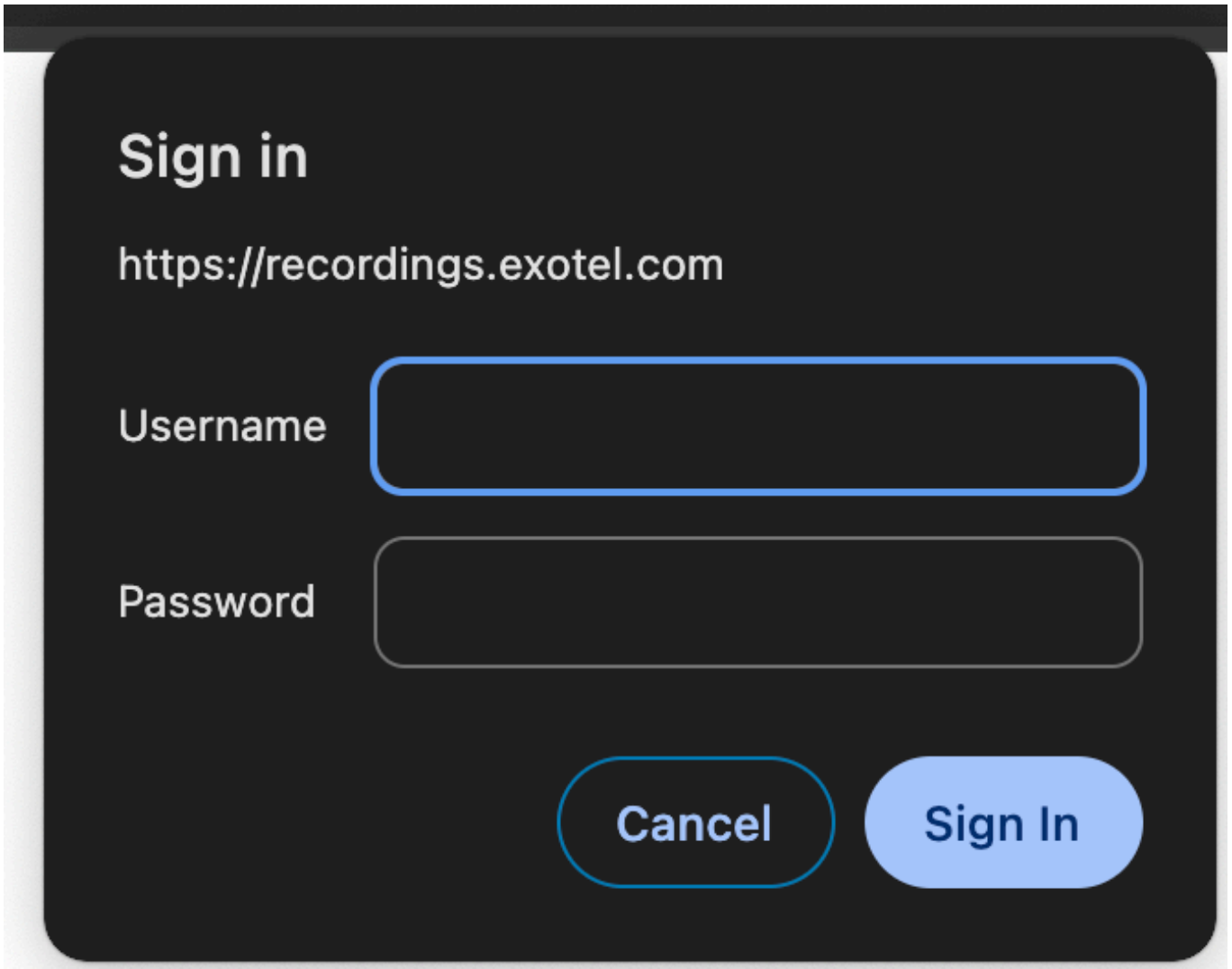
- **Max No. of IPs/CIDR blocks allowed to whitelist: 20**
- Any exception beyond this limit needs to be raised as a request to hello@exotel.com or reach out to your account manager.

Method 2 - Keep the users' ExoLite Session Active.

Keeping the ExoLite session active and accessing the recordings in the connectors would allow you to play them without any further authentication. If you don't have users on ExoLite created for all your agents on the connector, you can do so by following these steps.

Method 3 - Enter User Name and Password (Default)

When users try to access the recordings from the connectors, a popup will be shown asking them to enter the username and password. This is nothing but the API Key and token that is available on the ExoLite dashboard.



Admins of the account to create a new token by clicking on the API Credentials > Create API Key button. A popup to select the permissions will show up where they can unselect all the options except “GET availablephonenumbers/*”. They can click on create and share the newly created API Key and Token with the agents who usually access recordings.

4.2. Freshworks

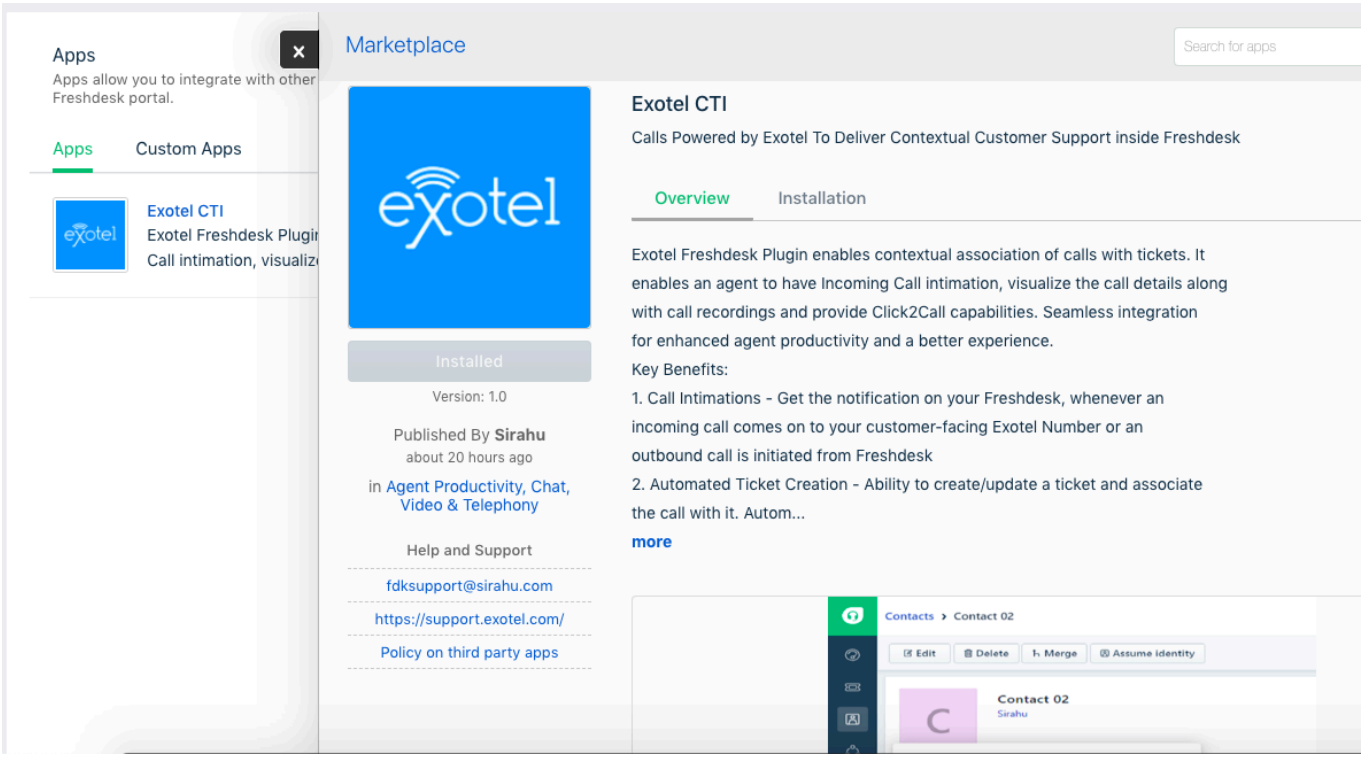
4.2.1. Freshdesk Integration

Overview

Exotel Freshdesk Integration enables the contextual association of calls with tickets. It enables an agent to have Incoming Call intimation, visualize the call details along with call recordings and provide Click2Call capabilities. Seamless integration for enhanced agent productivity and a better experience.

Key Benefits:

1. Call Intimations - Get the notification on your Freshdesk, whenever any Incoming call comes on to your customer-facing Exotel Number or an outbound call is initiated from Freshdesk
2. Automated Ticket Creation - Ability to create/update a ticket and associate the call with it. Automatic ticket creation for Missed Calls.
3. Click2Call - Initiate calls between you and your customer, directly from the Freshdesk
4. Call Details - Call Recordings and Call Duration getting automatically added to the tickets.
5. User Mapping - Map Exotel Agents to Freshdesk Users and enable Click-2-Call
6. Work on just one interface and improve your agent productivity by eliminating context-switching.
7. Now you can also have automated tickets created for every completed call.



Configuration

Follow the following prerequisites and steps to configure the integration both at Exotel and Freshdesk end.

Prerequisites

In order to have a successful integration with the Freshdesk account, you must complete the following tasks:

1. Sign up for an Exotel Account.
2. Verify your account through phone or email.
3. Get your account KYC verified.
4. Purchase ExoPhone to be used by FreshDesk users/agents for inbound and outbound calls.
5. From the API section, make a note of Account SID, API Key, and API Token.

Setting up of Exotel Integration

In order to set up the integration, follow these five steps:

1. Create Co-Workers and Group
2. Configure Freshdesk Plugin Call flow
3. Associate the call flow to the ExoPhones
4. Enable Integration
5. Map the Freshdesk User to Exotel Agents in the Integration interface and enable Click-2-Call (if required)

Step 1: Create Co-Workers and Groups

To create co-workers and groups in Exotel:

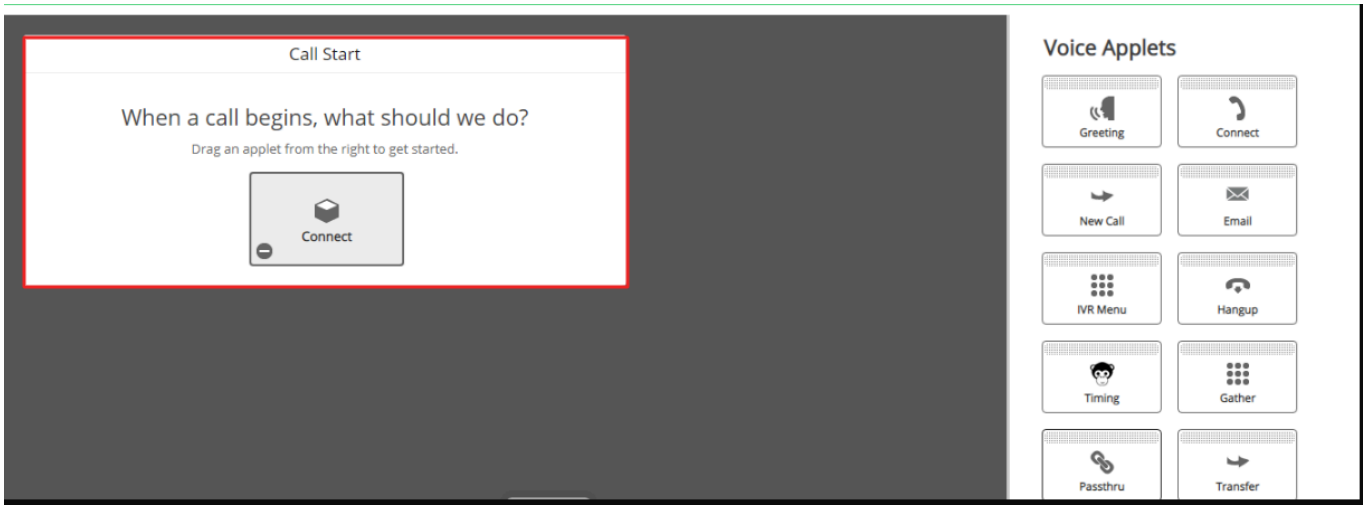
1. Login to your Exotel dashboard and go to the ‘Co-workers and Groups’ section.
2. Add all the co-workers corresponding to Freshdesk account, by clicking on Invite co-workers.
3. Create a new group by clicking on the ‘Add Group’ button. Add the co-workers to that group.

Step 2: Configure Freshdesk Plugin Call flow

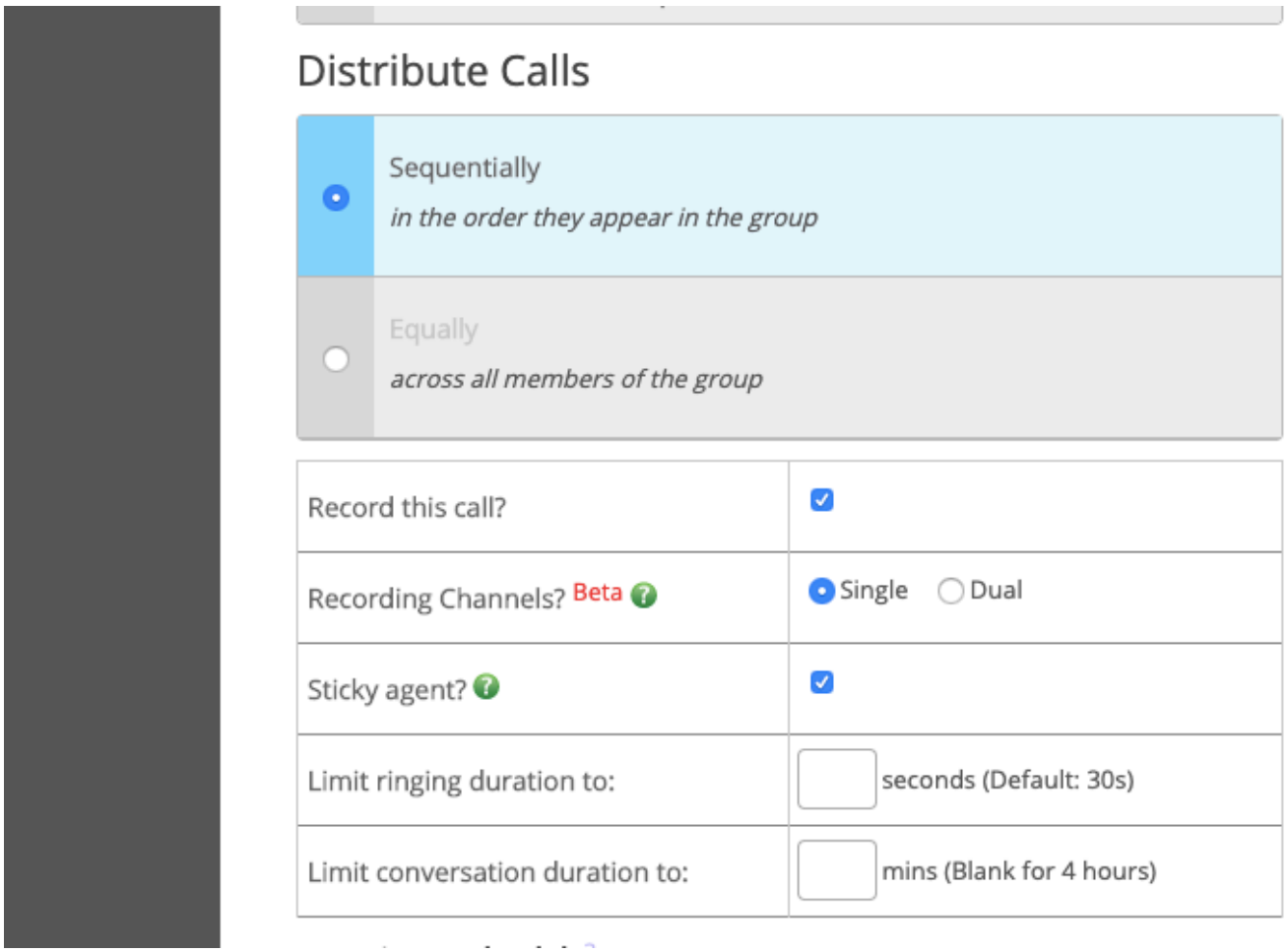
In order to create the Freshdesk Plugin Call flow, follow these five steps:

1. Go to the ‘App Bazar’ section and under ‘Custom Apps’ click on the ‘Create’ button.
2. Provide the App Name and click on OK.

3. Add a Connect Applet.



1. Select the Group as created earlier, under the ‘Dial a user or group’ option.
2. Under Distribute Calls, select 'Sequentially' or 'Equally' as per your requirement.
3. Select the remaining options as per your requirement.



1.

Under the ‘Create popup...’ section, enter the below URL (Replace the API credentials and Account sid in it with your Exotel credentials).

URL: https://<exotel_APIKey>:
<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=pop

Middleware_subdomain: freshdesk.mum1.exotel.in

E.g: https://<exotel_APIKey>:
<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=pop

1. After the Call Conversation ends, add a Passthru applet. In that passthru applet, enter the below URL (Replace the API credentials and Account sid in it with your Exotel credentials)

URL: https://<exotel_APIKey>:
<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=answered

Middleware_subdomain: freshdesk.mum1.exotel.in

E.g: https://<exotel_APIKey>:
<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=answered

9. In case of automatic ticket creation requirement for incoming calls, please use the below URL in the passthru applet instead((Replace the API credentials and Account sid in it with your Exotel credentials)

URL: https://<exotel_APIKey>:
<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=automated_answered

Middleware_subdomain: freshdesk.mum1.exotel.in

E.g: https://<exotel_APIKey>:<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=automated_answered

10. In the section 'If Nobody Answers..', select 'Go To' and add a Passthru applet. In that passthru applet, enter the below URL (Replace the API credentials and Account sid in it with your Exotel credentials)

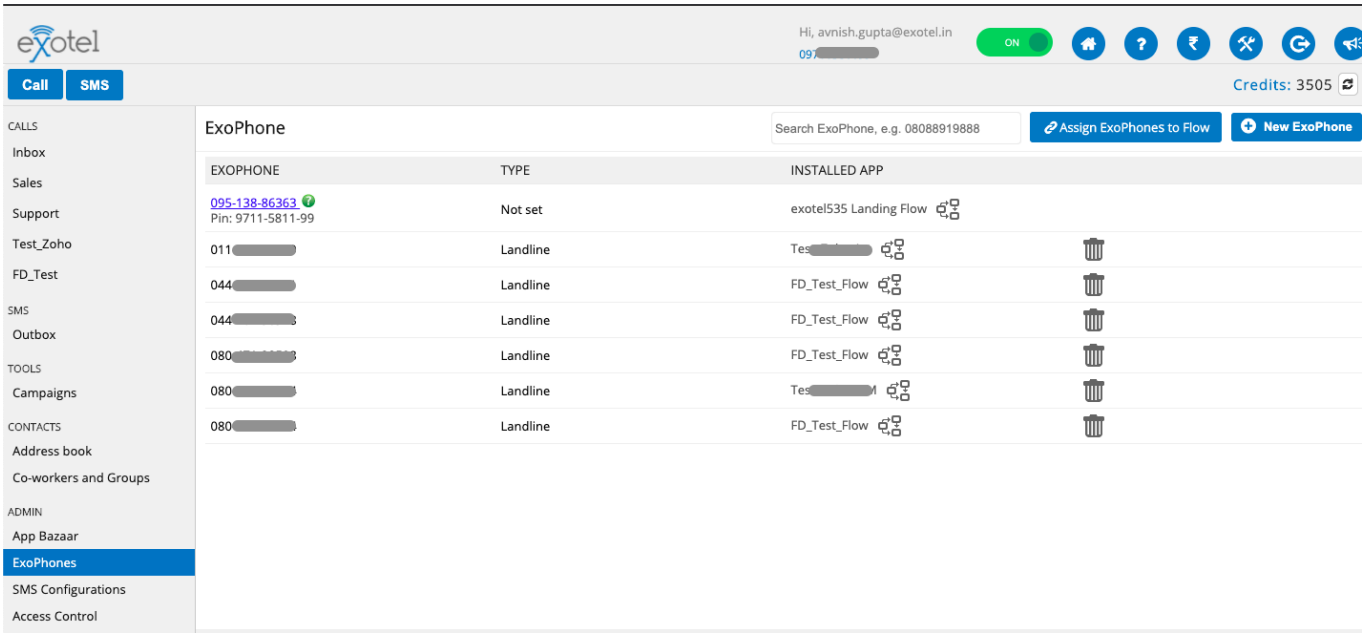
URL: https://<exotel_APIKey>:<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=missed

Middleware_subdomain: freshdesk.mum1.exotel.in

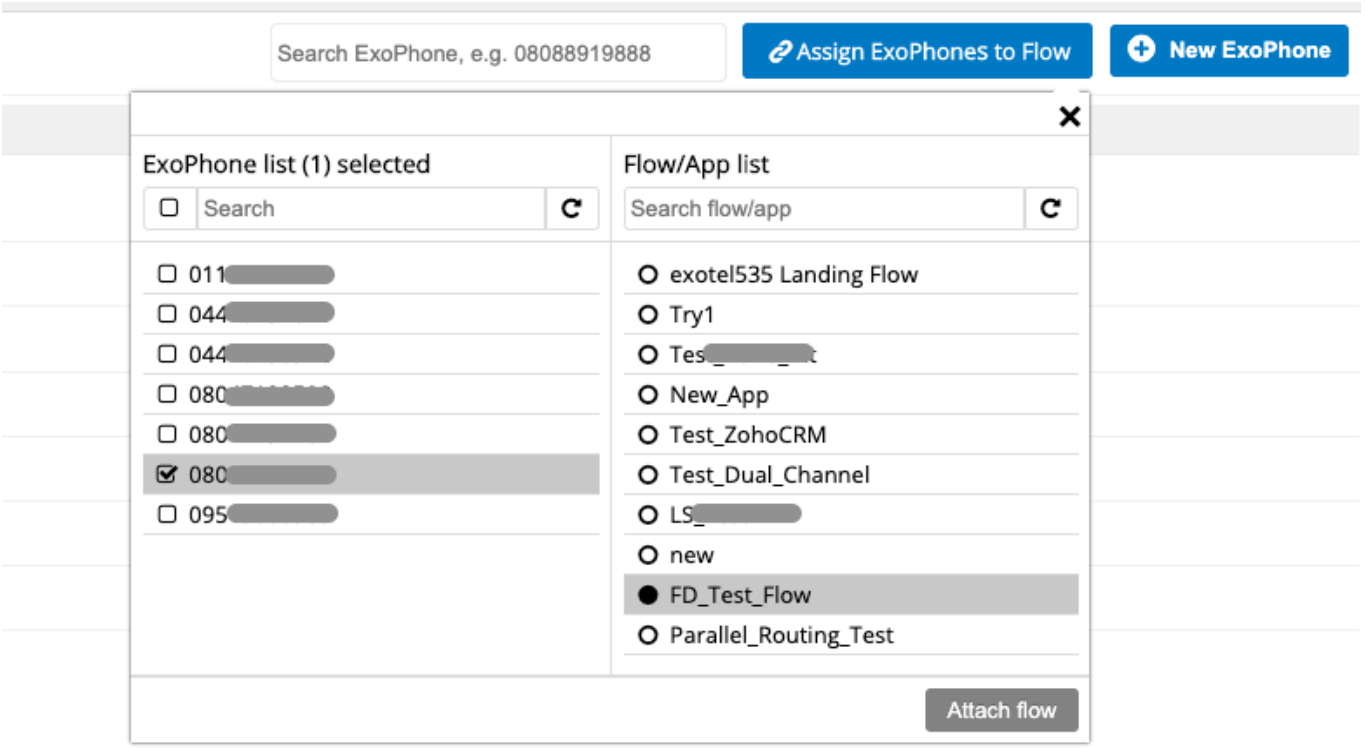
E.g: https://<exotel_APIKey>:<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=missed

11. Save the flow and click on Close.

Step 3: Associate the call flow to the ExoPhones



Go to the ExoPhones section

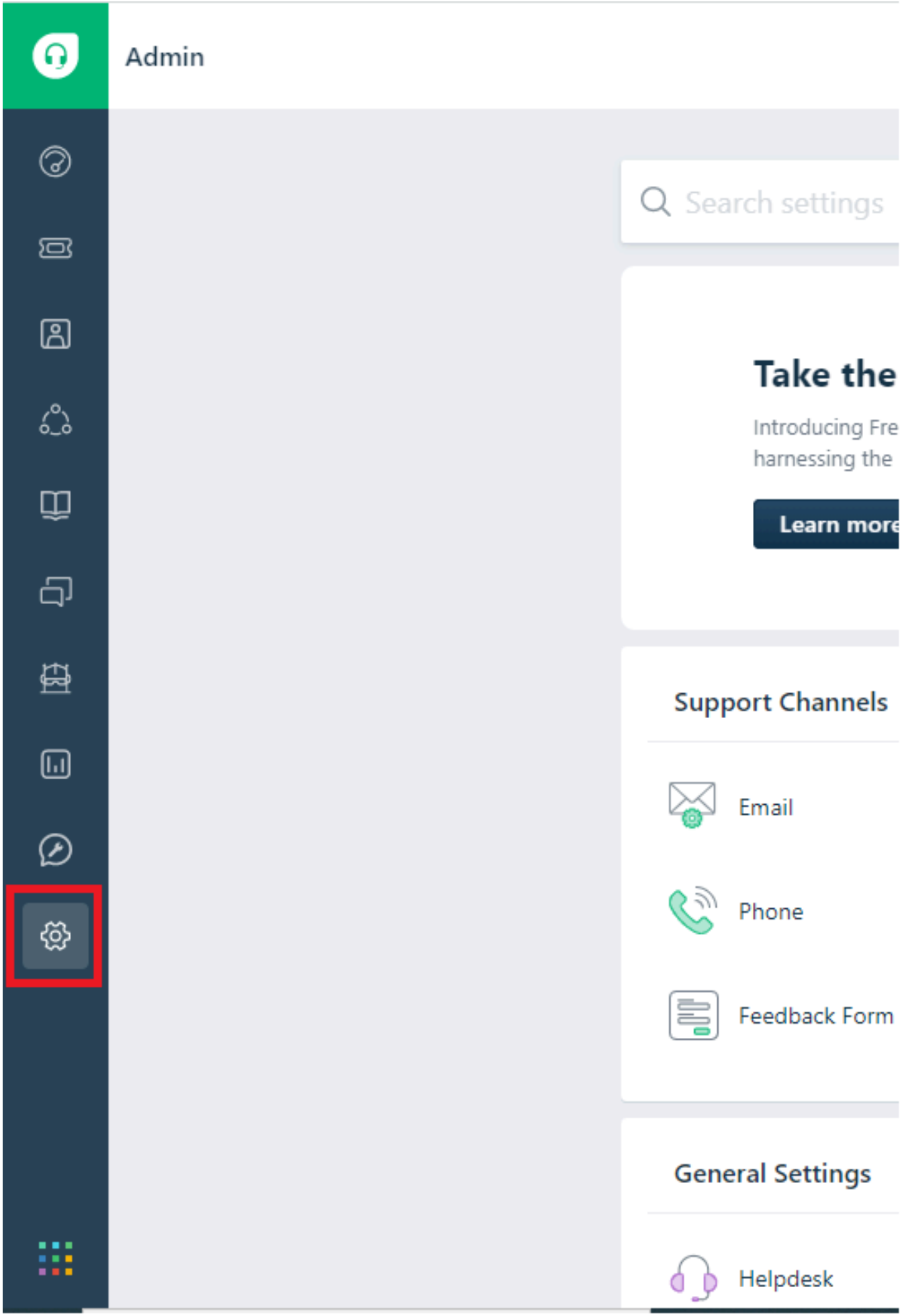


Click on the button 'Assign ExoPhones to Flow' and select the flow created in Step 2 with the ExoPhone and click on 'Attach Flow'

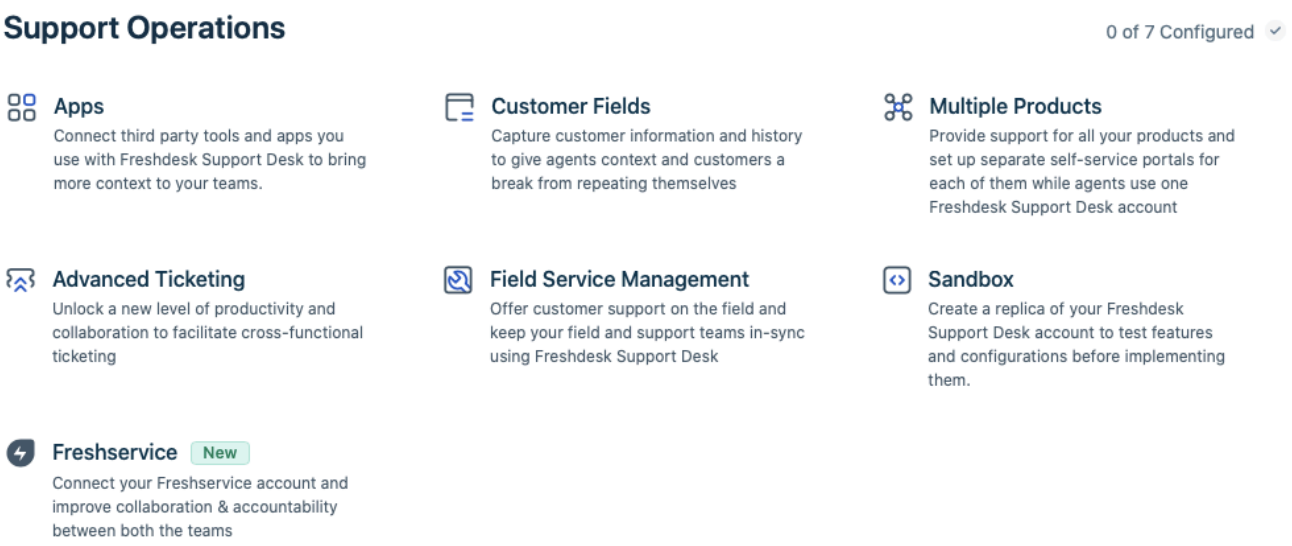
1. In the subsequent pop-up, click on OK and you can see the flow getting associated with ExoPhone.

Step 4: Enable Integration - Freshdesk App Installation

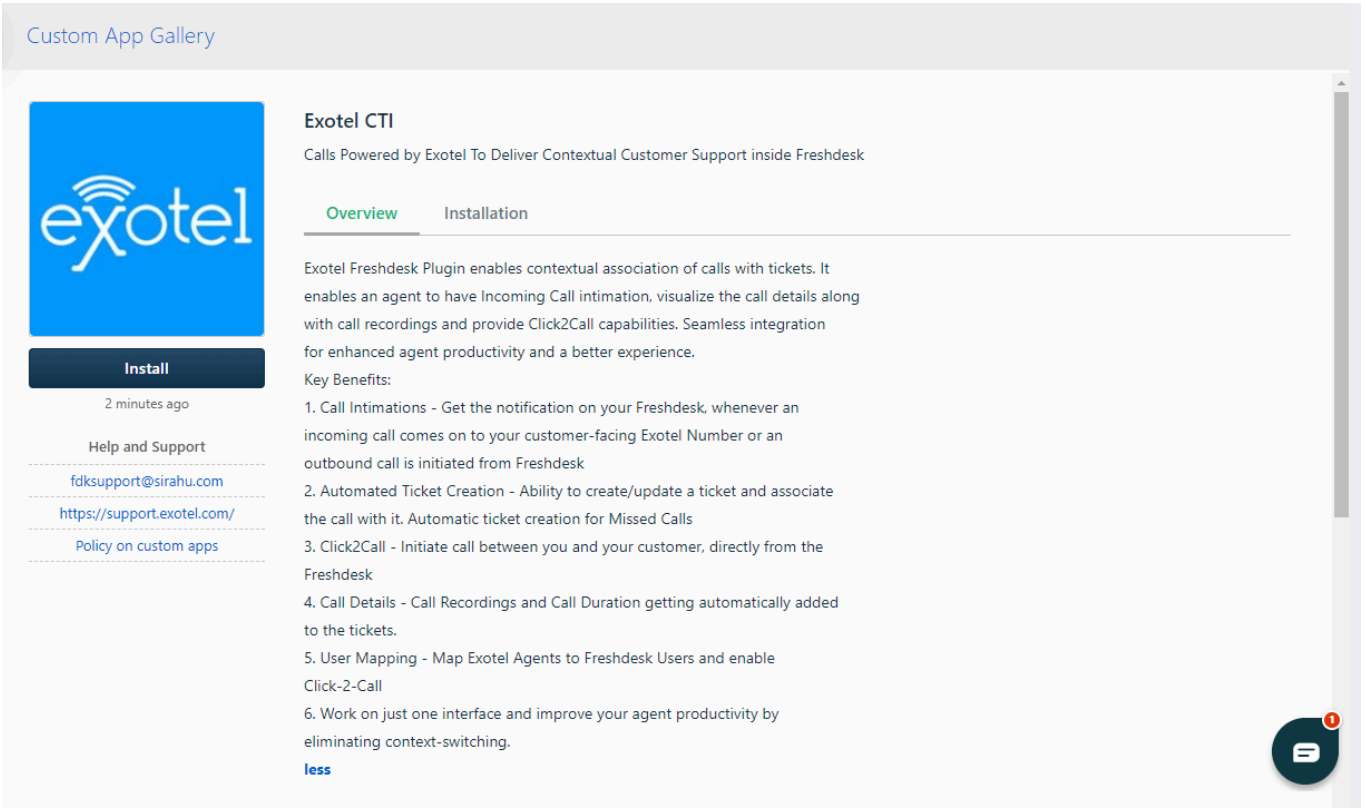
1. Login to your Freshdesk account.
2. Click on the settings icon.

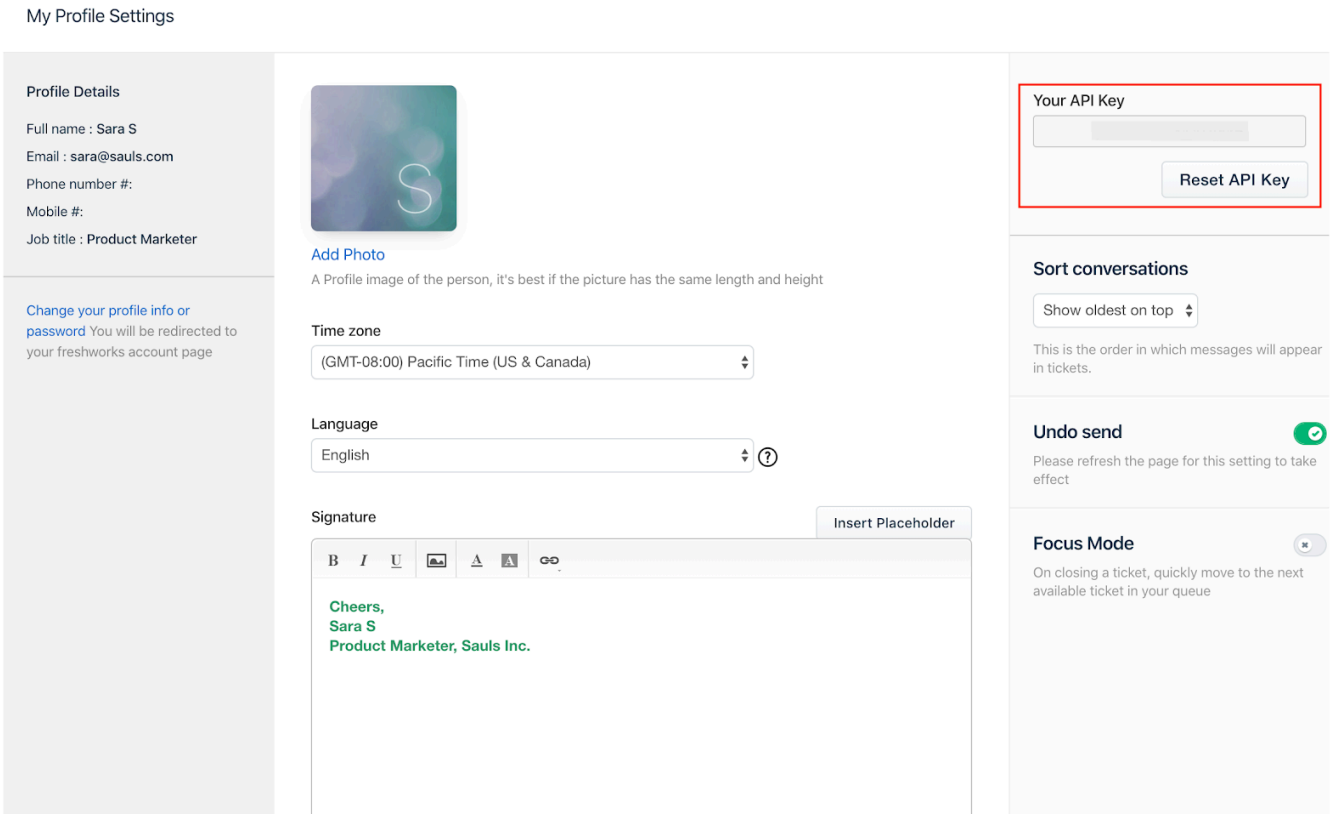

Admin
Search settings
Take the
Introducing Fre
harnessing the
Learn more
Support Channels
Email
Phone
Feedback Form
General Settings
Helpdesk

Click on **Apps** under **Support Operations.**



1. Click on the Apps tab.
2. Search for the **Exotel CTI** App.
3. Click on the **Install** button.





Open the Freshdesk page in a separate tab and capture the Freshdesk API Key from the Profile page (Click on your profile picture on the top right and select 'Profile Settings'. In the sidebar on the right, you will find the API Key. In the sidebar on the right, you will find the API Key.)

1. Enter all required fields on the installation page.

Freshdesk Domain

- Enter the Freshdesk Domain (Ex: https://xyz.freshdesk.com).

Freshdesk API Key

- Enter the Freshdesk API key

Region of Exotel Account

- Select the region from the dropdown list.

Exotel SID

- Enter the Exotel Account SID.

Exotel API Key (recommended to create a new API key & token for

- Enter the Exotel API Key

Exotel API Token

- Enter the Exotel API Token

EndPoint URL

- https://freshdesk.mum1.exotel.in

Ticket Auto-Assignment to Agents

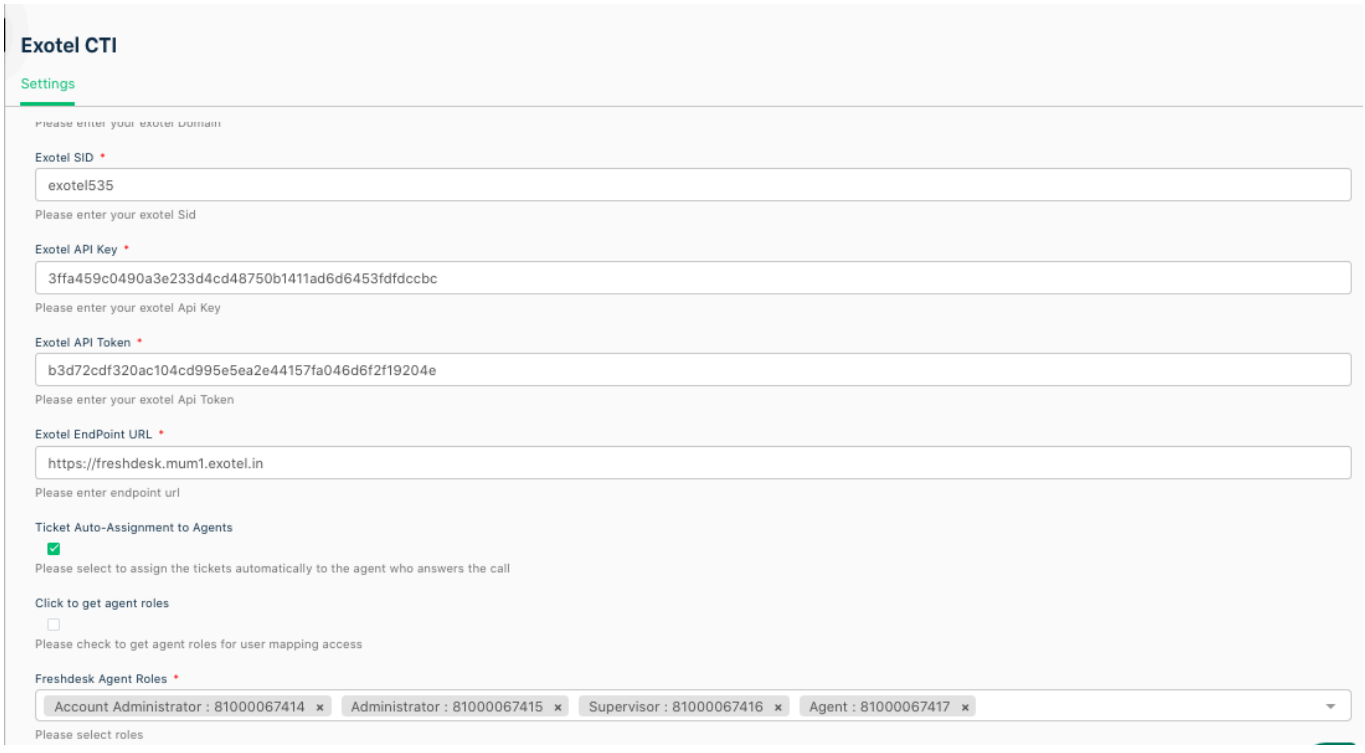
- Enable the option to assign the tickets to the agents

Click to get agent roles

- Enable the option to list the Agent Roles

Freshdesk Agent Roles

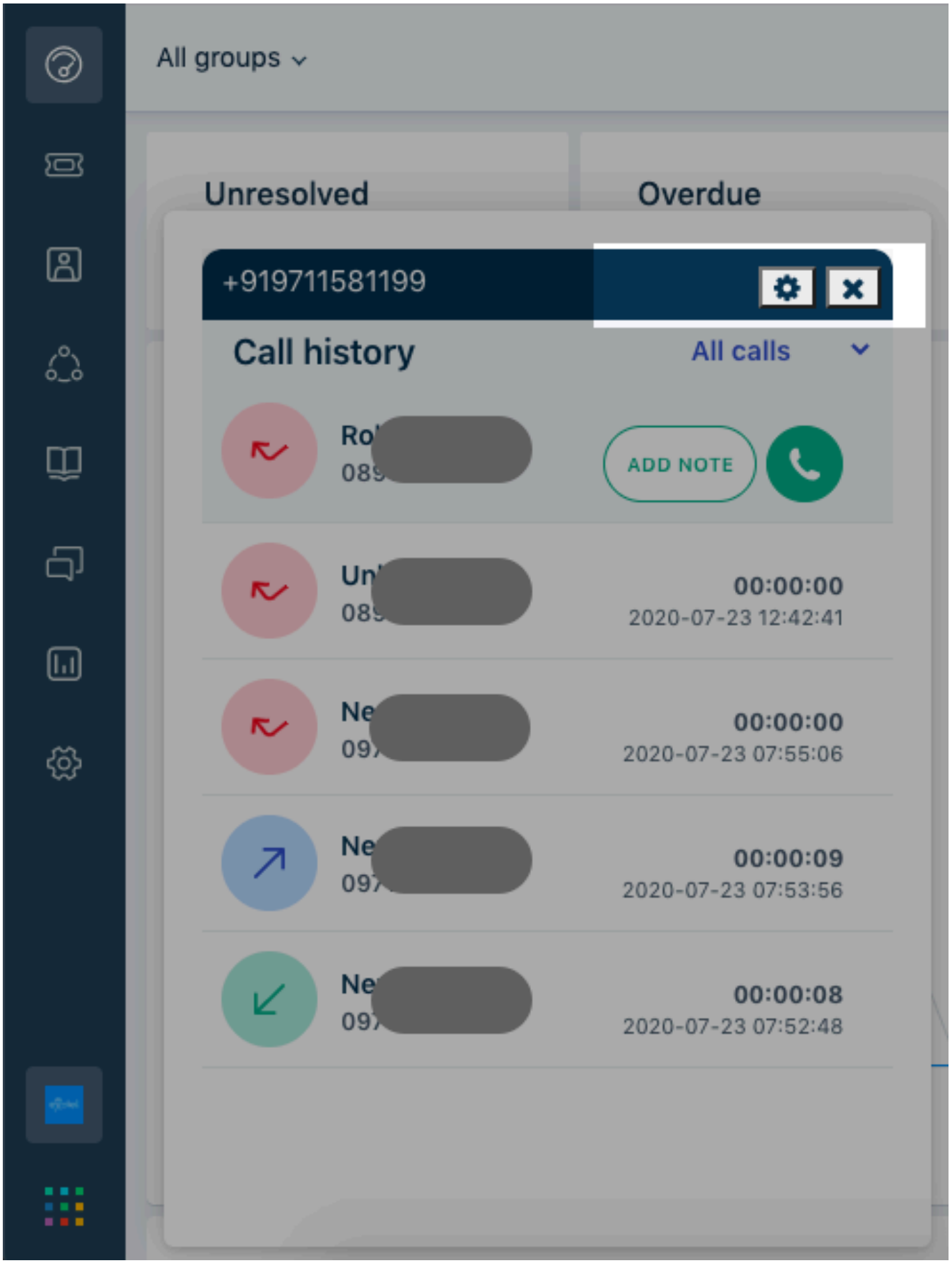
- Select required roles from the dropdown list (Multiple roles can be selected) that can access the user Mapping Screen to map Freshdesk Agents to Exotel Mobile Numbers
- Click on the **Install** Button.

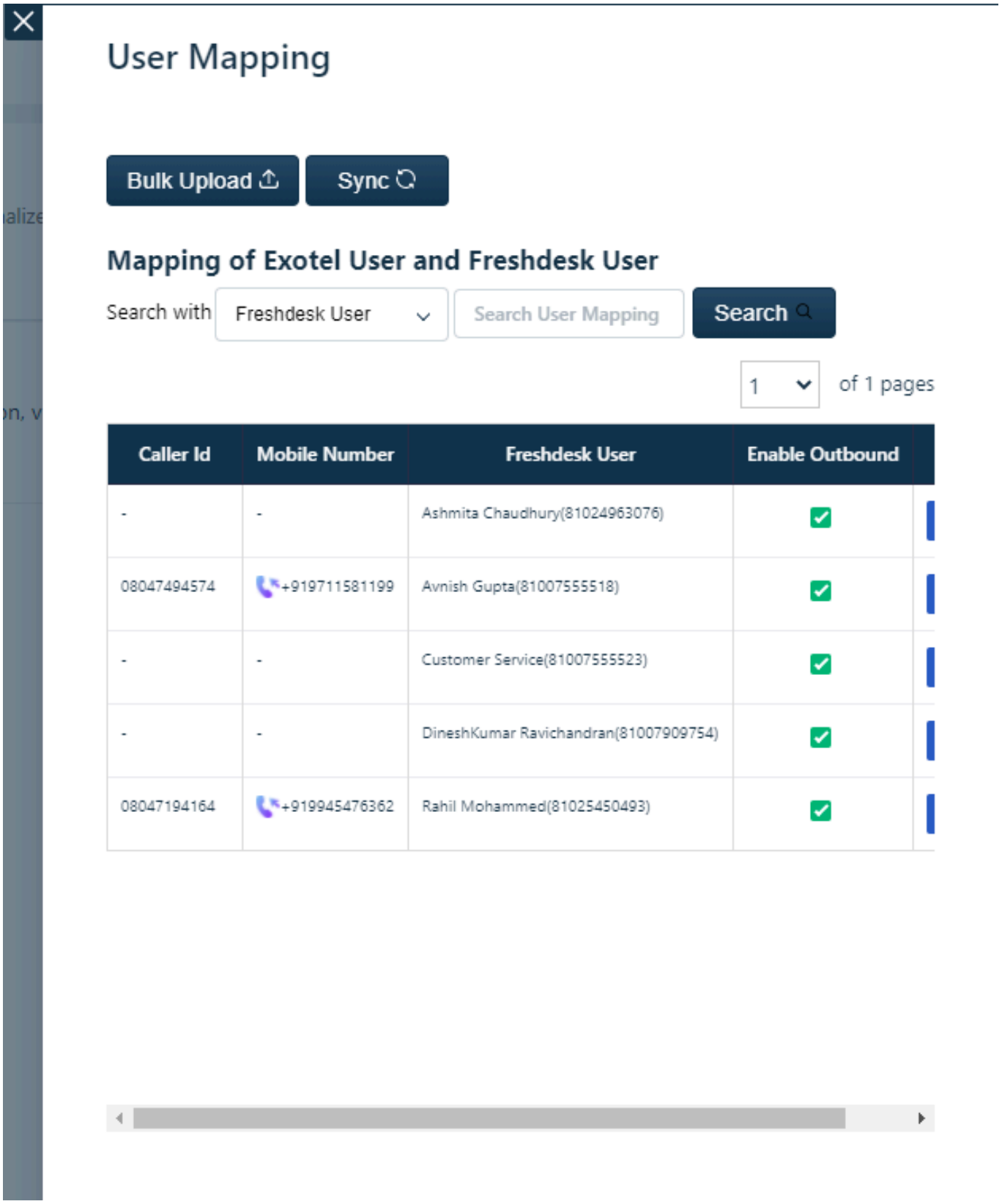


1. Once the installation is complete, refresh the page and verify that the Exotel CTI icon is added to the side panel successfully.

Step 5: User Mapping

1. Go to the Home page (Dashboard)
2. Click on the Exotel CTI icon in the left panel. Pop up should open up
3. Click on the Settings icon on the top right corner


All groups
Unresolved
Overdue
+919711581199
Call history
All calls
ADD NOTE
00:00:00
2020-07-23 12:42:41
00:00:00
2020-07-23 07:55:06
00:00:09
2020-07-23 07:53:56
00:00:08
2020-07-23 07:52:48



The user Mapping panel opens up on the right side of the screen.

1. Click on the Sync button so that all your common users between Freshdesk and Exotel will appear here.
2. You can now use the Edit icon against each user to add or modify their data.

Device on-off

Objective:

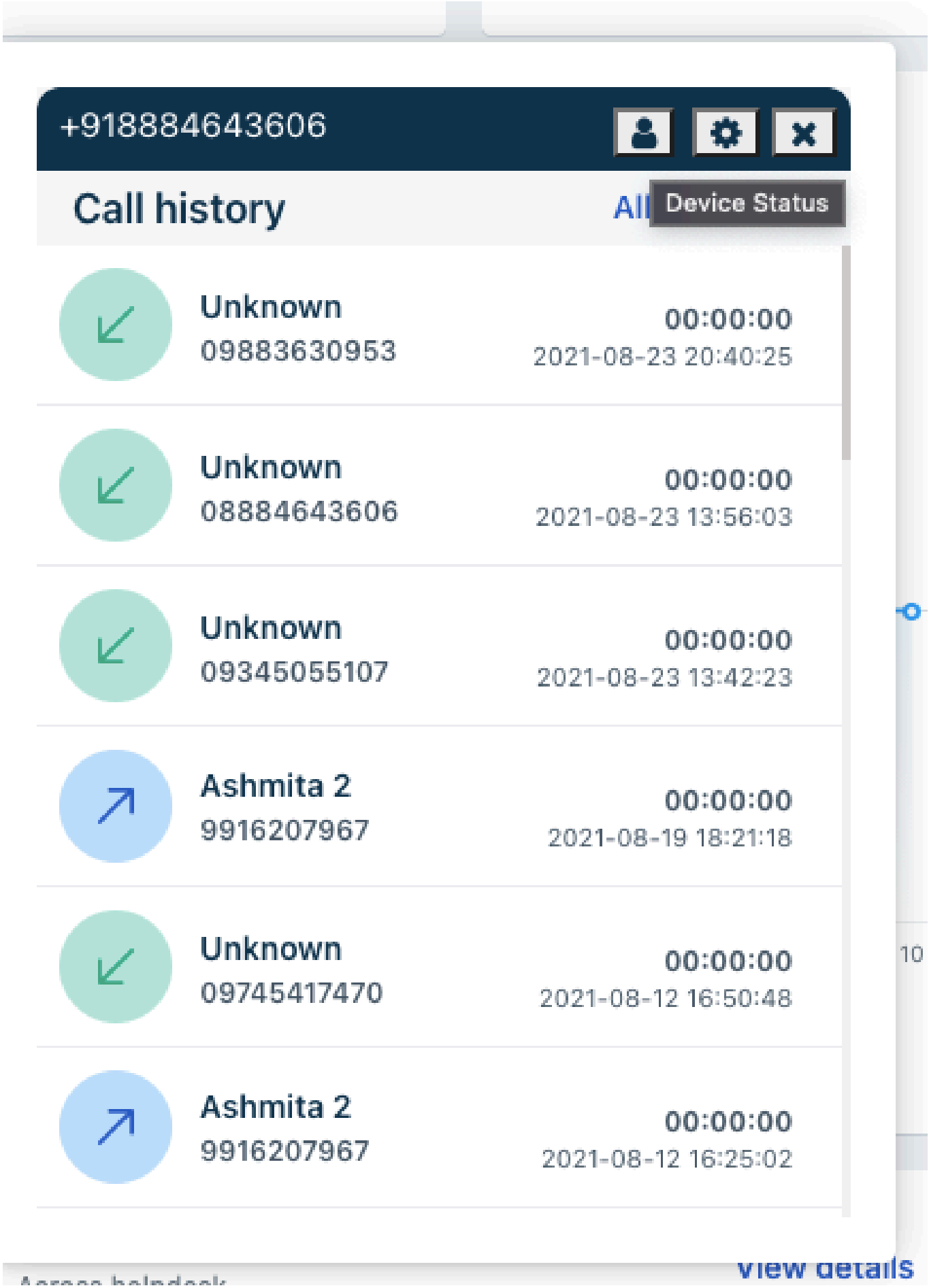
To Provide Agents using Exotel CTI in Freshdesk CRM a CTA to get their device status and alter the same from the CRM. This will eliminate the need for context switching and performing this action from the Exotel dashboard.

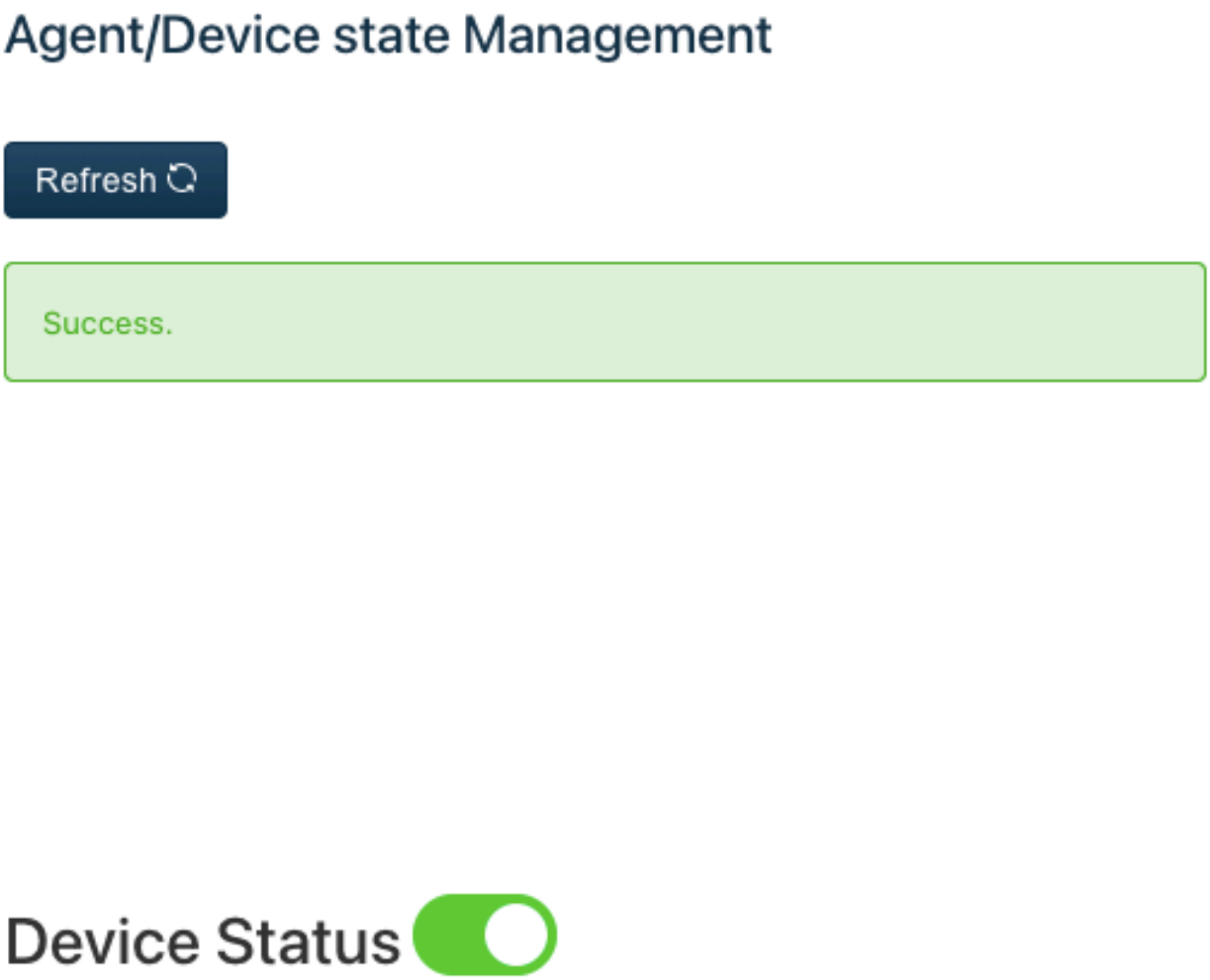
Sub - Features:

- Get Device status
- Update user device
- Refresh (in case of error or as a fallback)

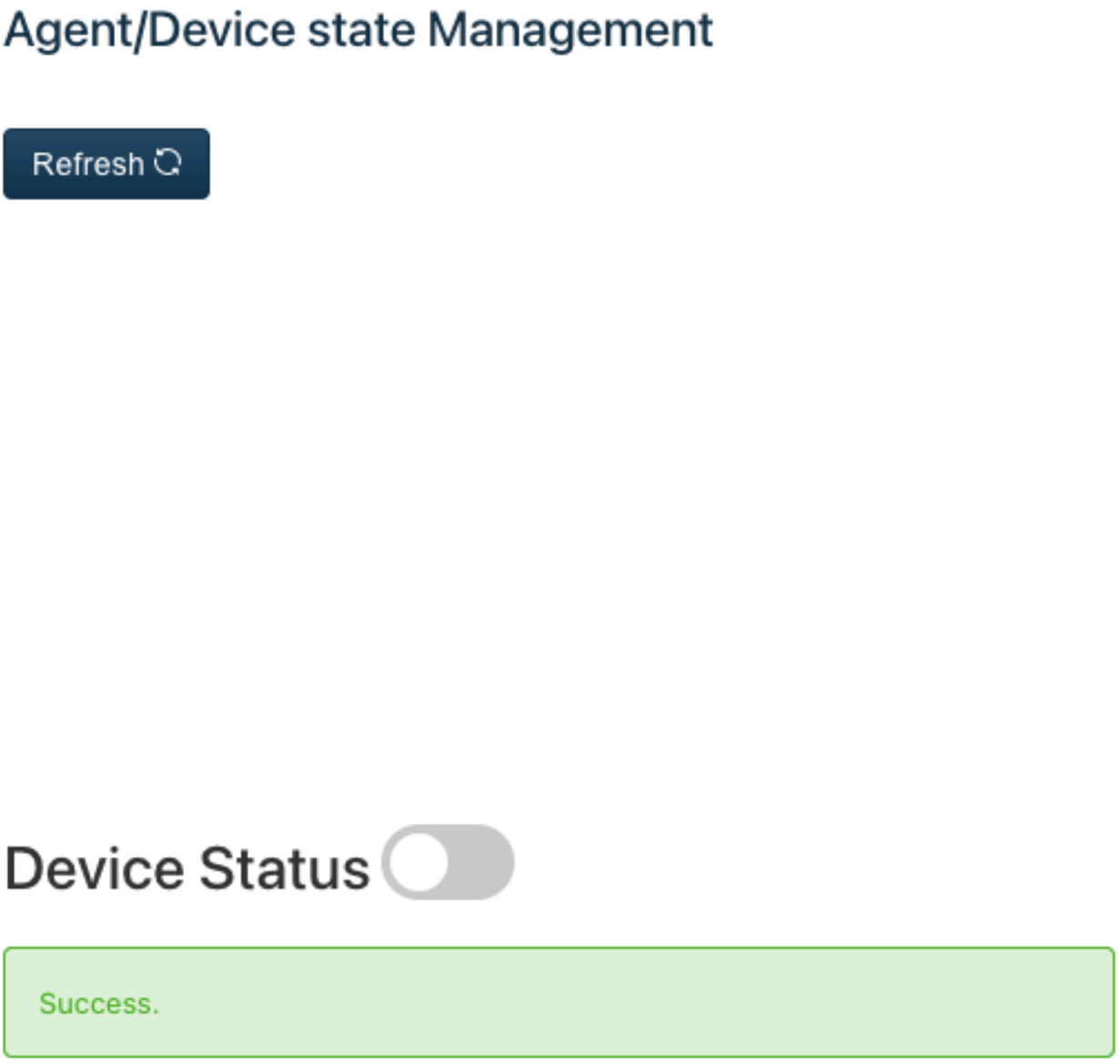
How to:

1. Launch the Exotel CTI in the Freshdesk account.
2. Click on the device status button. The present status gets reflected.

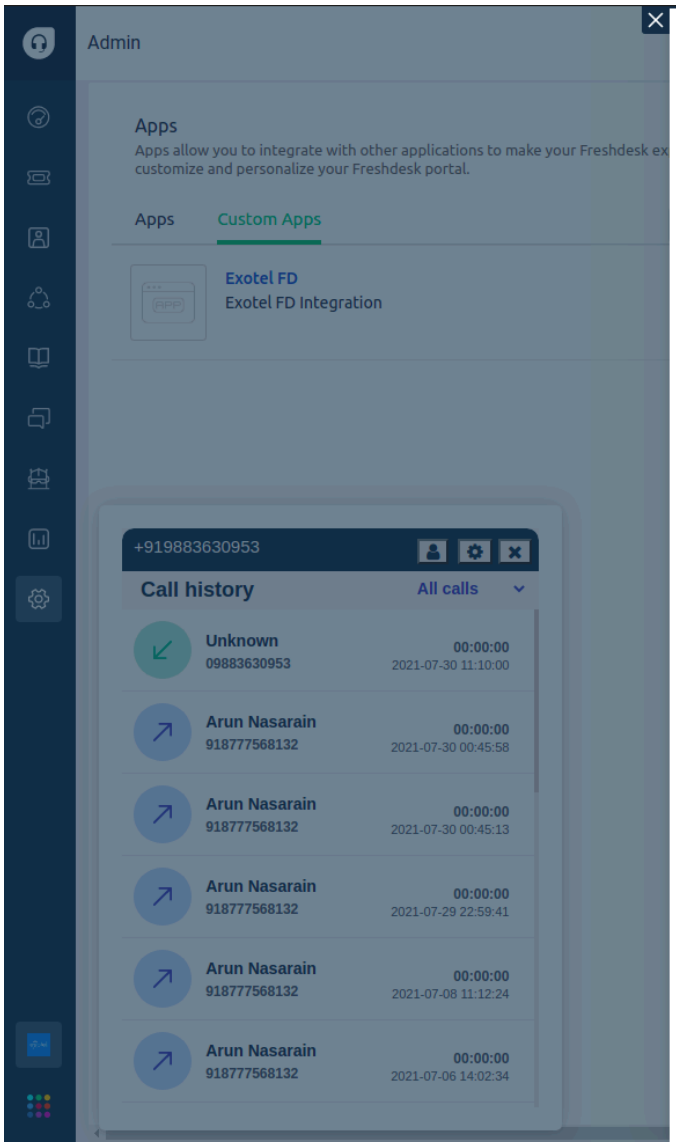

+918884643606
Call history
All
Device Status
Unknown
09883630953
00:00:00
2021-08-23 20:40:25
Unknown
08884643606
00:00:00
2021-08-23 13:56:03
Unknown
09345055107
00:00:00
2021-08-23 13:42:23
Ashmita 2
9916207967
00:00:00
2021-08-19 18:21:18
Unknown
09745417470
00:00:00
2021-08-12 16:50:48
Ashmita 2
9916207967
00:00:00
2021-08-12 16:25:02
View details



Use the toggle button to change the device status of the agent.



Use the Refresh button in case of an error.



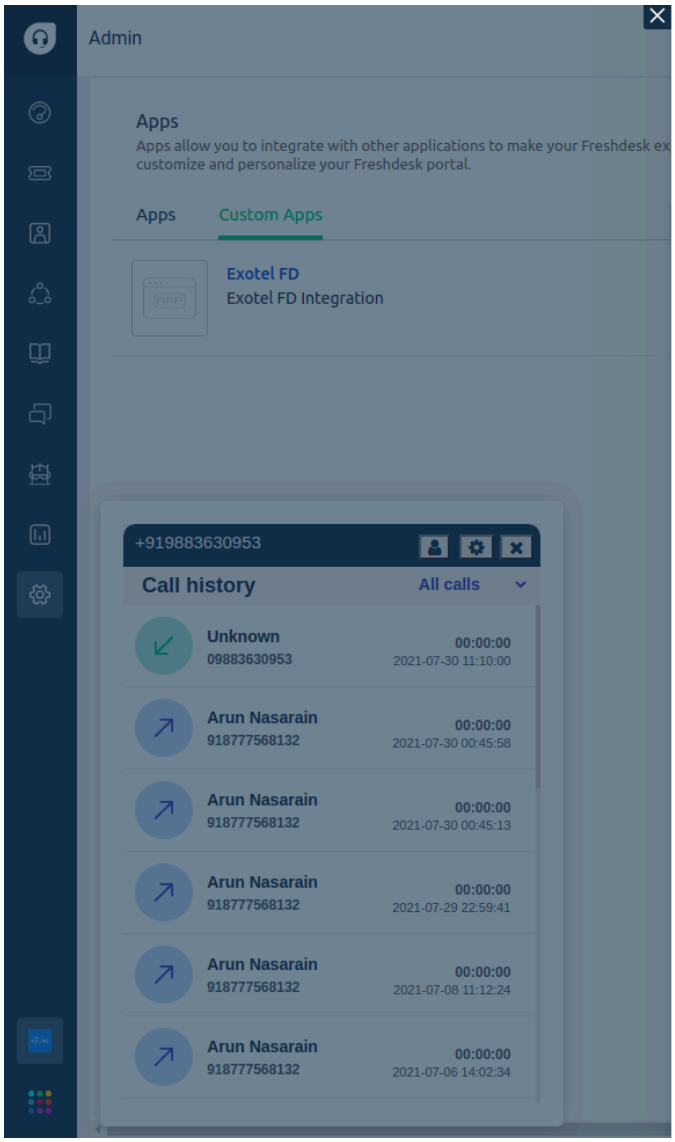
Agent/Device state Management

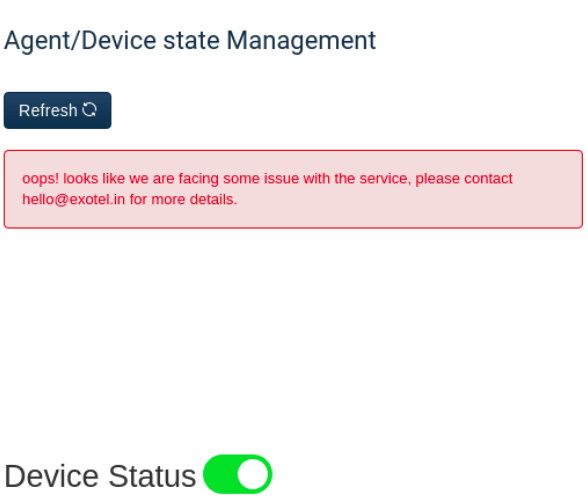
Refresh

There seems to be an issue at Exotel's end, please refresh and try again.

Device Status

If the error repeats, please contact hello@exotel.in





IVR/Gather digits in ticket details

Objective:

To provide Freshdesk CTI users, who specifically use IVR and/or Gather applet in their Exotel call flows, with the IVR/Gather digits along with their respective representation as a part of call ticket details in the CRM.

Sub - Features:

- Automated ticket creation in FD for all incoming call flows which have IVR and/or Gather applet.
- IVR Digit inputs for incoming calls get automatically updated in a new FD ticket.
- Gather Digit inputs for incoming calls.
- Representation of each IVR digit in the order of occurrence.

How to:

1. Edit the Exotel call flow in the Exotel app bazaar.
2. In the IVR applet, for each IVR keypress add a pass-thru applet
3. In the pass-thru applet URL, enter the following URL:

URL: https://<exotel_APIKey>:<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=ivr

Middleware_subdomain: freshdesk.mum1.exotel.in

E.g: https://<exotel_APIKey>:<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=ivr

If you want the respective representation of each IVR digit to also be added in the ticket details then:

URL: https://<exotel_APIKey>:<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=ivr&ivr_tag_<number>=<representation_of_keypress>

Middleware_subdomain: freshdesk.mum1.exotel.in

E.g: https://<exotel_APIKey>:<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=ivr&ivr_tag_1=lang_english

1.

To notify the end of the flow, add another pass-thru applet in the “In response” section of the last pass thru of the last IVR keypress or Gather applet and add the following URL. This is a mandatory step for passing the inputs to the FD ticket.

URL: https://<exotel_APIKey>:<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=end

Middleware_subdomain: freshdesk.mum1.exotel.in

E.g: https://<exotel_APIKey>:<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=end

1.

For the Gather applet, add a pass-thru applet, in the “When the caller entered one or more input digits... “ section and enter the below URL:

URL: https://<exotel_APIKey>:<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=gather

Middleware_subdomain: freshdesk.mum1.exotel.in

E.g: https://<exotel_APIKey>:<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=gather

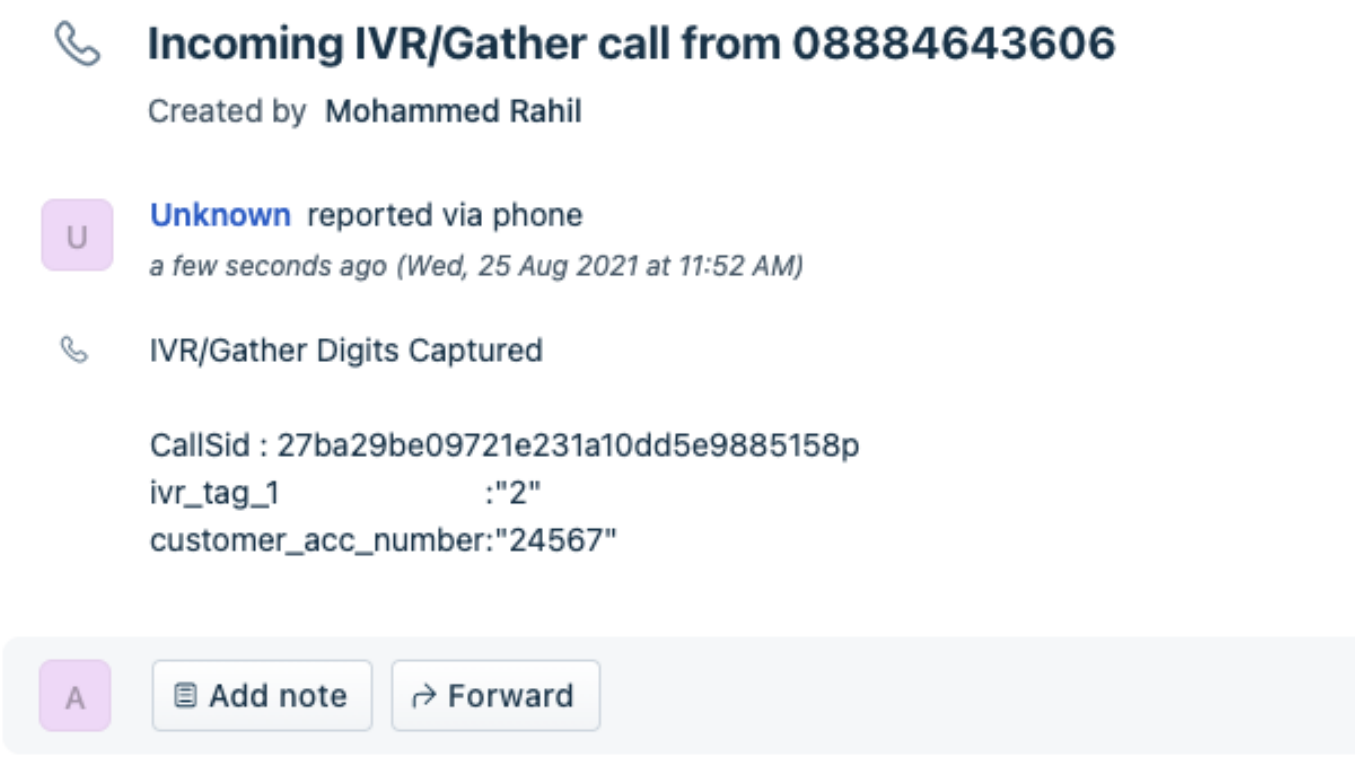
If you want the respective representation of the gather digits to also be added in the ticket details then:

URL: https://<exotel_APIKey>:<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=gather&gather_tag_<number>=<representation_of_gather_input>

Middleware_subdomain: freshdesk.mum1.exotel.in

E.g: https://<exotel_APIKey>:<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=ivr&gather_tag_1=customer_account_number

Screenshots of tickets with IVR and Gather inputs:



Incoming IVR/Gather call from 09883630953

Created by **Mohammed Rahil**

U **Unknown** reported via phone

2 days ago (Mon, 23 Aug 2021 at 9:03 PM)

IVR/Gather Digits Captured

CallSid : 8dad8e2cd53bf4827532ec74a94c158n
lang_english :"3"
registered_customer_yes:"458"

A Add note Forward

Incoming IVR/Gather call from 09883630953

Created by **Mohammed Rahil**

U **Unknown** reported via phone

2 days ago (Mon, 23 Aug 2021 at 8:46 PM)

IVR/Gather Digits Captured

CallSid : 8631d09ec2165b90126d0e51f217158n
ivr_tag_1 :"2"
gather_tag_1:"2587"

A Add note Forward

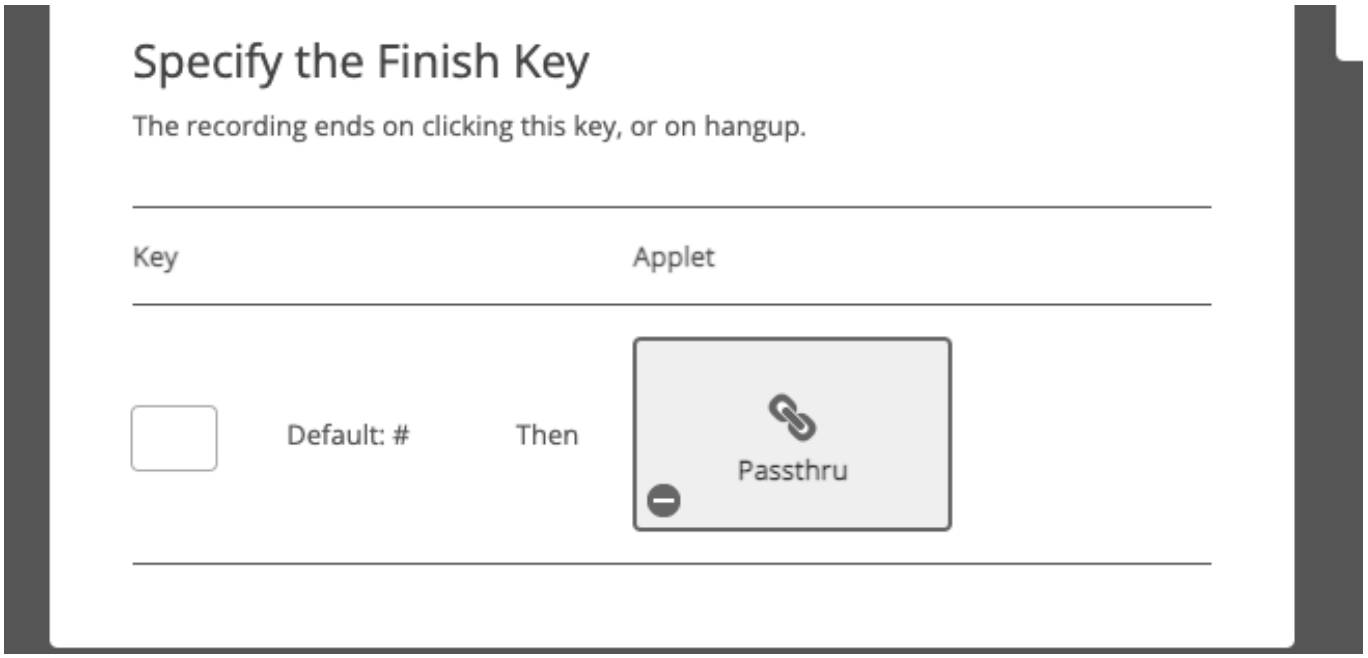
Voicemail recording passed to FD tickets:

Objective:

To provide Freshdesk CTI users, who specifically use the voicemail applet in their Exotel call flows, with the voicemail recording in the call ticket details of Freshdesk.

How to:

1. Edit the Exotel call flow in the Exotel app bazaar.
2. In the voicemail applet, add a passthru applet at the end



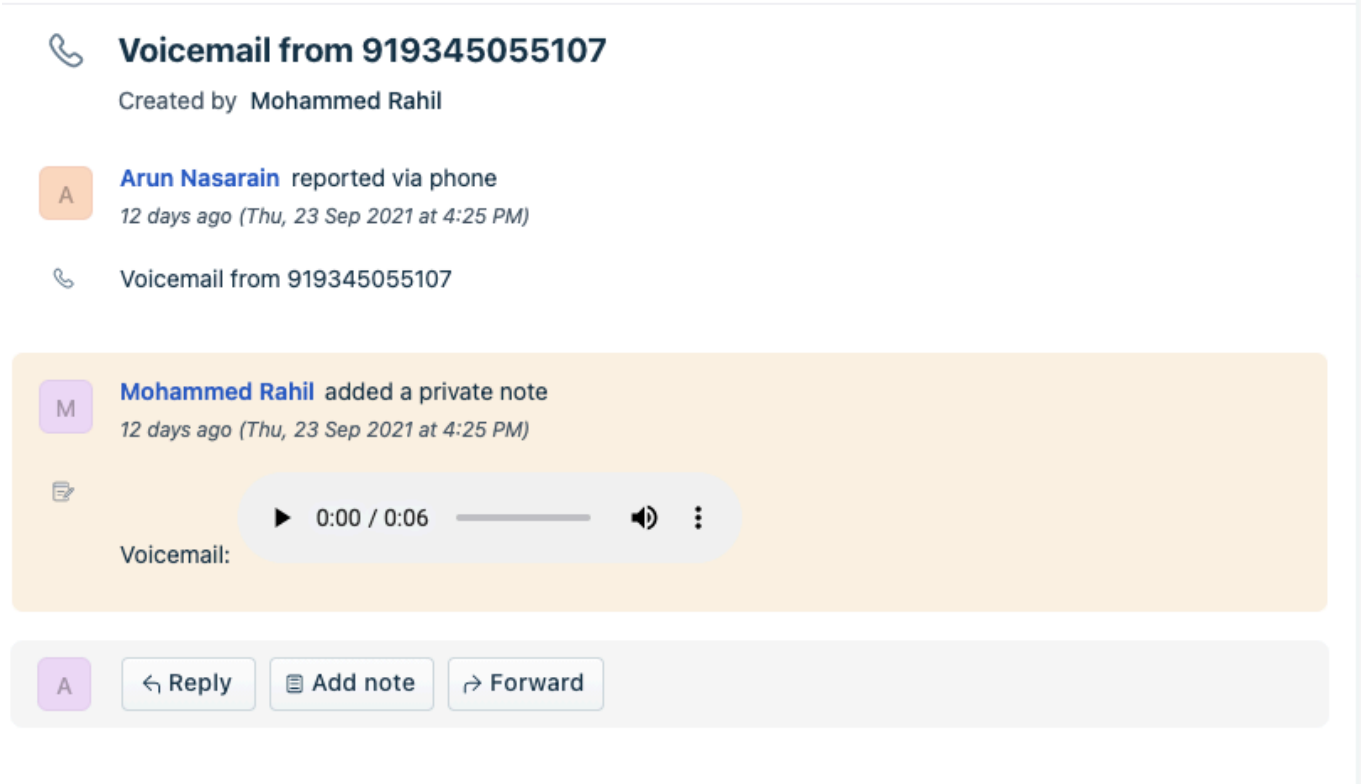
1. In the passthru applet URL, enter the following URL:

URL: https://<exotel_APIKey>:<exotel_APIToken>@<middleware_subdomain>/v2/accounts/<accountSid>/call-events?event=voicemail

Middleware_subdomain: freshdesk.mum1.exotel.in

E.g: https://<exotel_APIKey>:<exotel_APIToken>@freshdesk.mum1.exotel.in/v2/accounts/exotel535/call-events?event=voicemail

Screenshots of tickets with voicemail recording:



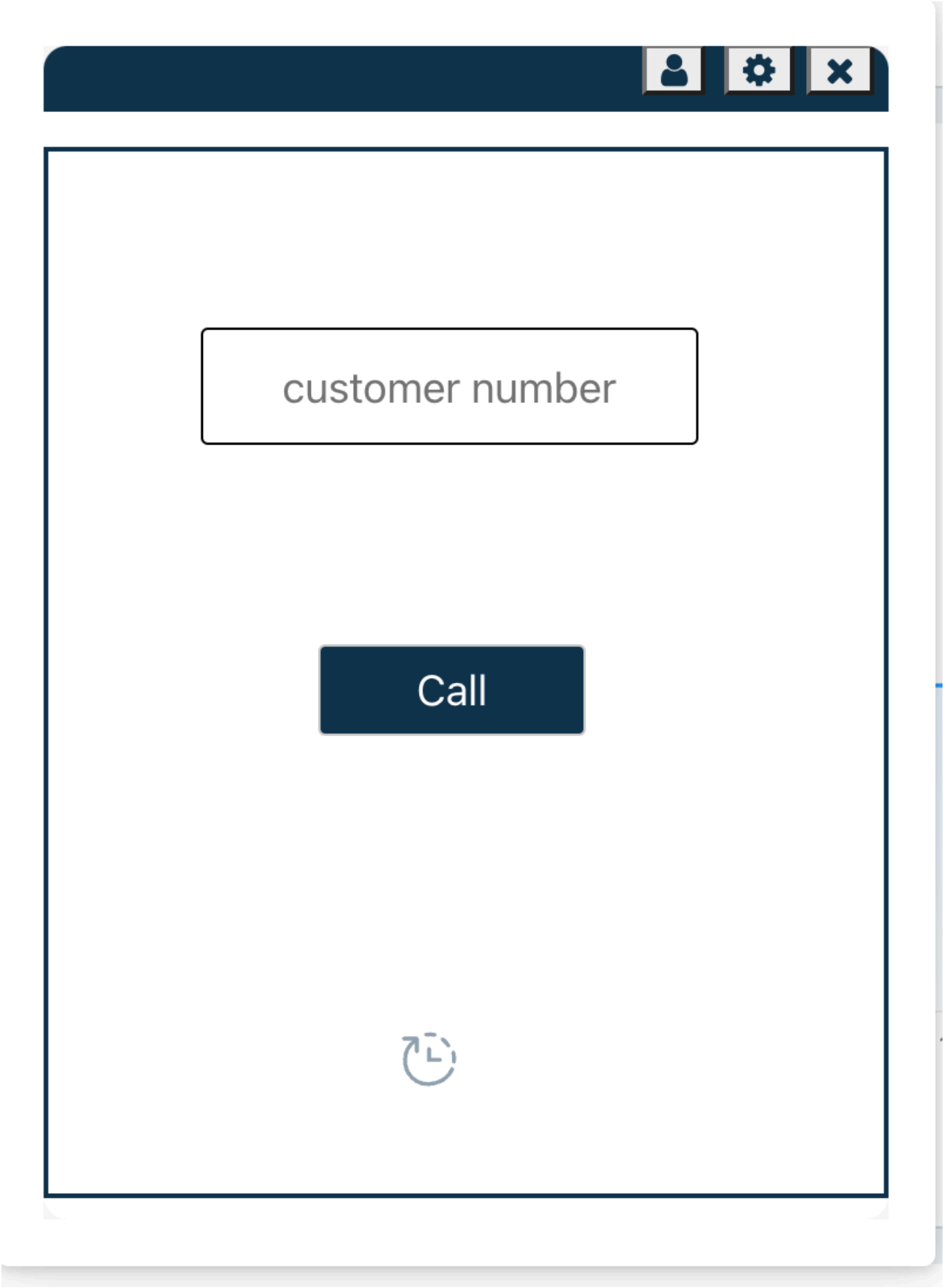
Call a new number

Objective:

To provide users with the capability to make a call to a new number from Freshdesk without having to add a contact.

How to:

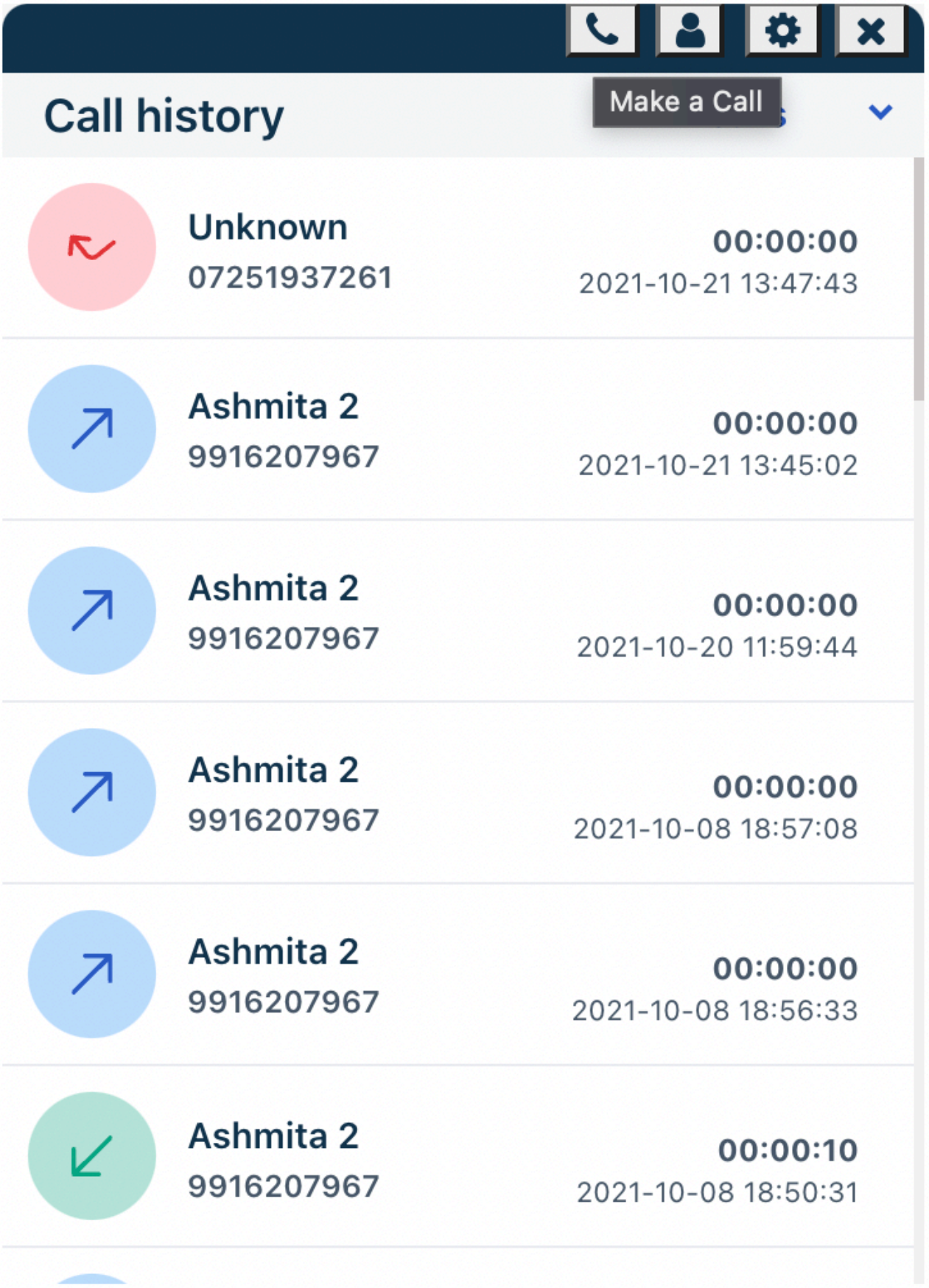
- Open the Exotel app in Freshdesk, the window that opens by default is where you can type in the number and click on call.


customer number
Call

-

button to go to the call history page

Click on the button to go back to the default calling page

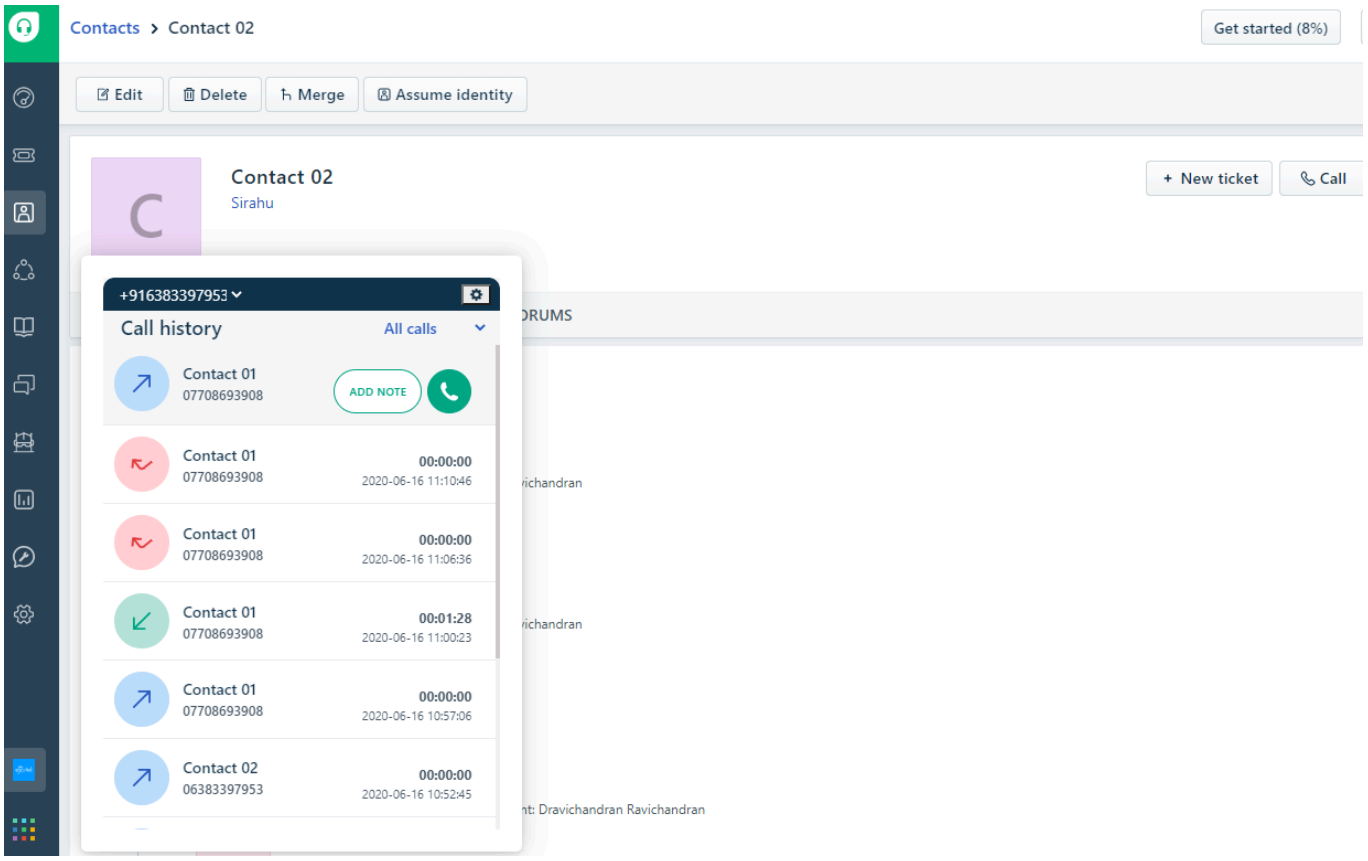

Make a Call
Call history
Unknown
07251937261
00:00:00
2021-10-21 13:47:43
Ashmita 2
9916207967
00:00:00
2021-10-21 13:45:02
Ashmita 2
9916207967
00:00:00
2021-10-20 11:59:44
Ashmita 2
9916207967
00:00:00
2021-10-08 18:57:08
Ashmita 2
9916207967
00:00:00
2021-10-08 18:56:33
Ashmita 2
9916207967
00:00:10
2021-10-08 18:50:31

Known Limitations:

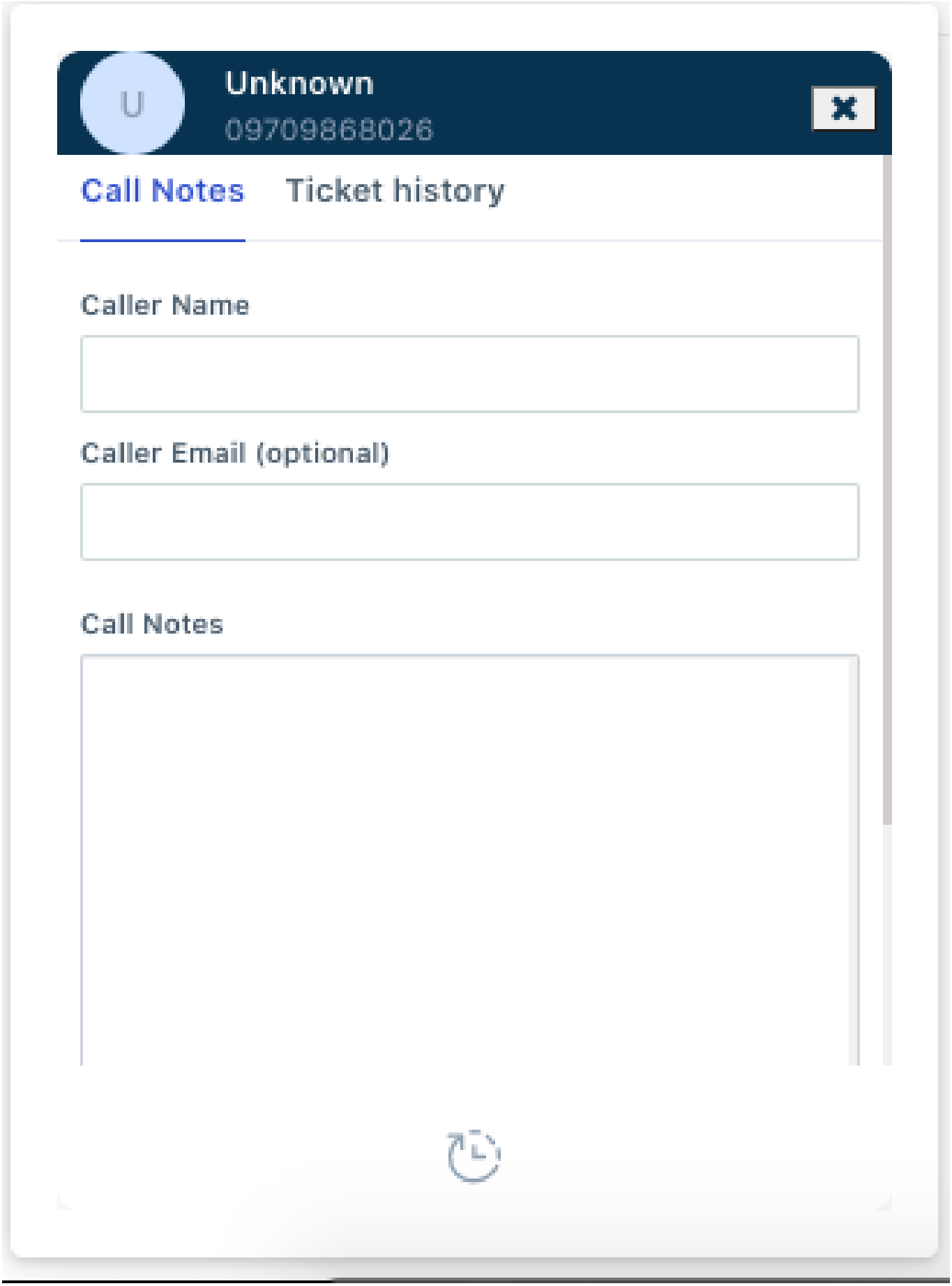
- **On-Call Events**: For both Incoming Call and Outbound Call pop-ups, the call events (like CallAnswered, Ringing, etc.) will not be triggered. Hence, once the call is over, click on 'Answered' and do the subsequent action.
- **Call Recording Upload**: The call recordings will be uploaded under ticket details within an interval of **5 minutes**. The agent needs to refresh the Freshdesk ticket screen after 5 minutes of calls completed, in order to see the respective call recordings.

Freshdesk App - UI screens

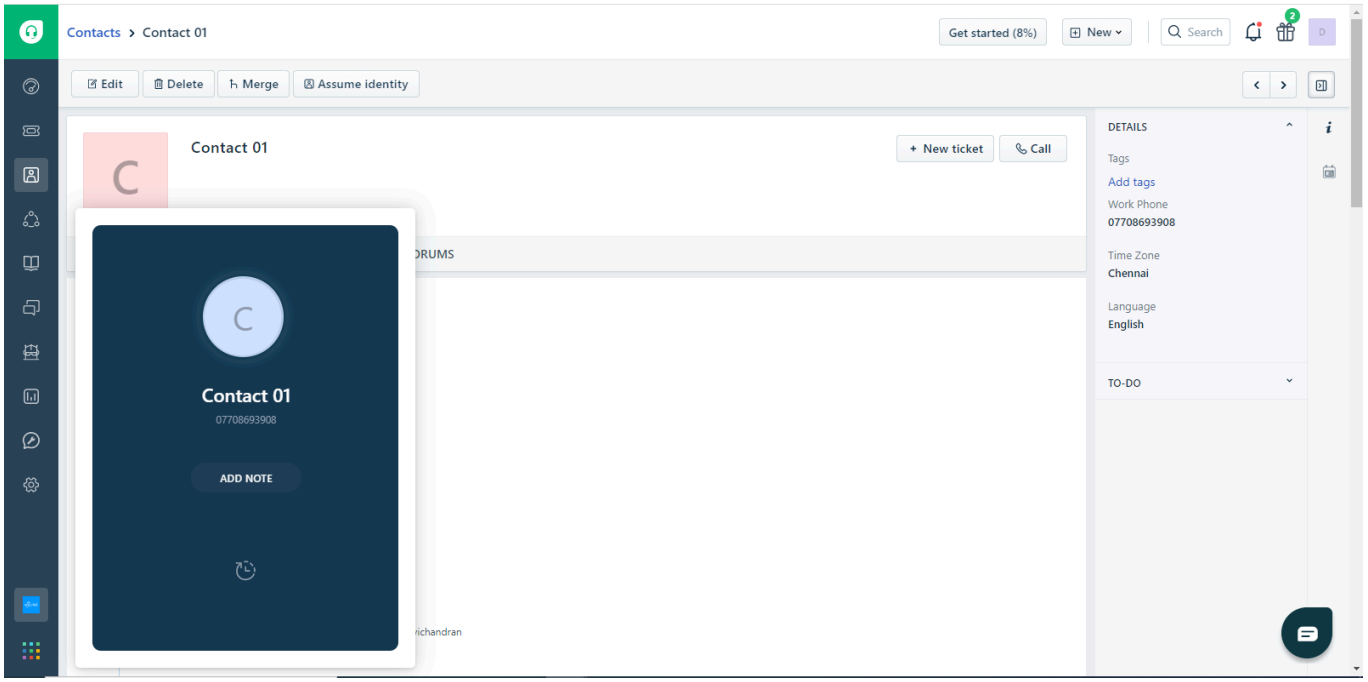
Call History Screen



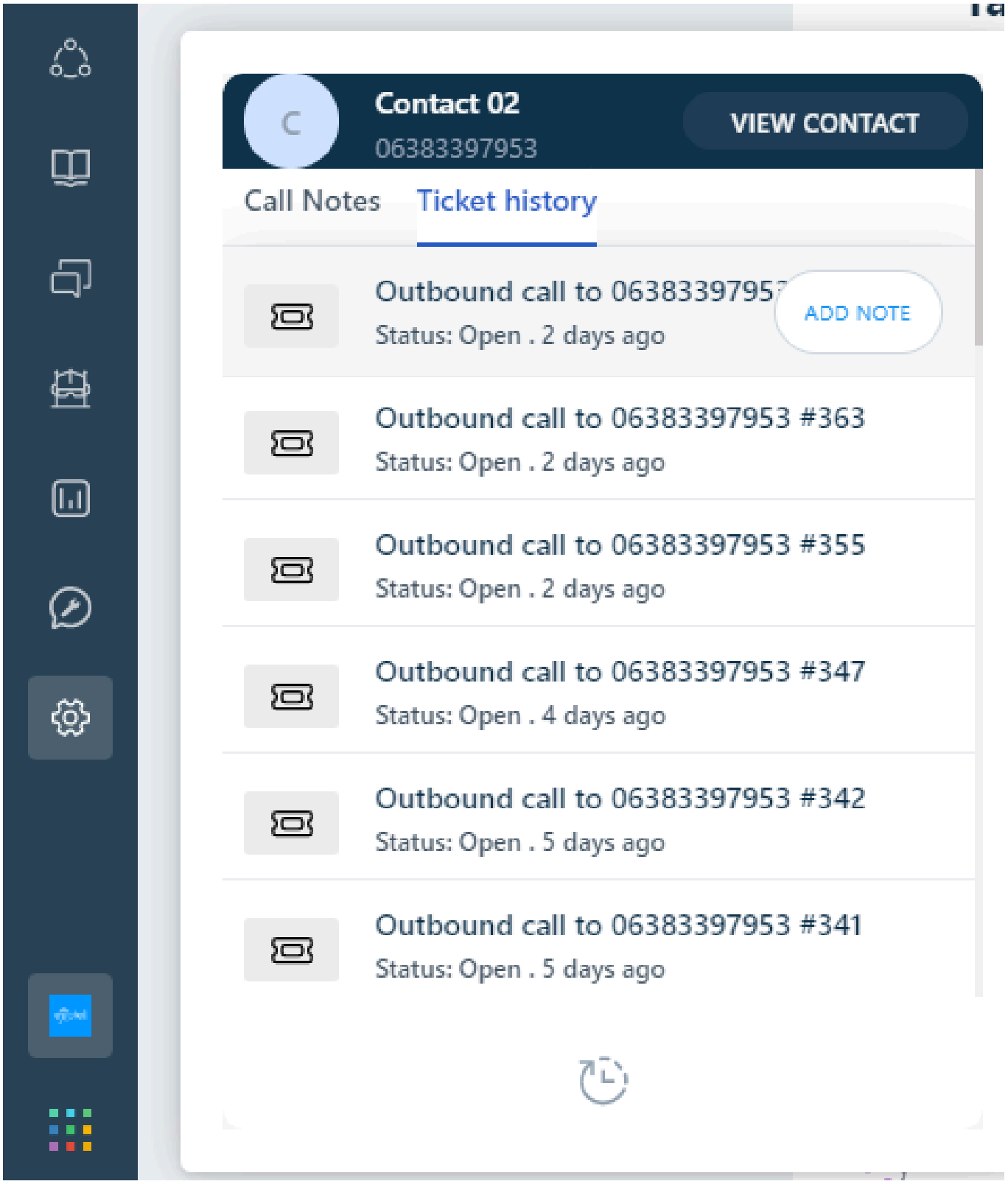
Call Notes Screen



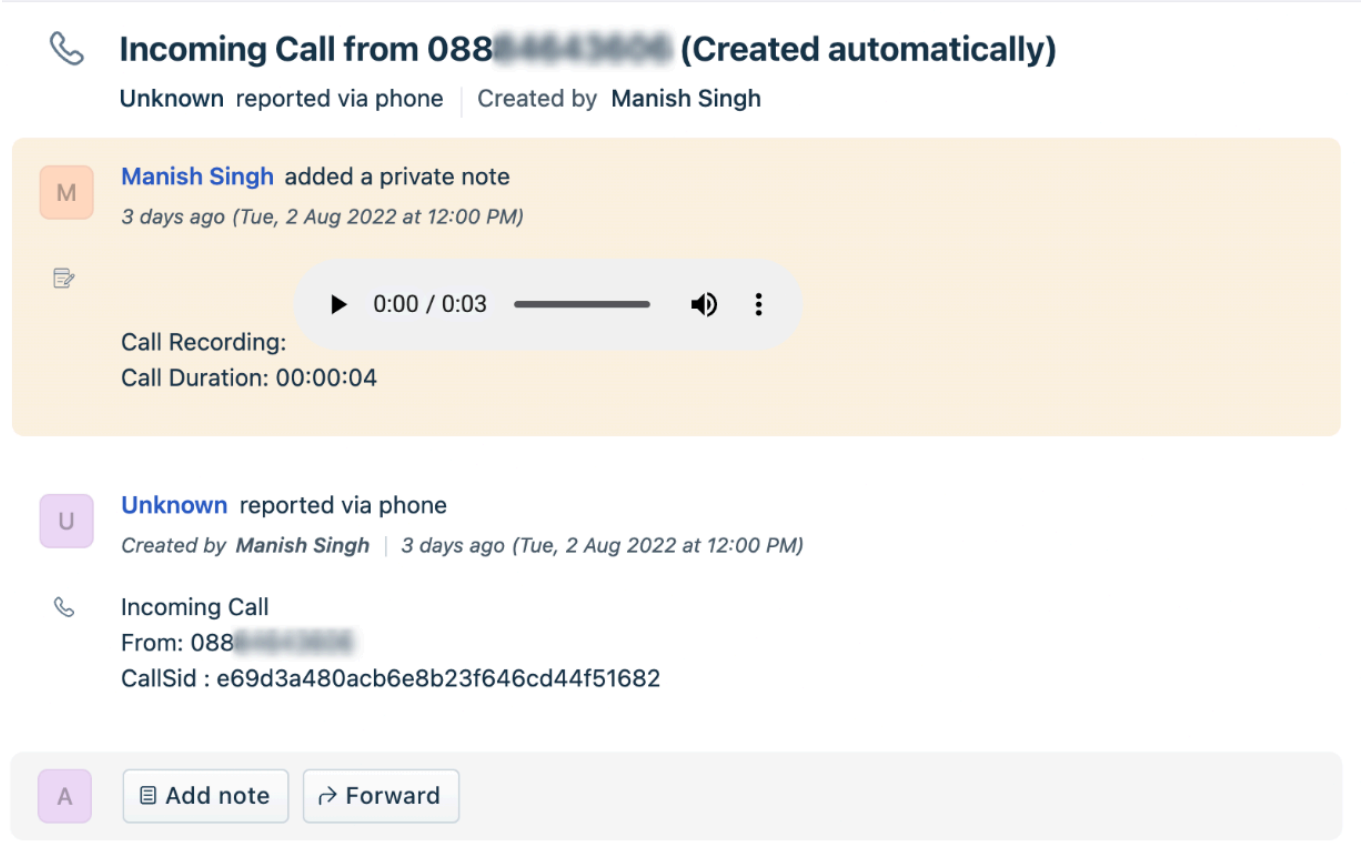
Incoming Call Notification screen



Ticket History screen to Add notes to existing Ticket



Automatic ticket created for incoming call



Points to remember:

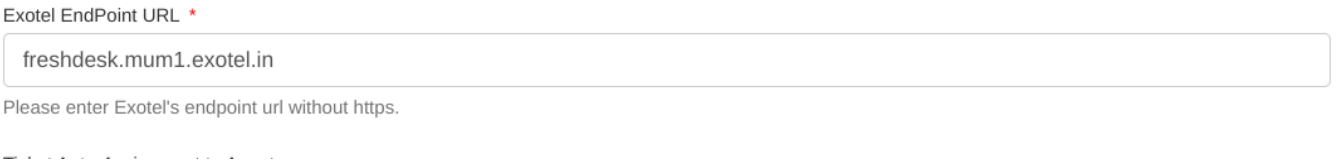
- You cannot integrate multiple Freshdesk accounts with a single Exotel account.
- The integration is currently enabled only for the website application. The integration features are not compatible with the FreshDesk mobile application.
- All the users should be added to both Exotel and Freshdesk with the same email ID and phone number for the integration to work.

4.2.2. Freshdesk Secure Recording Enablement

Prerequisites

1. Update the Exotel CTI App
   Go to the Freshdesk App Marketplace and update the Exotel CTI application to the latest version.
2. Adjust Configuration Settings(This is a must change to even use basic functionality after updating the Exotel CTI, as we're upgrading the platform version)
   Exotel CTI → Edit Settings
   - In the configuration screen of the Exotel CTI app, ensure the following:

Freshdesk Domain: Remove the https:// prefix.
Example: example.freshdesk.com



Exotel Endpoint URL: Remove the https:// prefix.
Example: freshdesk.mum1.exotel.in

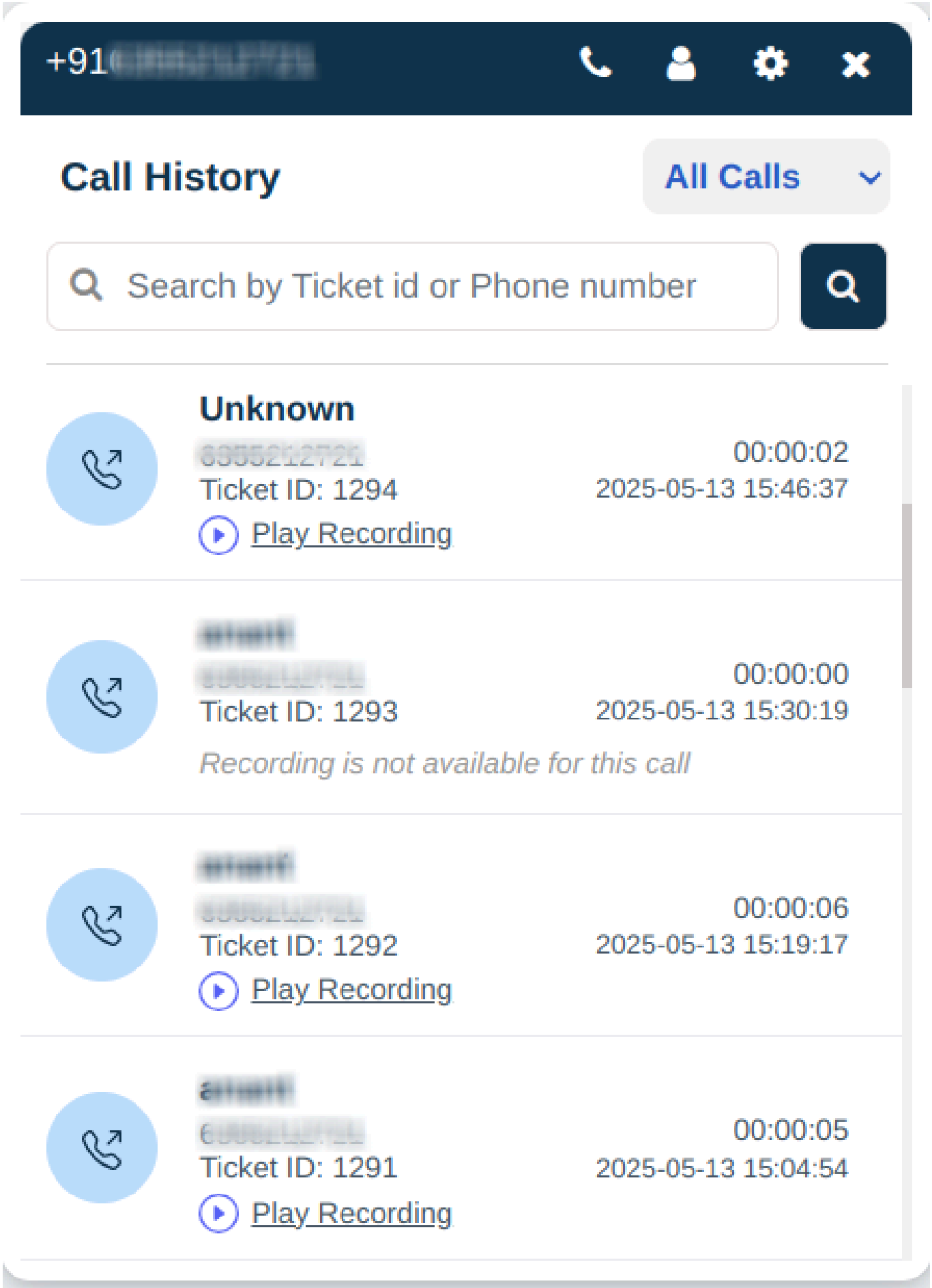
Accessing and Playing Call Recordings

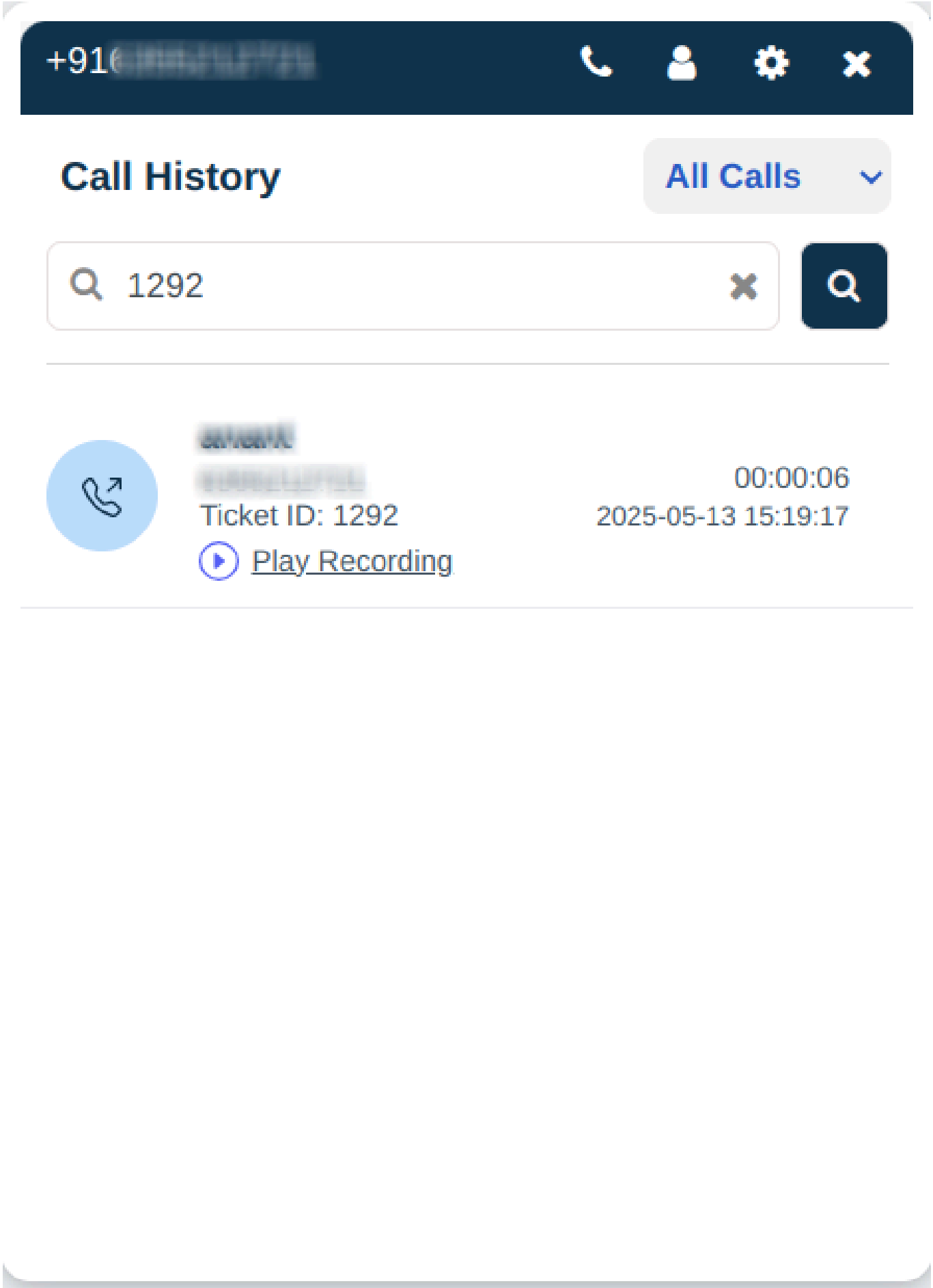
Once the app is updated and configured:

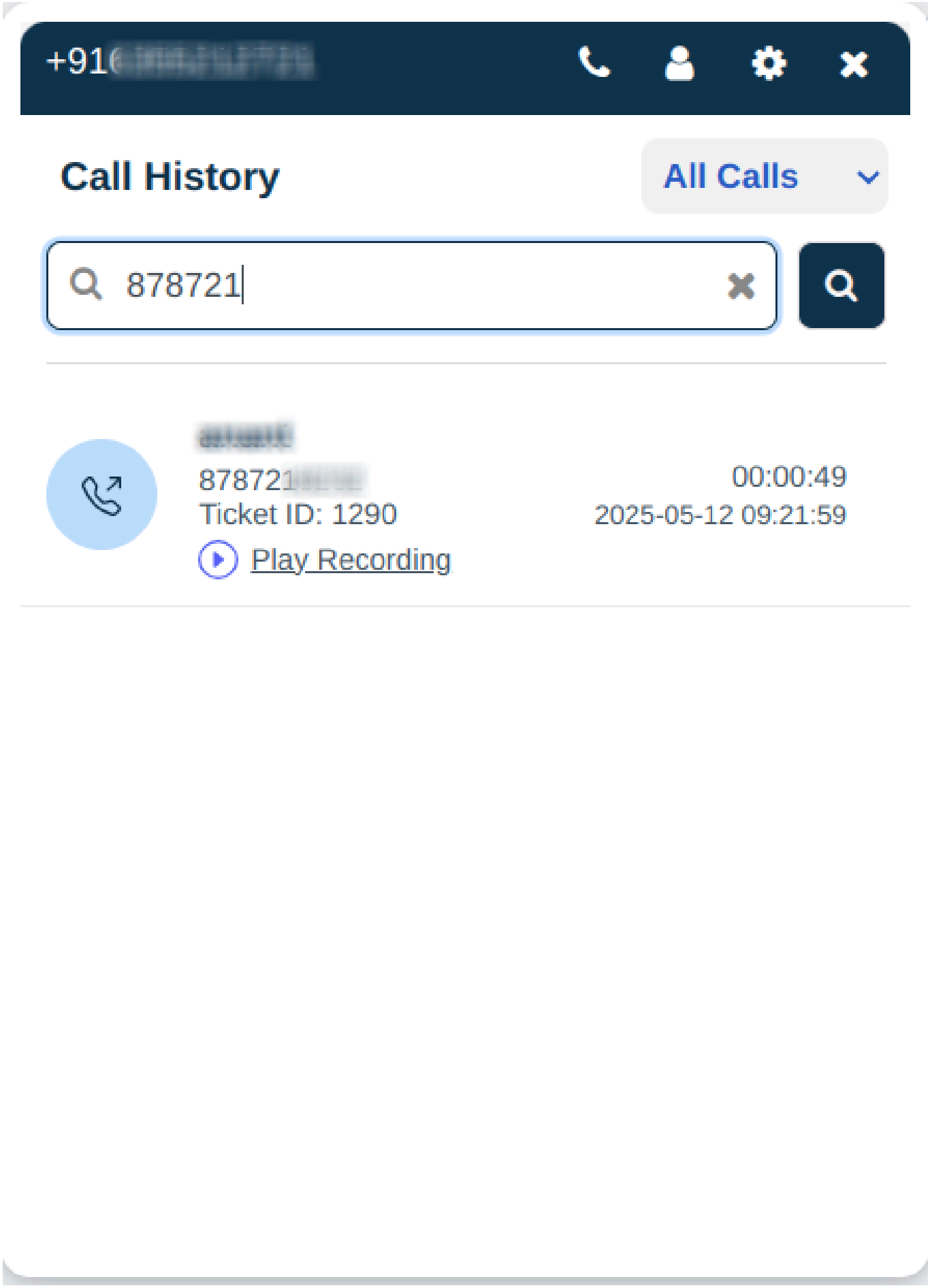
1. Navigate to the Exotel CTI widget inside Freshdesk.
2. Click on the History tab.

4. Click the Play button next to the desired entry to listen to the recording securely.

Use the Ticket ID or Phone Number to search for a specific call.




+91
Call History
All Calls
1292
Ticket ID: 1292
00:00:06
2025-05-13 15:19:17
Play Recording


+91
Call History
All Calls
878721
878721
Ticket ID: 1290
00:00:49
2025-05-12 09:21:59
Play Recording

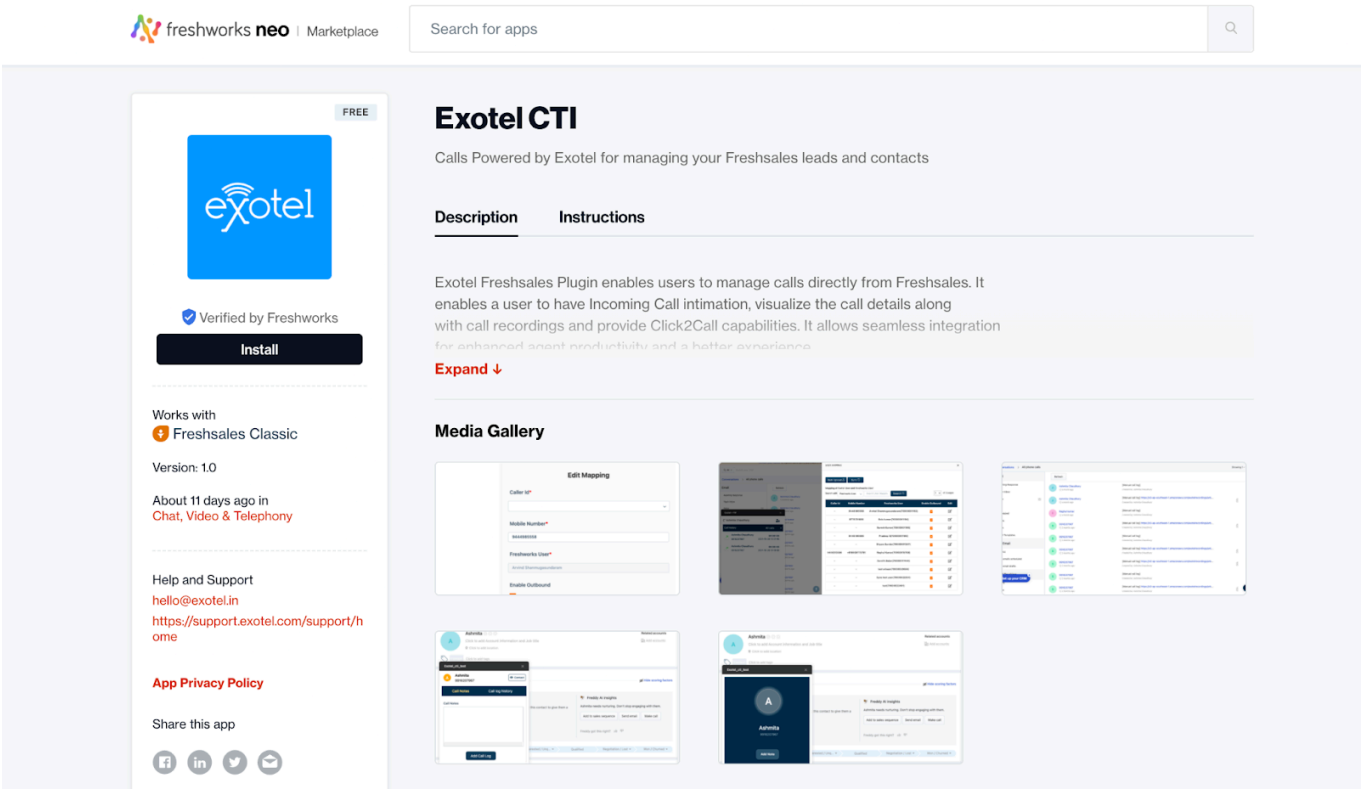
4.2.3. Freshchat Integration

Overview

Exotel Freshworks Integration enables the contextual association of calls with deals/leads. It enables the user to have Incoming Call intimation, Create a conversation and a call fragment with call type (incoming call/outgoing call), and provide Click2Call capabilities. Seamless integration for enhanced sales productivity and a better experience.

Key Benefits:

1. **Call Intimations** - Get the notification on your Exotel CTI, whenever an incoming call comes on to your customer-facing Exotel Number or an outbound call is initiated from Freshworks or Exotel CTI
2. **Conversation Creation** - Create a conversation and a call fragment with call type (incoming call/outgoing call). Phone conversations will be available in Chat & Contact Modules for all types of calls (Incoming, Outgoing, Missed Calls)
3. **Click2Call** - Initiate a call between you and your customer, directly from the Exotel CTI or Freshworks
4. **Call Details** - Update the message fragment with call duration and recording link, if applicable.
5. **User Mapping** - Map Exotel Agents to Freshworks Users and enable Click-2-Call. You can upload Bulk User Mapping with our new feature and search for a user with Mobile Number or Freshworks User Name.
6. **Activity timeline and Recent conversations -** Call logs will be available in recent conversations and activity timeline on the contacts page.
7. Work on just one interface and improve your agent productivity by **eliminating context-switching**.



Important -

In order to have a successful integration with the Freshworks account, please keep the following in mind:

1. In Freshworks, the contact number should be saved as 10 digit number without the country code
2. The virtual number of the client's account should start with 0. For example '04440115227'
3. The mobile field should be unique on the contact settings page. Go to admin settings -> search contacts -> expand the mobile property -> enable it to be unique.
4. At a time only one conversation will be maintained for a particular agent and customer.
5. If the existing customer wants to move to this connector, then delete or disable the old app(Exotel CTI for Freshsales) and install new the app.
6. The user mapping page can be accessed if the admins are selected in the Get Users dropdown option on the configuration page.

Configuration

Follow the following prerequisites and steps to configure the integration both at Exotel and Freshworks end.

Prerequisites

In order to have a successful integration with the Freshworks account, you must complete the following tasks:

1. Sign up for an Exotel Account.
2. Verify your account through phone or email.
3. Get your account KYC verified.
4. Purchase ExoPhone to be used by Freshworks users/agents for inbound and outbound calls.
5. From the API section, make a note of Account SID, API Key, and API Token

Setting up of Exotel Integration

In order to set up the integration, follow these five steps:

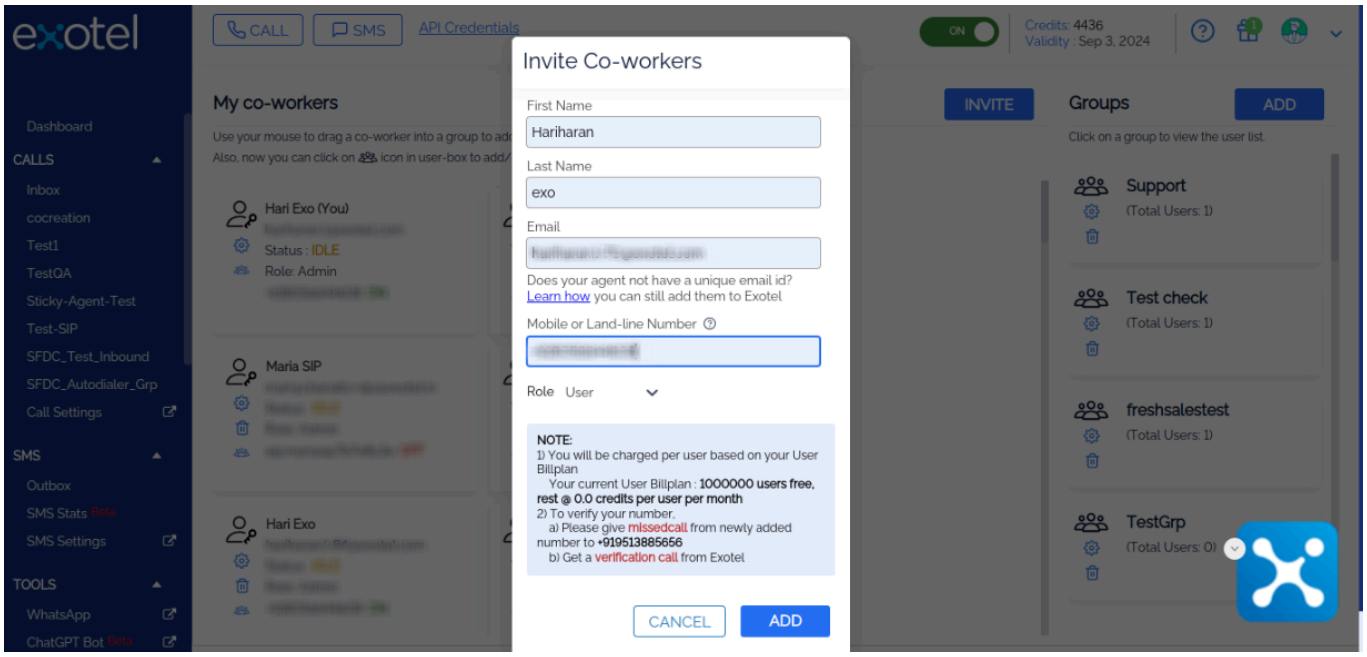
1. Create Co-Workers and Group
2. Configure Freshworks Plugin Call flow
3. Associate the call flow to the ExoPhones
4. Enable Integration
5. Map the Freshworks Users to Exotel Agents in the Integration interface and enable Click-2-Call (if required)

Note: If the agent wants to receive the inbound call, then follow the first three steps. The fourth step is the app installation and configuration. The last step is outbound call mapping.

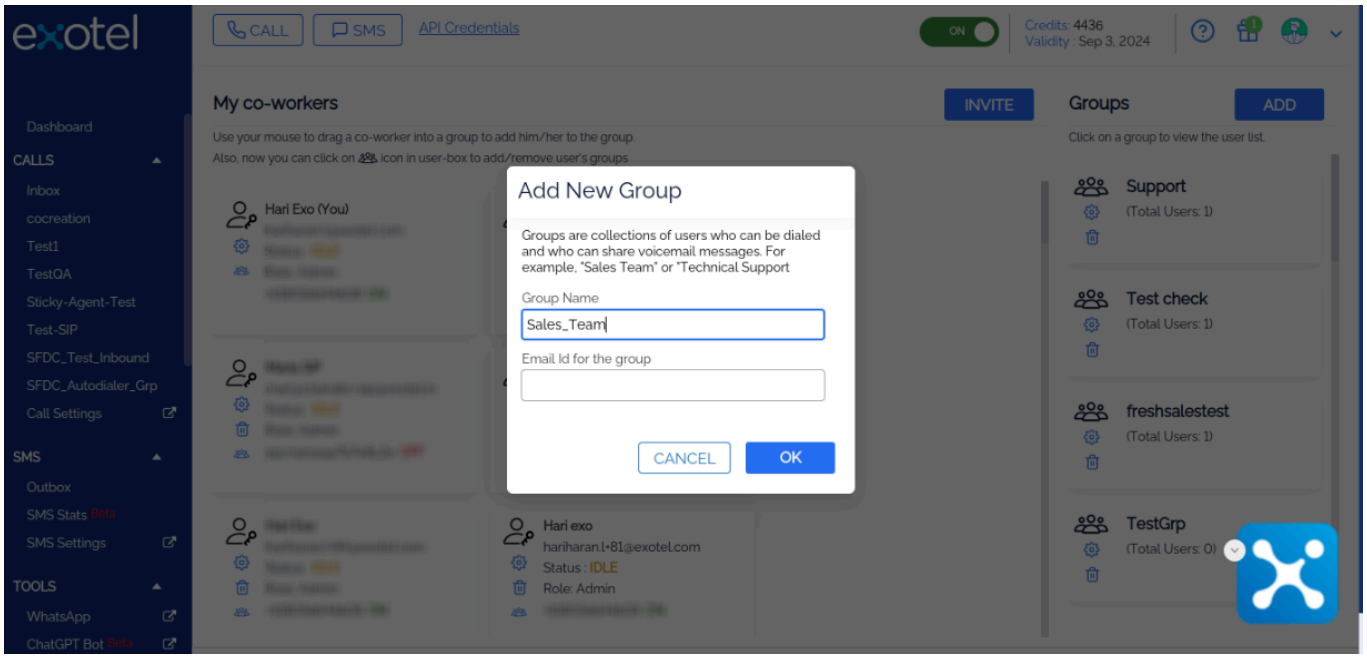
Step 1: Create Co-Workers and Group

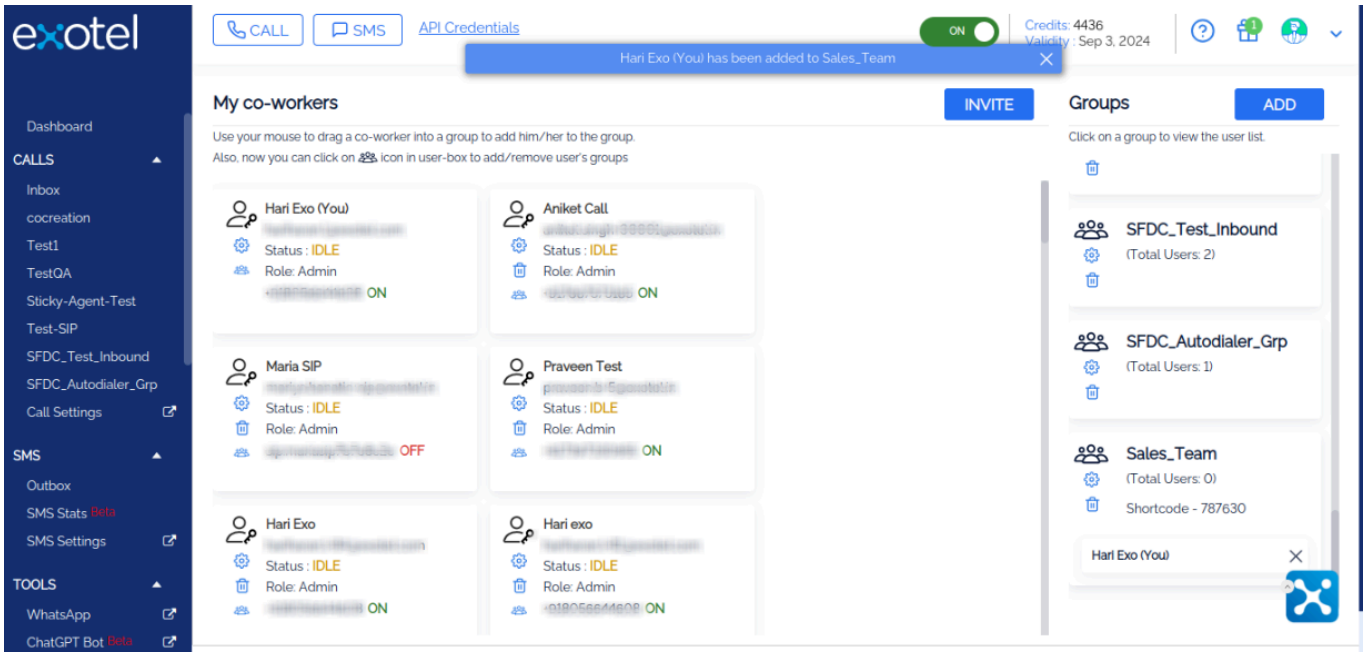
To create co-workers and groups in Exotel:

1. In my.exotel.com, go to the ‘Co-workers and Groups’ section
2. Add all the co-workers(agents) corresponding to Freshworks account, by clicking on Invite co-workers



Create a new group, by clicking ‘Add Group’ and adding all the co-workers in that group

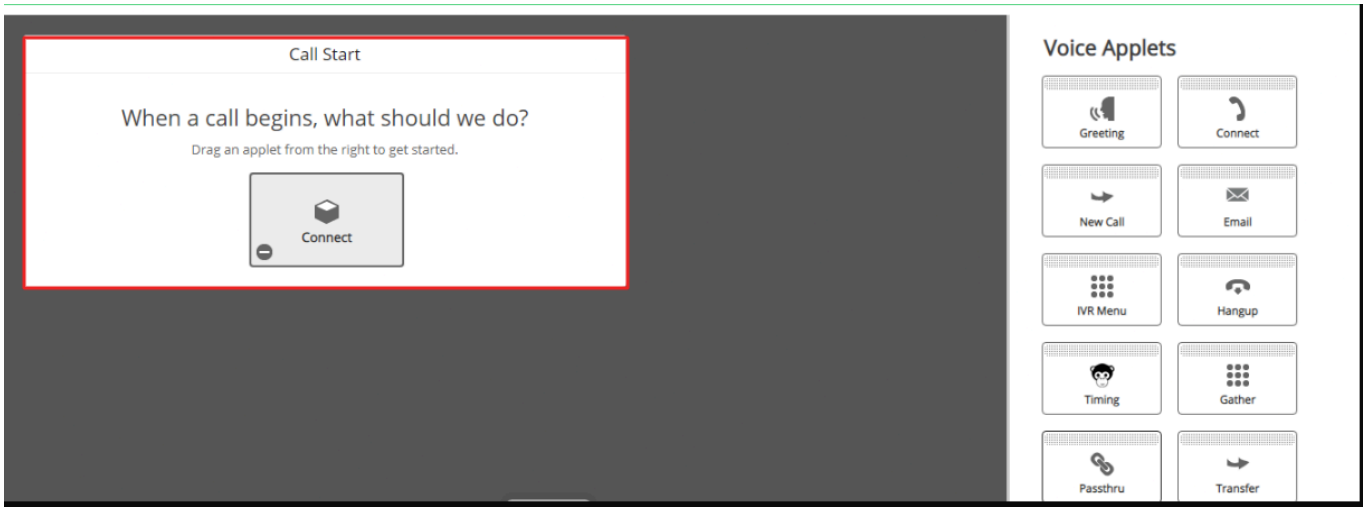




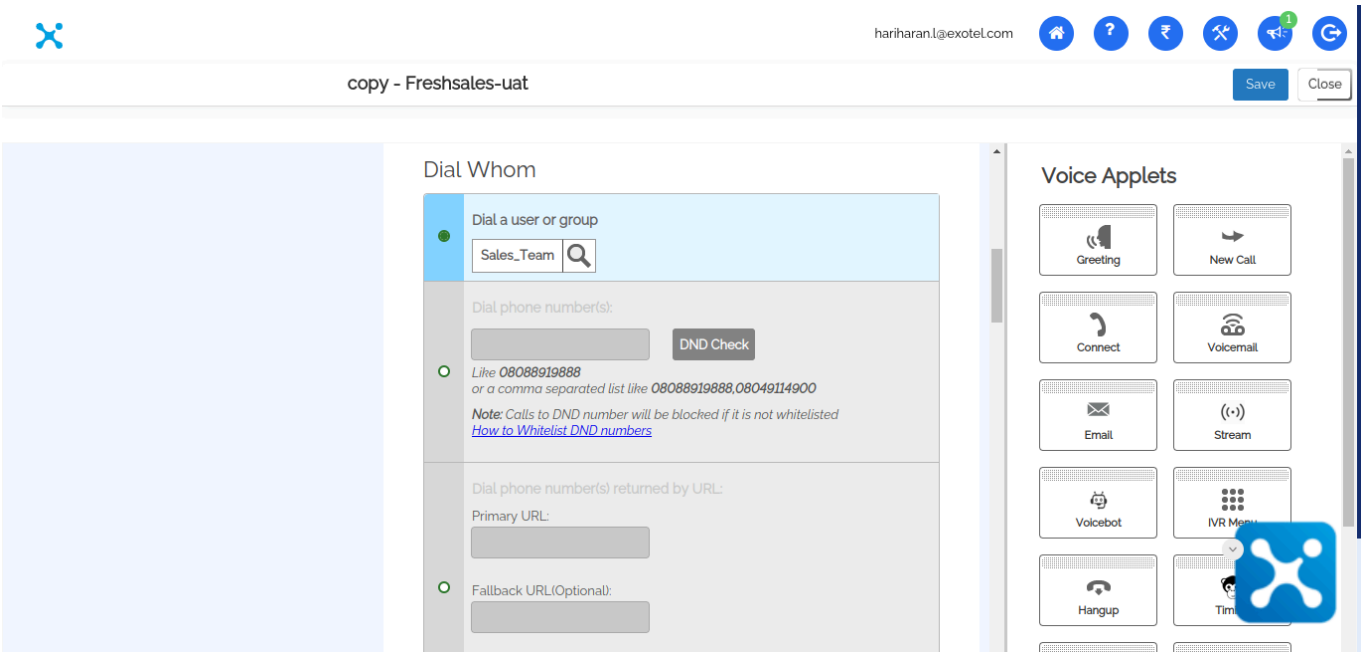
Step 2: Configure Freshworks Plugin Call flow

In order to create the Freshworks Plugin Call flow, follow these five steps:

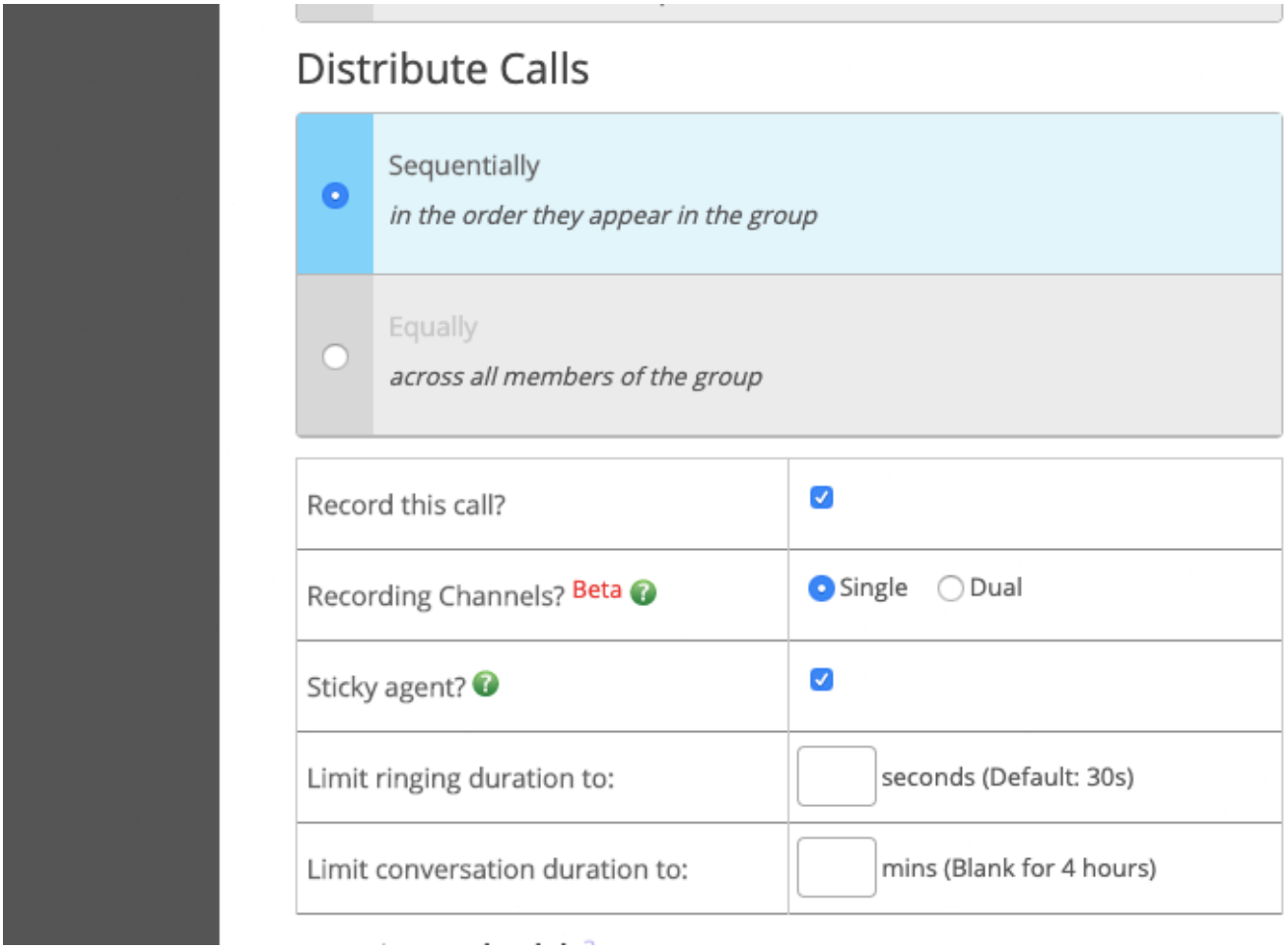
1. Go to the 'App Bazar' section and under 'Custom Apps' click on the 'Create' button
2. Provide the App Name and click on OK.
3. Add a Connect Applet



Select the Group as created earlier, under the 'Dial a user or group' option.



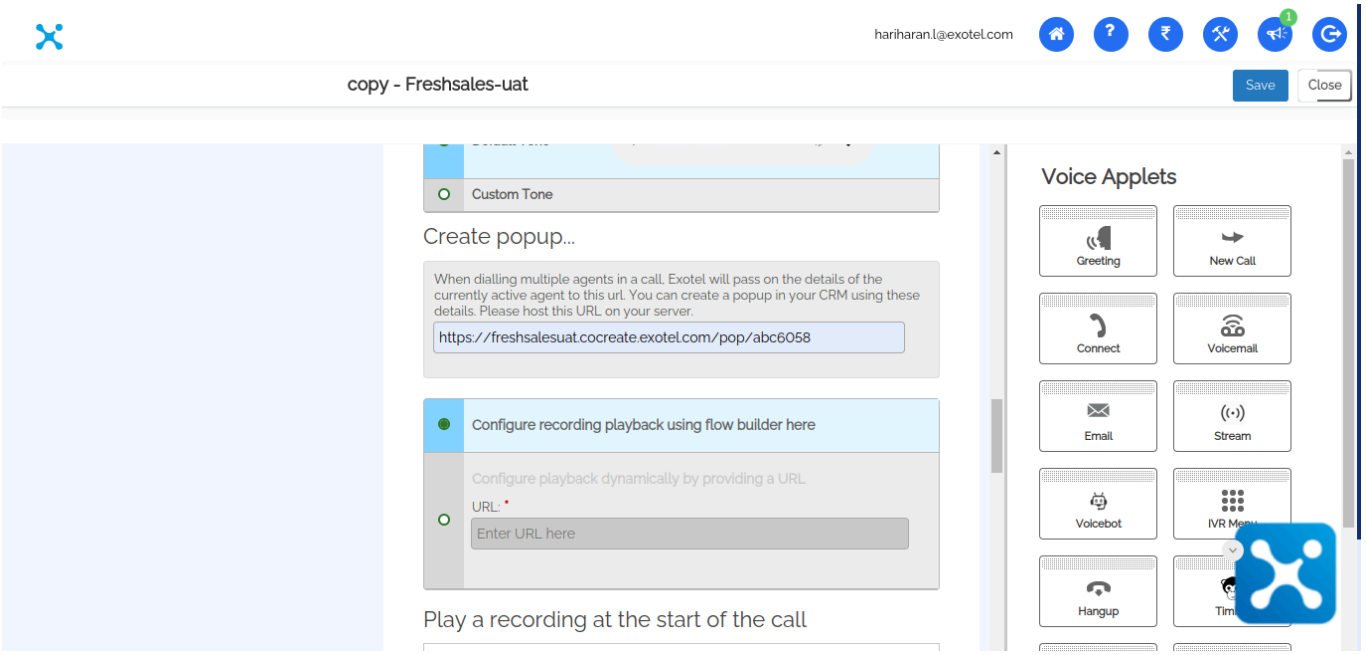
Under the ‘Distribute Calls’ section, select ‘Sequentially’ or 'Equally' and the remaining options as per your requirement.



Under the ‘Create popup...’ section, enter this URL (modify the Exotel account name in it by your Exotel account name:

URL: https://middleware-pub.freshwork.exotel.in/pop/<accountSid>

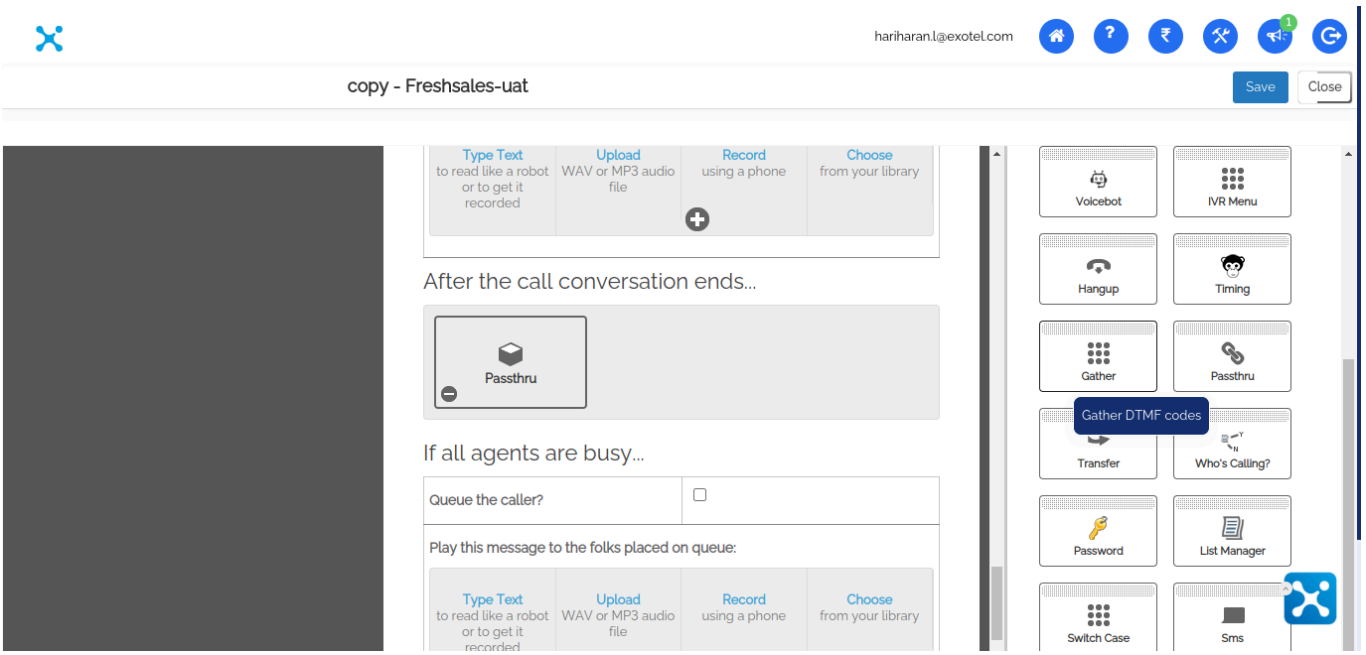
E.g: https://middleware-pub.freshwork.exotel.in/pop/exotel535



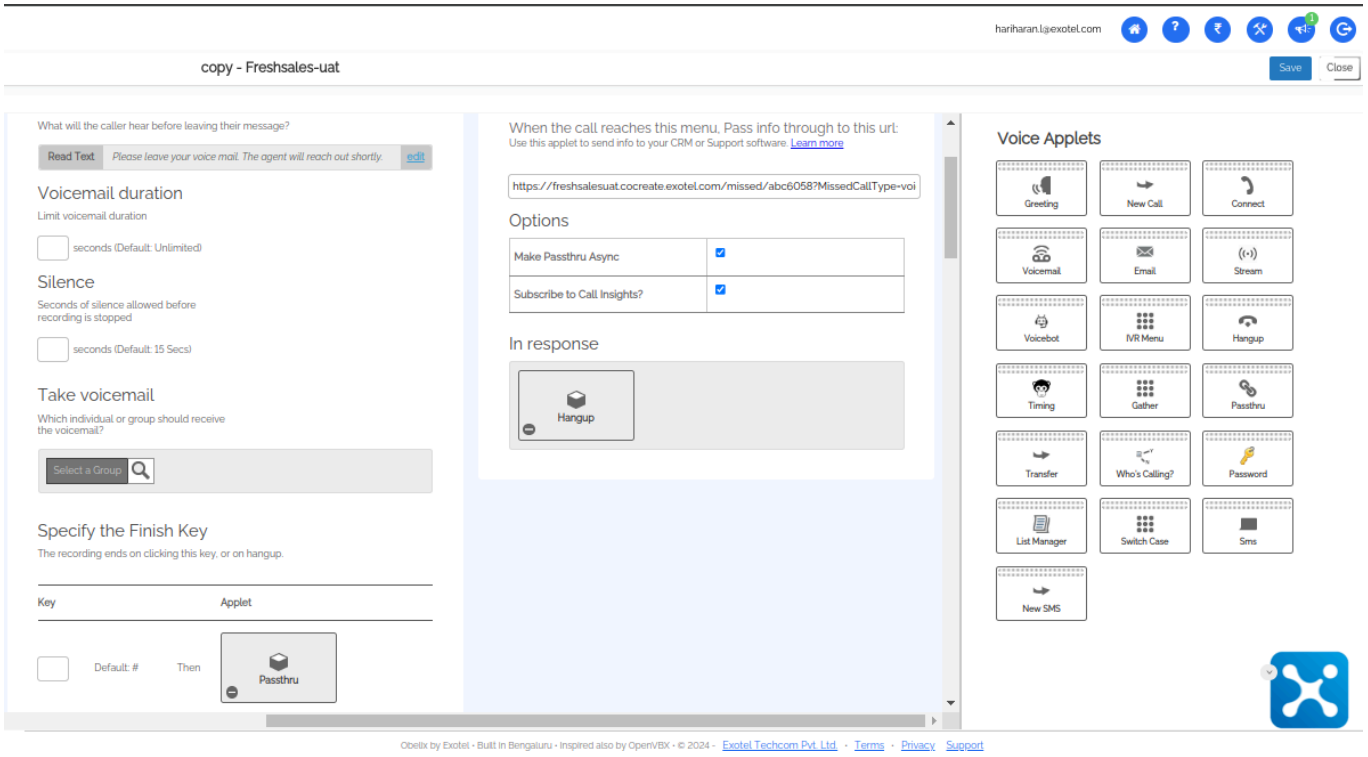
After the Call Conversation ends, add a Passthru. In that passthrough enter this URL (change the accountSid):

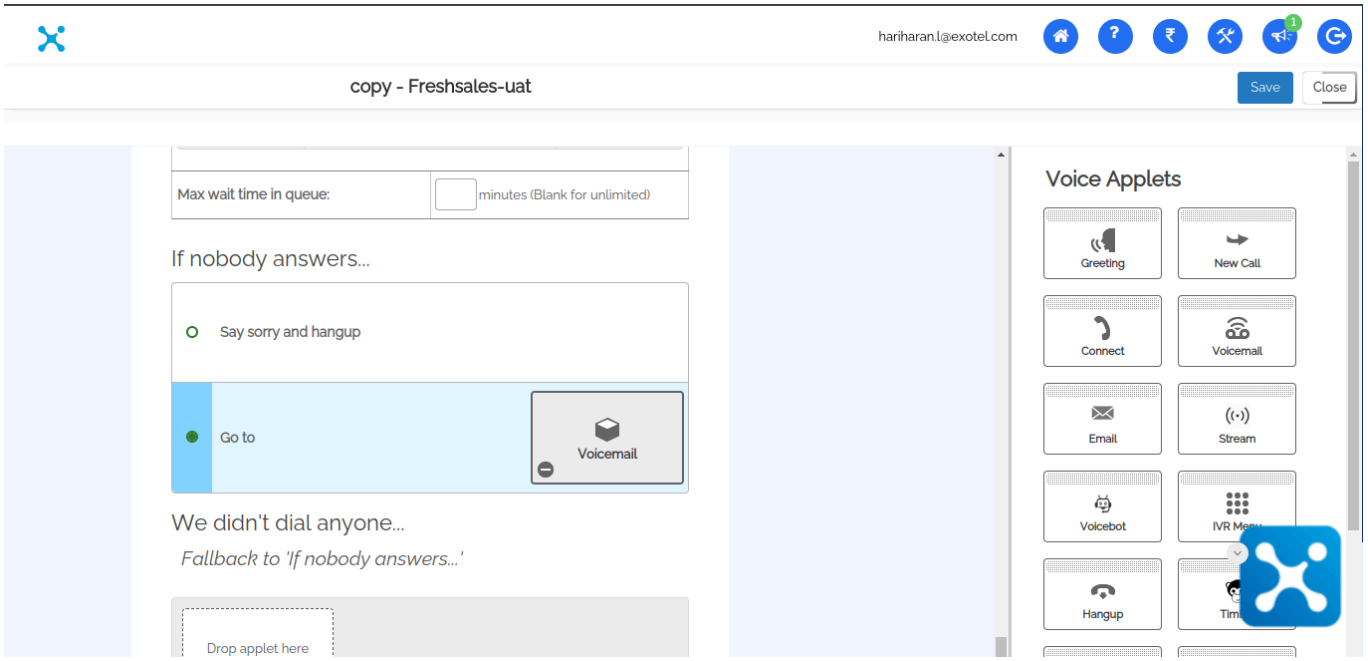
URL: https://middleware-pub.freshwork.exotel.in/answered/<accountSid>

E.g: https://middleware-pub.freshwork.exotel.in/answered/exotel535



1. In the section 'If Nobody Answers..',





If you want to add the voice mail for missed call scenario, then add the voice mail applet, add your message, and add the missed call passthru

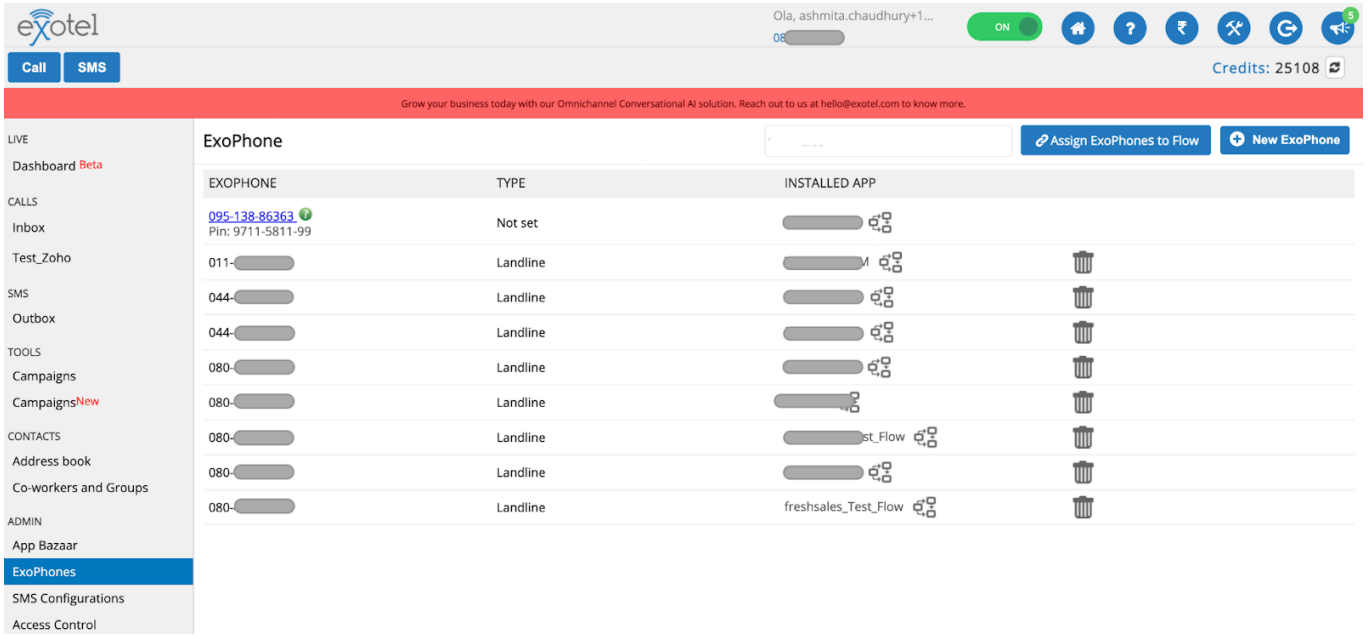
1. If you want to add missed call passthru only, select 'Go To' and add a Passthru. Enter the pass-thru URL (change the accountSid) as

URL: https://middleware-pub.freshwork.exotel.in/missed/<accountSid>

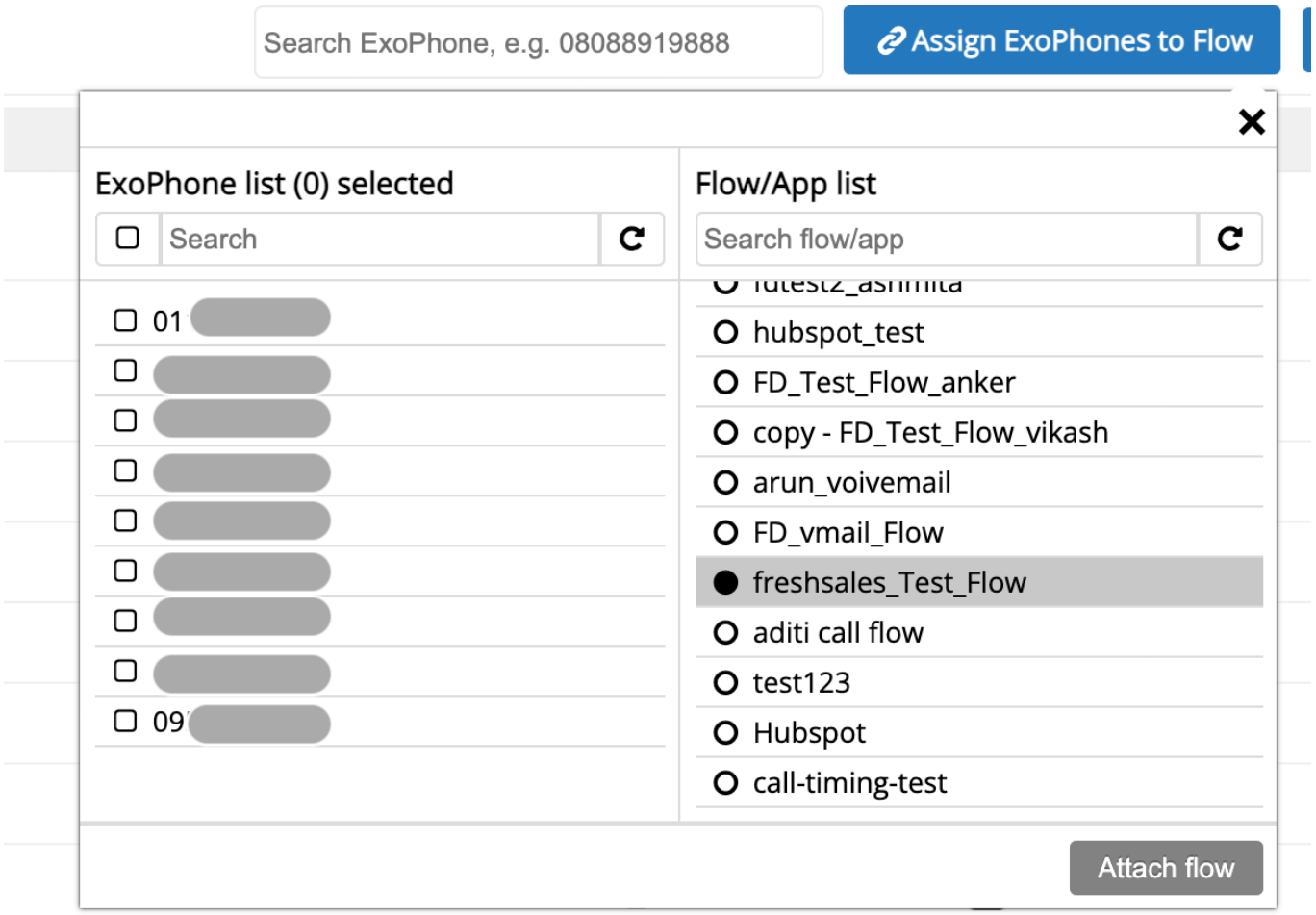
E.g: https://middleware-pub.freshwork.exotel.in/missed/exotel535

1. Save the flow and click on Close.

Step 3: Associate the call flow to the ExoPhones



Go to the ExoPhones section

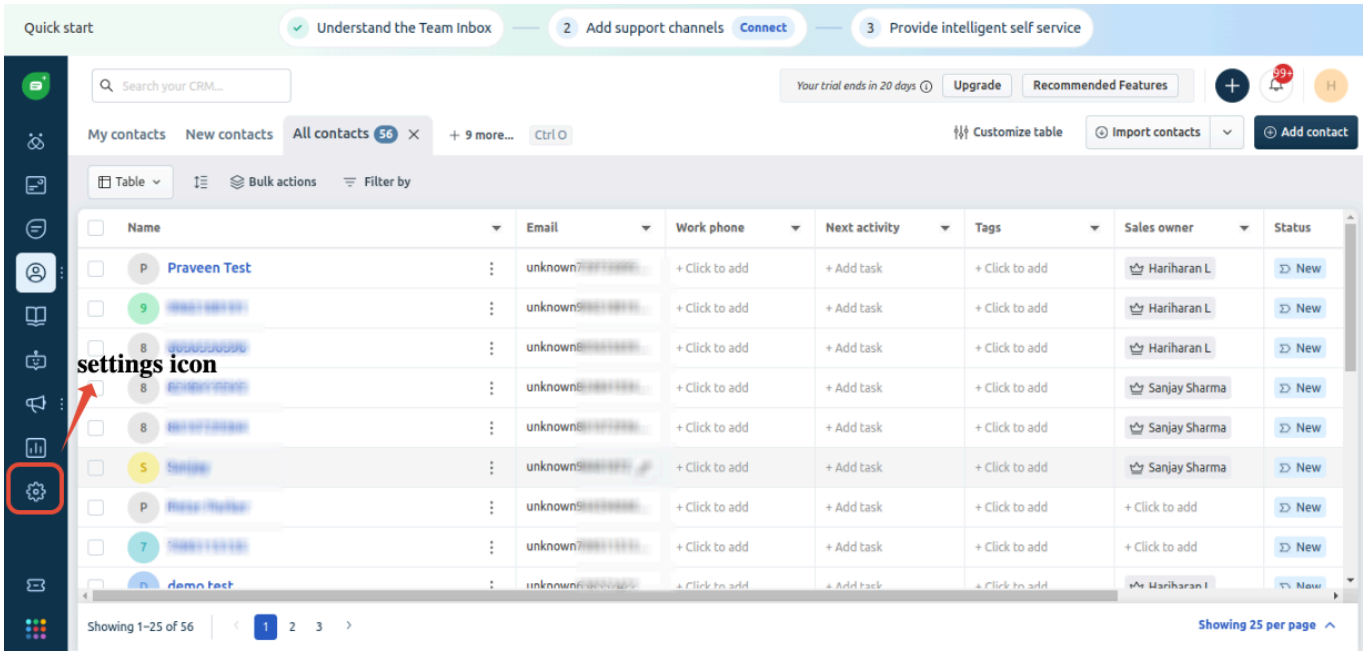


Click on the button ‘Assign ExoPhones to Flow’ and select the flow created in Step 2 with the ExoPhone and click on ‘Attach Flow’

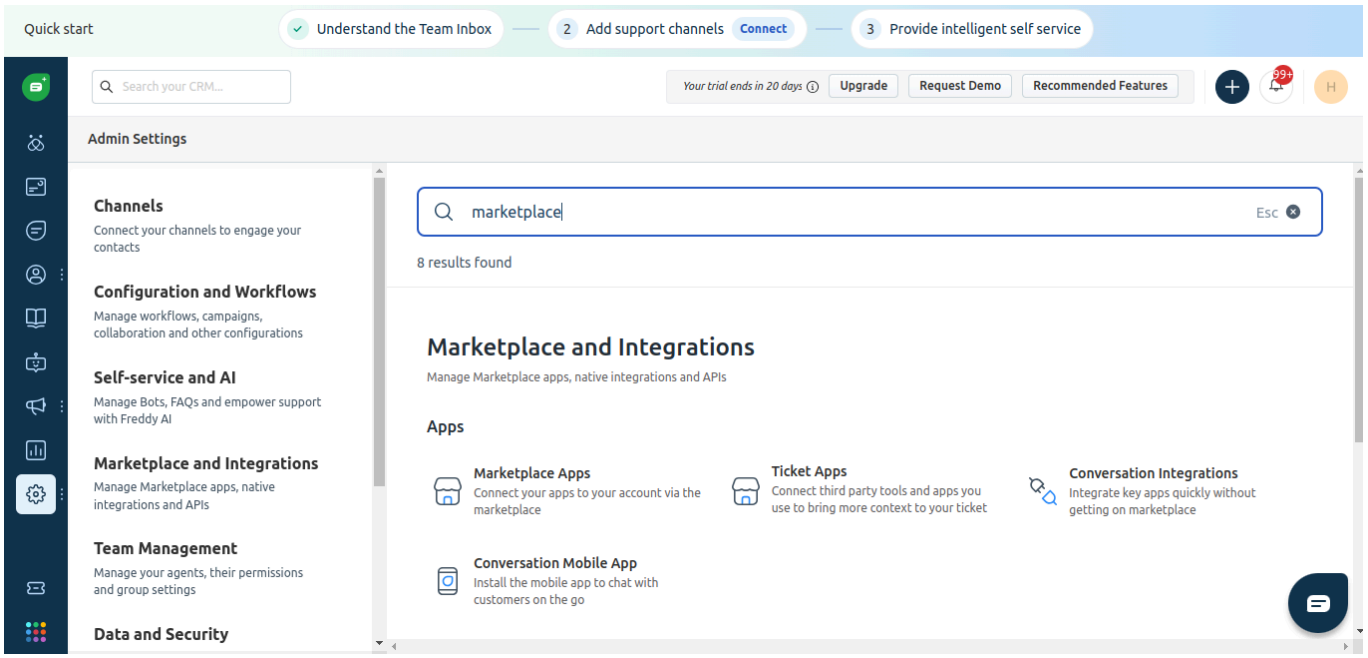
1. In the subsequent pop-up, click on OK and you can see the flow getting associated with ExoPhone.

Step 4: Enable Integration - Freshworks App Installation

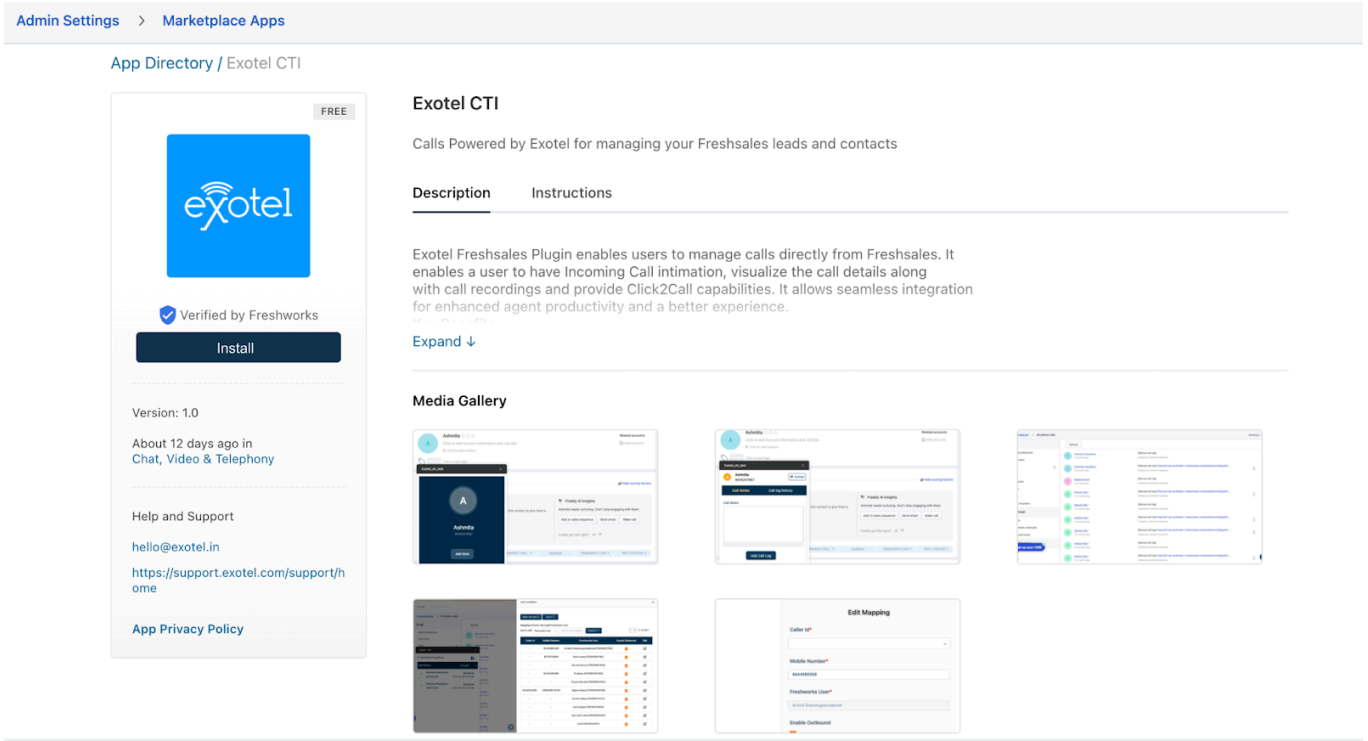
1. Login into the Freshworks account
2. Click on the settings icon



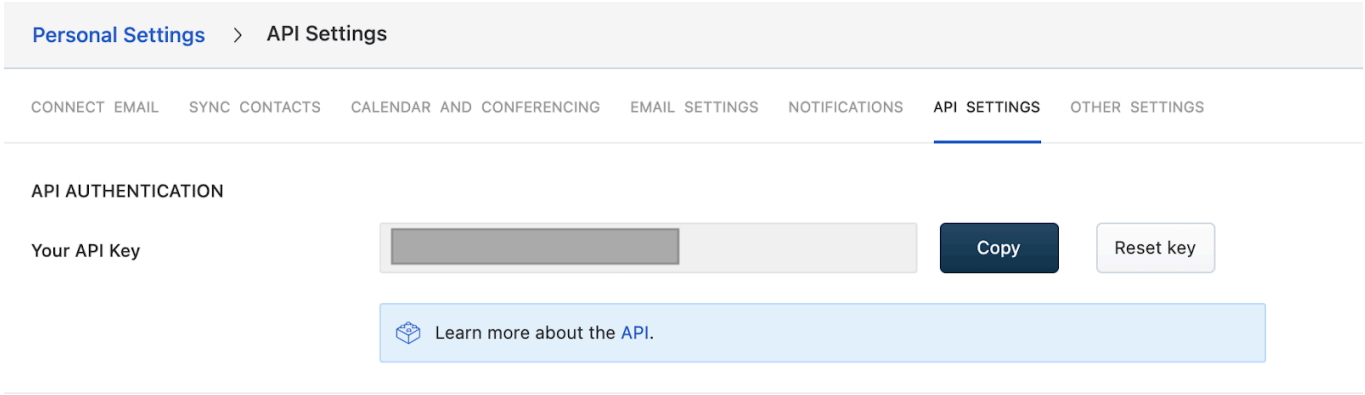
Click on **Marketplace Apps** under **Marketplace Integrations.**



1. Search for Exotel CTI App
2. Click on the **Install button**



1. Open the FW App in a separate tab & Capture Freshworks API Key from the Profile page: Click on your profile picture on the top right and select 'Settings'. In the top bar, click on API settings. Confirm the captcha and you'll be shown your API key.



1. Enter all required fields on the installation page

Freshworks Domain

- Enter the Freshworks CRM Domain (Ex: xyz.myfreshworks.com). Note: Freshworks domain should not contain an HTTP protocol

Freshworks CRM API Key

- Enter the Freshworks API key

Freshchat Domain

- Enter the Freshchat Domain (Ex: xyz.freshchat.com/v2). Note: Freshchat domain should not contain an HTTP protocol

Freshchat API Key

- Enter the Freshchat API key

Region of Exotel Account

- Select the region from the dropdown list. (Please note that, in most cases, it will be Singapore. If your **Account SID** ends with or without a number, it belongs to Singapore. Ex: **exotel** or **exotel1**. If it ends with the alphabet "m" after the number, it belongs to Mumbai. Ex: **exotel1m**)

Exotel SID

- Enter the Exotel Account SID.

Exotel API Key (recommended to create a new API key & token)

- Enter the Exotel API Key

Exotel API Token

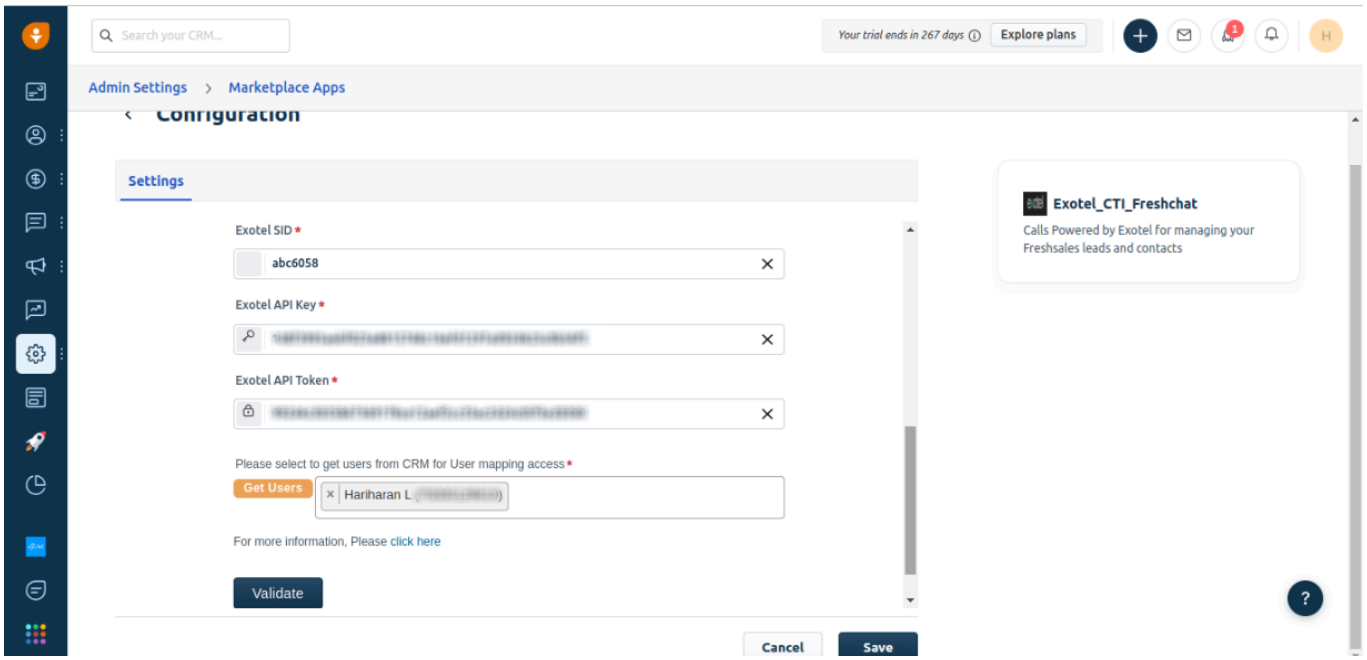
- Enter the Exotel API Token

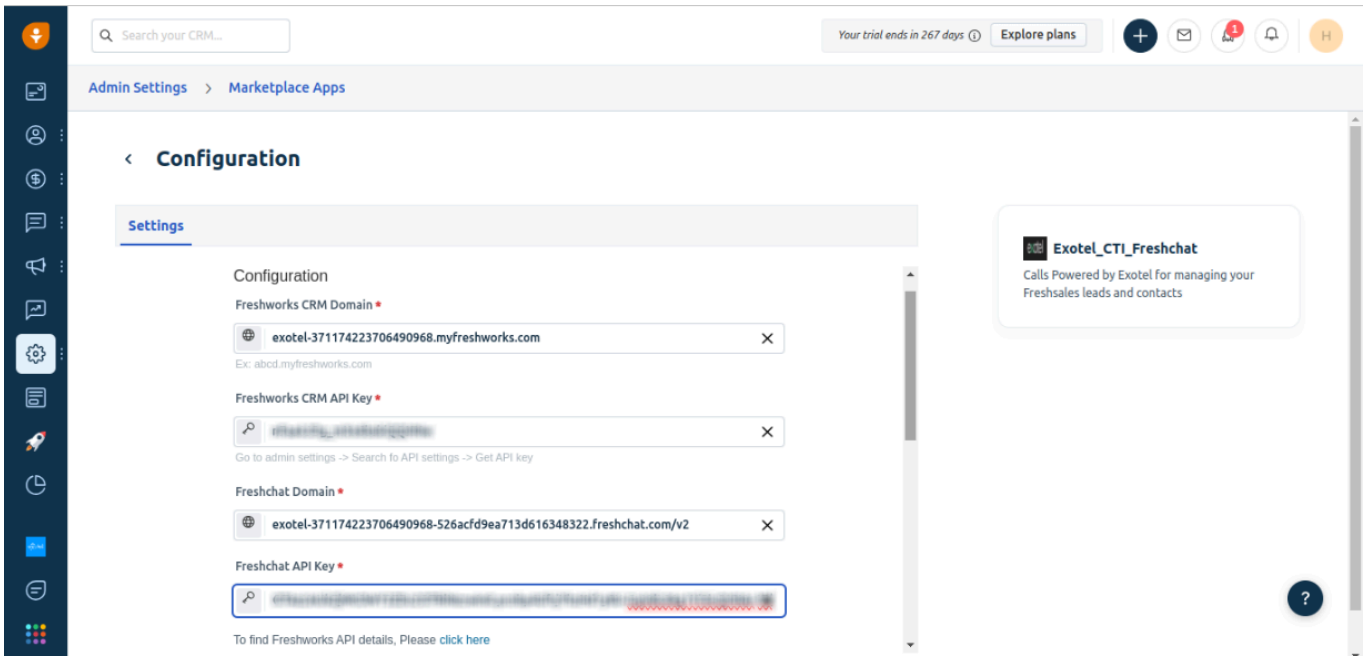
Freshworks Agent Roles

- Click on get users and select the required users from the dropdown list (Multiple admins can be selected) that can access the user Mapping Screen to map Freshworks Agents to Exotel Mobile Numbers

9. Click on **Validate** Button.

10. Click on the **Save** Button.

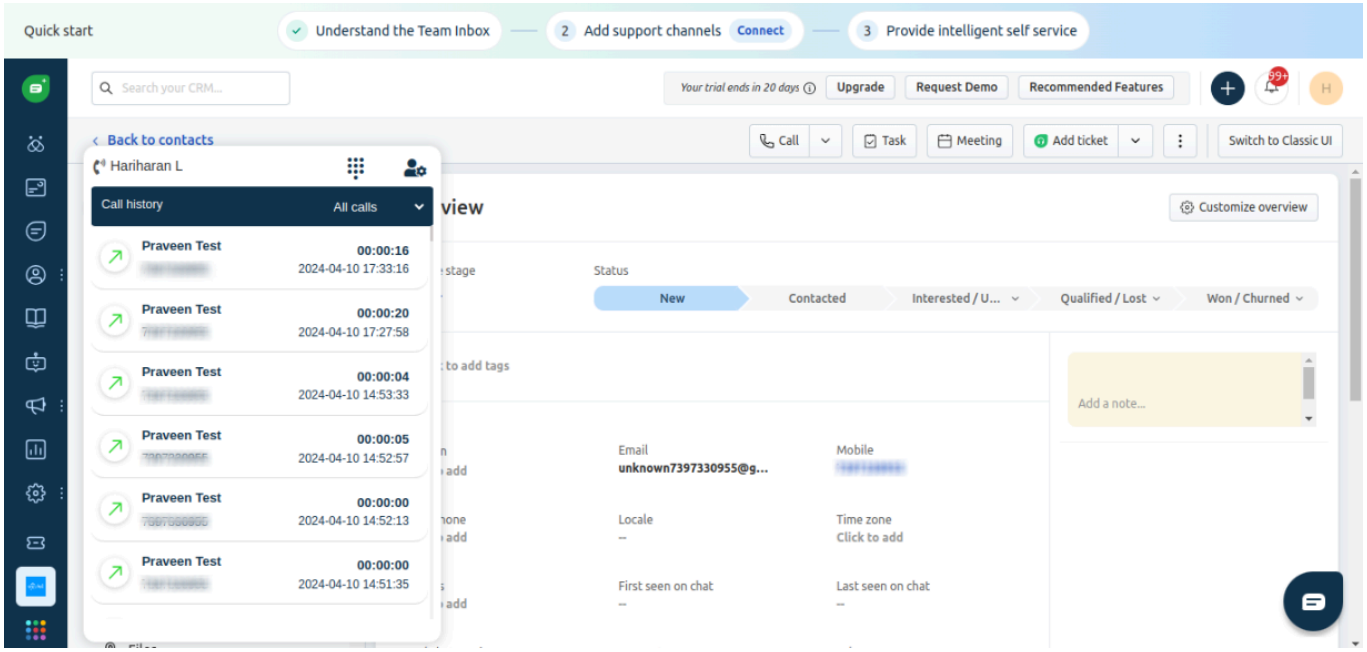




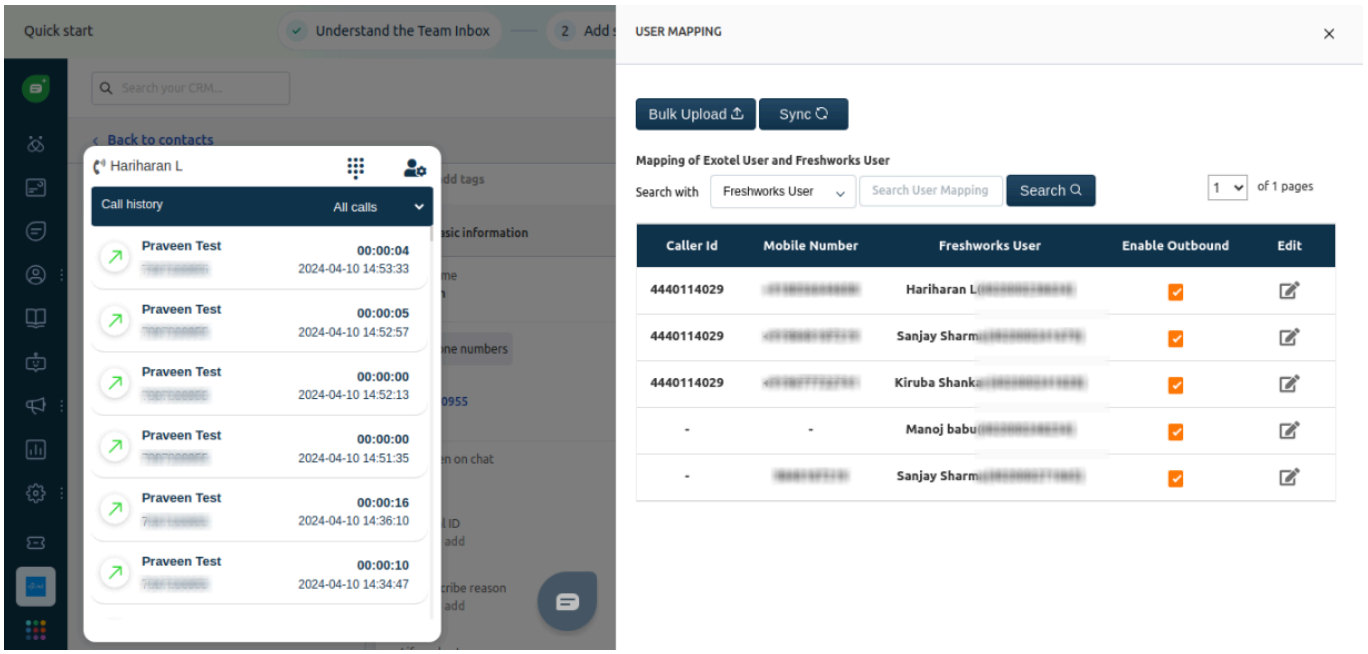
1. Once Installation is complete, Refresh the page and verify that the Exotel CTI icon is added to the side panel successfully.

Step 5: User Mapping

1. Go to the Home page (Dashboard)
2. Click on the Exotel CTI icon in the left panel. Pop up should open up
3.

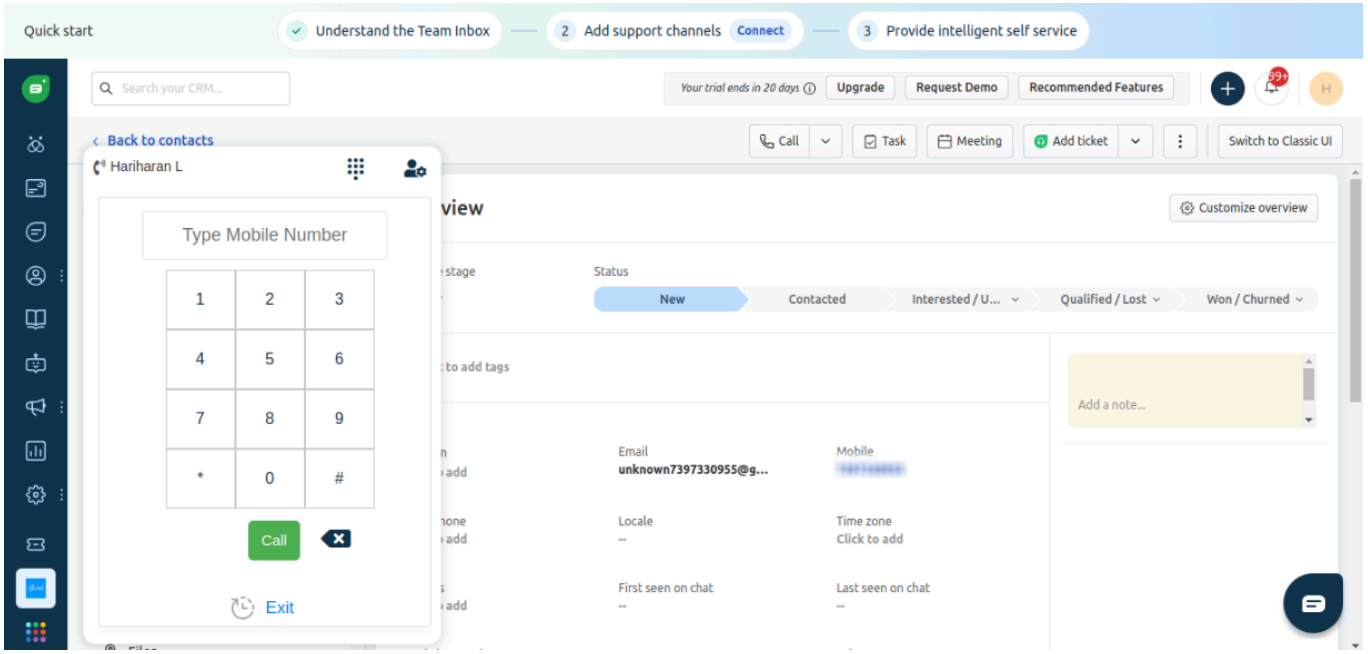


Click on the Settings icon in the top right corner



The user Mapping panel opens up on the right side of the screen.

1. Click on the dial pad icon in the top right corner



1. Click on the Sync button to populate all the existing/ new users from your Freshworks account.
2. You can use the Edit icon against each user to modify the mapping.

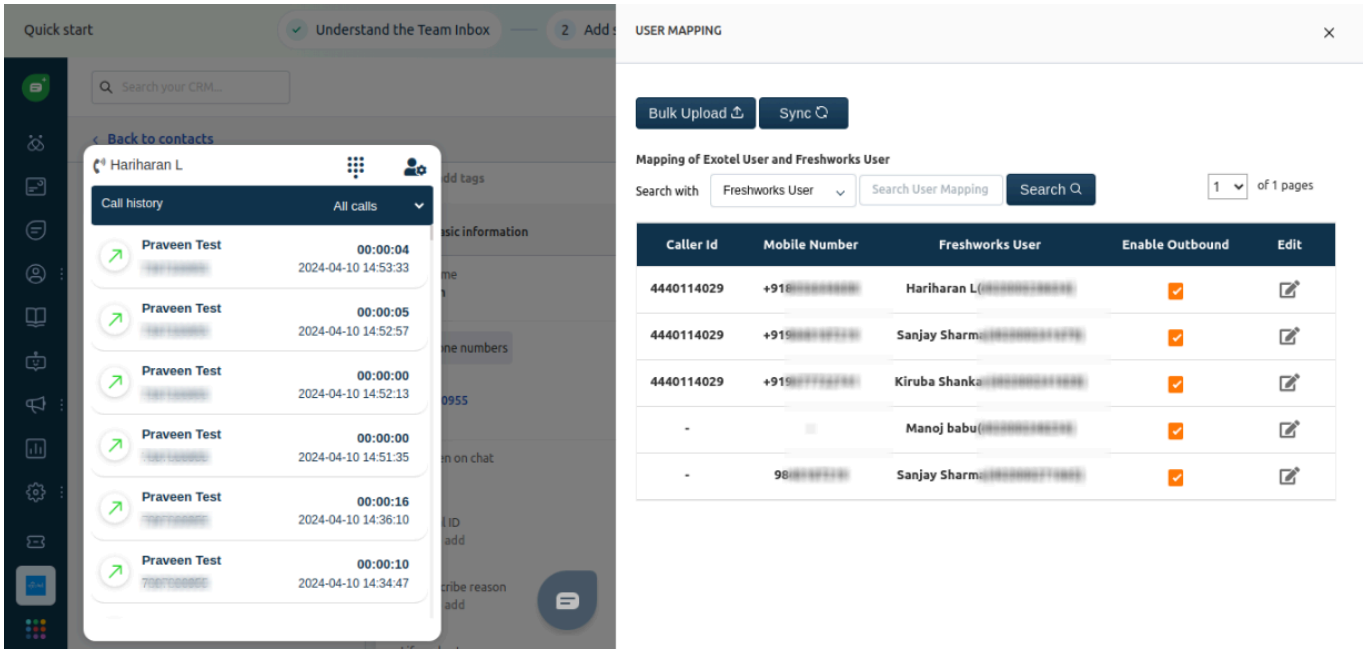
Known Limitations:

- **On-Call Events**: For both Incoming Call and Outbound Call pop-ups, the call events (like call answered, Ringing, etc.) will not be triggered. Hence, once the call is over, click on ‘Answered’ and do the subsequent action.

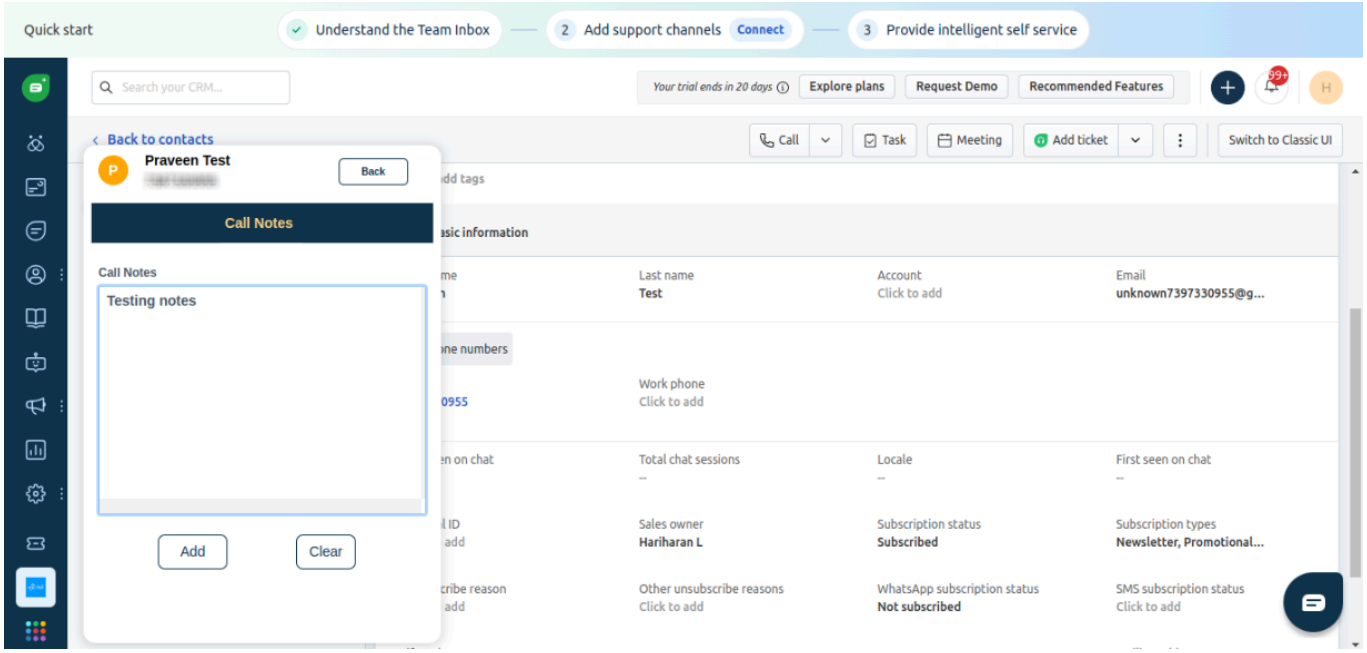
- **Call Recording Upload**: The call recordings will be uploaded under ticket details within an interval of **5 minutes**. The agent needs to refresh the Freshworks call log screen after 5 minutes of calls are completed, in order to see the respective call recordings.
- Exotel CTI does not support SIP calling.
- If you want the international support feature in Exotel CTI, please create a FreshworksCRM account and reach out to the Exotel COC team.

Freshsales App - UI screens

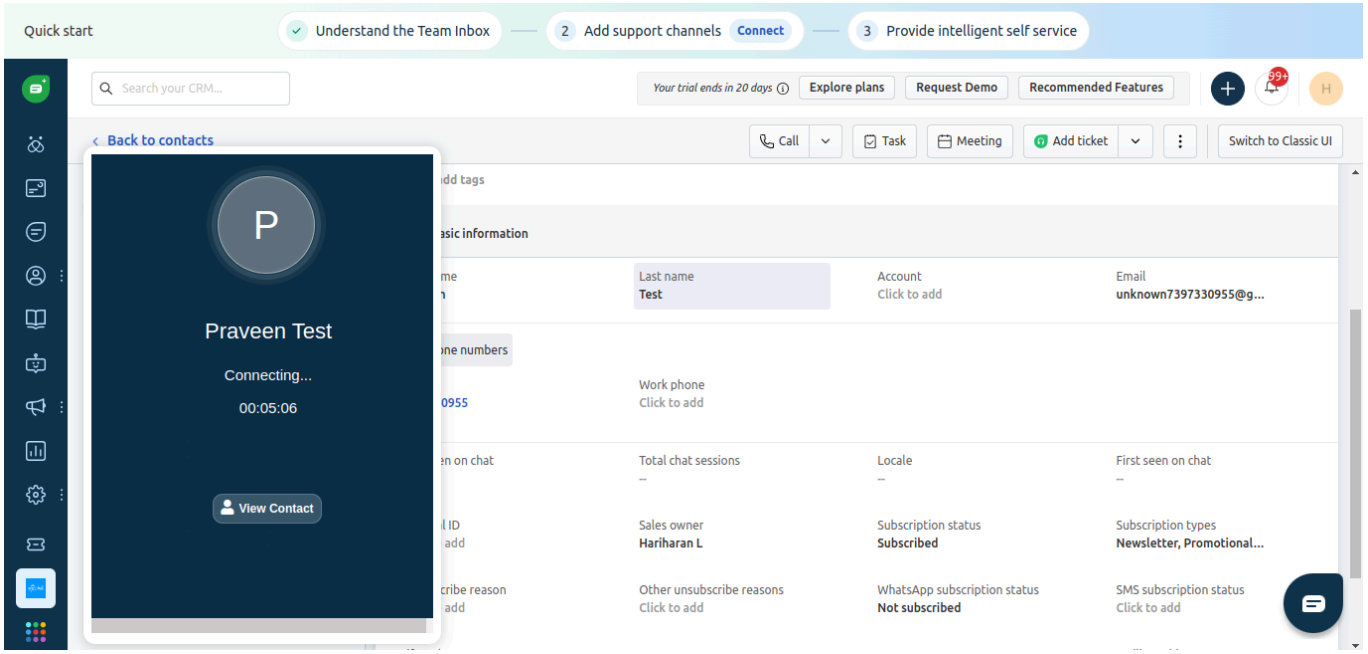
Call History Screen



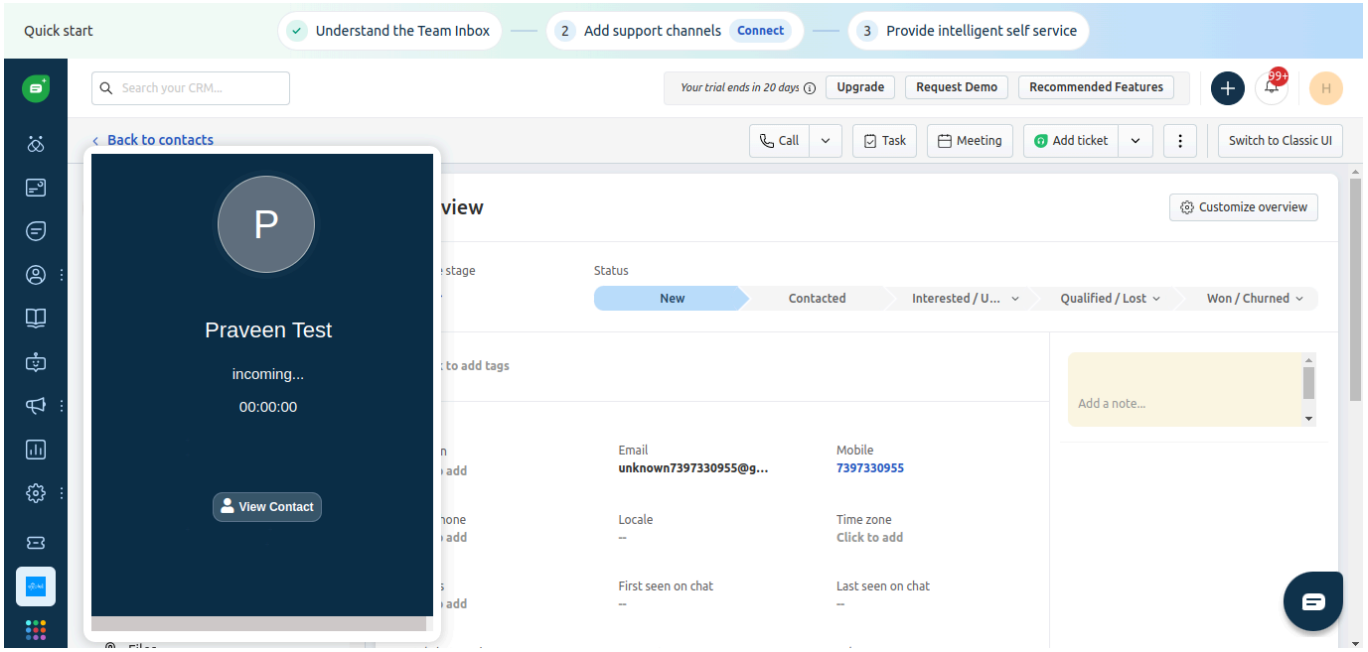
Call Notes Screen



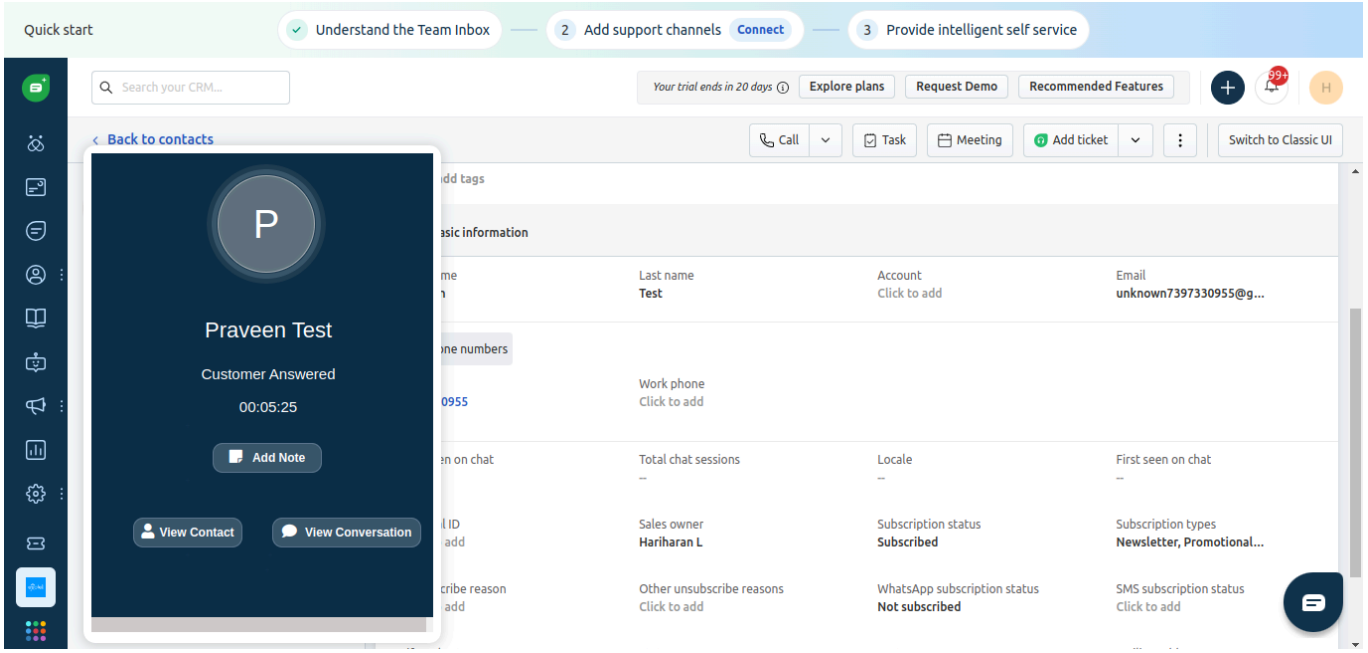
Outbound Call Notification Screen



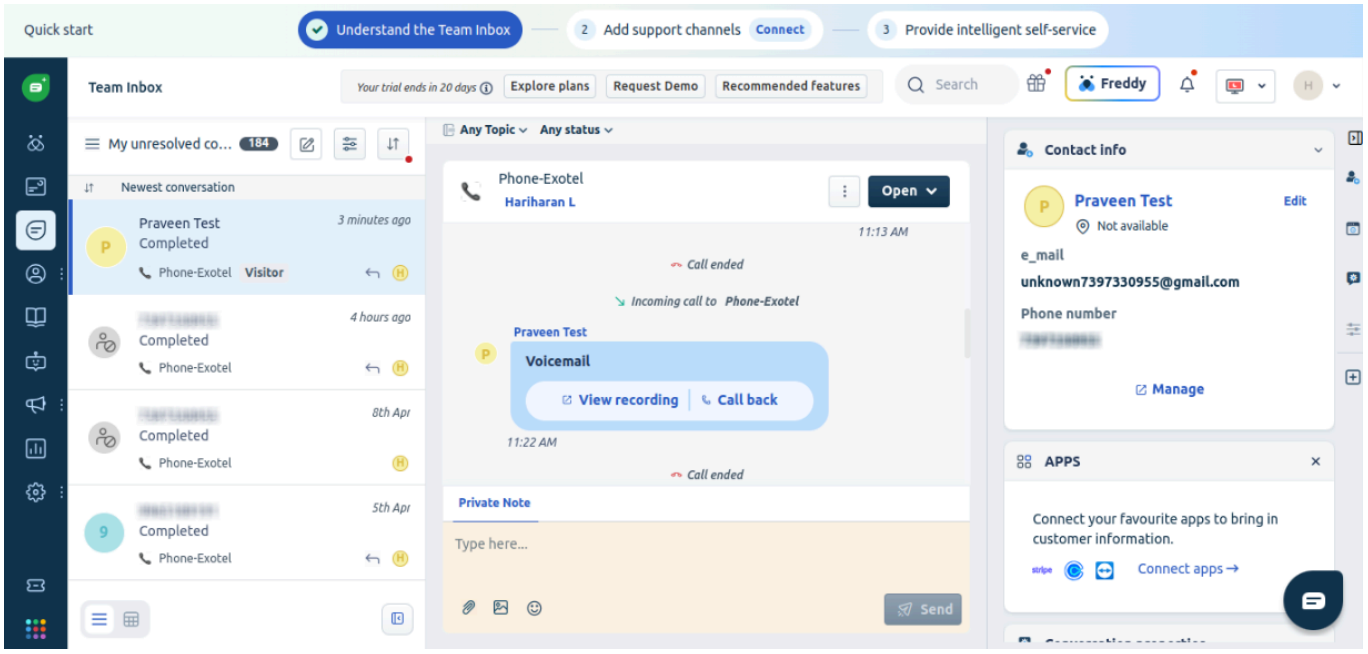
Incoming Call Notification Screen

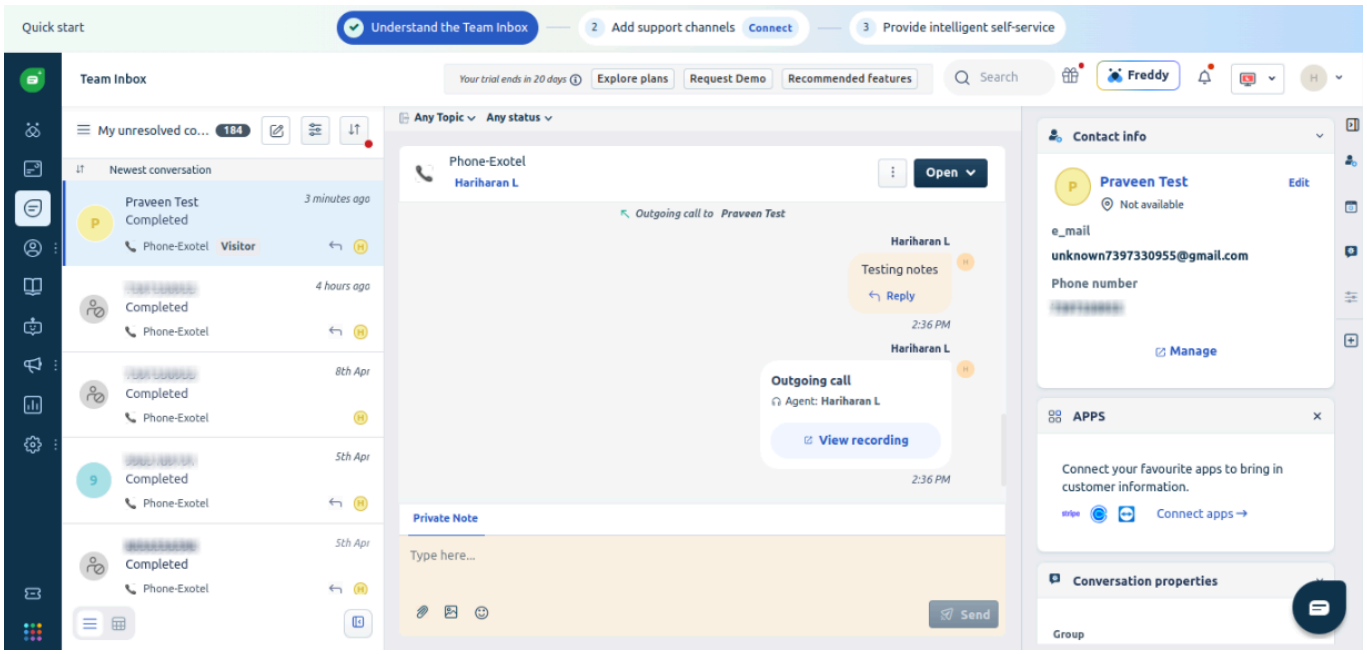


Agent Answered Call Notification Screen



Call Conversation Screen




Quick start
Understand the Team Inbox
2 Add support channels
Connect
3 Provide intelligent self-service
Team Inbox
Your trial ends in 20 days
Explore plans
Request Demo
Recommended features
Search
Freddy
My unresolved co...
184
Newest conversation
Praveen Test
Completed
Phone-Exotel
Visitor
3 minutes ago
Completed
Phone-Exotel
4 hours ago
Completed
Phone-Exotel
8th Apr
Completed
Phone-Exotel
5th Apr
Completed
Phone-Exotel
5th Apr
Any Topic
Any status
Phone-Exotel
Hariharan L
Open
Outgoing call to Praveen Test
Hariharan L
Testing notes
Reply
2:36 PM
Hariharan L
Outgoing call
Agent: Hariharan L
View recording
2:36 PM
Private Note
Type here...
Send
Contact info
Praveen Test
Edit
Not available
e_mail
unknown7397330955@gmail.com
Phone number
Manage
APPS
Connect your favourite apps to bring in customer information.
Connect apps
Conversation properties
Group

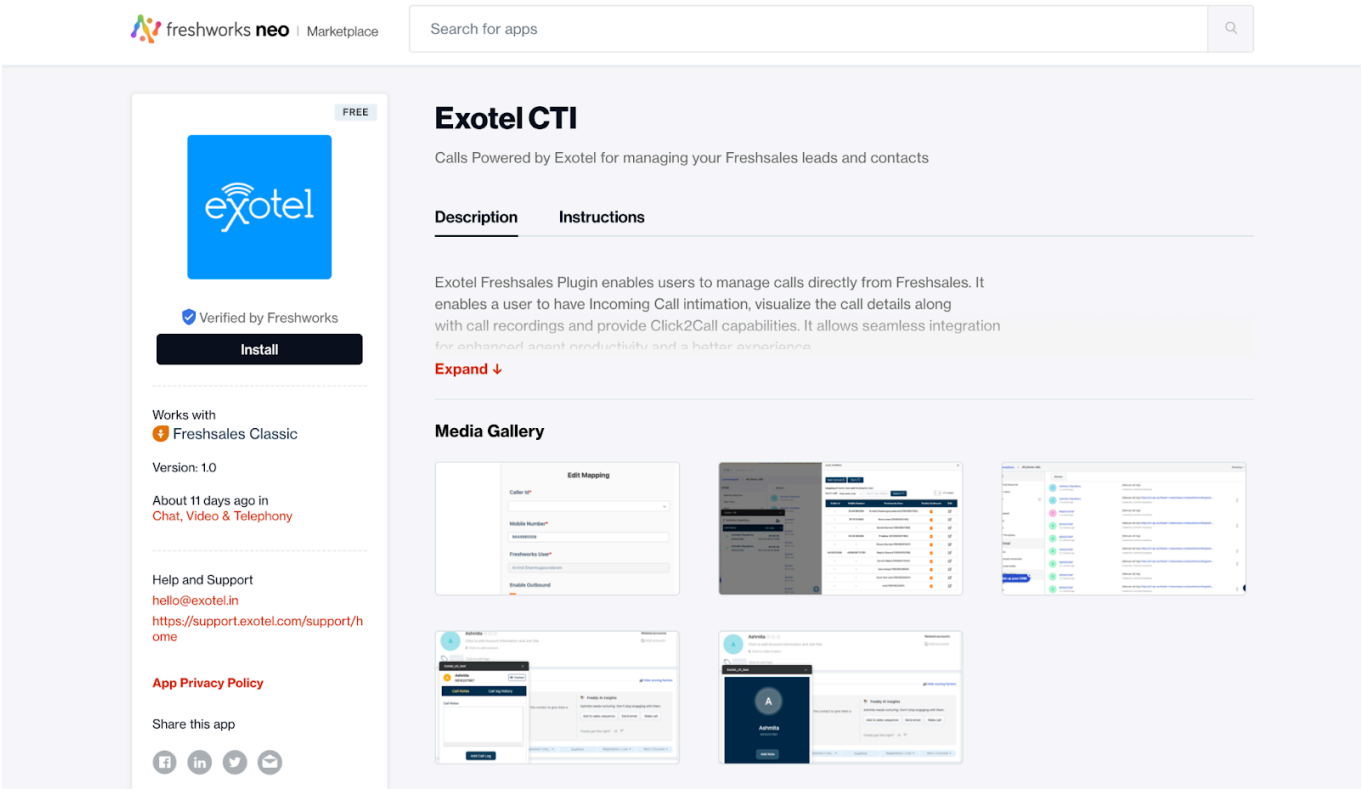
4.2.4. FreshSales Integration

Overview

Exotel Freshworks Integration enables the contextual association of calls with deals/leads. It enables the user to have Incoming Call intimation, visualize the call details along with call recordings and provide Click2Call capabilities. Seamless integration for enhanced sales productivity and a better experience.

Key Benefits:

1. **Call Intimations** - Get the notification on your Freshsales dashboard, whenever an incoming call comes on to your customer-facing Exotel Number or an outbound call is initiated from Freshsales
2. **Automated Call log Creation** - Ability to create/update a call log and associate the call with it. Automatic call log creation for Missed Calls
3. **Click2Call** - Initiate a call between you and your customer, directly from the Freshsales
4. **Call Details** - Call Recordings and Call Duration getting automatically added to the call logs.
5. **User Mapping** - Map Exotel Agents to Freshsales Users and enable Click-2-Call. You can upload Bulk User Mapping with our new feature and search for a user with Mobile Number or Freshsales User Name.
6. Work on just one interface and improve your agent productivity by **eliminating context-switching**.



Important -

In order to have a successful integration with the Freshsales/Freshworks account, please keep the following in mind:

1. In Freshsales, the contact number should be saved as 10 digit number without the country code
2. The virtual number of client's account should start with 0. For example '04440115227'

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Follow the following prerequisites and steps to configure the integration both at Exotel and Freshsales end.

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In order to have a successful integration with the Freshsales/Freshworks account, you must complete the following tasks:

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3. Get your account KYC verified.

4. Purchase ExoPhone to be used by Freshworks users/agents for inbound and outbound calls.
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2. Configure Freshsales Plugin Call flow
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4. Enable Integration
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2. Add all the co-workers corresponding to Freshsales account, by clicking on Invite co-workers
3. Create a new group, by clicking 'Add Group' and adding all the co-workers in that group

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In order to create the Freshsales Plugin Call flow, follow these five steps:

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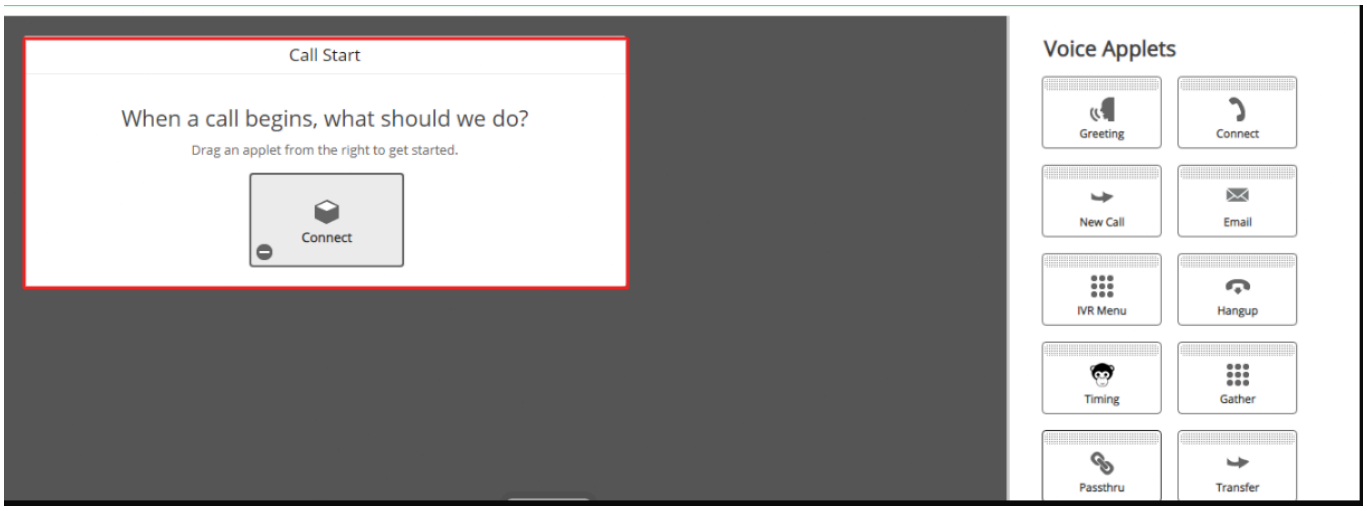
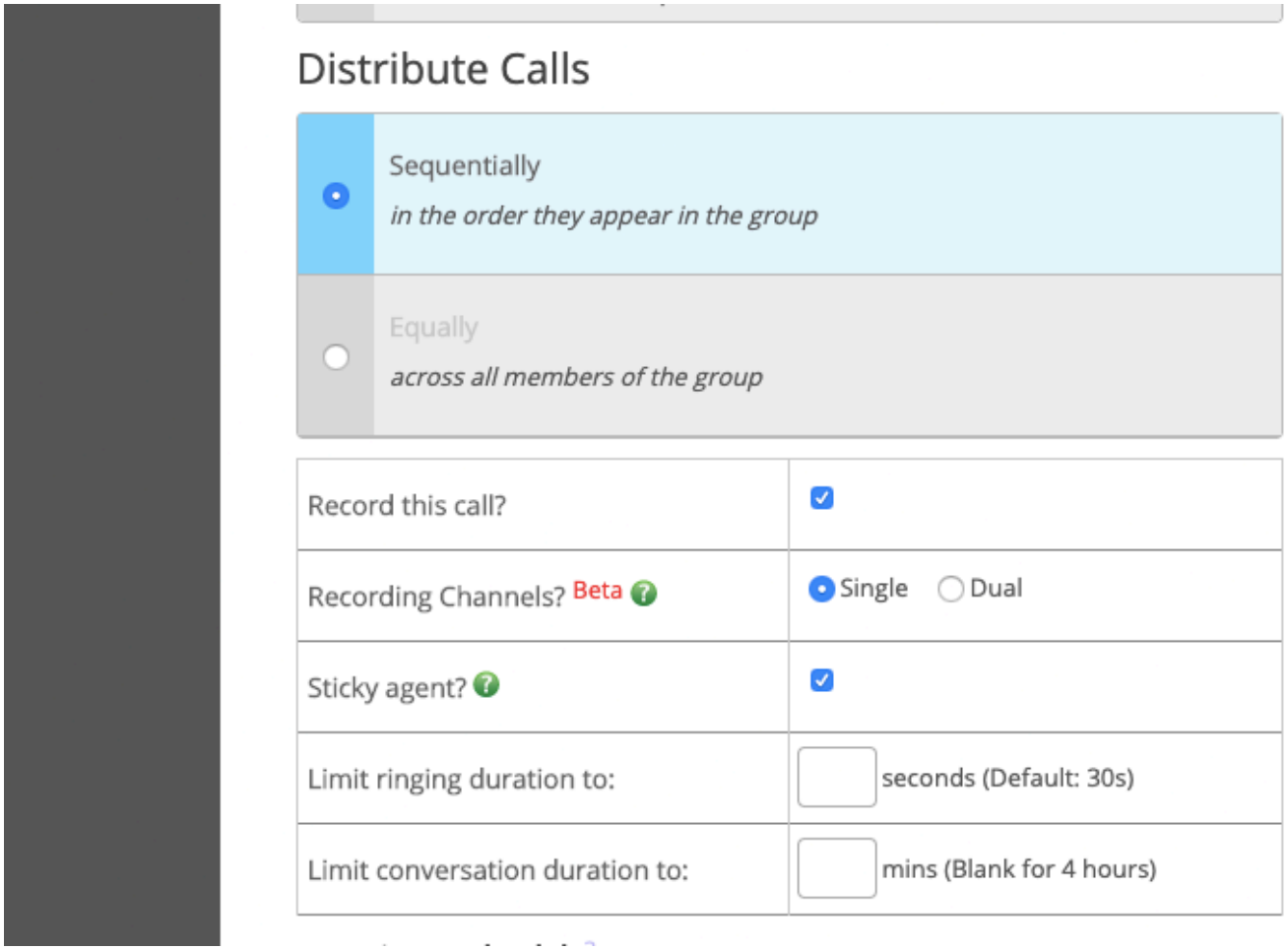
2. Provide the App Name and click on OK.
3. Add a Connect Applet



1. Select the Group as created earlier, under the ‘Dial a user or group’ option.
2. Under the ‘Distribute Calls’ section, select ‘Sequentially’ or 'Equally' and the remaining options as per your requirement.



1. Under the ‘Create popup...’ section, enter this URL (modify the Exotel account name in it by your Exotel account name:

URL: https://middleware-pub.freshwork.exotel.in/pop/<accountSid>

E.g: https://middleware-pub.freshwork.exotel.in/pop/exotel535

1. After the Call Conversation ends, add a Passthru. In that passthrough enter this URL (change the accountSid):

URL: https://middleware-pub.freshwork.exotel.in/answered/<accountSid>

E.g: https://middleware-pub.freshwork.exotel.in/answered/exotel535

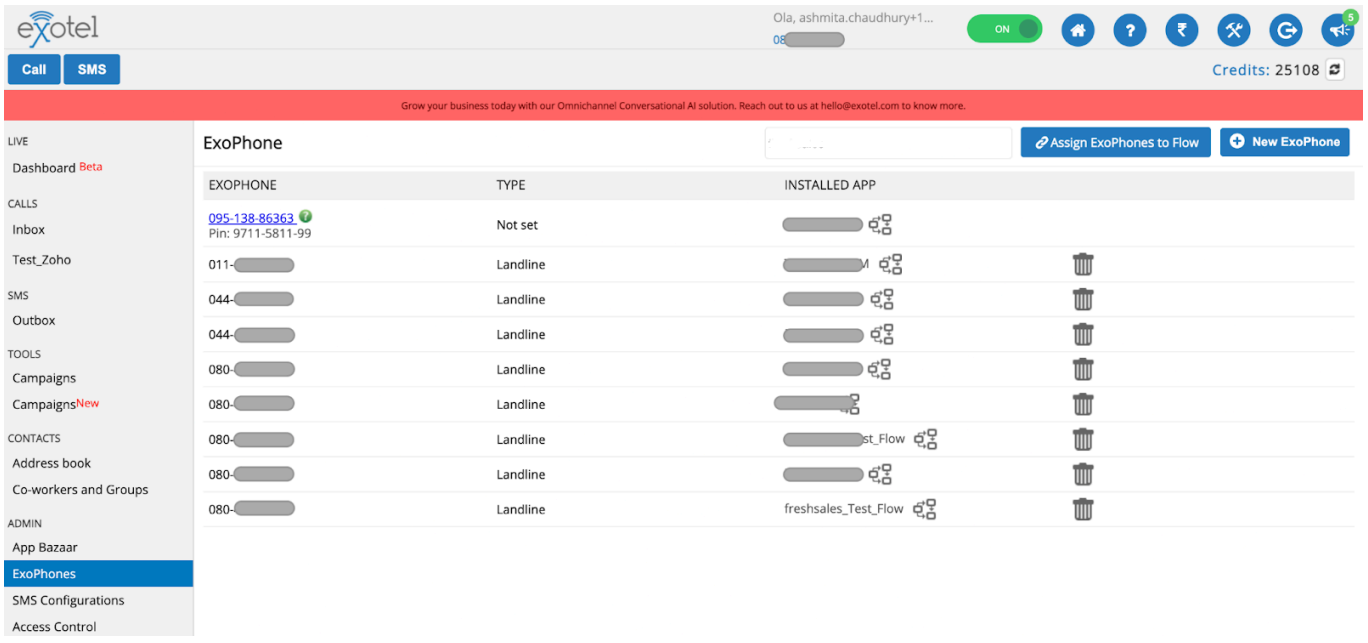
1. In the section ‘If Nobody Answers..’, select 'Go To' and add a Passthru. Enter the pass-thru URL (change the accountSid) as:

URL: https://middleware-pub.freshwork.exotel.in/missed/<accountSid>

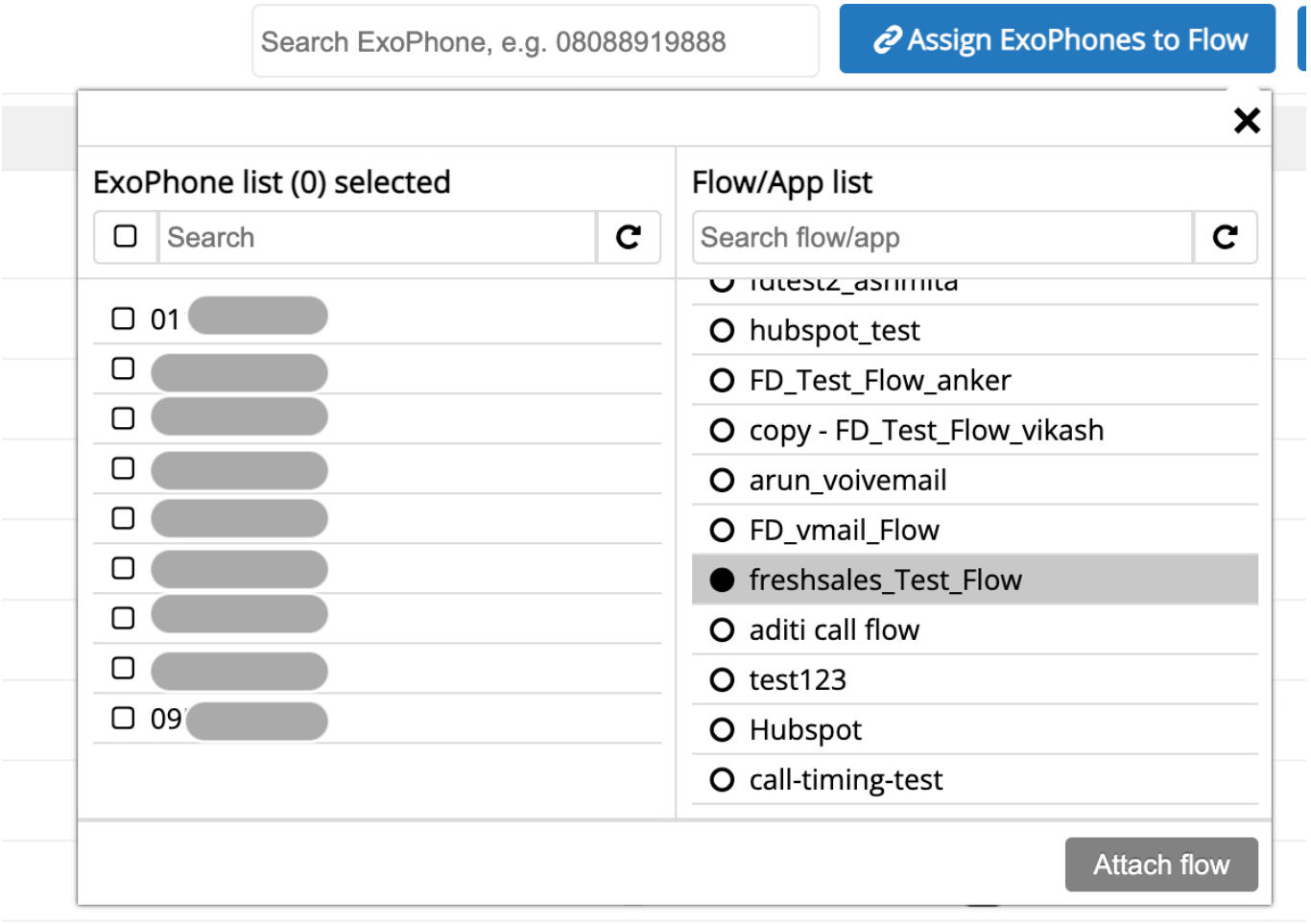
E.g: https://middleware-pub.freshwork.exotel.in/missed/exotel535

1. Save the flow and click on Close.

Step 3: Associate the call flow to the ExoPhones



Go to the ExoPhones section

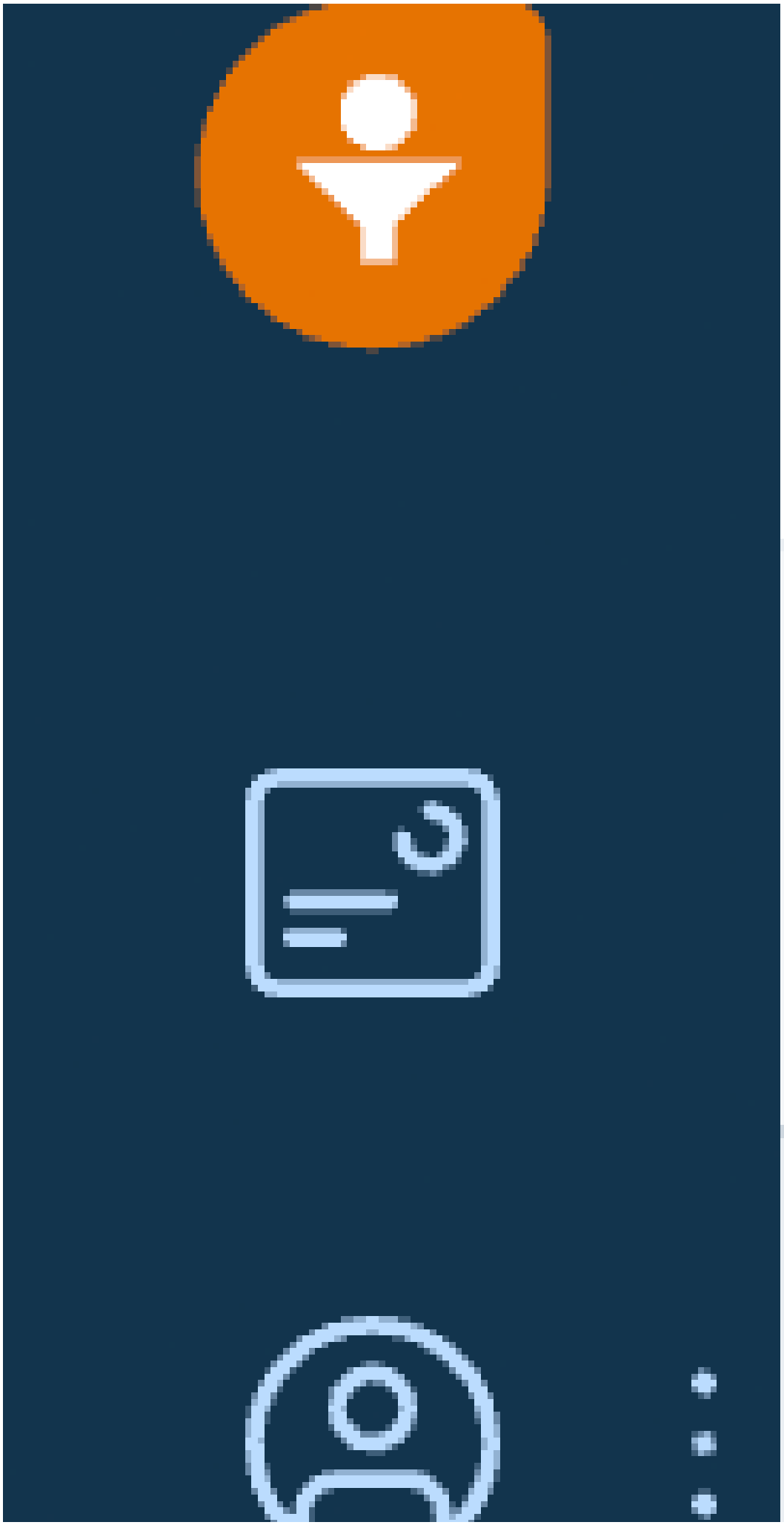


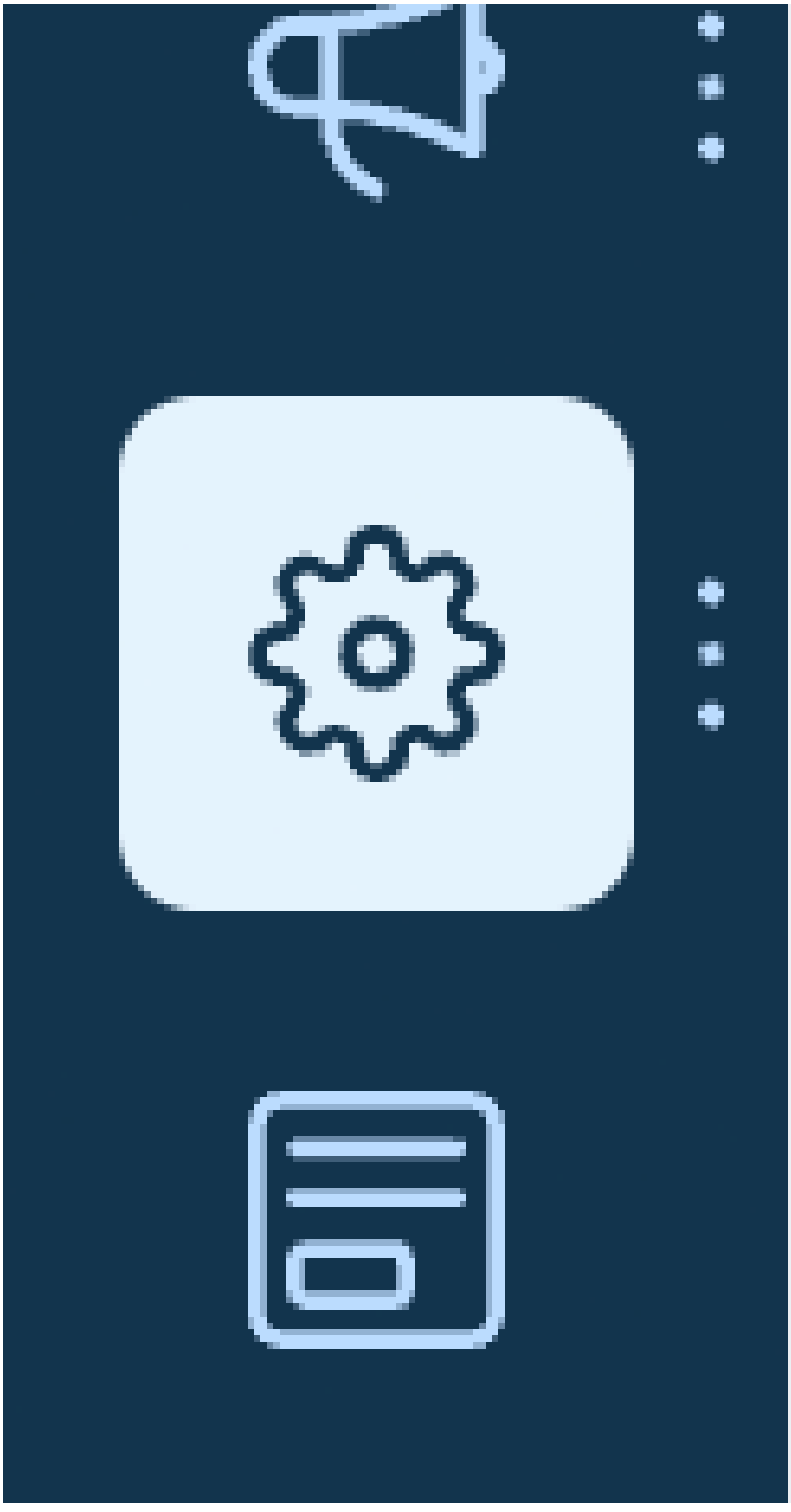
Click on the button 'Assign ExoPhones to Flow' and select the flow created in Step 2 with the ExoPhone and click on 'Attach Flow'

1. In the subsequent pop-up, click on OK and you can see the flow getting associated with ExoPhone.

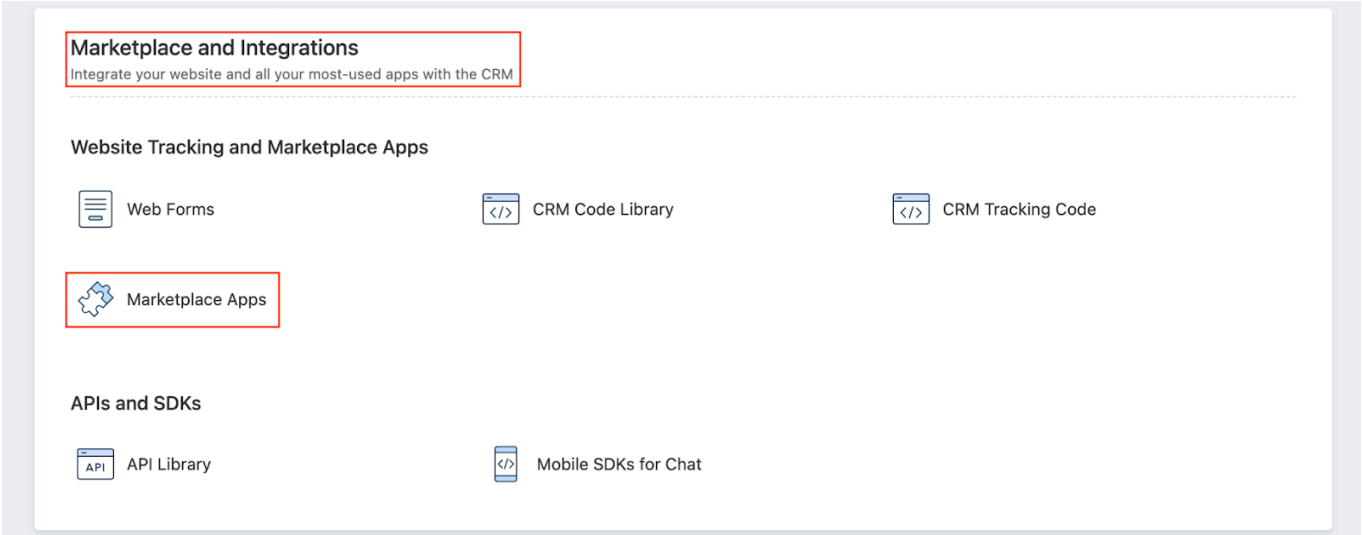
Step 4: Enable Integration - Freshworks App Installation

1. Login into the Freshworks account
2. Click on the settings icon

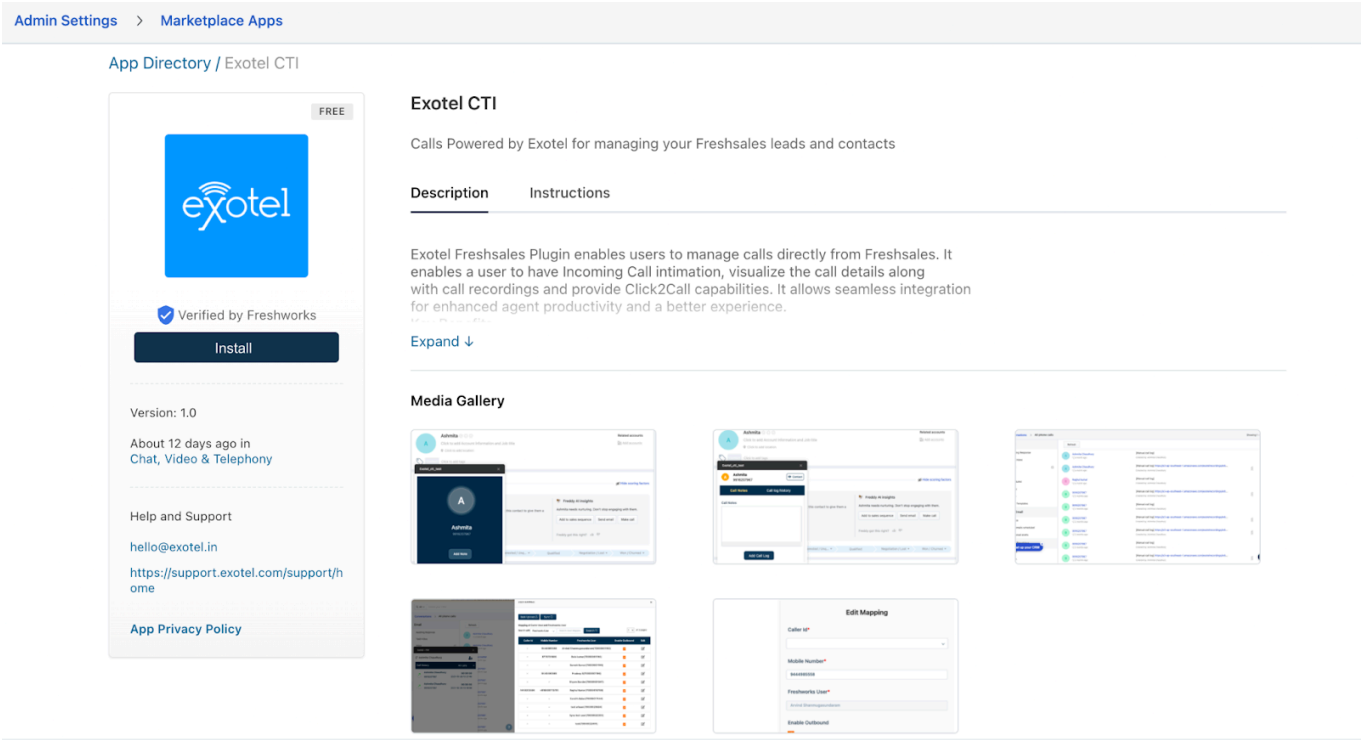




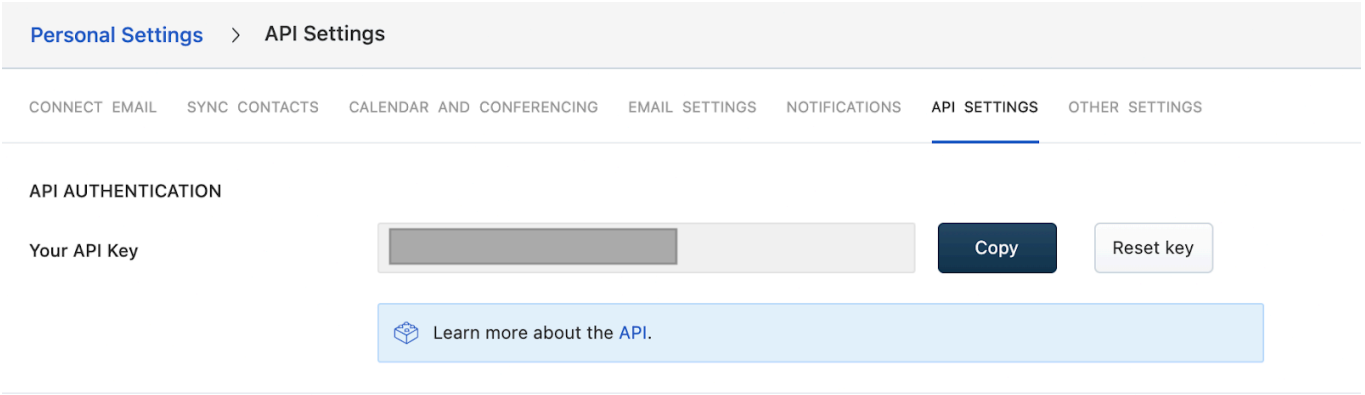
Click on **Marketplace Apps** under **Marketplace Integrations.**



1. Search for Exotel CTI App
2. Click on the **Install button**



1. Open the FW App in a separate tab & Capture Freshworks API Key from the Profile page: Click on your profile picture on the top right and select 'Settings'. In the top bar, click on API settings. Confirm the captcha and you'll be shown your API key.



1. Enter all required fields on the installation page

Freshworks Domain

- Enter the Freshworks CRM Domain (Ex: https://xyz.myfreshworks.com).

Freshworks CRM API Key

- Enter the Freshworks API key

Region of Exotel Account

- Select the region from the dropdown list. (Please note that, in most cases, it will be Singapore. If your **Account SID** ends with or without a number, it belongs to Singapore. Ex: **exotel** or **exotel1**. If it ends with the alphabet "m" after the number, it belongs to Mumbai. Ex: **exotel1m**)

Exotel SID

- Enter the Exotel Account SID.

Exotel API Key (recommended to create a new API key & token)

- Enter the Exotel API Key

Exotel API Token

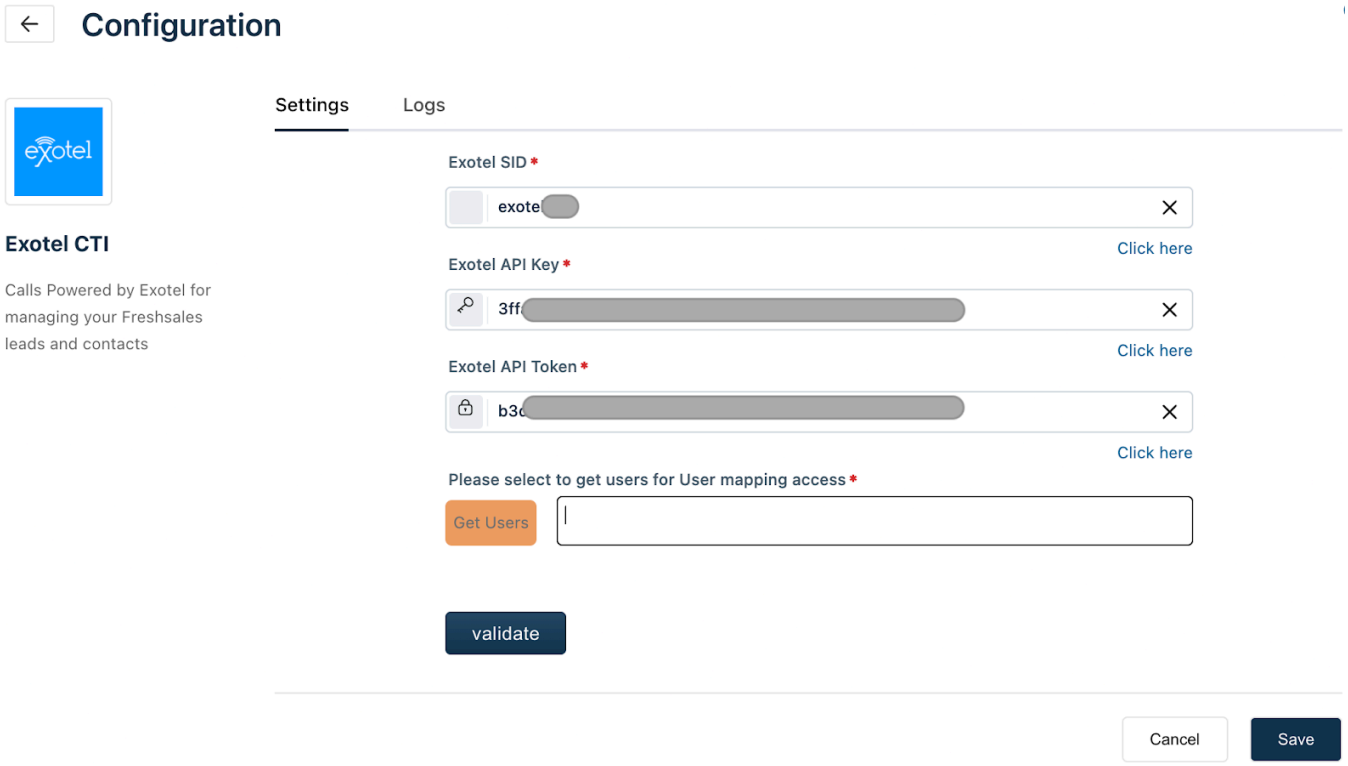
- Enter the Exotel API Token

Freshworks Agent Roles

- Click on get users and select required users from the dropdown list (Multiple users can be selected) that can access the user Mapping Screen to map Freshworks Agents to Exotel Mobile Numbers

9. Click on **Validate** Button.

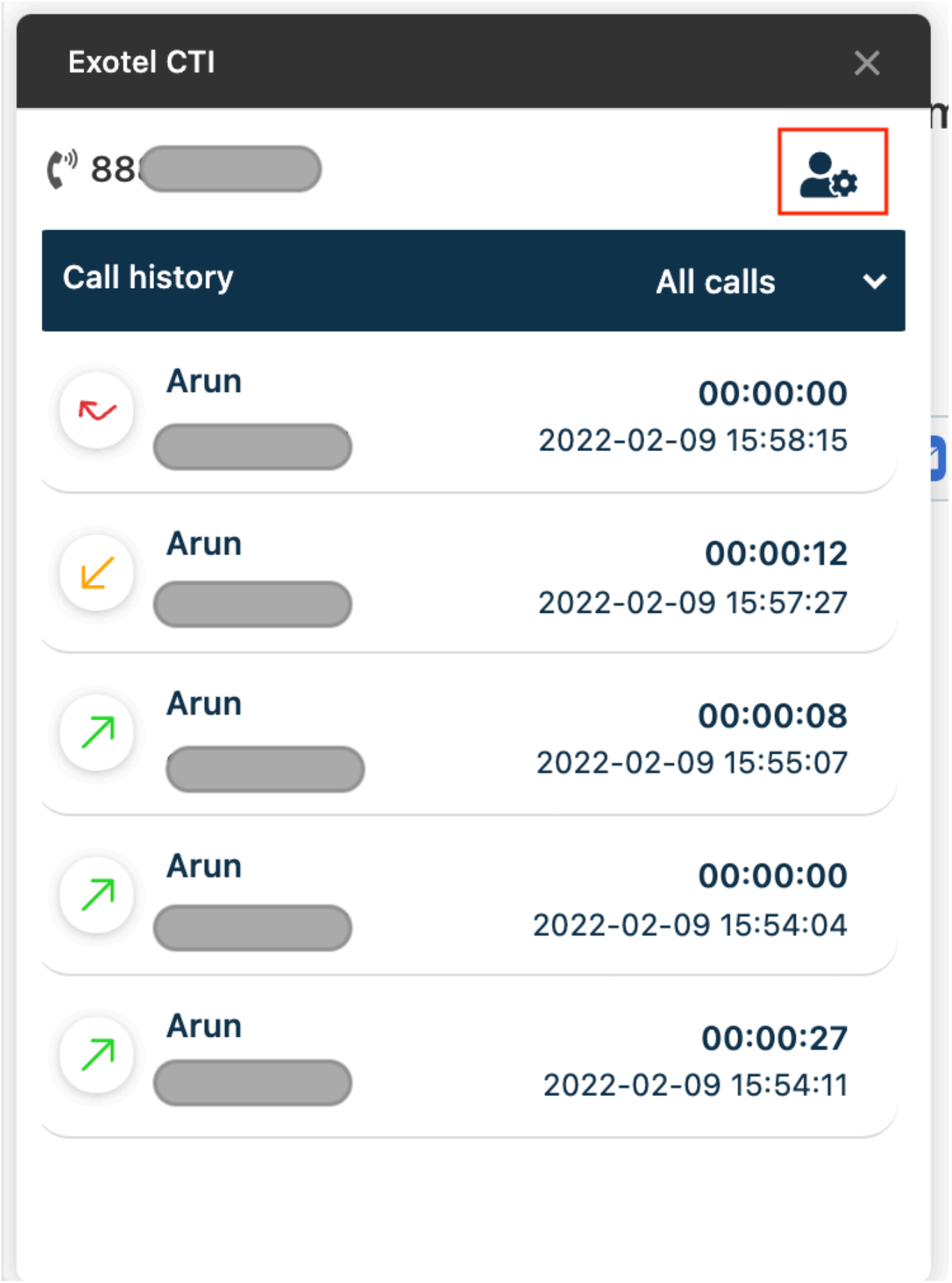
10. Click on the **Save** Button.



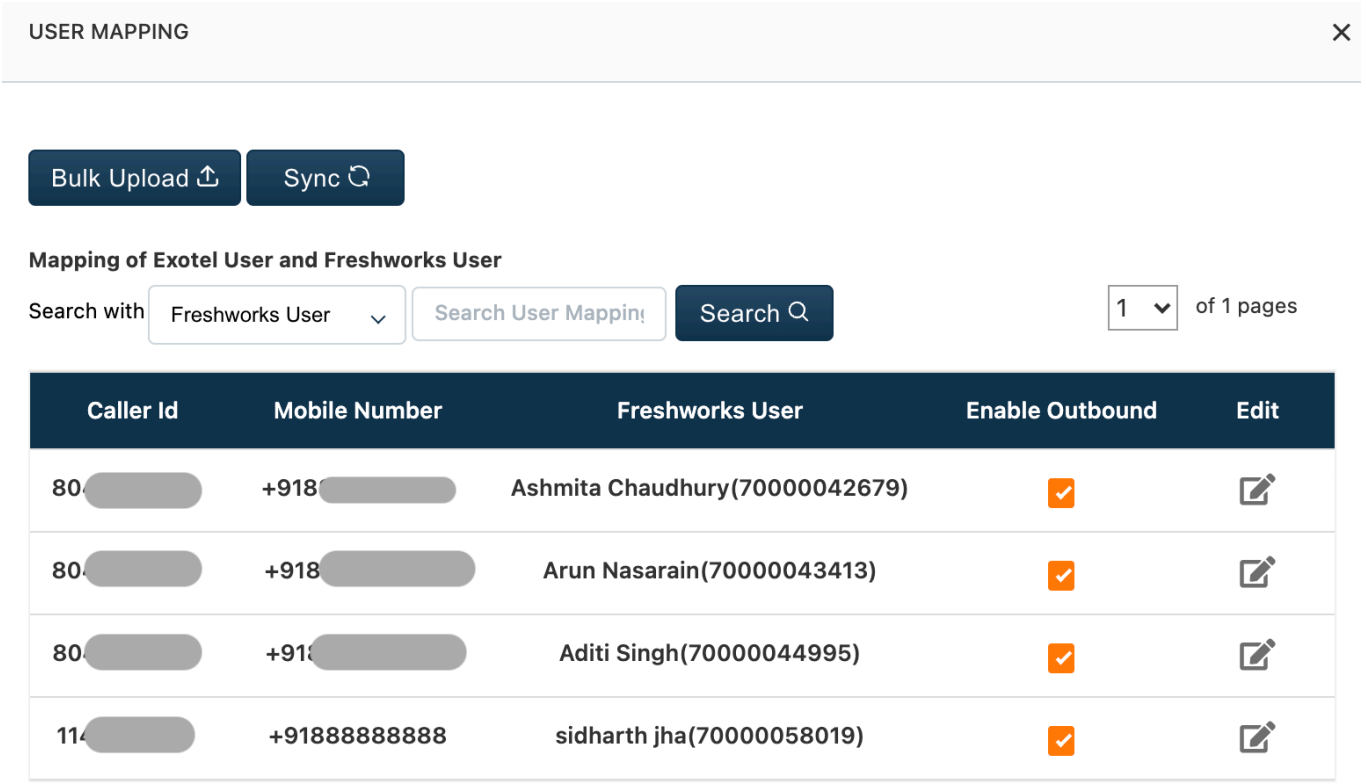
1. Once Installation is complete, Refresh the page and verify that the Exotel CTI icon is added to the side panel successfully.

Step 5: User Mapping

1. Go to the Home page (Dashboard)
2. Click on the Exotel CTI icon in the left panel. Pop up should open up



Click on the Settings icon on the top right corner



The user Mapping panel opens up on the right side of the screen.

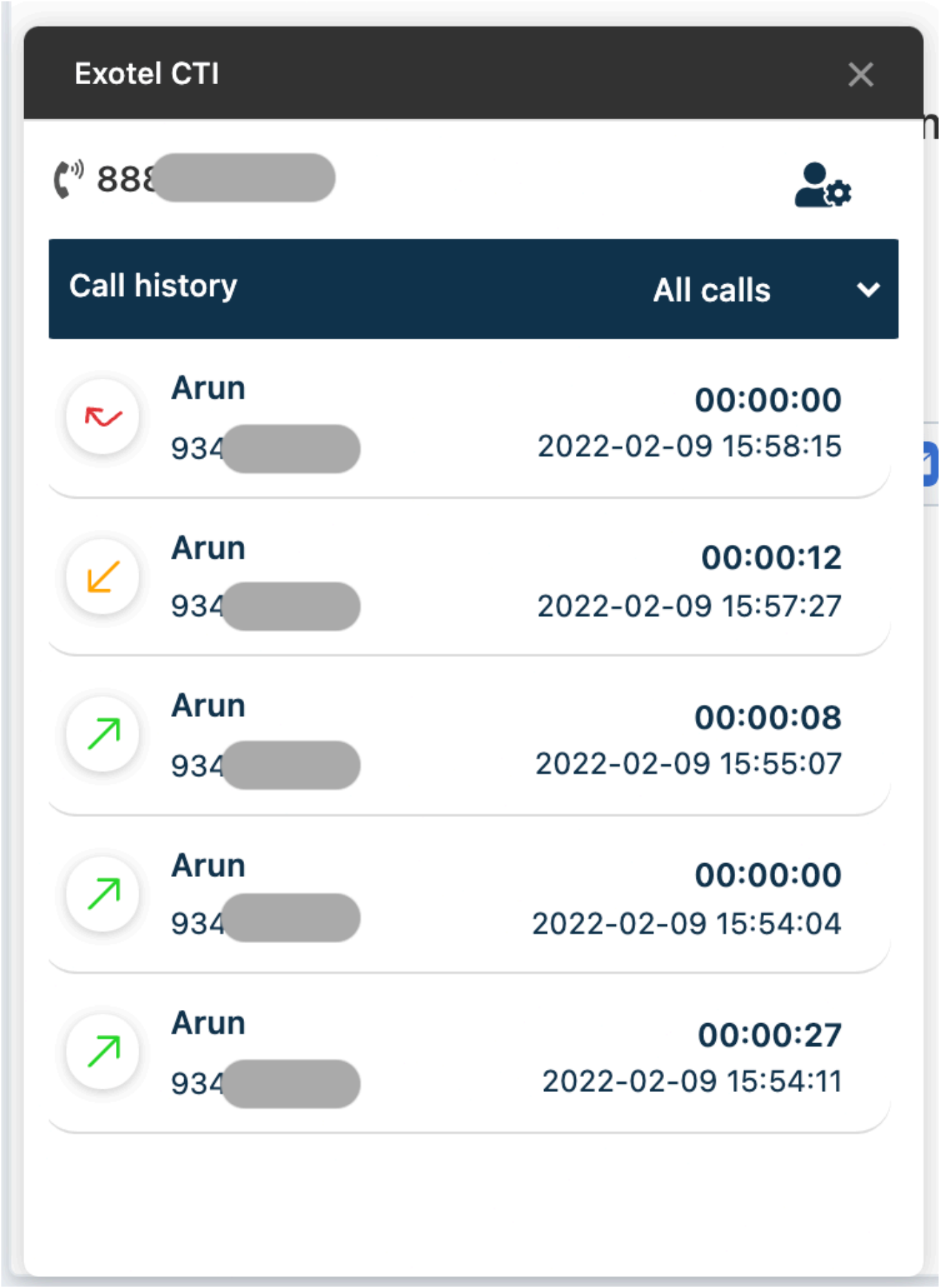
1. Click on the Sync button to populate all the existing/ new users from your Freshworks account.
2. You can use the Edit icon against each user to modify the mapping.

Known Limitations:

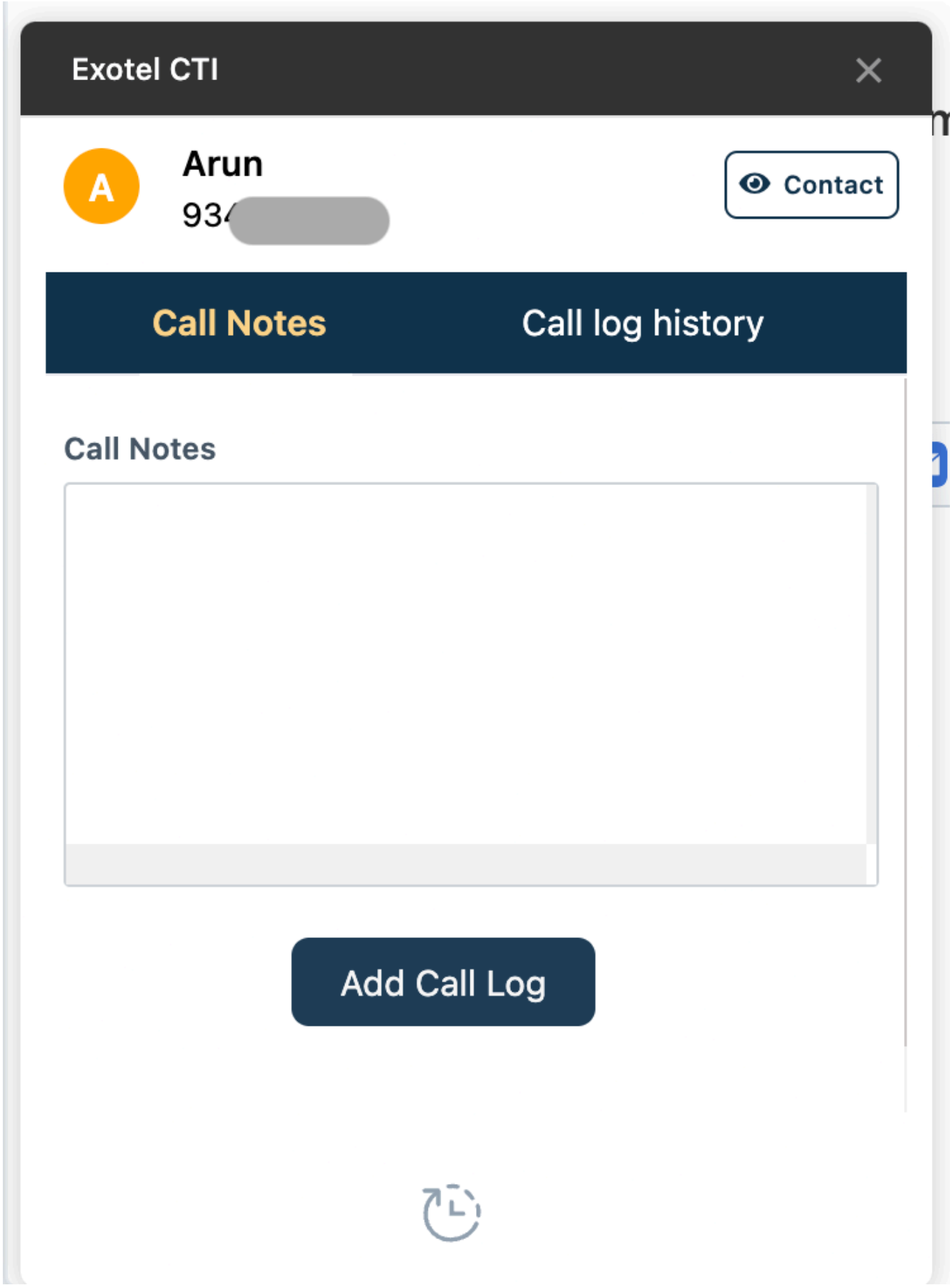
- **On-Call Events**: For both Incoming Call and Outbound Call pop-ups, the call events (like CallAnswered, Ringing, etc.) will not be triggered. Hence, once the call is over, click on 'Answered' and do the subsequent action.
- **Call Recording Upload**: The call recordings will be uploaded under ticket details within an interval of **5 minutes**. The agent needs to refresh the Freshworks call log screen after 5 minutes of calls are completed, in order to see the respective call recordings.

Freshsales App - UI screens

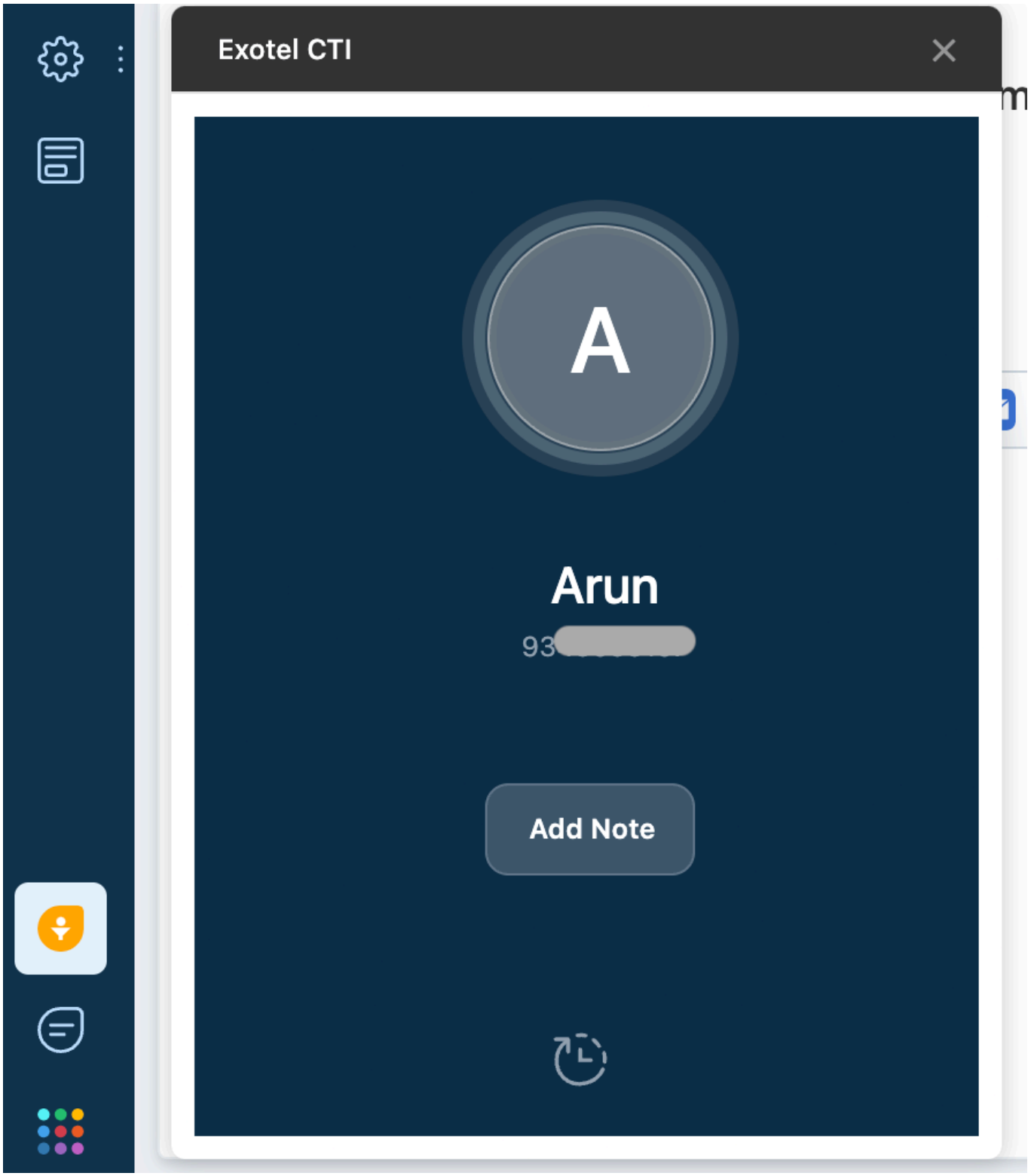
Call History Screen



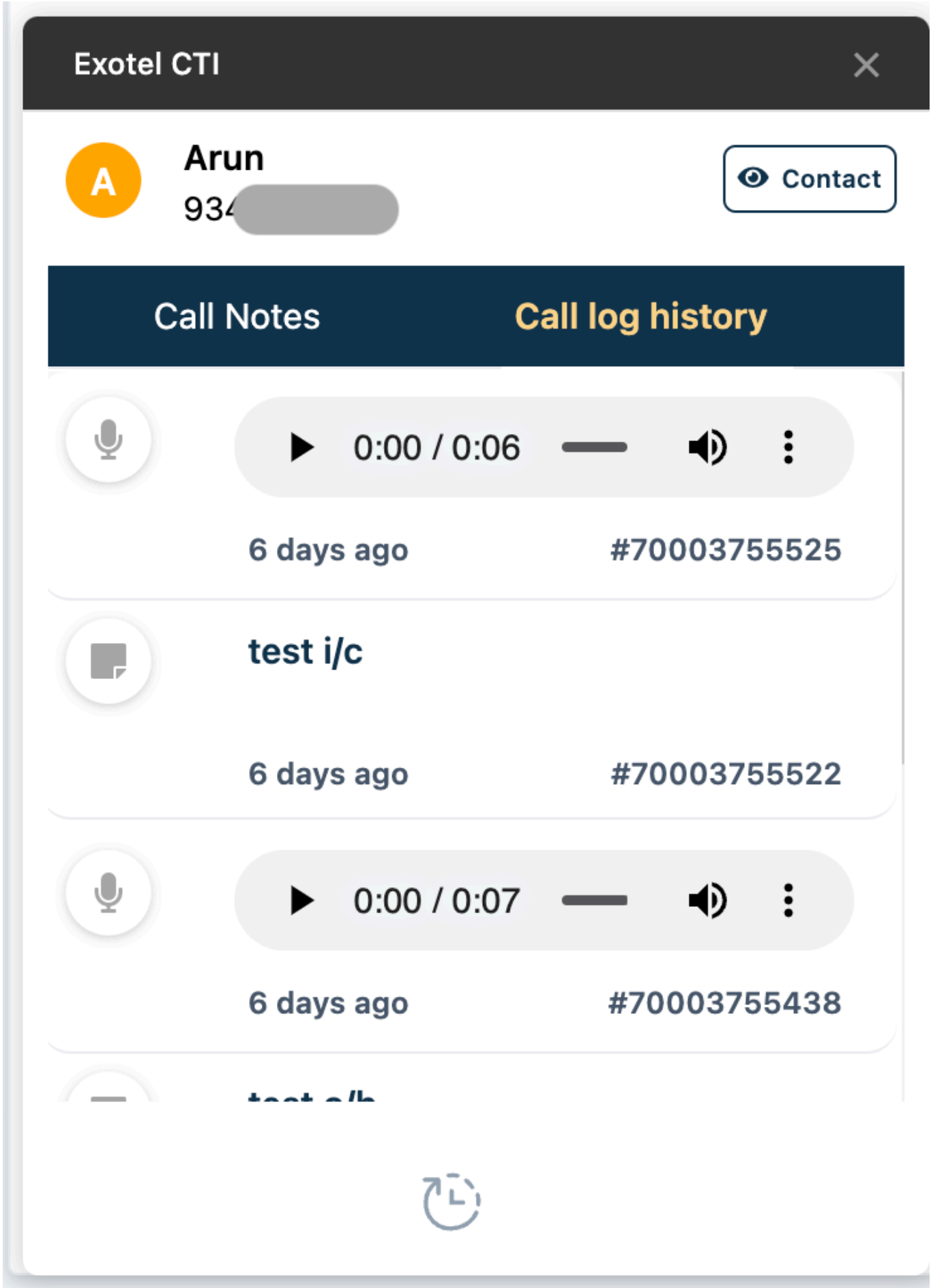
Call Notes Screen



Incoming Call Notification screen



Call Log History screen


Exotel CTI
A
Arun
934
Contact
Call Notes
Call log history
0:00 / 0:06
6 days ago
#70003755525
test i/c
6 days ago
#70003755522
0:00 / 0:07
6 days ago
#70003755438

4.3. Leadsquared

4.3.1. UTC connector

NOTE: This connector only supports domestic calling. If you want to enable international calling, please reach out to your account manager

This Exotel connector enables a LeadSquared agent to have Incoming Call intimation, visualize the call details and provide Click2Call capabilities on the CRM portal.

A seamless integration for enhanced agent productivity and better experience, also allows users to configure multiple telephony accounts on a single connector.

Use cases

1. Integrate multiple instances/accounts of Exotel -(eg: if multiple contact centres in different regions you can now configure each of them as separate tabs)
2. Integrate multiple telephony providers –
   If customers are using more than one telephony service provider, they can now integrate all of them into one place.

Integration features

- Click to Call - Place outbound calls to customers from LeadSquared directly.
- Call pop-up - All calls take place in a call pop-up that has all information related to the call
- Call Log API - To pass LeadSquared UTC Call Log API URL

- Call Timer API - This API is exposed to configure time-based usage for click to call. This will enable users to make calls only during preset timings:

Prerequisites

In order to have a successful integration with the LeadSquared account, you must complete the following tasks:

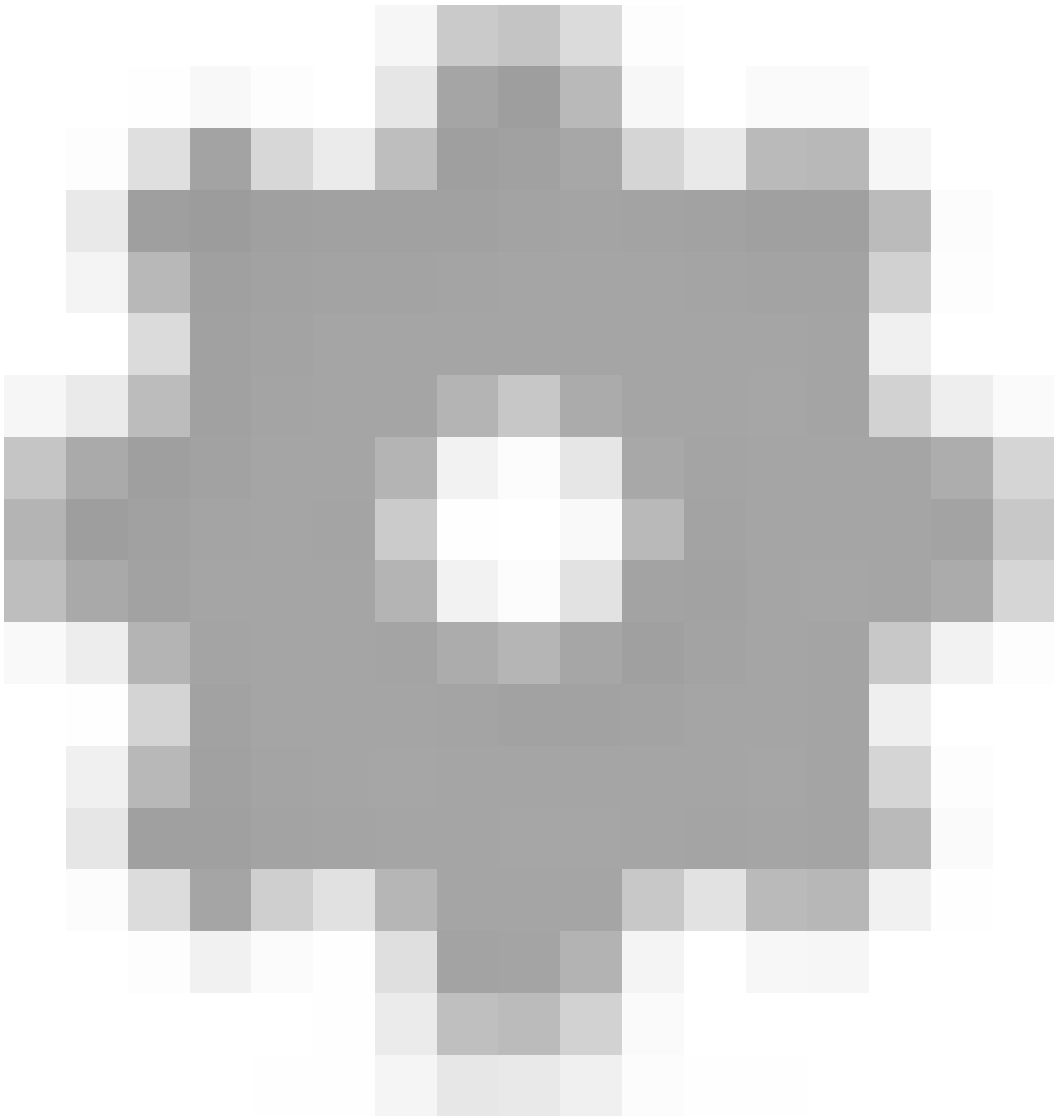
1. Sign up for an Exotel Account
2. Verify your account through phone or email
3. Get your account KYC verified
4. Purchase ExoPhone(VN) to be used by LeadSquared users/agents for outbound calls
5. Lead must be created in LeadSquared CRM

Installation/ Configuration - LeadSquared portal

Navigate to Apps>Apps Marketplace on the LeadSquared portal, search for the Universal Telephony Connector and click Install

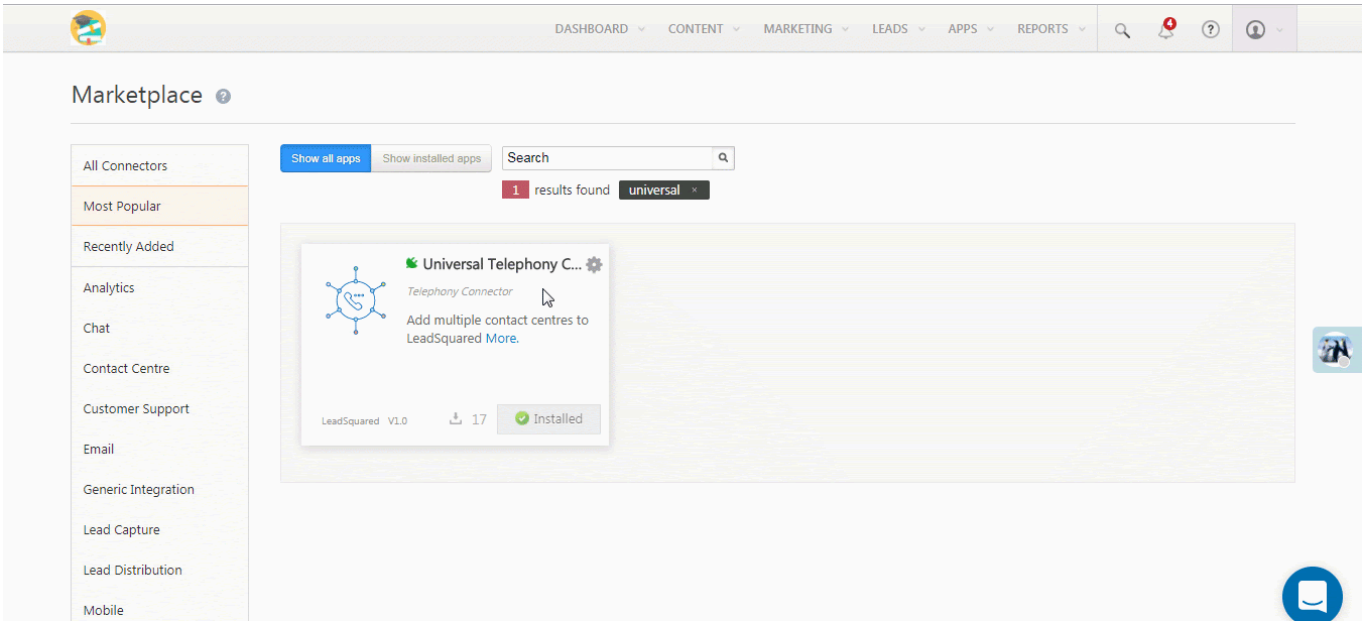
Add/ Modify connector

Click Configure.



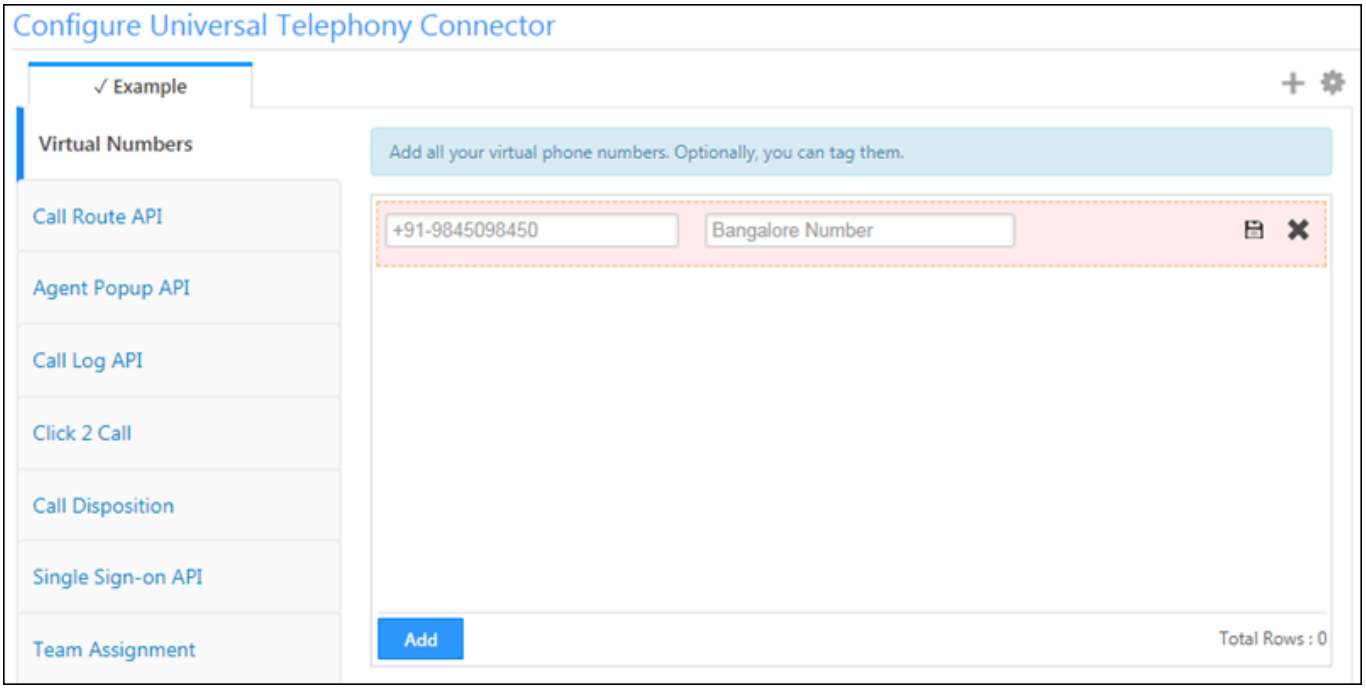
Hover the cursor over the settings

1. Click the Add New Connector button.
2. Enter a name for the new connector, then click Add.



Virtual Number

- Copy the VN purchased from the Exotel portal, add the same in the Virtual Number field (prefix with country code followed by - eg: +91-)



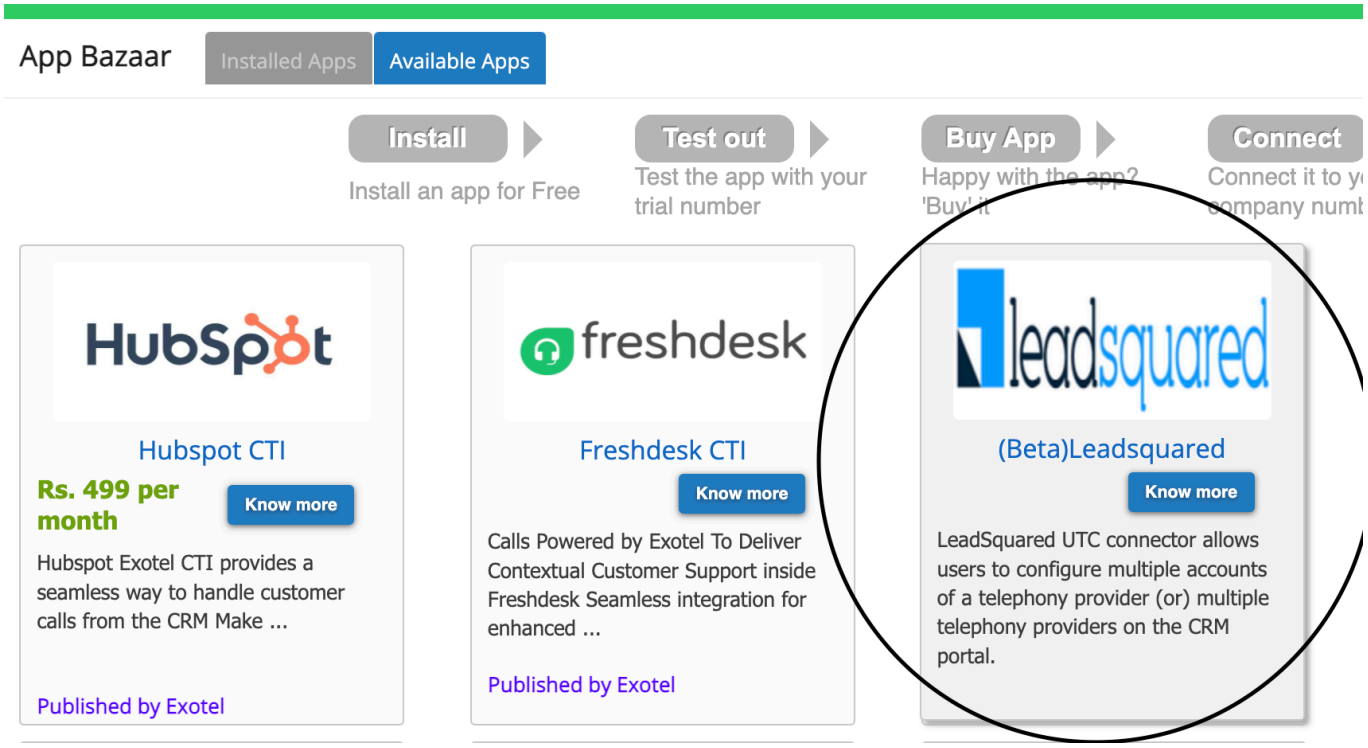
Connector config / Call timer

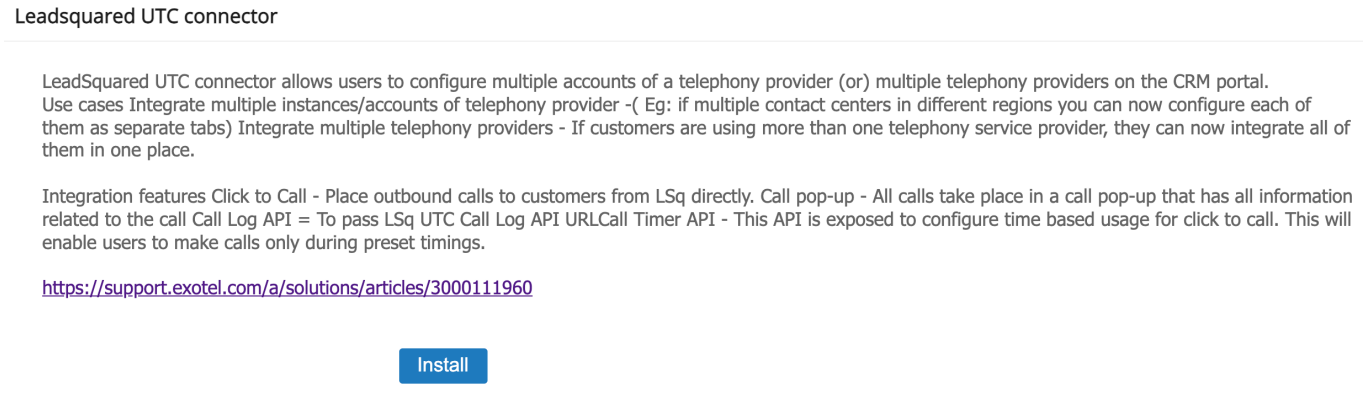
This API is exposed to configure the connector and schedule time-based usage for click to call which will enable users to make calls only during preset timings. This API is responsible for configuring the time limit of each call made by LeadSquared.

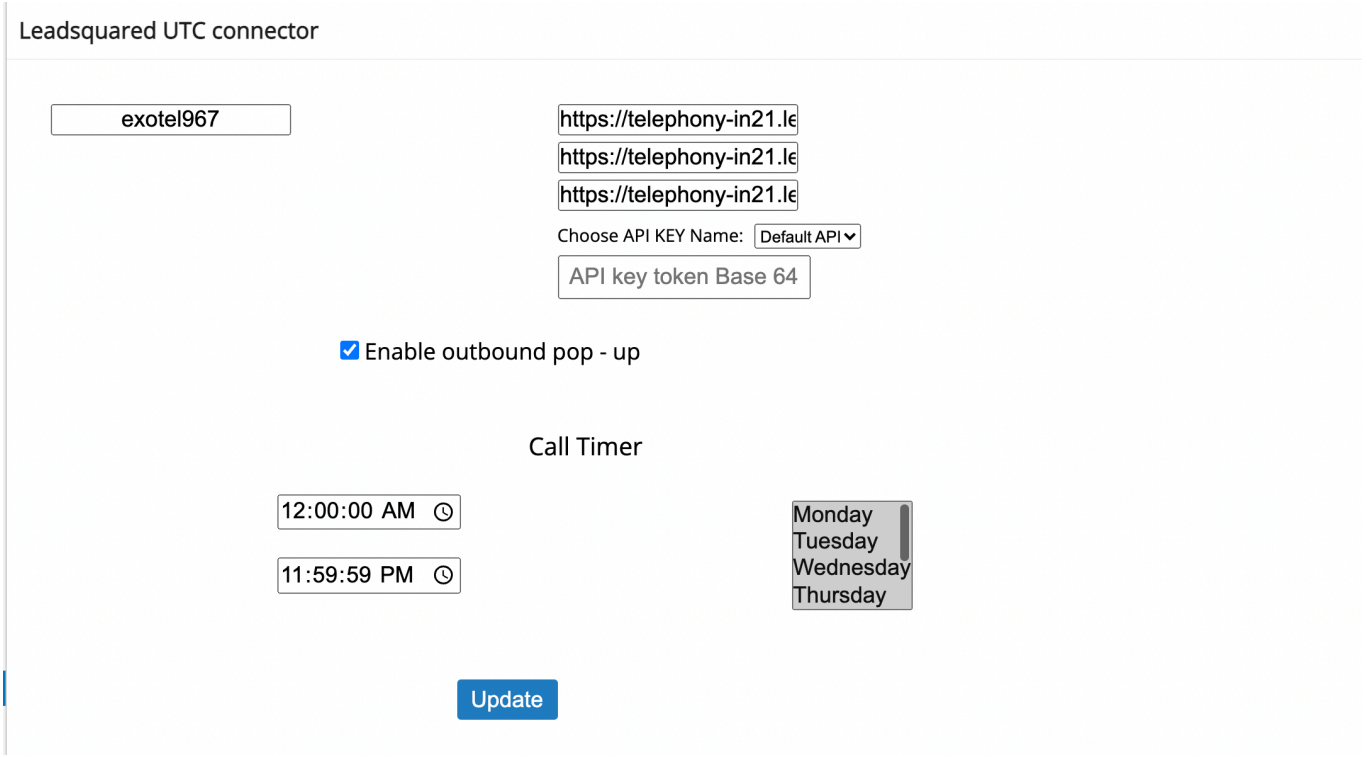
- Call_Timer = TRUE / FALSE. By default, it will be set to FALSE. If set to TRUE, then only honour the following three parameters (else, ignore):

- Call_Start_Timer - Time in format HH:MM:SS. Allow calling from this time on a day. Default Value = 00:00:00
- Call_End_Timer - Time in format HH:MM:SS. Stop calling from this time of the day. Default Value = 23:59:59
- Call_Allowed_Days - Array of strings to take input as [Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday]. By default allow all 7 days.

This can be configured via the **Leadsquared app** available on https://my.exotel.com/{**AccSID**}/apps#available-apps



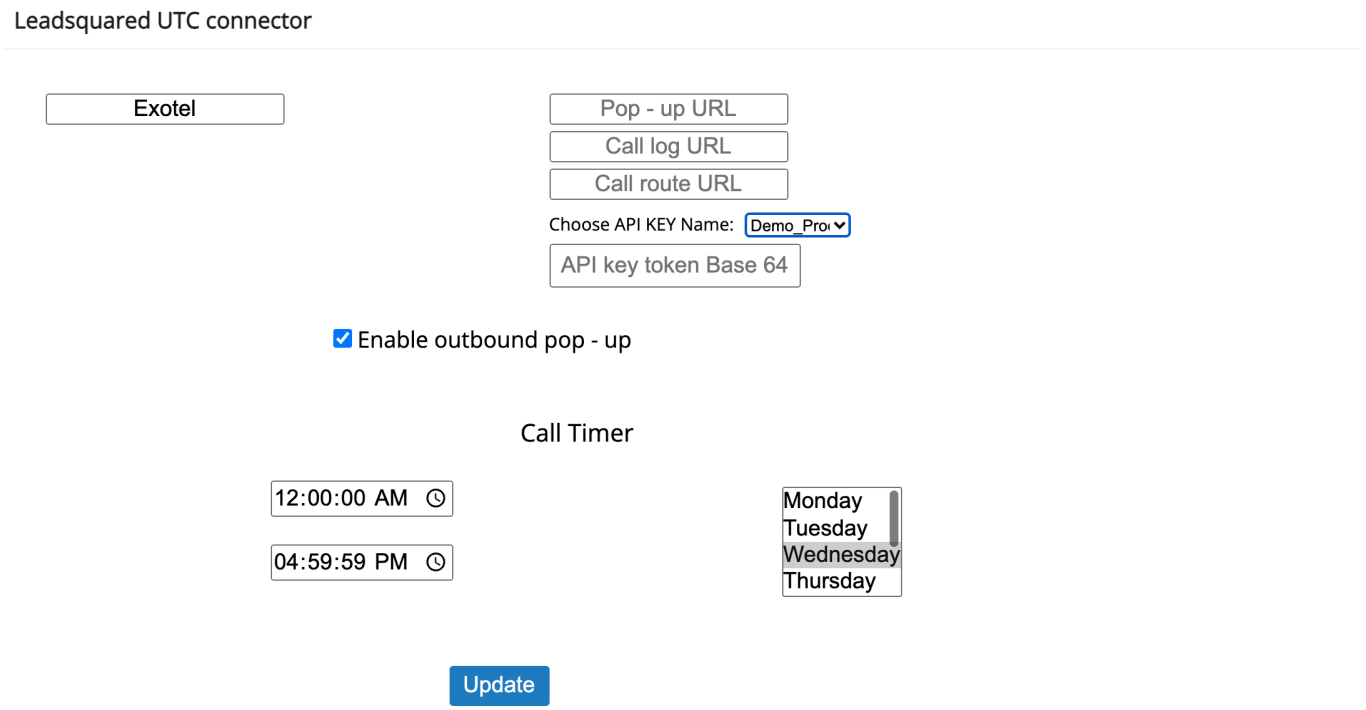


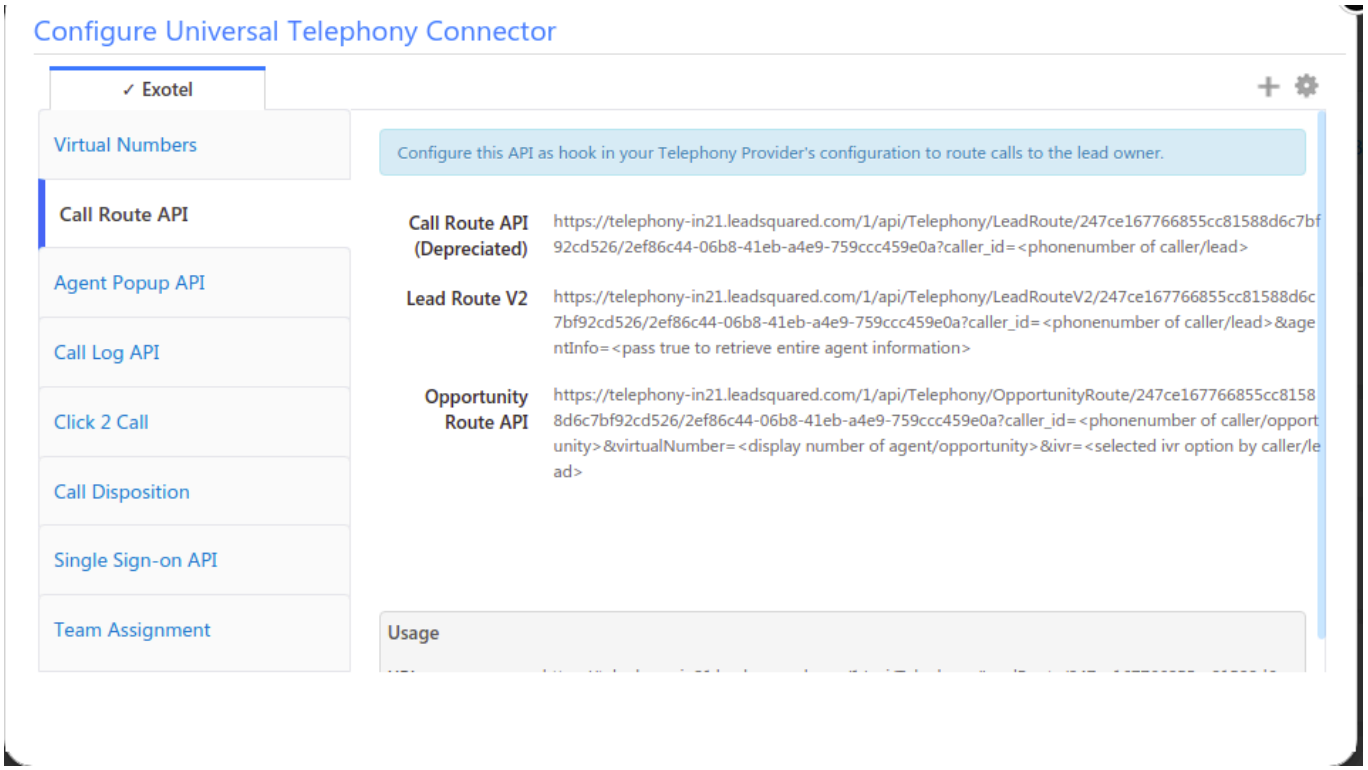


Note: *API key token Base 64 value will be fetched only on clicking 'update'. The same value needs to be copied onto Leadsquared connector Click2call settings*

Call Route URL

To be copied from Leadsquared connector >> Lead Route V2 and configured under **Call route URL** on **Exotel >> App Bazaar >> Leadsquared connector(UTC)**





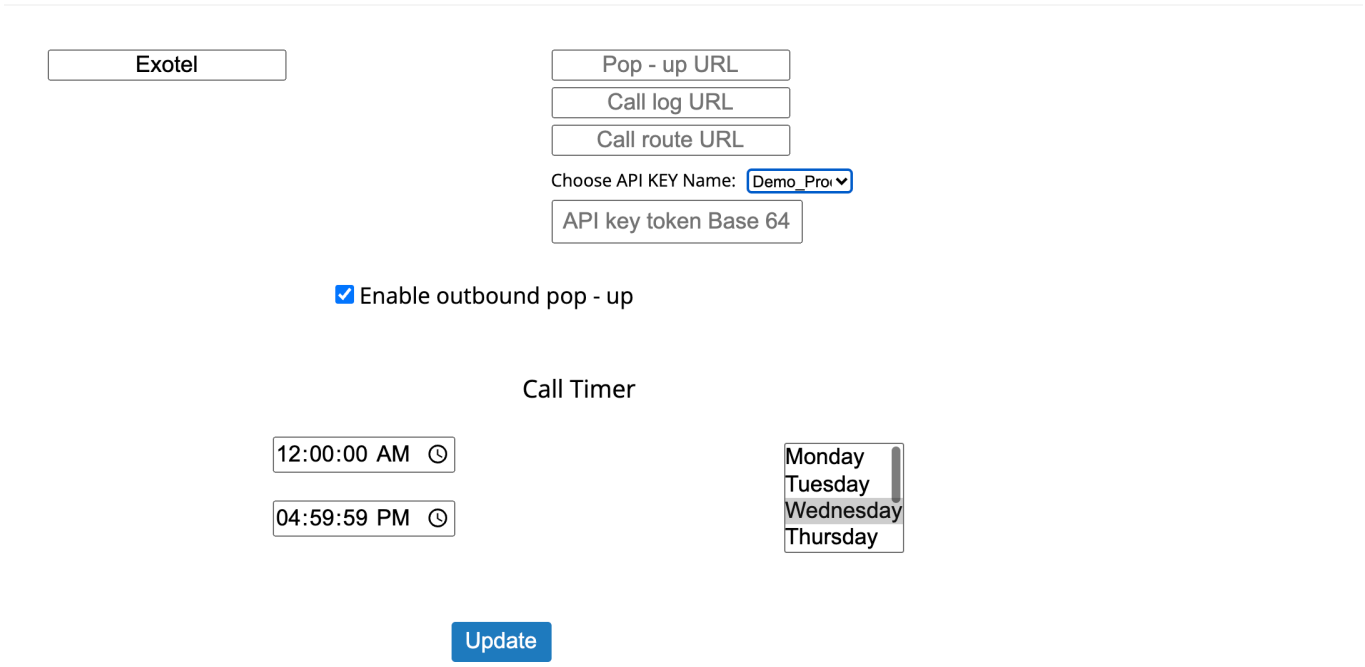
Kindly configure the LeadRouteV2 URL. Do not use Call Route API which is depreciated. Only configure the URL without query parameters (?caller_id=<phonenumber of caller/lead>&agentInfo=<pass true to retrieve entire agent information>) as mentioned

eg: Call route URL for the above screenshot would be

https://telephony-in21.leadsquared.com/1/api/Telephony/LeadRouteV2/247ce167766855cc81588d6c7bf92cd526/2ef86c44-06b8-41eb-a4e9-759ccc459e0a

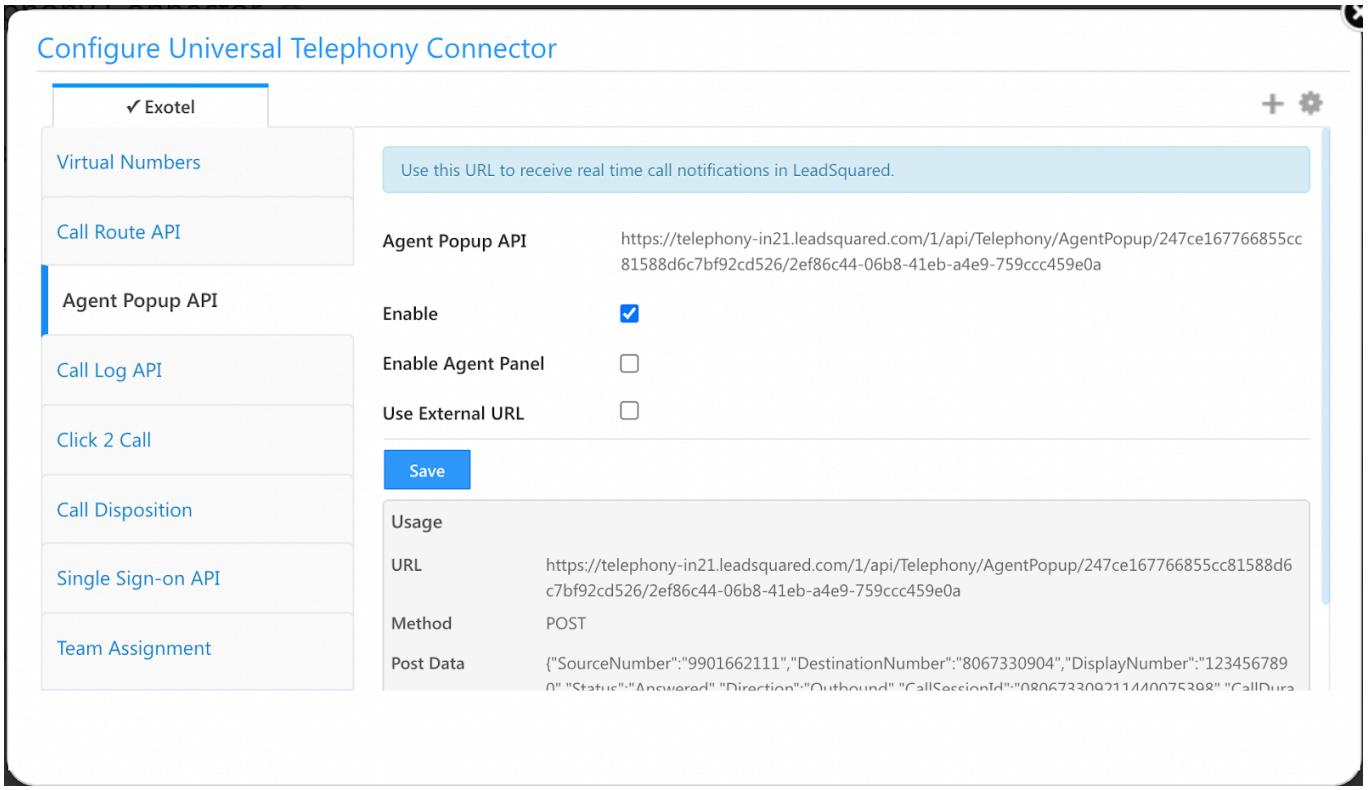
Agent Popup URL

To be copied from Leadsquared UTC connector >> Agent pop-up API and configured under **Pop-up URL** on **Exotel >> App Bazaar >> Leadsquared connector(UTC)**



- Click on the ‘Enable’ checkbox and save, the remaining options as pre-configured on LSQ portal.
-

Enable the "Show Phone Call Popup" checkbox in Leadsquared User profile settings(https://in21.leadsquared.com/Settings/MyProfile)



Call Log URL

*To be copied from **Leadsquared UTC connector >> Call Log API** and configured under **Call log URL** on **Exotel >> App Bazaar >> Leadsquared connector(UTC)***

Click 2 Call
***URL for SGP stamp (Domestic)** - https://api.cocreate.exotel.com/v1/leadsquared/outbound/call/connect?AgentNumber=@agentNumber&CustomerNumber=@customerNumber&VirtualNumber=@virtualNumber*

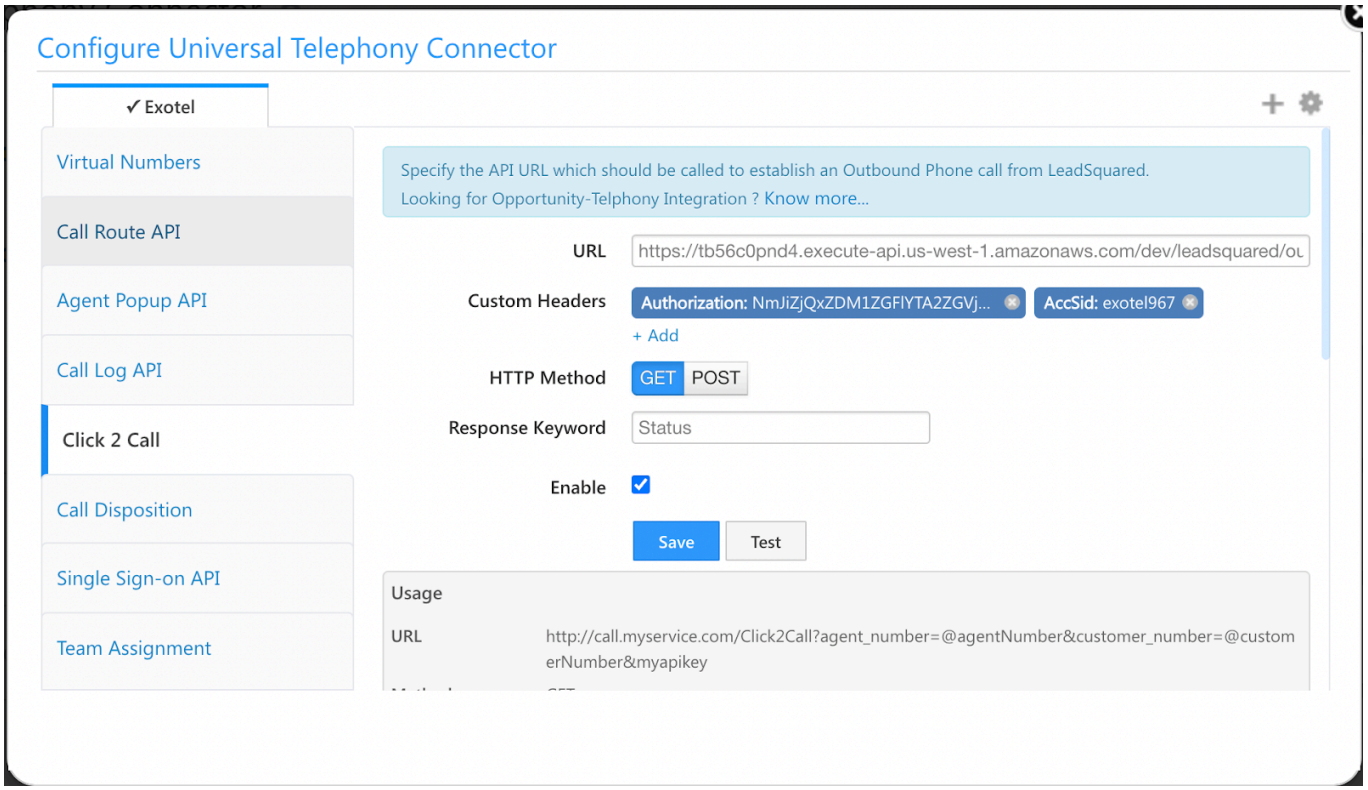
***URL for all Mumbai stamp accounts and International SGP accounts** = https://api.lsq.cocreate.exotel.com/v1/leadsquared/outbound/call/connect?AgentNumber=@agentNumber&CustomerNumber=@customerNumber&VirtualNumber=@virtualNumber*

Custom Headers

Base64 value of Exotel API token/ key + AccSid (Exotel Acc ID)

(available on the Leadsquared app on Exotel Appbazaar)

- HTTP Method - GET



POST COC-Config(*optional*):

This endpoint is responsible for enabling the LeadSquared integration(*already invoked by the connector app, no need to call separately):*

URL for Singapore stamp (Domestic) - https://api.cocreate.exotel.com/v1/coc-auth/{AccSid}/config

URL for all Mumbai stamp accounts and International SGP accounts = *https://api.lsq.cocreate.exotel.com/v1/**coc-auth/{AccSid}/config***

Sample HTTP Request:

curl --location --request POST https://api.cocreate.exotel.com/v1/coc-auth/{AccSid}/config (For Singapore stamp domestic accounts)

https://api.lsq.cocreate.exotel.com/v1/coc-auth/{AccSid}/config (For Mumbai Stamp and International accounts)

Request:

Header:

ContentType - application/json

api-key - Exotel API-Key

api-token - Exotel API-Token

Body Parameters:

Field	**Description**	**Default**	**Mandatory**
callLogAPIURL	String; LSq UTC Call Log API URL	nil	yes
agentPopupURL	String; LSq UTC Agent Popup API URL	nil	yes
callRouteURL	String; LSq UTC Call Route API URL	nil	yes
isActive	String; (true/false) Whether the tenant/application is active or not	true	no
callStartTimer	String; Allow calling from this time on a day	00:00:00	no
callEndTimer	String; Stop calling from this time on a day		

Header: **ContentType - application/json** **api-key - Exotel API-Key** **api-token - Exotel API-Token** **Body Parameters:**
23:59:59 no
callAllowedDays [String]; Allowed days to make a call [“Monday”, “Tuesday”, “Wednesday”, “Thursday”, “Friday”, “Saturday”, “Sunday”] no
enableOutboundPopup [String]; (true/false) Enable Popup for outbound calls. true no

Query Parameters:

Field	Mandatory	Default	Description
app	yes	nil	Name of the application in lowercase (ex: leadsquared)

Sample Request:

{

"isActive": "true",

"leadsquared":{

"callLogAPIURL": "https://telephony-in21.leadsquared.com/...",

"callRouteURL" : "https://telephony-in21.leadsquared.com/...",

"agentPopupURL" : "https://telephony-in21.leadsquared.com/..."

"isActive": "true"

}

}

Response:

Parameters:

Param **Description** **Mandatory**
Status Success/Error yes
Message Error message, if any No
Data Response data No

Sample Response:

{

"Data": {

"isActive": "true",

"token":

"<token>..."

},

"Status": "Success"

}

HTTP Status Codes
Status Code **Description**
200 Success
400 Invalid Input. More details found in response description
401 Unauthorised
500 Server error

GET COC-Config:

This endpoint is responsible for retrieving the configs of the LeadSquared application.

HTTP Request:

- curl --location --request GET 'https://api.cocreate.exotel.com/v1/coc-auth/{AccSid}/config (For Singapore domestic accounts)

https://api.lsq.cocreate.exotel.com/v1/coc-auth/{AccSid}/config (*for all Mumbai stamp accounts and International SGP accounts*)

Request:

Header: **ContentType - application/json** **api-key - Exotel API-Key** **api-token - Exotel API-Token**
Parameter **Description** **Default** **Mandatory**
app Name of the application in lowercase (ex: leadsquared) nil yes

Response:

Parameters:
Param **Description** **Mandatory**
Status Success/Error yes
Message Error message, if any No
Data Response data No

Sample Response:

{

"Data": {

"isActive": "true",

"leadsquared": {

"agentPopupURL": "https://telephony-in21.leadsquared.com

/...",

"callAllowedDays": [

"Monday",

"Tuesday",

"Wednesday",

"Thursday",

"Friday",

"Saturday",

"Sunday"

],

"callEndTimer": "23:59:59",

"callLogAPIURL": "https://telephony-in21.leadsquared.com

/...",

"callRouteURL": "https://telephony-in21.leadsquared.com

/...",

"callStartTimer": "00:00:00"

"isActive": "true"

},

"token": "<token>"

},

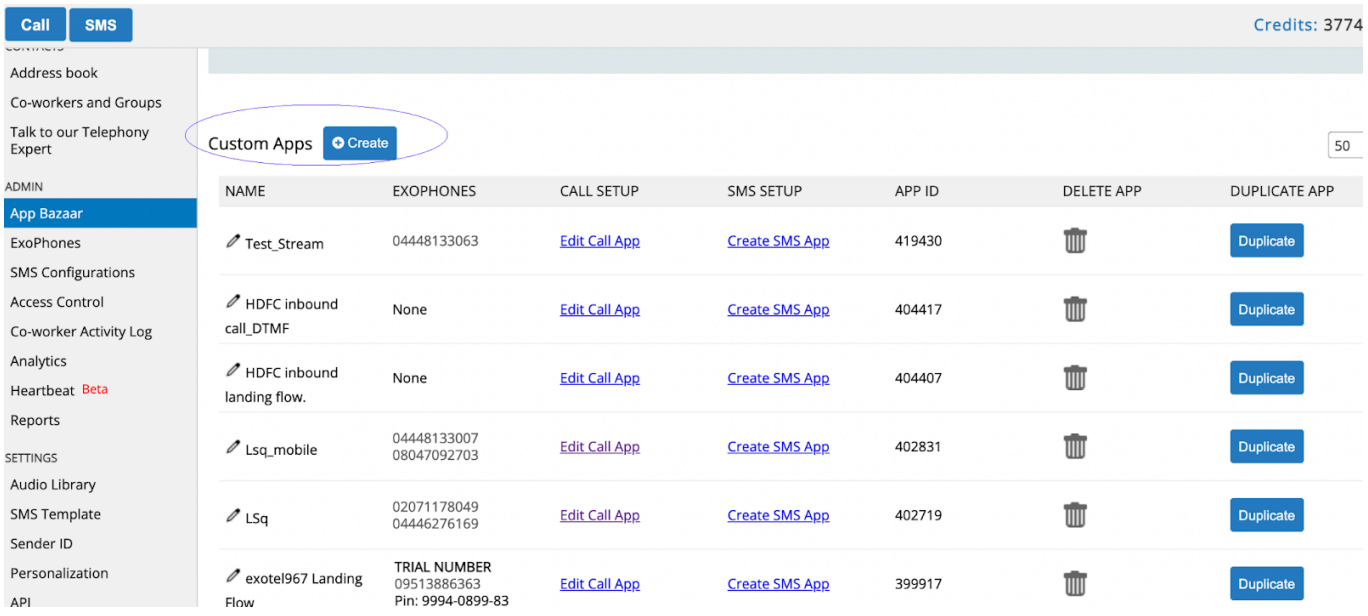
"Status": "Success"

}

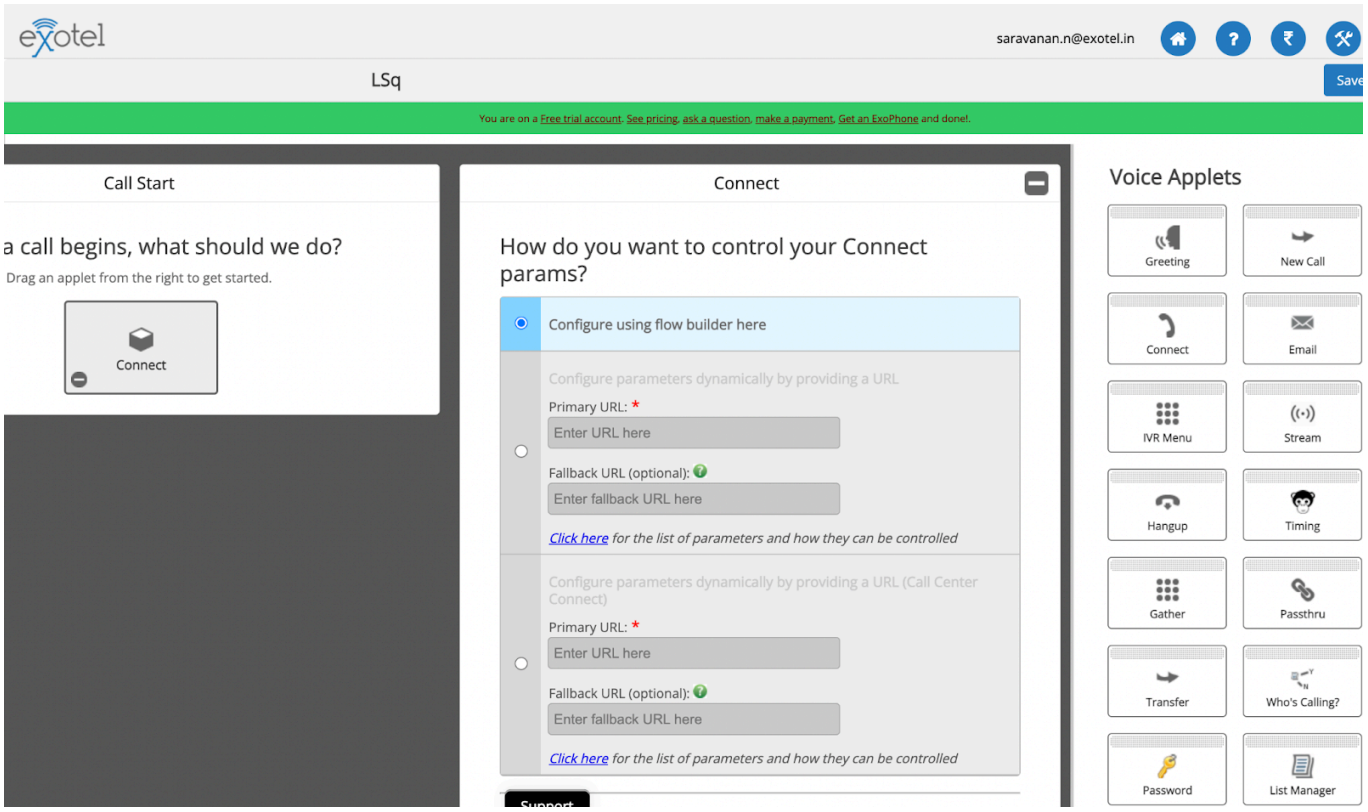
HTTP Status Codes	
Status Code	**Description**
200	Success
400	Invalid Input. More details found in response description
401	Unauthorised
500	Server error

Call flow configuration - Exotel portal

1. Login to Exotel acc(https://my.exotel.com/)
2. Navigate to Admin panel >> App Bazar
3. Click on Custom Apps (+ Create) to add a new flow



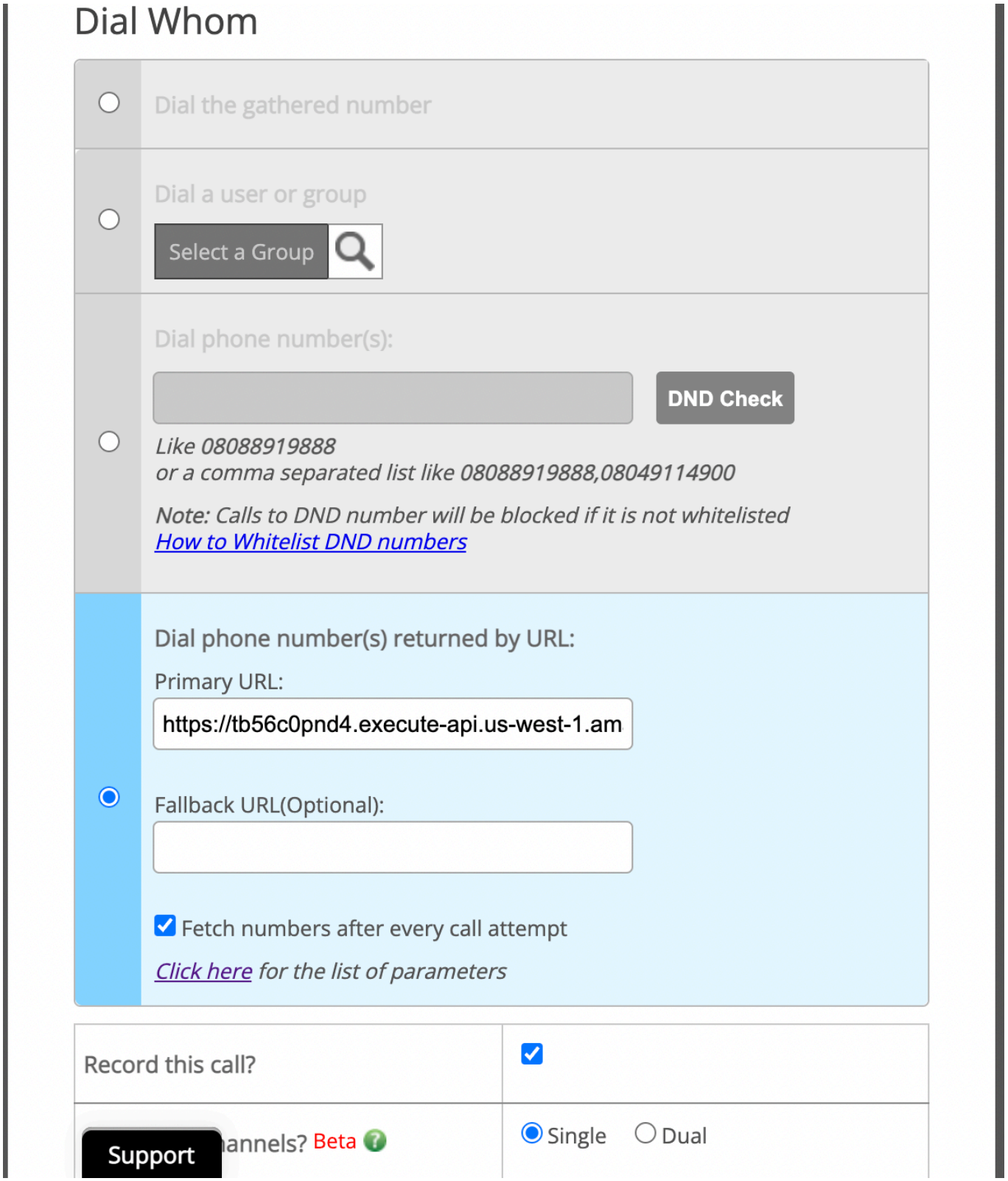
1. Add an ‘App Name’ and create a new flow
2. Call Start >> Add a Connect applet to begin the call flow



1. Connect Applet:

- Configure DialWhom section with ‘**Dial phone number(s) returned by URL**’

PrimaryURL: **(For Singapore domestic accounts)**https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/dialwhom?AccSid={AccSID}**(For Mumbai and all International accounts)*accounts***https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/dialwhom?AccSid={AccSID}

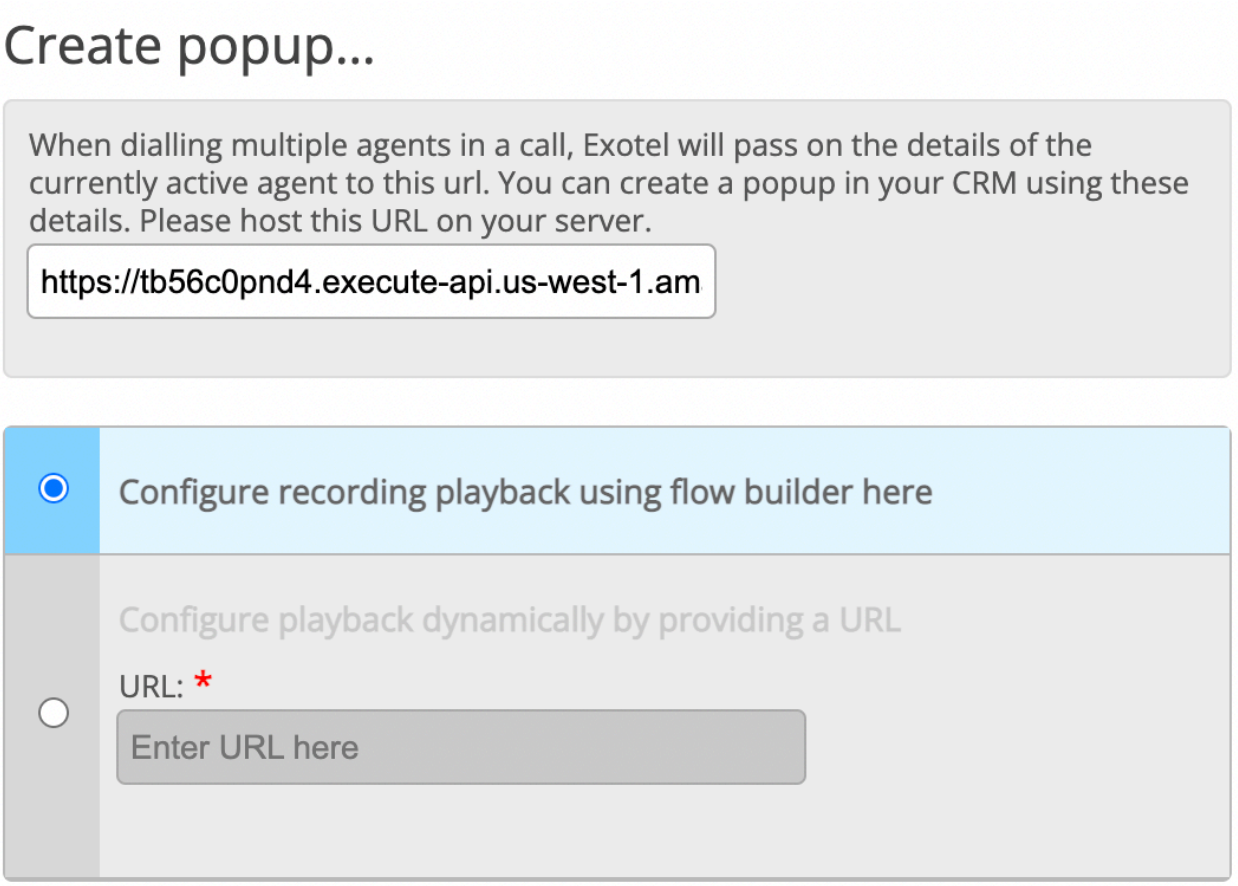


- Create popup - To enable pop up on the Leadsquared portal
- https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/popup?AccSid={AccSID}

(For Singapore domestic accounts)

- **(For Mumbai and all International accounts)**
  https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/popup?AccSid=

{AccSID}



- After the call conversation ends - Add Passthru applet
- If nobody answers - Add Passthru applet

1. Passthru Applet (Call conversation ends)

- Passthru URL - **(For Singapore domestic accounts):** https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid=xxxxx
- **(For Mumbai and all international accounts):**
- https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid=xxxxx

- Make Passthru asynchronous (☑)

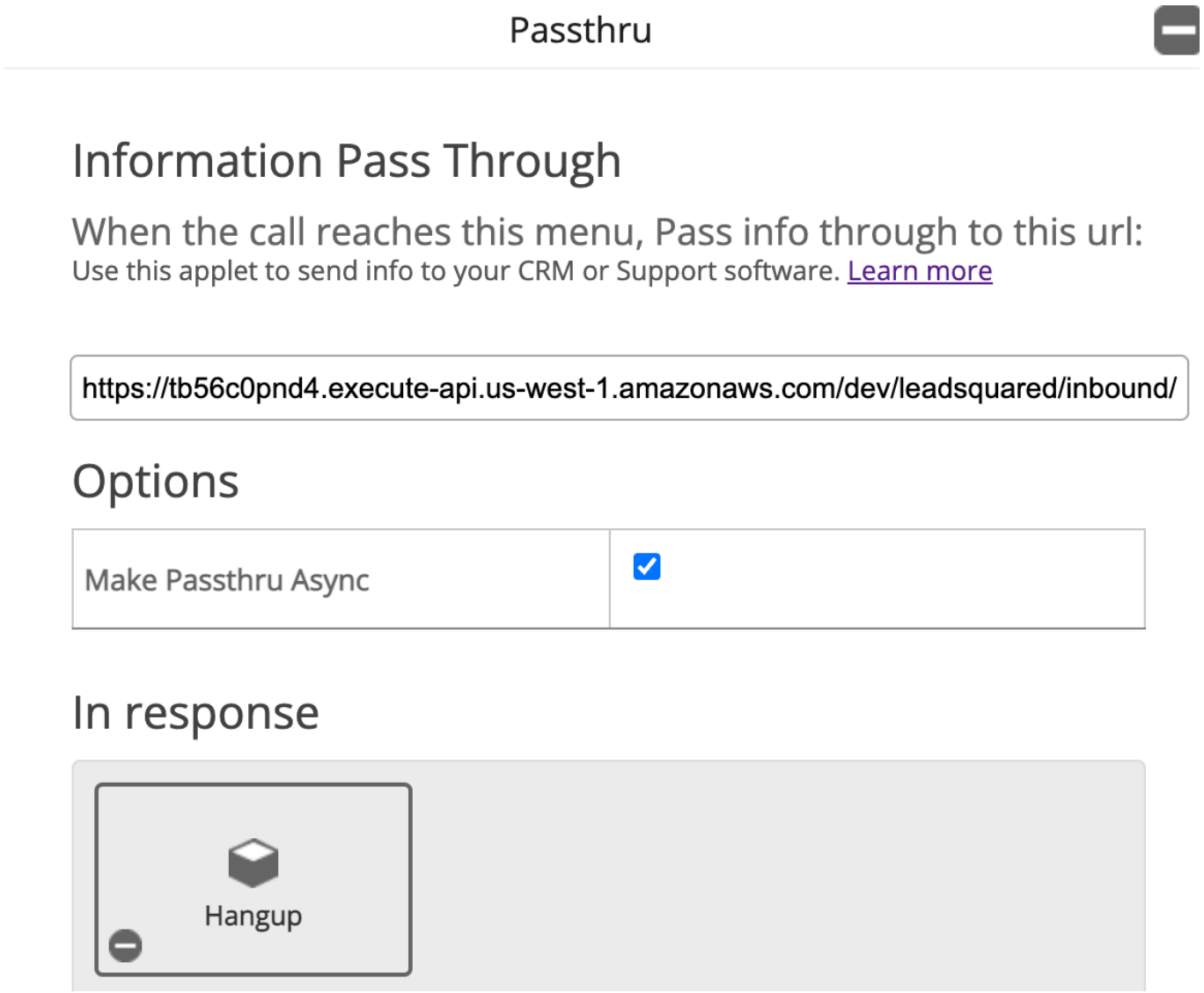
1. Passthru Applet (If nobody answers)

- Passthru URL -

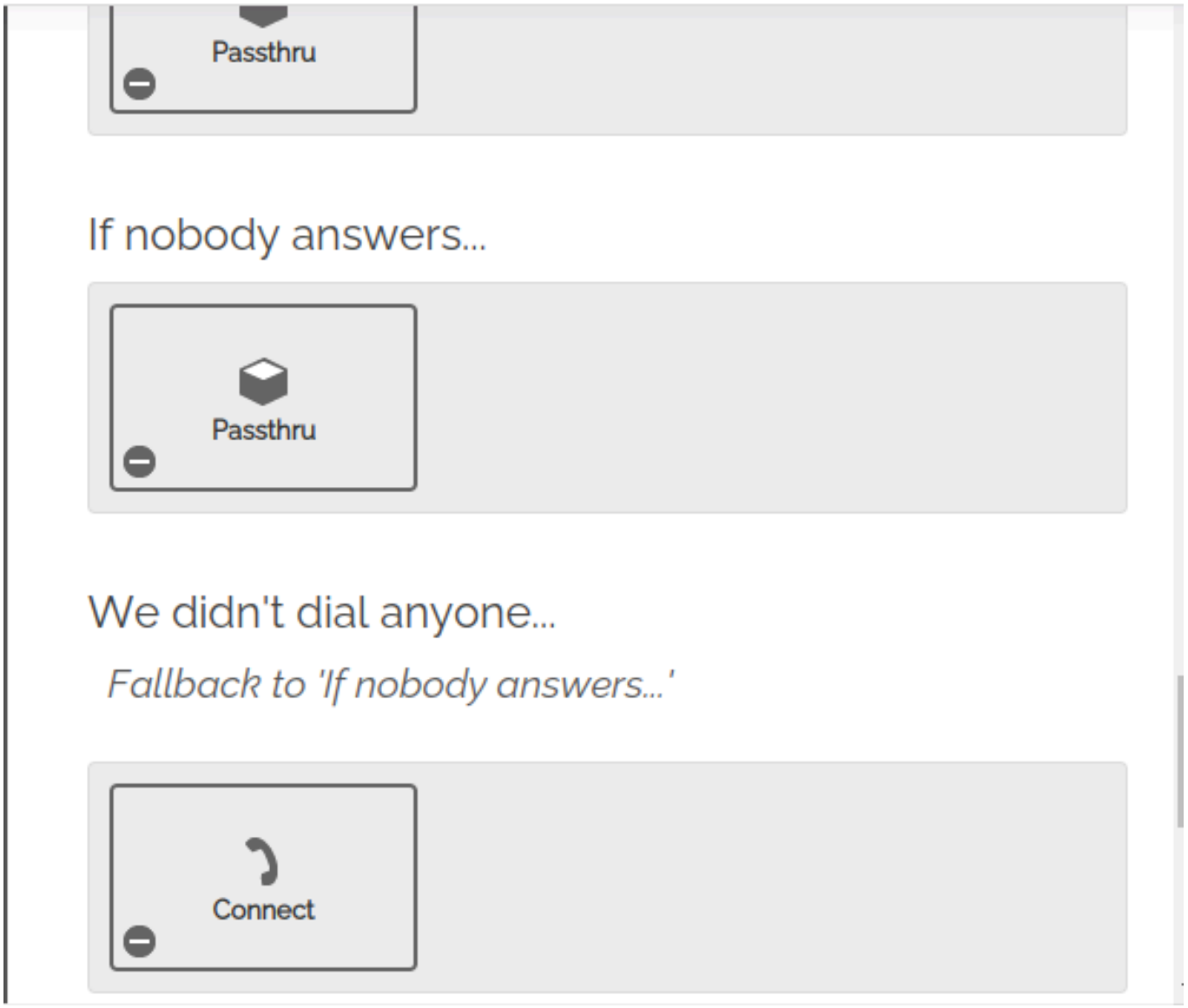
- **(For Singapore domestic accounts) :**
  https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid=xxxx
- **(For Mumbai and all international accounts)**

:https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid=xxxx

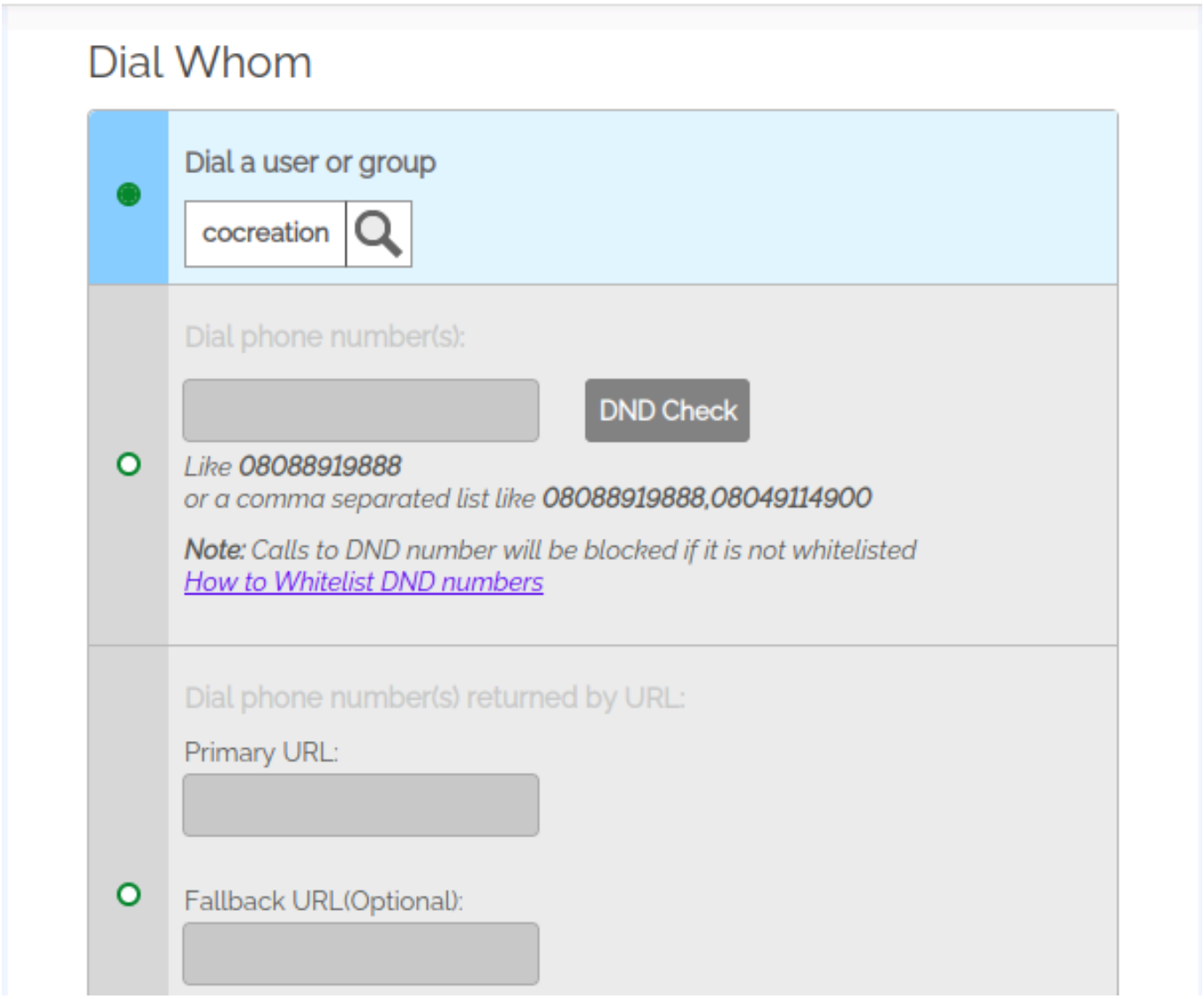
- Make Passthru asynchronous (☑)



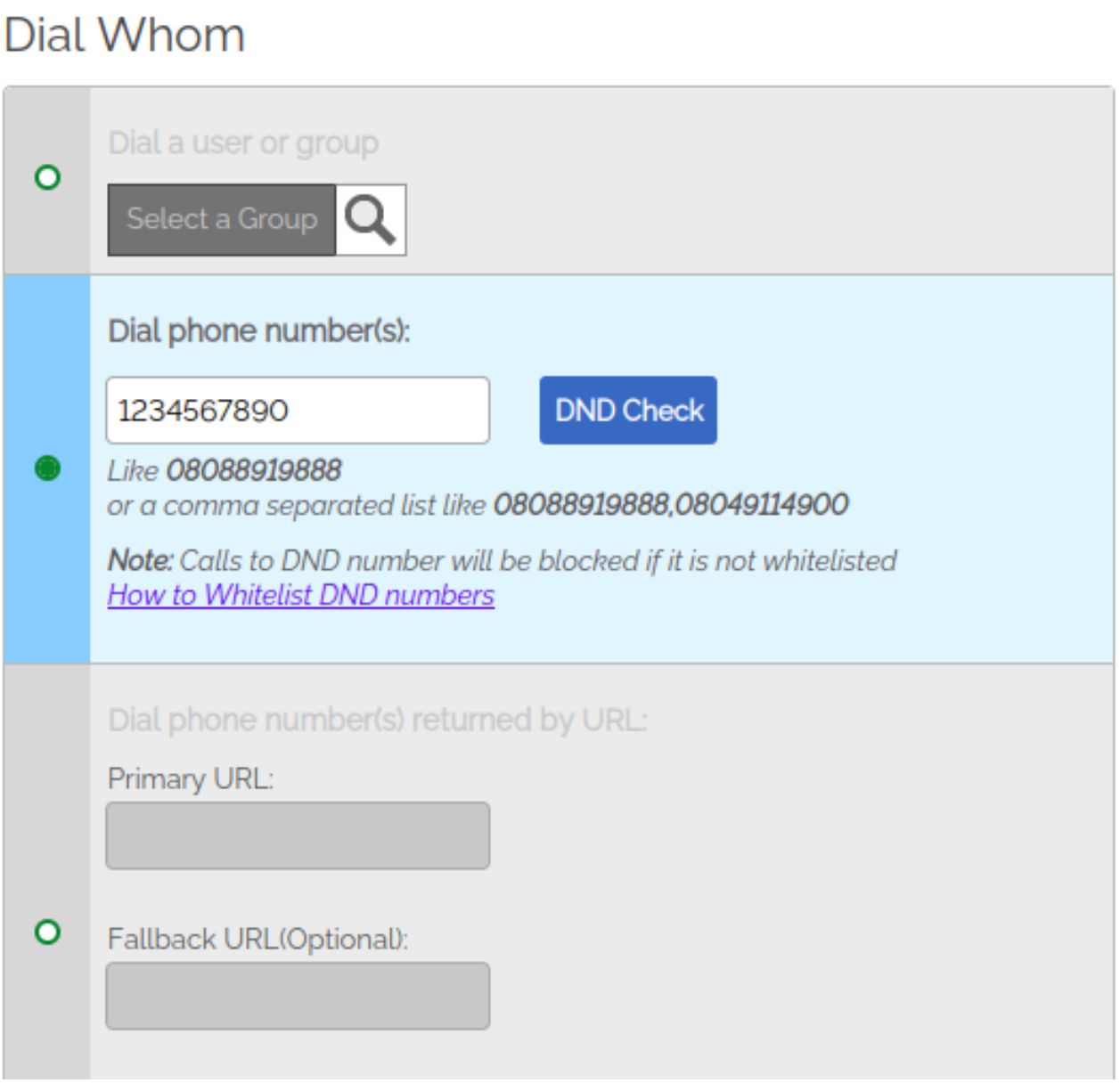
The above call flow setup can only handle calls from existing leads that are created and available in LeadSquared. To handle new callers whose data is not available in LeadSquared, please add the below to the existing call flow. The idea is to route the new callers to the groups available in Exotel if we don't receive any lead owner numbers from LeadSquared and we will send those call details to LeadSquared based on which they can create a lead in LeadSquared post-call completion.



Place the 2nd connect applet in the "**We didn't dial anyone..**" section as mentioned below.



In Dial Whom of 2nd connect applet, choose a group to dial.



You can also route the calls to a common customer care number by doing below where **1234567890** is the customer care number instead of providing a group.

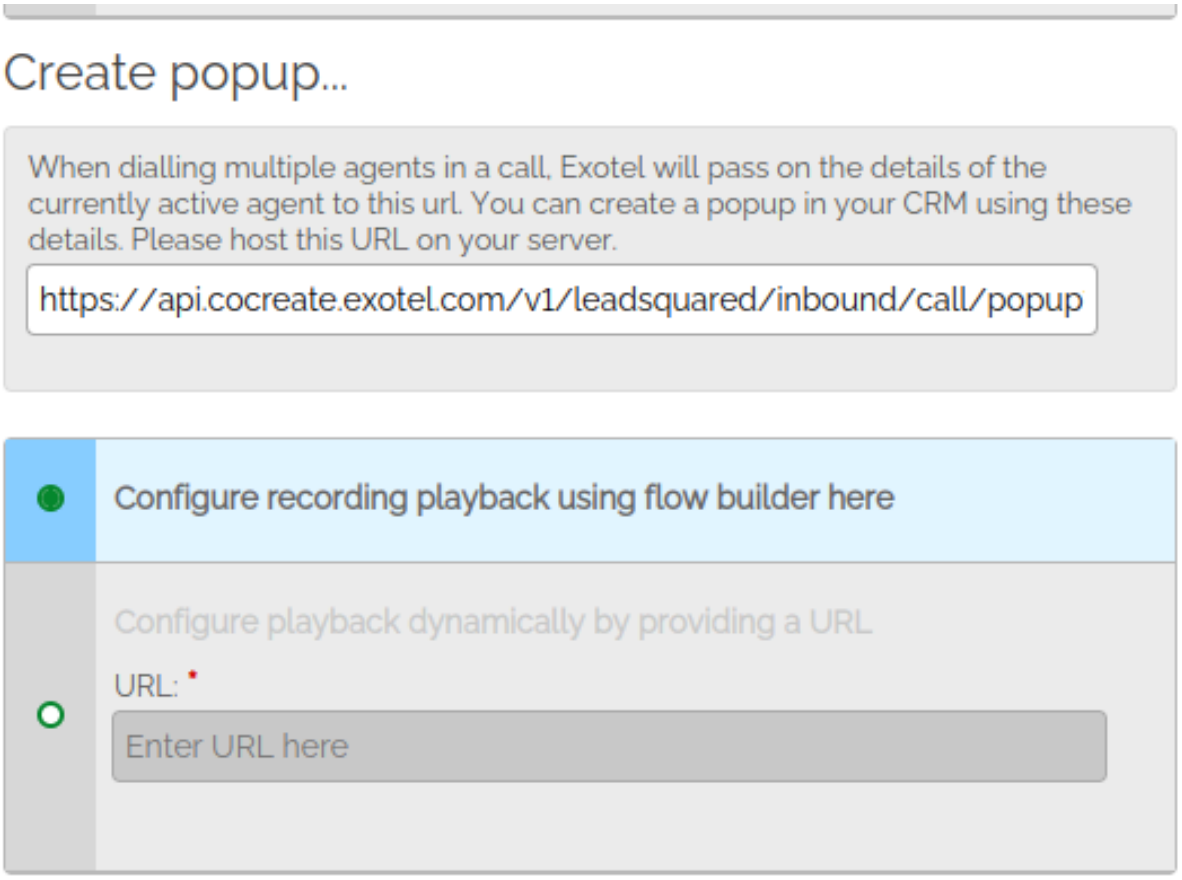
1. Configure both agent popup and passthru with the below URLs as same as it's configured in the 1st connect applet to send popup data and call logs to Leadsquared.

Create popup - To enable pop up on the Leadsquared portal

(For all Singapore domestic account):

https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/popup?AccSid={AccSID}

(For Mumbai and all international accounts):
https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/popup?AccSid={AccSID}



Passthru Applet (Call conversation ends)

Passthru URL -(For all Singapore domestic account):
https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSID}

(For Mumbai and all international account):

https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSID}

Make Passthru asynchronous (☑)

Passthru Applet (If nobody answers)

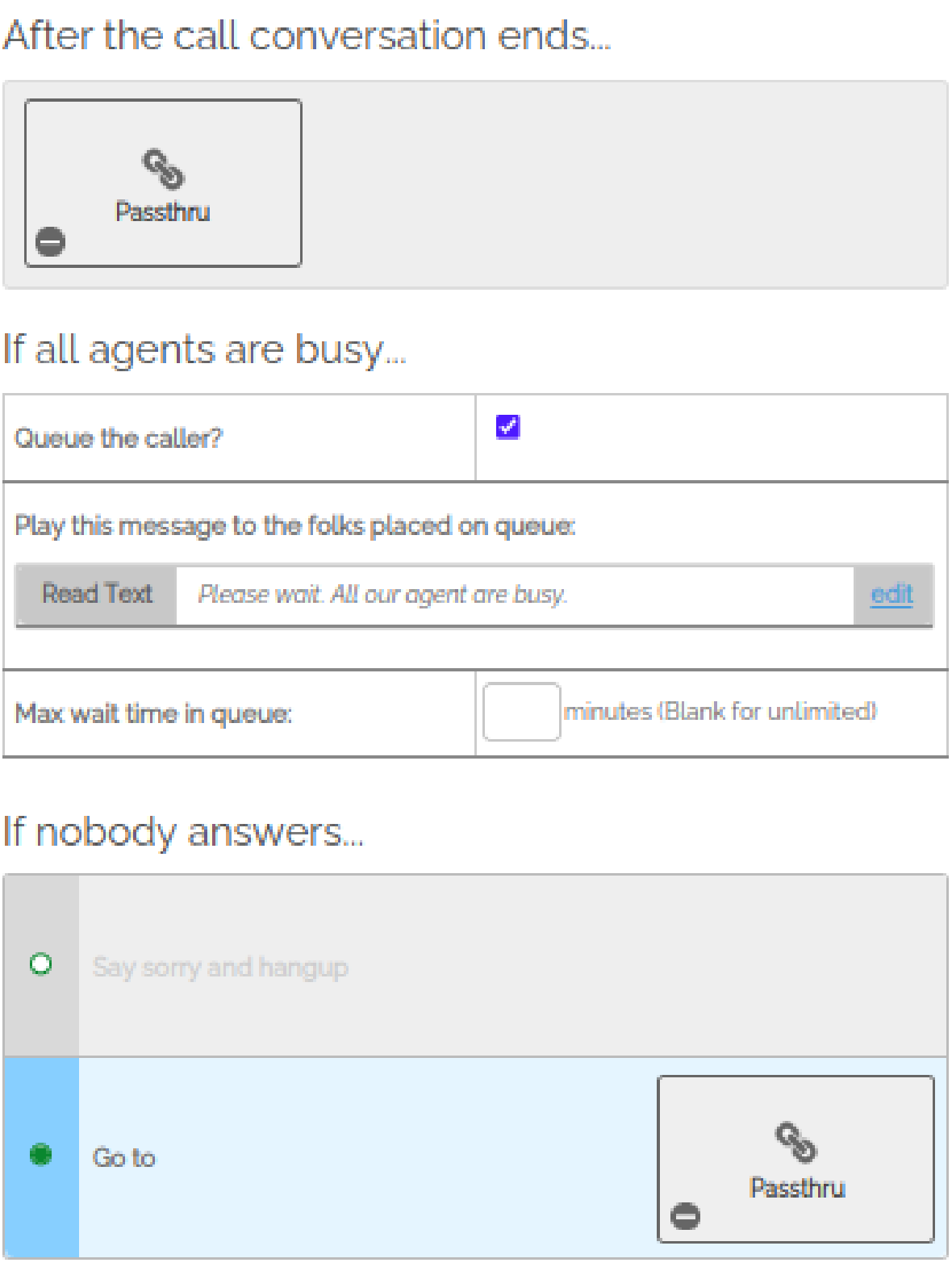
Passthru URL - (For all Singapore domestic account):

https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSID}

(For Mumbia and all international account):

https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSID}

Make Passthru asynchronous (☑)



4.3.2. LeadSquared Mobile app integration

The Exotel - LeadSquared Mobile Cloud Calling connector enables cloud calling from the LeadSquared mobile app via Exotel voice APIs for end-end call flow.

Note: C*onnector needs to be installed/ configured on the LeadSquared web portal*.

Integration features

- Click to Call - Place outbound calls to customers from the LeadSquared mobile app directly via Exotel APIs.
- Incoming call with call pop-up - Call pop enabled on a mobile device to intimate for incoming calls.
- List all DID(*Virtual numbers*).

Prerequisites

In order to have a successful integration with the Leadsquared account, you must complete the following tasks:

1. Sign up for an Exotel Account
2. Verify your account through phone or email
3. Get your account KYC verified
4. Purchase ExoPhone(VN) to be used by Leadsquared users/agents for outbound calls
5. Add agent under co-worker/ employee on Exotel dashboard(*this should match the agent email/ phone number in the Leadsquared portal)*
6. Lead must be created in LeadSquared CRM.
7. CoC configuration has to be done as mentioned here. Kindly refer to the section "**COC-Config - Connector config / Call timer**" in the mentioned article. for configuration instructions.

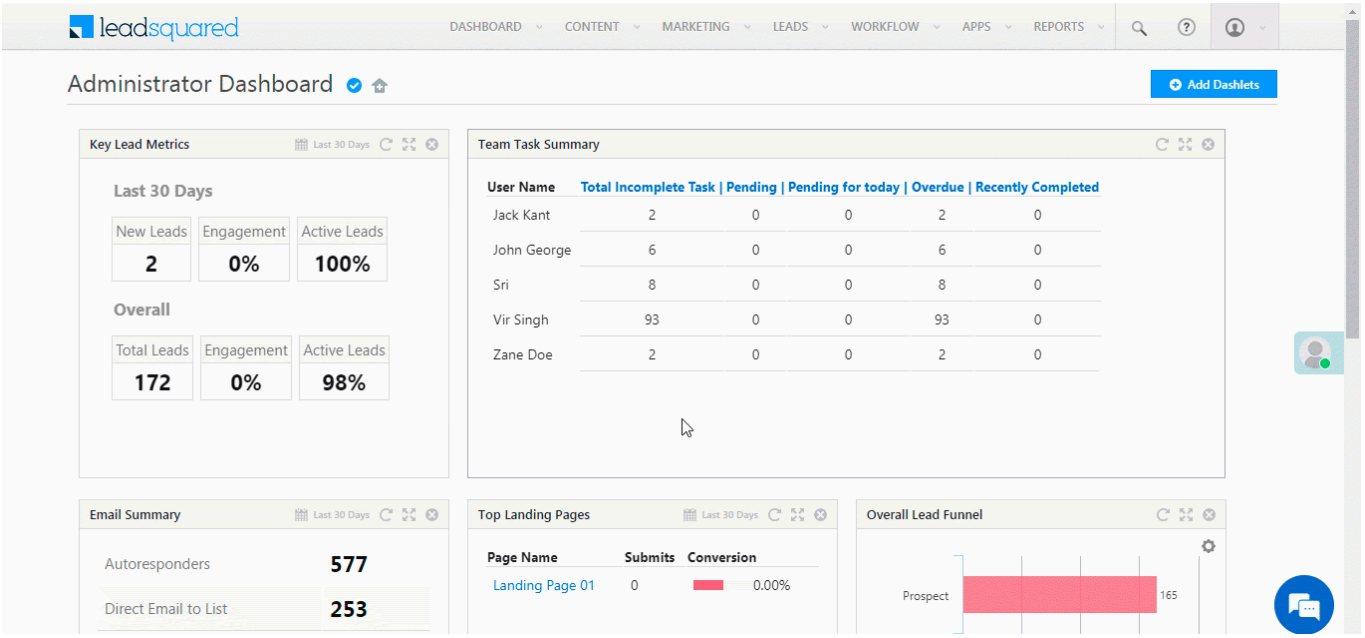
Virtual Number

- Copy the VN purchased from the Exotel portal, and add the same under any Custom* number field available in the LeadSquared user profile. (*https://in21.leadsquared.com/Settings/MyProfile*)

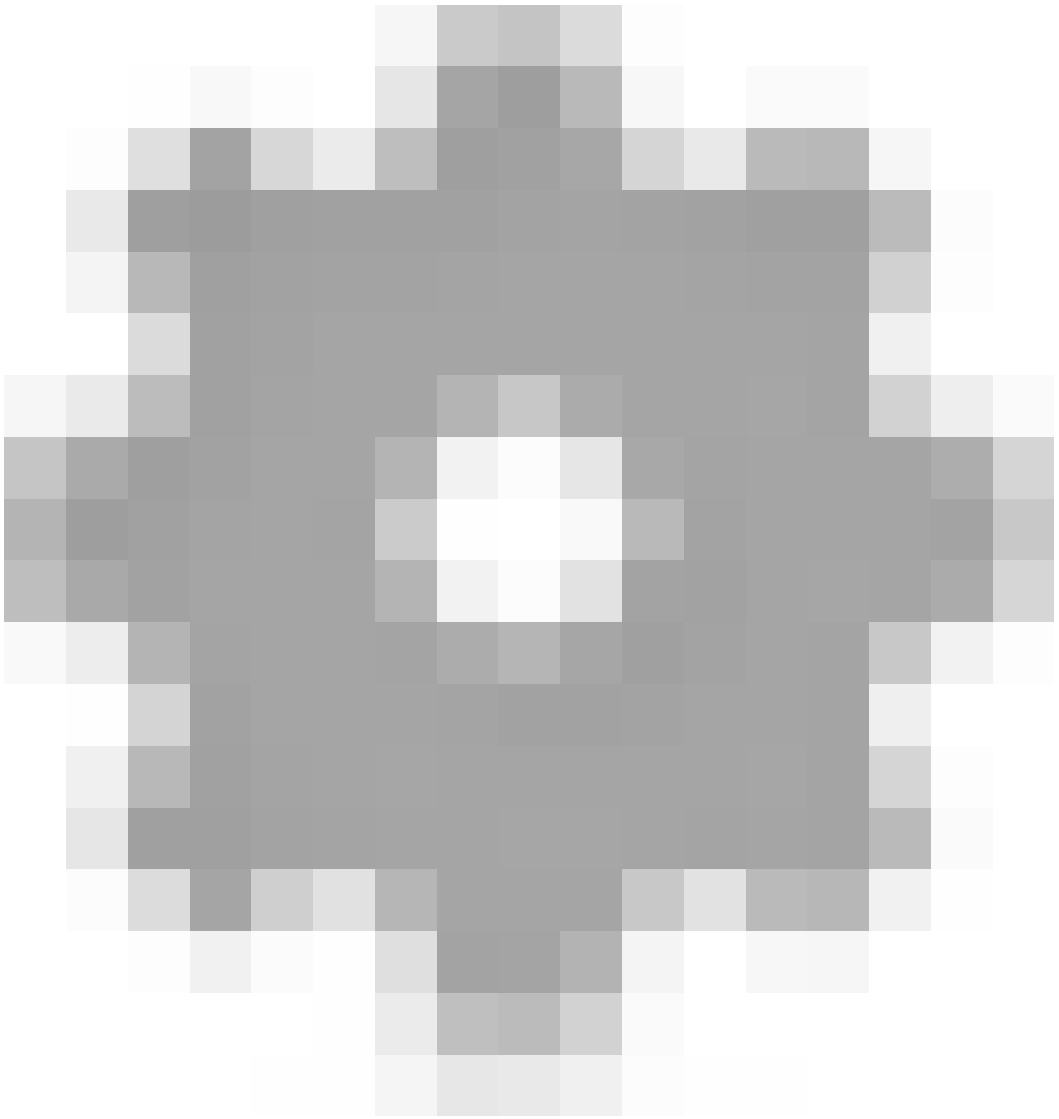
*The connector picks up the virtual number from the respective field in the user profile, this has to be configured in the connector app as mentioned below

Configuration - LeadSquared web portal

- Navigate to Apps>Apps Marketplace on the LeadSquared portal, search for the Mobile Cloud Calling connector, and click Install



- click Configure.

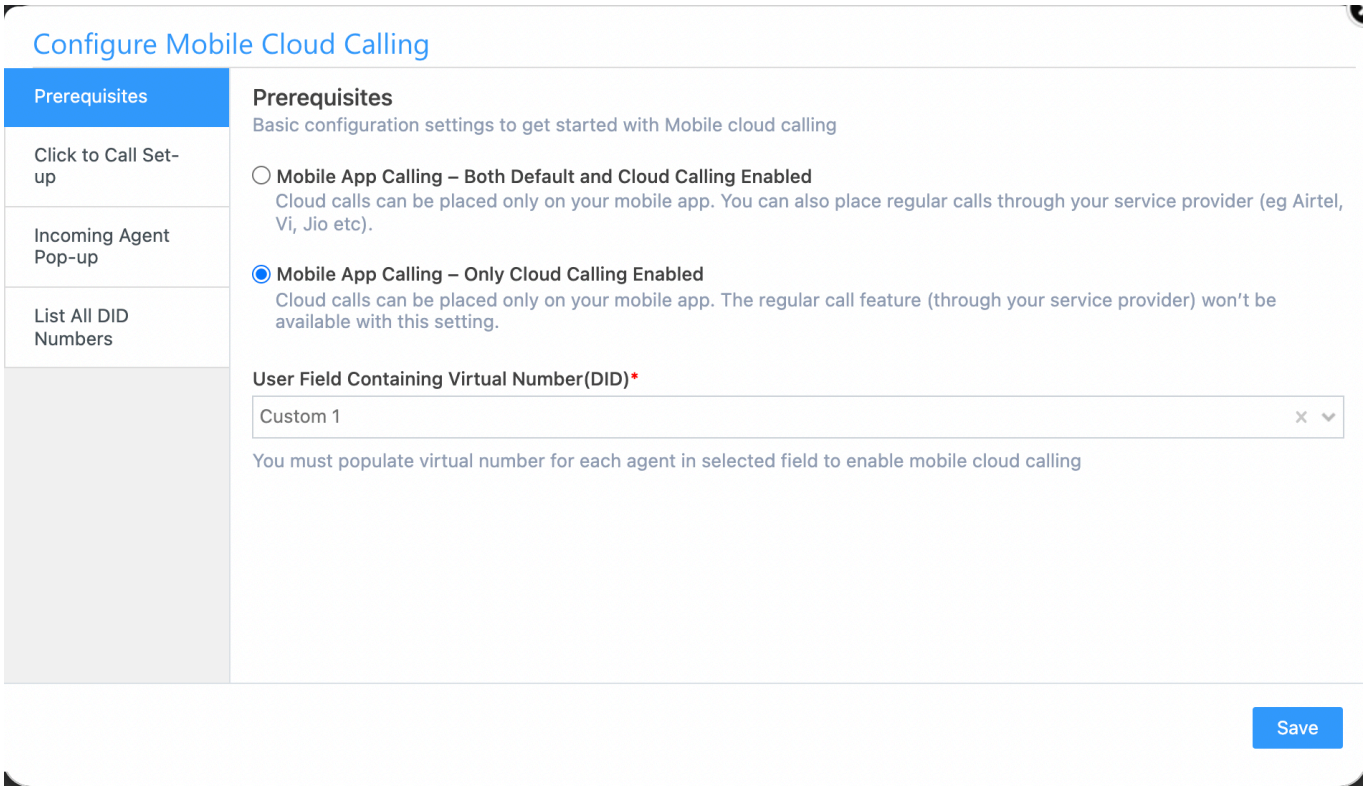


Hover the cursor over the settings

Configure Mobile Cloud calling

1. Prerequisites

- Select Mobile App Calling – Only Cloud Calling Enabled
- User Field Containing Virtual Number(DID) - *Select the parameter where Virtual number has been updated (CustomN under user profile)*



1. Click to Call setup

Request Type - POST

URL - https://api.cocreate.exotel.com/v1/leadsquared/mobile/click2call?From=@{User:PhoneMain,}&To=@CustomerNumber&AccSid={AccSID}&VirtualNumber=@VirtualNumber

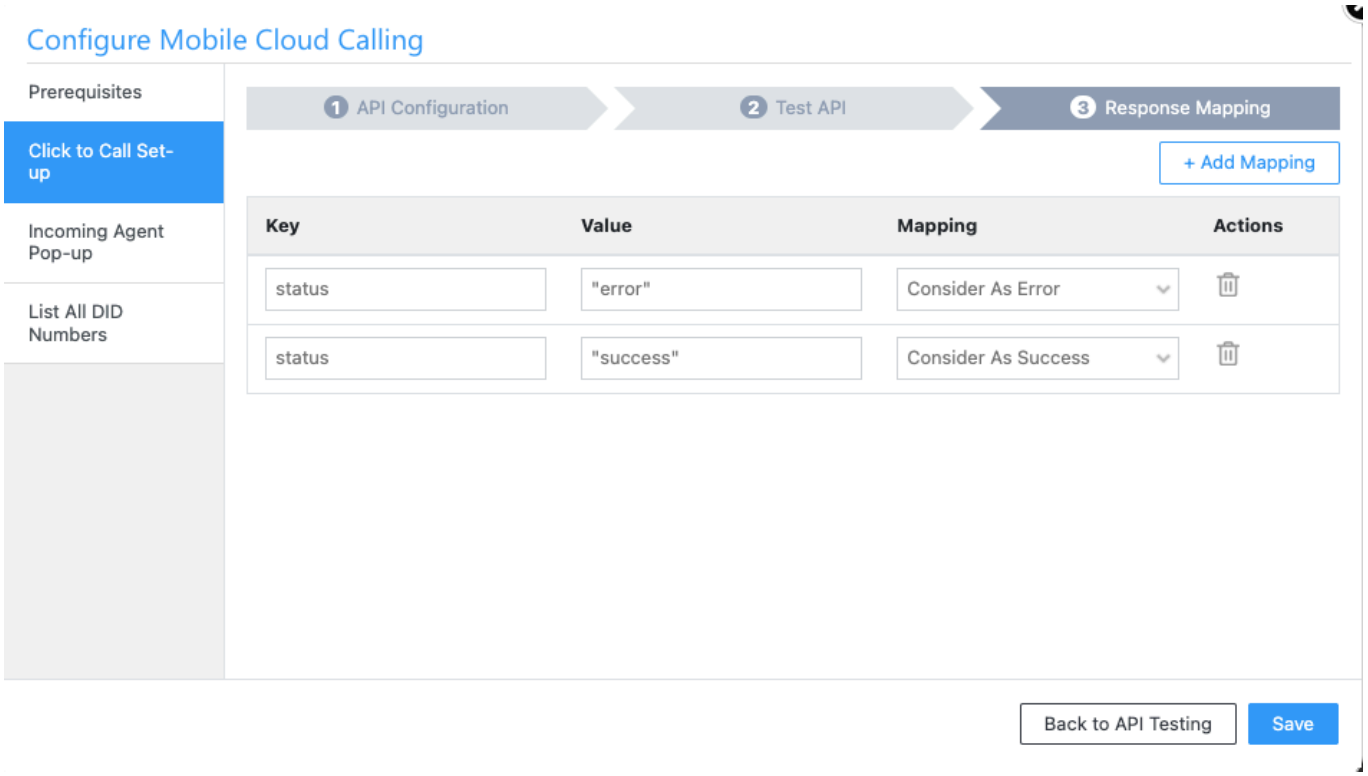
Parameters:

Key	Value
From	@{User:PhoneMain,}
To	@CustomerNumber
AccSid	Exotel Acc ID
VirtualNumber	@VirtualNumber

Header:

Key	Value
Authorization	Base64 of Exotel API Key/ token

Once all the parameters and headers are provided, navigate to the Response mapping and map the following responses:



1. Agent pop-up

Request Type - GET

URL -

https://api.cocreate.exotel.com/v1/leadsquared/mobile/lead/info?AgentNumber=@{User:PhoneMain,}&AccSid={AccSid}

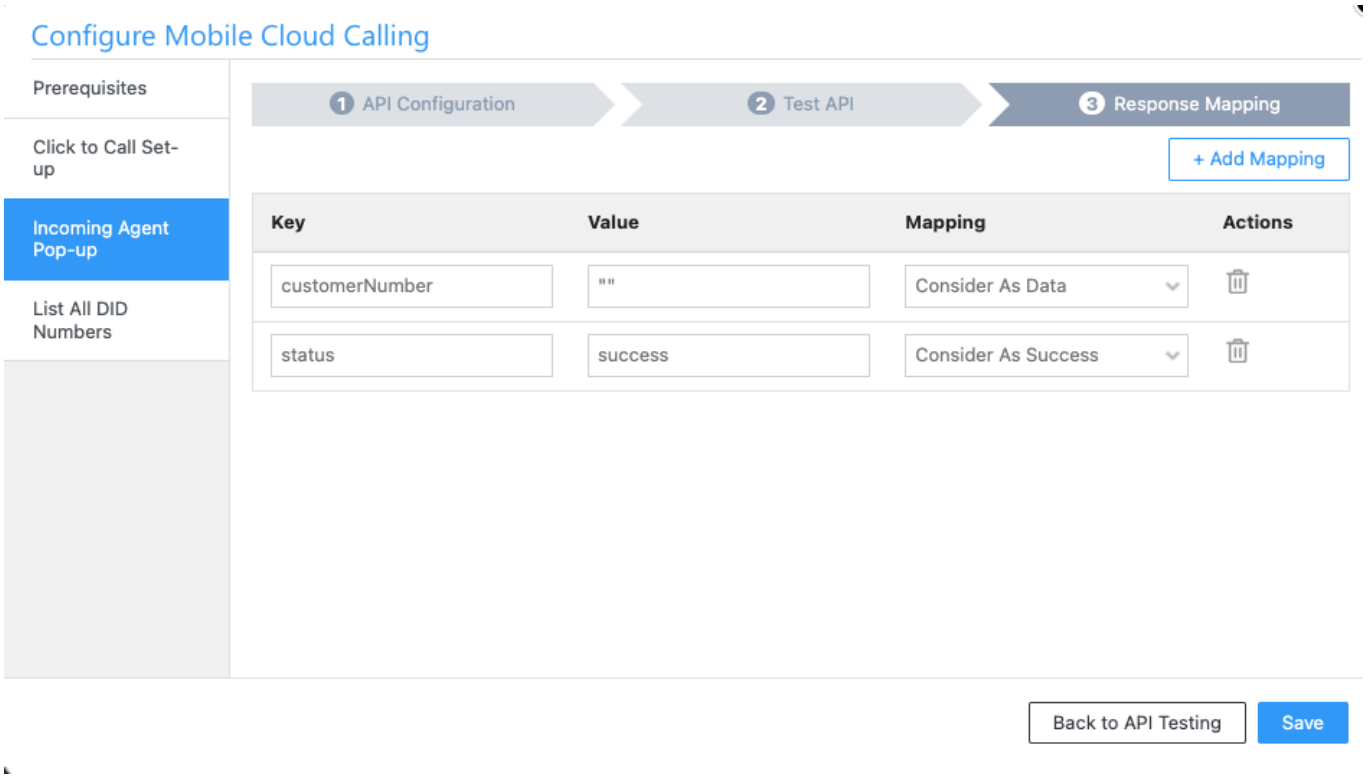
Parameters:

Key	Value
AgentNumber	@{User:PhoneMain,}
AccSid	Exotel Acc ID

Header:

Key	Value
Authorization	Base64 of Exotel API Key/ token

Once all the parameters and headers are provided, navigate to the Response mapping and map the following responses:



NOTE-

- The user number which you provide in the "AgentNumber" field should be in an active call while configuring the Agent pop-up otherwise you will receive an internal server error(500).
- It is advisable to keep the call active that you receive while configuring the Click to Call setup(step 2) and use the same number that you used as the From number in step 2 (Click to Call setup) for the "AgentNumber" field of Agent pop-up to get the success response.

1. List all DID

Request Type - GET

URL -

'https://api.cocreate.exotel.com/v1/leadsquared/mobile/didnumbers?AccSid={AccSid}

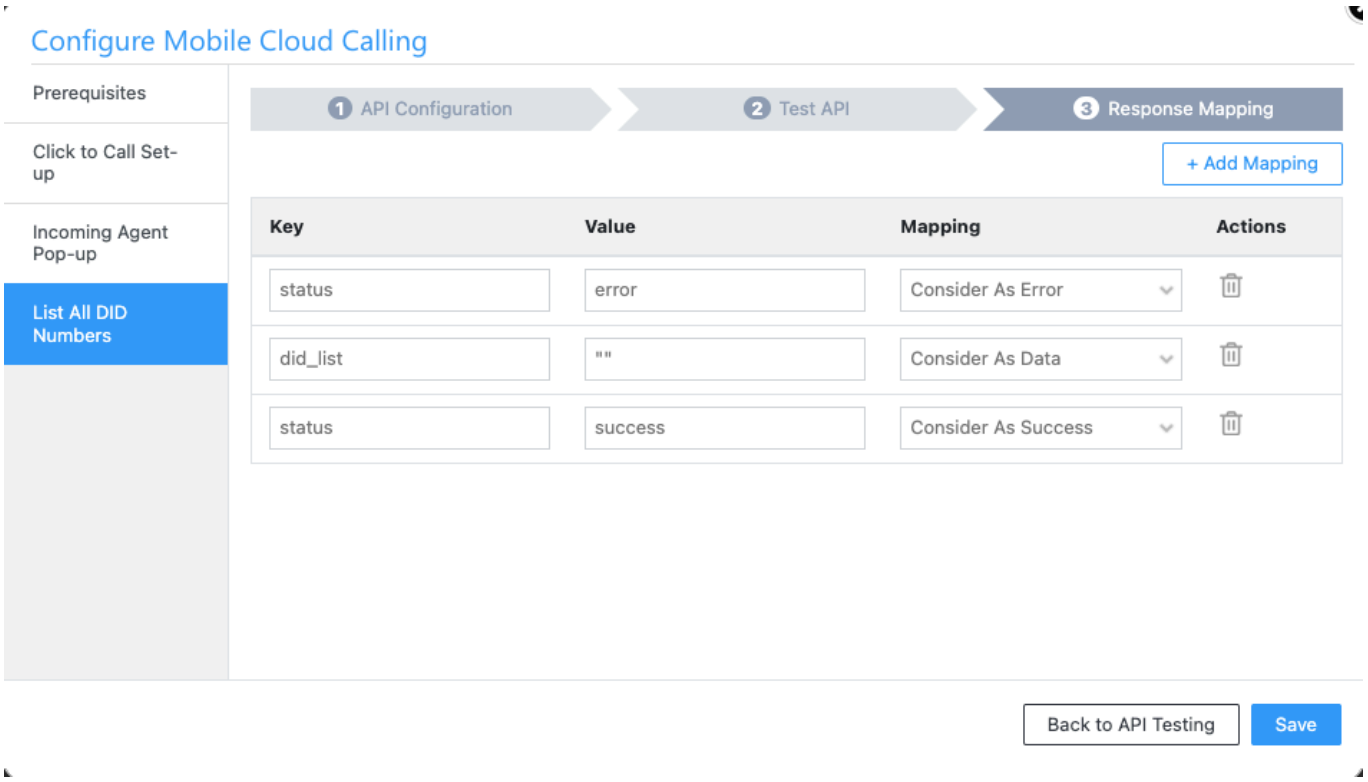
Parameters:

Key	Value
AccSid	Exotel Acc ID

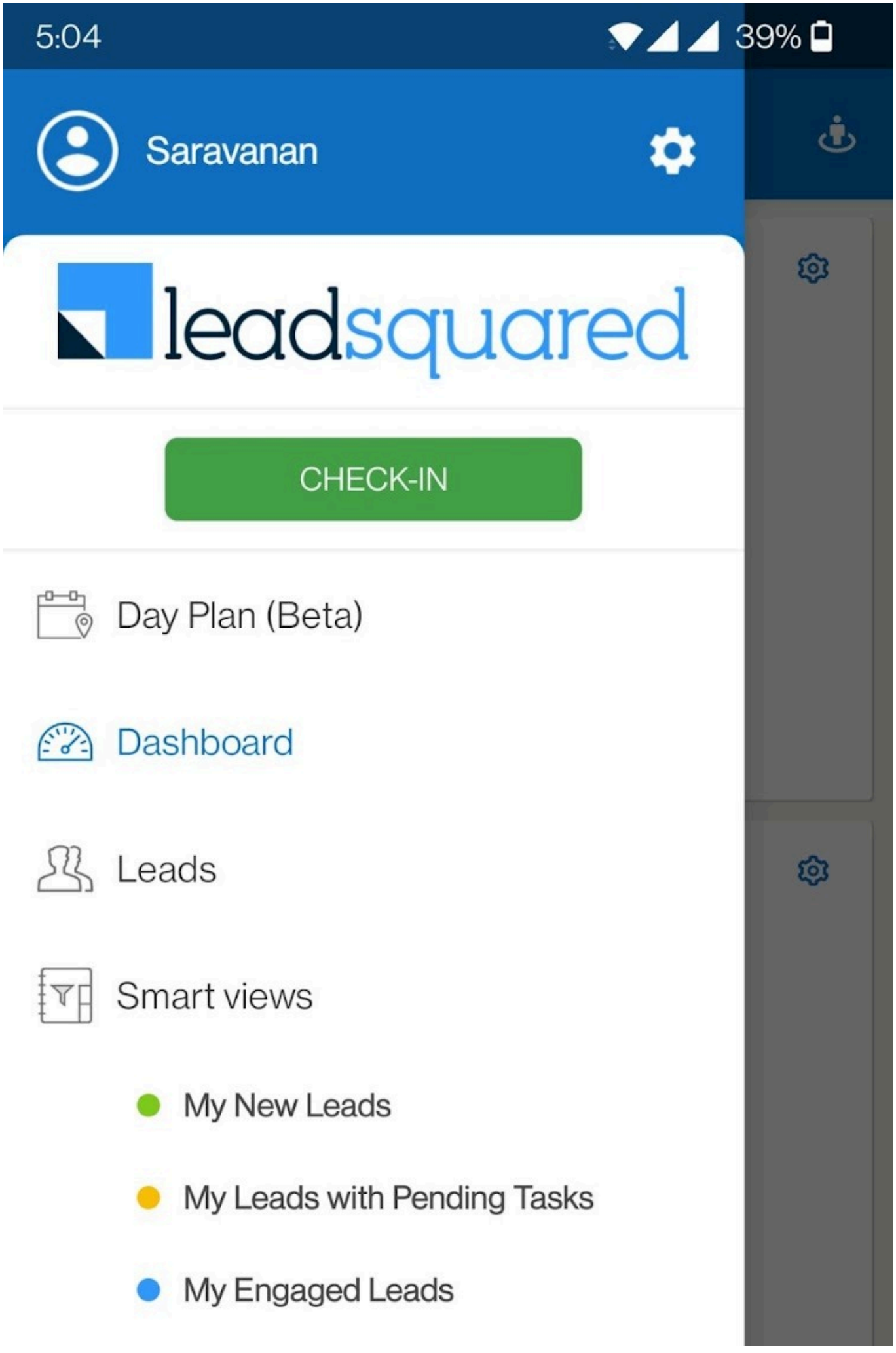
Header:

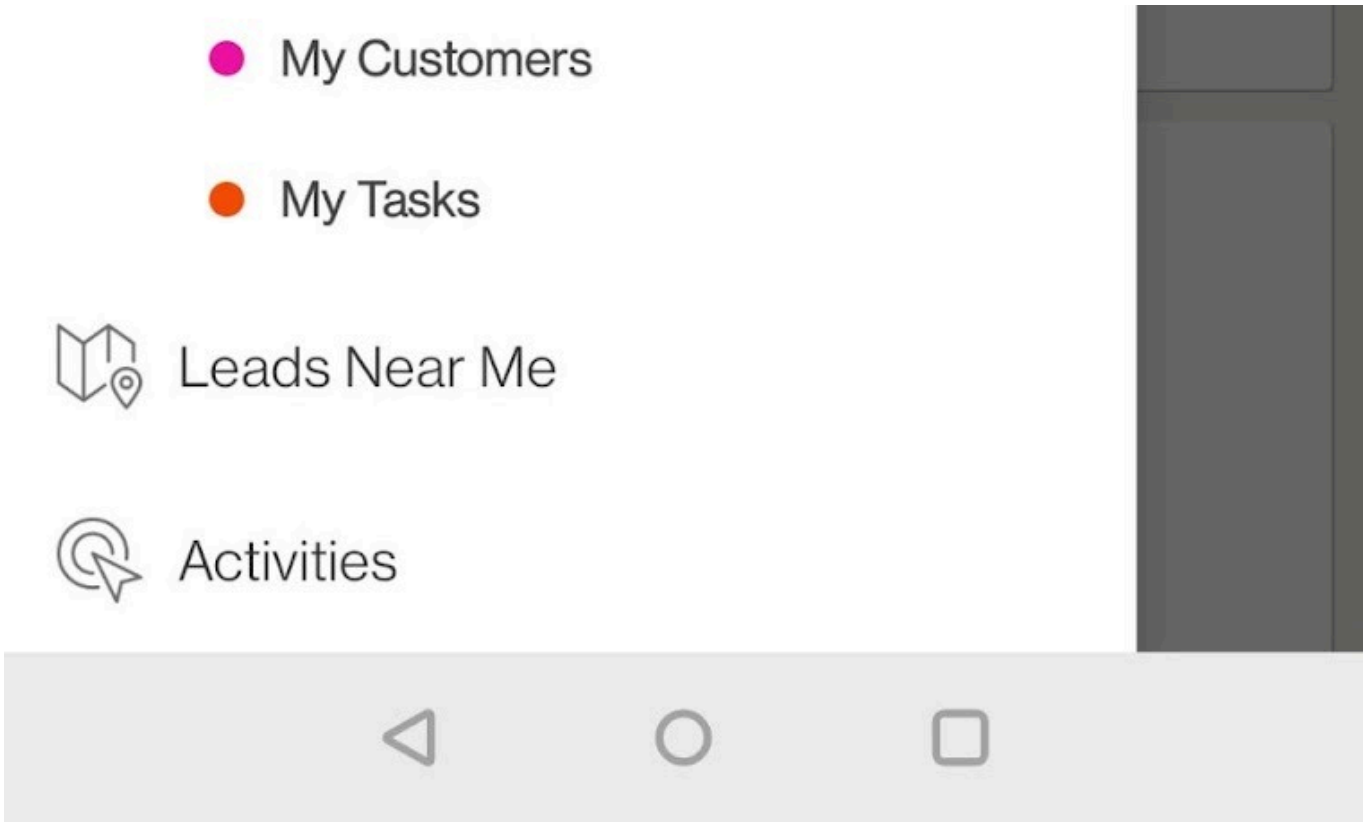
Key	Value
Authorization	Base64 of Exotel API Key/ token

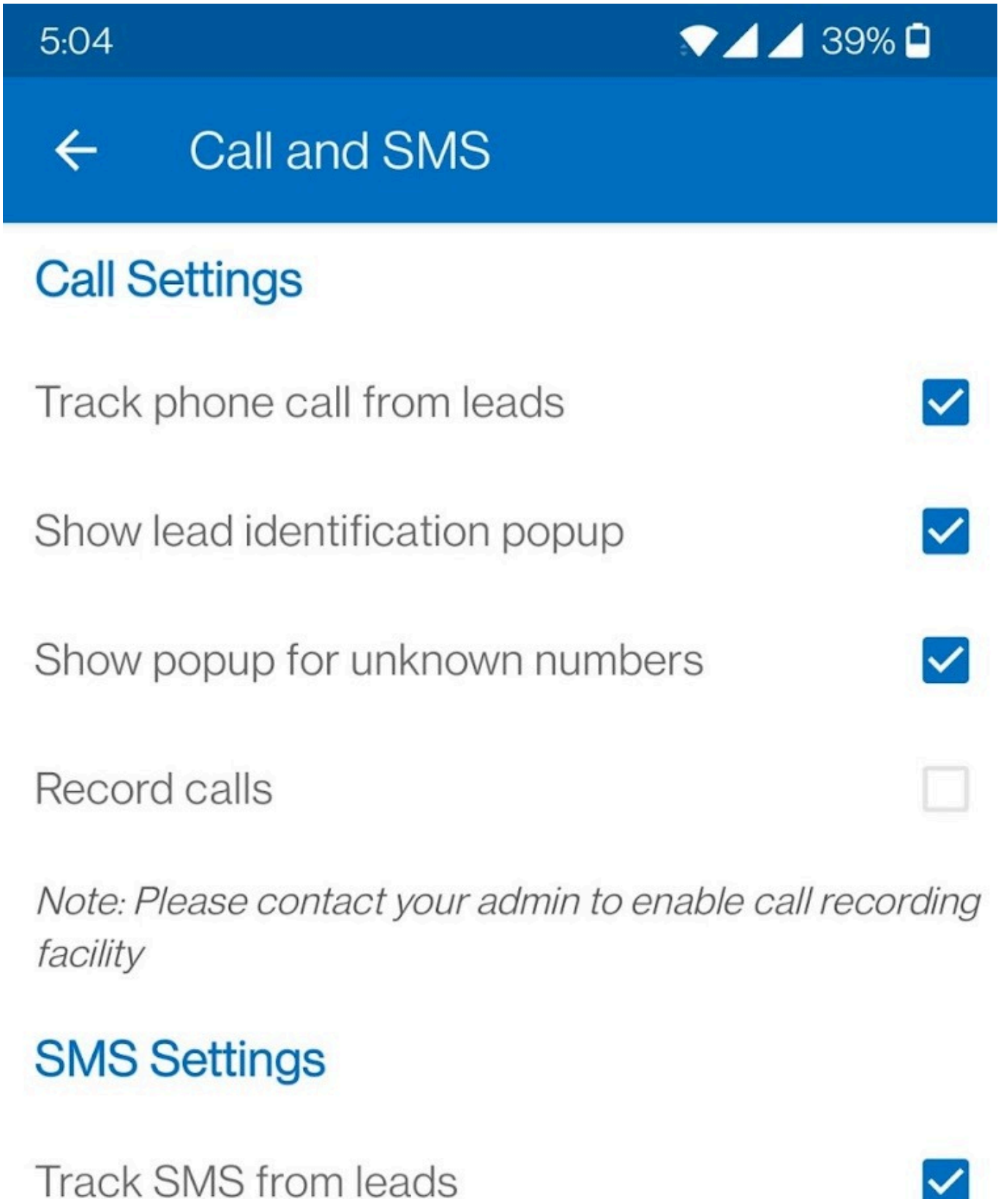
Once all the parameters and headers are provided, navigate to the Response mapping and map the following responses:



Configuration - Leadsquared Mobile App


5:04
39%
Saravanan
leadsquared
CHECK-IN
Day Plan (Beta)
Dashboard
Leads
Smart views
My New Leads
My Leads with Pending Tasks
My Engaged Leads


My Customers
My Tasks
Leads Near Me
Activities



1. Login to the Leadsquared mobile app with agent credentials
2. Click on the Settings icon(top right corner)
3. Click on Call and SMS >> Call Settings
4. Enable the first three options as seen above

5. Leadsquared app should have the permission enabled to display over other apps for incoming call pop-up

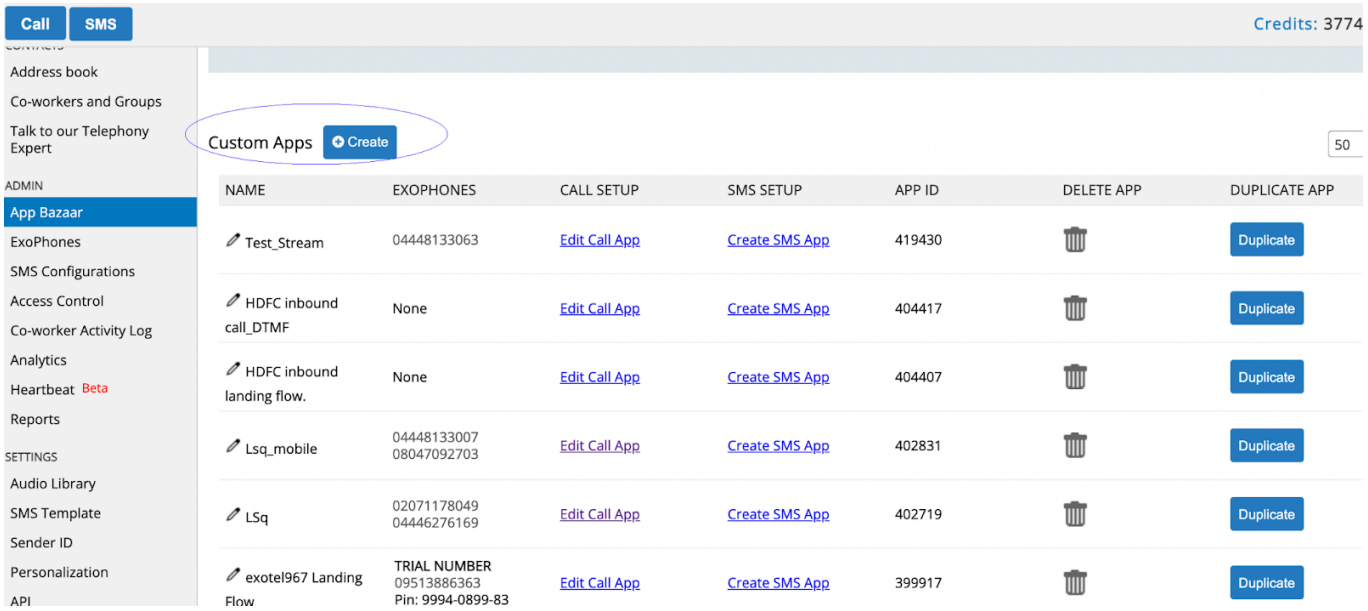
LeadSquared Call/ SMS app

This app is necessary for Leadsquared cloud calling to work, it is not available on the play store and can be downloaded from https://help.leadsquared.com/call-sms-app

Once installed grant all permissions (microphone, phone, storage..etc) required for the Leadsquared app to integrate with the agent mobile device

Call flow configuration - Exotel portal

1. Login to Exotel acc(https://my.exotel.com/)
2. Navigate to Admin panel >> App Bazar
3. Click on Custom Apps (+ Create) to add a new flow

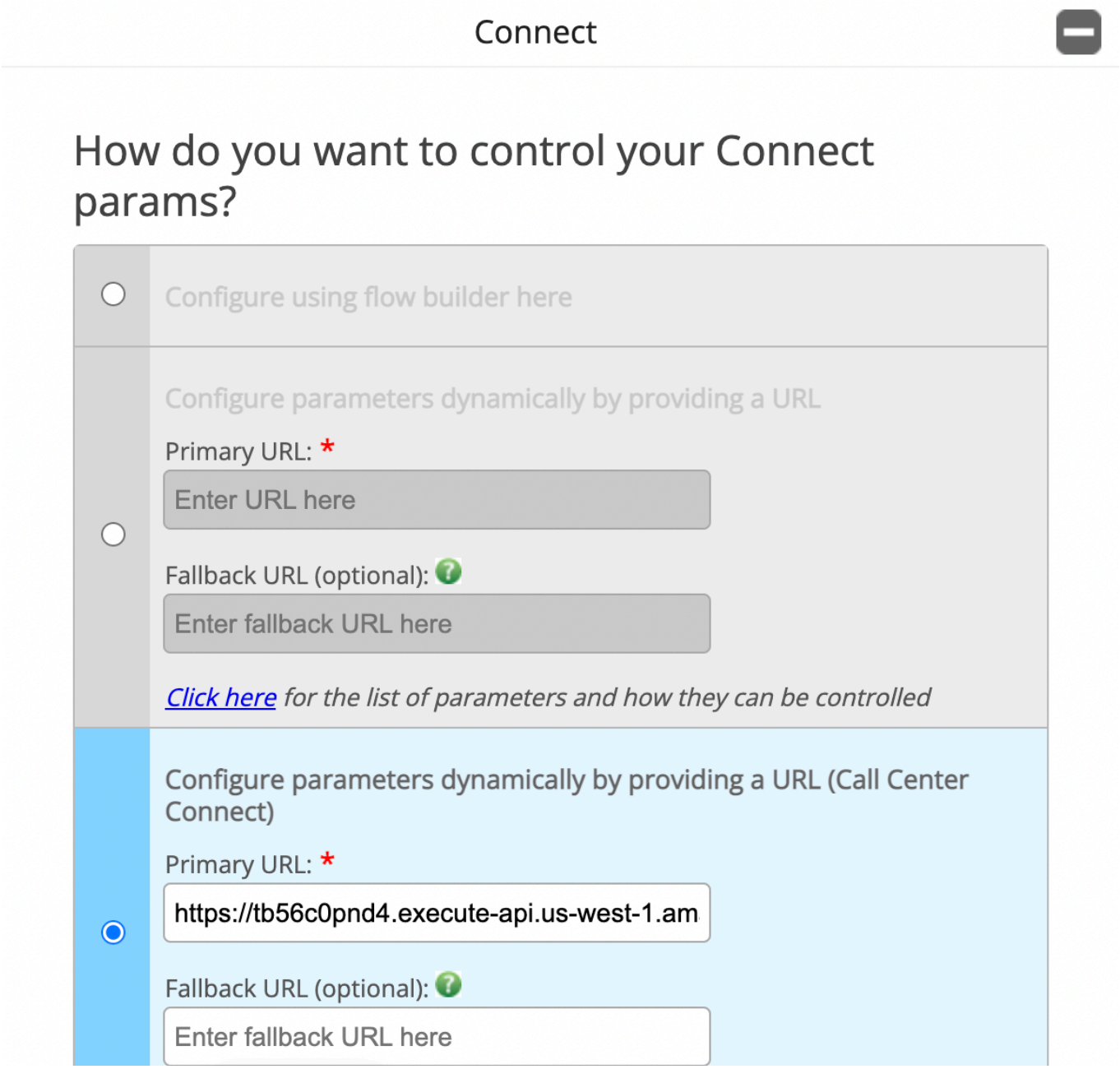


1. Add an 'App Name' and create a new flow
2. Call Start >> Add a Connect applet to begin the call flow
3. Connect Applet:

- Select '**Configure parameters dynamically by providing a URL (Call Center Connect)**'

Primary URL: https://api.cocreate.exotel.com/v1/leadsquared/mobile/{AccSID}/dialwhom

*Note - By default, the "**Configure parameters dynamically by providing a URL (Call Center Connect)**" option will not be available in the account. Kindly reach out to your account manager to enable the "**ccm_programmable_connect**" feature and then configure the URL as mentioned below.*



- After the call conversation ends - Add the Passthru applet
- If nobody answers - Add Passthru apple

1. Passthru Applet (Call conversation ends)

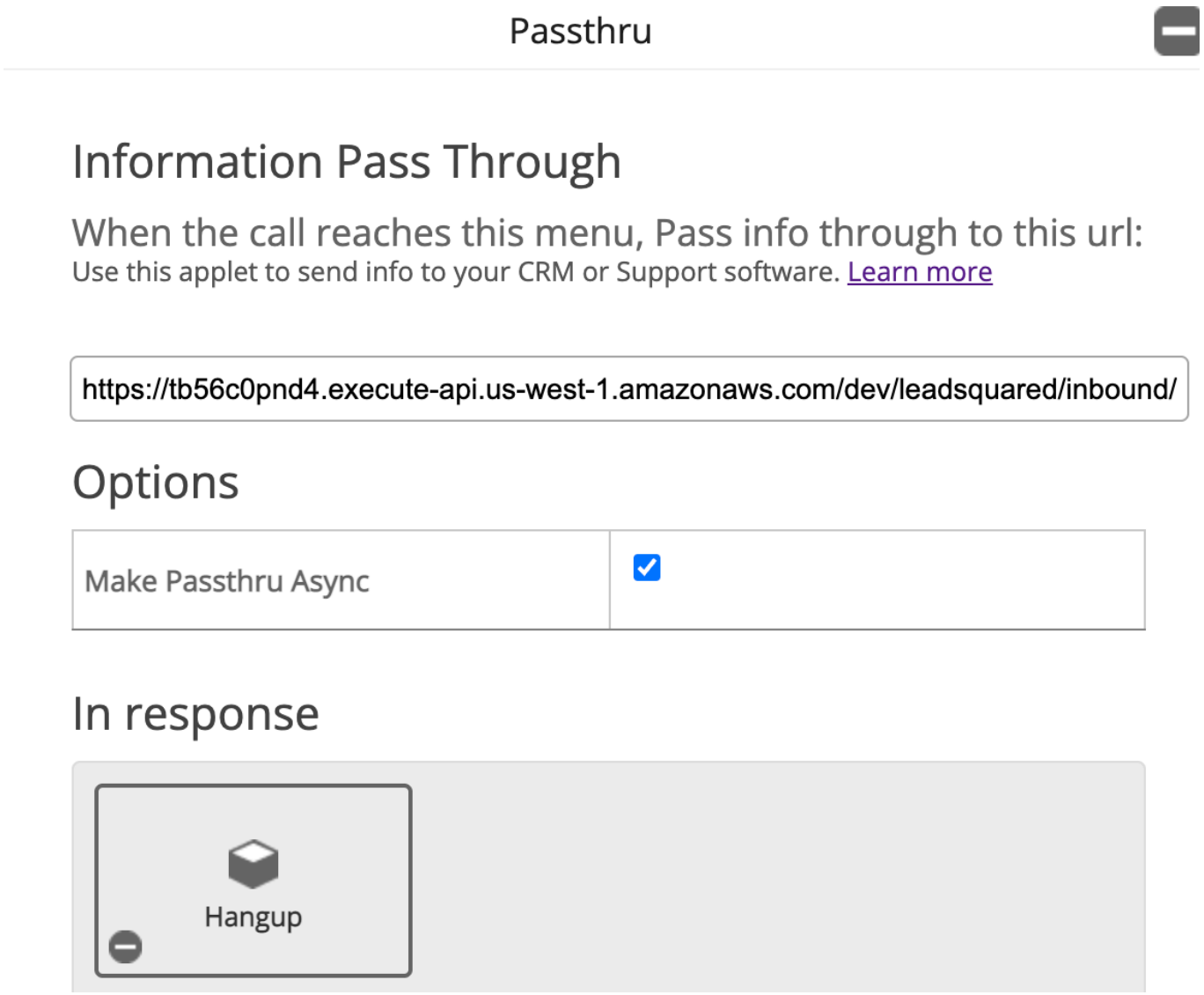
- Passthru URL - 'https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSid}
- Make Passthru asynchronous (☑)

1. Passthru Applet (If nobody answers)

- Passthru URL -

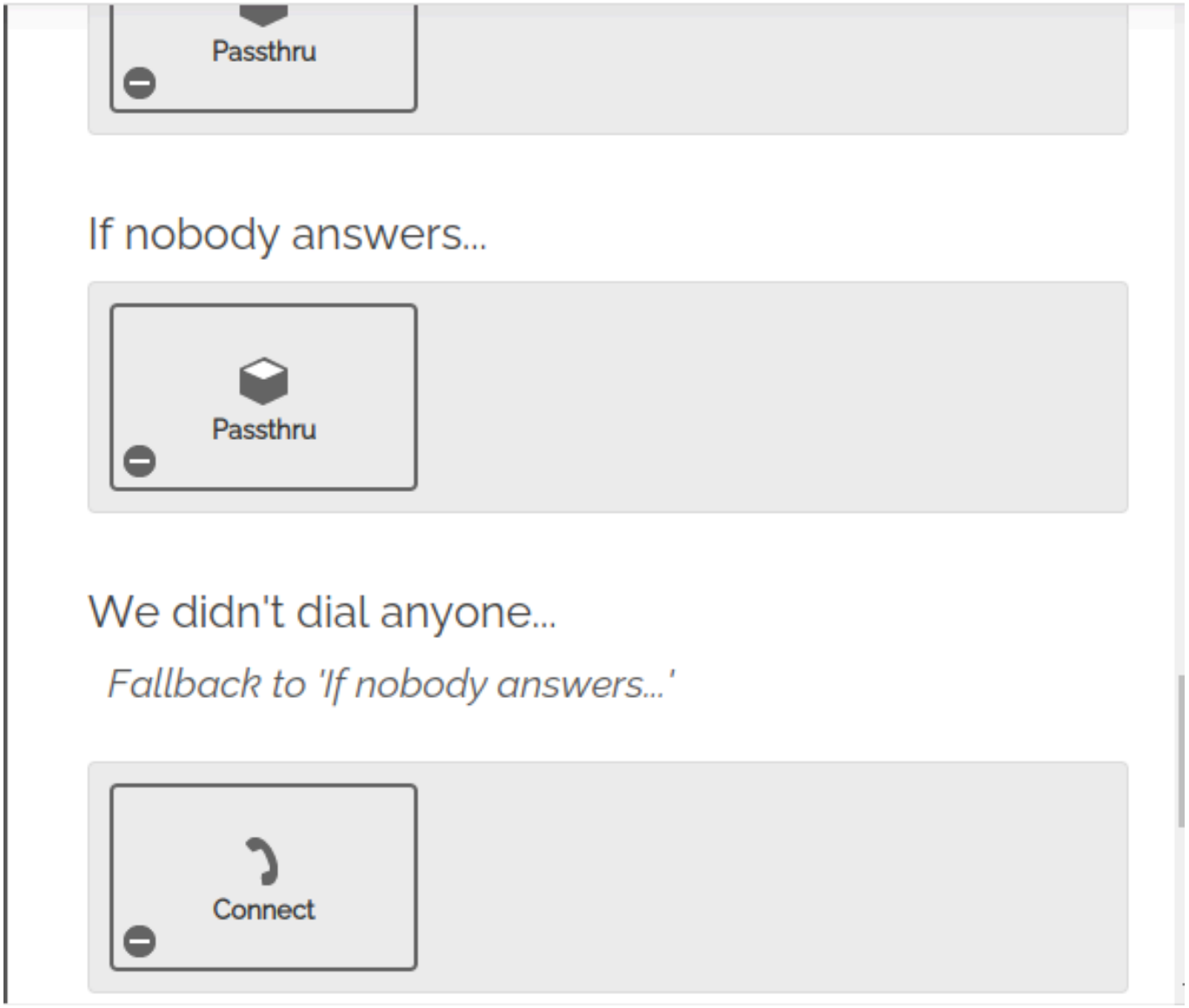
'https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSid}

- Make Passthru asynchronous (☑)

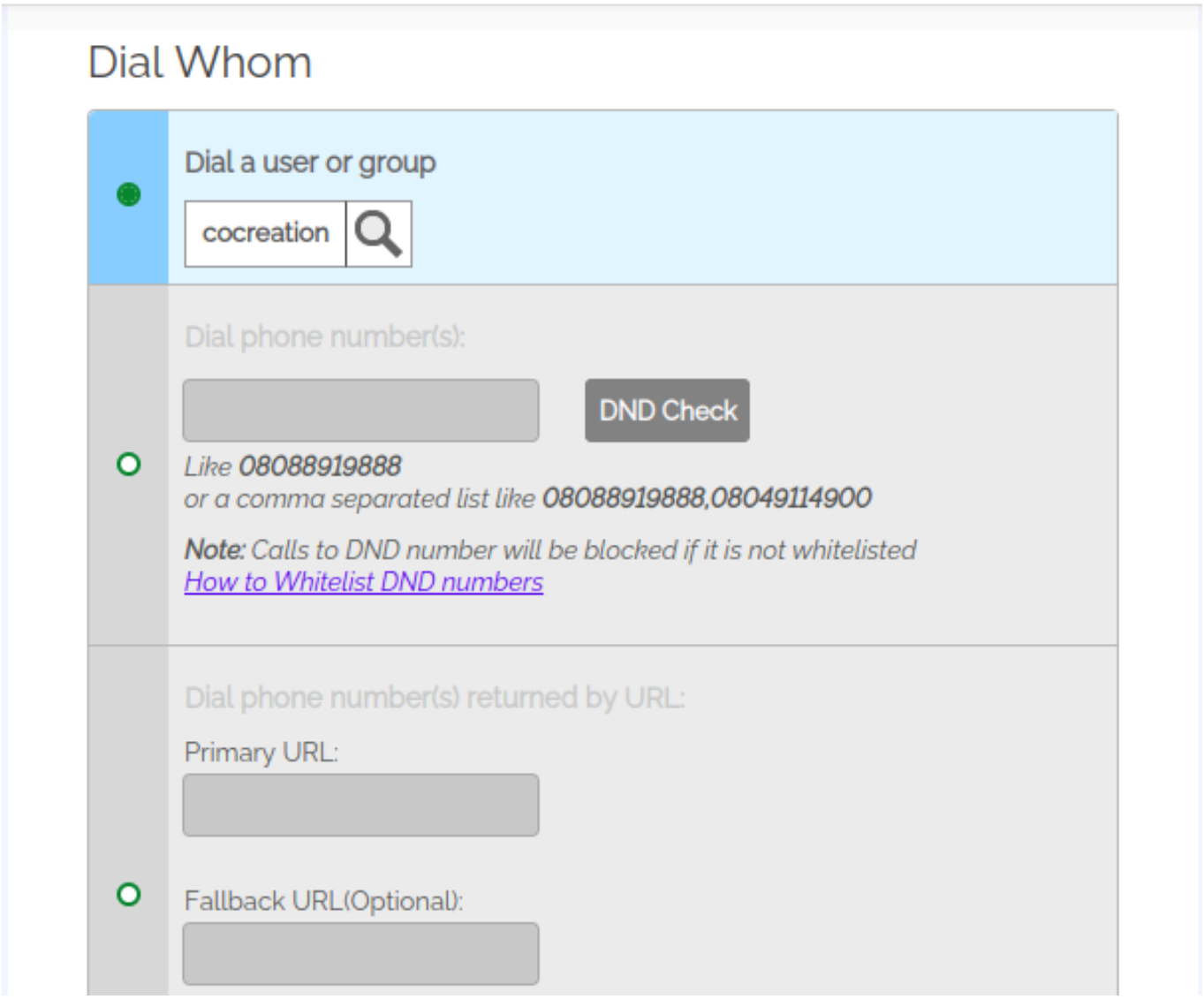


The above call flow setup can only handle calls from existing leads that are created and available in LeadSquared. To handle new callers whose data is not available in LeadSquared, please add the below to the existing call flow. The idea is to route the new callers to the groups

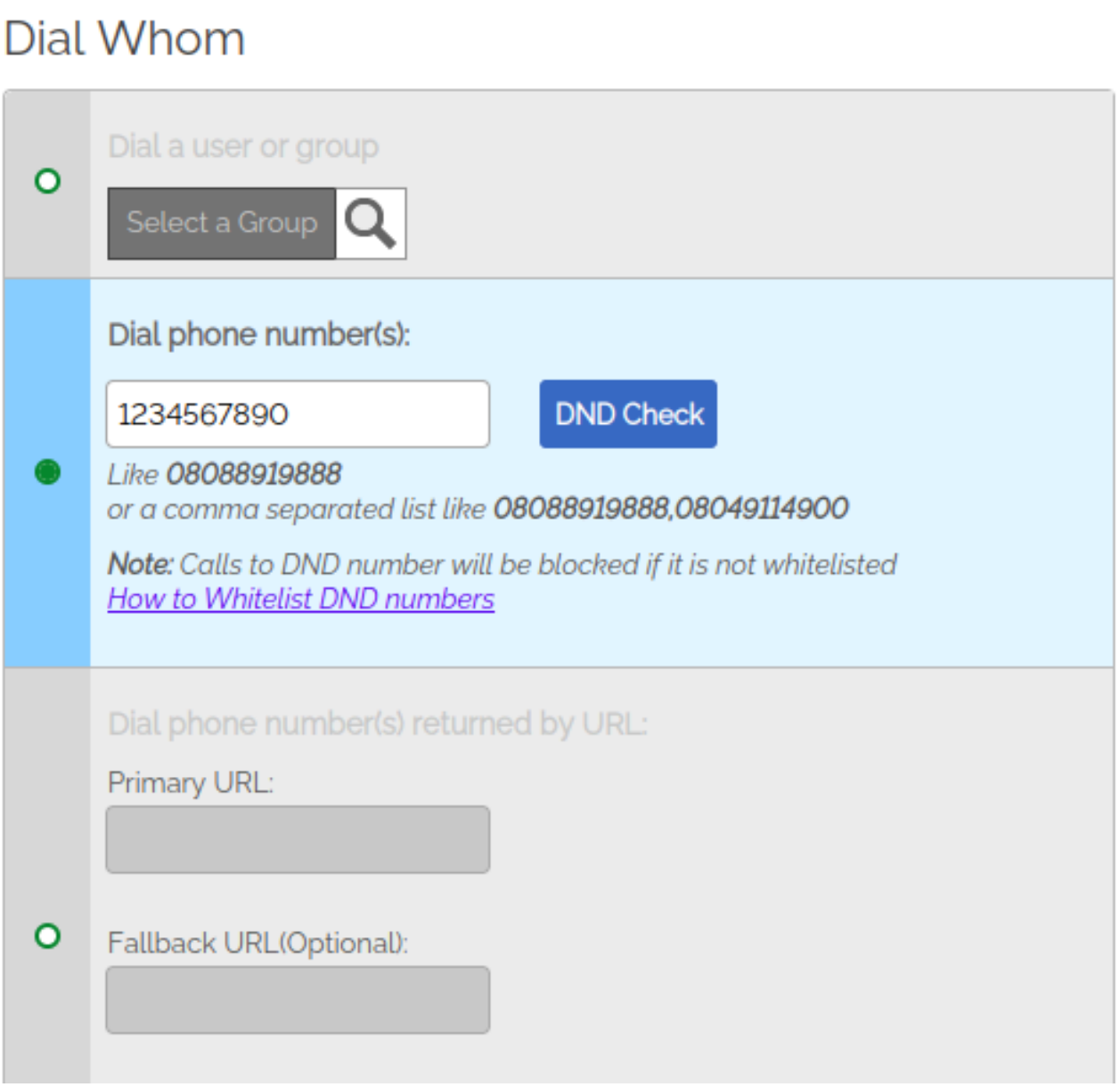
available in Exotel if we don't receive any lead owner numbers from LeadSquared and we will send those call details to LeadSquared based on which they can create a lead in LeadSquared post-call completion.



Place the 2nd connect applet in the "**We didn't dial anyone..**." section as mentioned below.



In Dial Whom of 2nd connect applet, choose a group to dial.



You can also route the calls to a common customer care number by doing below where **1234567890** is the customer care number instead of providing a group.

Passthru Applet (Call conversation ends)

Configure passthru with the below URLs as same as configured in the 1st connect applet to send the call logs to Leadsquared

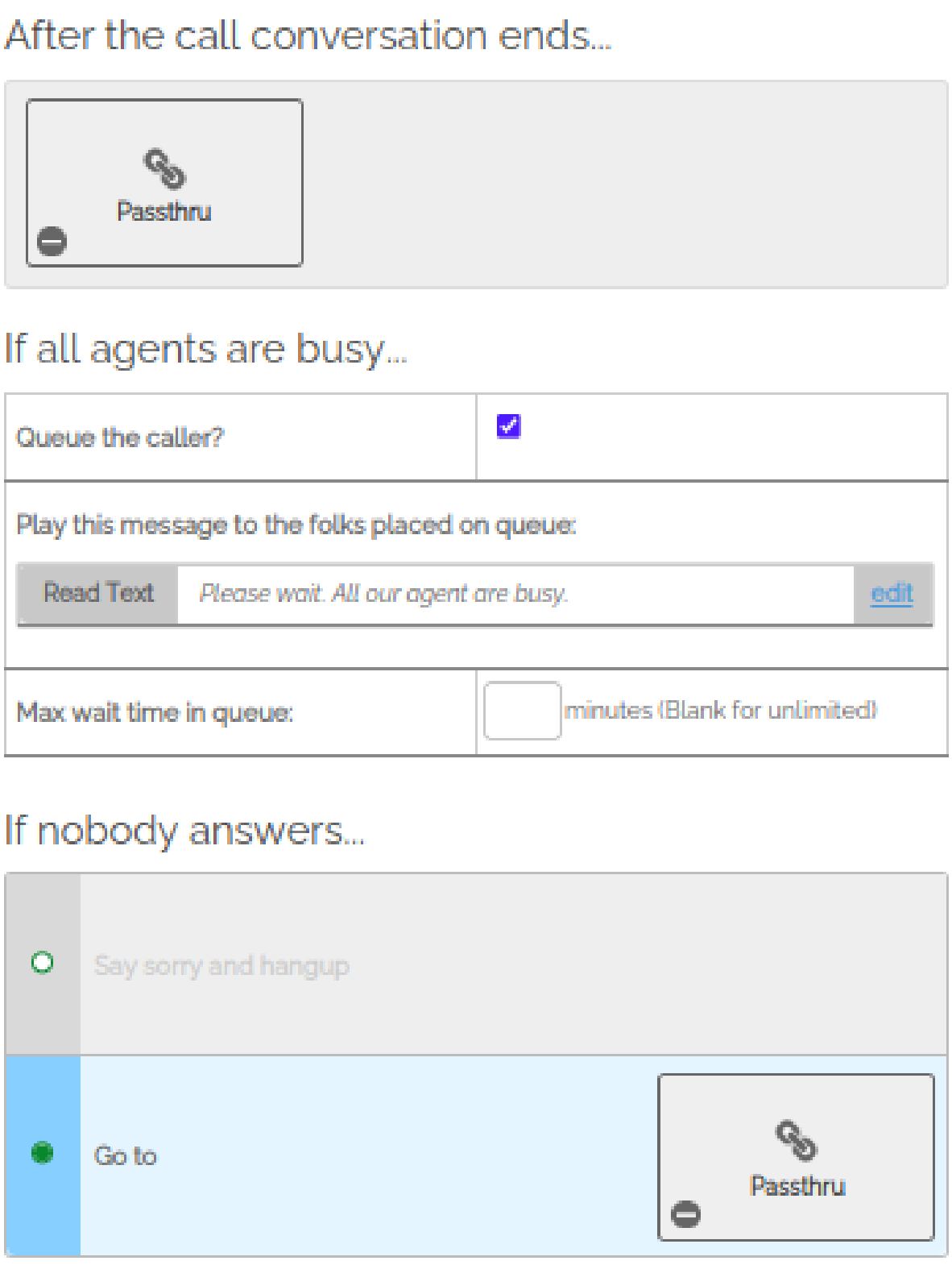
Passthru URL - https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSID}

Make Passthru asynchronous (☑)

Passthru Applet (If nobody answers)

Passthru URL - https://api.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSID}

Make Passthru asynchronous (☑)



4.3.3. LSQ IP-PSTN Connector

This Exotel connector enables a LeadSquared agent to receive incoming calls, visualize the call details, and provide make outbound calls on the LSQ dashboard through the Exotel Softphone.

Note - The agent's leg is on VoIP. If you want to refer to the PSTN-PSTN calling connector for LSQ, please refer here.

You can also integrate multiple instances/accounts of Exotel -(eg: if multiple contact centers are in different regions you can now configure each of them as separate tabs. One for an Indian region, one for an international region, etc.)

Integration features

- Click to Call - Place outbound calls to customers from LeadSquared directly.
- Call pop-up - All calls take place in a call pop-up that has all information related to the call. The agent will be able to pick up or reject incoming calls from this popup.
- Call Log - All call details are sent to LSQ once the call is terminated
- Call Timer - This will enable users to make calls only during preset timings.

Prerequisites

In order to have a successful integration with the LeadSquared account, you must complete the following tasks:

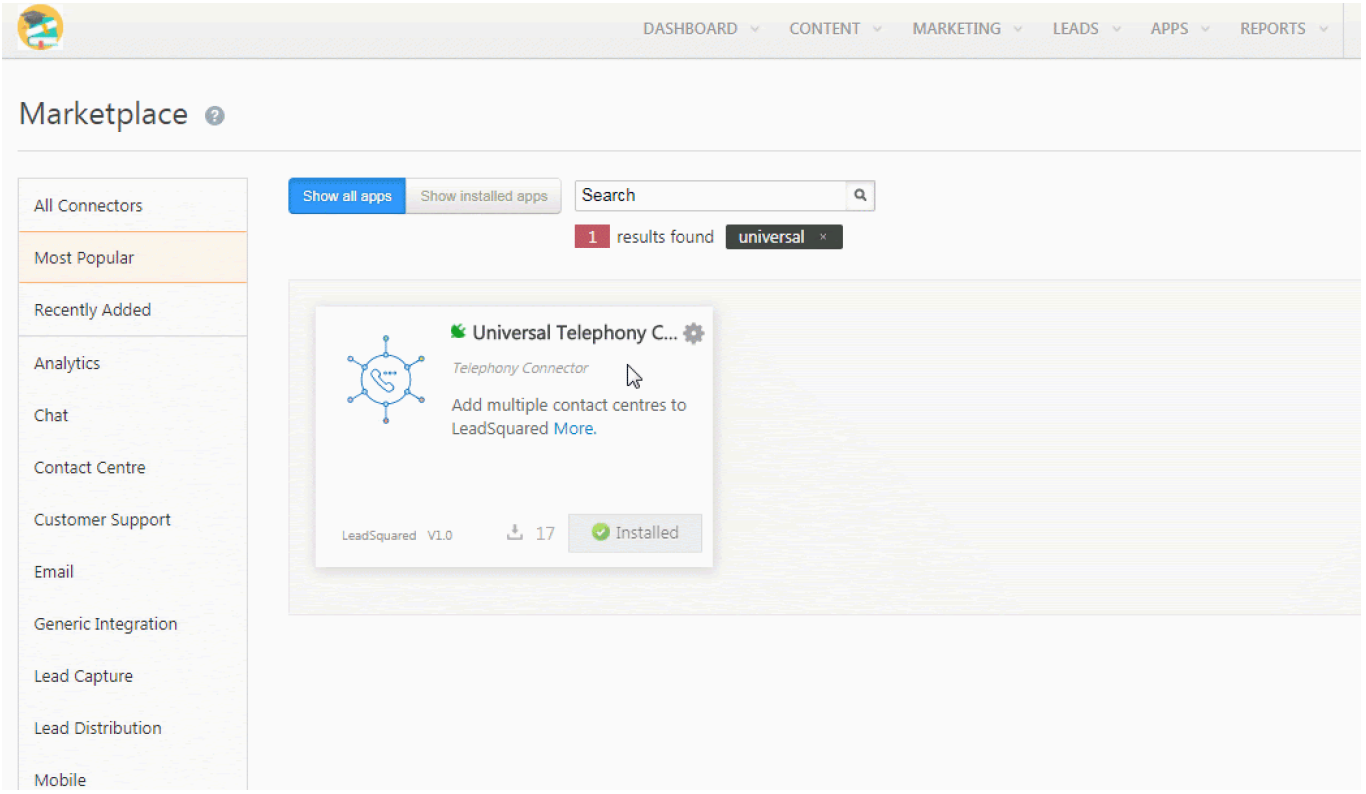
1. Sign up for an Exotel Account in the Mumbai Region
2. Ask the account manager to enable VoIP calling for your account.
3. Verify your account through phone or email.
4. Get your account KYC verified.
5. Purchase ExoPhone(VN) to be used by LeadSquared users/agents for outbound calls.
6. Lead must be created in LeadSquared CRM.

Installation/ Configuration - LeadSquared portal

Navigate to Apps>Apps Marketplace on the LeadSquared portal, search for the Universal Telephony Connector, and click Install

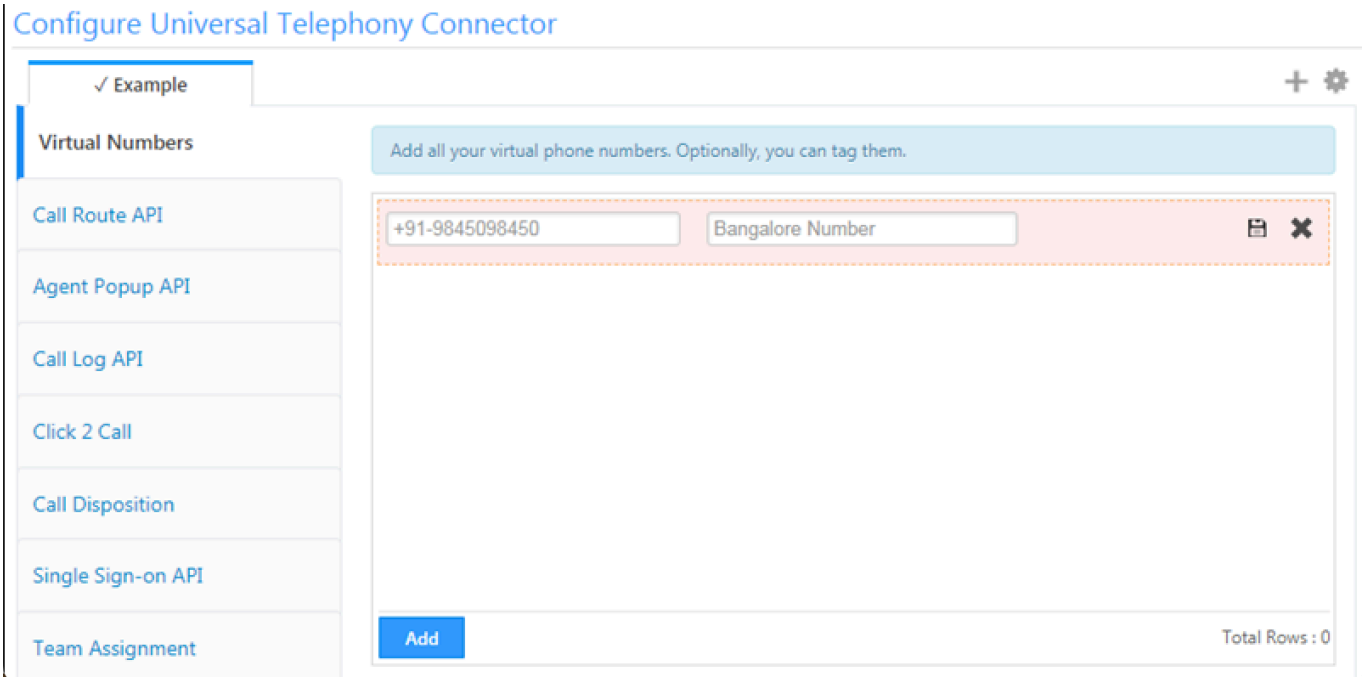
Add/ Modify connector

1. Hover the cursor over the settings ⚙ icon and click Configure.
2. Click the Add New Connector button.
3. Enter a name for the new connector, then click Add.



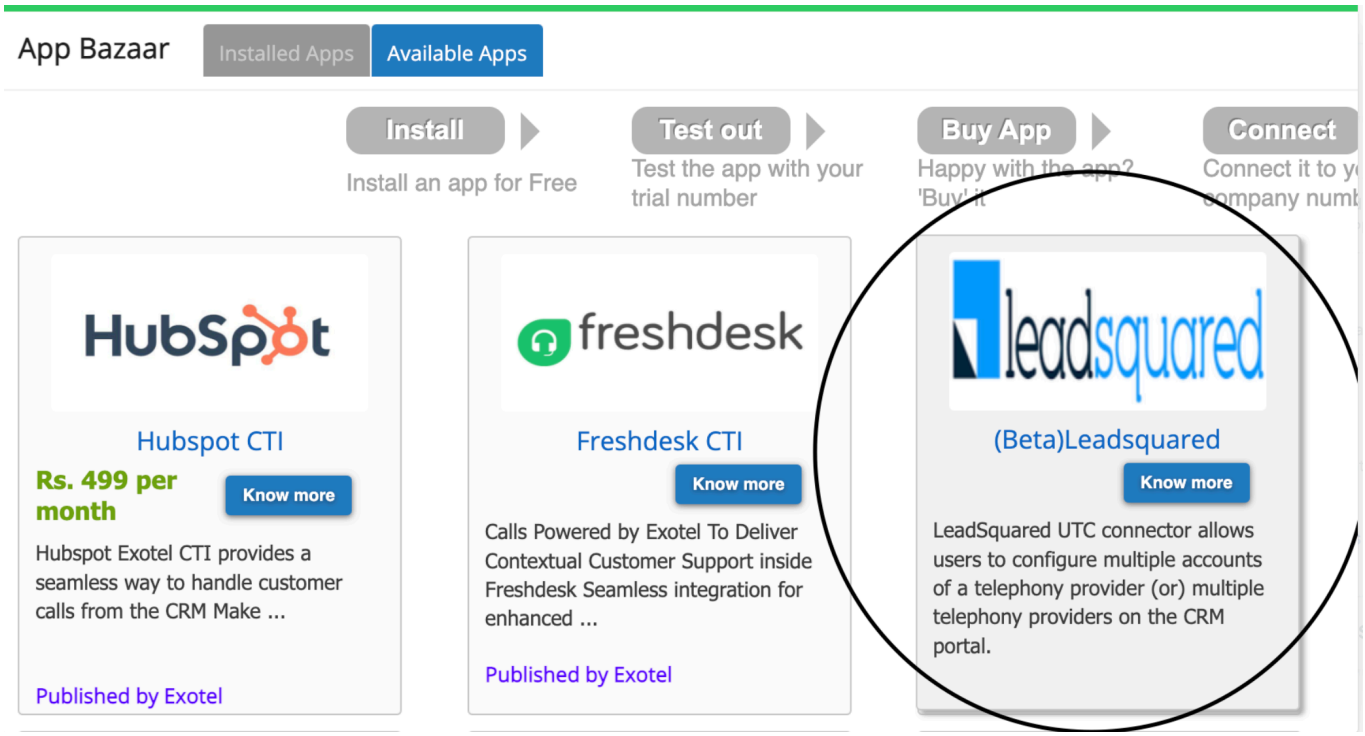
Virtual Number

- Copy the VN purchased from the Exotel portal, and add the same in the Virtual Number field (prefix with country code followed by - eg: +91-)

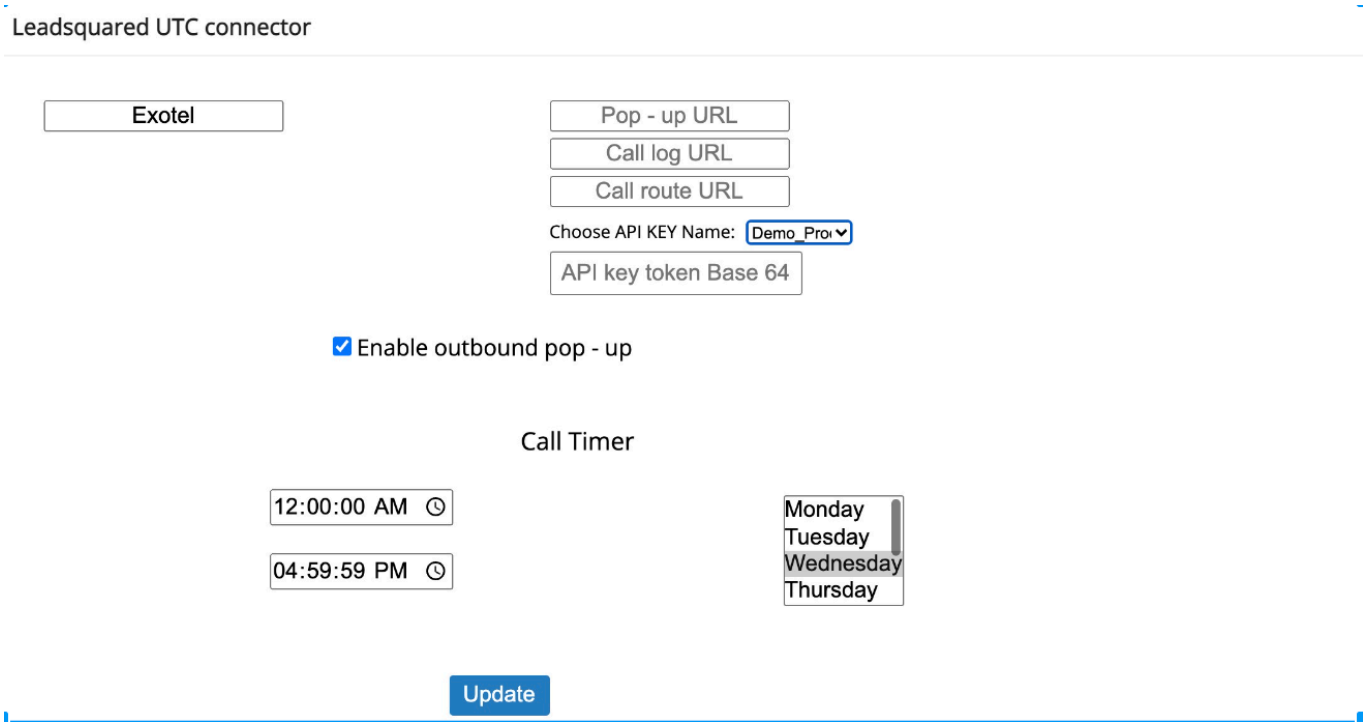


COC-Config - Connector config / Call timer

1. This can be configured via the Leadsquared app available on https://my.exotel.com/{AccSID}/apps#available-apps
   Click on “Know More” and then “Install”.



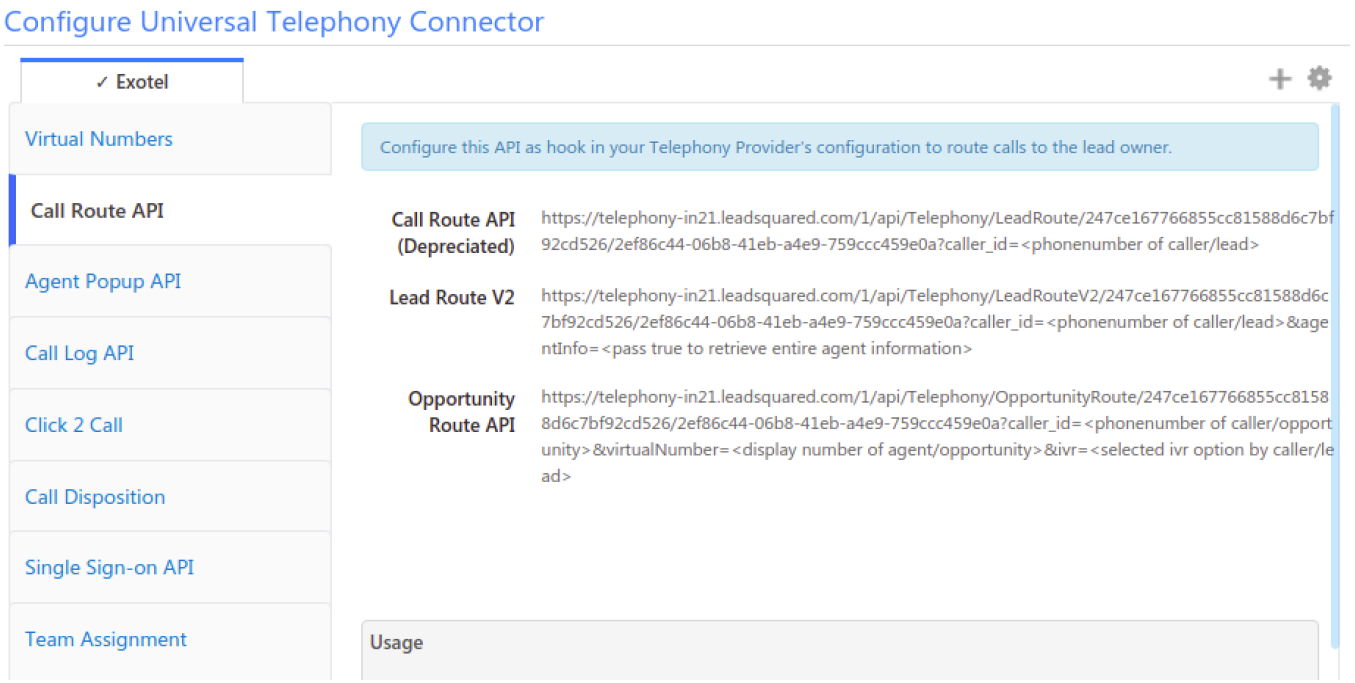
1. Configure the parameters that are shown -
   1. Call Route URL - To be copied from Leadsquared UTC connector >> Lead Route V2 (Screenshot below)
   2. Pop-up URL - To be copied from Leadsquared UTC connector >> Agent pop-up API (Screenshot below)
   3. Call Log URL - To be copied from Leadsquared UTC connector >> Call Log API
   4. Call Start Timer - Time in format HH:MM:SS. Allow calling from this time of the day. Default Value = 00:00:00
   5. Call End Timer - Time in format HH:MM:SS. Stop calling at this time of the day. Default Value = 23:59:59
   6. Call Allowed Days - Select the days that you want to allow calling on.



Parameters to be filled on the Exotel Dashboard

Note: API key token Base 64 value will be fetched only on clicking 'update'. The same value needs to be copied onto the Leadsquared connector Click to call settings.

a) Call Route URL



Copy the URLs from the above fields from the LSQ dashboard. Steps a,b,c

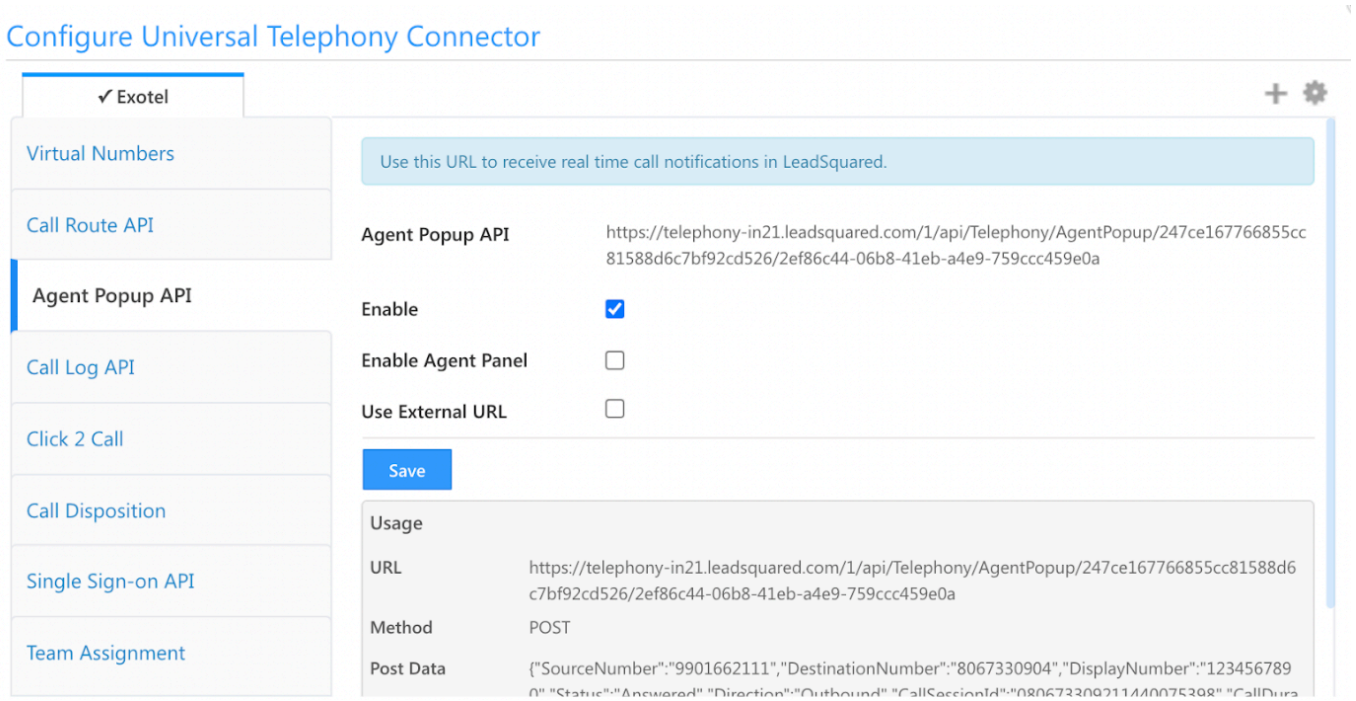
Kindly configure the LeadRouteV2 URL. Do not use Call Route API which is depreciated. Only configure the URL without query parameters (?caller_id=<phonenumber of caller/lead>&agentInfo=<pass true to retrieve entire agent information>) as mentioned

eg: The call route URL for the above screenshot would be

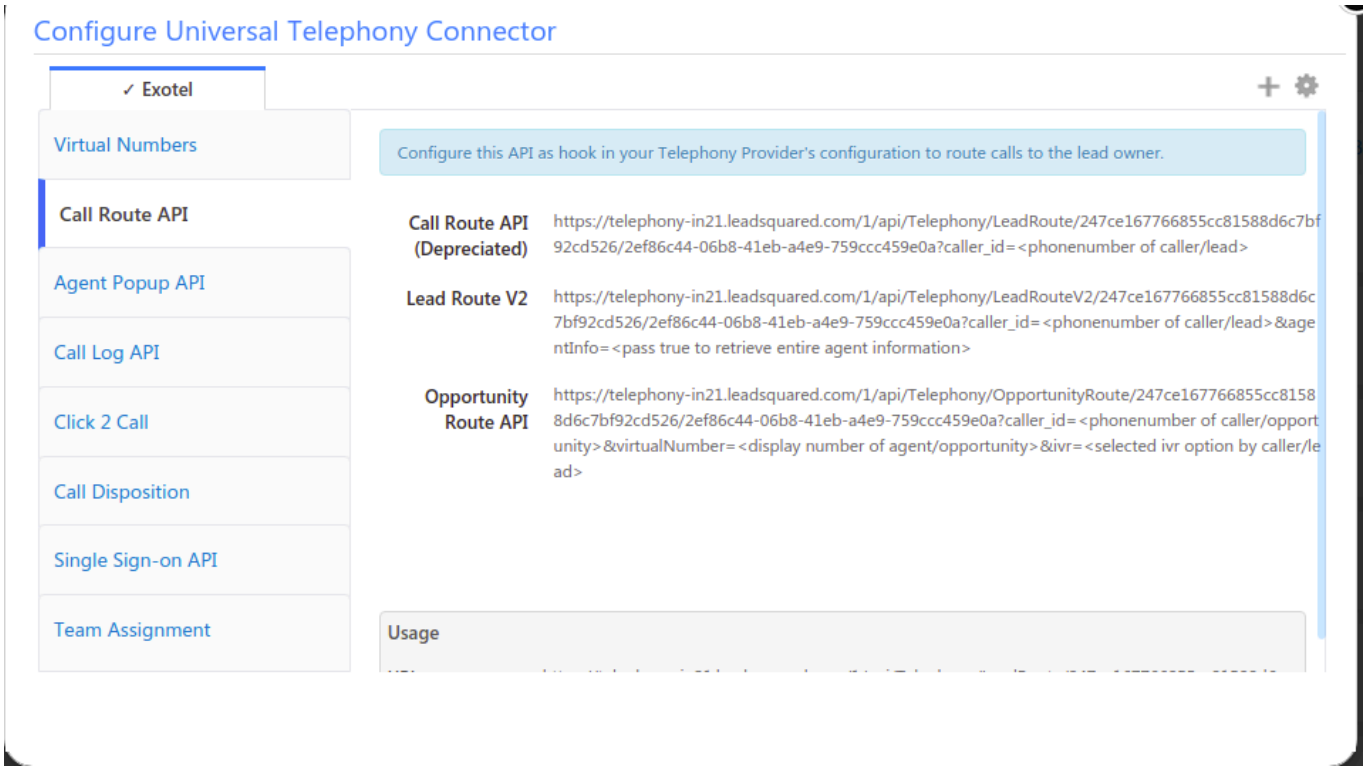
https://telephony-in21.leadsquared.com/1/api/Telephony/LeadRouteV2/247ce167766855cc81588d6c7bf92cd526/2ef86c44-06b8-41eb-a4e9-759ccc459e0a

b) Pop-up URL

- Click on the 'Enable' checkbox and save, the remaining options as pre-configured on the LSQ portal.
- Enable the "Show Phone Call Popup" checkbox in Leadsquared User profile settings(https://in21.leadsquared.com/Settings/MyProfile)



c) Call Log URL

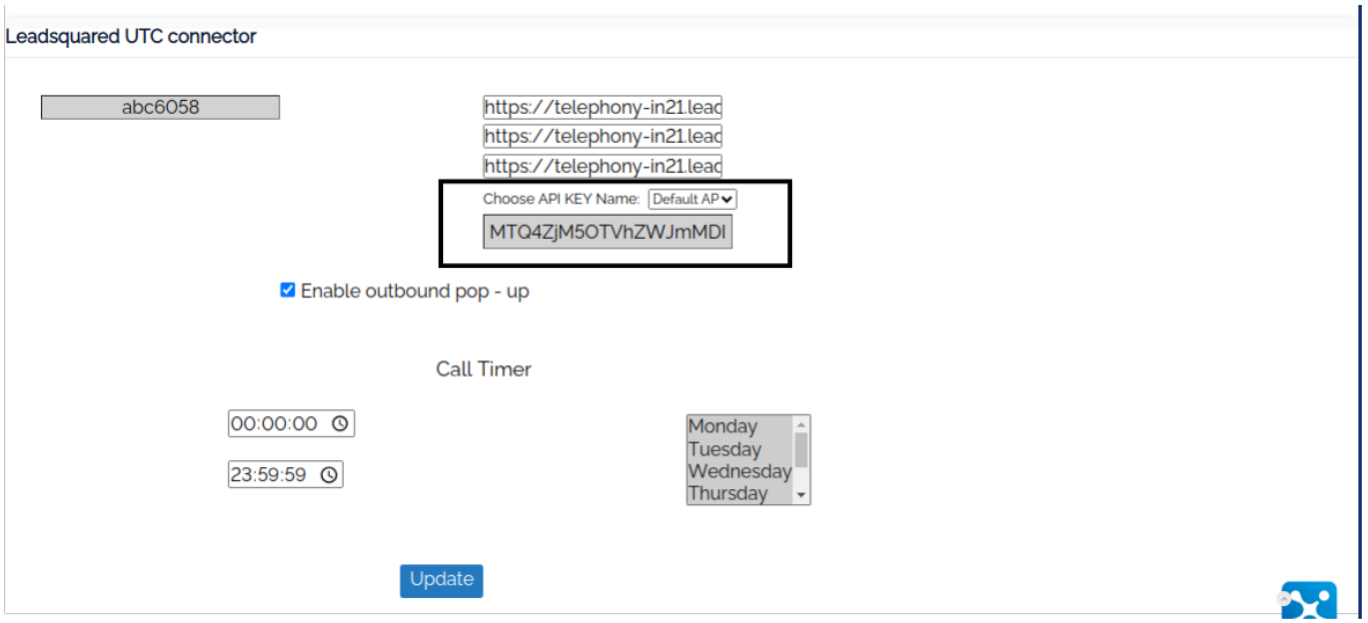


3. Configure the Click to Call URL in the UTC configuration.

a. URL - https://api.lsq.cocreate.exotel.com/v1/leadsquared/outbound/call/connect?AgentNumber=@AgentNumberWithCC&CustomerNumber=@PhoneNumberWithCountryCode&VirtualNumber=@VirtualNumberWithCC&AgentId=@{User:TelephonyAgentId,}

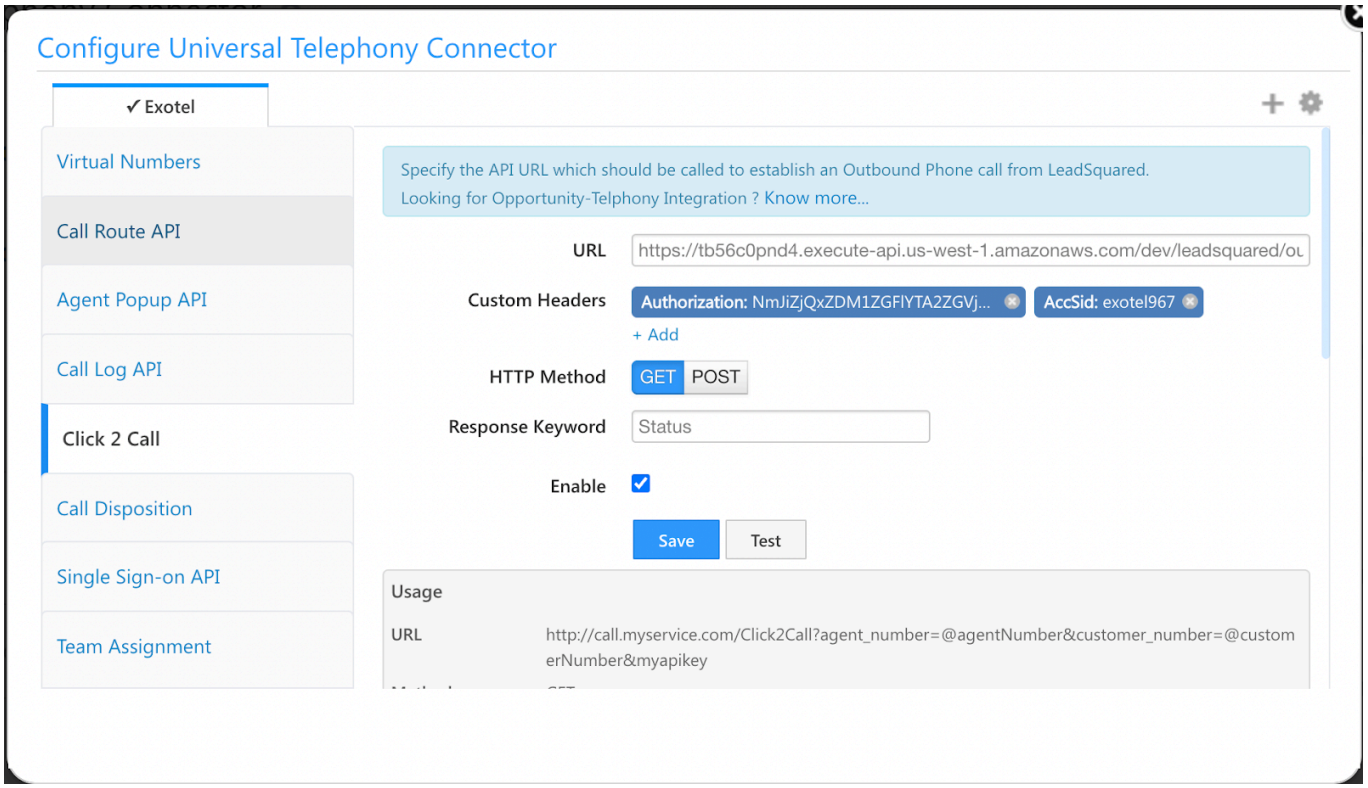
b. Custom Headers -

1. Authorization - Base64 value of Exotel API token/ key (available under “Choose API KEY Name: “ on the Leadsquared app on Exotel Appbazaar once the configuration is updated).



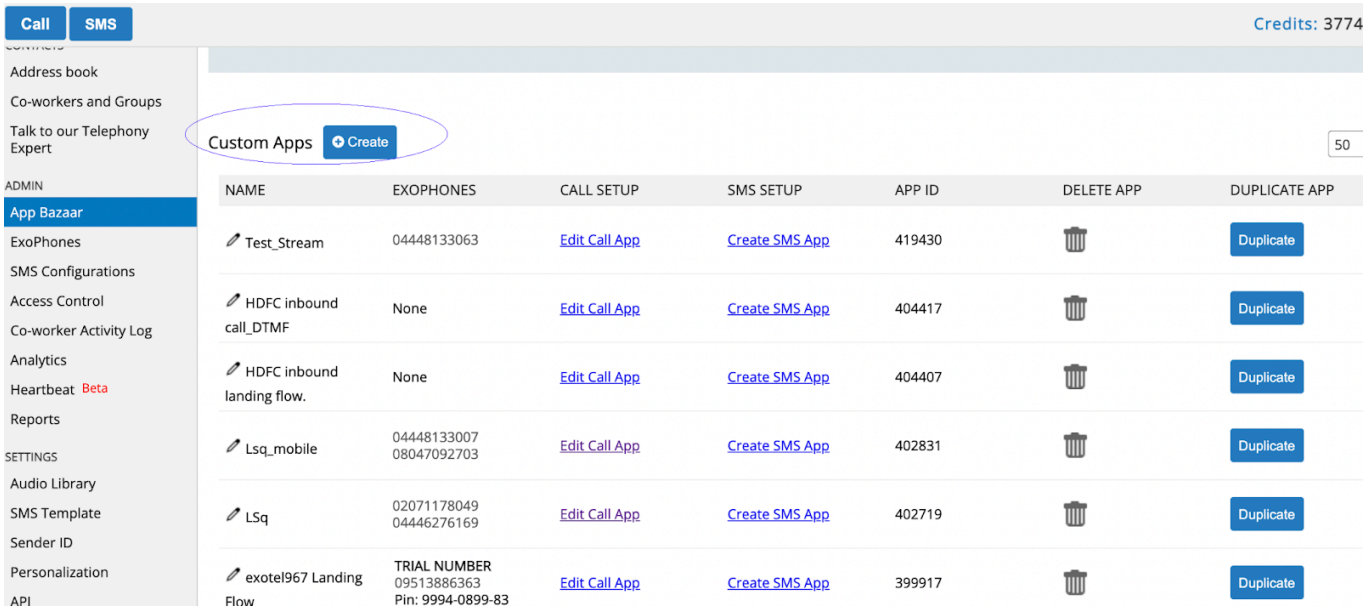
ii. AccSid - Exotel Account ID (available on the Leadsquared app on Exotel Appbazaar)

c. HTTP Method - GET

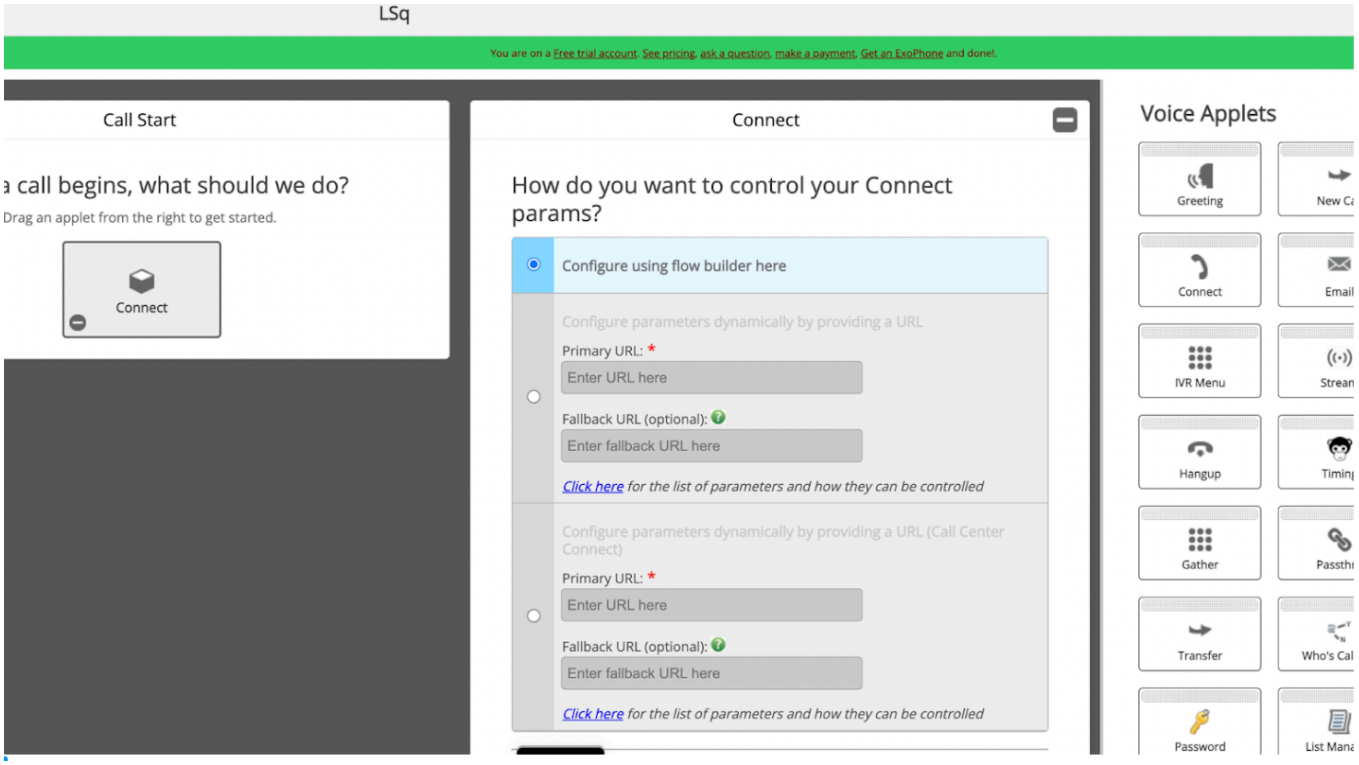


Call flow configuration for Inbound calls - Exotel portal

1. Login to Exotel acc (https://my.in.exotel.com/ for MUM stamp or https://my.exotel.com/ for SGP stamp)
2. Navigate to Admin panel >> App Bazar
3. Click on Custom Apps (+ Create) to add a new flow

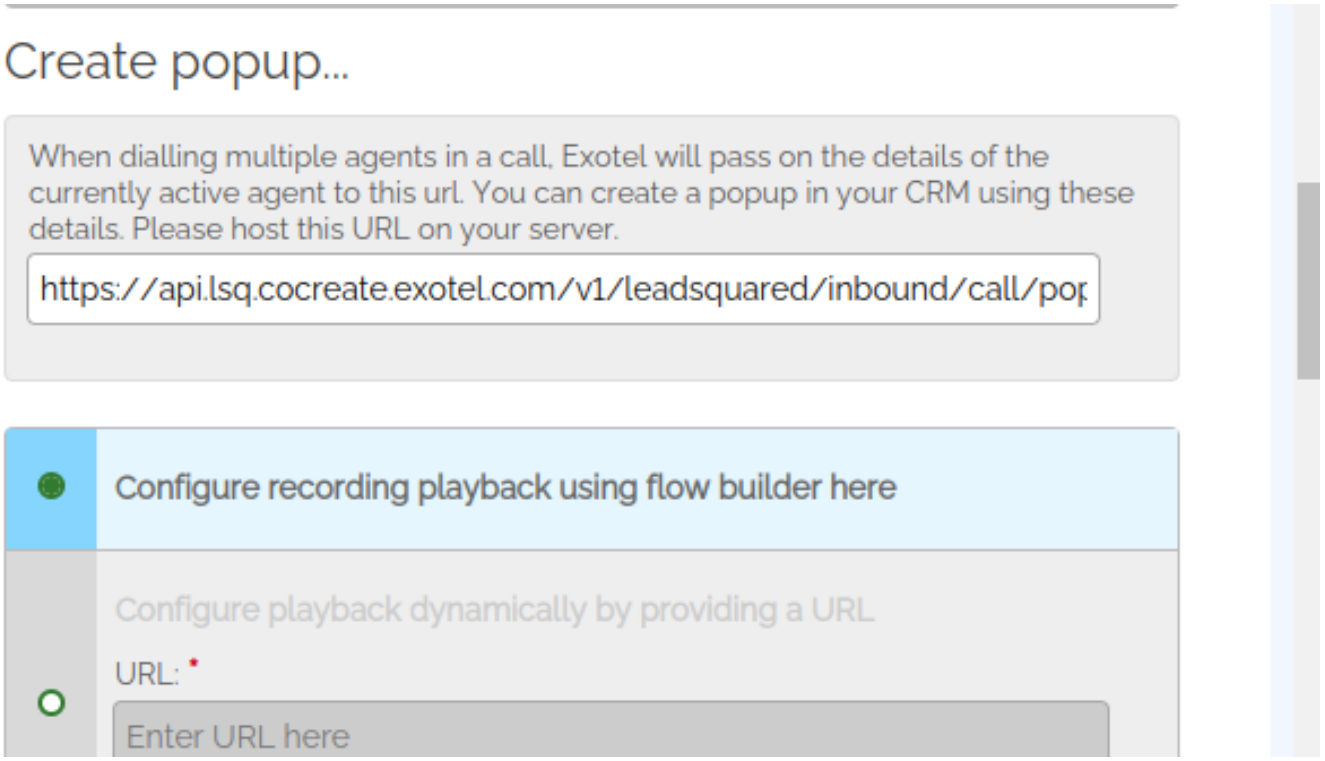


1. Add an ‘App Name’ and create a new flow
2. Call Start >> Add a Connect applet to begin the call flow



1. Connect Applet - Select the ‘Dial phone number(s) returned by URL’ radio button. Enter the primary URL - https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/dialwhom?AccSid={AccSID}

Create popup - To enable pop-up on the Leadsquared portal - https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/popup?AccSid={AccSID}



7. Add a Passthru Applet in the “Call conversation ends” section

a. Passthru URL - https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSID}

b. Make Passthru asynchronous (☑)

8. Add a Passthru Applet in the “If nobody answers” section

1. Passthru URL - https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSID}
2. Make Passthru asynchronous (☑)

Passthru

Information Pass Through

When the call reaches this menu, Pass info through to this url:
Use this applet to send info to your CRM or Support software. Learn more

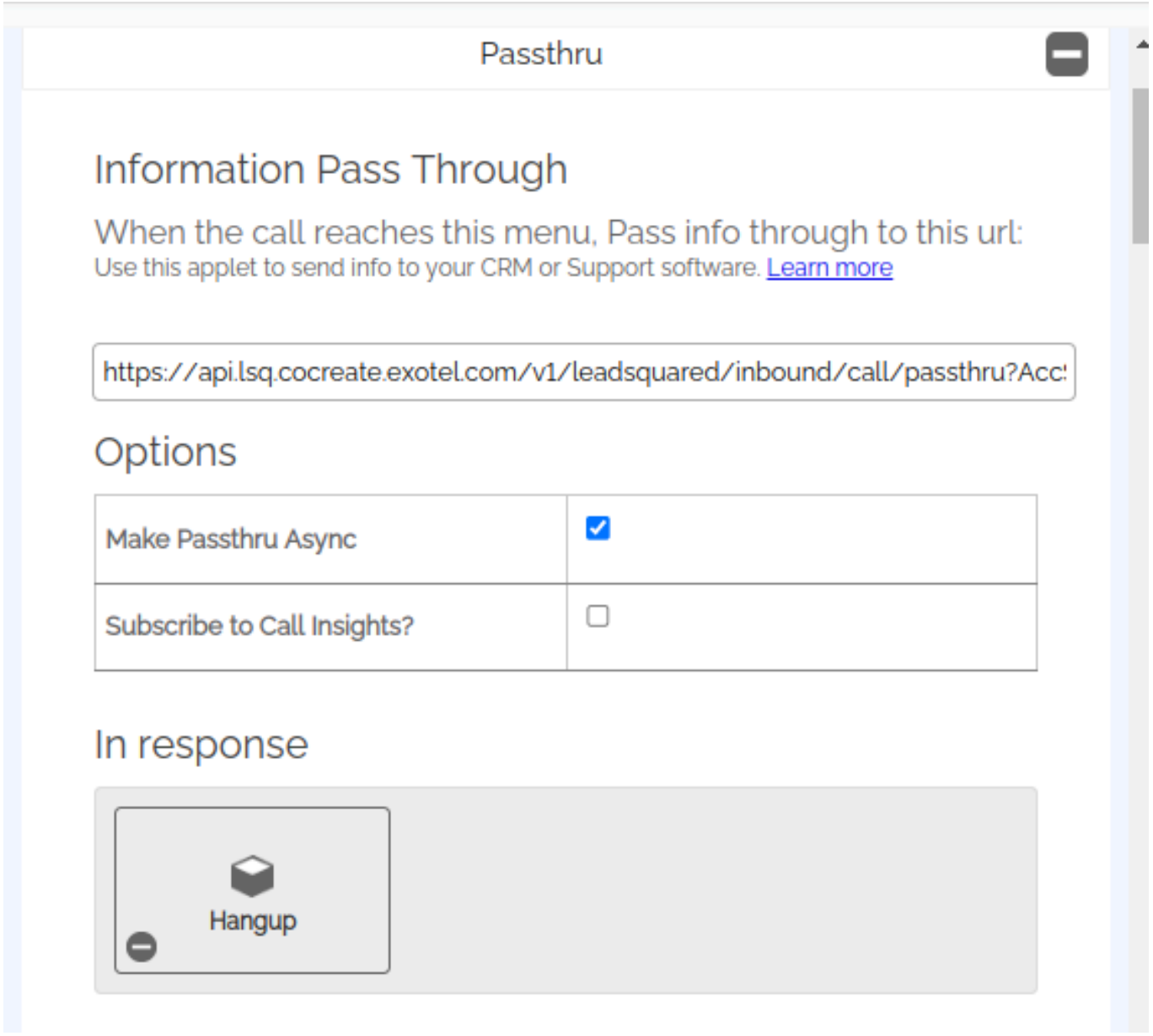
https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?Acc

Options

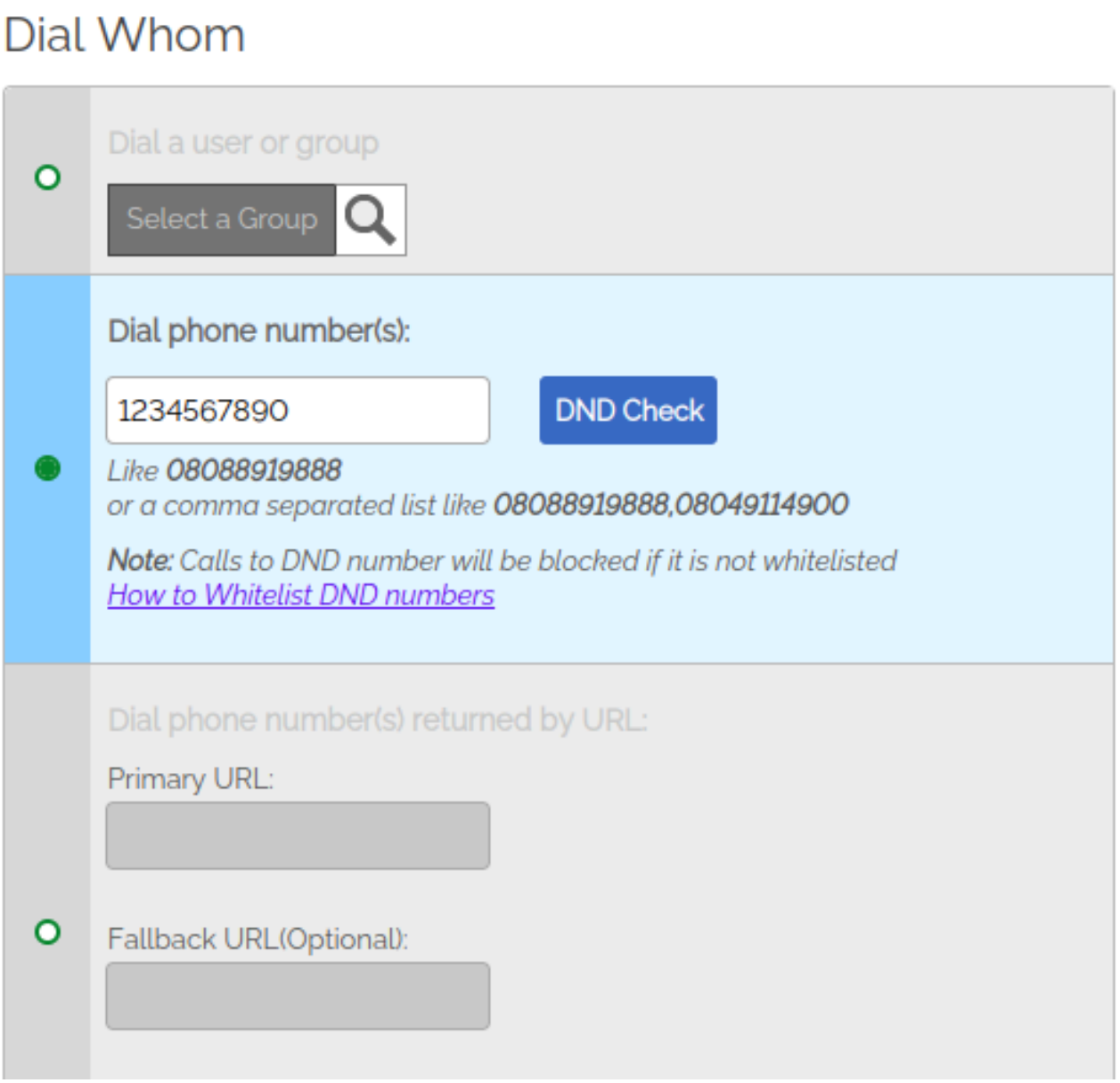
Make Passthru Async	☑
Subscribe to Call Insights?	☐

In response

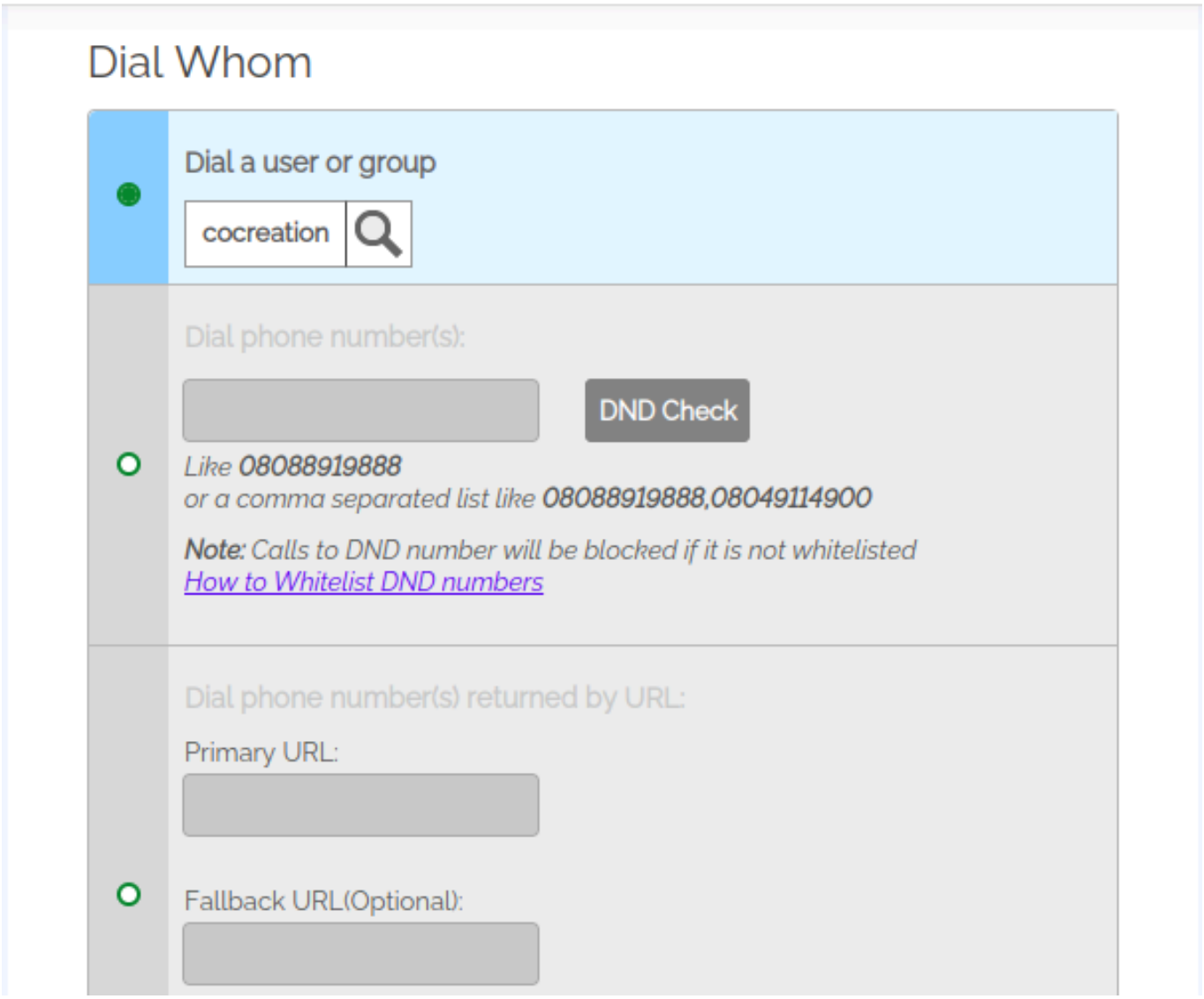
Hangup



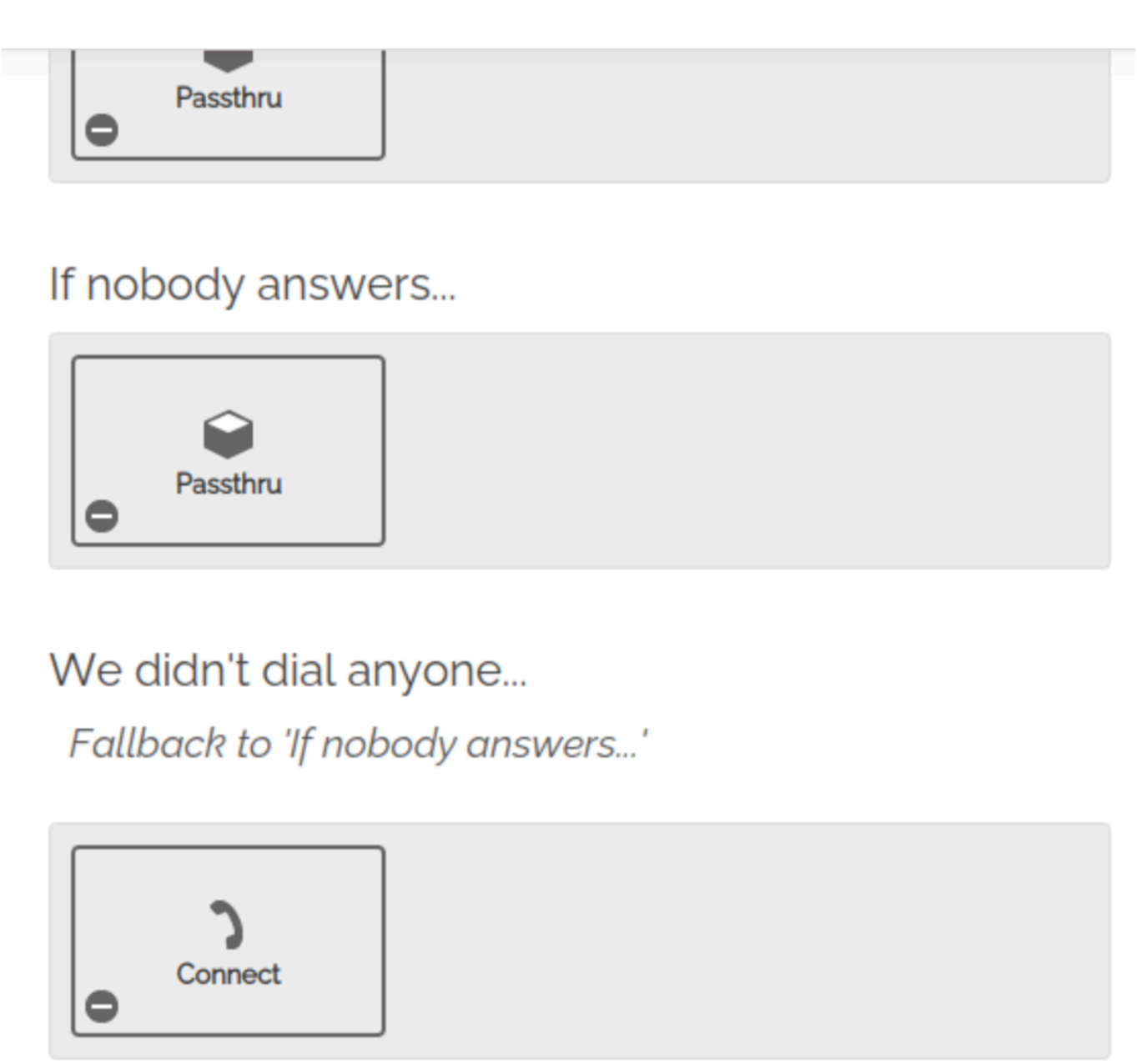
The above call flow setup can only handle calls from existing leads that are created and available in LeadSquared. To handle new callers whose data is not available in LeadSquared, please add the below to the existing call flow. The idea is to route the new callers to the groups available in Exotel. We will also send those call details to LeadSquared based on which a new lead will be created on LeadSquared post-call completion.



3. You can also route the calls to a common customer care number by selecting “Dial phone number(s)” and providing the customer care number in the field.



2. In Dial Whom of 2nd connect applet, choose a group to dial.



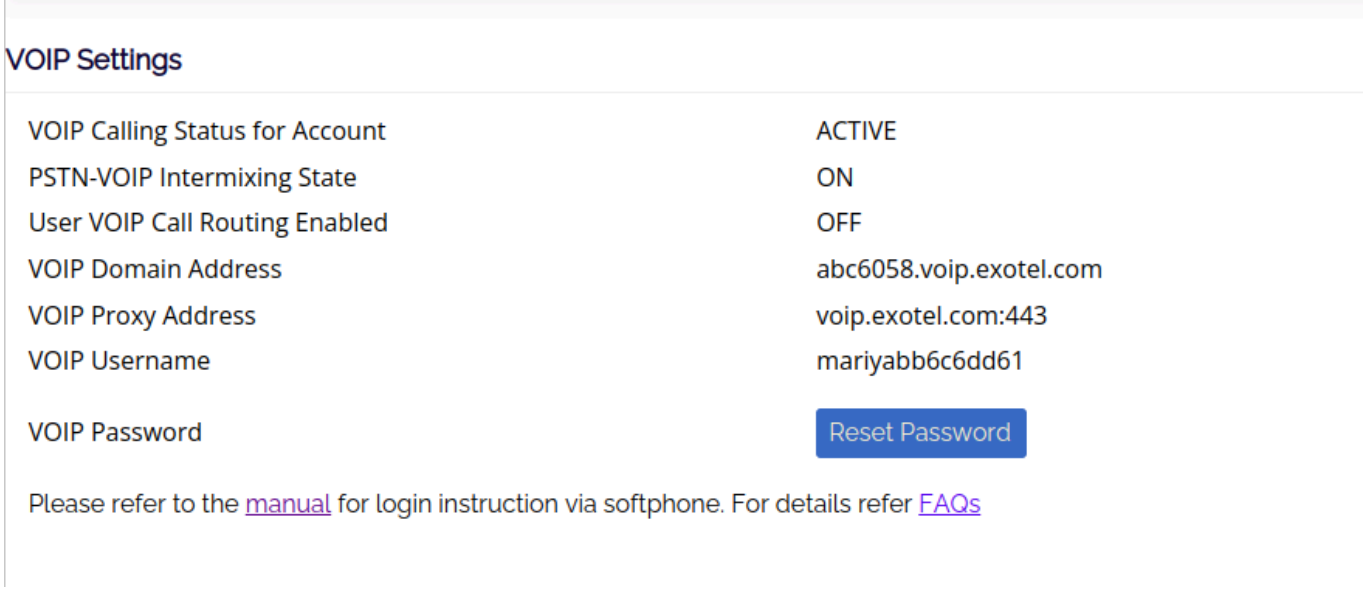
Place the 2nd connect applet in the "**We didn't dial anyone**..." section as mentioned below.

4. Configure both agent popup and passthru with the below URLs as same as it's configured in the 1st connect applet to send popup data and call logs to Leadsquared.

1. Create popup - https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/popup?AccSid={AccSID}
2. Passthru Applet (Call conversation ends) - https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid={AccSID}
3. Passthru Applet (If nobody answers) - https://api.lsq.cocreate.exotel.com/v1/leadsquared/inbound/call/passthru?AccSid=

{AccSID}

Changes need to be made in LSQ



On Exotel, Reset the password for every user in the VoIP settings page.

SGP - my.exotel.com/voipinfo

MUM - my.in.exotel.com/voipinfo

Edit user details

First Name

Maria

Last Name

SIP

Email

mariya.banatic+sip@exotel.in

Device Type

Number SIP

SIP User Name

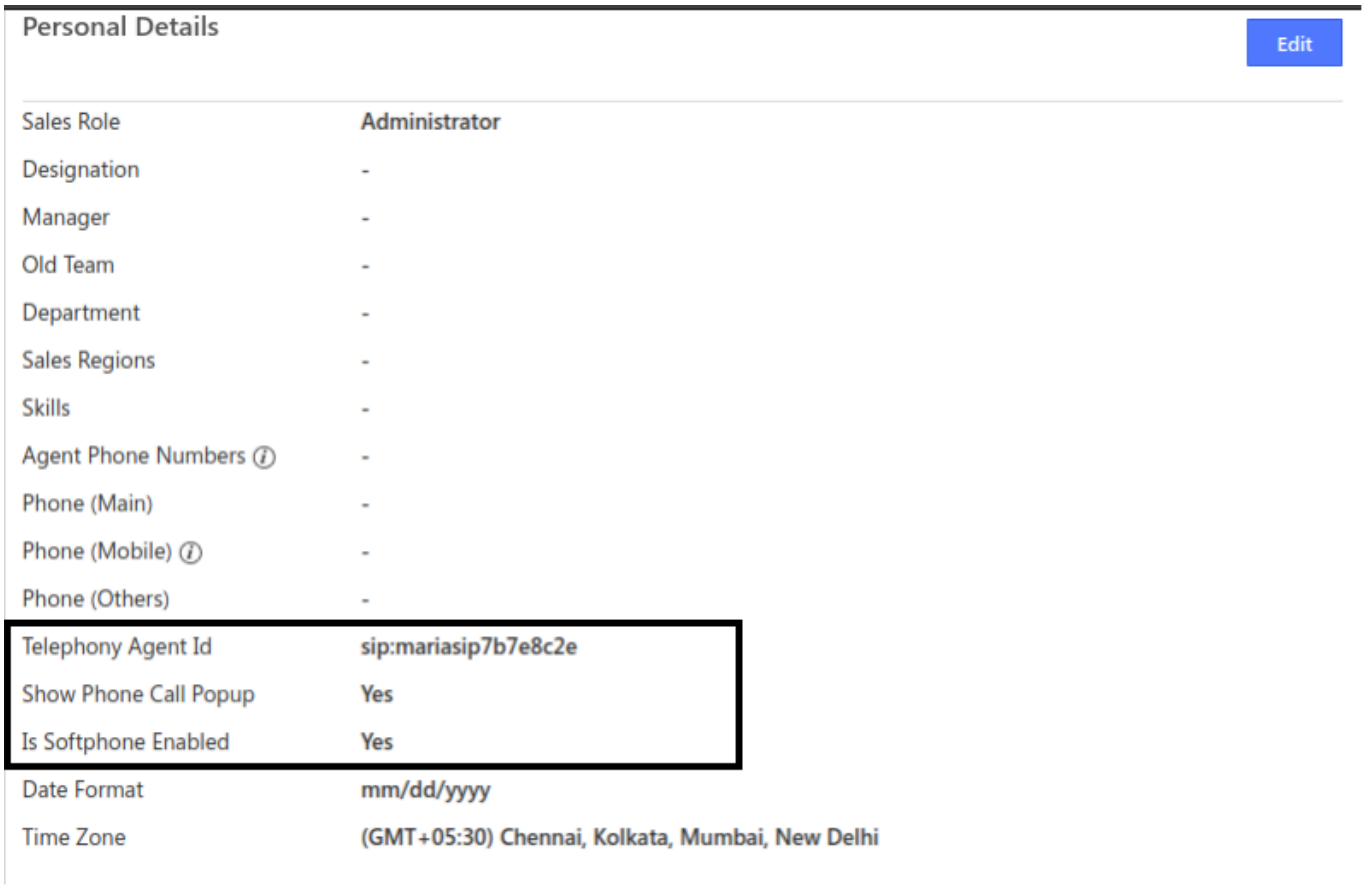
sip:mariasip7b7e8c2e

ON

Role Admin

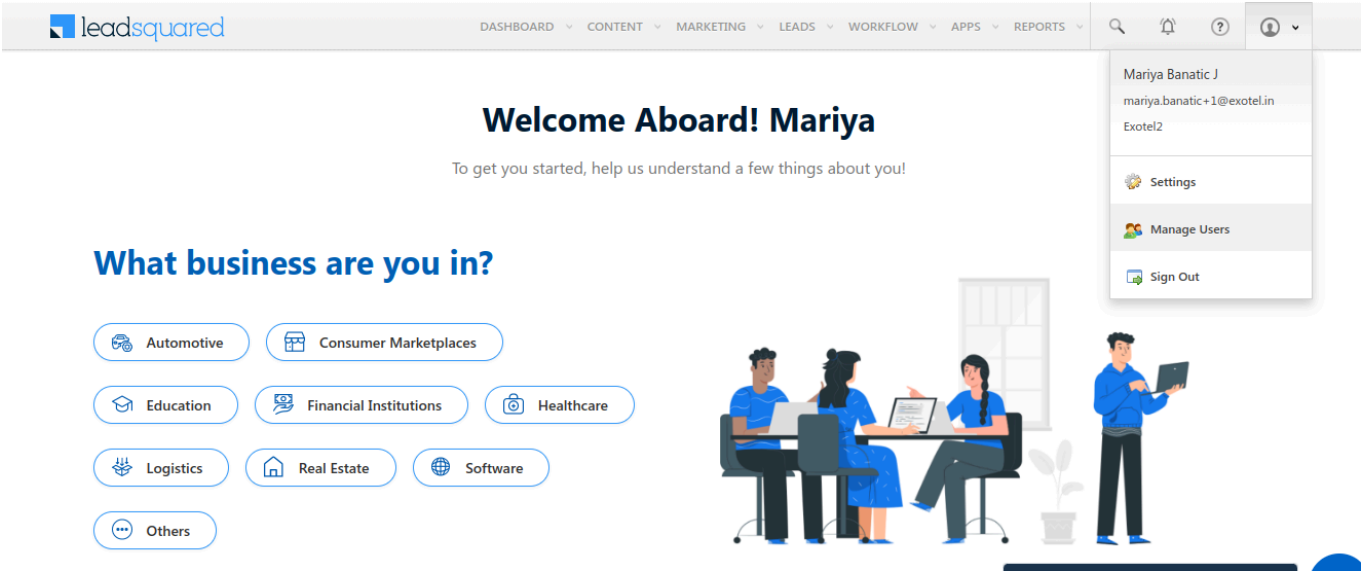
NOTE:
1) You will be charged per user based on your User Billplan
Your current User Billplan : **1000000 users free, rest @ 0.0 credits per user per month**
2) To verify your number,
a) Please give missedcall from newly added number to **+919513885656**
b) Get a verification call from Exotel

Switch the Device type to SIP for all users on the “Co-workers and Groups” under the “Manage” section page as mentioned below.

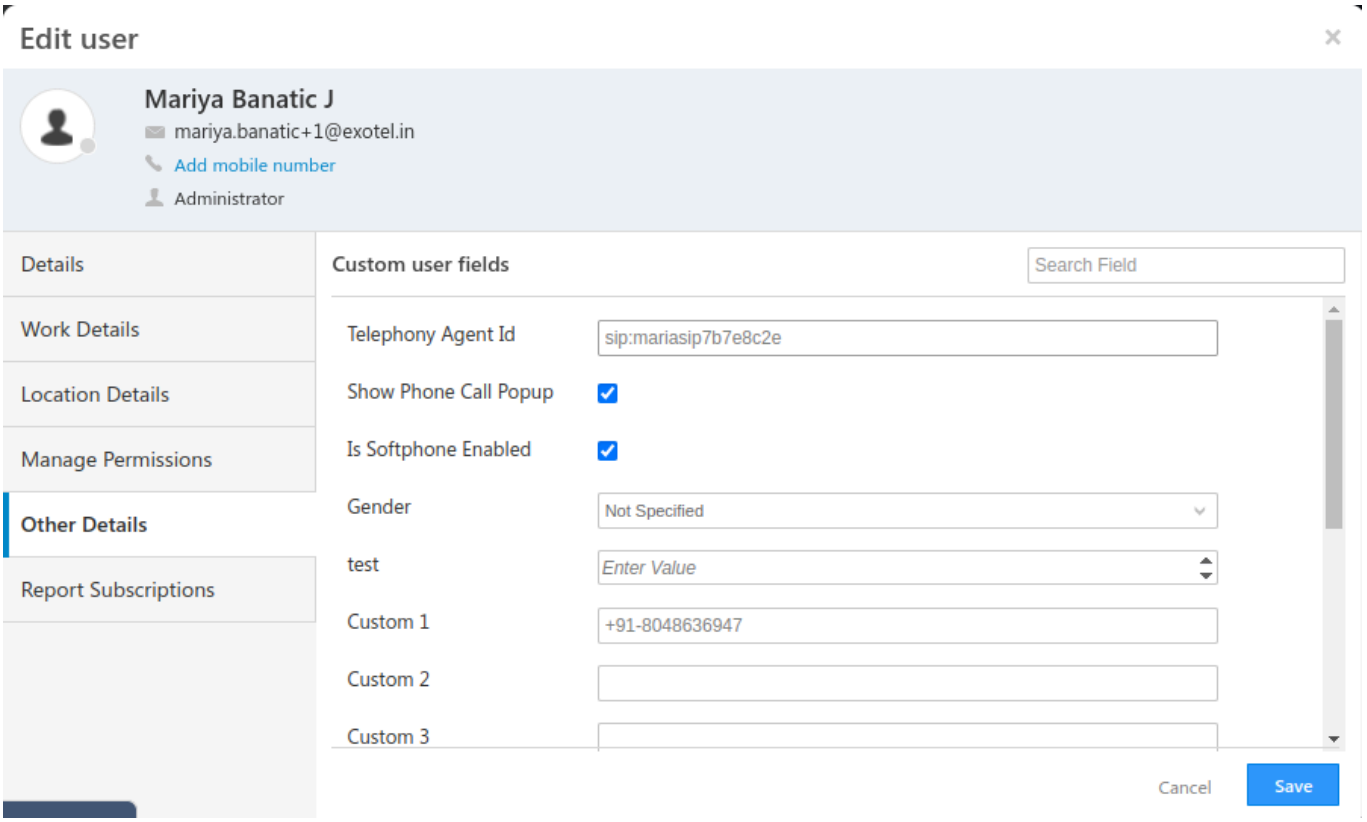


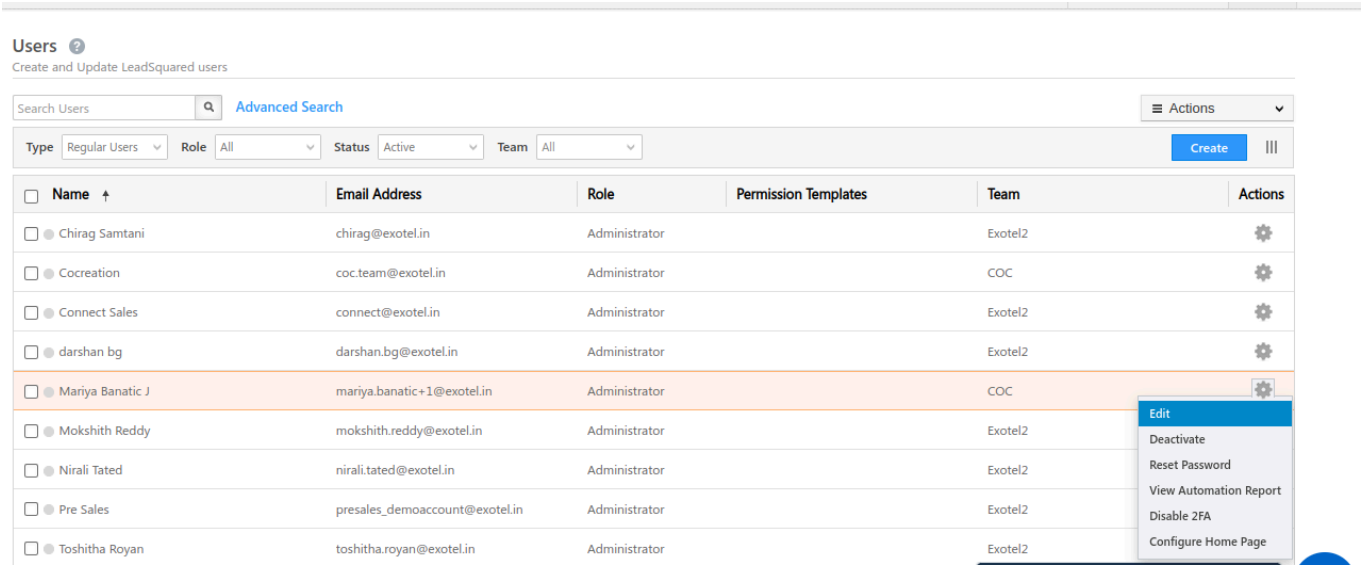
If the users are doing it themselves, on the LSQ page, go to “My Profile”, edit the “Telephony Agent ID” and add the SIP ID of the user there. Enable both the “Show Phone Call Popup” and “Is Softphone Enabled” to “Yes” in the same settings page mentioned below.

SIP ID Format=> sip:<VOIP Username>, Example - sip:mariyabb6c6dd61



If the admin is doing it for all the users, click on the Profile icon, and click on “Manage Users”.

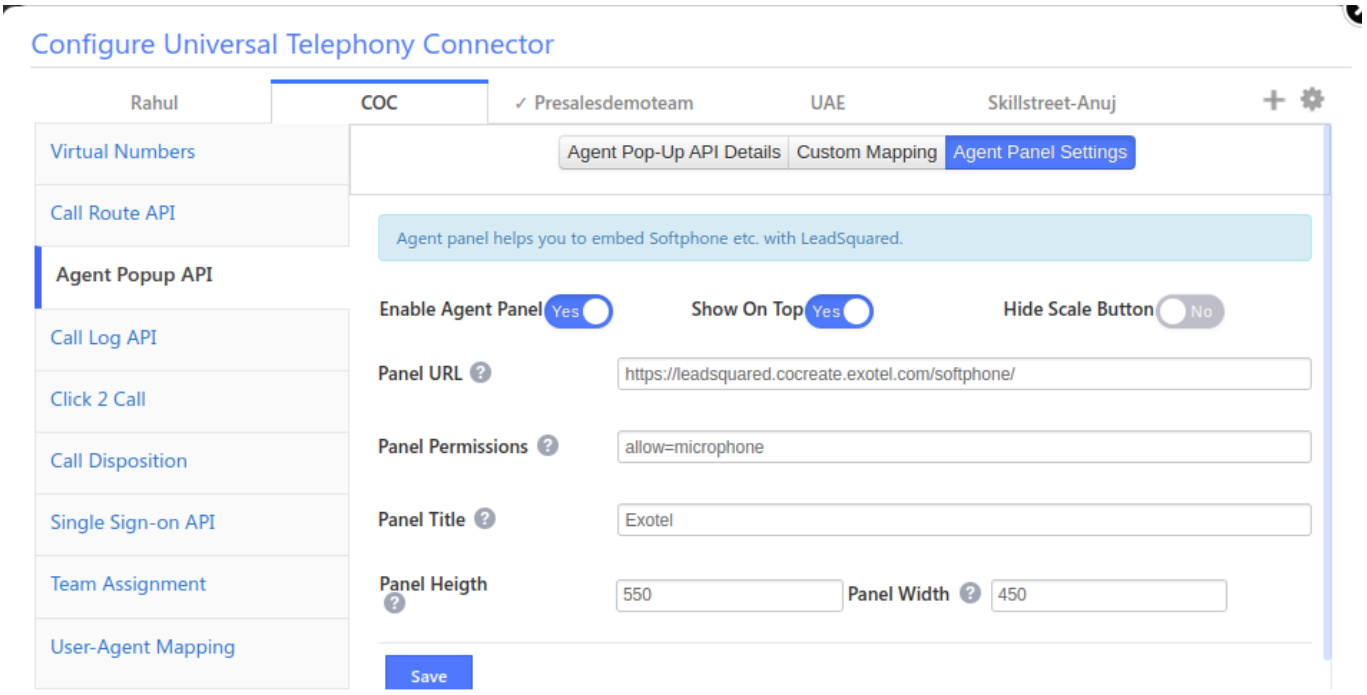




Click on the Gear icon and “Edit”. Go to “Other details” and click on “Edit”. Here you can add the SIP ID of the user and enable Softphone.

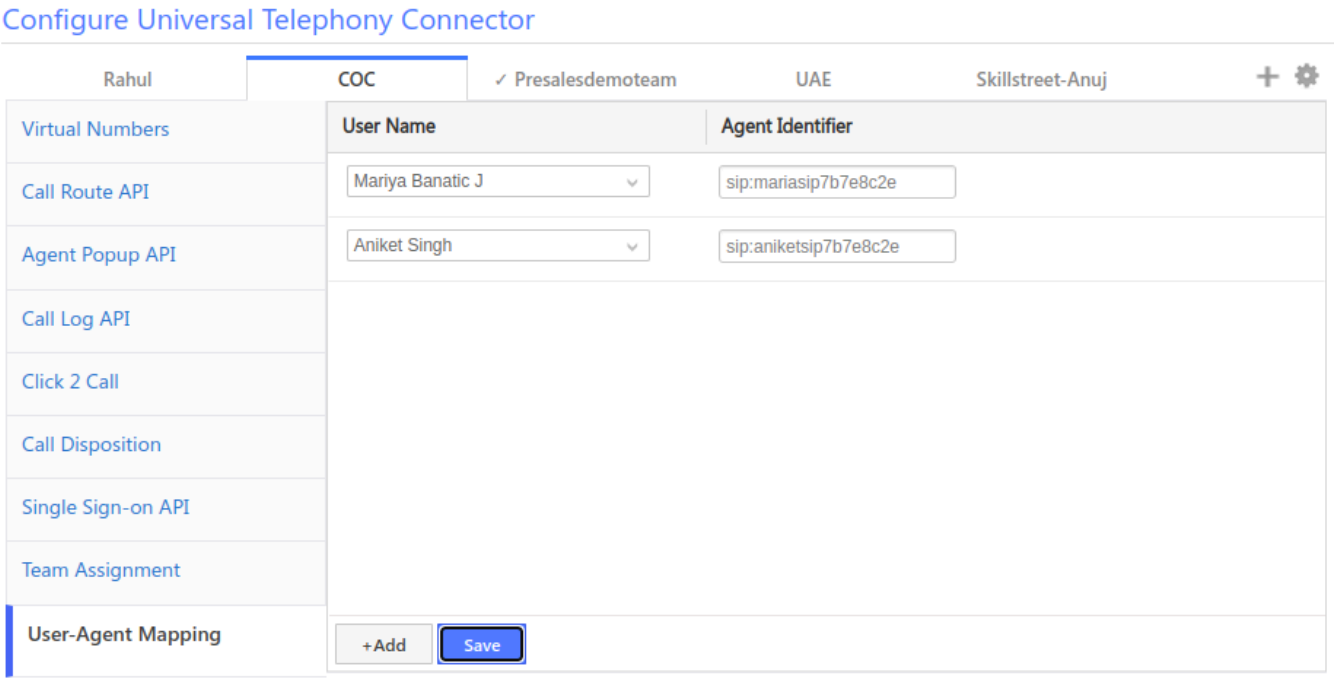
Add the configuration for the Softphone

- The admin needs to go to the UTC connector, click on settings, and then “Configure”.
- Navigate to “Agent Popup API” > “Agent Panel Settings”.
    - Toggle the “Enable Agent Panel” to Yes.
    - Add the Panel URL - Softphone | Exotel
    - Panel Permissions - Add the text “allow=microphone”
    - Give a Panel Title that will be visible in the dialog in its closed state.
    -



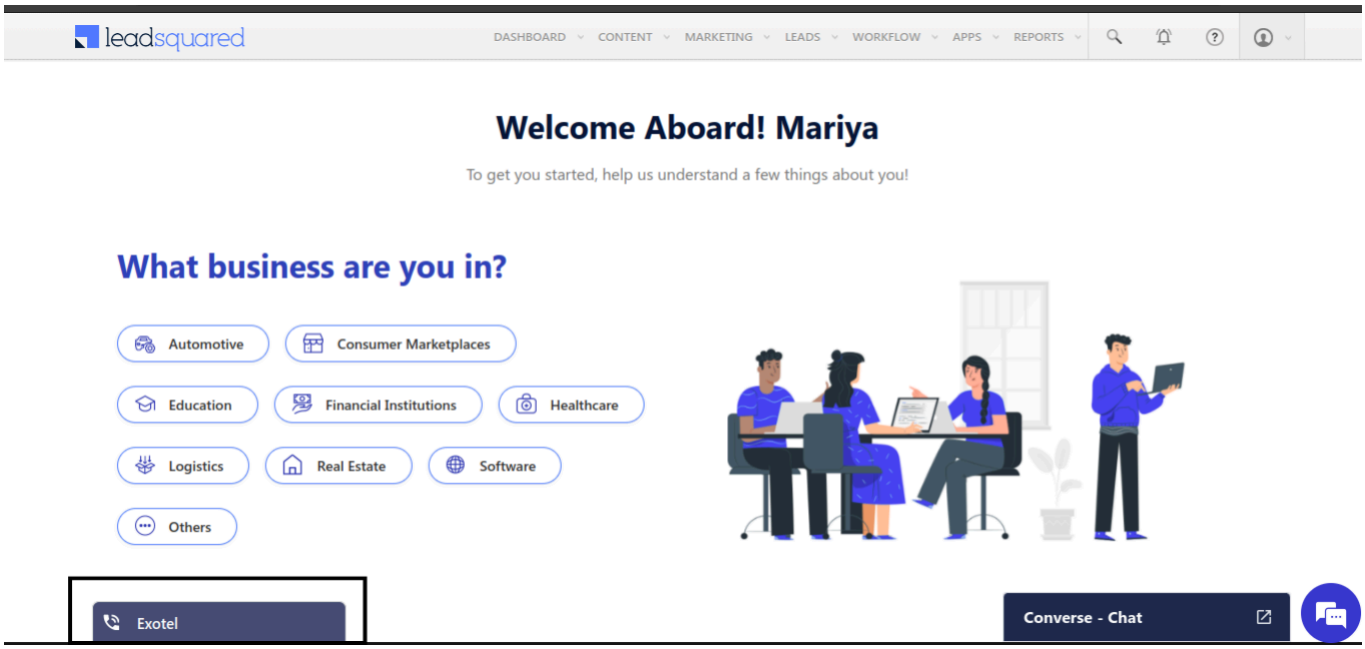
For more information, kindly refer to the “Agent Panel Settings” section mentioned her.

- Click on “User-Agent Mapping” on the menu on the left.



Add all the users that you want to enable VoIP calling for and add the SIP ID in the “Agent Identifier

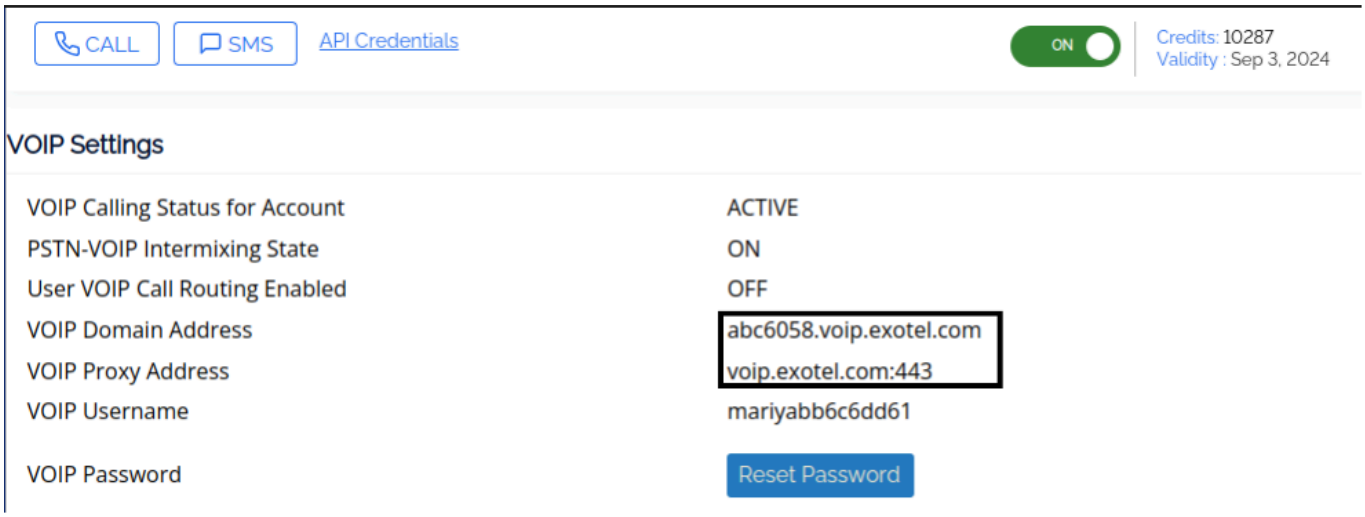
Login to the Softphone



Open the respective softphone that you can find at the bottom.

SGP - my.exotel.com/voipinfo

MUM - my.in.exotel.com/voipinfo

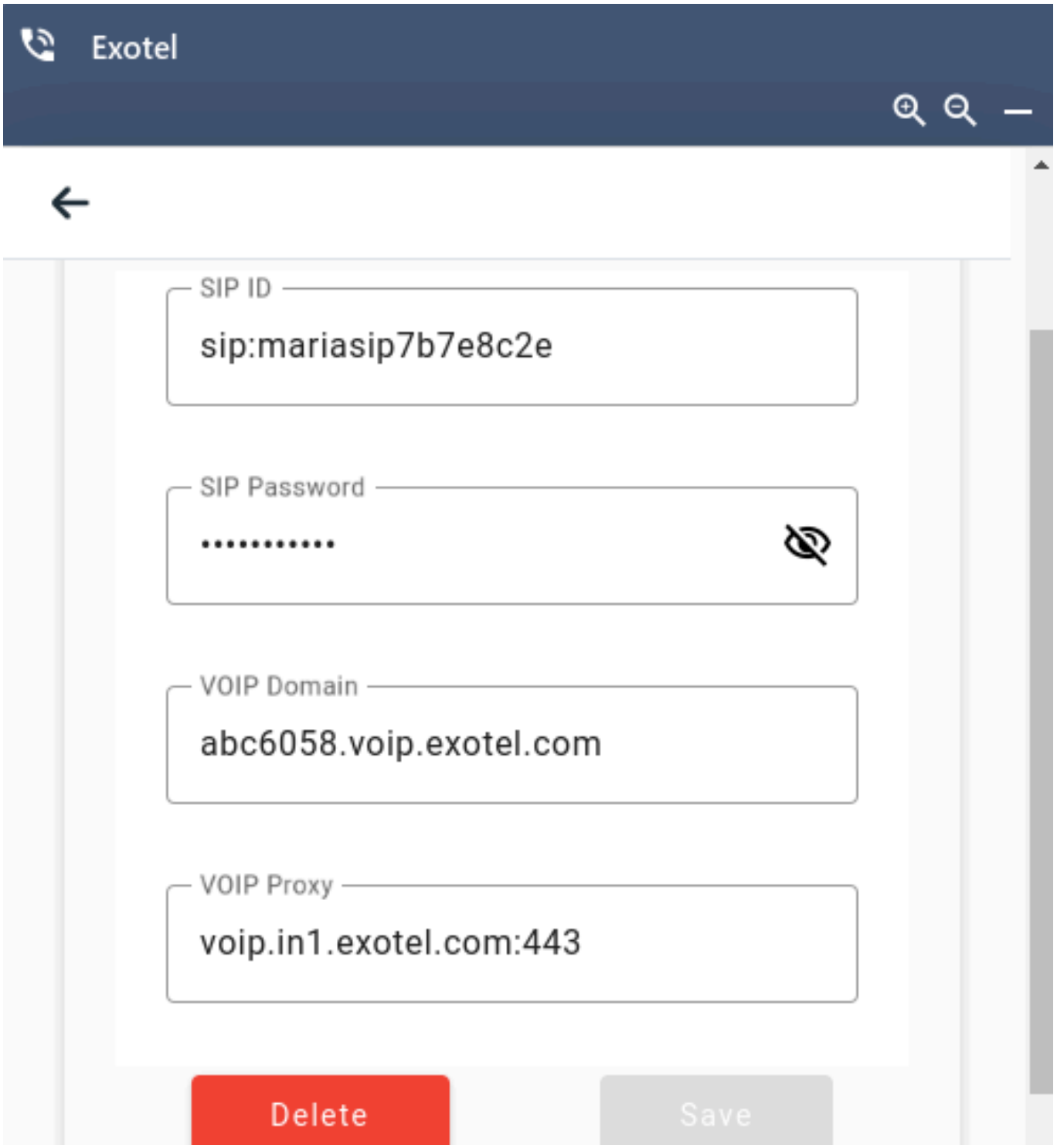


Fill in the below details and click on “Save”.

1. SIP ID - Use the SIP ID provided in the LSQ profile section. Example - sip:mariyabb6c6dd61
2. SIP Password - Use the same password you have configured under the “Get Your users ready for IP calling” section.

You can find the below two values in the Exotel’s VoIP settings page.

3. VOIP Domain
4. VOIP Proxy


Exotel
SIP ID
sip:mariasip7b7e8c2e
SIP Password
VOIP Domain
abc6058.voip.exotel.com
VOIP Proxy
voip.in1.exotel.com:443
Delete
Save

4.3.4. Configure Exotel's WhatsApp cloud Integration with LeadSquared

Overview

This guide walks you through the process of integrating **Exotel's WhatsApp Cloud API** with **LeadSquared** to automate customer communication via WhatsApp.

Prerequisites

Exotel

1. WhatsApp Cloud onboarding is completed for the phone number to be used with LeadSquared.

2. Exotel's API credentials are available (accessible via the Exotel Dashboard).

3. To activate a new phone number with WhatsApp Business API, contact your Exotel account manager or email hello@exotel.in.

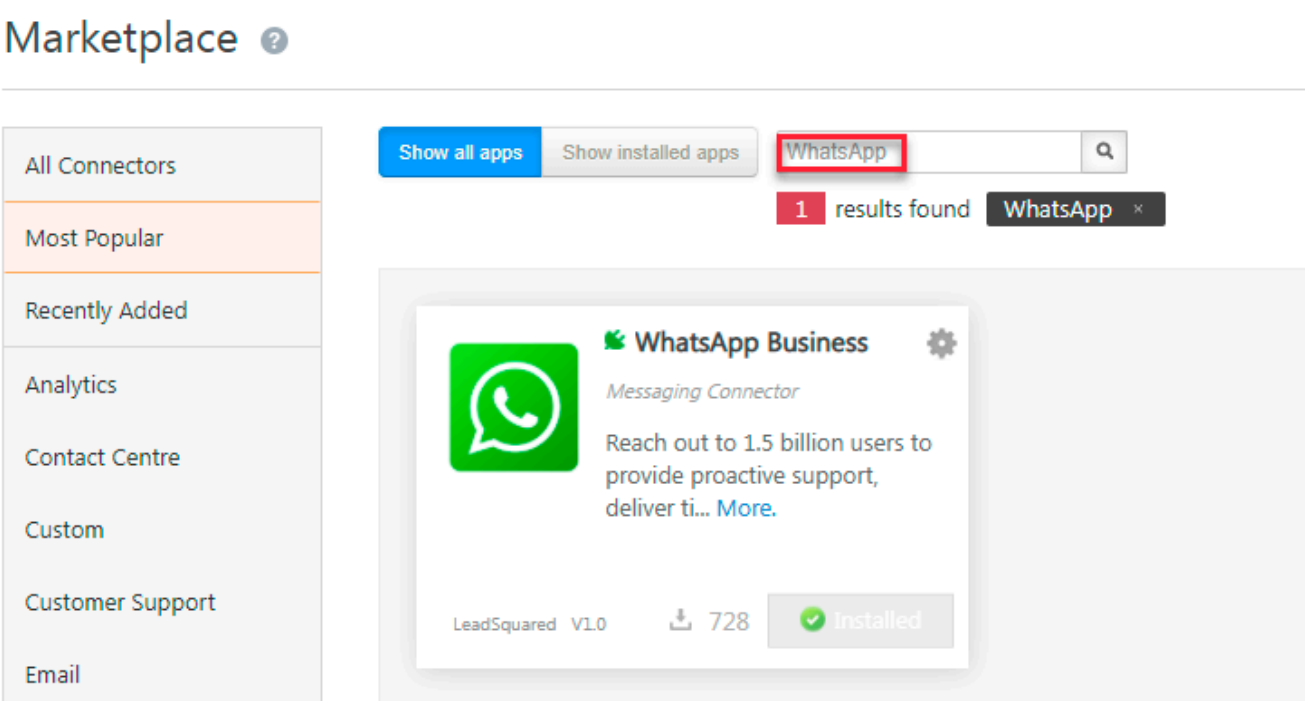
LeadSquared

1. WhatsApp add-on is enabled on your LeadSquared account.

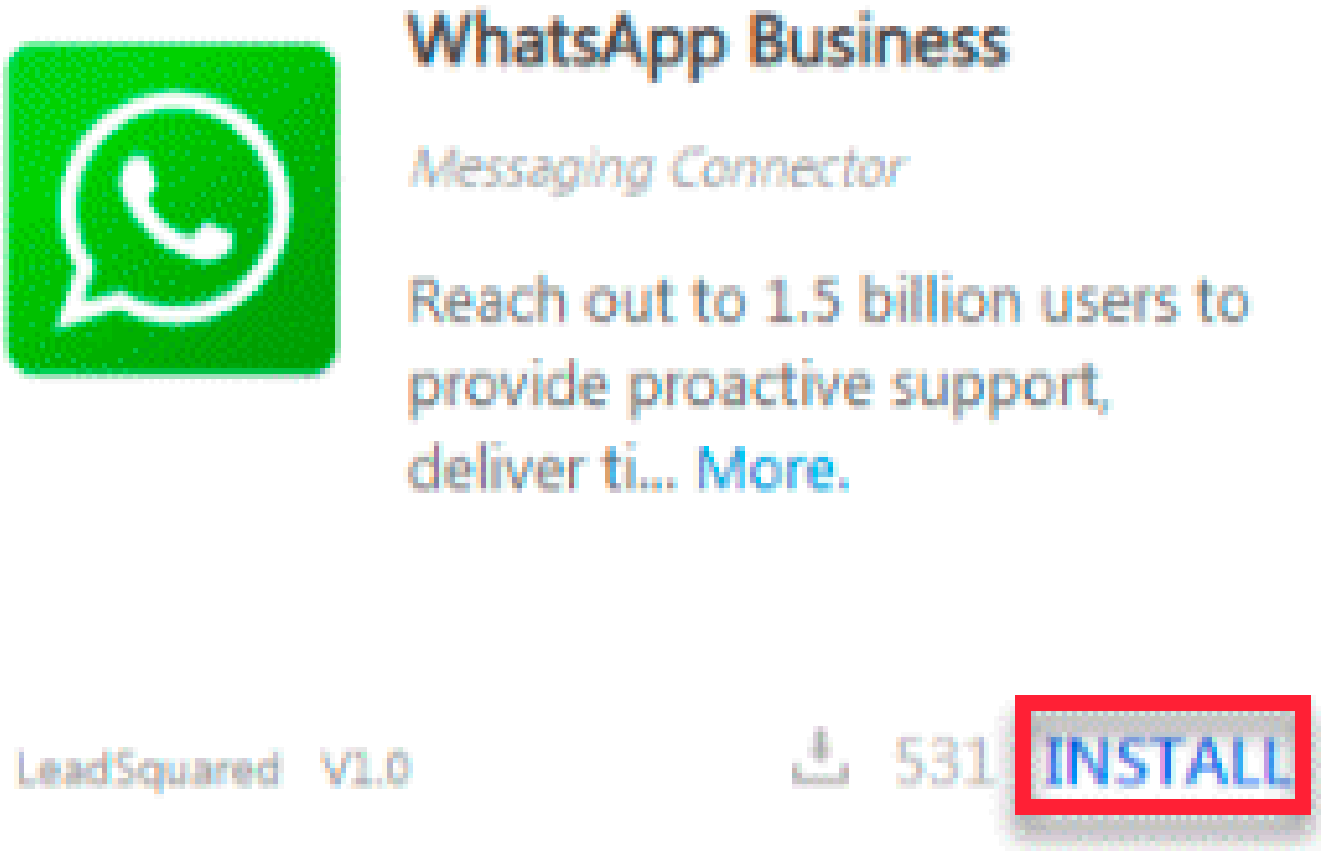
Steps to Install WhatsApp on LeadSquared

1. Log in to your LeadSquared account and navigate to the Apps Marketplace.

2. Search for "WhatsApp" **in the marketplace.**



3. Click INSTALL on the WhatsApp Messaging Connector plugin.



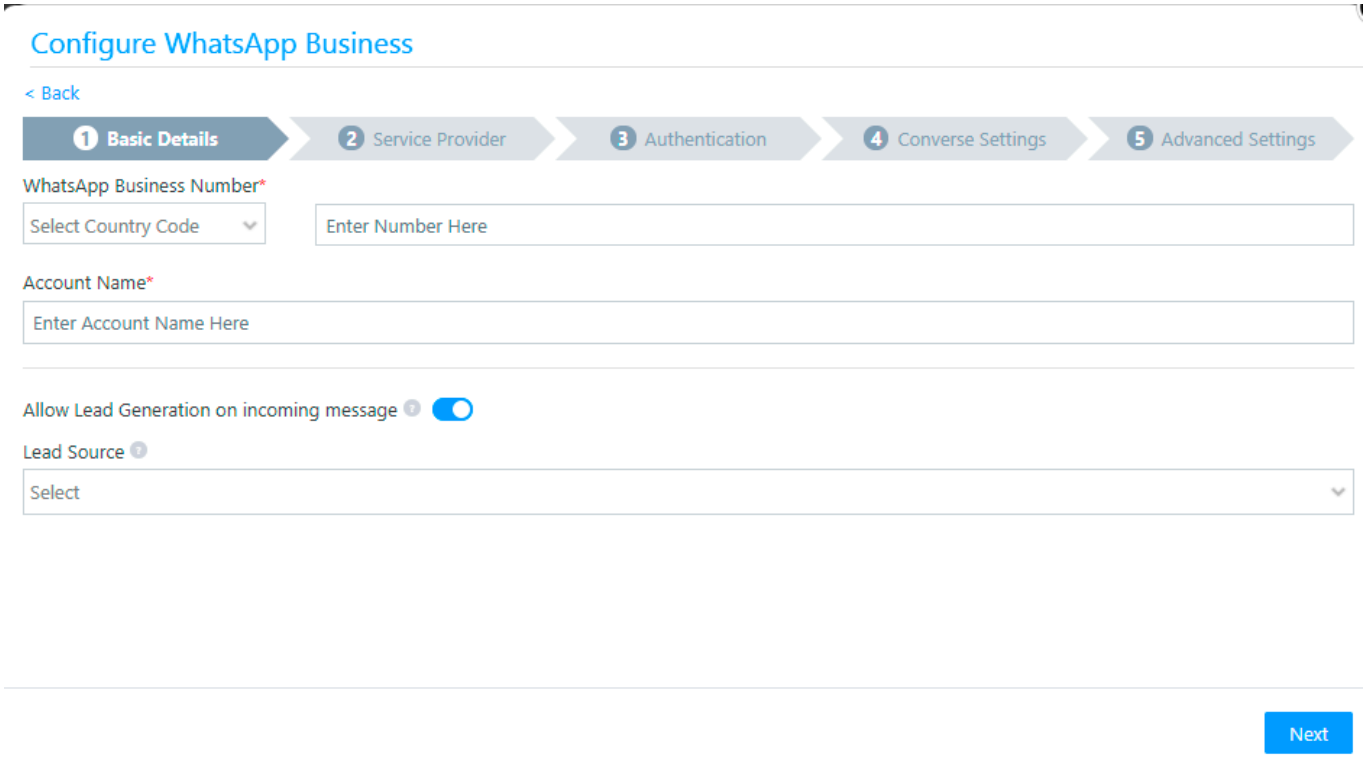
4. Once installed, hover over the plugin and click Configure.
5. In the Configure WhatsApp Business pop-up, click Add Number.

Configuration Steps

Step 1: Enter Basic Details

Under the Basic Details section, fill in:

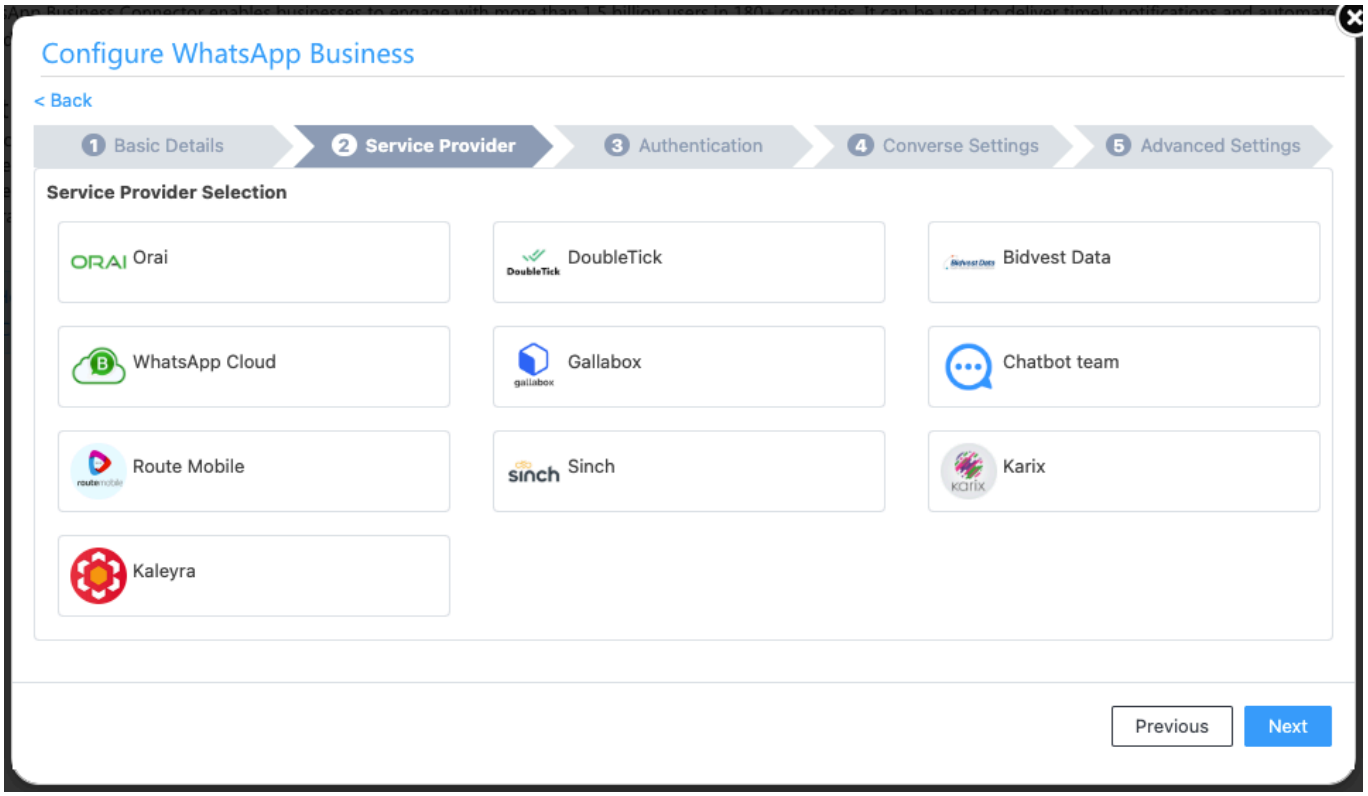
1. WhatsApp Business Number – Enter the number onboarded on WhatsApp.
2. Account Name – Enter your Exotel account name.
3. Allow Lead Generation on Incoming Messages – Toggle this ON to enable automatic lead generation.
4. Lead Source – Select a lead source from the dropdown.



5. Click **Next** to proceed to the **Service Provider page**.

Step 2: Select Service Provider

1. On the Service Provider page, select WhatsApp Cloud as the provider.



6. Click **Next** to move to the **Authentication** page.

Step 3: Authentication Settings

1. Send Message URL – Enter the Exotel messaging endpoint in the format:

https://api.exotel.com/v2/accounts/<your_account_sid>/messages/leadsquared/whatsapp/<your_waba_number>

- Replace <your_account_sid> with your Account SID.
- Replace <your_waba_number> with the WABA number (including country code).

2. WhatsApp Number – This field is pre-filled from Step 1.
3. Permanent Access Token – Enter “N/A” for WhatsApp Cloud Integration.
4. Authentication Header Template – Enter the Base64 encoded format of your API key and token. Format:

Basic Base64_encoding of <your_api_key>:<your_api_token>

- API key and token are available in the Exotel Dashboard:
  Dashboard → Settings → API Settings

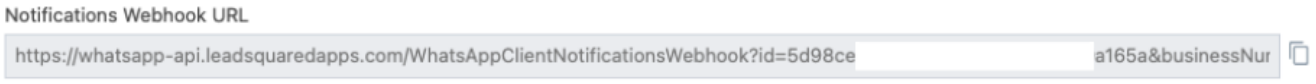
5. Get Media URL – Enter:

https://api.exotel.com/accounts/<your_account_sid>/messages/leadsquared/whatsapp/{{mediaId}}

- Replace <your_account_sid> with your Account SID.

6. WhatsApp Business Account ID – Enter the WABA ID associated with the onboarding number.

7. Notification Webhook URL – Once you complete the WhatsApp number configuration, this field will appear in the configuration and will be pre-filled. This field will be used for Delivery Reports (DLRs).



You must configure this webhook in Exotel by following these steps:

1. Log in to Exotel Dashboard (my.exotel.com).
2. Click WhatsApp in the left menu (redirects to the Messaging Console).
3. Click Webhooks in the left menu.
4. Under Number Level Webhook, locate the WhatsApp number and click the Edit icon.
5. Copy the webhook URL from LeadSquared and paste it here. Click Save.
6. The webhook will be activated in 15 minutes.

4.4. Shopify

Verify customer number & confirm orders automatically

Overview

Exotel Shopify Integration helps verify customers' numbers resulting in confirmation/cancellation of cash on delivery (COD) or all orders. This is achieved via automated IVR calls or SMS-based verification through Exotel's Cloud Telephony Platform. This will automate order verification without manual intervention and thus save time and effort.

Key Features:

- OTP-based verification.
- IVR Call-based verification.
- Auto cancel an order within Shopify if the customer cancels the order while the confirmation process
- Fallback options for IVR calls
    - Send an SMS with a link, which opens a web page with order details and has an option to confirm/cancel the Order.
    - Send SMS with Missed Call Number to Confirm the order.
- Reporting - Call logs, SMS logs, Order History with Status, Missed Call Logs.

Note: Fallback will be applicable only if call retries exceed the max limit, OR for DND numbers if DND calling is not activated on Exotel Account.

Key Benefits:

- **Automated Order Verification**: You can automate order verification without manual intervention and thus save time and effort.
- **Avoid returns and Fake orders**: Helps validate COD orders thus avoiding bogus orders ensuring the operational cost spent on genuine orders and avoiding returns, fake orders, and saving on shipping costs.
- **Multiple options of Verification:** Flexibility for shop owners to choose their preferred order verification process and easily switch between them as per business requirements.

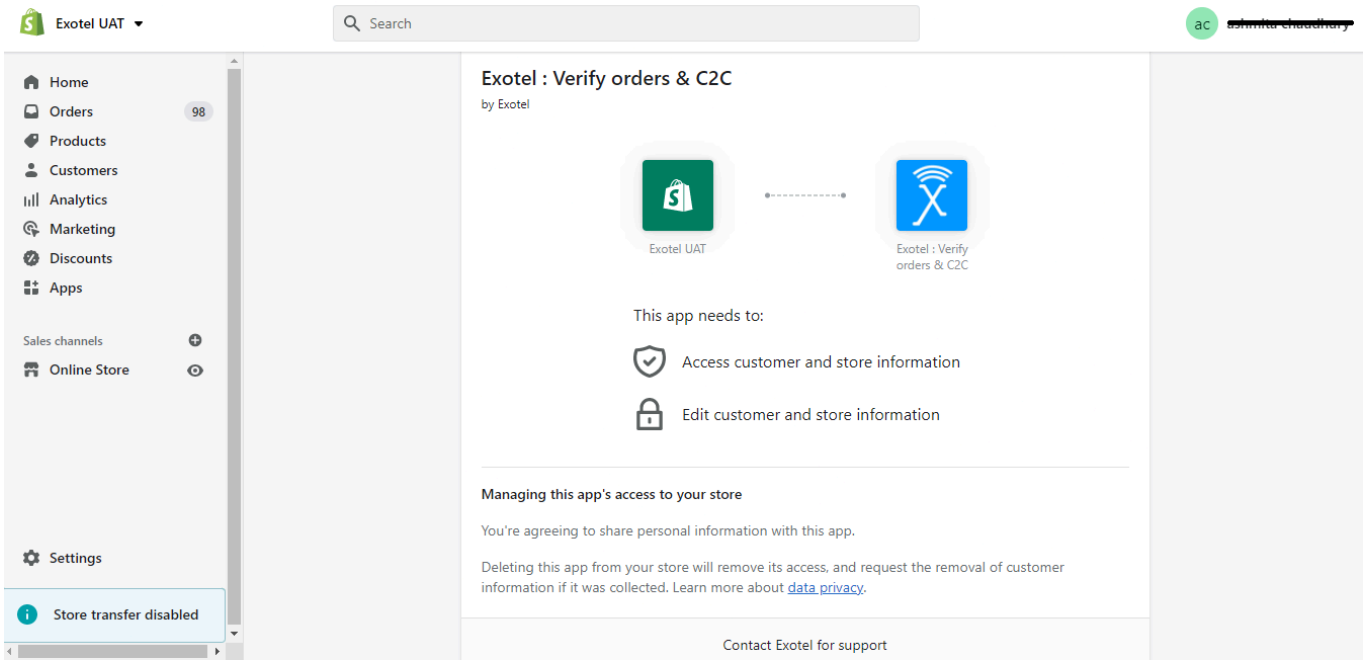
- **Reports**: Detailed reports are available within the App which helps in tracking order status, and its relevant Call and SMS data. No need to log in to different platforms.

Note: Please ensure “Shipping address phone number” is set as a required field under the Customer Information section in the Checkout settings page to allow the App to process order verification.

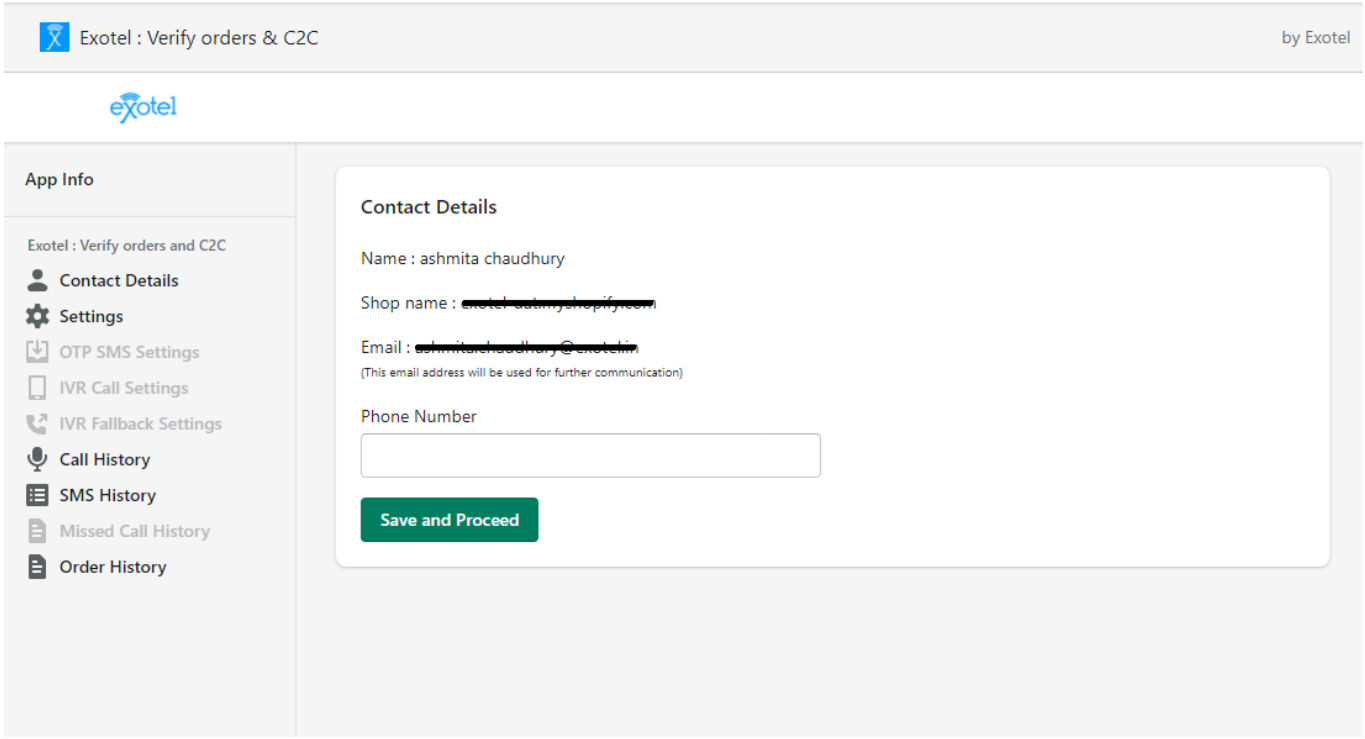
Installation Steps:

Following are the steps for installation of SMS, IVR Verification and C2C App:

1. Install Shopify App from Shopify Marketplace.



Click on “Install” in the bottom-right corner to begin the installation.

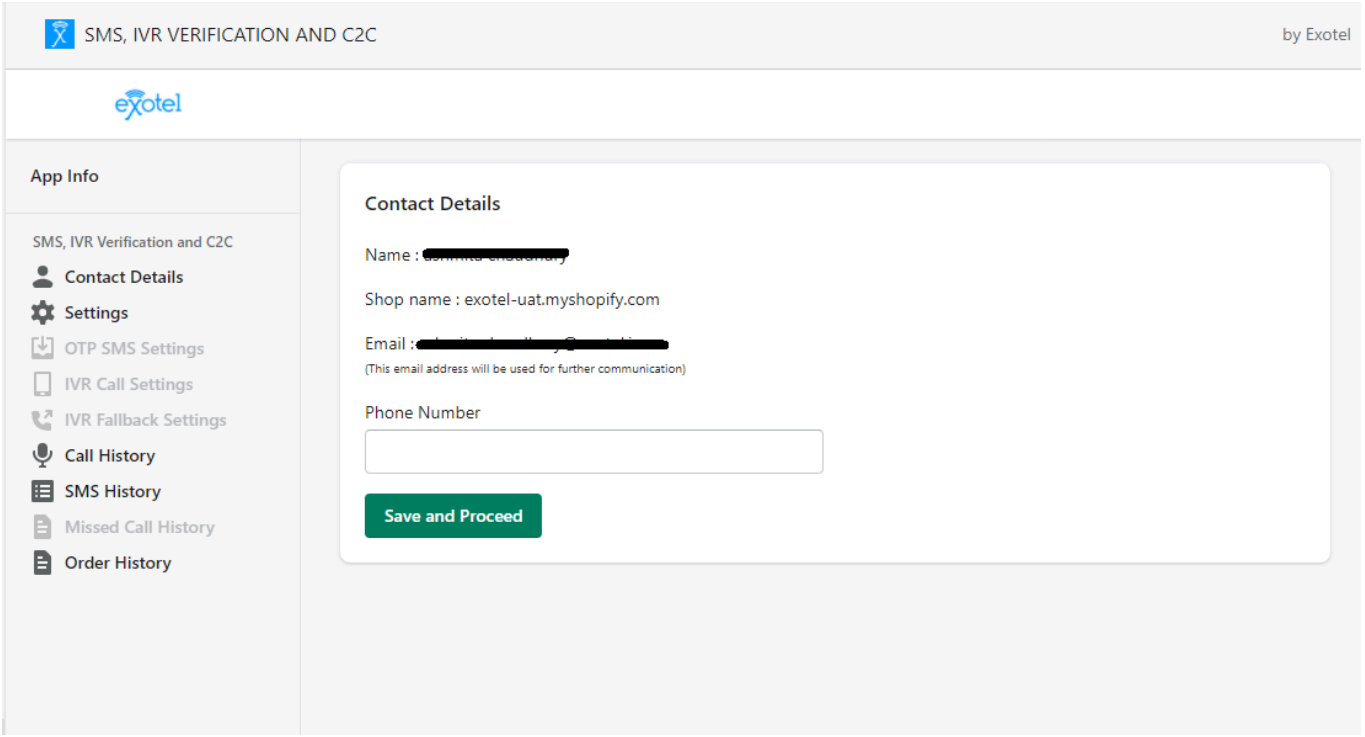


After successful installation, it brings you to the App's home page.

1. Initially, the Shopify App Status would be **PartiallyInstalled** because you are yet to set up configuration details and the Exotel App status would be **uninstalled** until the Exotel Shopify App is installed from the Exotel marketplace. **For the successful functioning of the app, both statuses need to be Installed.**
2. To proceed with the set-up, click on the "Go to Settings" button from the App Info page.

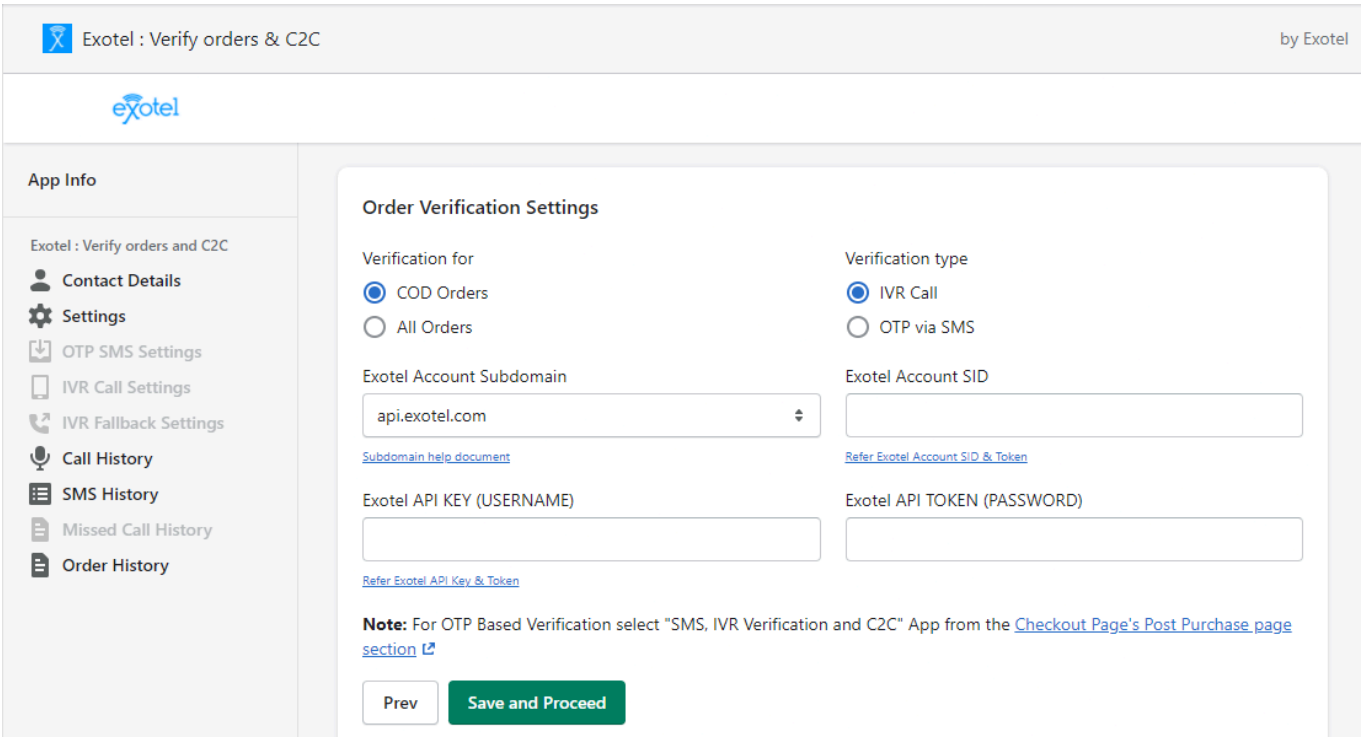
Contact Details page:

Please enter your phone number (with country code) which could be used for further communication and click on "Save and Proceed" to proceed further.



Settings page:

This is where the overall Shopify and Exotel settings are configured.



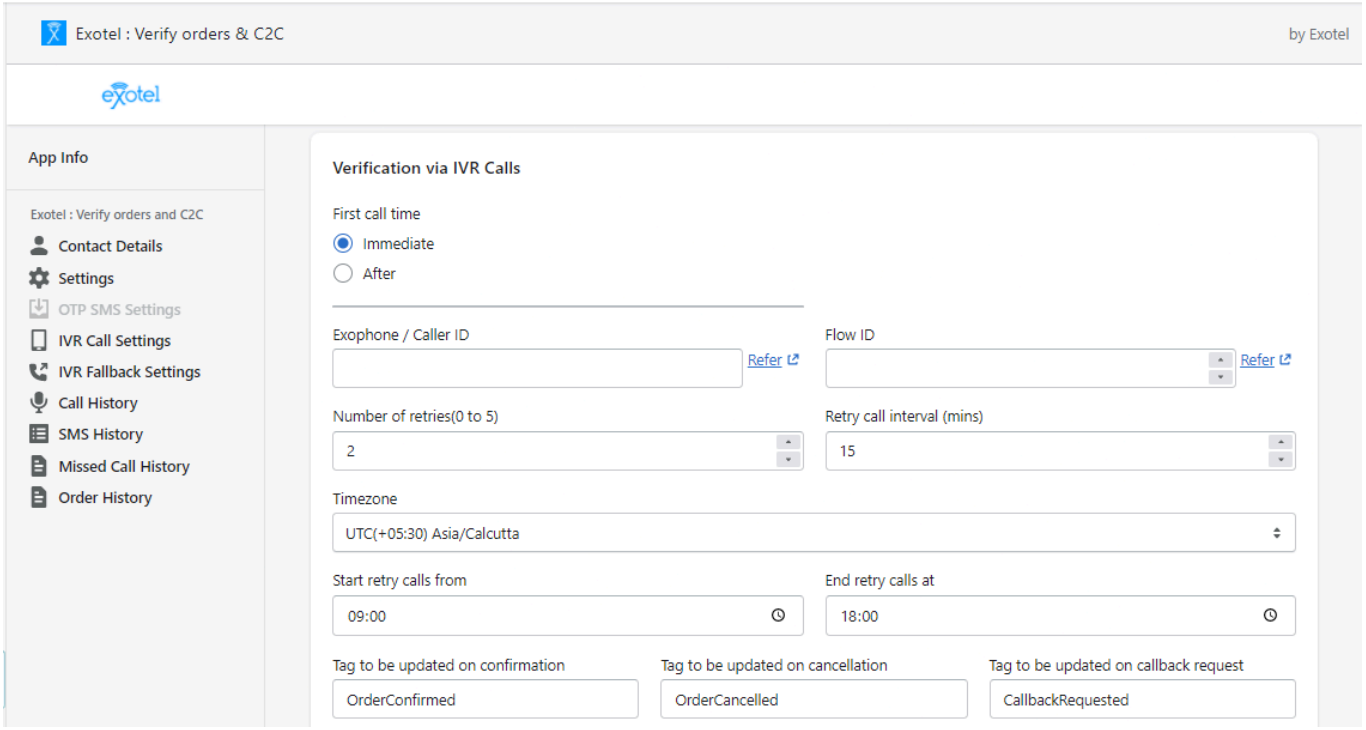
- Order Verification Settings
  - Verification for: select order type for verification
    - COD Orders: select this option for verification of only Cash on Delivery (COD) orders.

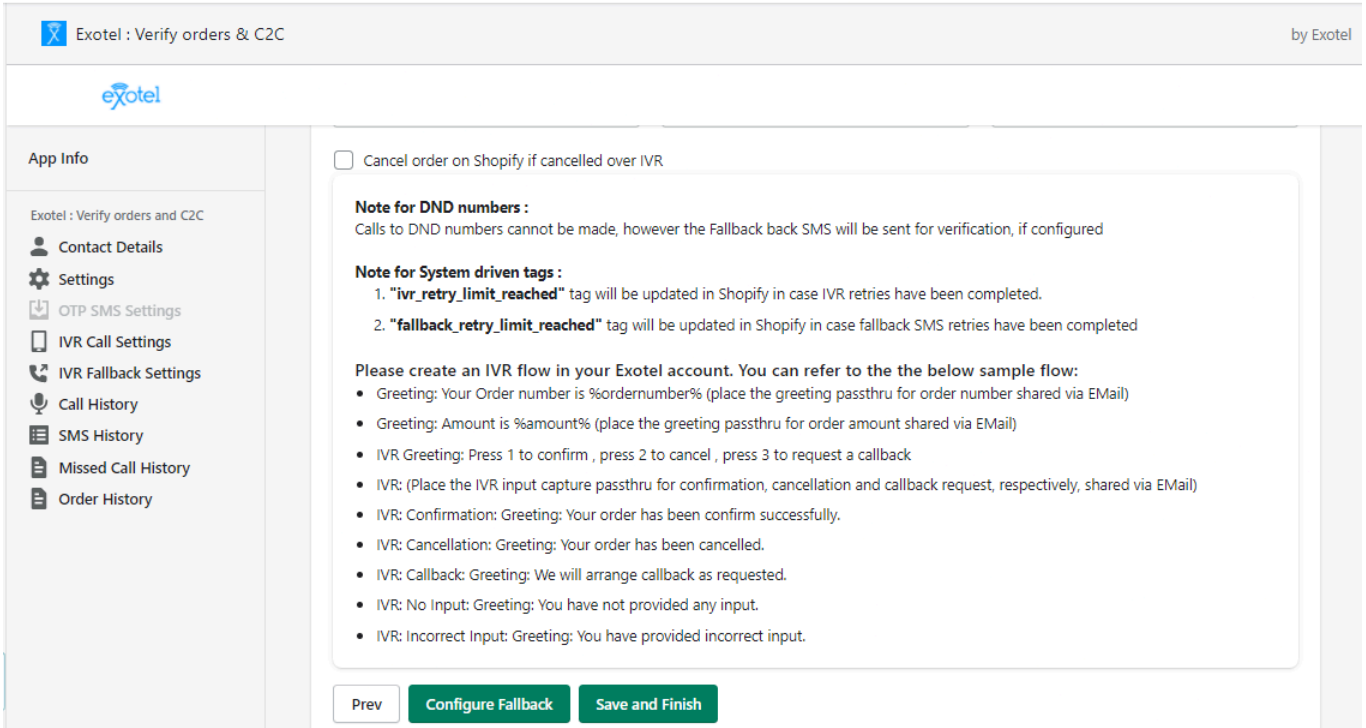
        - All Orders: select this option for verification of all orders.
    - Verification type: select the mode of verification
        - IVR Call: select this option for order verification via automated IVR call, asking for input from the user to confirm, cancel or request a callback.
        - OTP via SMS: select this option if you want orders to be verified via OTP
        - In both, cases verification happens after the order is placed.
    - Exotel Account Subdomain
        - This is your Exotel account's cluster, select one of the given options. For more details click here
    - Exotel Account SID
        - This is your Exotel SID. You will find it in your Exotel account under Settings -> API -> Account sid.
    - Exotel API KEY (USERNAME)
        - This is your Exotel API Key. You will find it in your Exotel account under Settings -> API -> API KEY (USERNAME).
    - Exotel API TOKEN (PASSWORD)
        - This is your Exotel token. You will find it in your Exotel account under Settings -> API -> API TOKEN(PASSWORD).
    - Prev Button: This button can be used to traverse to the previous setting page without saving the data.
    - Save and Proceed Button: This button will save the settings and proceed to the next setting page.

Note: For OTP Based Verification select "**SMS, IVR Verification and C2C**" App from the Shopify Checkout Page's Post Purchase page section.

IVR Call Settings:

Settings required to make an Automated IVR call for order verification need to be configured here. Once an order is placed, an IVR call will be made to the non-DND numbers for order verification. The IVR call flow can have options for confirmation, cancellation, and /or requesting a callback.





- First call time: This setting determines when the first call is to be made for order verification after an order is placed. There are two options here :
    - Immediate: The first attempt at the call would be made as soon as an order is placed.
    - After: The first attempt of the call would be made after X mins of order placement. The minutes are to be entered in the field.

- ExoPhone/Caller ID: Enter the virtual number to be used for the automated IVR calls. Virtual numbers are available in the Exotel account under the Exophones section.
- Flow ID: Enter the IVR Flow ID to be used for the automated IVR calls. The IVR flow is expected to accept user input for confirmation, cancellation, or callback requests. Please ensure the pass-throughs received in the email are correctly placed in the flow to capture the inputs and play dynamic order details(if any)
- The number of retries (0-5): The number of times retries calls to be made to the customer in case of call not completed/no input/incorrect input received. The value can be between 0 to 5, if it is set to 0/blank, no retry calls will be made.
- Retry call interval (mins): The duration in minutes between each retry attempt made to the customer. The value can be between 10 to 120 minutes. However, if the number of retries is set to 0, the retry call interval should be 0.
- Timezone: Select your timezone here. Eg: for India select “UTC(+05:30) Asia/Calcutta”
- Start retry calls from The value to be used as the start hour for the retry schedule. Retry calls will only be made between the start and end times. Enter time based on your selected timezone. For retry calls falling outside this range, the calls will be scheduled at the start time of the next day.
- End retry calls at The value to be used as the end hour for the retry schedule. Retry calls will only be made between the start and end times. Enter the time based on your selected time zone. For retry calls from outside this range, the calls will be scheduled at the start time of the next day.
- Tag to be updated on confirmation: The tag is to be updated against the Shopify order upon order confirmation input over the IVR call. This is preloaded with a default value but can be updated if required. This is a mandatory field and cannot be empty.
- Tag to be updated on cancellation: The tag is to be updated against the Shopify order upon order cancellation input over IVR call. This is preloaded with a default value but can be updated if required. This is optional, if no cancellation is required over an IVR call, skip the option in the flow and keep the field as blank.
- Tag to be updated on callback request: The tag is to be updated against the Shopify order upon order callback request input over IVR call. This is preloaded with a default value but can be updated if required. This is optional, if no callback is required over an IVR call, skip the option in the flow and keep the field as blank.
- Cancel order on Shopify if canceled over IVR: Select the checkbox to cancel the order in Shopify when the order is canceled over the IVR call.

- Prev Button: This button can be used to traverse to the previous Setting page without saving the data.
- Configure Fallback Button: This button will save the settings configured and proceed to Configure Fallback Setting Page.
- Save and Finish Button: This button will save the settings configured and navigate to the App Info page.

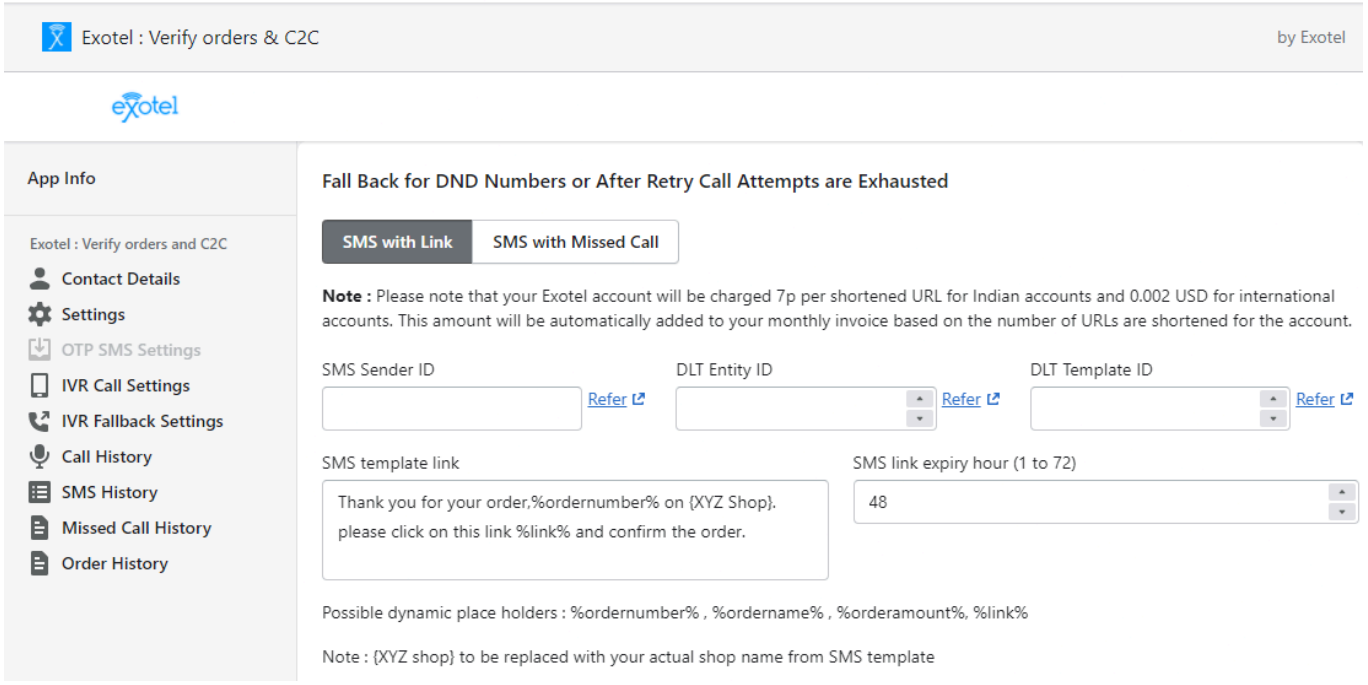
If you have selected IVR call-based verification, the shop owner would have received an email with pass-throughs to capture IVR inputs and to read out order-related dynamic content on the call.

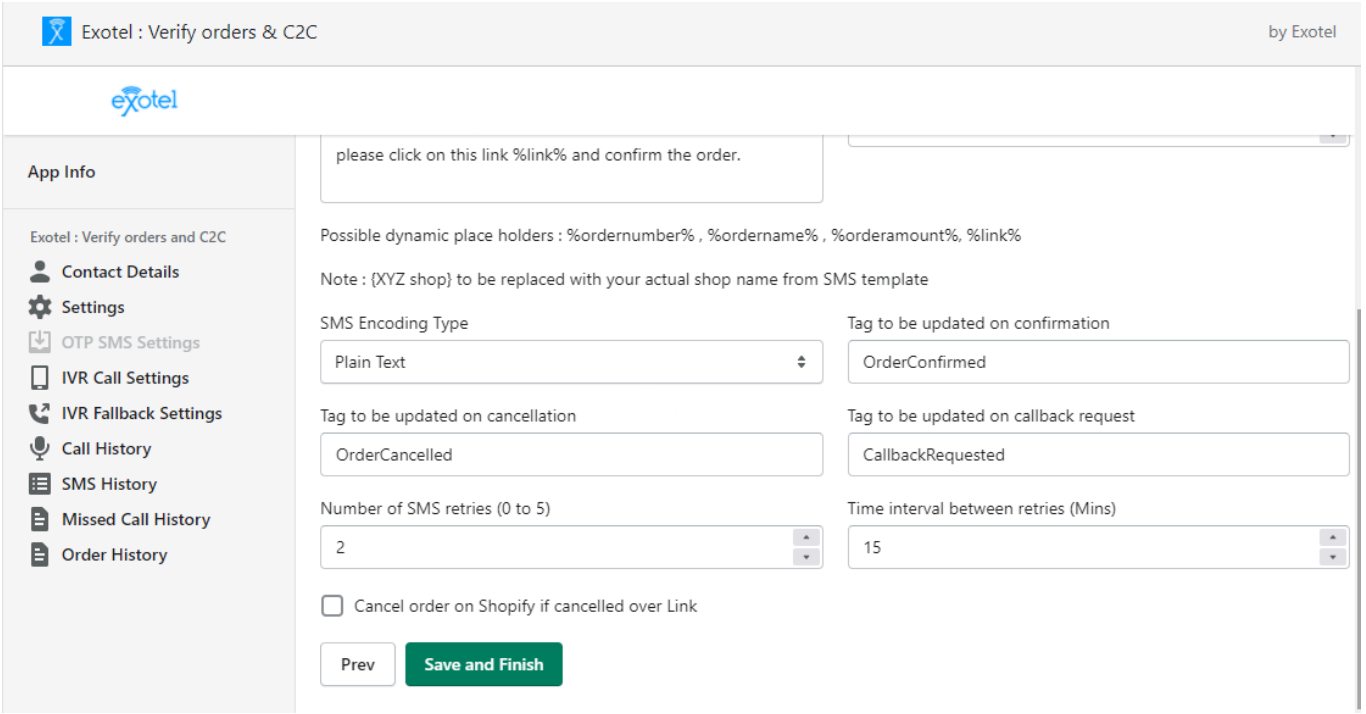
Note for DND numbers:

If DND calling is not available for your Exotel account then Fallback SMS will be used for order verification, if configured in the settings.

IVR Fallback Settings:

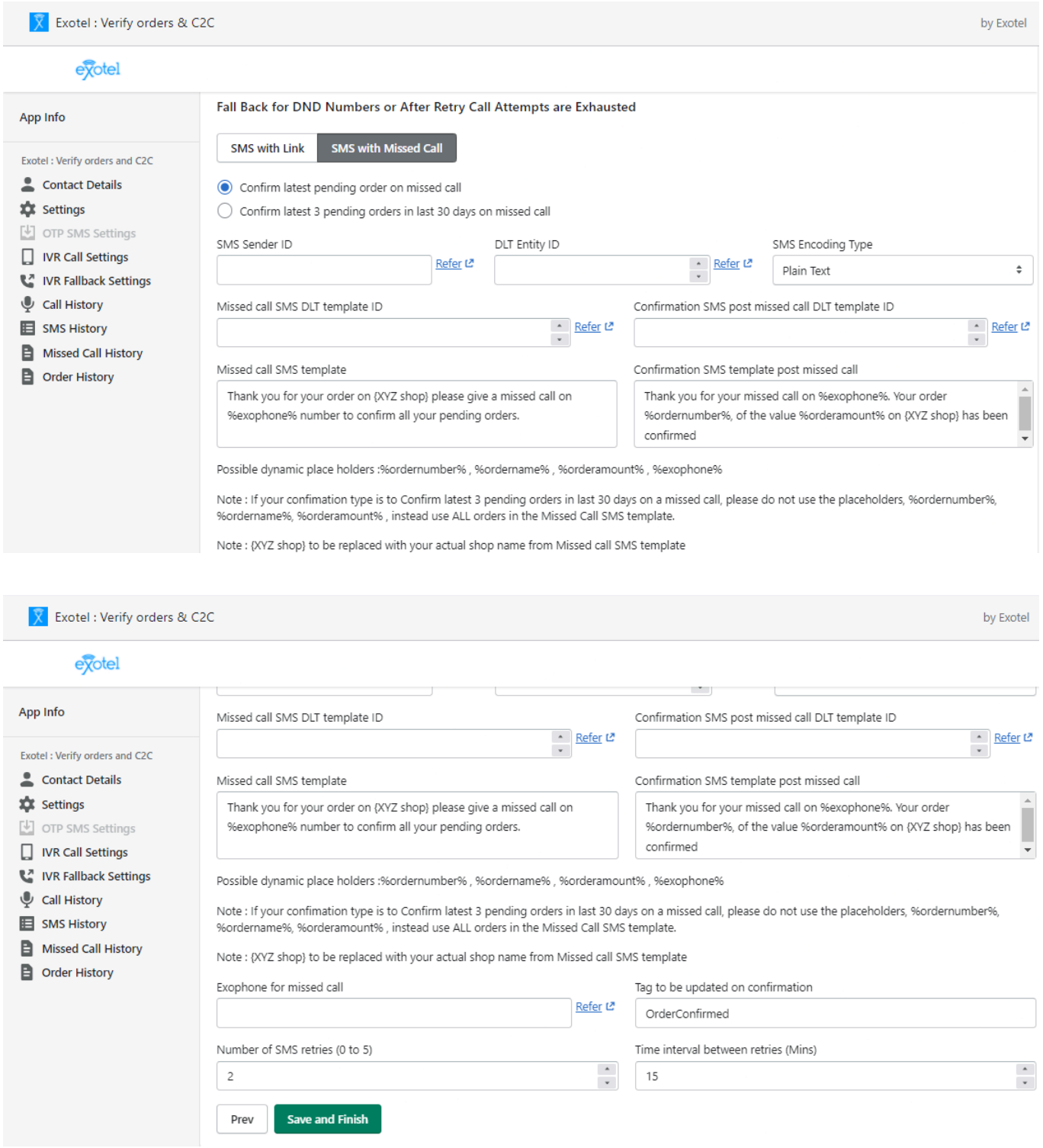
IVR Fallback Settings required to send fallback SMS for order verification need to be configured here. If configured, the fallback SMS will be initiated if IVR call retries are exhausted or a customer number is a DND number. There are two types of fallback settings, **SMS with Link** & **SMS with Missed Call.**





- **SMS with Link:** If this option is selected an SMS with a link for order verification will be sent to the customer. The link will display order details and accordingly **Confirm Order**, **Cancel Order,** and/or **Request Callback** buttons will be displayed.
    - SMS Sender ID: The Sender Id to be used to send the SMS to customers. Sender ID is available in the Exotel account under the Settings -> Sender ID section. The Sender ID must be approved on both DLT and Exotel portals.
    - DLT Entity ID: This is a unique numeric identifier for your business. It can be found on the DLT operator portal. This is a mandatory field for businesses operating in India else it is optional.
    - DLT Template ID: This is a unique numeric identifier for your SMS Template. This is a mandatory field for businesses operating in India else it is optional.
    - SMS template Link: SMS template for Fallback SMS with link-based order verification. Dynamic placeholders %ordernumber% , %ordername% , %orderamount%, %link% are supported. %link% is a mandatory placeholder in the template. Please replace {XYZ Shop} in the template with your shop name.
    - SMS link expiry hour (1 to 72): The duration after which the link present in Fallback SMS will expire. The default value is 48 hours and the maximum value can be 72 hours.
    - SMS Encoding Type: Encoding format to be used to encode SMS content while sending SMS.

- Tag to be updated on confirmation: The tag will be updated against the Shopify order upon order confirmation over the link. This is preloaded with a default value but can be updated if required. This is a mandatory field and cannot be empty.
- Tag to be updated on cancellation: The tag will be updated against the Shopify order upon order cancellation over the link. This is preloaded with a default value but can be updated if required. This is optional if no cancellation is required over the link keep the field blank and accordingly no cancellation button will be displayed on the order verification link page.
- Tag to be updated on callback request: The tag is to be updated against the Shopify order upon order callback request over the link. This is preloaded with a default value but can be updated if required. This is optional, if no callback is required over the link, keep the field blank, and accordingly, no callback request button will be displayed on the order verification link page.
- The number of SMS retries (0 to 5): The number of times fallback retry SMS attempts are to be made to the customer in case of no action is taken by the customer. The value can be between 0 to 5, if it is set to 0/blank, only 1 fallback SMS would be sent and no retries will be attempted.
- The time interval between retries (Mins): The duration in minutes between each fallback retry attempt made to the customer. The value can be between 10 to 60 minutes. However, if the number of SMS retries is set to 0, the Time interval between the retries field should be 0.
- Cancel order on Shopify if canceled over Link: Select the checkbox to cancel the order in Shopify when the order is canceled over the link.
- Prev Button: This button can be used to traverse to the previous Setting page without saving the data.
- Save and Finish Button: This button will save the settings configured and navigate to the App Info page.



- **SMS with MissedCall:** If this option is selected an SMS with an ExoPhone number is initiated to the customers for order verification. The customers need to give a missed call on the ExoPhone to confirm the order(s).
    - Confirm the latest pending order on missed call: Latest pending order for the customer will be confirmed on a missed call.

- Confirm the latest 3 pending orders in the last 30 days on missed call: Latest 3 pending orders in the last 30 days for the customer will be confirmed on a missed call.
- SMS Sender ID: The Sender Id to be used to send the SMS to customers. Sender ID is available in the Exotel account under the Settings -> Sender ID section. The Sender ID must be approved on both DLT and Exotel portals.
- DLT Entity ID: This is a unique numeric identifier for your business. It can be found on the DLT operator portal. This is a mandatory field for businesses operating in India else it is optional.
- SMS Encoding Type: Encoding format to be used to encode SMS content while sending SMS.
- Missed call SMS DLT template ID: This is a unique numeric identifier for your SMS Template. This is a mandatory field for businesses operating in India else it is optional.
- Missed call SMS template: SMS template for Fallback SMS with missed call-based order verification. %exophone% is a mandatory placeholder in this template. In case of selection for verifying the latest 3 pending orders, do not use %ordernumber%, %ordername%, and %orderamount% placeholders in this template. Please replace {XYZ Shop} in the template with your shop name.
- Confirmation SMS post missed call DLT template ID: This is a unique numeric identifier for your SMS Template. This is a mandatory field for businesses operating in India else it is optional.
- Confirmation SMS template post missed call: Confirmation SMS template for orders verified by missed call. Dynamic placeholders %ordernumber% , %ordername% , %orderamount%, %exophone% are supported in this template. Please replace {XYZ Shop} in the template with your shop name.
- ExoPhone for missed call: The virtual number assigned to the flow with missed call verification passthrough using which customers can confirm the orders via missed calls.
- Tag to be updated on confirmation: The tag will be updated against the Shopify order upon order confirmation over the link. This is preloaded with a default value but can be updated if required. This is a mandatory field and cannot be empty.
- The number of SMS retries (0 to 5): The number of times fallback retry SMS attempts are to be made to the customer in case of no action is taken by the

customer. The value can be between 0 to 5, if it is set to 0/blank, only 1 fallback SMS would be sent and no retries will be attempted.

- The time interval between retries (Mins): The duration in minutes between each fallback retry attempt made to the customer. The value can be between 10 to 60 minutes. However, if the number of SMS retries is set to 0, the Time interval between the retries field should be 0.
- Prev: This button can be used to traverse to the previous Setting page without saving the data.
- Save and Finish: This button will save the settings configured and navigate to the App Info page.

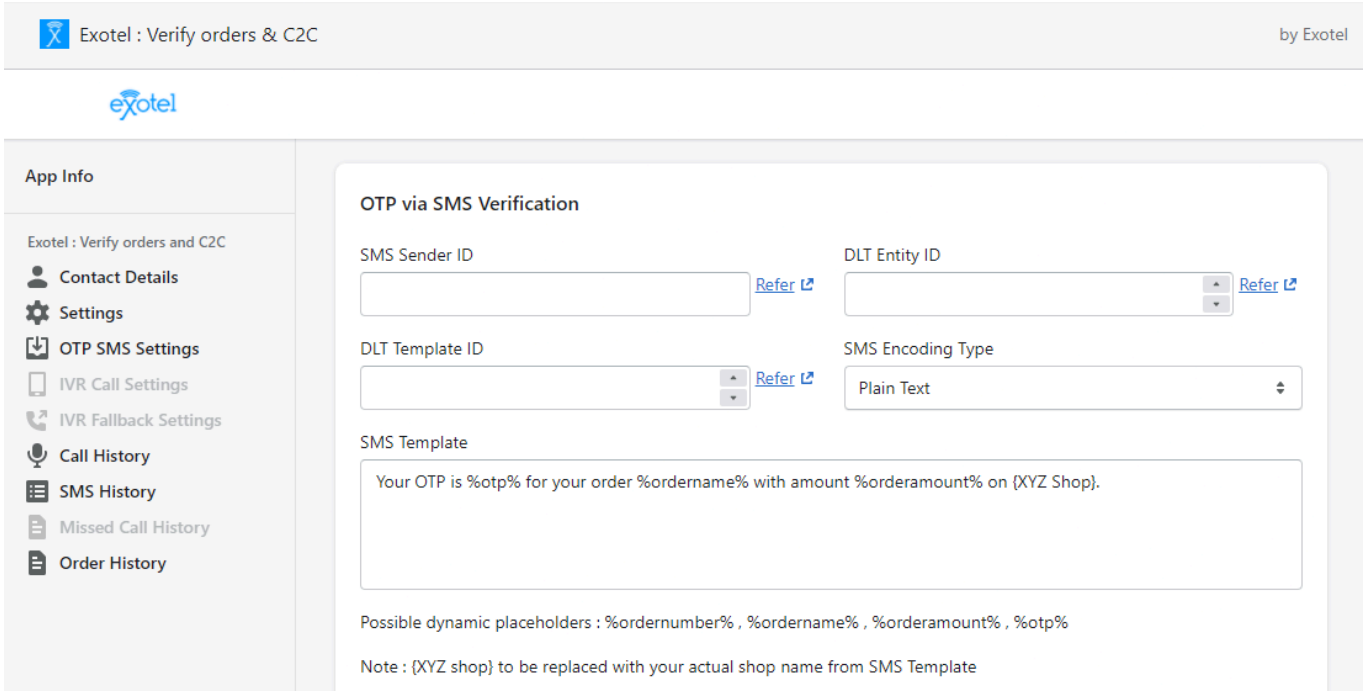
Note for System driven tags :

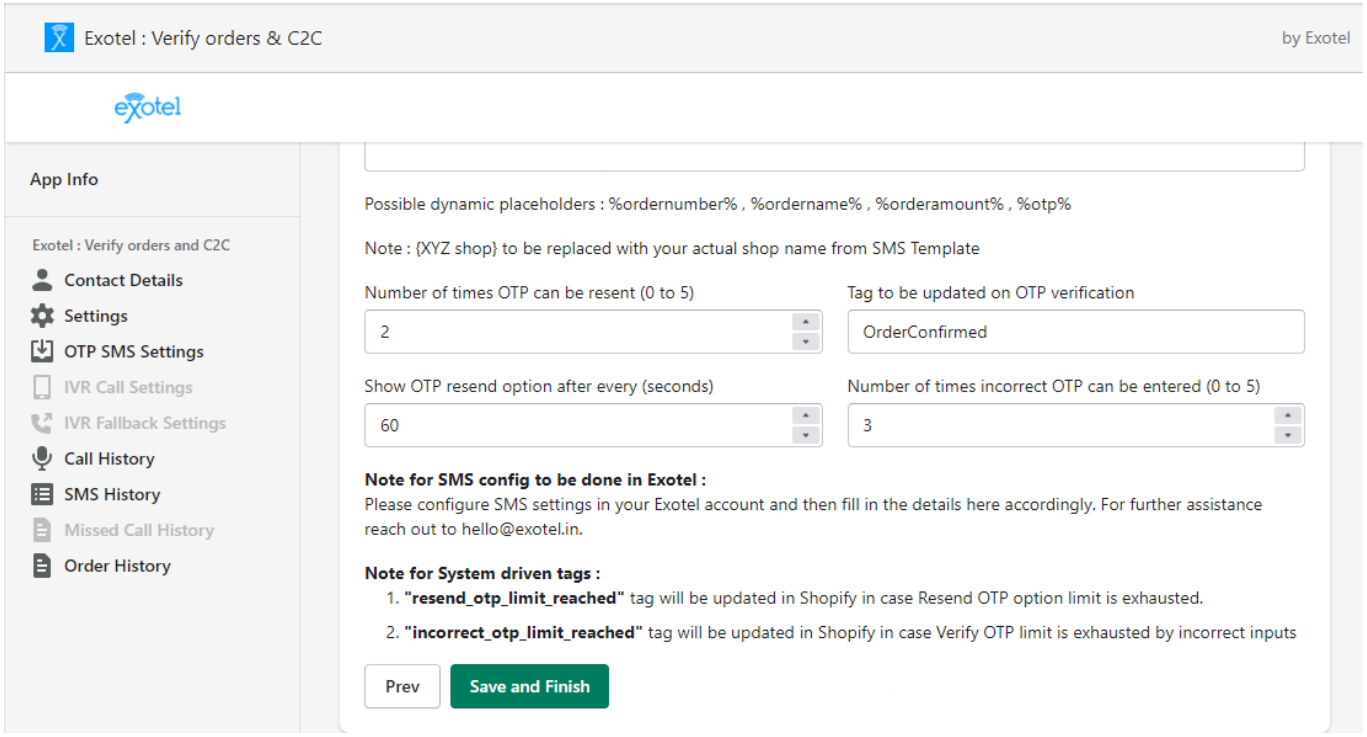
1. **The "ivr_retry_limit_reached"** tag will be updated in Shopify orders in case IVR retries have been completed without a response.
2. **The "fallback_retry_limit_reached"** tag will be updated in Shopify orders if fallback SMS retries are completed without a response.

OTP SMS Settings:

Settings required to initiate an OTP SMS for order verification need to be configured here. Once an order is placed, an SMS with the OTP will be sent to the customer number added to the address. Customers need to enter the OTP on the post-purchase extension page to verify the order.

Please enable the OTP extension page for your Shop by selecting the "**SMS, IVR Verification and C2C**" App from the Shopify Page's Post Purchase page section on the Checkout settings page.





- SMS Sender ID: The Sender Id to be used to send the SMS to customers. Sender ID is available in the Exotel account under the Settings -> Sender ID section. The Sender ID must be approved on both DLT and Exotel portals.
- DLT Entity ID: This is a unique numeric identifier for your business. It can be found on the DLT operator portal. This is a mandatory field for businesses operating in India else it is optional.

- DLT Template ID: This is a unique numeric identifier for your SMS Template. This is a mandatory field for businesses operating in India else it is optional.
- SMS Encoding Type: Encoding format to be used to encode SMS content while sending SMS.
- SMS Template: SMS template for OTP SMS-based order verification. Dynamic placeholders %ordernumber% , %ordername% , %orderamount%, %otp% are supported. %otp% is a mandatory placeholder in the template. Please replace {XYZ Shop} in the template with your shop name.
- The number of times OTP can be resent (0 to 5): The number of times the customer can request to resend the OTP. The value can be between 0 to 5.
- Show OTP resend button after every (seconds): The duration in seconds after which the user can request another OTP.
- Tag to be updated on OTP verification: The tag is to be updated against the Shopify order upon order confirmation by entering a valid OTP. This is preloaded with a default value but can be updated if required. This is a mandatory field and cannot be empty.
- A number of times incorrect OTP can be entered (0 to 5): Number of times a customer is allowed to enter an incorrect OTP. The value can be between 0 and 5.
- Prev: This button can be used to traverse to the previous Setting page without saving the data.
- Save and Finish: This button will save the settings configured and navigate to the App Info page.

Note for SMS config to be done in Exotel :

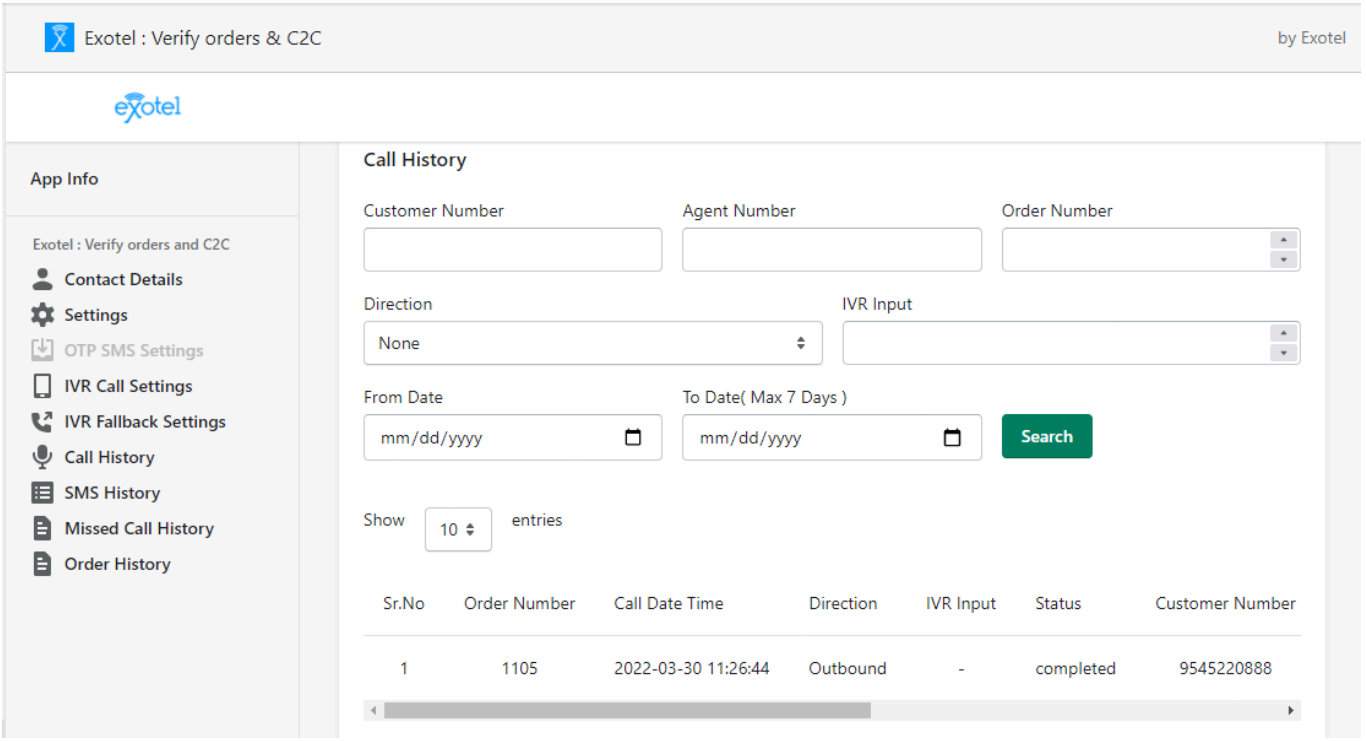
Please configure SMS settings in your Exotel account and then fill in the details here accordingly. For further assistance reach out to hello@exotel.in.

Note for System driven tags :

1. **The "resend_otp_limit_reached"** tag will be updated in Shopify in case the resend OTP option limit is exhausted.
2. **The "incorrect_otp_limit_reached"** tag will be updated in Shopify in case the OTP verification limit is exhausted by incorrect inputs.

Call History Page:

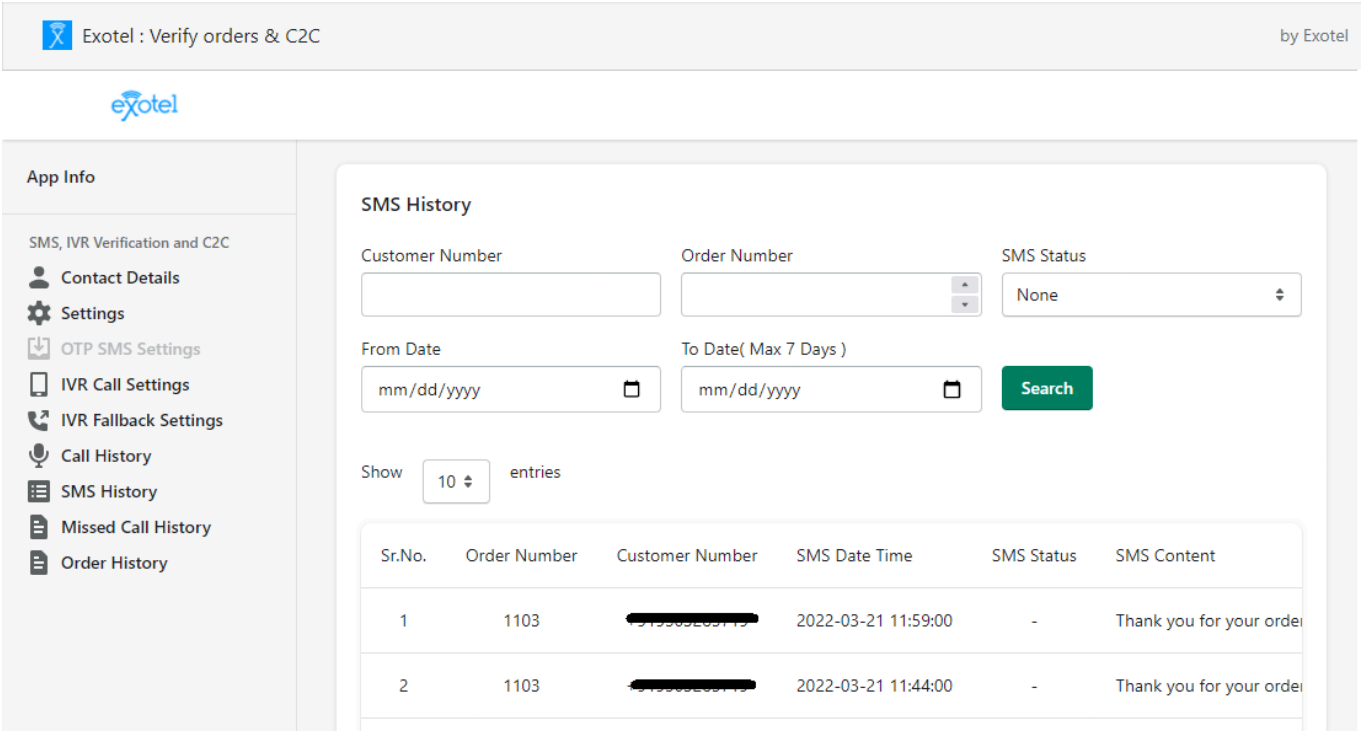
This page will display the Call History for outbound calls. The following filters are supported:



- Customer Number: Call history records matching the customer's phone number will be displayed.
- Agent Number: Call history records matching the agent's phone number will be displayed (applicable for only click-to-call)
- Order Number: Call history records matching the order number will be displayed.
- Direction: Call history records matching the call direction will be displayed.
- IVR Input: Call history records matching the IVR Input provided by the customer will be displayed.
- From Date: Call history records starting from this date will be displayed.
- To Date (Max 7 Days): Call history records up to this date will be displayed. The From and To date range can be a maximum of up to 7 days.

SMS History Page:

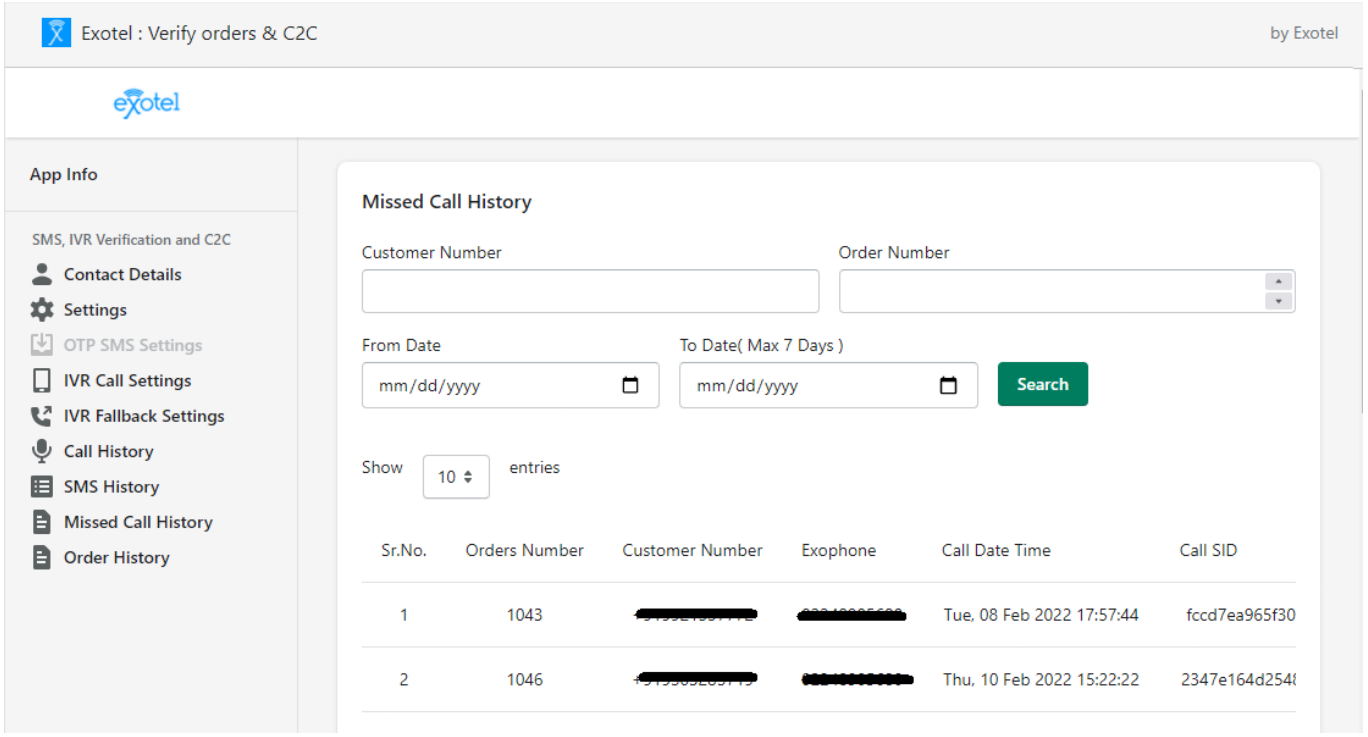
This page will display the SMS History. The following filters are supported:



- Customer Number: SMS history records matching the customer's phone number will be displayed.
- Order Number: SMS history records matching the order number will be displayed.
- SMS Status: SMS history records matching the selected SMS status will be displayed.
- From Date: SMS history records starting from this date will be displayed.
- To Date (Max 7 Days): SMS history records up to this date will be displayed. The From and To date range can be a maximum of up to 7 days.

Missed Call History Page :

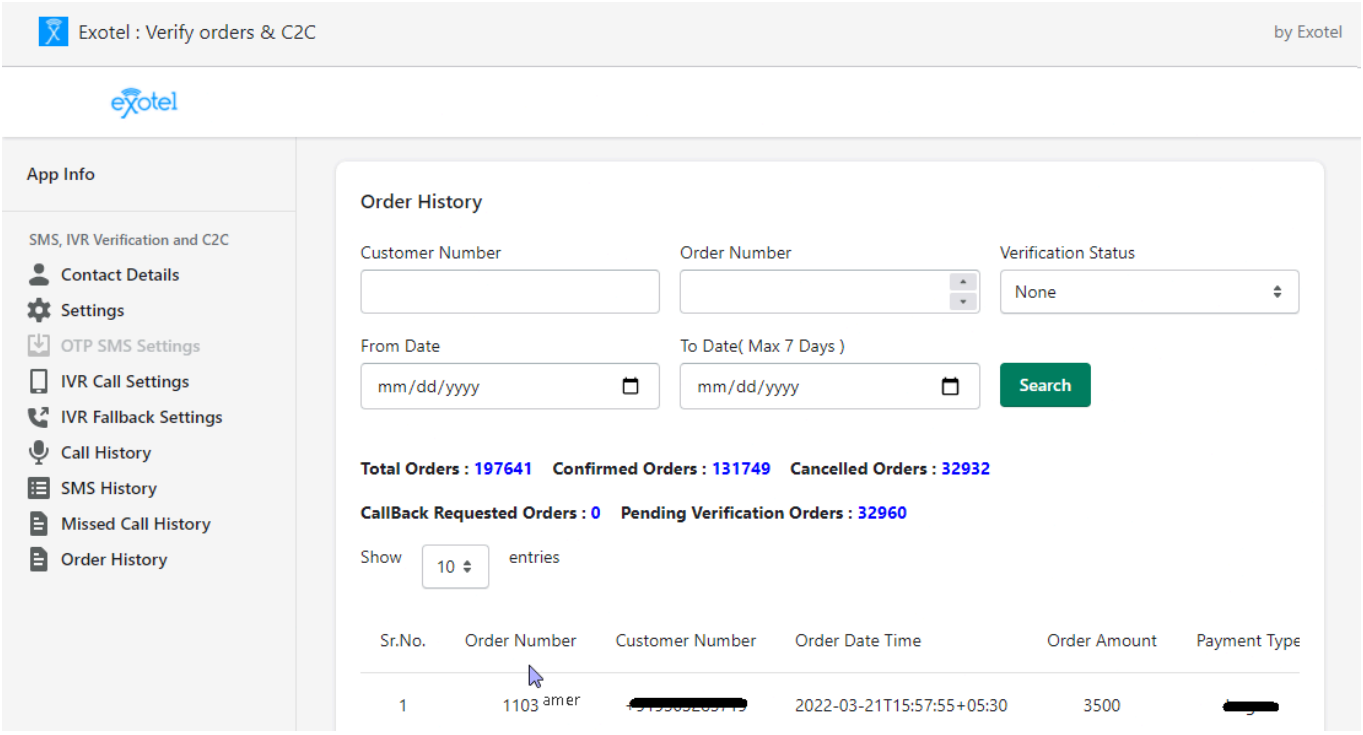
This page will display the Missed Call History. The following filters are supported:



- Customer Number: Missed call history records matching the customer's phone number will be displayed.
- Order Number: Missed call history records matching the order number will be displayed.
- From Date: Missed call history records starting from this date will be displayed.
- To Date (Max 7 Days): Missed call history records up to this date will be displayed. The From and To date range can be a maximum of up to 7 days.

Order History Page :

This page will display the Order History. The following filters are supported:



- Customer Number: Order history records matching the customer's phone number will be displayed.
- Order Number: Order history records matching the order number will be displayed.
- Verification Status: Order history records matching the selected order verification status will be displayed.
- From Date: Order history records starting from this date will be displayed.
- To Date (Max 7 Days): Order history records up to this date will be displayed. The From and To date range can be a maximum of up to 7 days.
- Total Orders: Total number of orders processed by the App for order verification.
- Confirmed Orders: Total number of orders confirmed via the App.
- Canceled Orders: Total number of orders cancelled via the App.
- Callback Request Orders: Total number of orders for which callback was requested via the App.
- Pending Verification Orders: Total number of orders for which verification is pending via the App.

4.5. Hubspot

Hubspot Exotel CTI enables seamless handling of Hubspot customer calls.

On your Hubspot dashboard, you can make outbound calls, take call notes, and view complete call details, including recordings. Customers can now benefit from increased team productivity and a better overall experience.

Integration features:

- Click to Call - Directly call customers from Hubspot. Work on a single interface to increase agent productivity by eliminating context switching.
- Call pop-up - All calls are handled in a call pop-up that contains all call-related information as well as on-call actions such as adding call notes.
- Call Details - Call recordings, call duration, and on-call notes are automatically added to newly created call engagements. More information about the call can be added later.
- User Mapping - Map Exotel users to Hubspot users and define their VNs and contact numbers in one place.
- Ticket history - Access the history of engagements/tasks/leads associated with the contact on the call to provide a personalised experience.

Pricing :

➜ For Indian customers, the recurring fee is Rs 499 per month.

➜ Monthly Recurring Fee for International Customers: $10

NOTE:
➜ Accounts will be charged on a pro-rata basis.

Configuration

Follow the prerequisites and steps below to configure the integration at both the Exotel and Hubspot ends.

Prerequisites

To successfully integrate your Hubspot account, you must complete the following tasks:

1. Sign up for an Exotel Account
2. Verify your account through phone or email
3. Get your account KYC verified
4. Purchase ExoPhone to be used by Hubspot users/agents for outbound calls

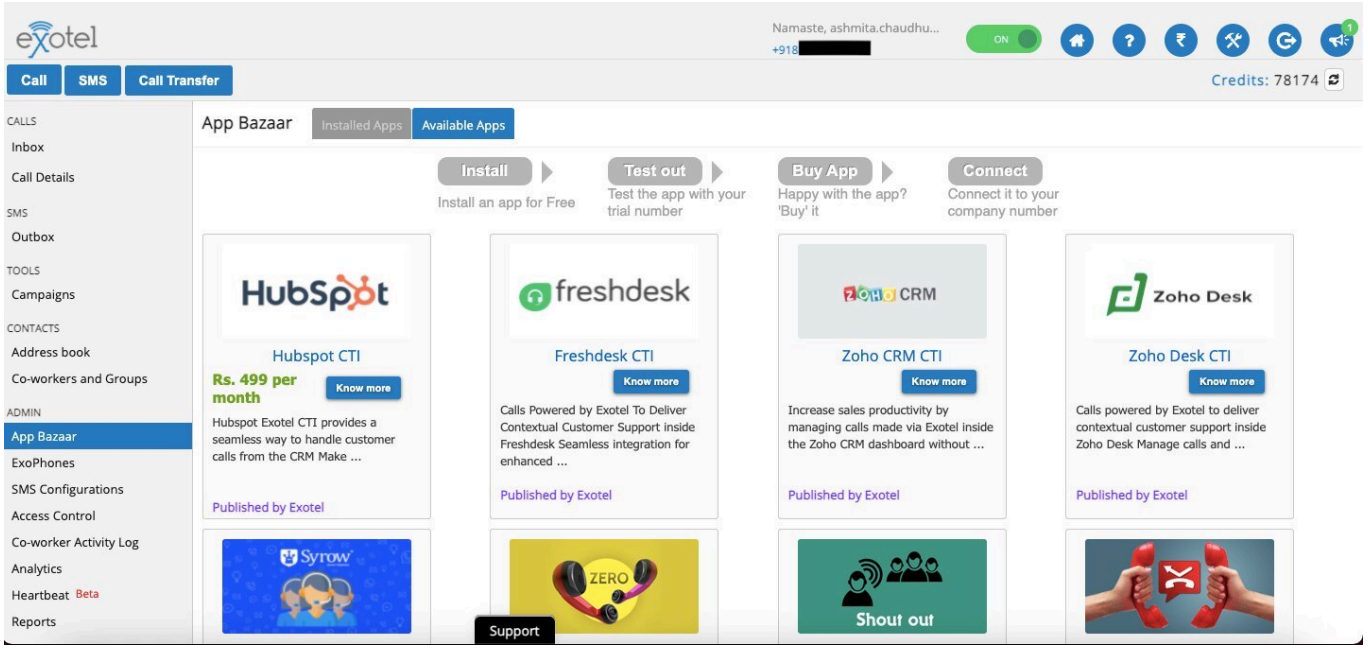
Setting up of Exotel Integration

1. Find the Hubspot CTI in App Bazaar and click on “Know More”
2. Click on Login and login to your Hubspot Account on redirection
3. Choose the Hubspot account you want to integrate with Exotel and the Exotel API name
4. On the “installed Apps” page, click on “Buy” to purchase the app and access the user mapping page
5. To get users from your Hubspot account, go to "User-mapping" and then "Sync." Fill in the blanks for the user mapping and click Done.

Step 1: Find the Hubspot CTI in the App Bazaar and click on “Know More."

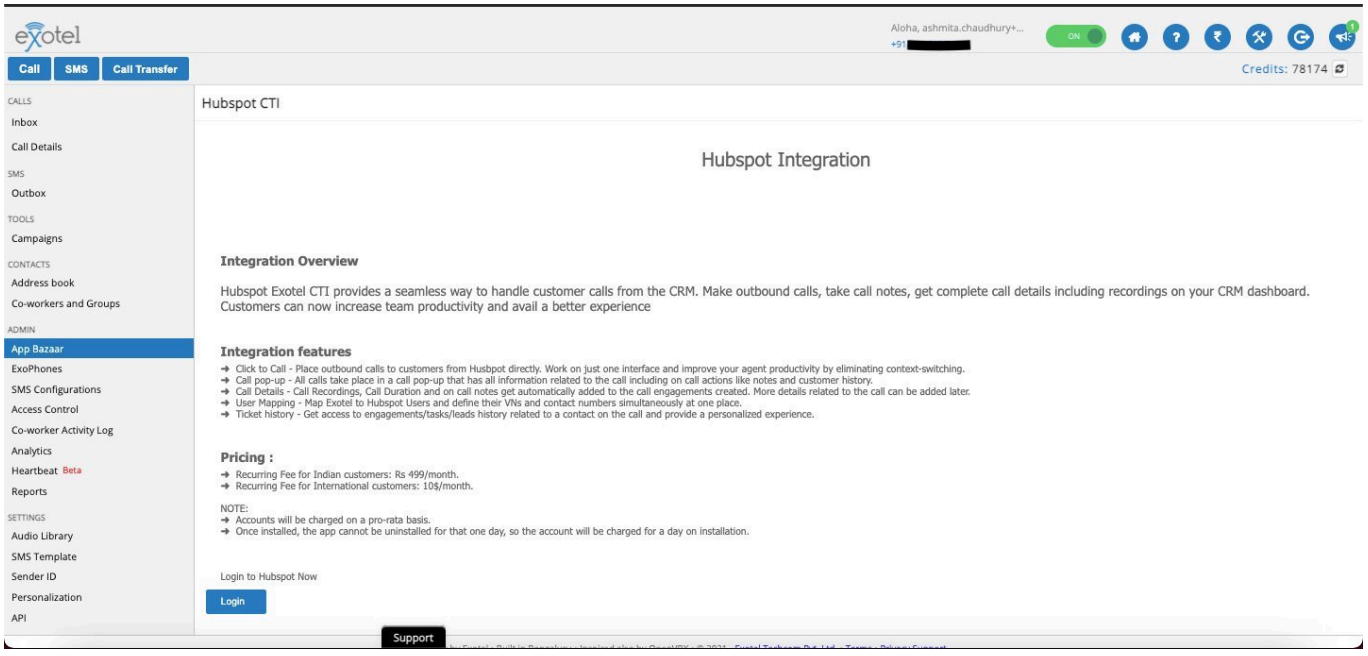
To find Hubspot CTI in the Exotel App Bazaar:

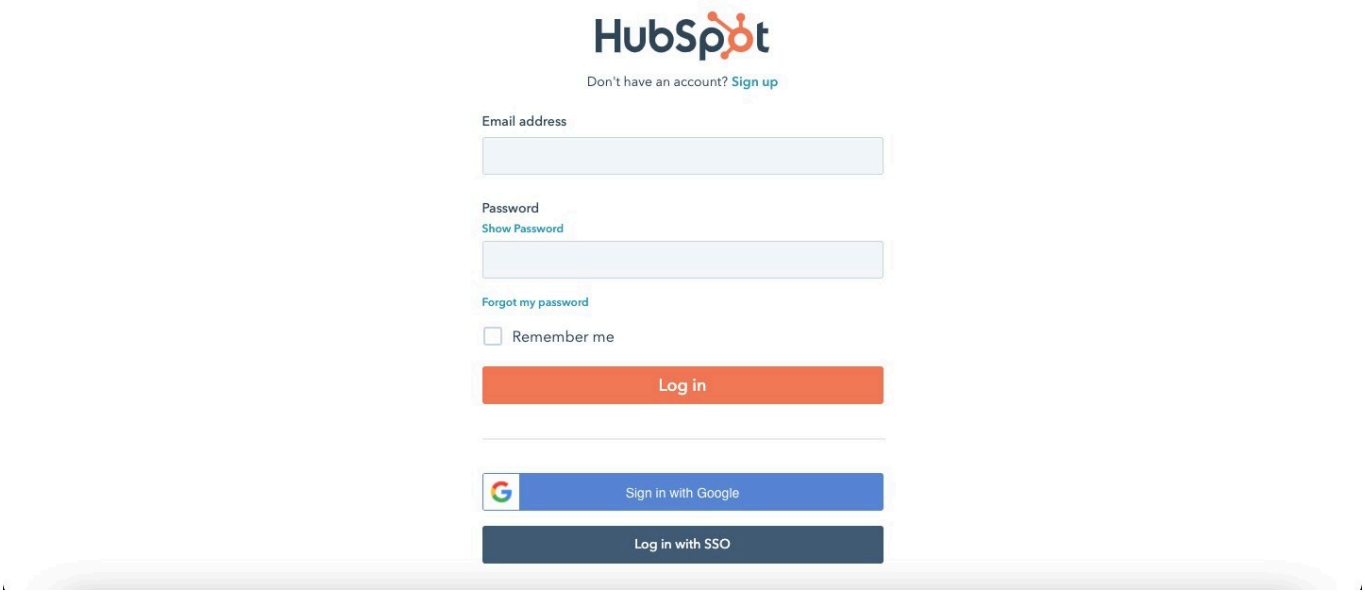
1. In my.exotel.com, go to the ‘App Bazaar’ section.
2. Hubspot CTI will be found on the top row.
3. Click on “Know More”



Step 2: Click on Login and login to your Hubspot Account on redirection

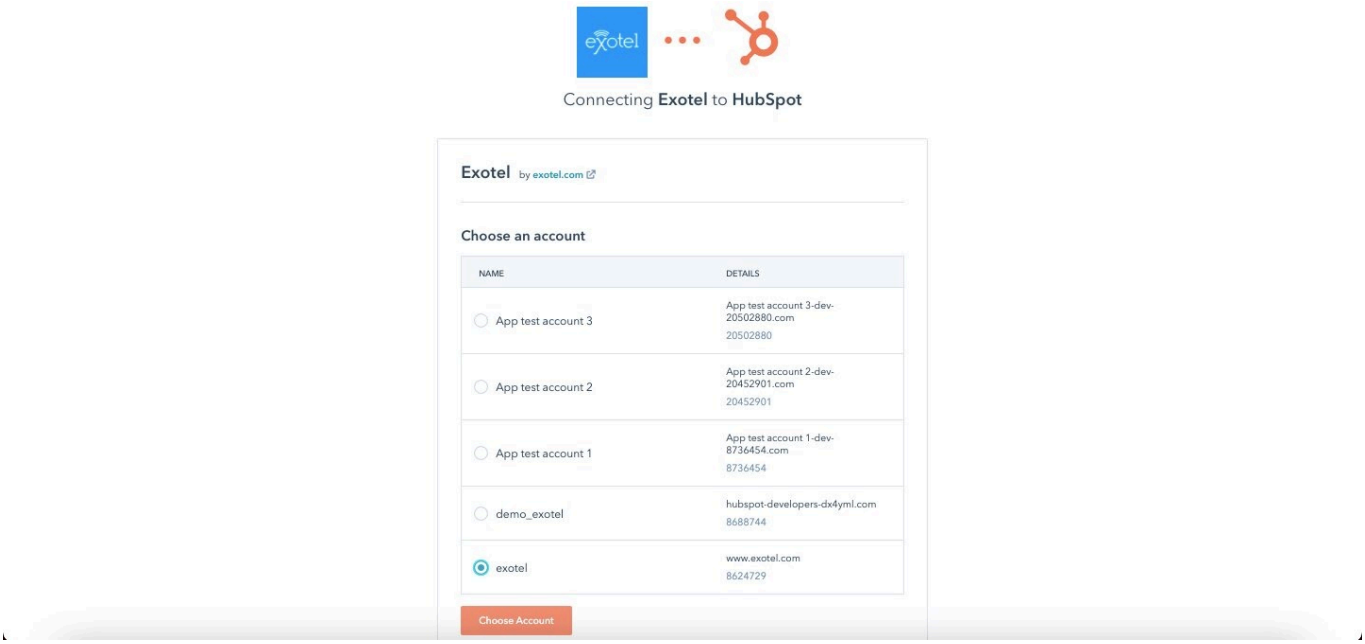
1. Click on “Login”, and you will be redirected to HubSpot's login page.HubSpot's
2. Log in to your HubSpot account which you want to integrate
3. If you have multiple Hubspot accounts, select the one you want to integrate.

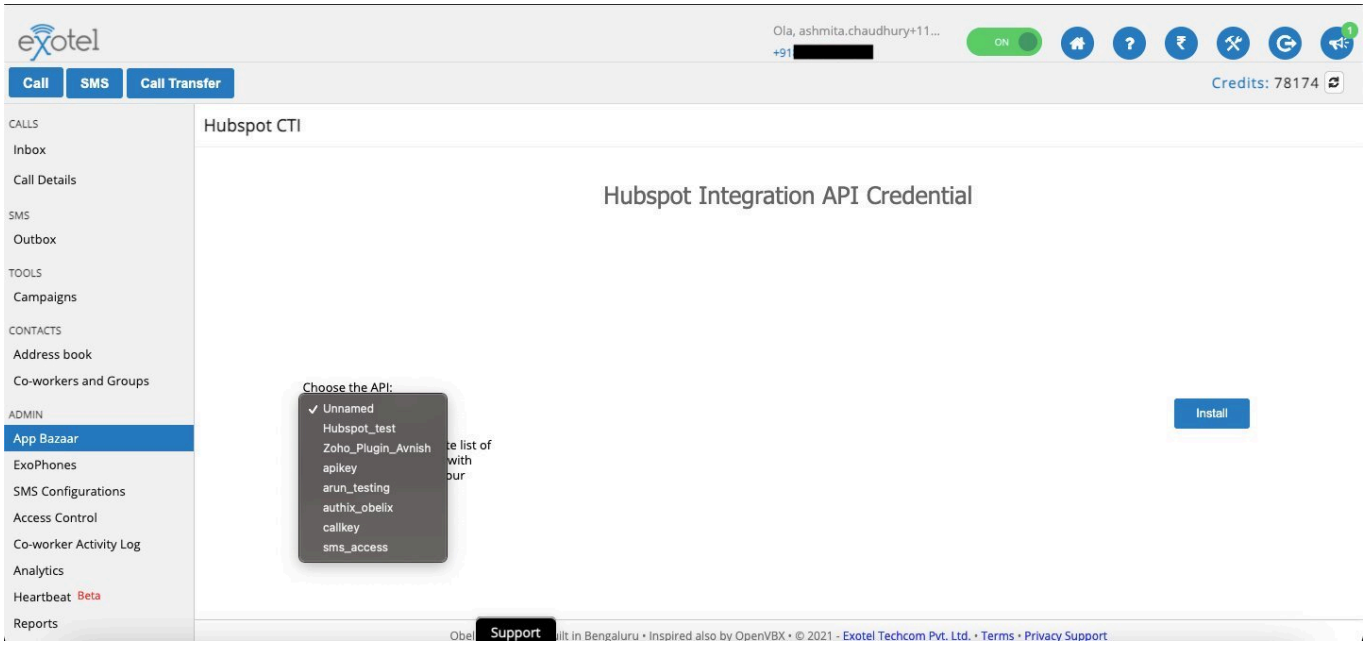




Step 3: Choose the Hubspot account you want to integrate with Exotel and the Exotel API name

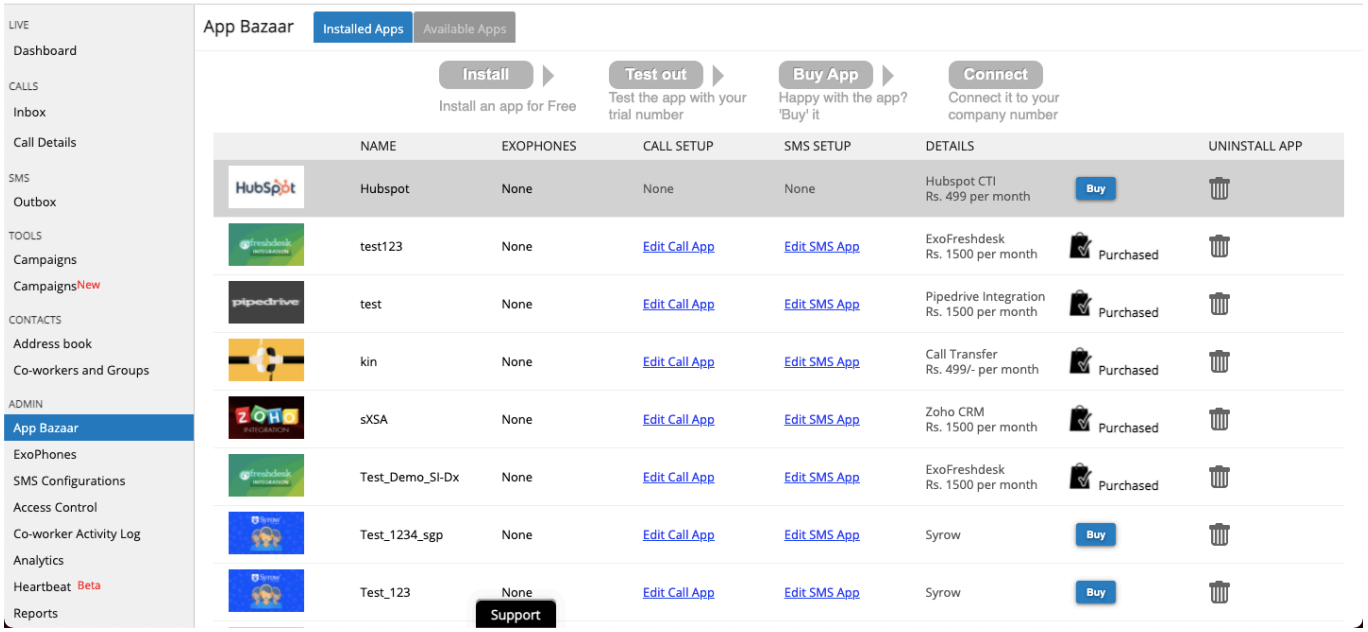
1. After logging in to Hubspot, you will be redirected to choose the Hubspot account with which you want to integrate into the case you have multiple accounts
2. Select the account and click on “Choose Account”
3. Fill the reCAPTCHA and authorize Exotel
4. Select the API name from the dropdown that you want to use to make calls in the integration and click Install.

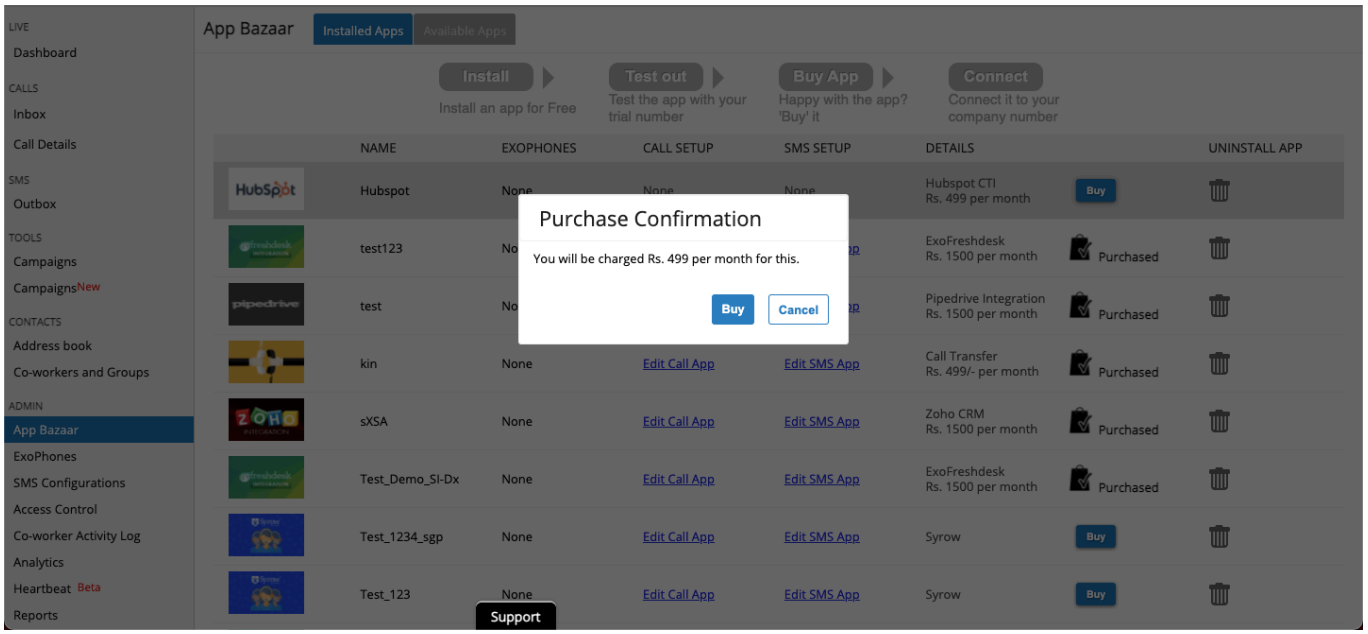




Step 4: On the “installed Apps” page, click on “Buy” to purchase the app and access the user mapping page

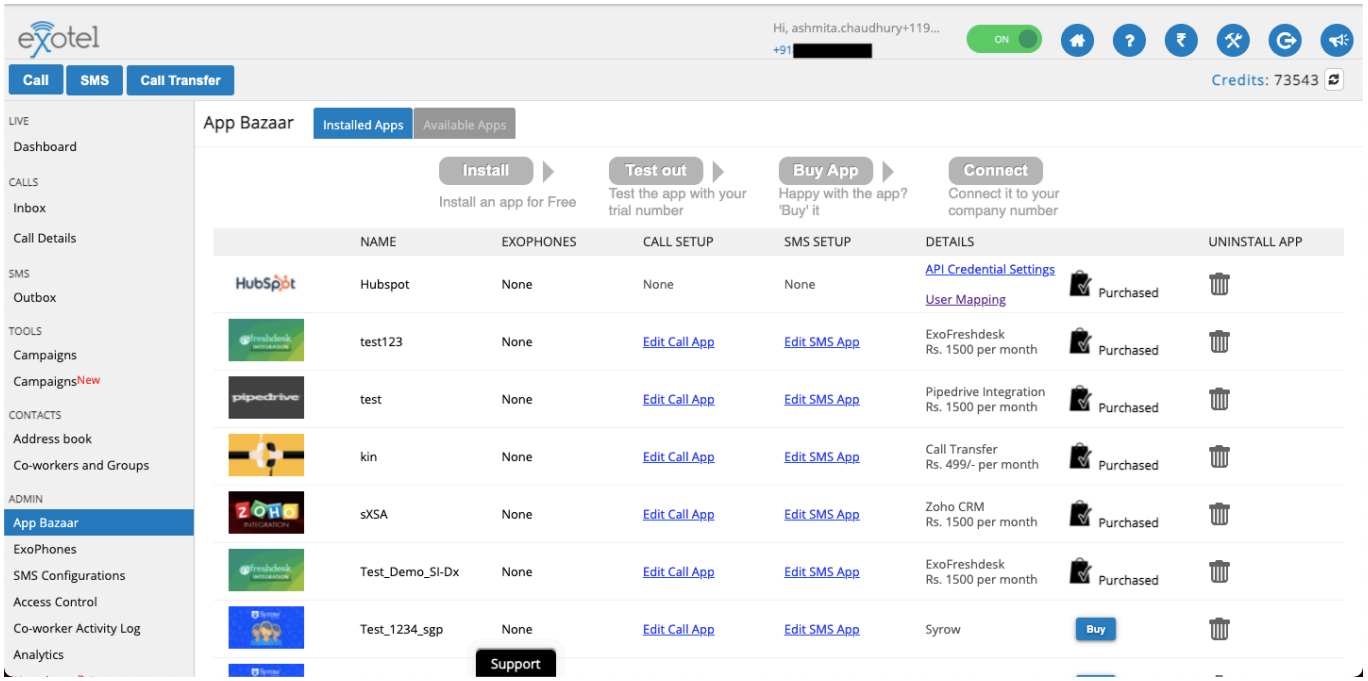
1. Once the app is installed you will be redirected to the “installed apps” page
2. Click on the “Buy” button to purchase the app and access the user mapping page without which you won’t be able to make calls in Hubspot
3. Once you purchase the app, the User-mapping page link will be enabled in the same row

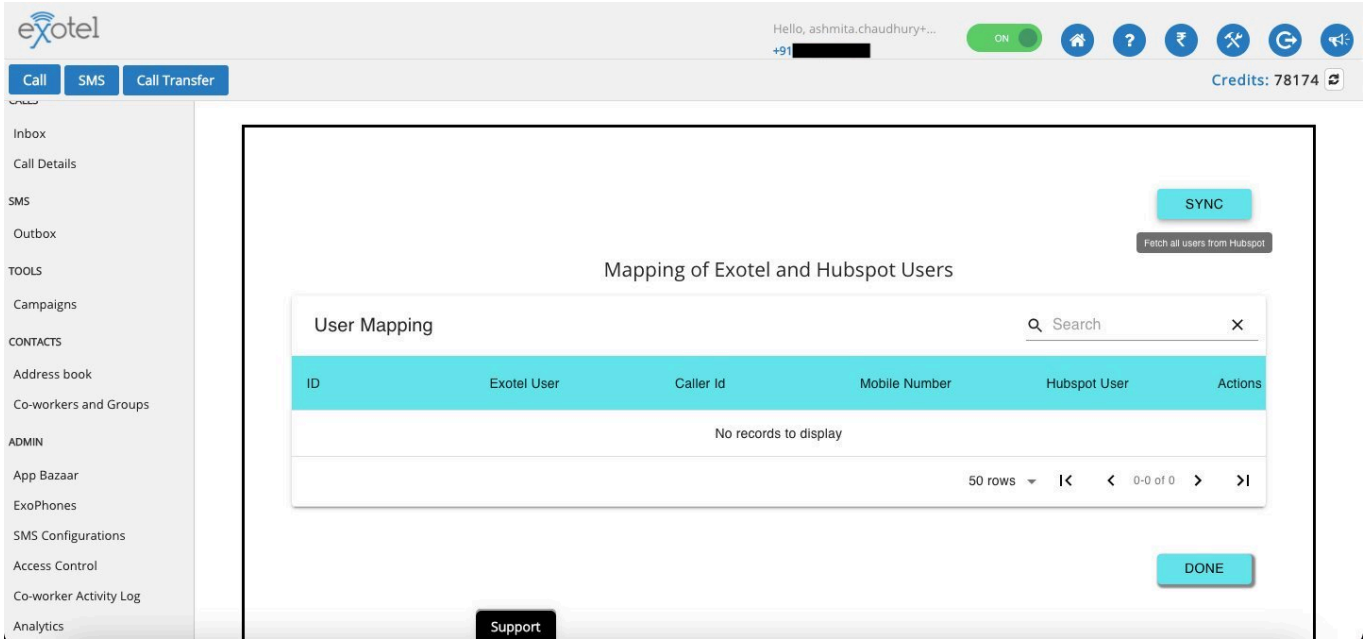


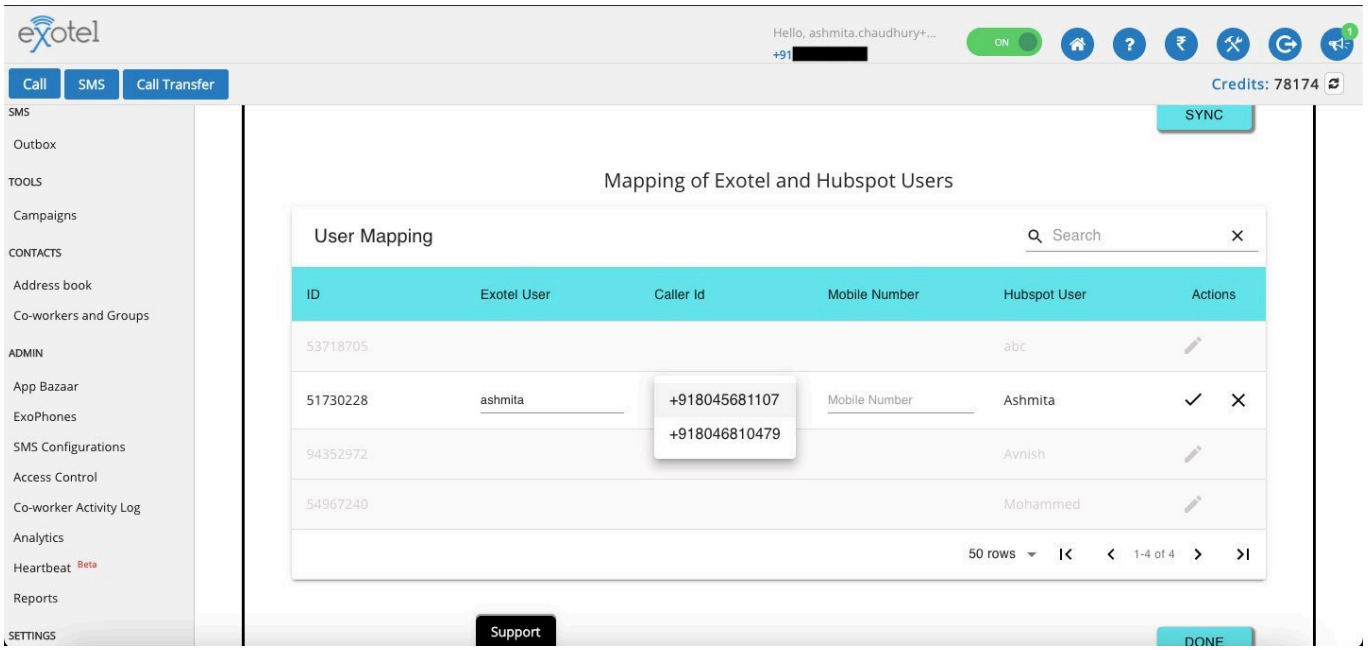


Step 5: Click on “User-mapping” and click on the “Sync” button to fetch users from your Hubspot account

1. Click on “User-mapping” for the Hubspot app
2. Click on the “Sync” button to fetch all your users/agents from Hubspot
3. Fill in the details like Exotel user, choose caller id(dropdown) and the mobile number of the agents where they will receive calls
4. Click on “Done”





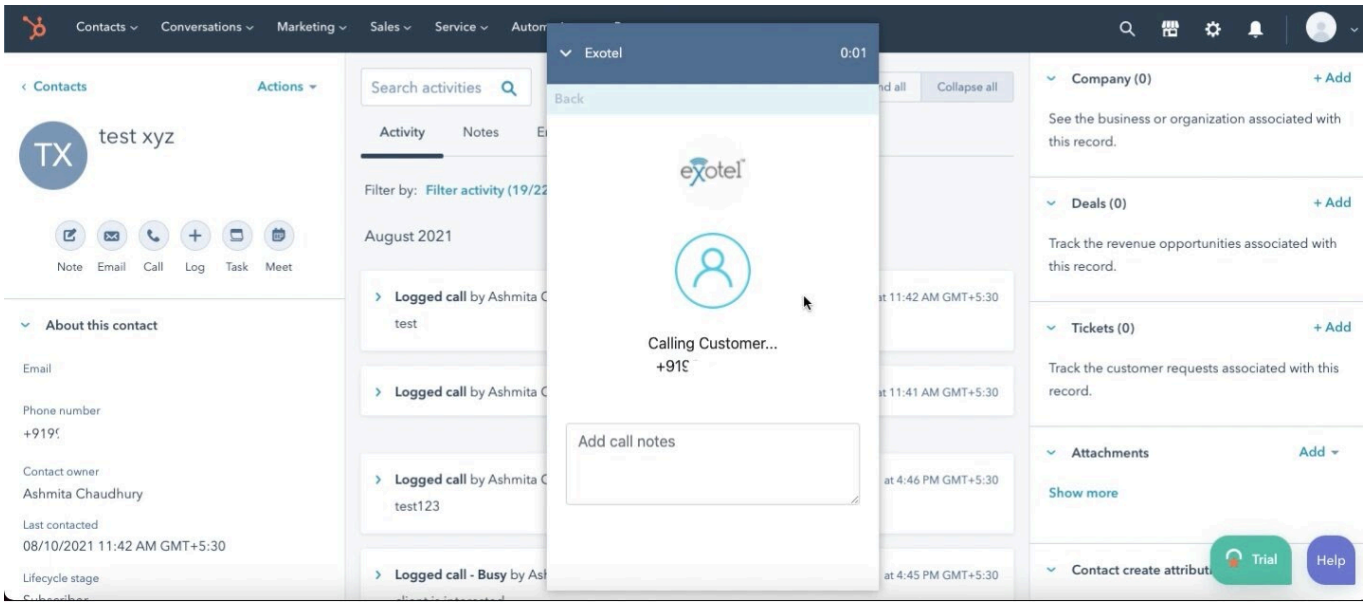


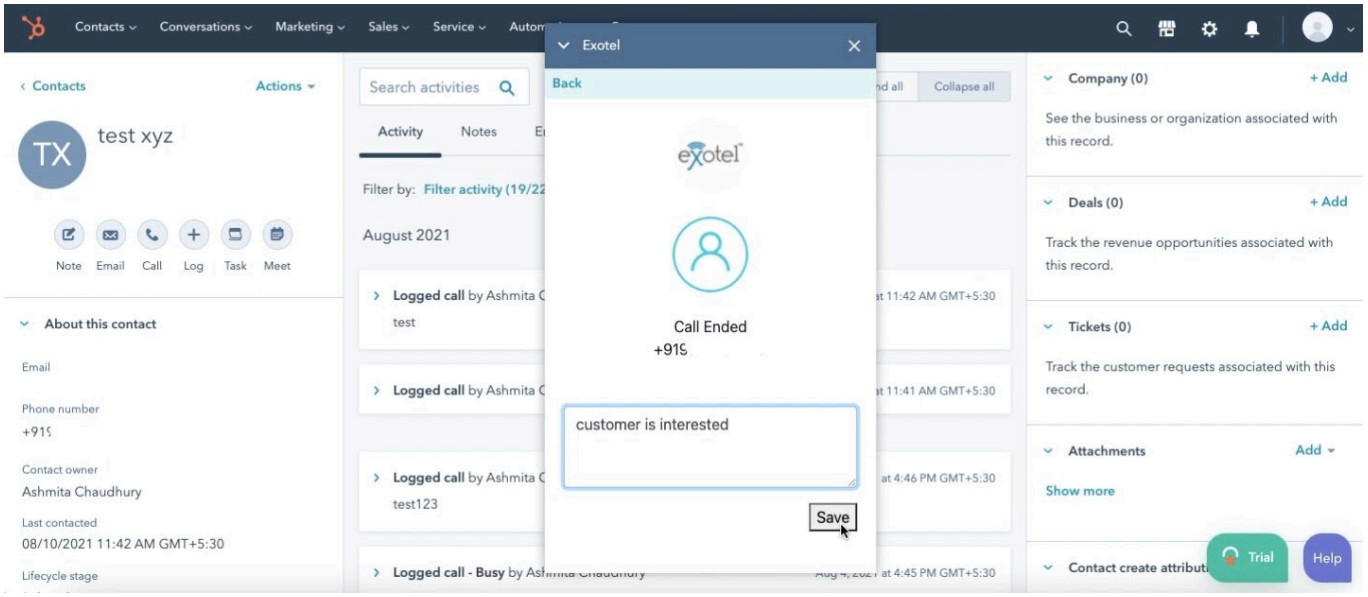
Known- Limitations

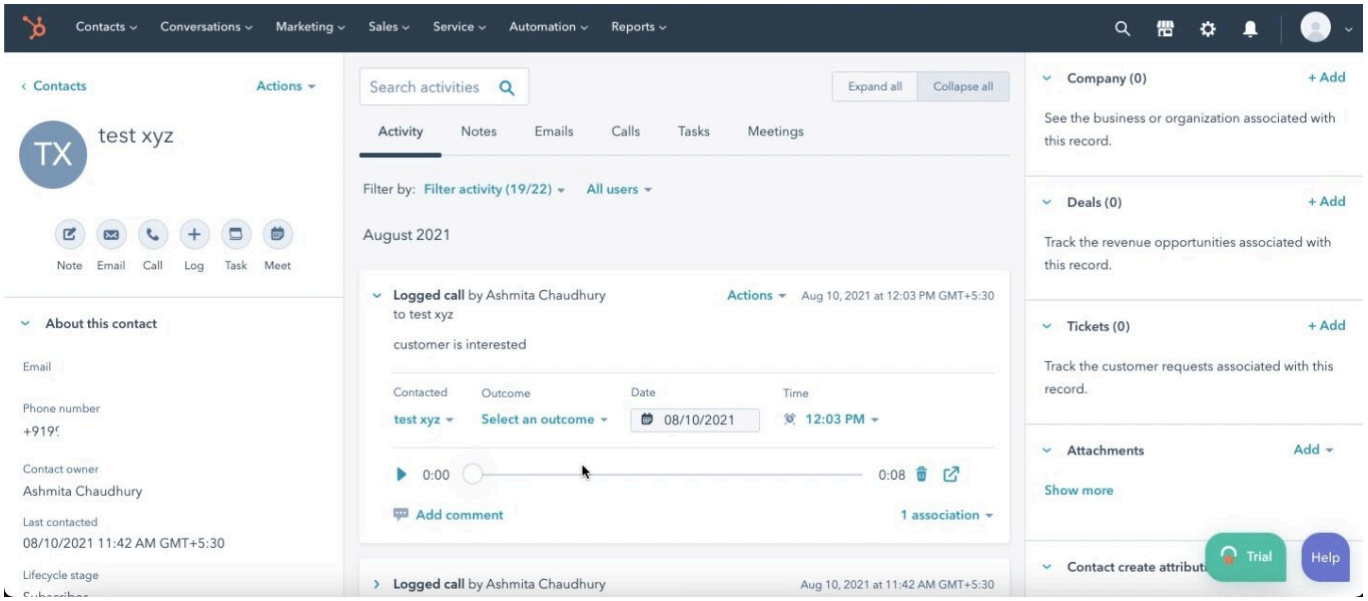
- On-Call Events: For both Incoming Call and Outbound Call pop-ups, the call events (like CallAnswered, Ringing, etc.) will not be triggered. Hence, once the call is over, the outcome can be selected in the call engagement.
- Incoming call intimation: Hubspot doesn't support incoming calls and hence we do not provide any intimations for incoming calls in the iframe.
- Hubspot Plan: Customers need to have a Sales/Service Hub Starter Plan or above on Hubspot to be able to use third-party calling apps.
- International customers: International customers do not have access to the app store in their Exotel dashboard, hence please impersonate their account and install the

integration on their behalf.

Hubspot App - UI screens

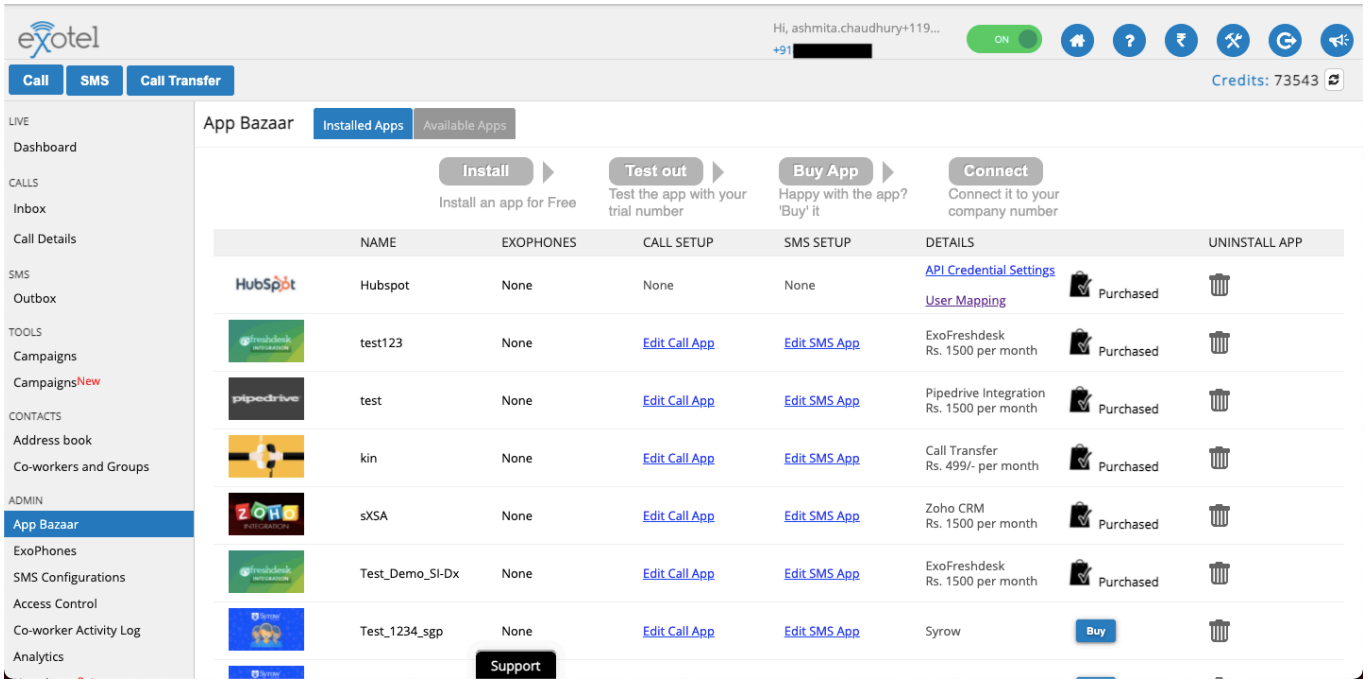






Revoking Exotel-Hubspot Integration

To revoke Hubspot-Exotel Integration, please go to the “App Bazaar” → “Installed apps” page. Click on “uninstall” for the Hubspot app listing.



4.6. Salesforce

4.6.1. Integration

Exotel Salesforce Integration enables the contextual association of calls with Salesforce Objects. It enables the user to have Incoming Call intimation, visualize the call details along with call recordings and provide Click2Call capabilities. Seamless integration for enhanced sales productivity and a better experience.

Key Benefits:

- **Call Intimations** - Get the notification on your Salesforce dashboard, whenever an incoming call comes on to your customer-facing Exotel Number or an outbound call is initiated from Salesforce
- **Object Association**: In case of an Incoming call,object to be associated with call can be changed by the agent during thecall
- **Automated Call Log Creation** - Ability to create/update a call log and associate the call with it. Automatic call log creation for Missed Calls
- **Click2Call** - Initiate a call between you and your customer, directly from the Salesforce
- **Call Details** - Call Recordings and Call Duration getting automatically added to the call logs.
- **User Mapping** - Map Exotel Agents to Salesforce Users and enable Click-2-Call.
- **Missed call activity** - Get the activities created for missed calls so as to reach customers later
- **Masked Calls** - Configuration for masked Calls can be done. Phone numbers of the customer can be masked and only last 4 digits can be shown to agent during Outgoing and Incoming Calls to maintain the customer's privacy and identity without getting their personal data misplaced.

Configuration

Follow the following prerequisites and steps to configure the integration both at Exotel and Salesforce end.

Prerequisites

In order to have a successful integration with the Salesforce account, you must complete the following tasks:

1. Sign up for an Exotel Account.
2. Verify your account through phone or email.
3. Get your account KYC verified.
4. Purchase ExoPhone to be used by Salesforce users/agents for inbound and outbound calls.
5. From the API section, make a note of Account SID, API Key, and API Token

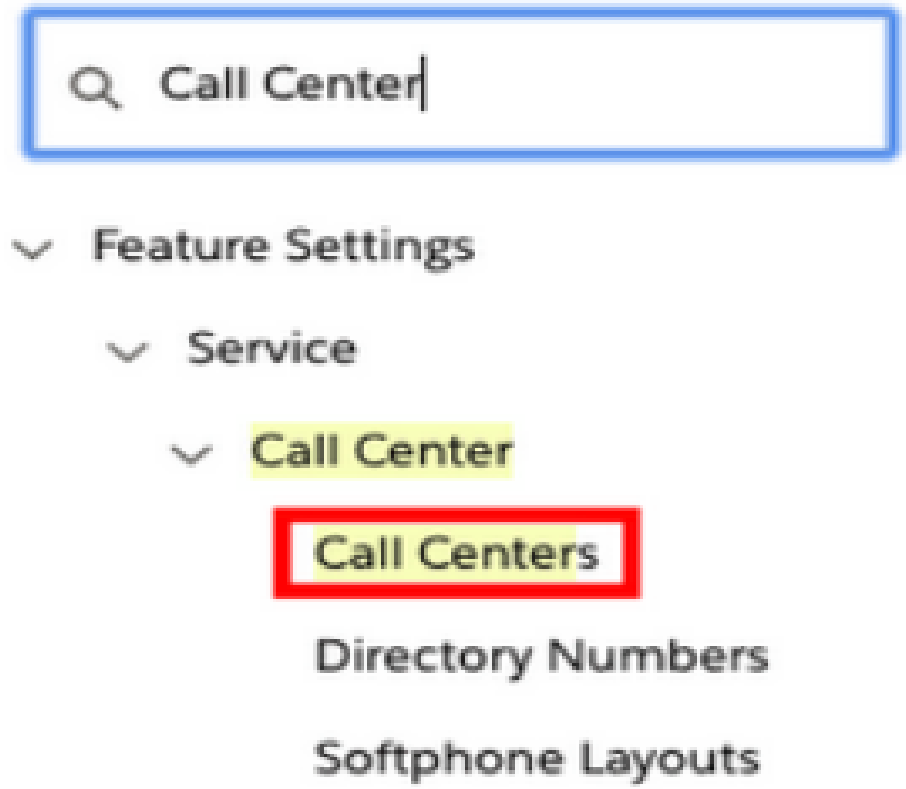
Setting up of Exotel and Salesforce Connector Integration

Step 1: Configure Exotel CTI Salesforce Connector

1. Login to the Salesforce account
2. Install the Exotel CTI Salesforce Connector for all users

Add Users to the Call Center

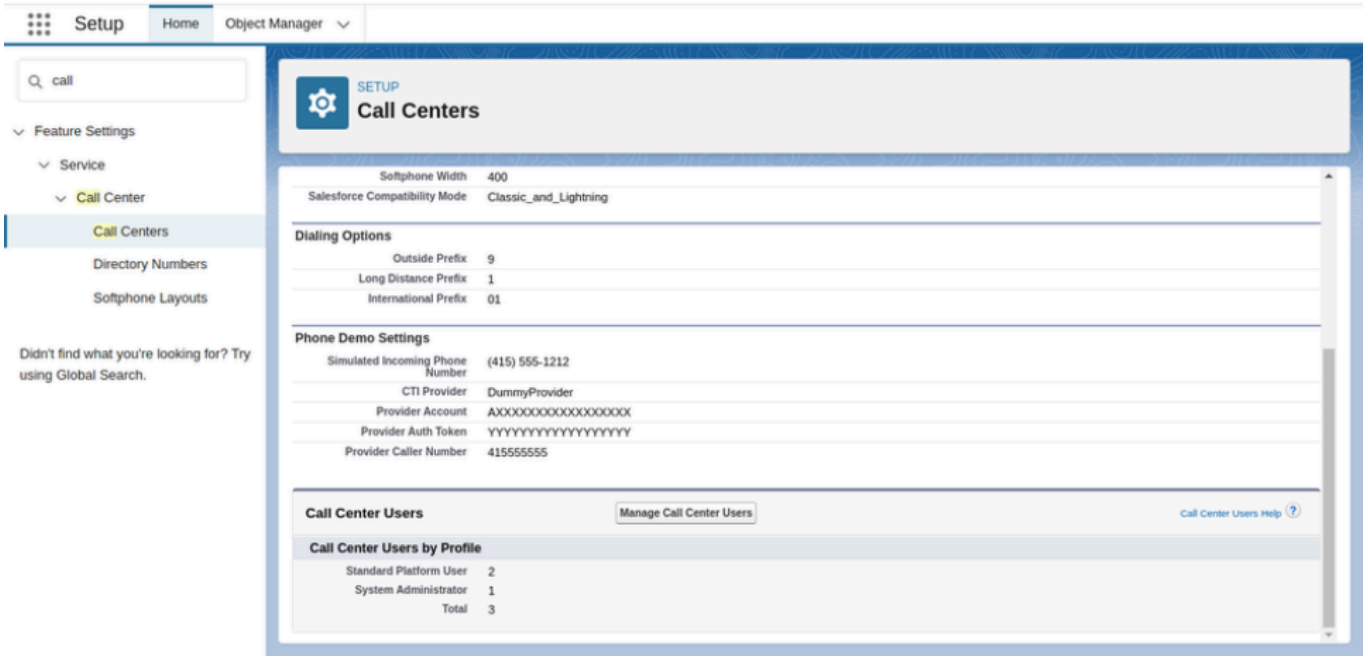
1. Go to *Setup*
2. In the **Quick Find** field, enter **Call Center**, then select **Call Centers** from the result list



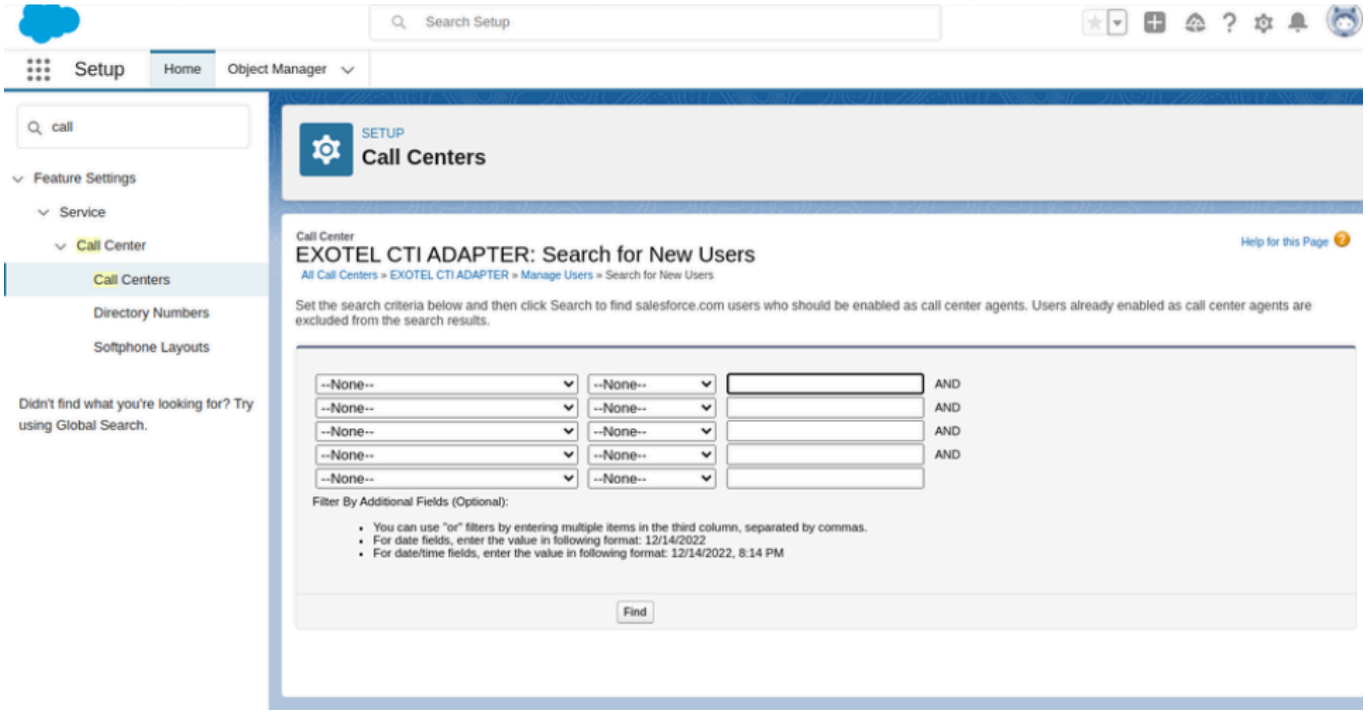
3. If you see the **Say Hello to Salesforce Call Center** page, select **Continue**

4.Select **EXOTEL CTI Adapter**

5. Click **Manage Call Center Users**

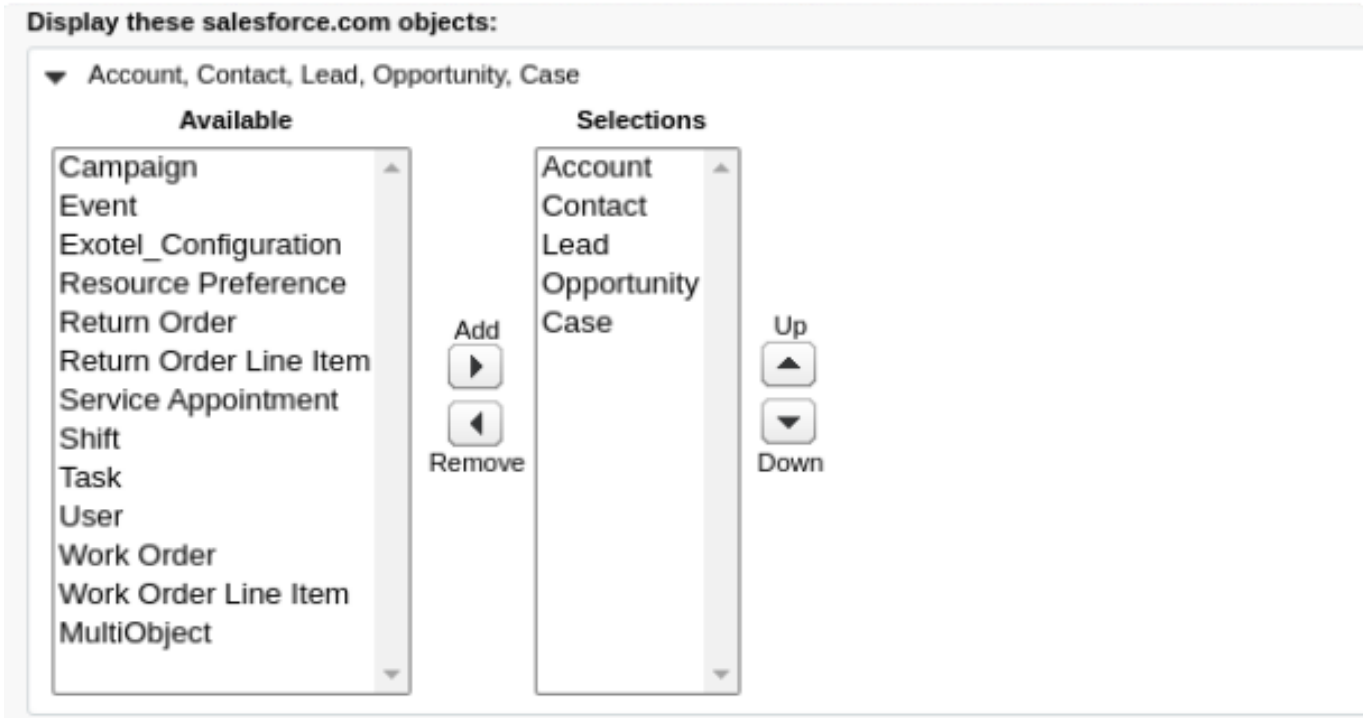


6. On the **EXOTEL CTI Adapter: Manage Users** page, select **Add More User**7. Set filters (if desired) and then choose **Find**.



Create the SoftPhone Layout

1. Next, we need to create a softphone layout. In the **Quick Find** box, type Softphone Layouts, then choose **Softphone Layouts**.
2. Choose **New**.
3. Enter a name for the layout, such as *ExotelDefault*, then select the **Is Default Layout** checkbox.



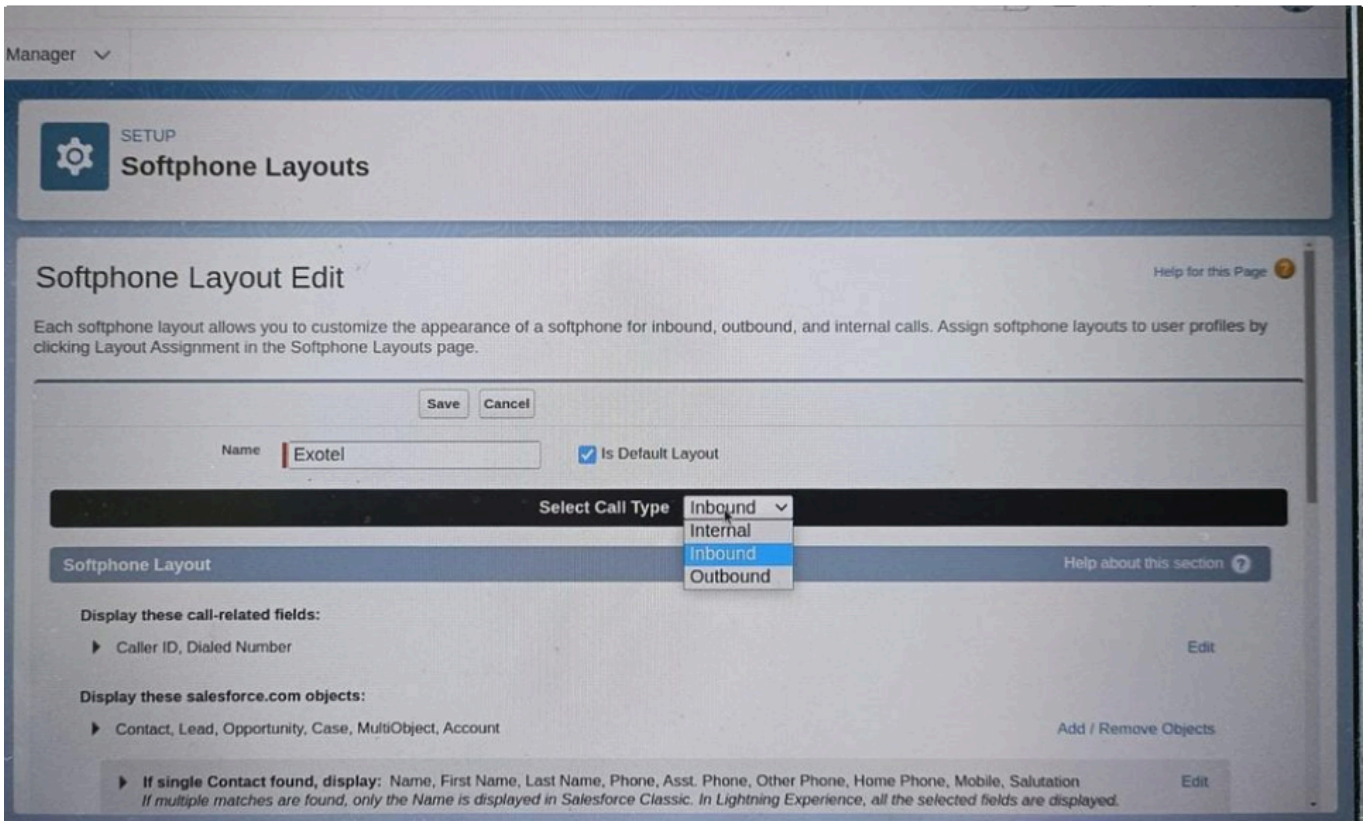
Expand "**Display these** Salesforce: The Customer Company **objects**" and select objects that Exotel CTI Connector should be able to search, for a screen-pop query.

5.For each of the objects selected,Select the fields that you want to displayed in case of Incoming Call

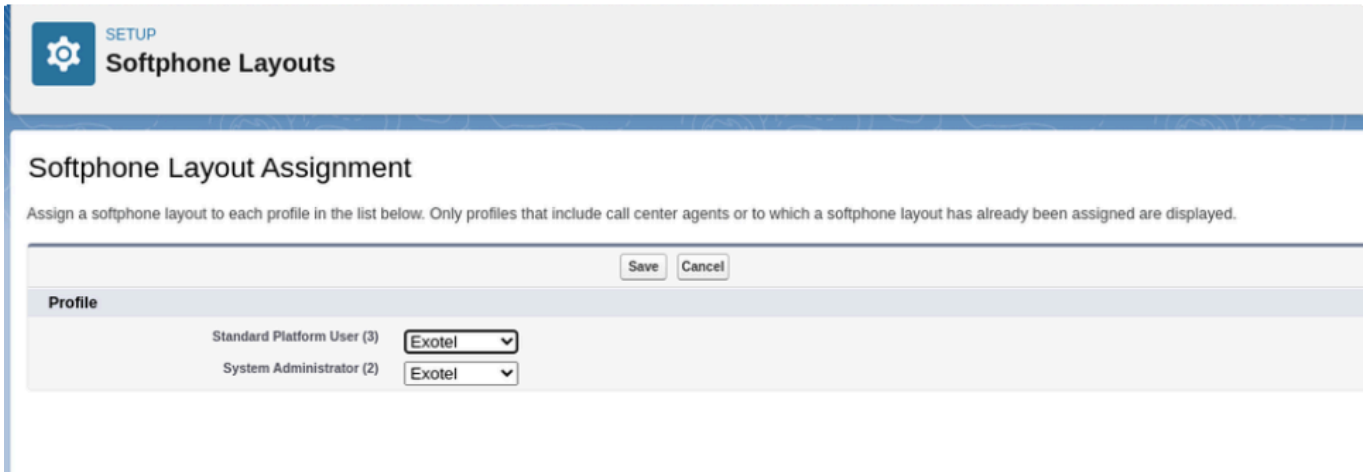
6.Configure the search behavior in the case that one or multiple records are found upon CTI search.

7.click on save

8.Configure softphone layouts for both Inbound and Outbound in the Select Call Type picklist.

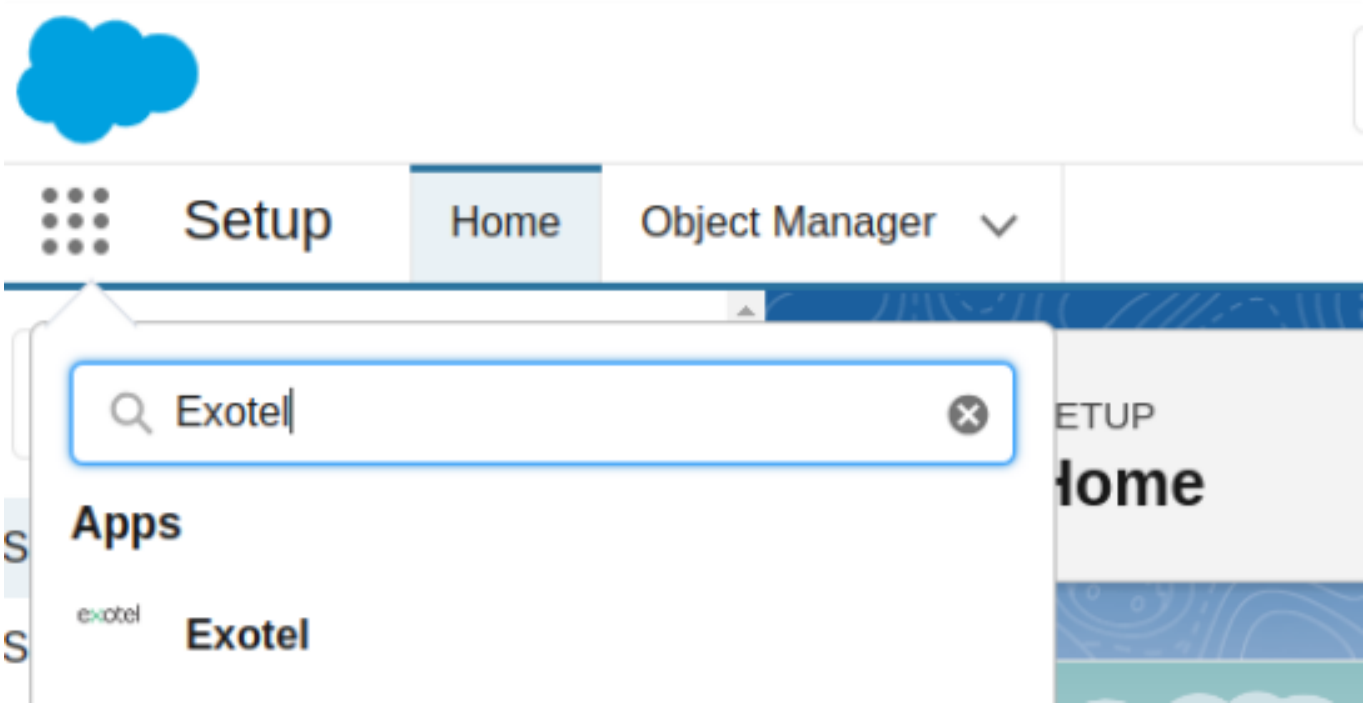


9.Assign the created softphone layout for the profiles

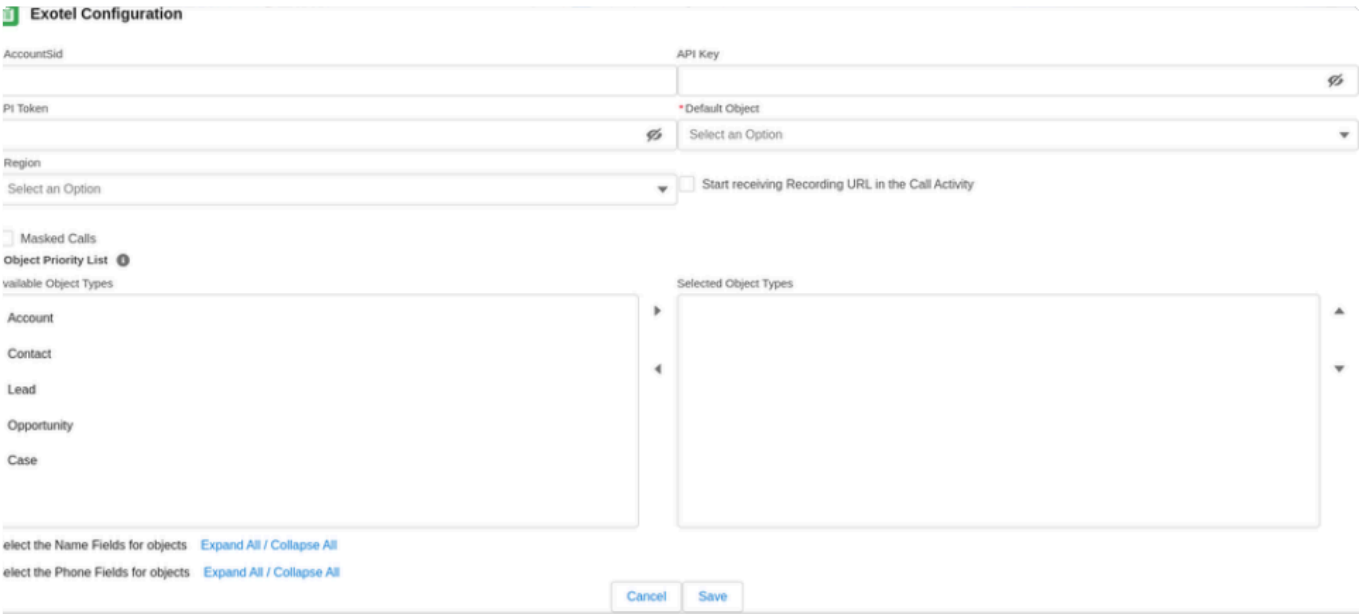


Configuring the Exotel Lightning App

Go to Exotel Lightning App



Exotel Lightning App



Configure your Exotel account-related settings in the Exotel configuration. Refer to the below image,

Exotel Configuration

Enter Account SID, API Key, API Token and Region of your corresponding Exotel account.The following details can be found in Developer Settings section in the Exotel dashboard.

- Default Object : Select the default object from the select dropdown. Incase of incoming call from unknown number,a new object of type Default Object will be created and the call will be associated with that object
- Object Priority List : In case of an incoming call when the customer number is mapped to multiple objects, if the agent does not select the object to associate the call to within 10 seconds ,based on this priority list objects gets automatically assigned. Select the objects based on priority

For each of the objects selected in Object Priority Listselect theName Fields and Phone Fields .

- In Phone Fields select all the fields on which call needs to be made or received.
- In Name Field select the field which should be displayed as Name when call for that recordType is made or received.

After adding all the above details, Click on save button and save the Exotel Configuration.

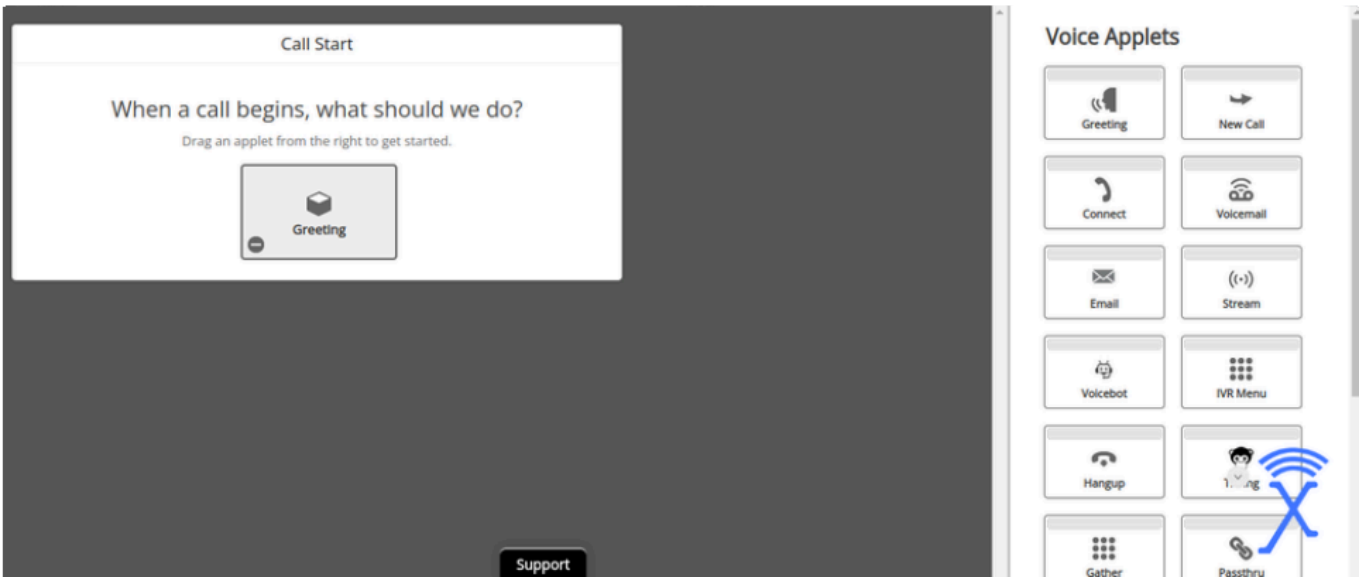
After Exotel Configuration is done you receive AccountUid please take a note of that .It will be used during flow configuration.

Step 2: Configure Salesforce Plugin Call flow

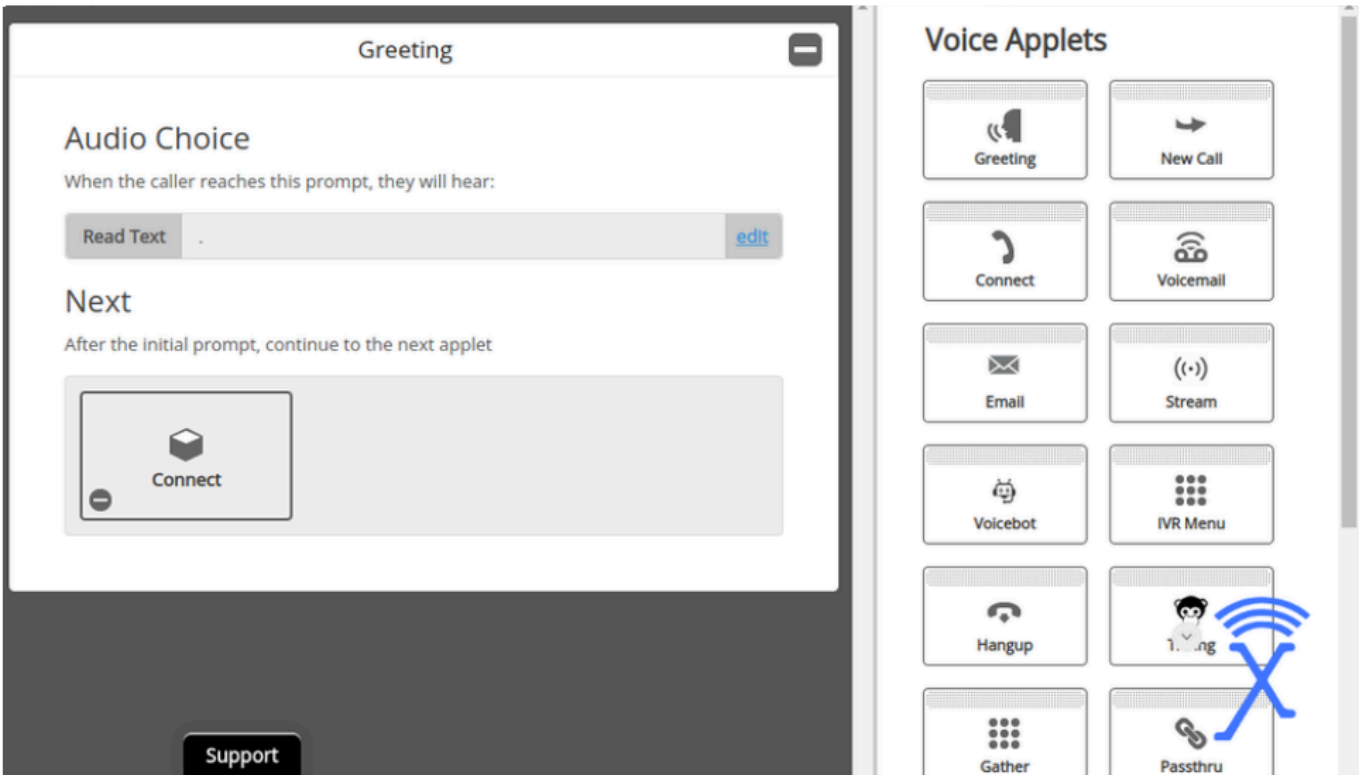
This flow is necessary to support Inbound Calls

In order to create the Salesforce Plugin Call flow, follow these five steps:

1. Go to the 'App Bazaar' section and under 'Custom Apps' click on the 'Create' button
2. Provide the App Name and click on OK.



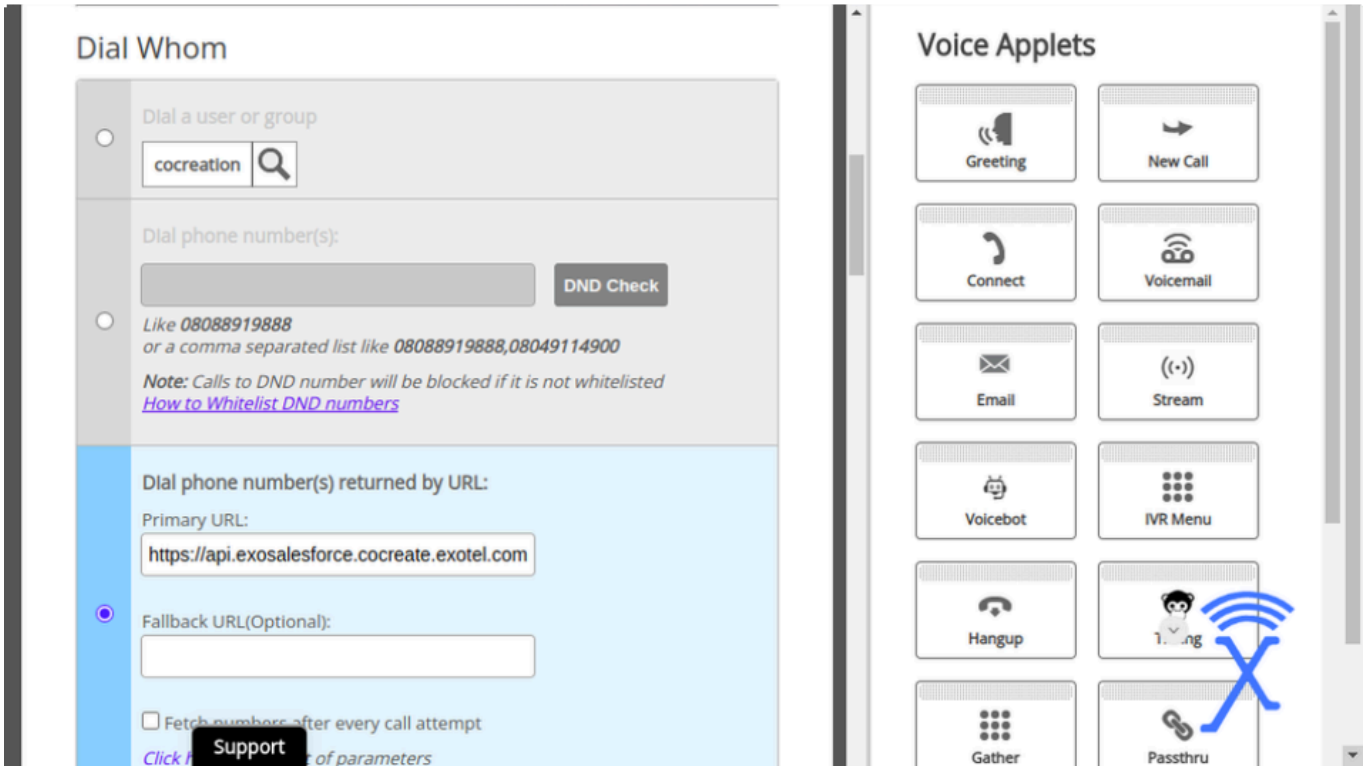
Add a Greeting Applet.



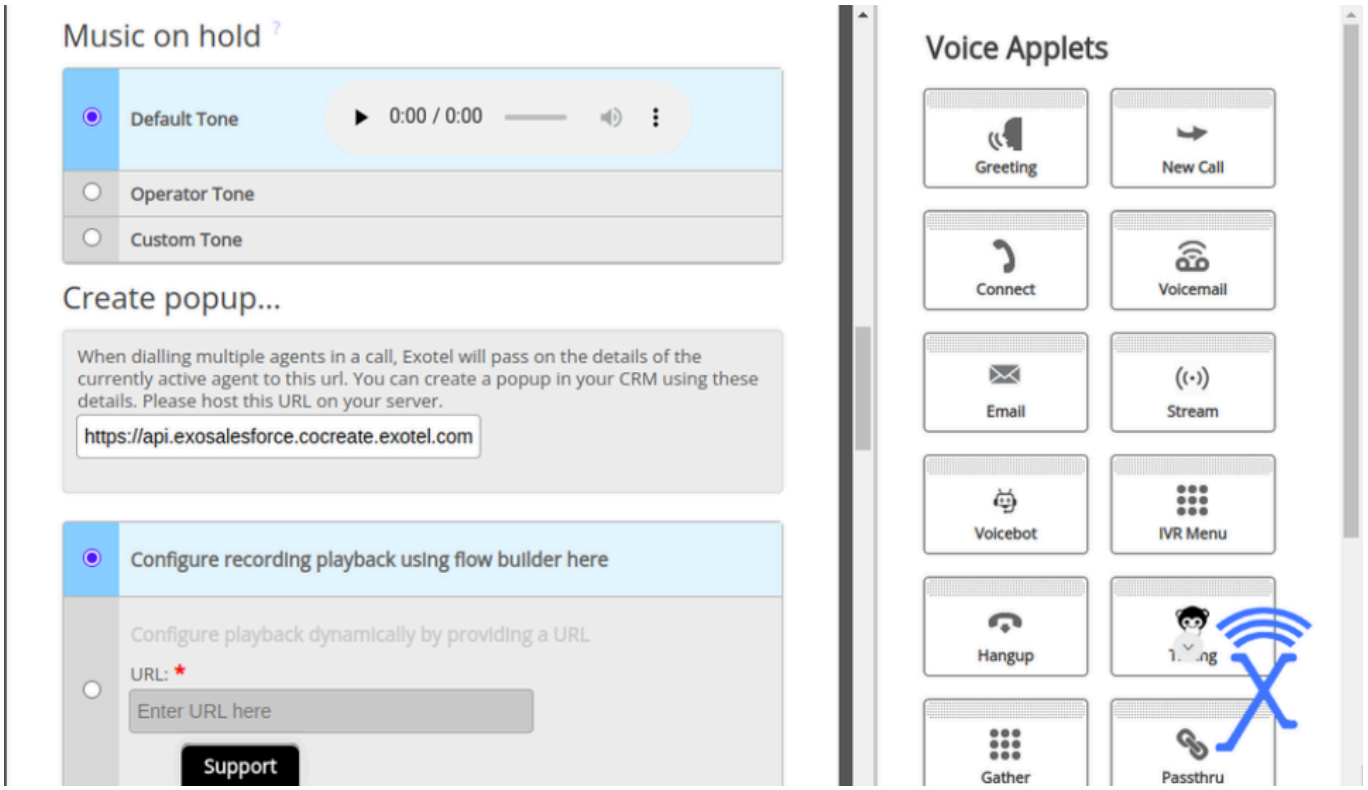
Add your greeting message and add the Connect Applet. If you don't want any greeting messages, just add a dot inside in the Read Text field.

DialWhom is not supported directly on the Salesforce integration from our end.
That said, you can still use this feature by:

- Configuring your own URL in the **DialWhom** field to define the desired call routing logic

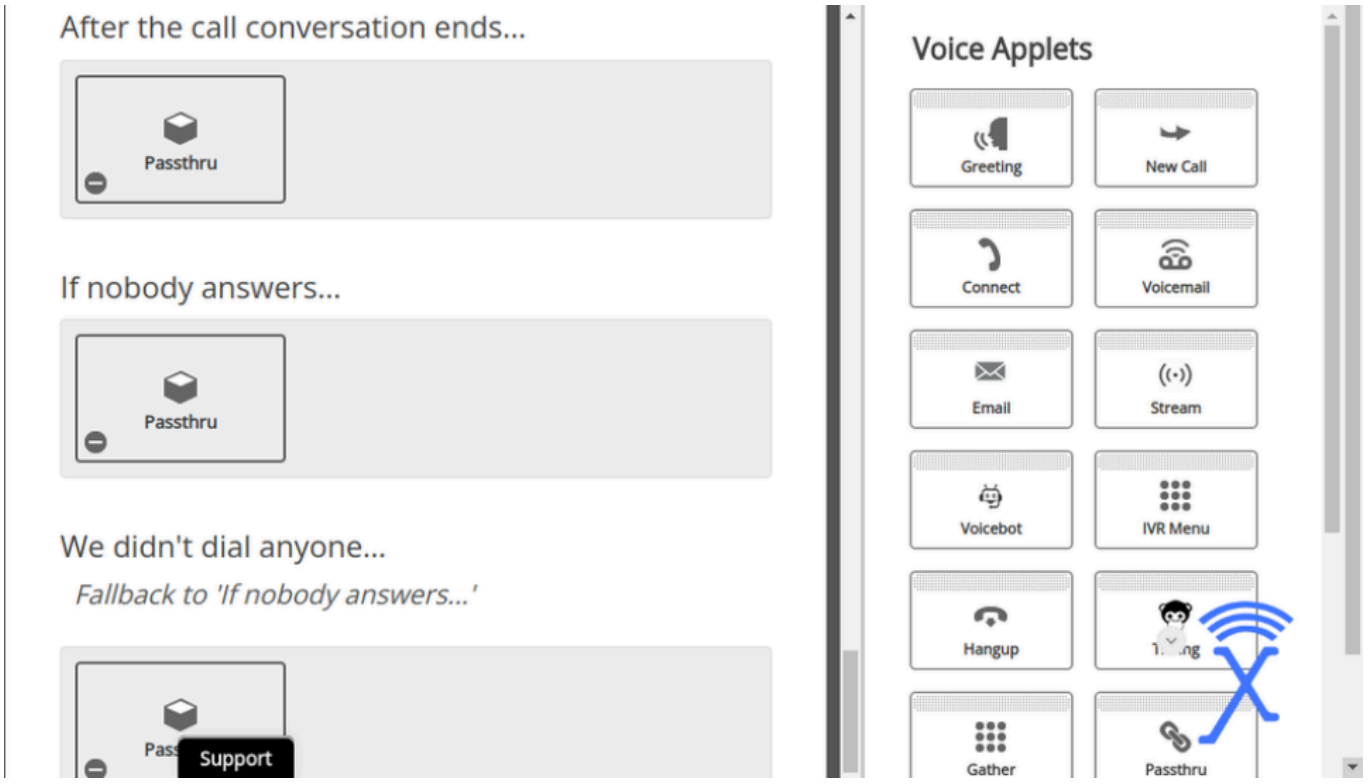


Creating users or groups within Salesforce that can be mapped appropriately for handling call.



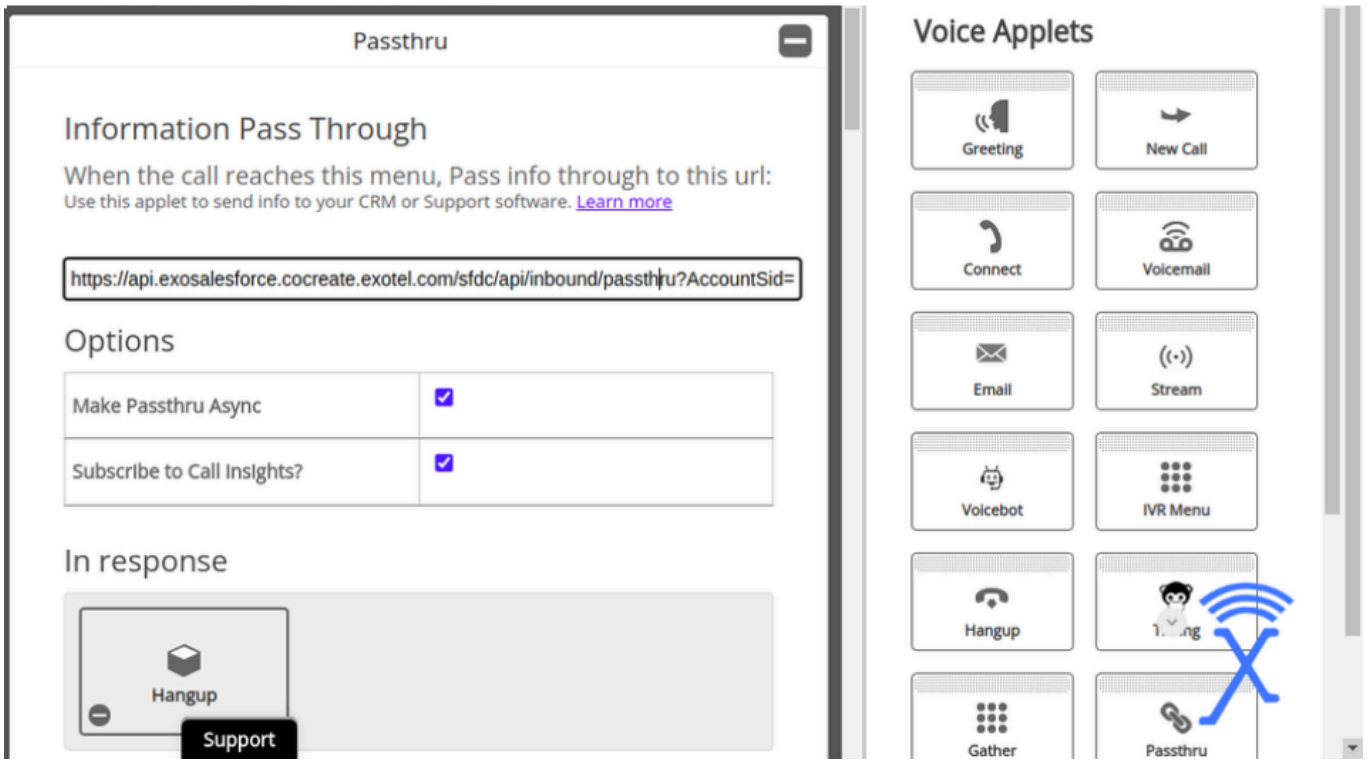
Under the 'Create popup...' section, enter this URL (modify the Exotel account name in it by your Exotel account name)

URL: https://api.exosalesforce.cocreate.exotel.com/sfdc/api/inbound/agentpopup?<accountSId>&<AccountUid>E.g: https://api.exosalesforce.cocreate.exotel.com/sfdc/api/inbound/agentpopup?AccountSid=1234&AccountUid=1234



We are using three types of Passthru Answered, Missed Call, and Not Connected.

1. Answered Passthru: After the Call Conversation ends, add a Passthru. In that passthrough enter this URL (change the CallState).
   URL: https://api.exosalesforce.cocreate.exotel.com/sfdc/api/inbound/passthru?<AccountSid>&<AccountUid>&callState=AnsweredE.g: https://api.exosalesforce.cocreate.exotel.com/sfdc/api/inbound/passthru?AccountSid=1234&AccountUid=1234&callState=Answered
2. Missed Call Passthru: In the section 'If Nobody Answers..', select 'Go To' and add a Passthru. Enter the pass-thru URL (change the CallState).
   URL: https://api.exosalesforce.cocreate.exotel.com/sfdc/api/inbound/passthru?<AccountSid>&<AccountUid>&callState=missedCallE.g: https://api.exosalesforce.cocreate.exotel.com/sfdc/api/inbound/passthru?AccountSid=1234&AccountUid=1234&callState=missedCall

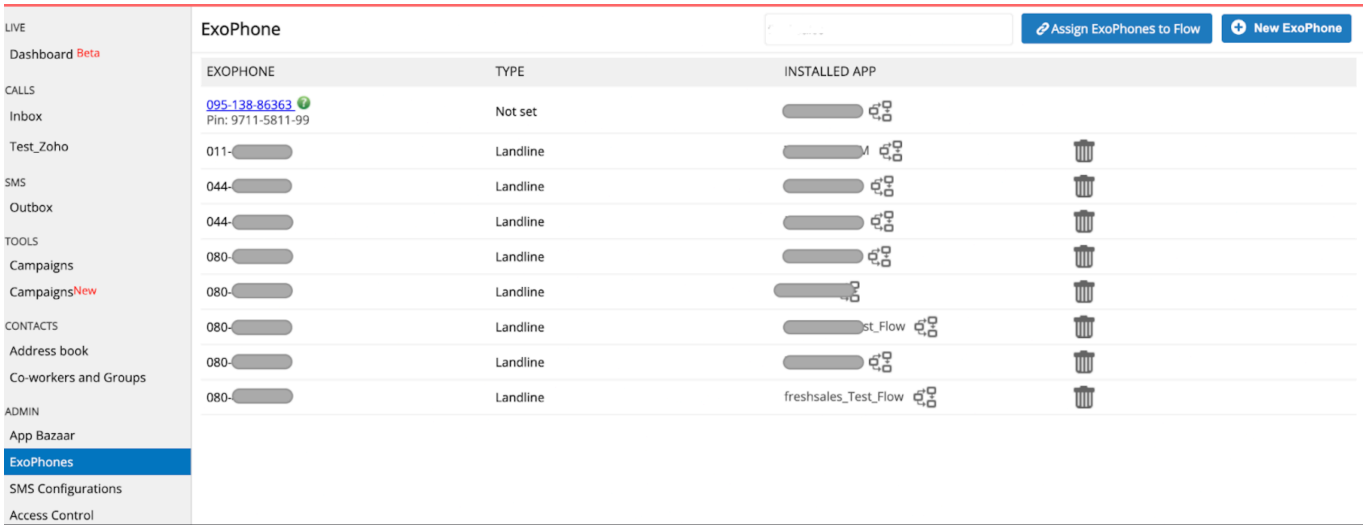


Not Connected Passthru: In the section 'If Not Connected..', select 'Go To' and add a Passthru. Enter the pass-thru URL (change the CallState)
URL: https://api.exosalesforce.cocreate.exotel.com/sfdc/api/inbound/passthru?<AccountSid>&<AccountUid>&callState=notConnectedE.g: https://api.exosalesforce.cocreate.exotel.com/sfdc/api/inbound/passthru?AccountSid=1234&AccountUid=1234&callState=notConnected

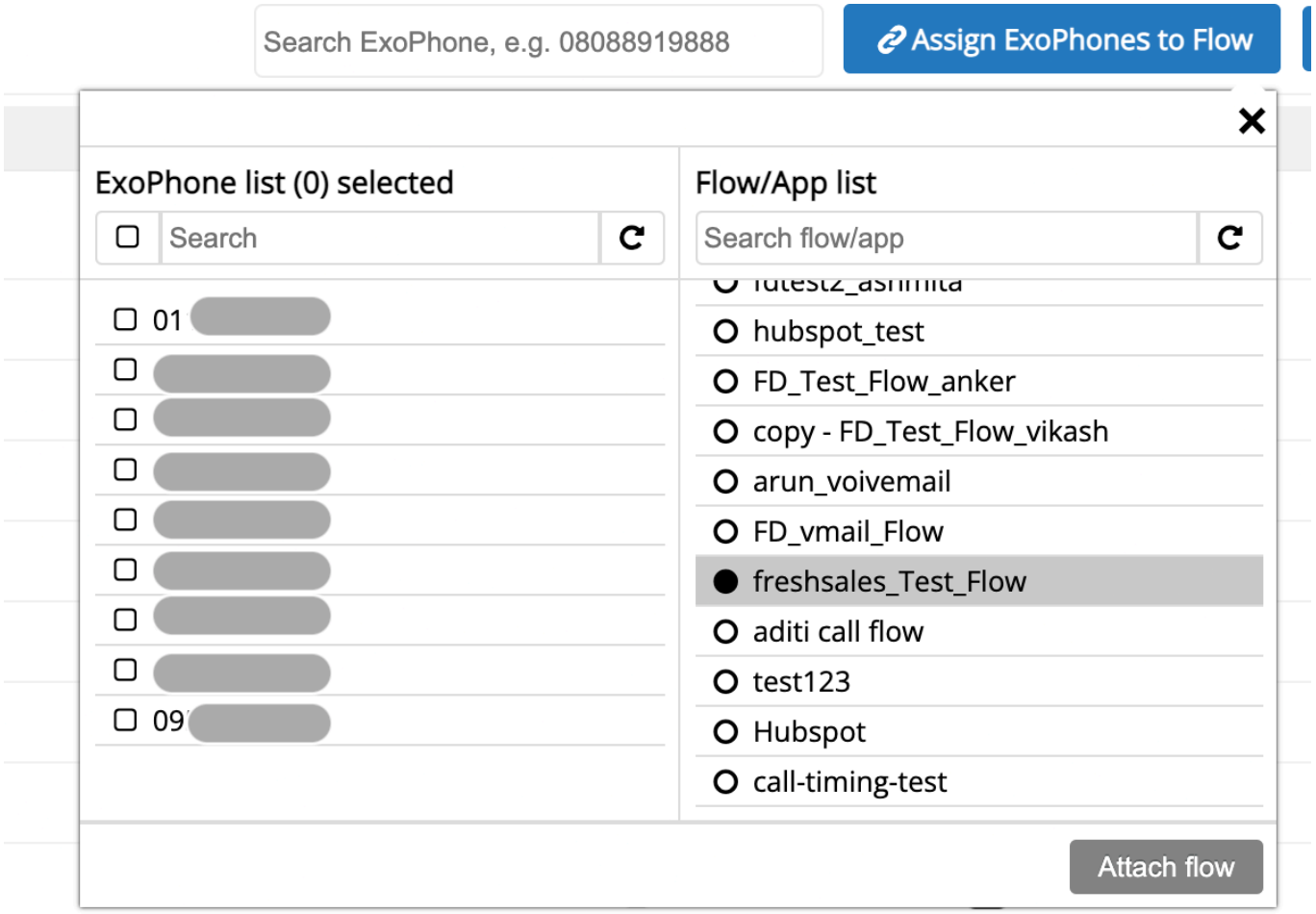
8. Save the flow and click on Close.

- **Note** - Please make sure the agent popup Answered event is enabled for your account. If not please rise the one ticket to the hello team(hello@exotel.in). Our team will enable the Answered event for your account.

Step 2.1: Associate the call flow to the ExoPhones



Go to the ExoPhones section



Click on the button ‘Assign ExoPhones to Flow’ and select the flow created in Step 2 with the ExoPhone and click on ‘Attach Flow’

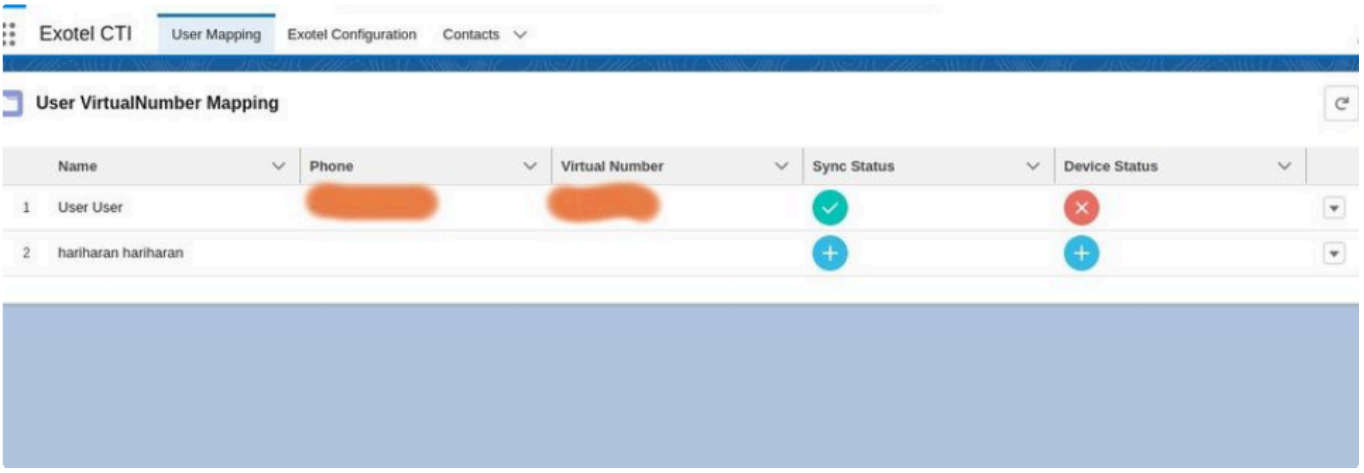
1. In the subsequent pop-up, click on OK and you can see the flow getting associated with ExoPhone.

Step 3: User Mapping

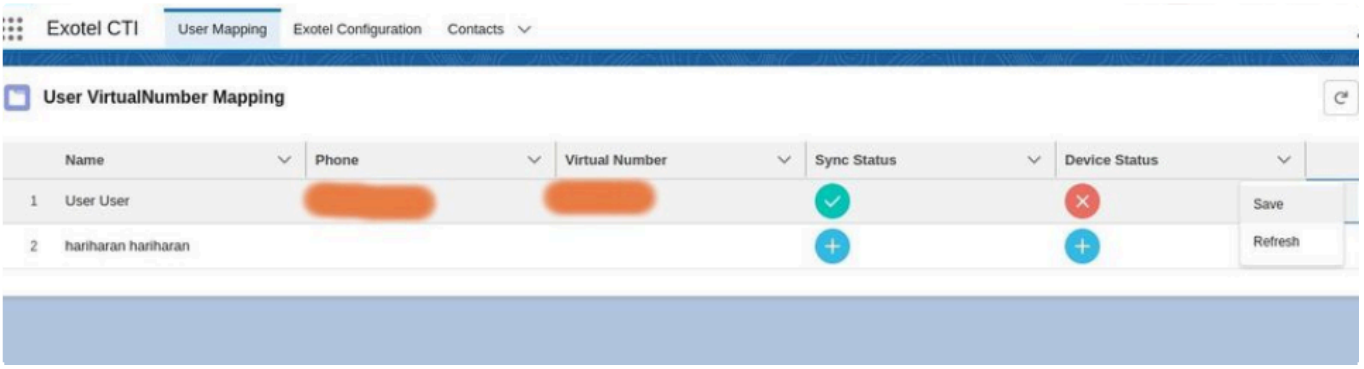
1.User Mapping can be done only after Exotel Configuration is done.Please do Exotel Configuration and then proceed to here

2.All the users added to call centre will be displayed here

3. Select a virtual number from your exotel account to associate with user.



4. Click on the chevron (dropdown) to Save/Refresh your agent number with the VN selected in your Exotel account.



5.Users mapped can recieve or make calls only after both **Sync Status** and **Device Status** are Success

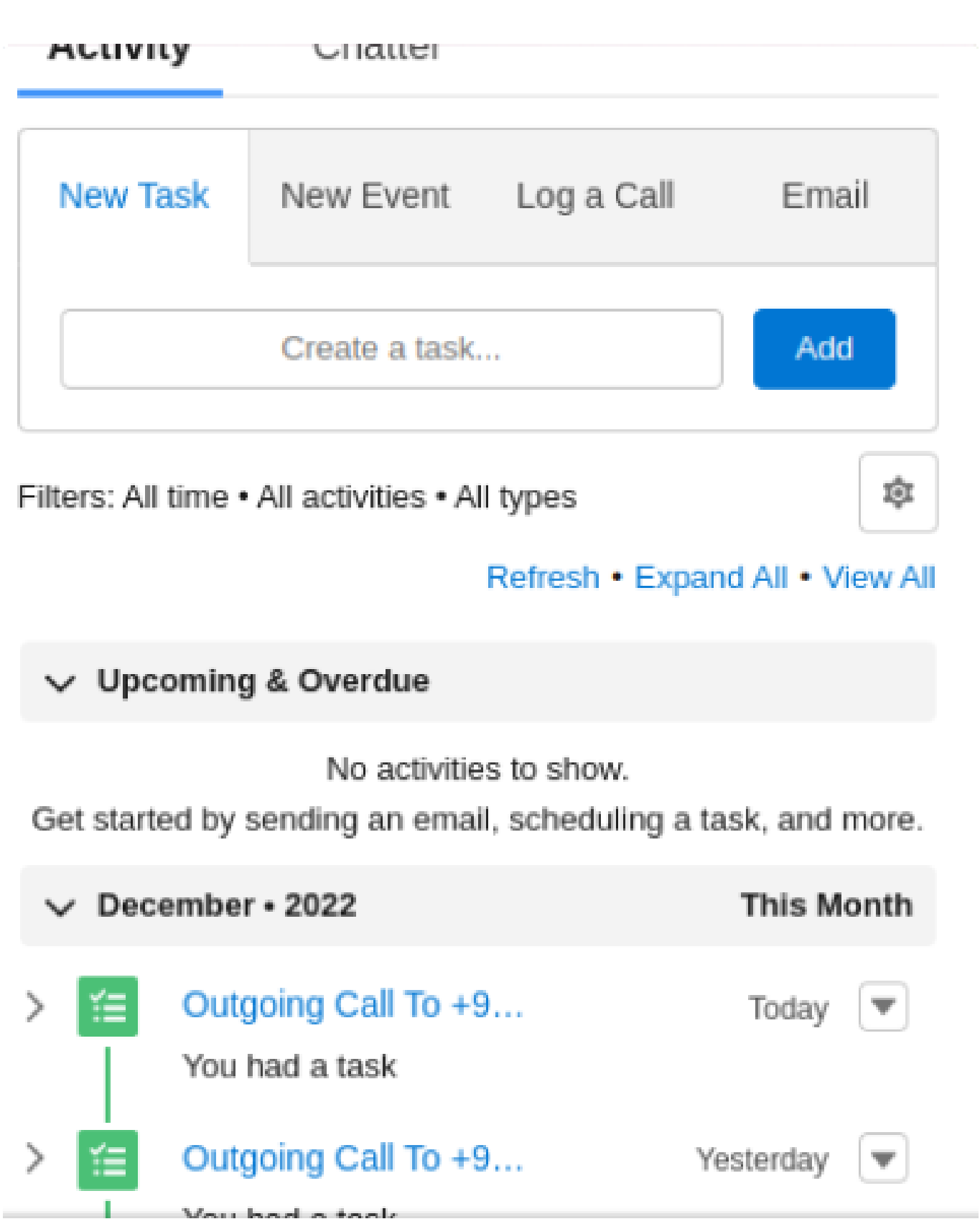
6.If the **Device Status** is success.Verify Your Phone Number by giving missed call to +91-9513885656(SGP stamp)/02249360005(Mum stamp) based on stamp where the Exotel account is present

7.Once the verification of the mobile number is done.Please click on dropdown to refresh Agent's device status.If both Sync Status and Device Status are Success agent is ready to use Salesforce Connector to make and recieve calls.

SFDC Dialer App - UI screens

Call Activity

After each call a task would be added for salesforce object associated with the call.



Call Details Screen

After call ends,an activity gets created with call details as follows

Assigned To
Mohsina Shaikh

Subject
Outgoing Call To [redacted]

Due Date

Priority
Normal

Recording URL

Call Direction
Outbound

Call Duration
0

Call Status
agent_unanswered

From
[redacted]

To
[redacted]

Virtual Number
[redacted]

Start Time
2023-04-25 17:11:20

End Time
2023-04-25 17:11:25

Leg1 Status
failed

Leg2 Status

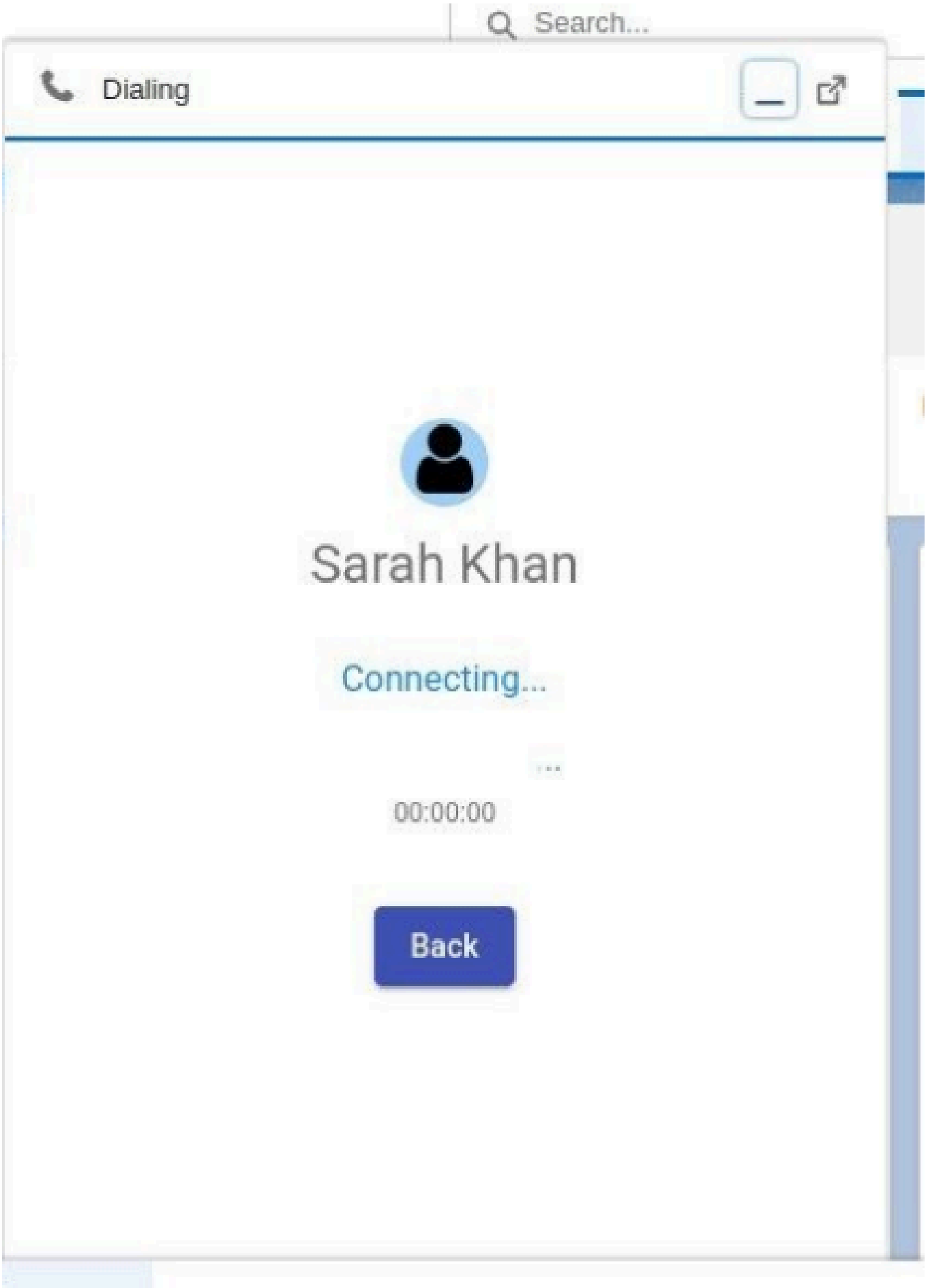
Call Sid
17d5e0b1000fb05fcb240667c472174p

Status
Completed

Name
Kim TaeTae

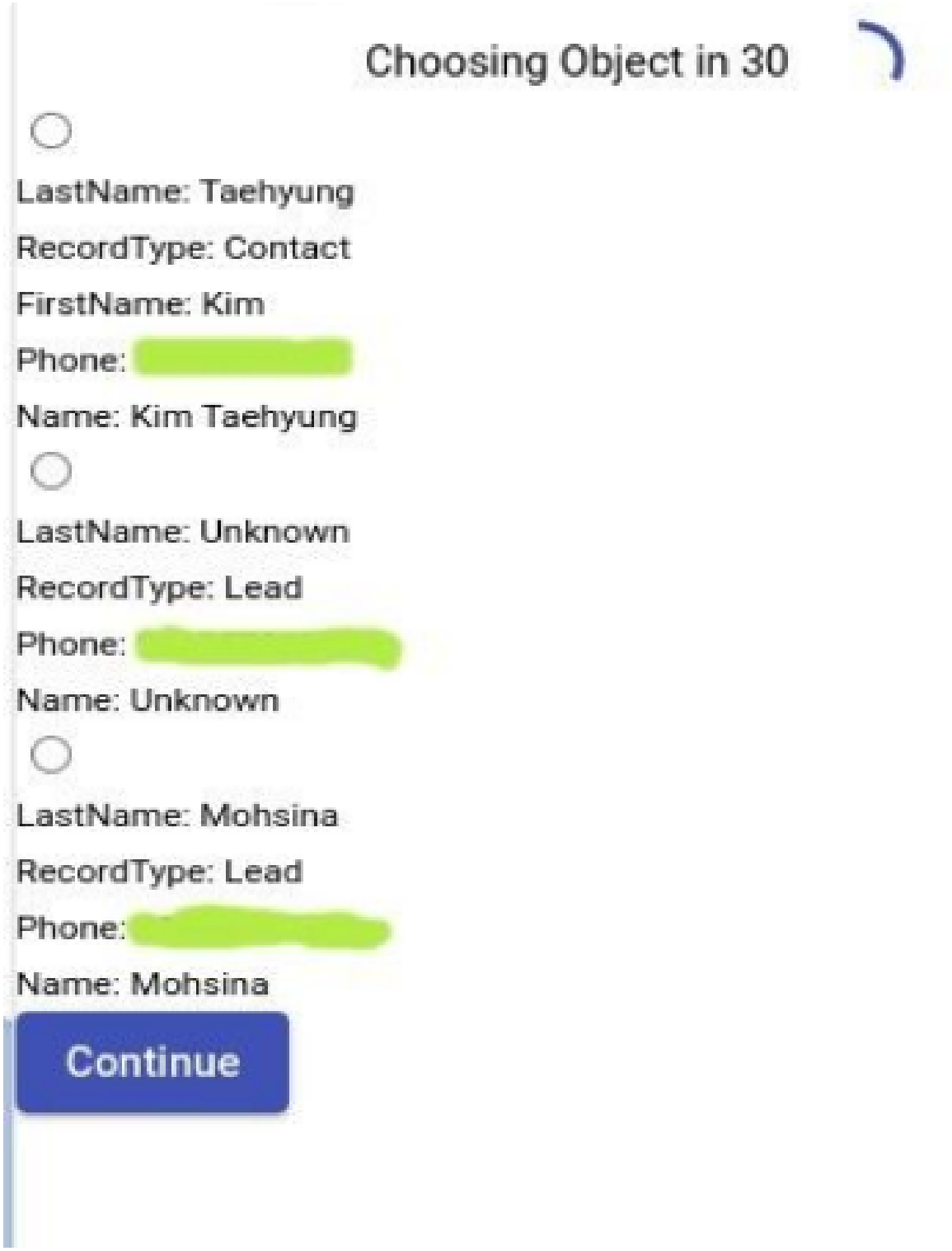
Related To

Outgoing Call Pop Up

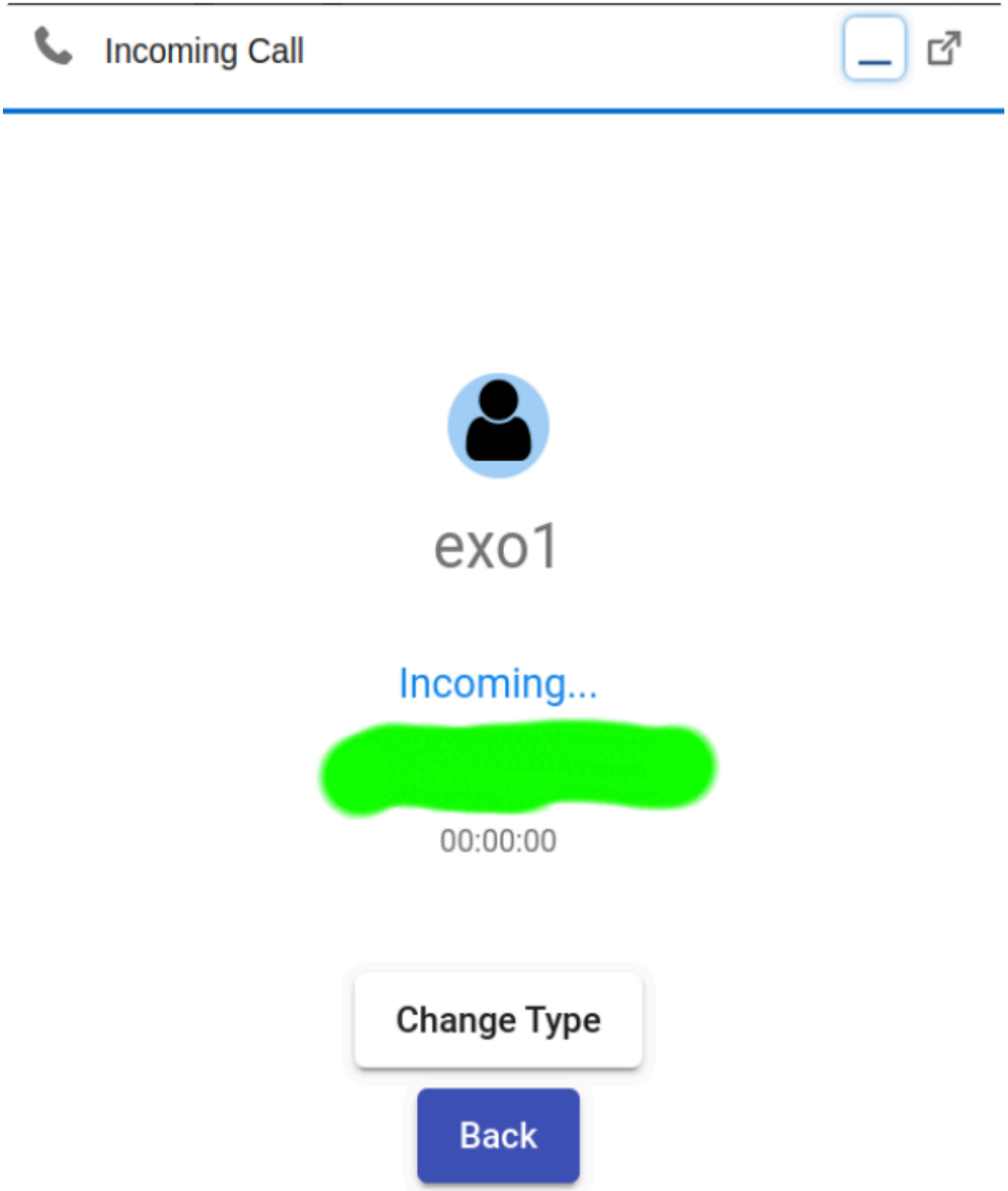

Search...
Dialing
Sarah Khan
Connecting...
00:00:00
Back

Incoming Call Popup

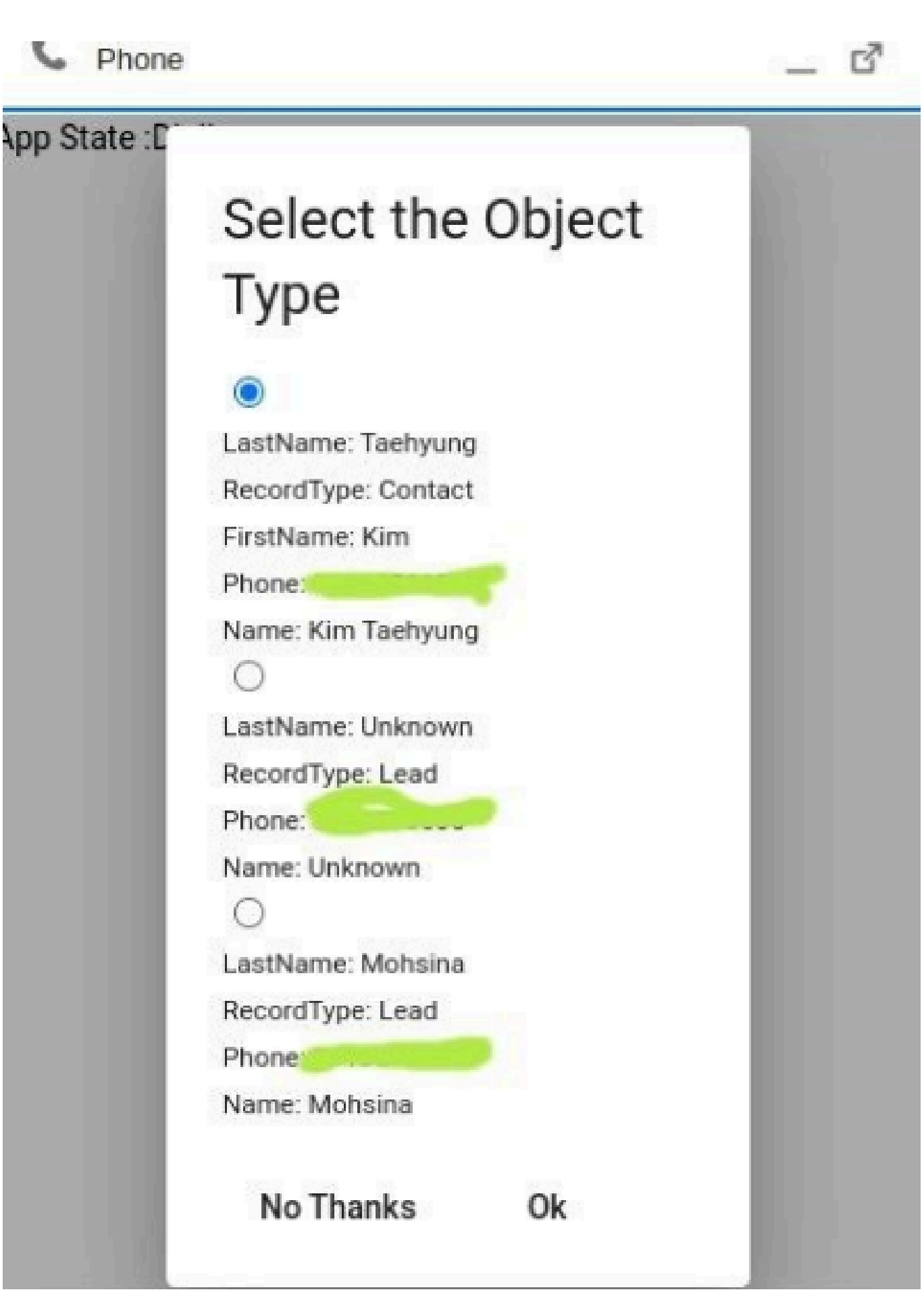
- an Whenever Incoming call is received and if there is only one matching object that record is opened
- If there is more than one matching object,following screen is displayed where an agent can select the object that he wants to associate with the call.
- The object type to be associated with the call will be automatically selected based on the priority list configured if agents does not associate object type within 10s



Object Type that needs to be associated with call can be changed during call also before the call ends



After the selection pop up will look like below



Object type can also be changed during the call by agent

Note- During an ongoing call, we advise the agent to use the Exotel CTI Connector in a single tab. Additionally, to enable recordings in the ticket, follow the steps here.

4.6.2. Adding Secure Recording Component in Exotel's SFDC connector

Note

From **20th May 2025**, Exotel's call recording links on Salesforce will no longer be available as direct links.

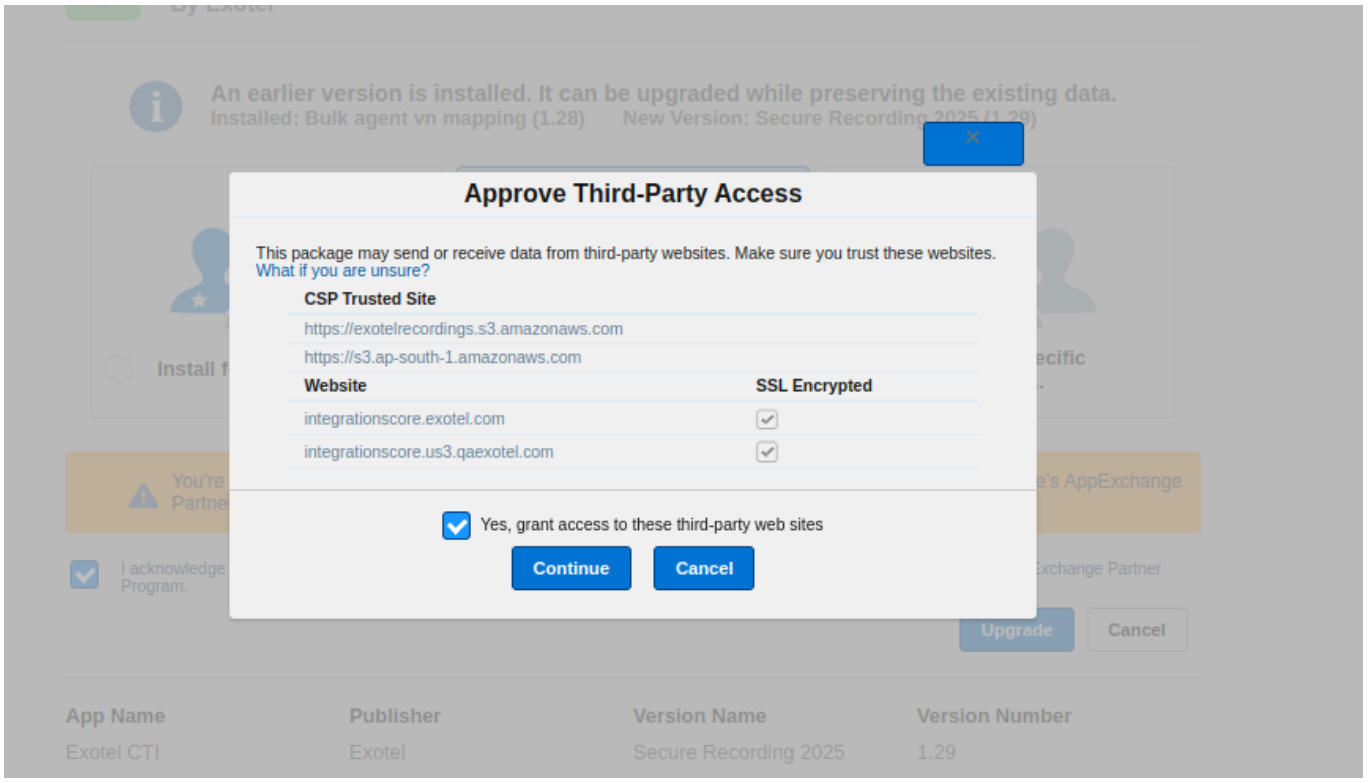
To make recordings secure, Exotel has introduced a new component that plays recordings directly inside the Salesforce Task record.

Prerequisites

1. Upgrade the Exotel package to **version 1.37**.

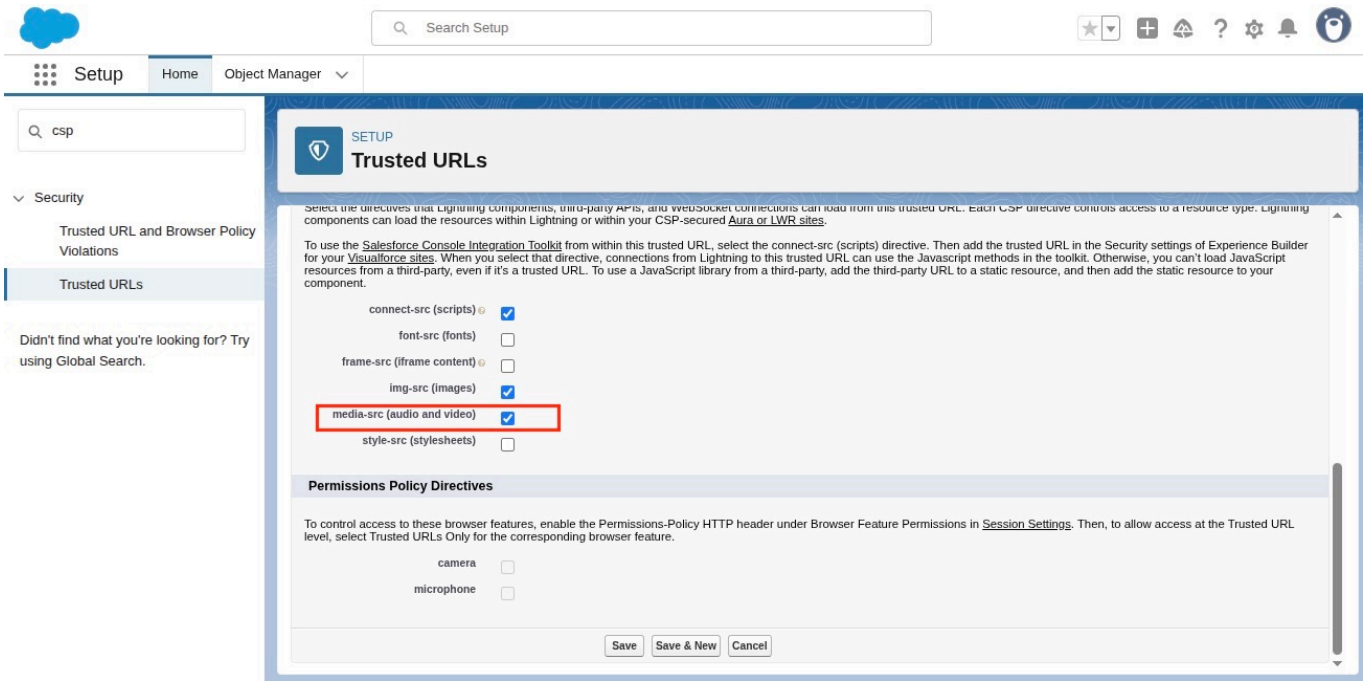
- Production Install Link: https://login.salesforce.com/packaging/installPackage.apexp?p0=04tIg0000008rQB
- Sandbox Install Link: https://test.salesforce.com/packaging/installPackage.apexp?p0=04tIg0000008rQB

2. While installing, make sure you **grant site access**.



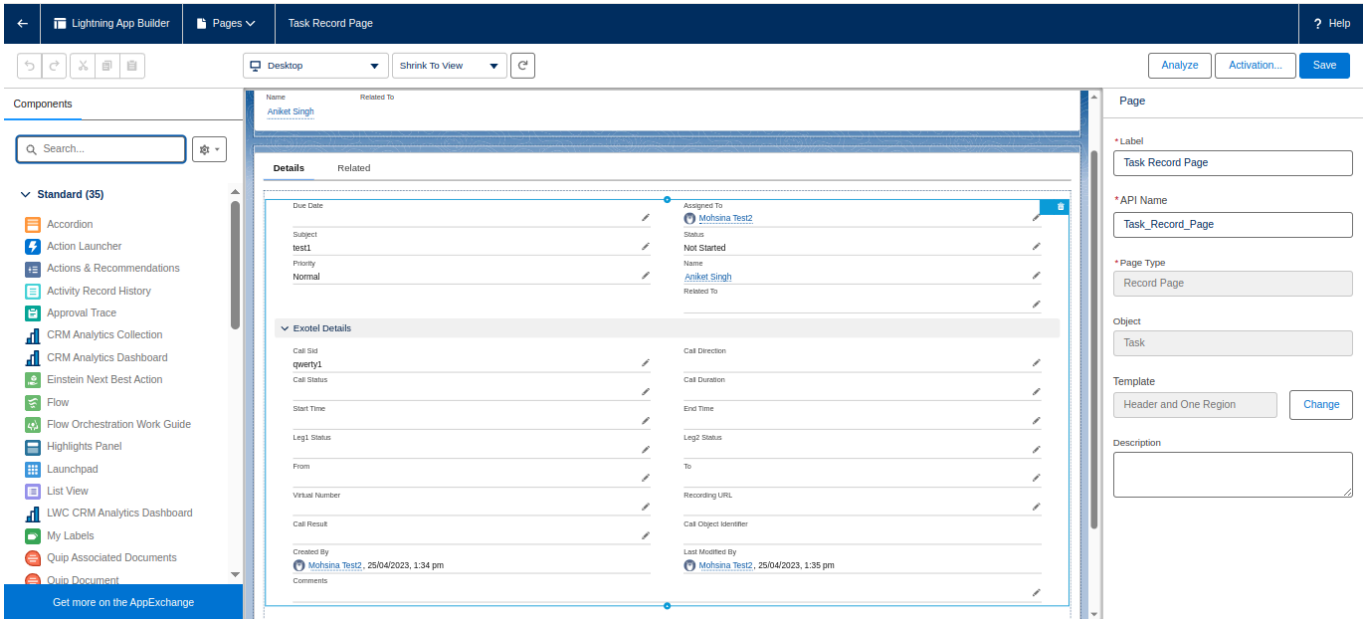
3. Once the package installation is done, **Verify Trusted Sites** in Salesforce

- Go to **Setup** → search for **CSP Trusted Sites** (or **Trusted URLs**) in the Quick Find box.
- Locate **API name: MUM_Exotel_SecureRecording**.
- Edit → in **CSP Directives**, ensure that **Media Src (audio/video)** is allowed.

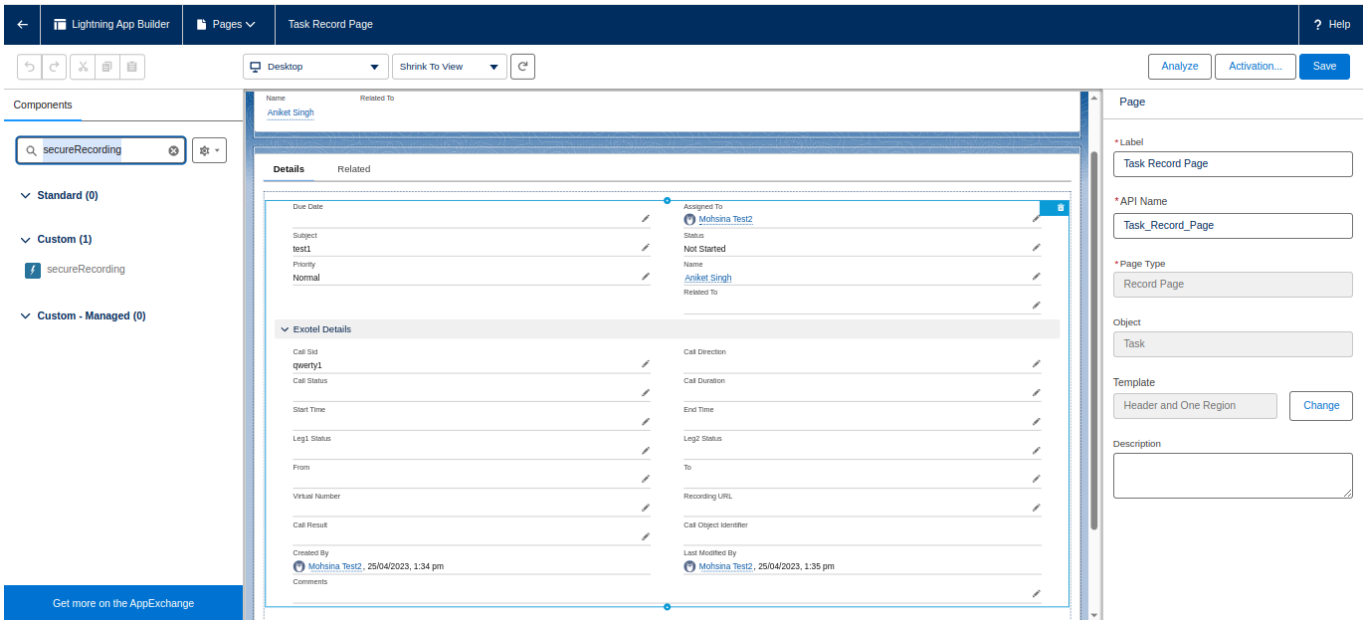


Add the Secure Recording Component

1. Navigate to **Setup → Object Manager → Task → Lightning Record Pages**.
2. Select and **edit** the Task Record Page.



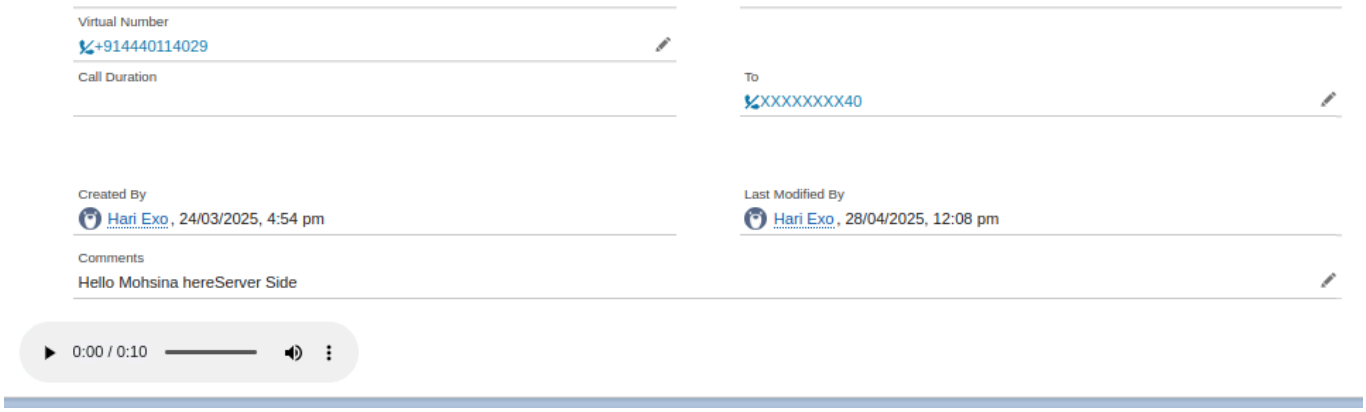
3. From the **Lightning App Builder**, drag the **secureRecording** LWC from the **Custom Components** list into the layout.

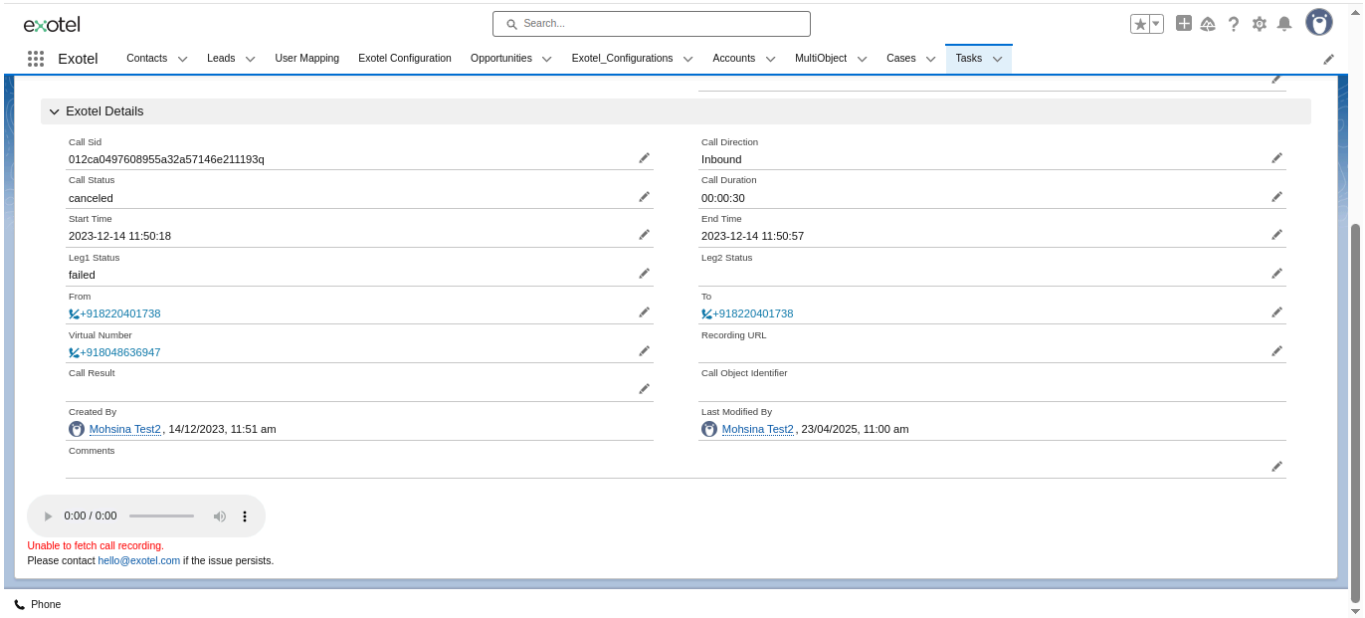


4. Save the page.

5. **Activate** the page as **Org Default** (or App Default, if preferred).

6. **Done!** Open any **Task record** and verify that the **secureRecording** component is visible.





Verification

Once the component is added, you can play call recordings securely and seamlessly inside Salesforce without relying on external links. **Recordings will only be available for completed calls.**

4.7. Zoho

4.7.1. Integration

Exotel is a highly secure, reliable, and scalable cloud-based telephony system. It enables businesses to set up Customer Call Centres without any hassle of physical infrastructure. The marque capabilities like Number Masking, Multi-Level IVR, Click-2-Call, Missed Call solution, COD, etc. helps businesses to achieve their telephony needs all in one place.

By integrating Exotel with Zoho Desk, you can get intimation of Incoming Calls and originate an Outbound call using its Click-2-Call feature, all from the Zoho Desk interface. The seamless integration of a call with Zoho Desk tickets saves agents from context switching and improves their productivity.

Exotel Benefits

With the Exotel - Zoho Desk Integration, you can:

- Get the notification on your Zoho Desk screen, whenever any Incoming call comes on to your customer-facing Exotel Number.
- Ability to create/update a ticket and associate the call with it - auto-populating the numbers, and name (if stored in Zoho Desk) and also showing options to last related ticket.
- Click2Call - Initiate a call between you and your customer, directly from the Zoho Desk.
- Map the Exotel Users to Zoho Desk Users and enable Click2Call for some or for all of them.
- Call Recordings getting automatically added to the tickets.

- Missed Call details directly getting pushed to your existing tickets or new tickets are being created in case of unsaved numbers.
- Work on just one interface (Zoho Desk) and improve your productivity by eliminating context-switching.

Prerequisites

In order to have a successful integration with the Zoho Desk account, you must complete the following tasks:

1. Sign up for an Exotel Account.
2. Verify your account through phone or email.
3. Get your account KYC verified.
4. Purchase ExoPhone to be used by Zoho Desk users/agents for inbound and outbound calls.
5. From the API section, make a note of Account SID, API Key and API Token

Setting up of Exotel Integration

In order to set up the integration, follow these five steps:

1. Create Co-Workers and Group
2. Configure Zoho Plugin Call flow
3. Associate the call flow to the ExoPhones
4. Enable Integration via: https://zohoplugin.exotel.com/
5. Map the Zoho User to Exotel Agents in the Integration interface and enable Click-2-Call (if required)

Step 1: Create Co-Workers and Group

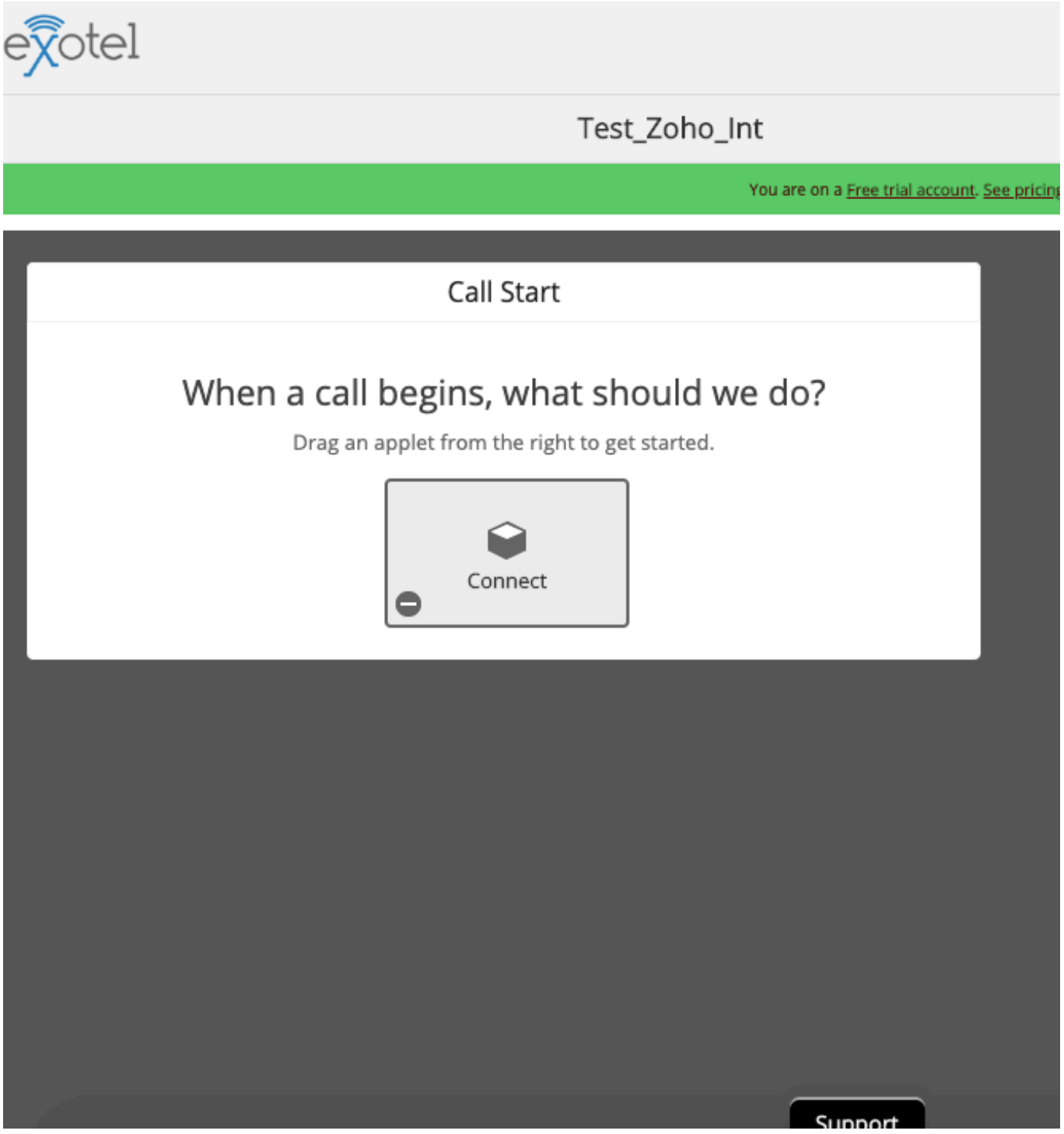
To create co-workers and groups in Exotel:

1. In my.exotel.com, go to the 'Co-workers and Groups' section
2. Add all the co-workers corresponding to Zoho account, by clicking on Invite co-workers
3. Create a new group, by clicking 'Add Group' and add all the co-workers in that group

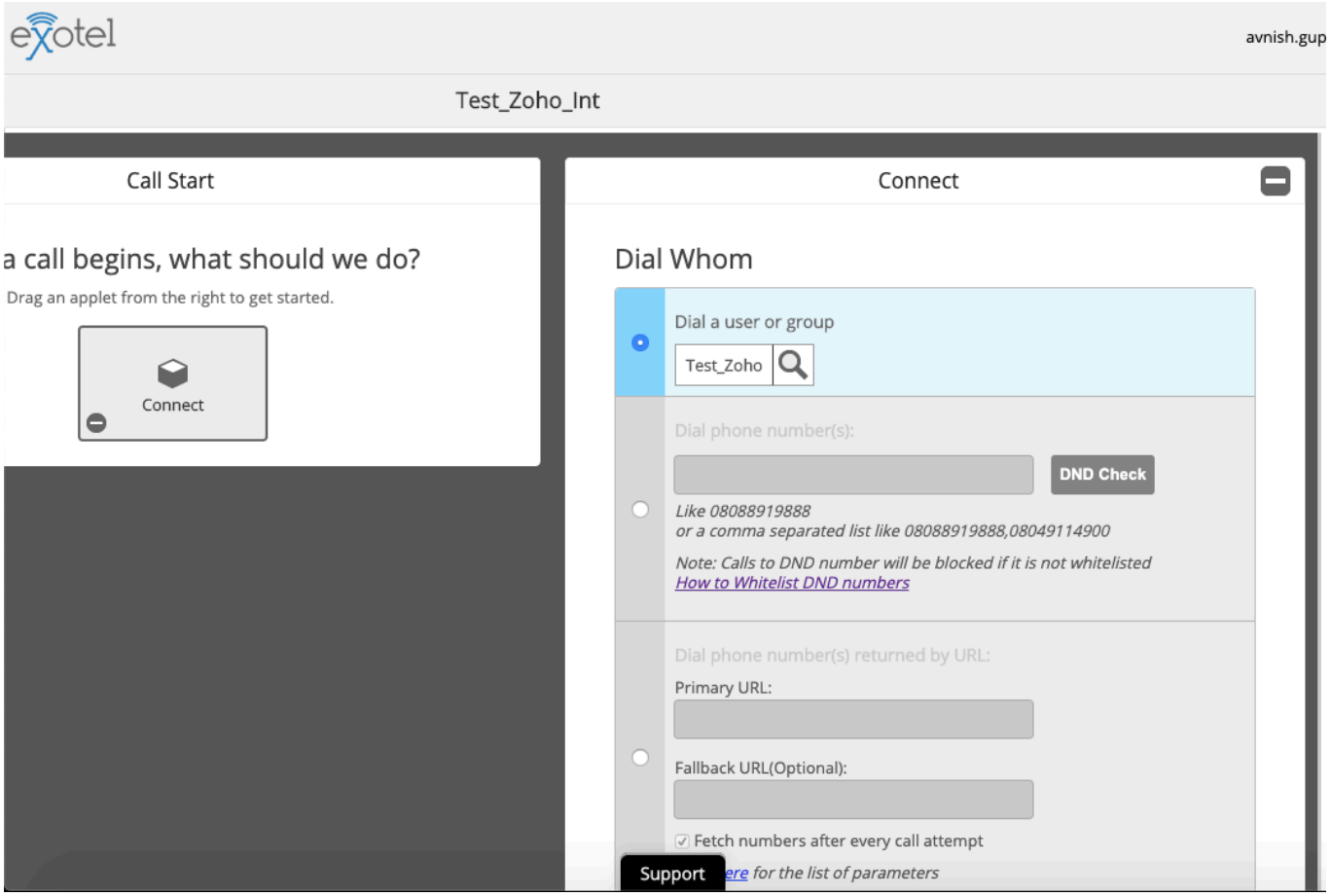
Step 2: Configure Zoho Plugin Call flow

In order to create the Zoho Plugin Call flow, follow these five steps:

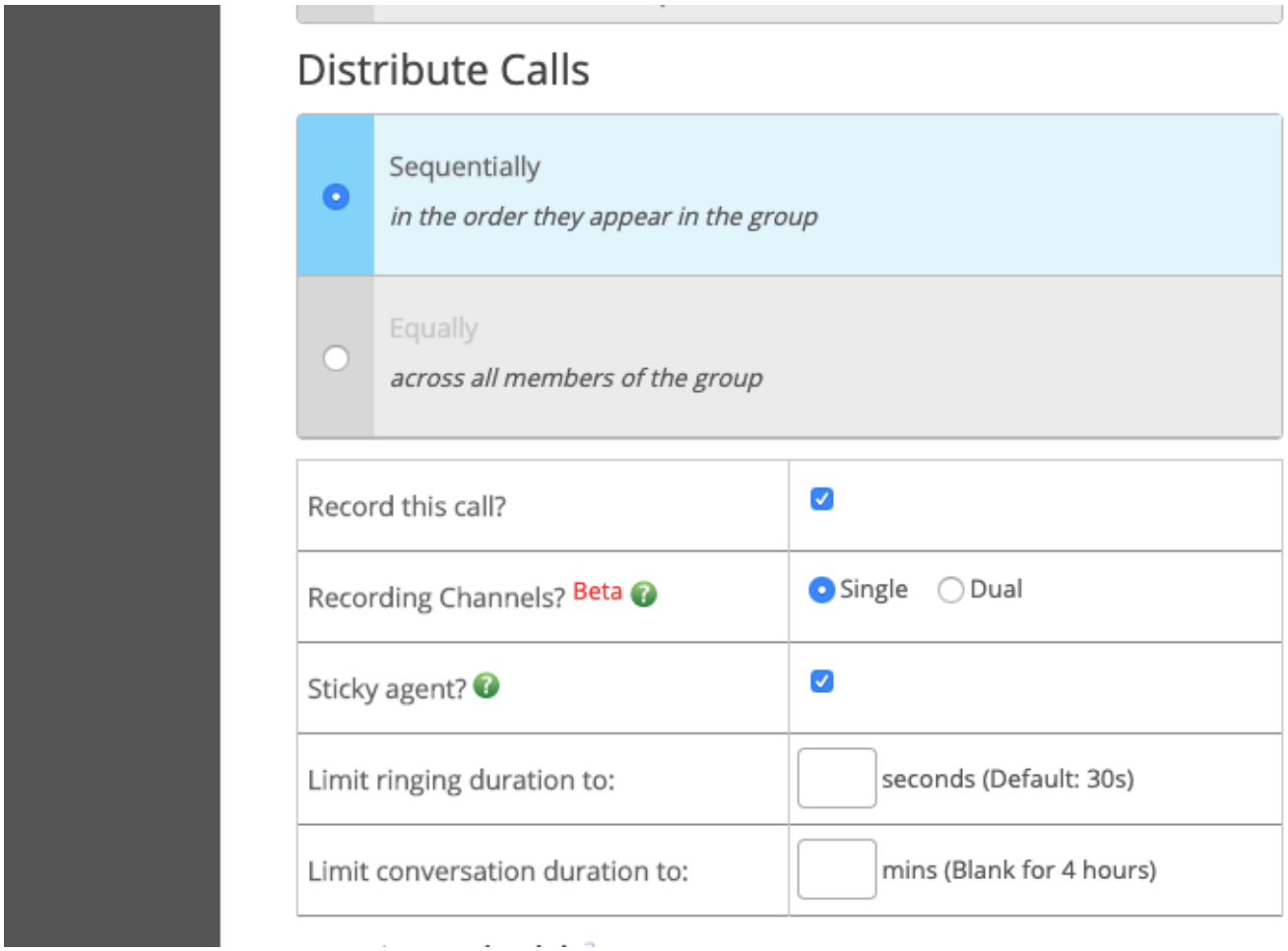
1. Go to the ‘App Bazar’ section and under ‘Custom Apps’ click on the ‘Create’ button
2. Provide the App Name and click on OK.
3. Add a Connect Applet



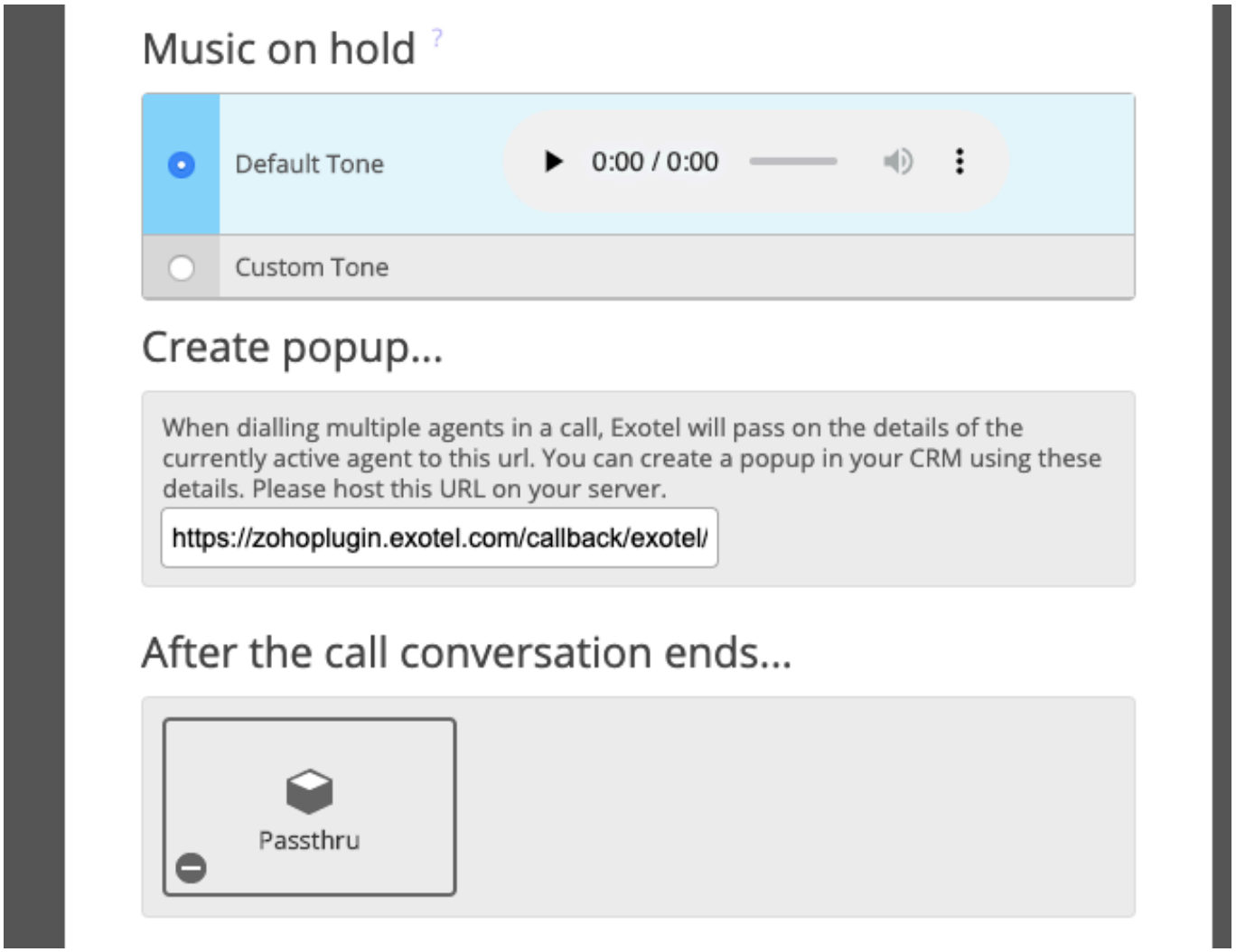
Select the Group as created earlier, under the ‘Dial a user or group’ option.



Under the ‘Distribute Calls’ section, select ‘Sequentially' or'Equally' and other options as per your requirement.



Let ‘Music on Hold’ be set as ‘Default Tone’. If you want Custom Tone, please select it and upload the file to be used.



Under the 'Create popup...' section, enter this URL (modify the Exotel account name in it by your Exotel account name:

https://zohoplugin.exotel.com/callback/exotel/{account_name}/createpopup

Note: Account_name can be taken from the URL just after my.exotel.com/{account_name}

E.g. https://zohoplugin.exotel.com/callback/exotel/exotel001/createpopup

After the Call Conversation ends, add a Passthru. In that passthrough enter this URL (change the account_name):

https://zohoplugin.exotel.com/callback/exotel/{account_name}/incomingcallhungup

Note: The Passthru method should be sync.

In the section 'If Nobody Answers..', select Go To and add a Passthru:

Enter the pass-thru URL (change the account_name) as:

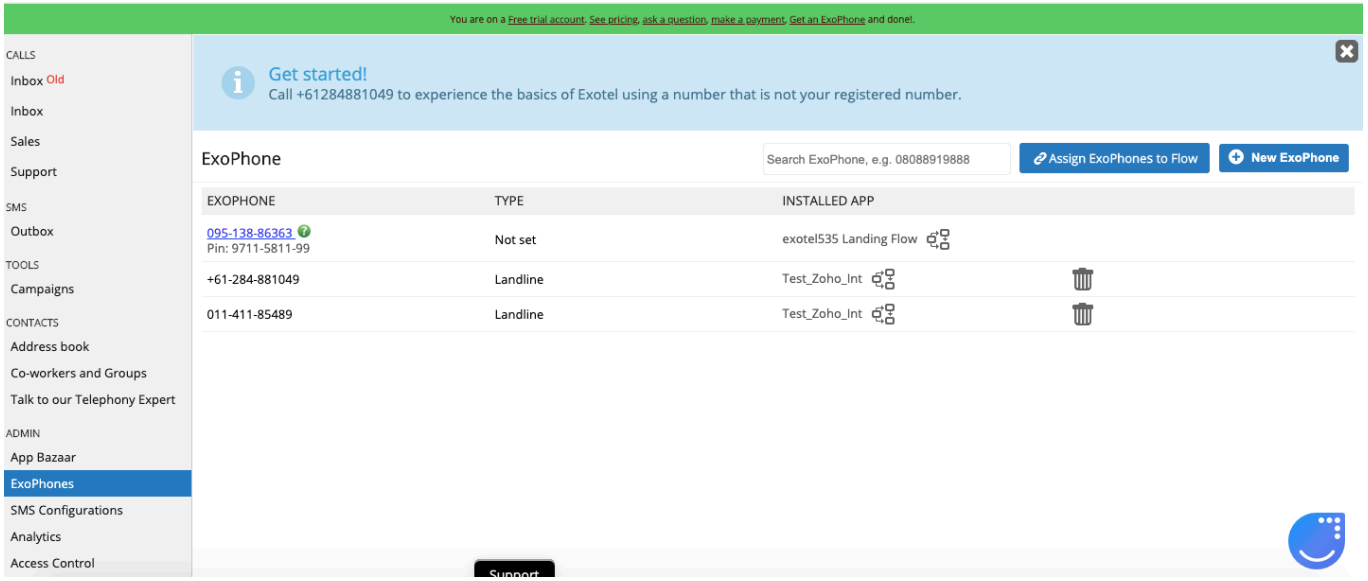
https://zohoplugin.exotel.com/callback/exotel/{account_name}/callmissed

Note: The Passthru method should be sync.

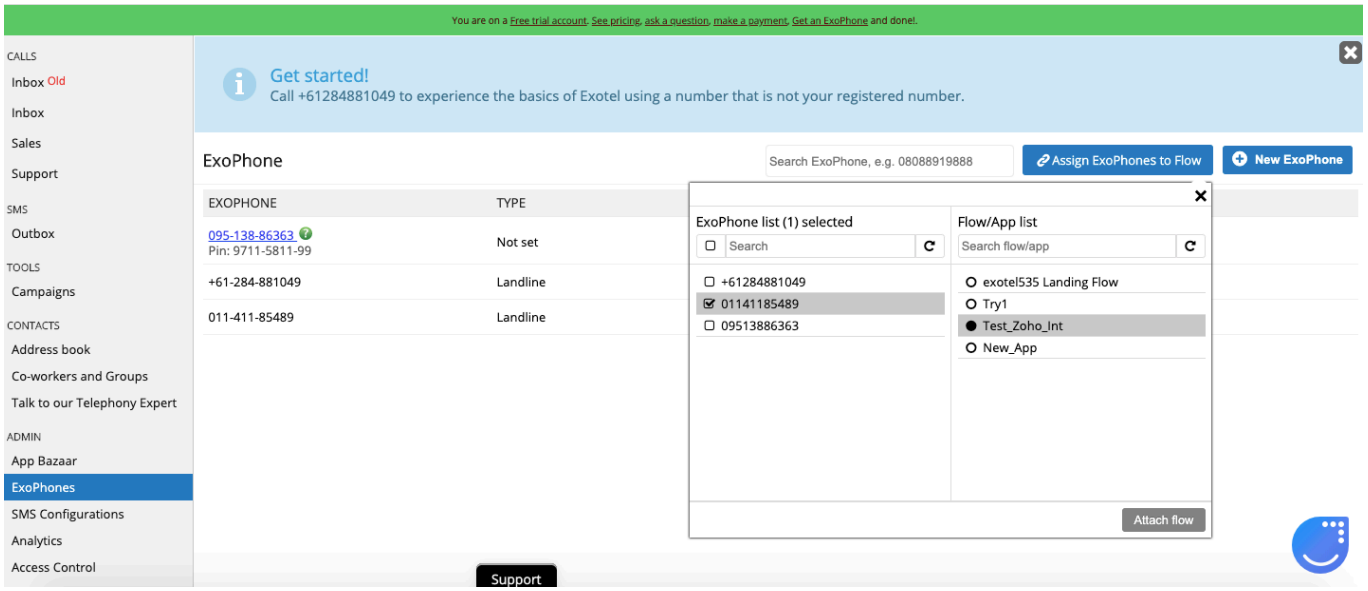
Save the flow and click on Close.

Step 3: Associate the call flow to the ExoPhones

1. Go to the ExoPhones section



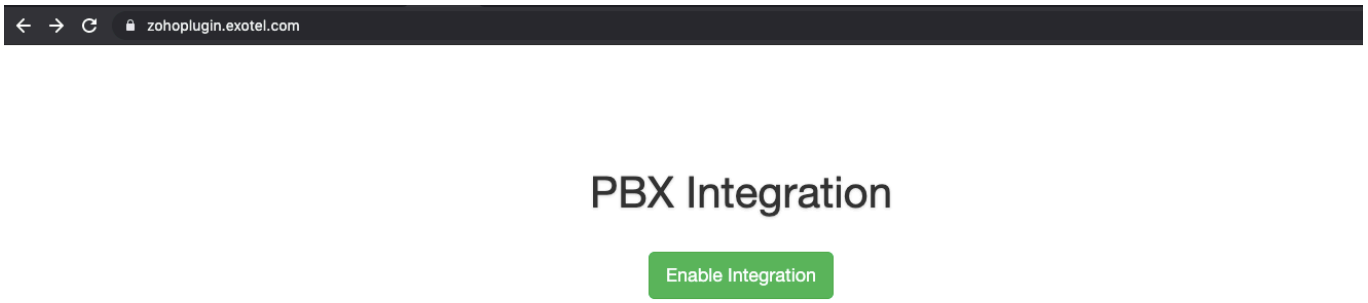
Click on the button 'Assign ExoPhones to Flow' and select the flow created in Step 2 with the ExoPhone and click on 'Attach Flow'



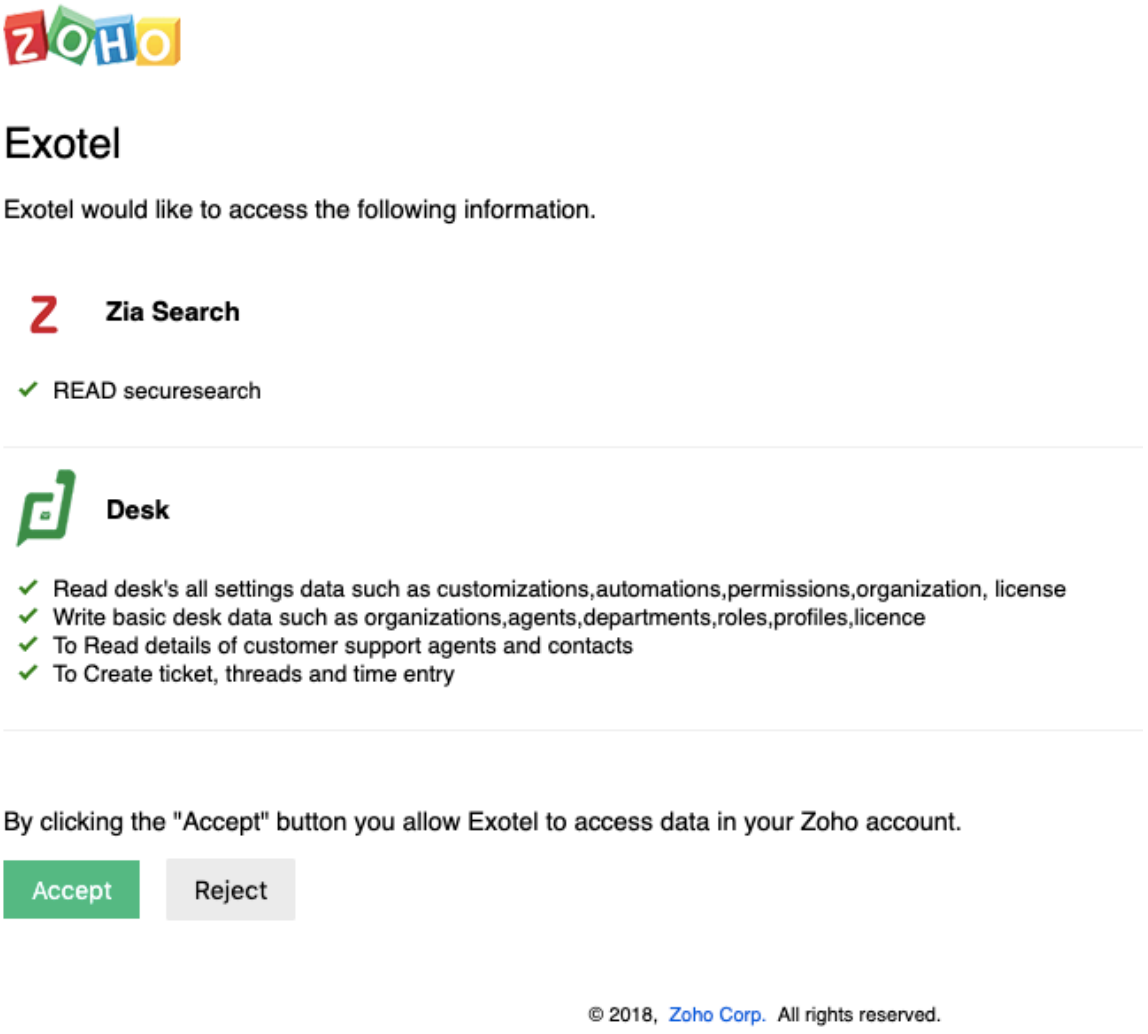
In the subsequent pop-up, click on OK and you can see the flow getting associated to ExoPhone.

Step 4: Enable Integration

1. Go to the Zoho Plugin Integration interface: https://zohoplugin.exotel.com/
2. Click on the 'Enable Integration' button



1. If you are logged in to your Zoho Desk account, it will take you to the Zoho Desk login page. Enter Zoho Desk credentials.
2. Once logged in, it opens up the Access permission page, click on the 'Accept' button (if agreeing to provide the mentioned information access).

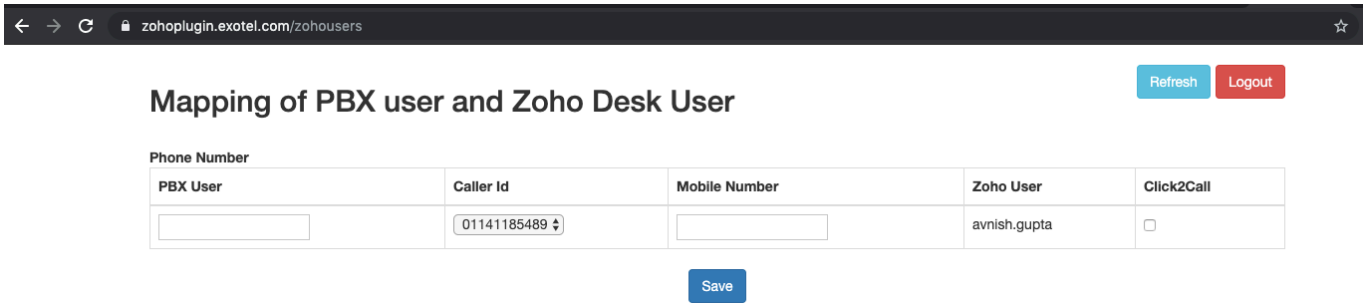


On the 'Exotel Account Details' page, provide the Exotel SID, API Key, and API Token as noted down in Prerequisites step 5, and click on the Save button.

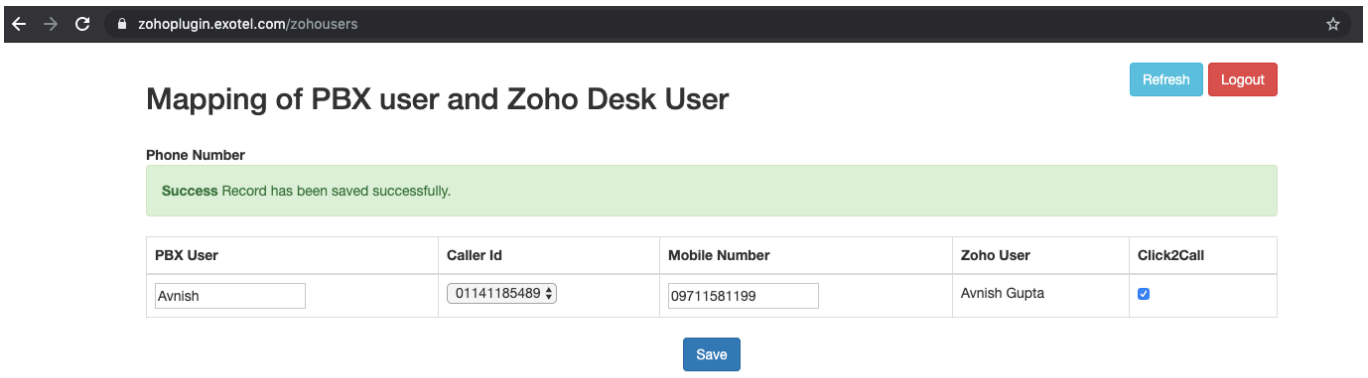
The Integration is enabled and the User Mapping page opens up.

Step 5: Mapping the Zoho Users to Exotel Agents

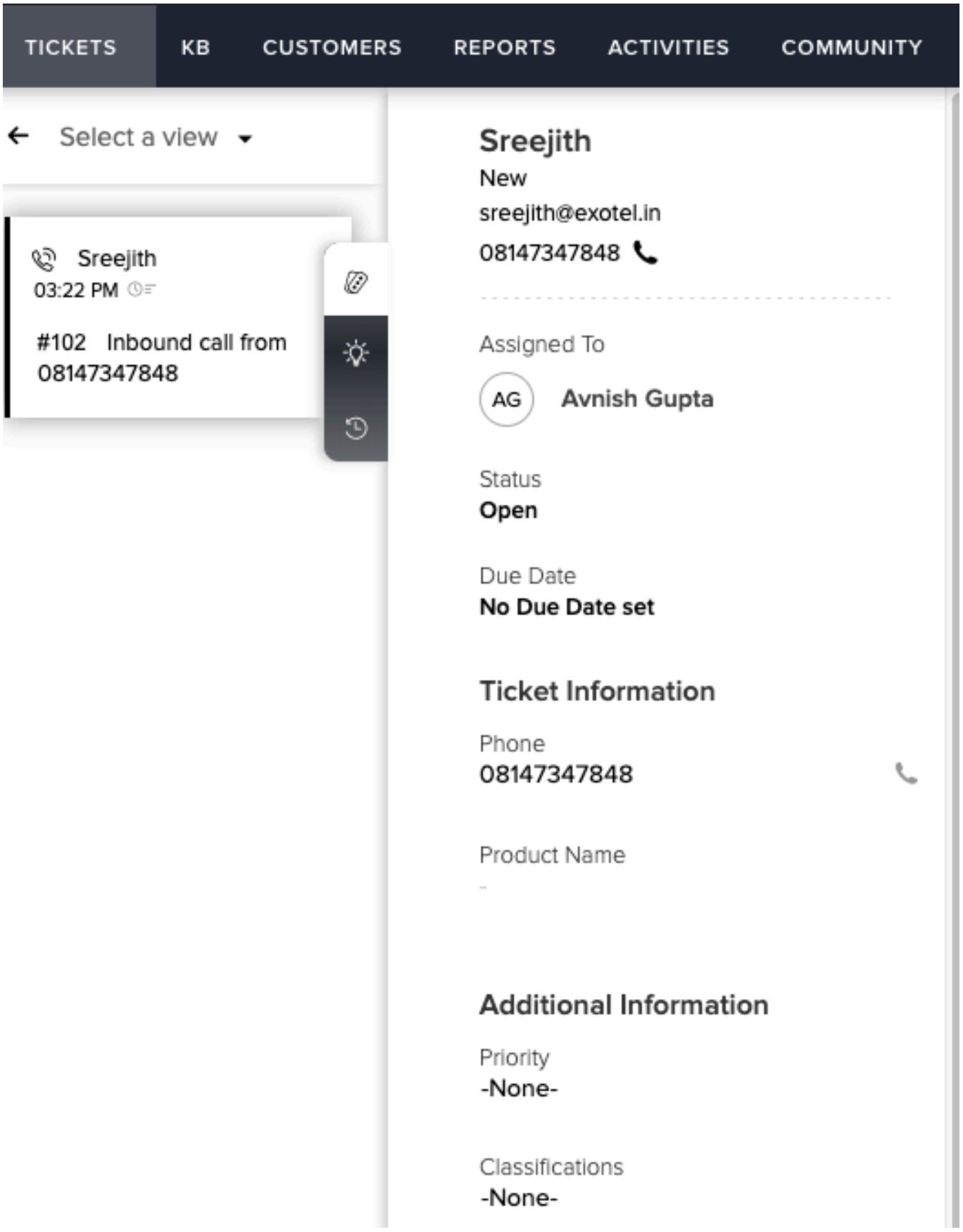
1. On the mapping page, Zoho Users will be auto-populated. Provide details of Exotel Agents (PBX User) and corresponding Mobile Number (prefixed with Zero digits)



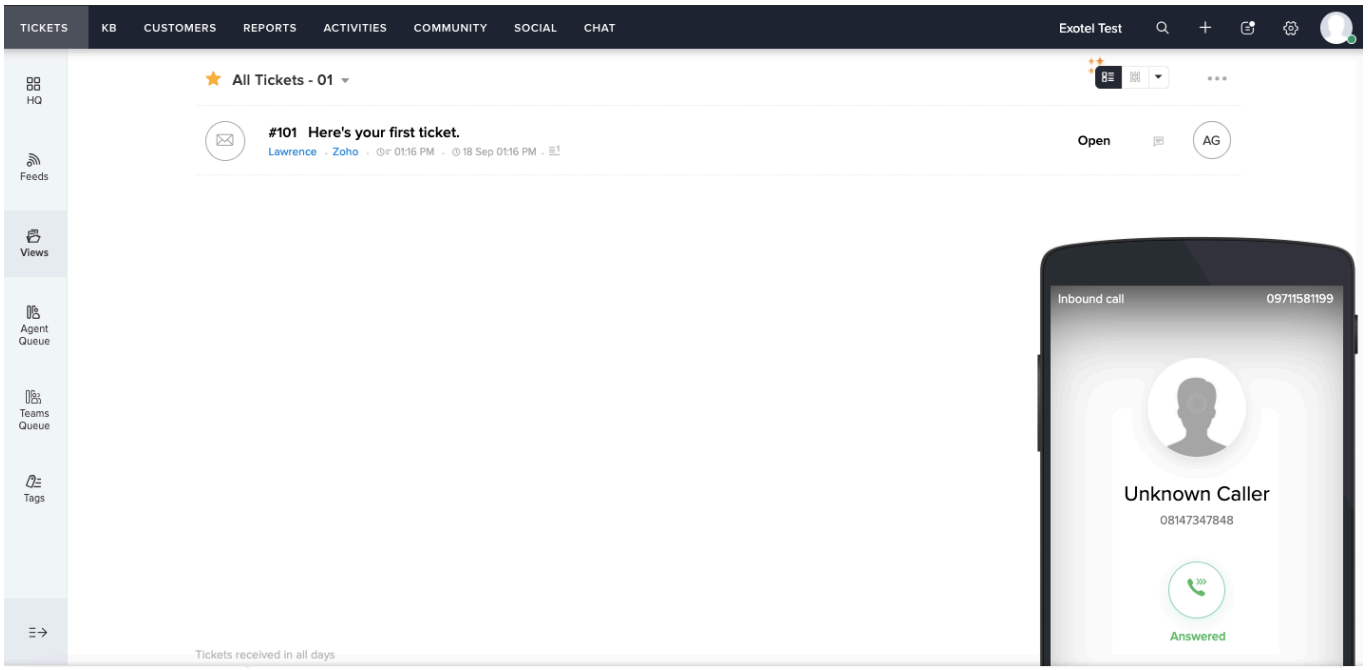
1. Select Caller Id as the Virtual Number, which was mapped to the Zoho Plugin flow.
2. Select the checkbox under Click2Call against the user, for whom you want to enable the initiation of an outbound call from the Zoho Desk interface
3. Click on the 'Save' button and a success message should be displayed.



Go to ZohoDesk (refresh the page, if already logged in) and you can see the Click2Call icon enabled for the Zoho User on initiating an outbound call from there, the pop-up comes up displaying the available information.

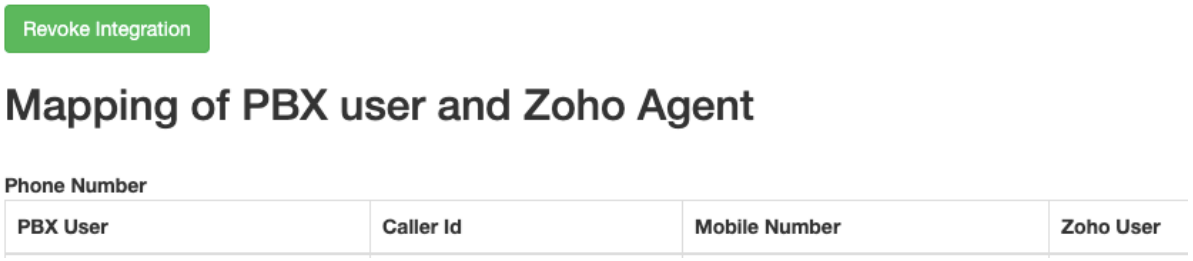


For an Incoming Call, the pop-up will come up showing the calling number:



Known Limitation:

- **On-Call Events**: For both Incoming Call and Outbound Call pop-ups, the call events (like CallAnswered, Ringing, S



4.7.2. Integration With Zoho CRM (PSTN and VoIP)

Exotel is a highly secure, reliable, and scalable cloud-based telephony system. It enables businesses to set up Customer Call Centres without any hassle of physical infrastructure. The marque capabilities like Number Masking, Multi-Level IVR, Click-2-Call, Missed Call solution, COD, VoIP calling etc. helps businesses to achieve their telephony needs all in one place.

By integrating Exotel with Zoho CRM, you can get intimation of Incoming Calls and initiate an Outbound call using our Click-2-Call feature, all from the Zoho CRM interface. The seamless integration of a call with Zoho CRM Contacts, Events & Tasks, saves agents from context switching and improves their productivity.

Exotel Benefits

With the Exotel - Zoho CRM Integration, you can:

- **Call Intimation** - Get the notification on your Zoho CRM screen, whenever any Incoming call comes on to your customer-facing Exotel Number.
- **Follow-Up** - Ability to create a new Task, Event, or Call as a follow-up after every Incoming Call.
- **Click2Call** - Initiate a call directly from the Zoho CRM Dashboard from Contacts, Missed Calls, and other relevant sections.
- **VoIP** - By adding the SIP IDs in the User mapping page, you can enable your agents to make VoIP calls directly from Zoho.
- **User Mapping & Bulk Upload** - Map the Exotel Users to Zoho CRM Users and enable Click2Call selectively. You can do a bulk upload of user mapping and save time.
- **Recordings** - Call Recordings getting automatically added to the completed calls
- **Missed Calls** - Missed Calls automatically get added under **Activities and Calls**
- **Productivity** - Work on just one interface (Zoho CRM) and improve your productivity by eliminating context-switching.

Prerequisites

In order to have a successful integration with the Zoho CRM account, you must complete the following tasks:

1. Sign up for an Exotel Account.
2. Verify your account through phone or email.
3. Get your account KYC verified.
4. Purchase ExoPhone to be used by Zoho CRM users/agents for inbound and outbound calls.
5. From the API section, make a note of Account SID, API Key, and API Token.

NOTE - For VoIP calling, you need to have a Veeno account. If you have a normal Exotel Account, VoIP calling cannot be enabled on that, you would have to create a new Veeno account.

Setting up of Exotel Integration

In order to set up the integration, follow these five steps:

1. Create Co-Workers and Group
2. Configure Zoho CRM Call flow
3. Associate the call flow to the ExoPhones
4. Enable Integration via https://zohocrmplugin.exotel.com/

Map the Zoho CRM Users to Exotel Co-Workers in the Integration interface and enable Click-2-Call (if required)

Step 1: Create Co-Workers and Group

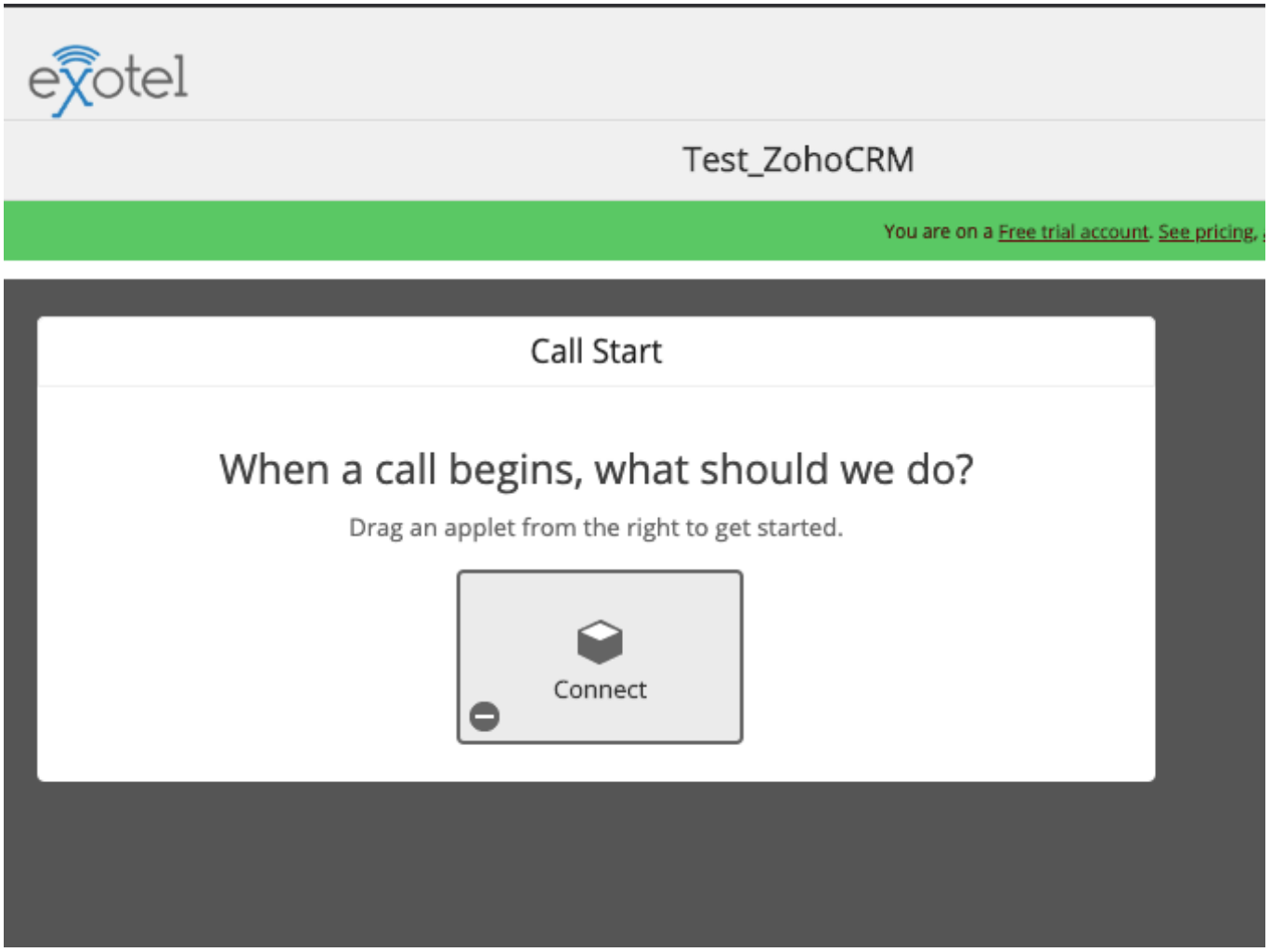
To create co-workers and groups in Exotel:

1. Login via my.exotel.com, go to the ‘Co-workers and Groups’ section
2. Add all the co-workers corresponding to Zoho account, by clicking on Invite co-workers
3. Create a new group, by clicking ‘Add Group’ and adding all the co-workers in that group

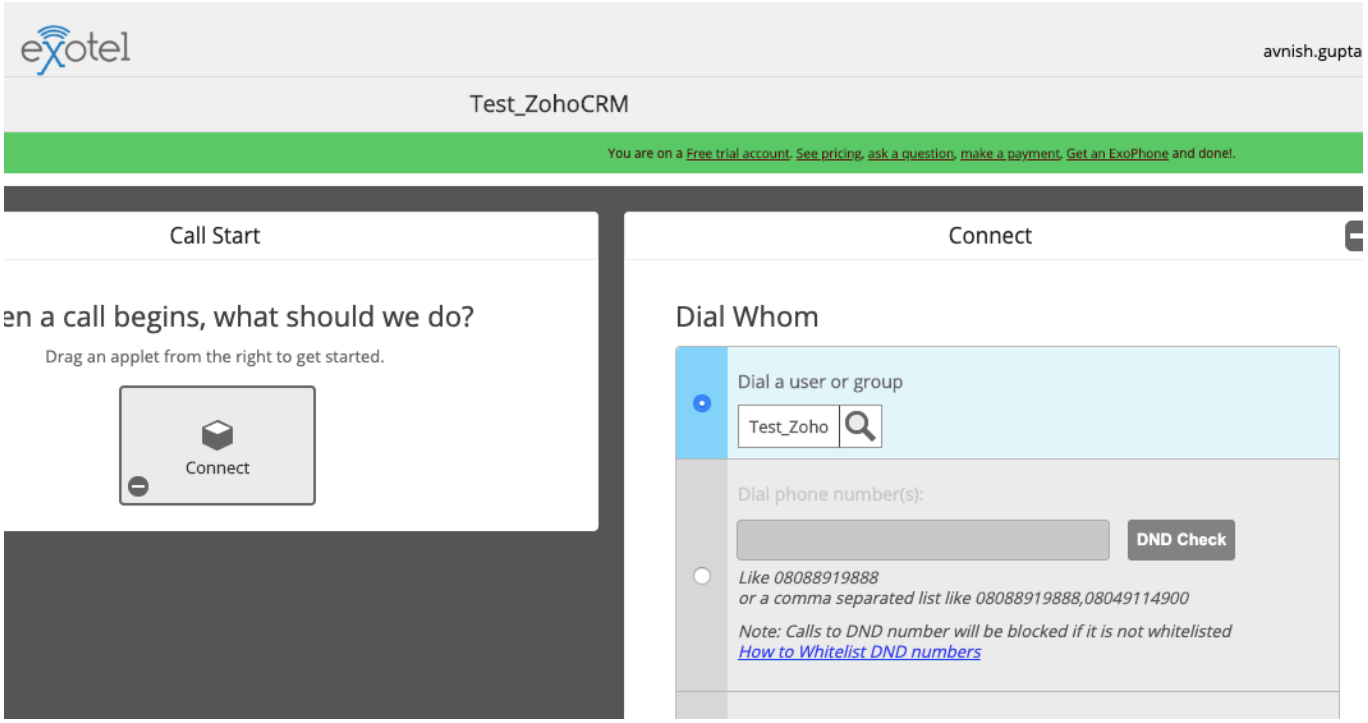
Step 2: Configure Zoho Plugin Call flow

In order to create the Zoho Plugin Call flow, follow these five steps:

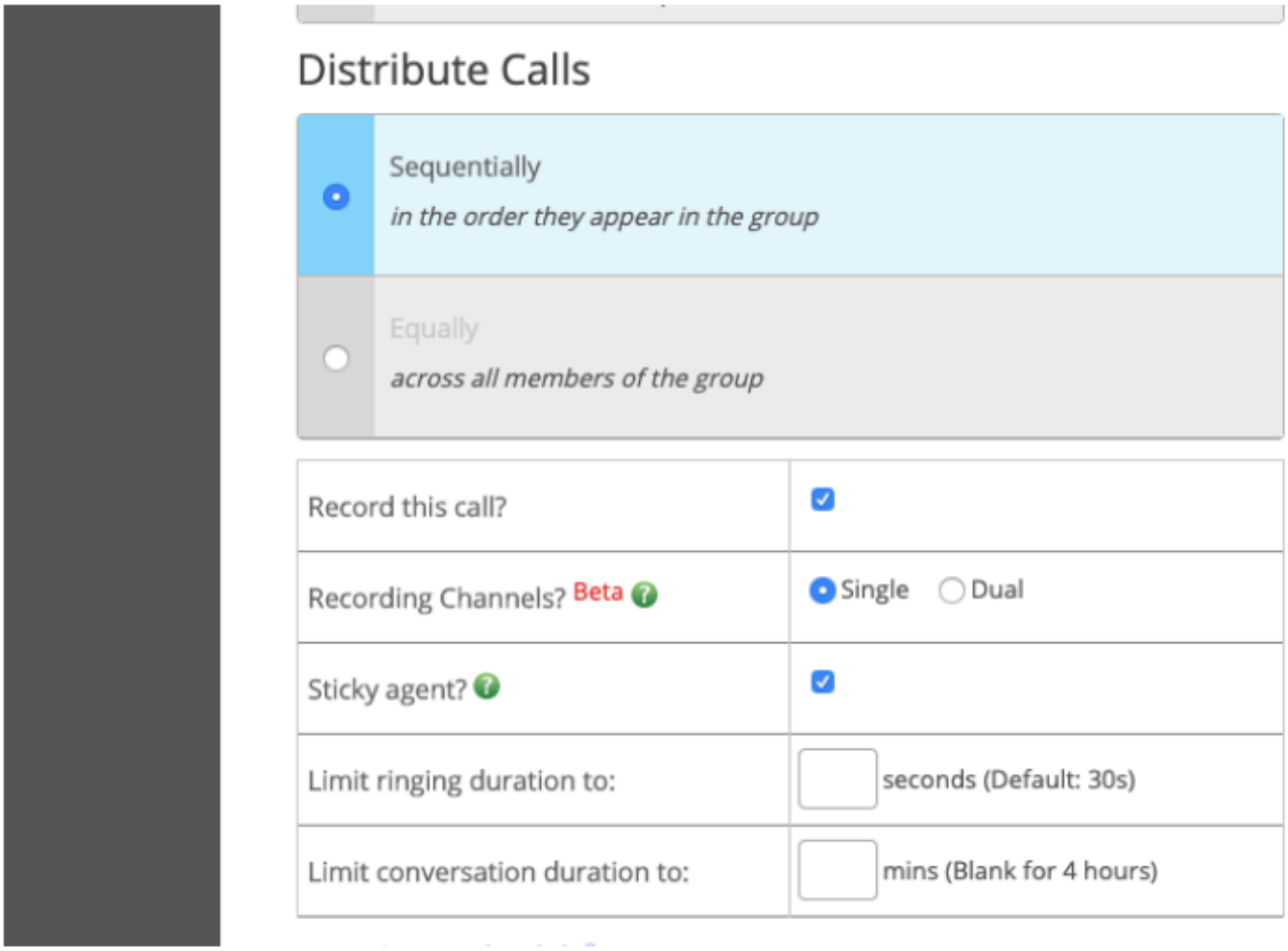
1. Go to the 'App Bazar' section and under 'Custom Apps' click on the 'Create' button
2. Provide the App Name and click on OK.



Add a Connect Applet



Select the Group as created earlier, under the ‘Dial a user or group’ option.



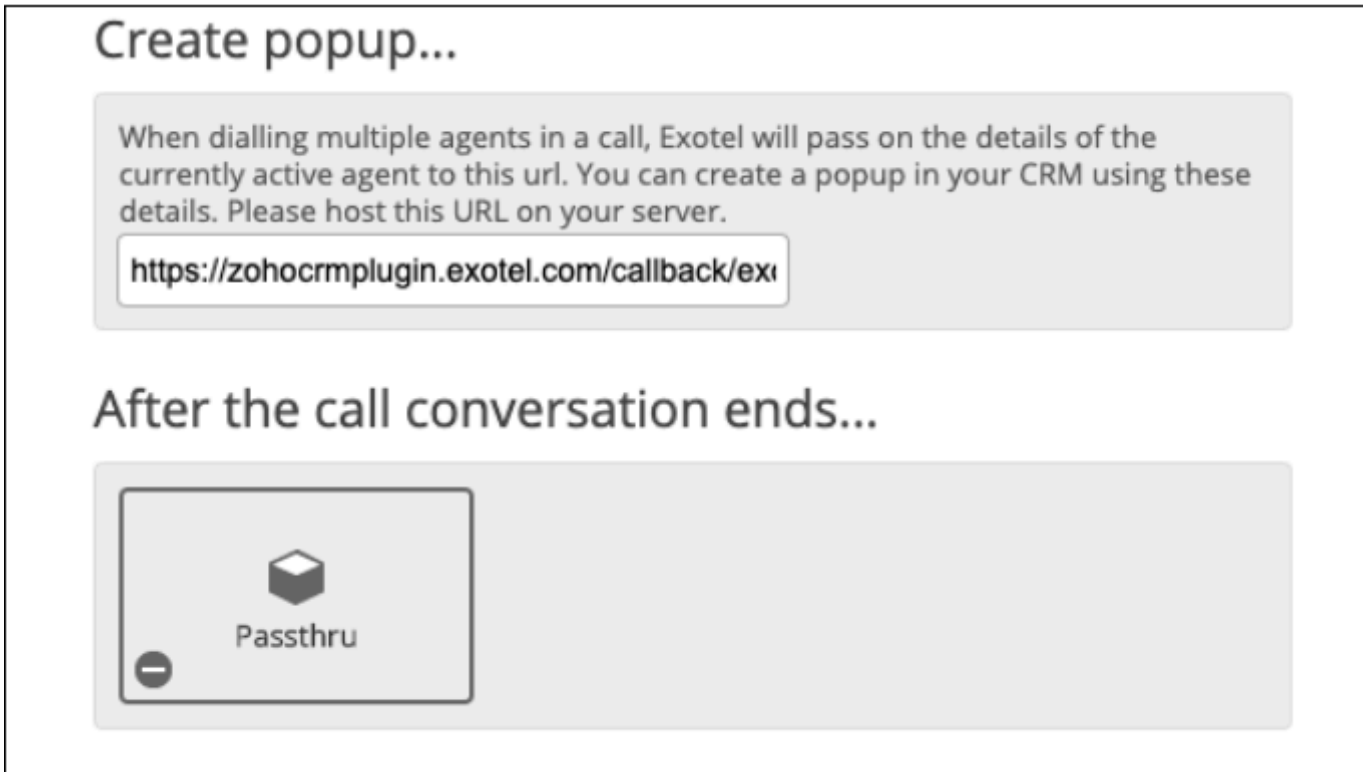
Under the ‘Distribute Calls’ section, select ‘Sequentially’ or 'Equally' and other options as per your requirement.

1. Let ‘Music on Hold’ be set as ‘Default Tone’. If you want a Custom Tone, please select it and upload the file to be used.
2. Under the ‘Create popup...’ section, enter this URL (modify the Exotel account name in it by your Exotel account name:

https://zohocrmplugin.exotel.com/callback/exotel/{account_name}/createpopup

Note: Account_name can be taken from the URL just after my.exotel.com/{account_name}

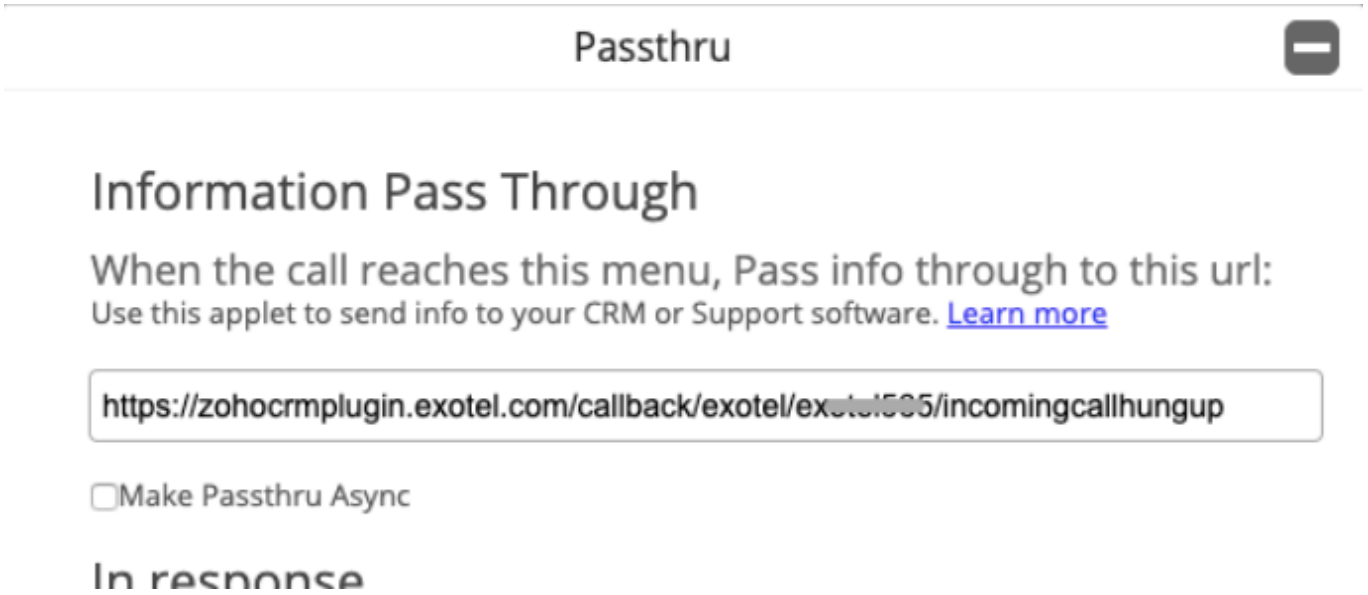
E.g. https://zohocrmplugin.exotel.com/callback/exotel/exotel001/createpopup



After the Call Conversation ends, add a Passthru. In that passthrough enter this URL (change the account_name):

https://zohocrmplugin.exotel.com/callback/exotel/{account_name}/incomingcallhungup

Note: The Passthru method should be sync.

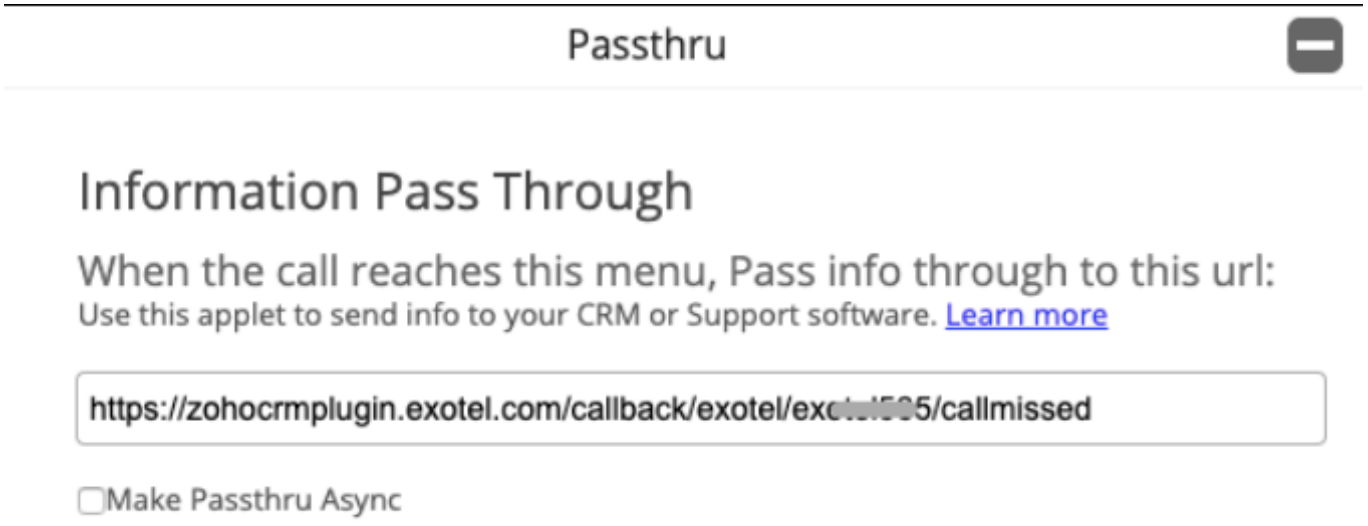


In the section 'If Nobody Answers..', select Go To and add a Passthru applet.

Enter the pass-thru URL (change the account_name) as:

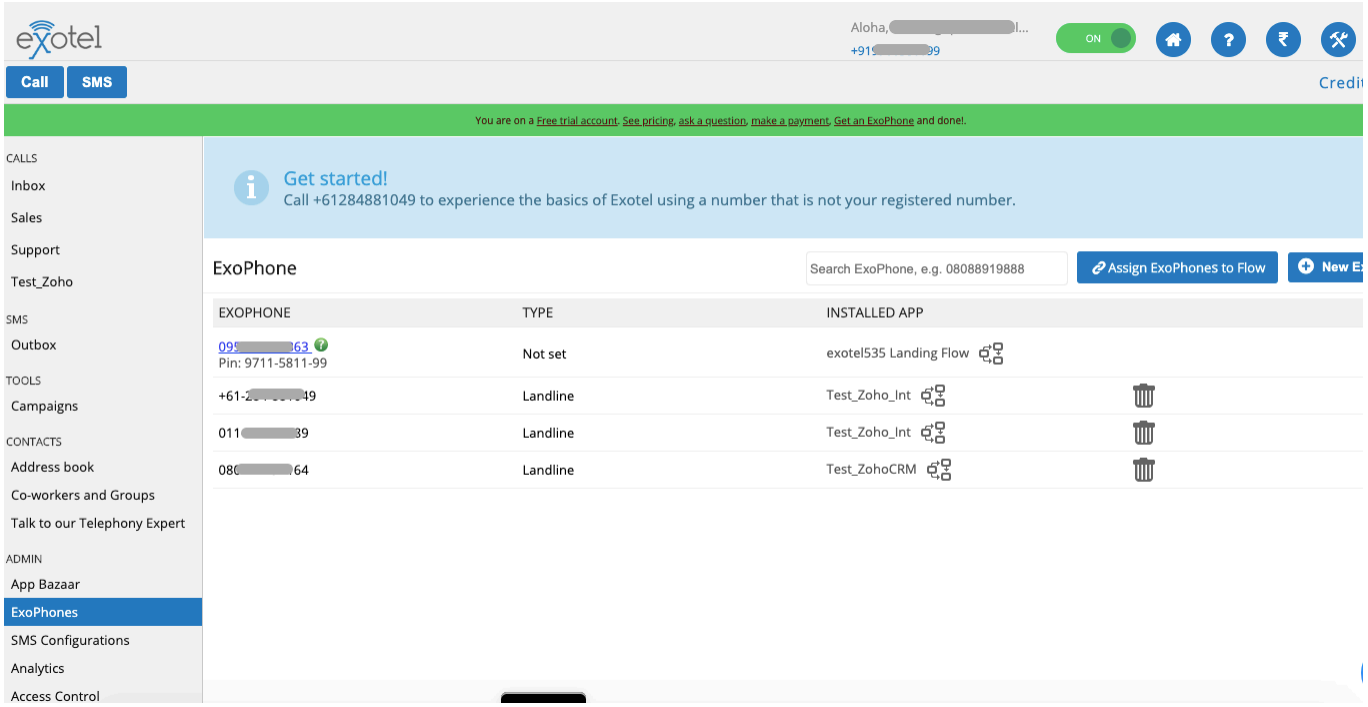
https://zohocrmplugin.exotel.com/callback/exotel/{account_name}/callmissed

Note: The Passthru method should be sync.

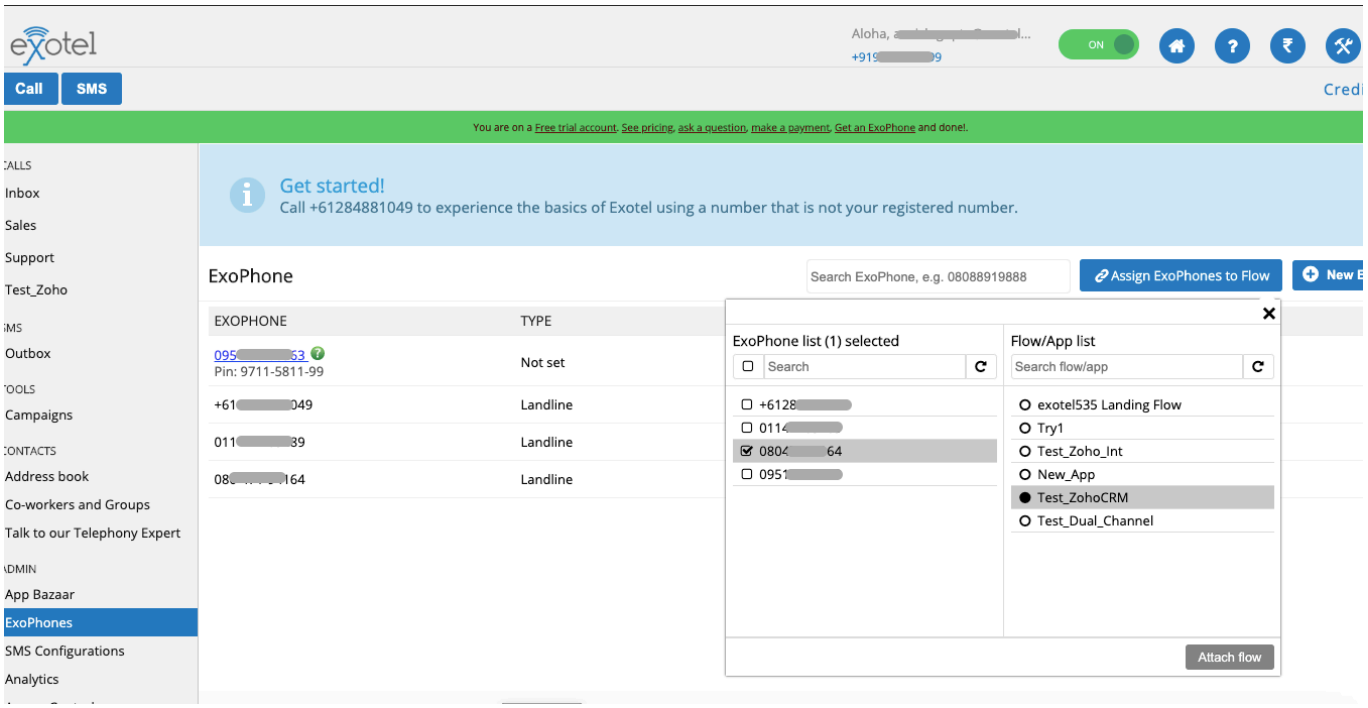


Save the flow and click on Close.

Step 3: Associate the call flow to the ExoPhones



Go to the ExoPhones section

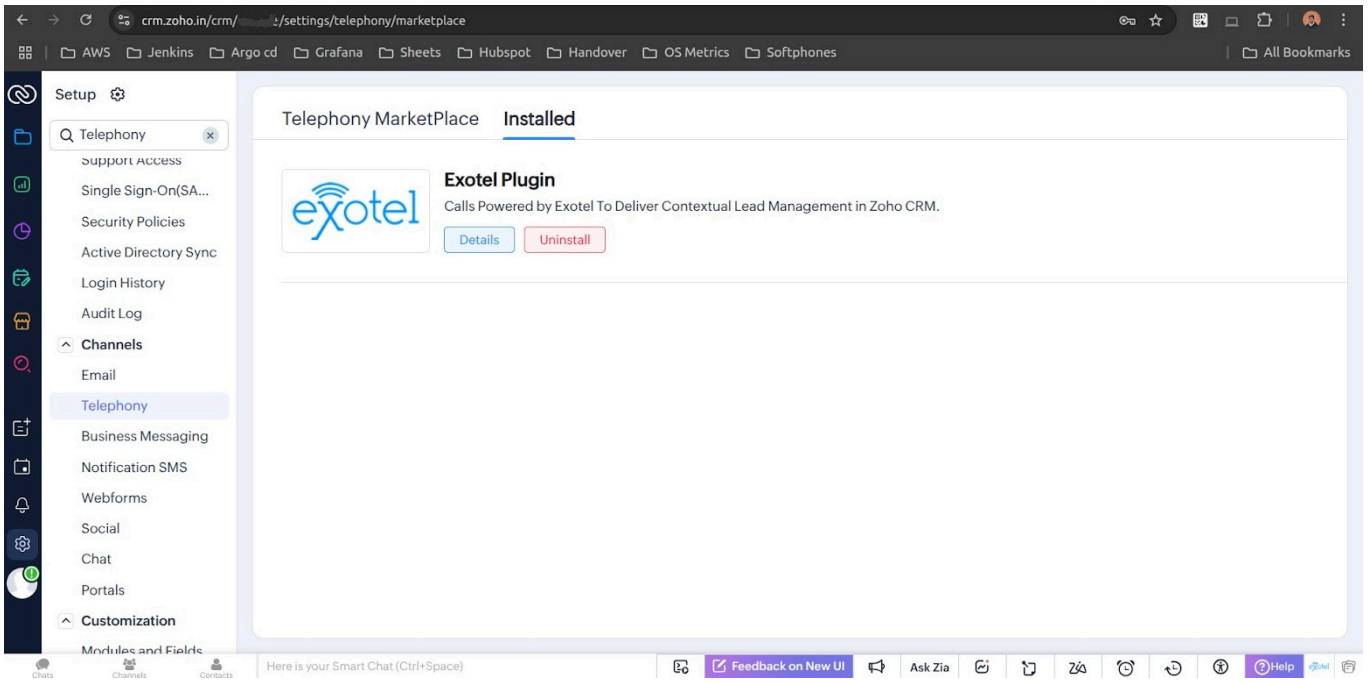


Click on the button ‘Assign ExoPhones to Flow’ and select the flow created in Step 2 with the ExoPhone and click on ‘Attach Flow’

In the subsequent pop-up, click on OK, and you can see the flow getting associated with ExoPhone.

Step 4: Enable Integration

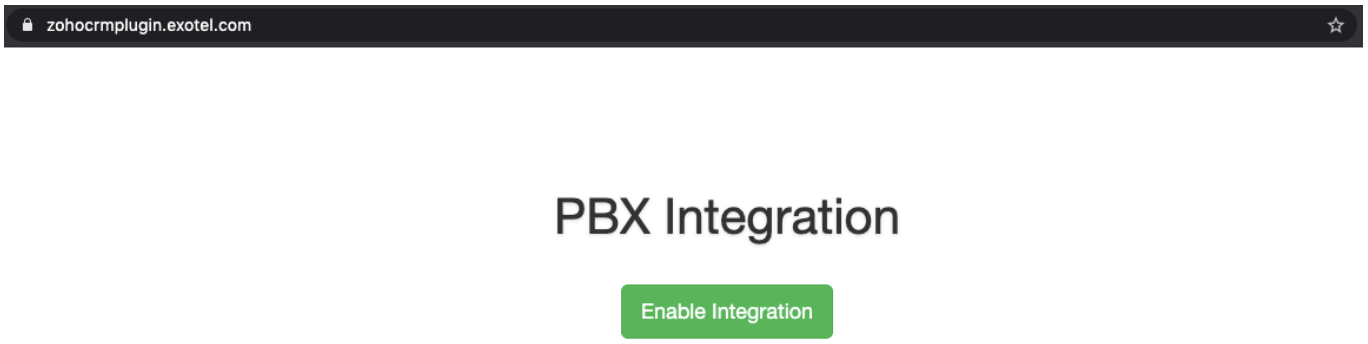
1. Navigate to **Setup** > **Channels** > **Telephony** and install the Exotel plugin in Zoho CRM



2. Next, go to the Zoho Plugin Integration interface:

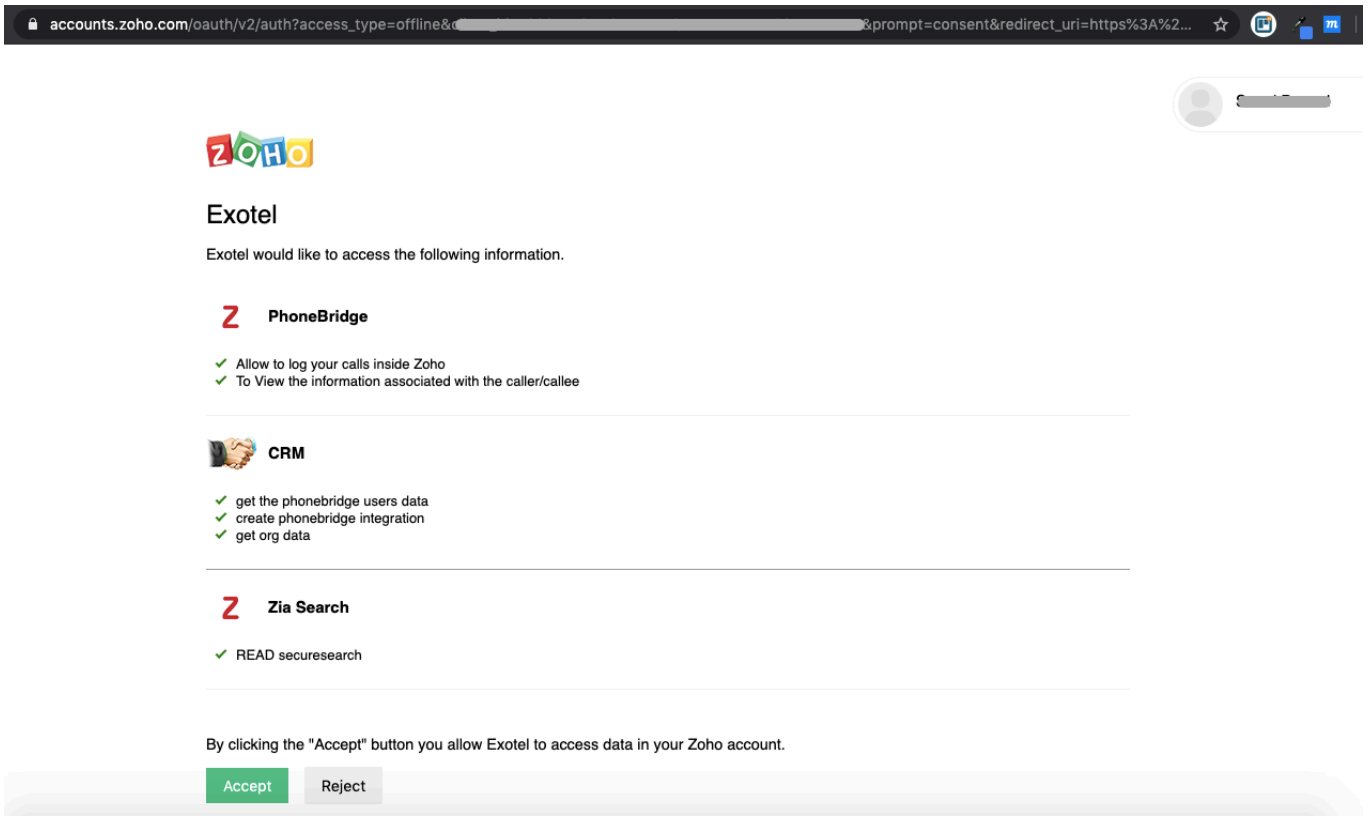
PBX Integration

3. Enter your Exotel Account SID and stamp (Can be found under My Account section on your dashboard), click on the Submit button. On the subsequent page, click on the ‘Enable Integration’ button.

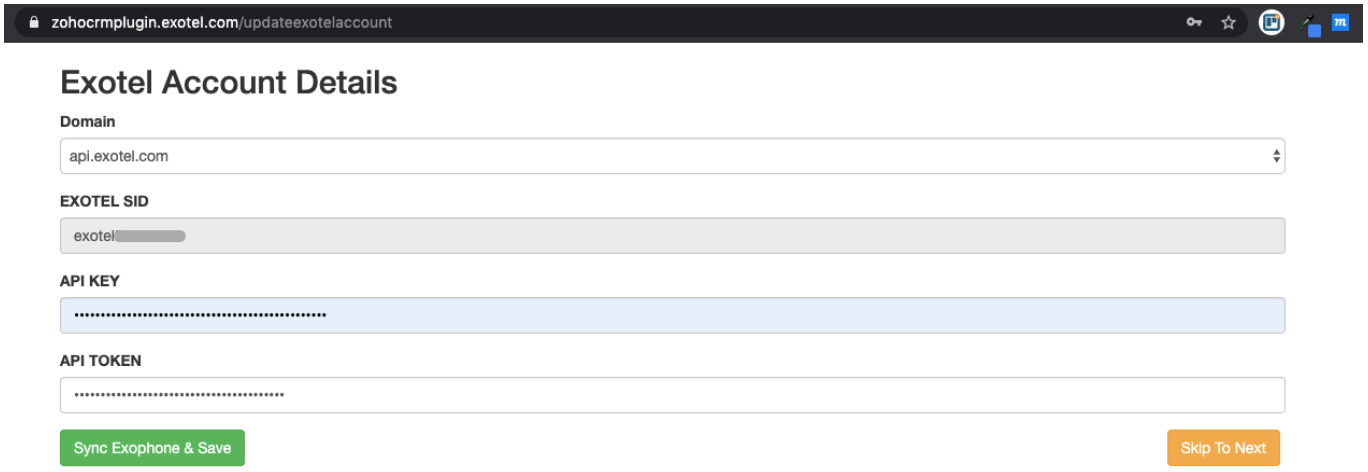


4. If you are not logged in to your Zoho CRM account, it will take you to the Zoho CRM login page. Enter Zoho CRM credentials.

5. Once logged in, it opens up the Access permission page, and click on the ‘Accept’ button (if agreeing to provide the mentioned information access).



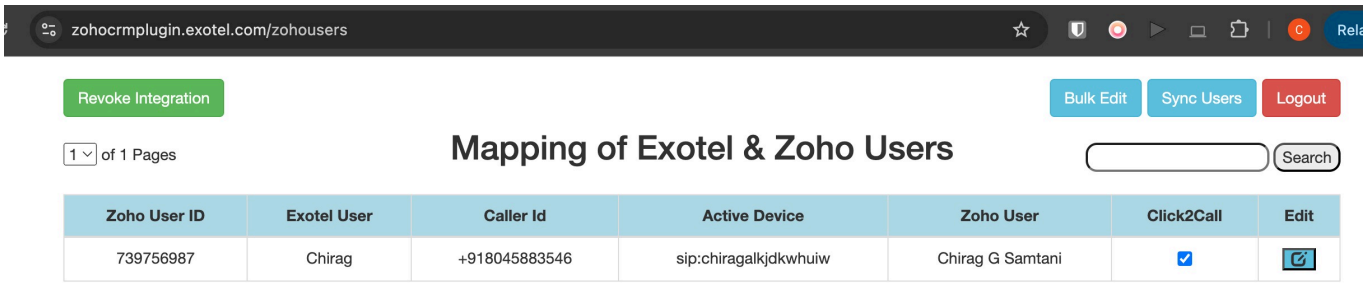
6. On the 'Exotel Account Details' page, provide the API Key, and API Token as noted down in Prerequisites step 5, and click on the Save button



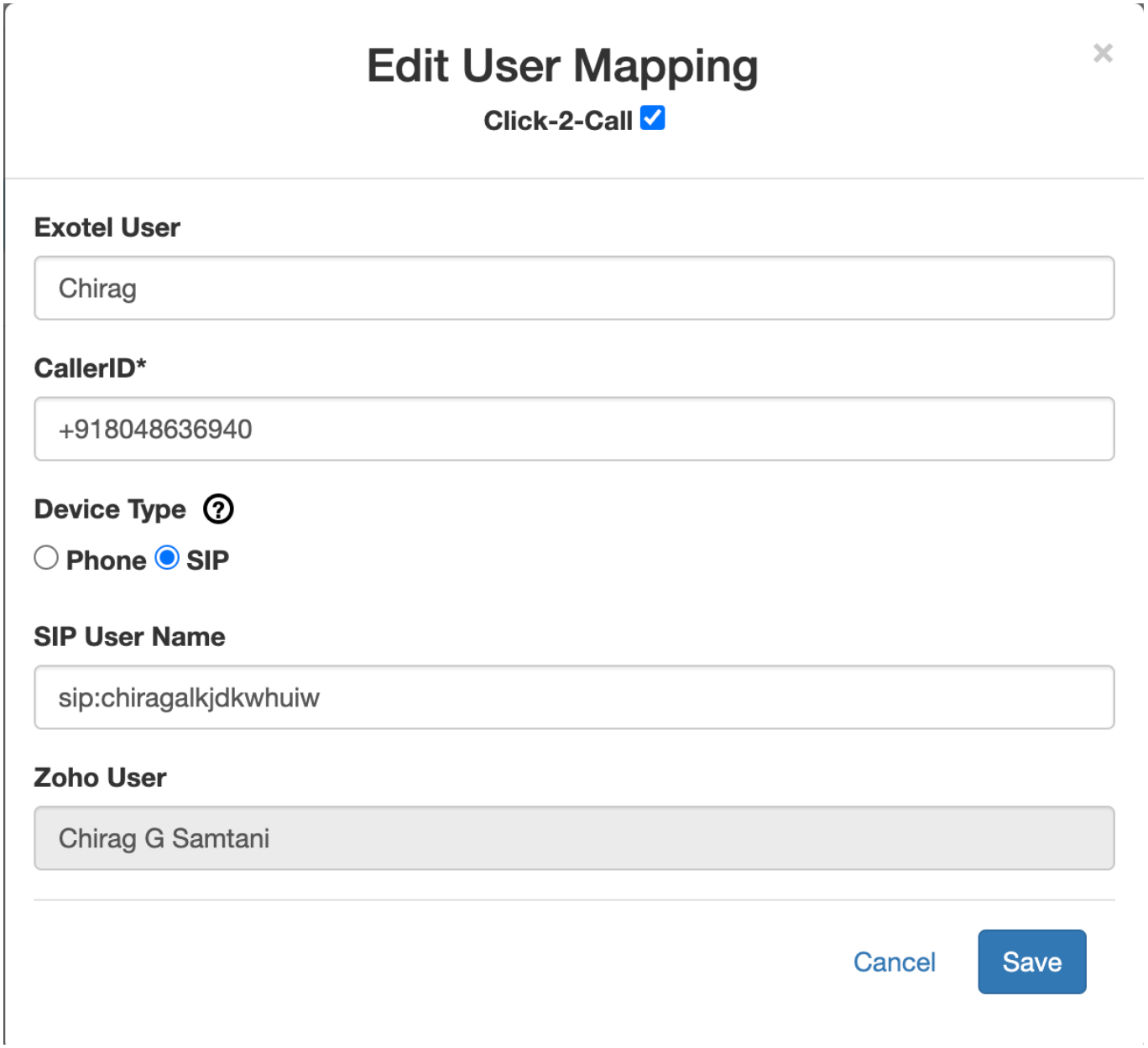
6. The Integration is enabled and the User Mapping page opens up.

Step 5: Mapping the Zoho Users to Exotel Agents

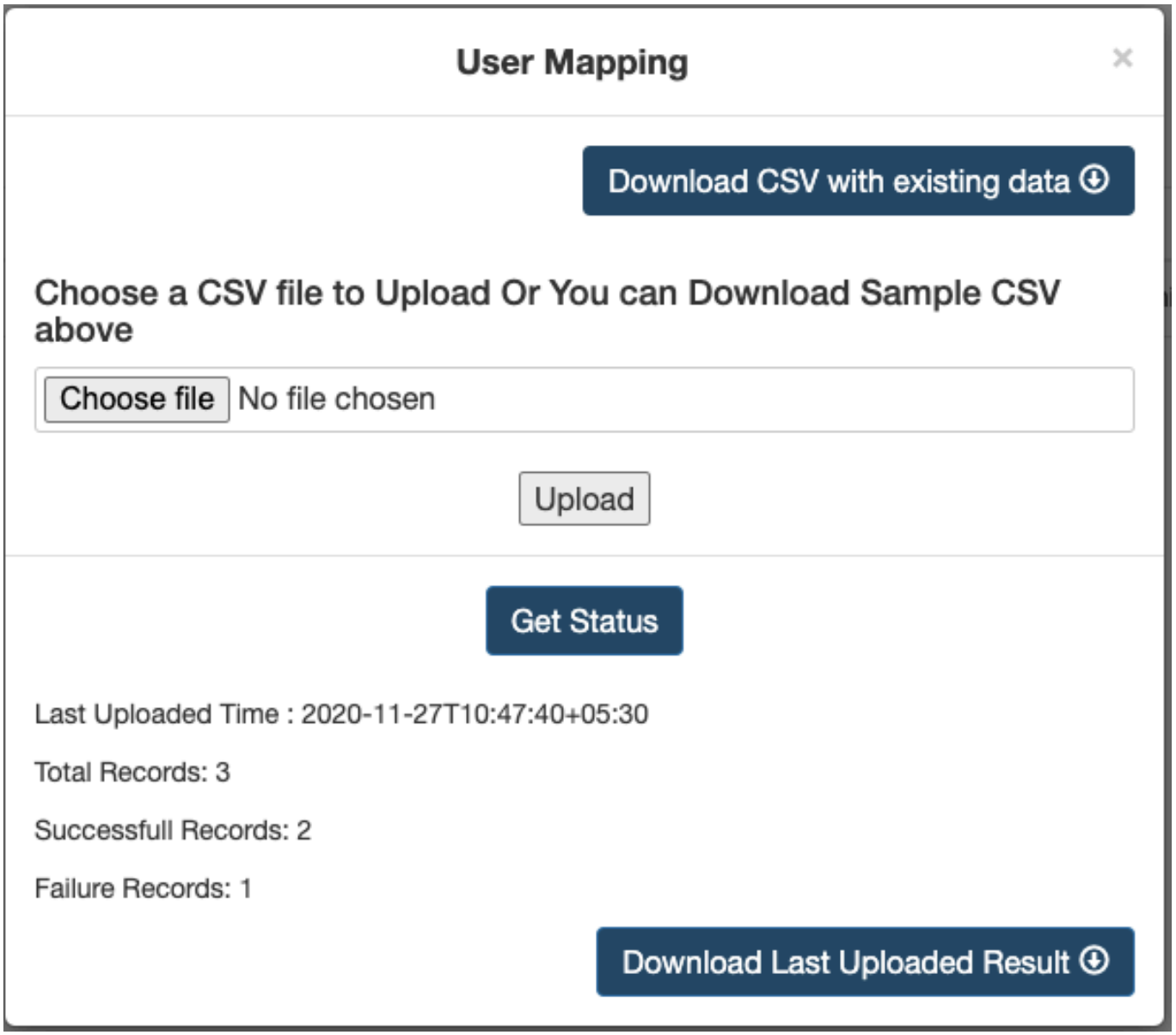
1. On the mapping page, Zoho Users will be auto-populated. Provide details of Exotel Agents (PBX User) and corresponding Mobile Number (prefixed with Zero digits) or SIP ID (For VoIP calling)



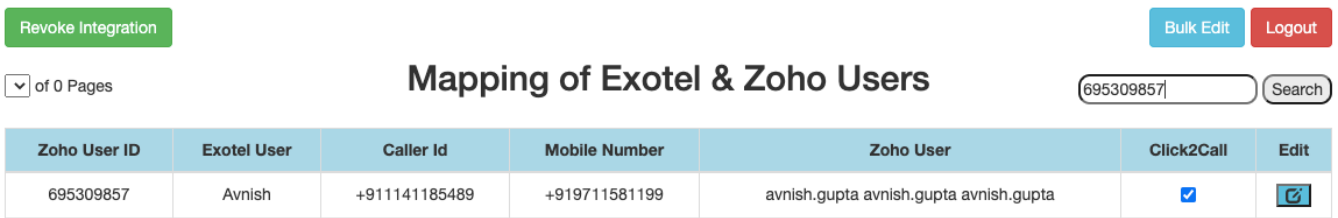
2. Click on the Edit button against each user and enter the details as required.



3. If handling a large number of users, make use of the 'Bulk Upload' capability. Download the sample CSV file with already populated values, edit it with the required values, and upload it back. Track for the live upload status on the same popup.



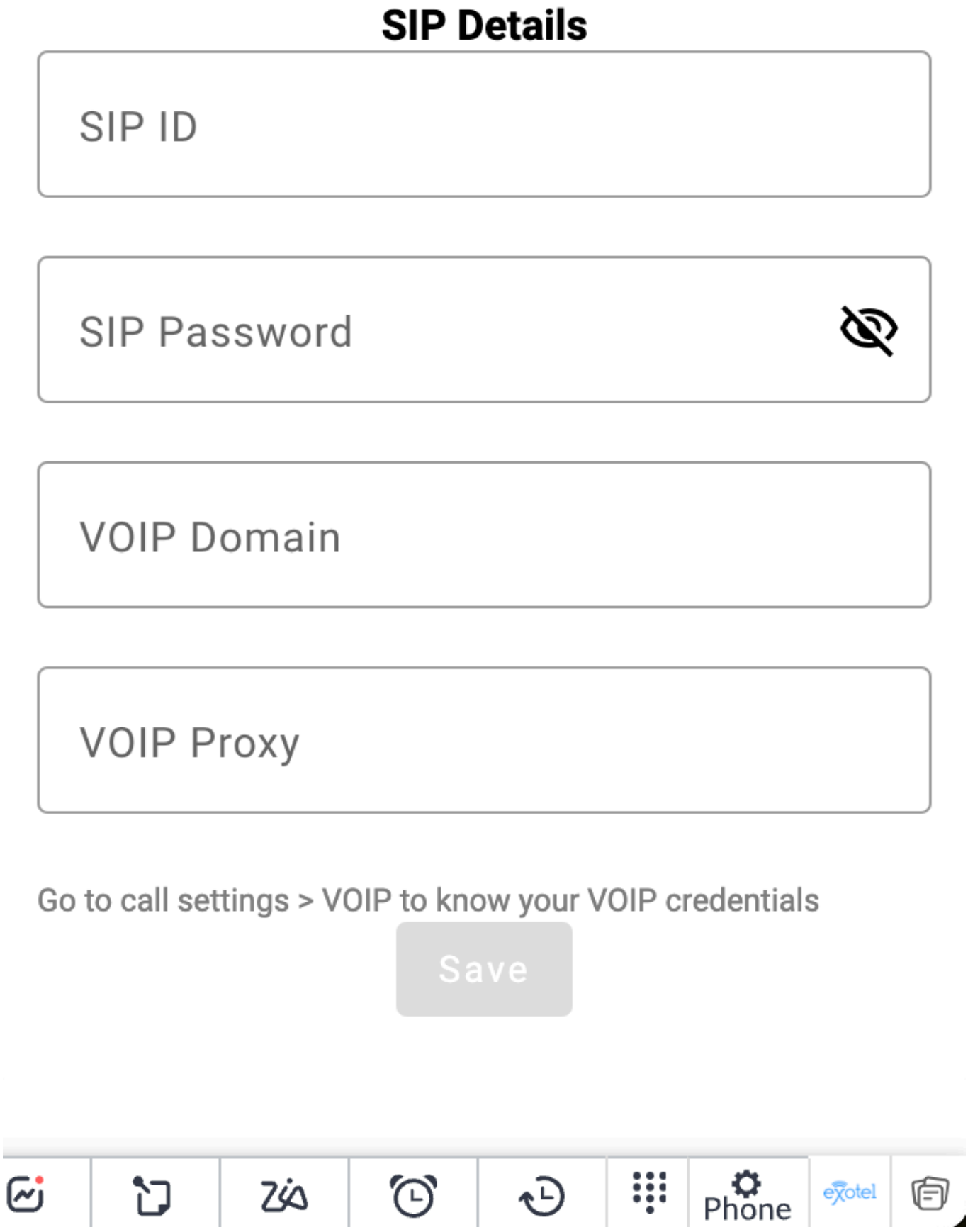
1.



You can navigate across pages using the pagination option or Search a specific user by Zoho User ID, Zoho User Name or Mobile Number.

Step 6: Setup for VoIP calling

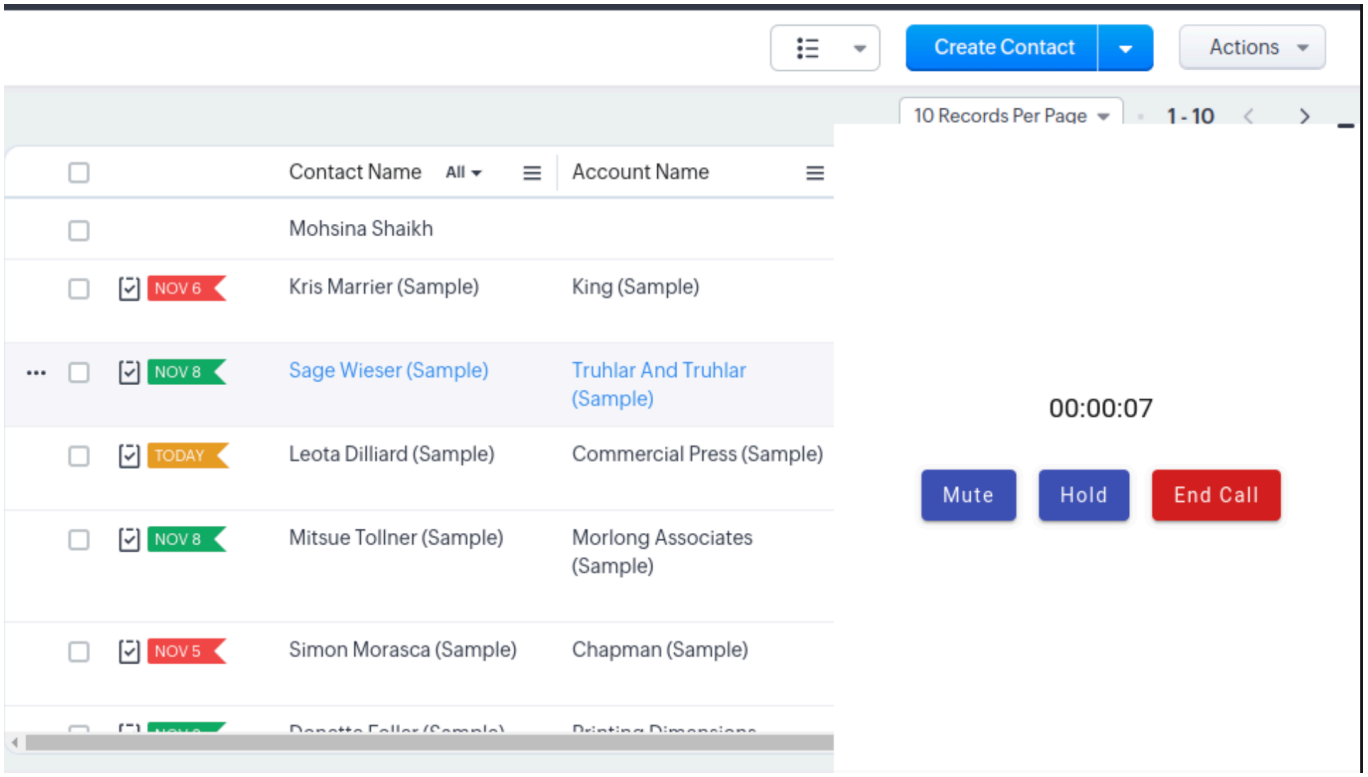
All your agents would have to set up their VoIP Phone on their browsers. They need to start by clicking on the Exotel icon in the bottom right corner



Once, they click that icon, they will see a popup where they will need to enter their VoIP details. These details can be obtained from the `My Account` > `VoIP` page from the dashboard. They can reset their VoIP Password and enter it in the SIP password field. Please

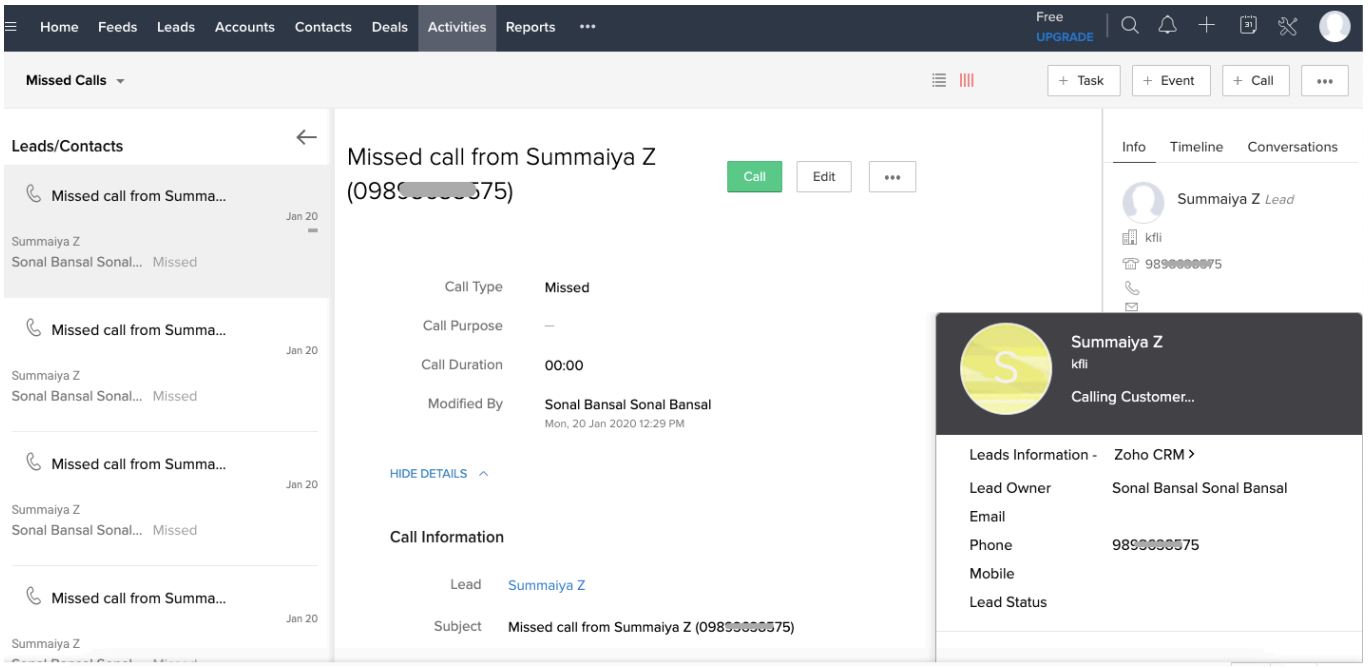
note that you need to prefix your VoIP username and then enter it in the SIP ID field. For example - if your VoIP username in your dashboard is vijaykb3d615ce, enter sip:vijaykb3d615ce in the SIP ID field on Zoho

3. Once you're on a call, the VoIP popup would look like the following where you can mute, hold and disconnect the call.

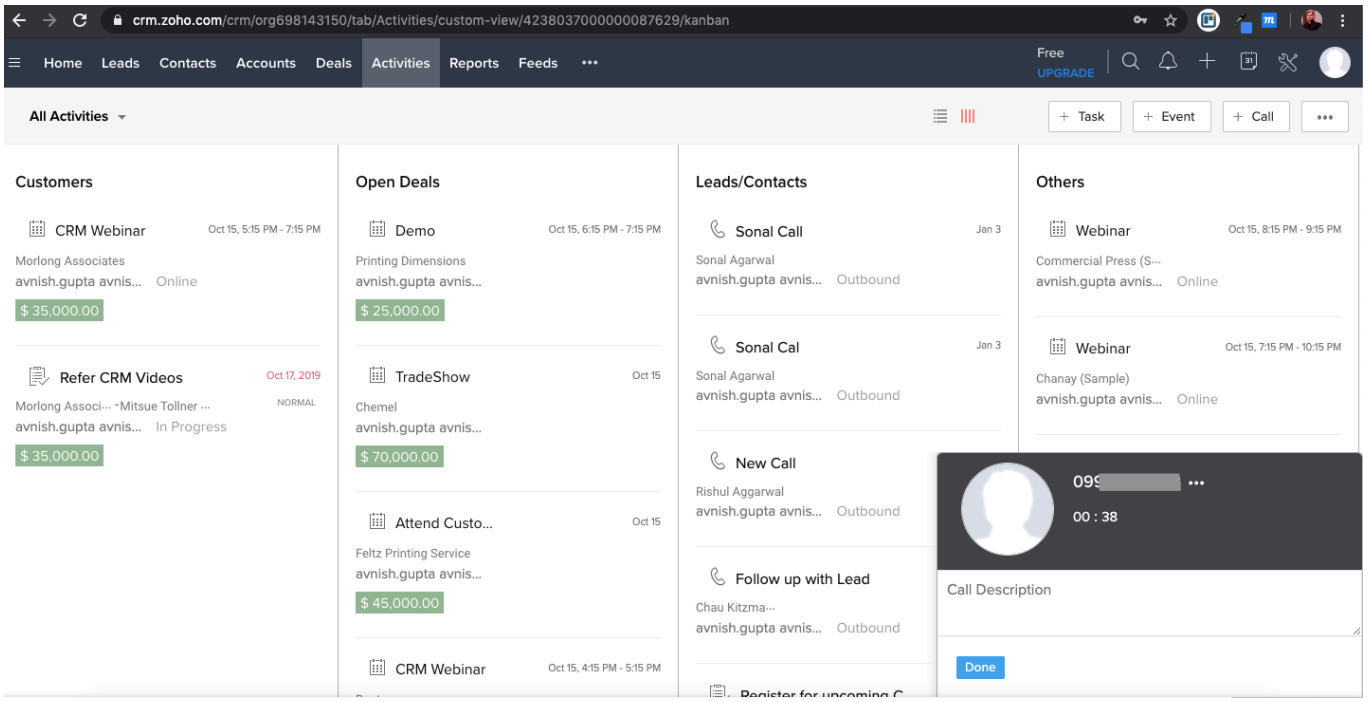


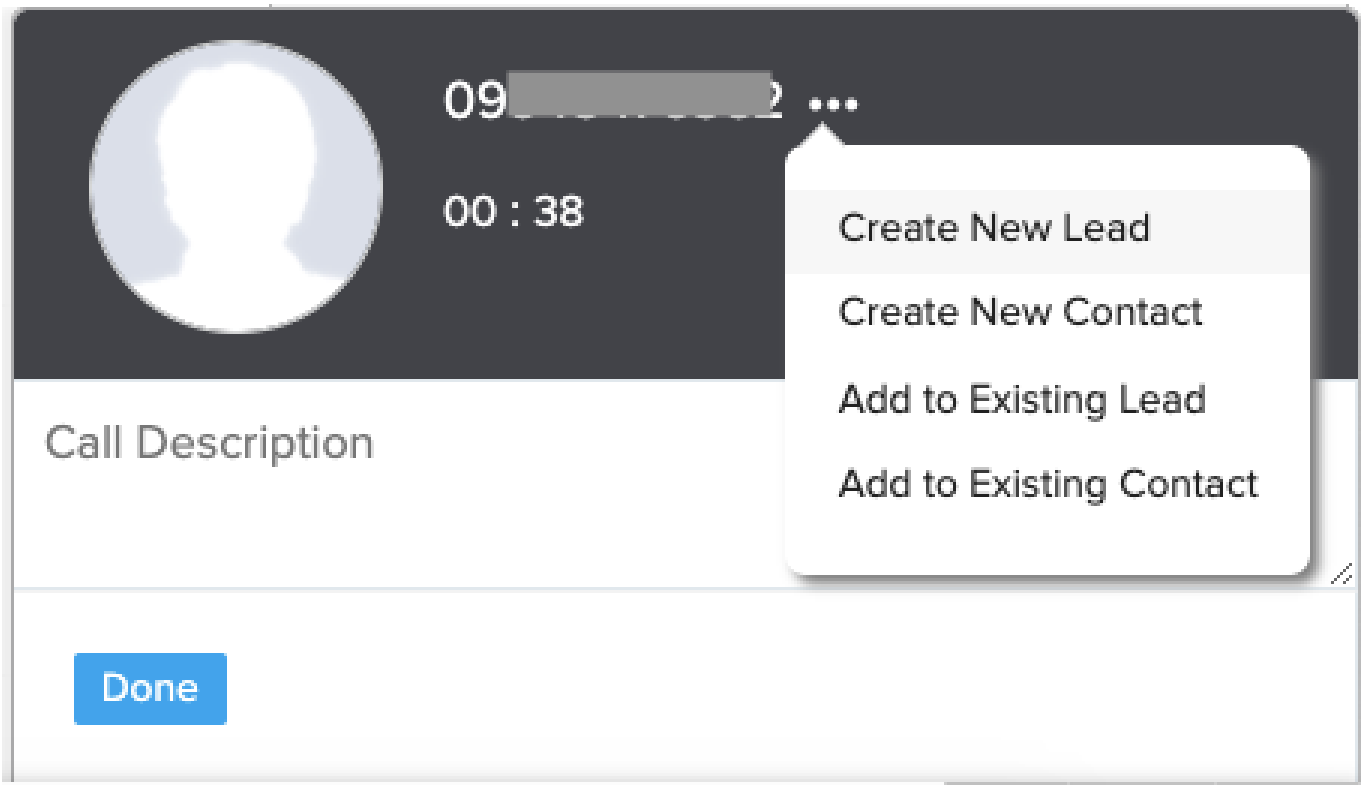
Step 7: How to start calling from Zoho?

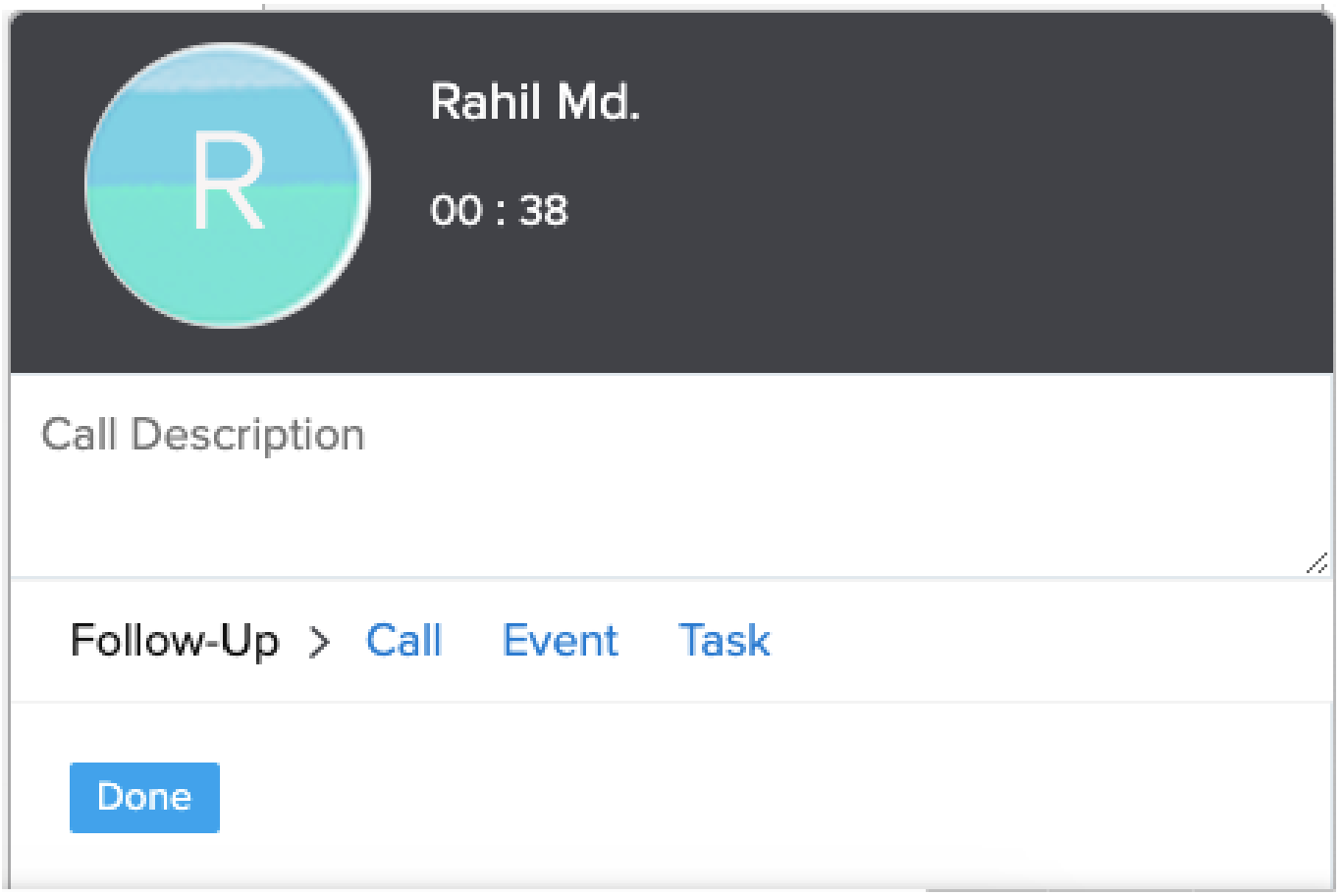
1. Go to Zoho CRM (refresh the page, if already logged in) and you can see the Click2Call icon enabled for the Zoho User on initiating an outbound call from there, the pop-up comes up displaying the available information

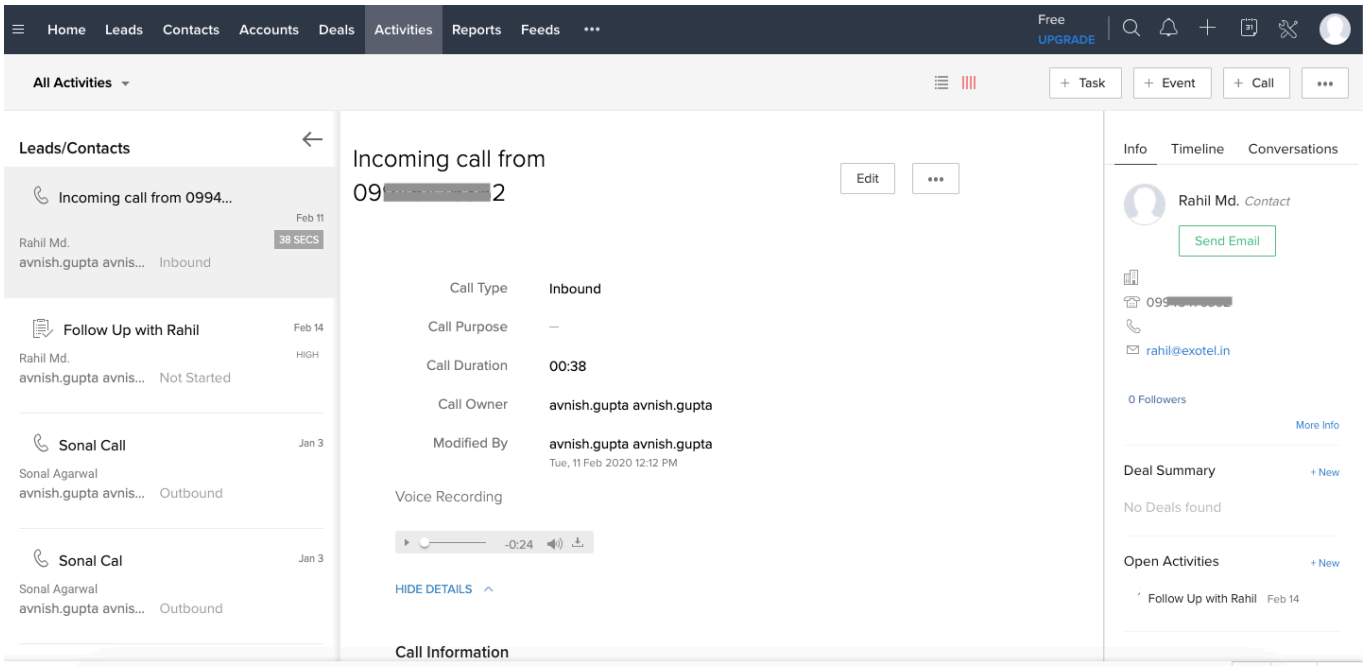


For an Incoming Call, the pop-up will come up showing the calling number. Once the call is over, the user can take the required action to create a new lead, or contact or add to an existing lead or contact. Subsequently, it can be added as a follow-up action for a call, event, or task.




09
00 : 38
Create New Lead
Create New Contact
Add to Existing Lead
Add to Existing Contact
Call Description
Done


R
Rahil Md.
00 : 38
Call Description
Follow-Up > Call Event Task
Done



Once saved, the Incoming Call screen will display the call details like call duration and call recordings (for completed calls):

Known Limitation:

- **On-Call Events**
- : For both Incoming Call and Outbound Call pop-ups, the call events (like call answered, Ringing, etc.) will not be triggered. Hence, once the call is over, click on ‘Answered’ and do the subsequent action.
- **Call Recording Upload**: The call recordings will be uploaded under call details in an interval of **5 minutes**. The agent needs to refresh the Zoho Desk screen after 5 minutes of calls completed, in order to see the respective call recordings.
- **Missed Call Details**: Missed Call Details will be available in the Zoho Dashboard **only after 5 minutes**. Exotel is pushing the event in real time. However, it's a limitation at Zoho's end to validate the missed call per agent and then publish it.

Revoking Exotel Zoho CRM Integration

In order to revoke Exotel Zoho CRM Integration, please go to the Exotel Zoho CRM Integration interface and click on the ‘Revoke Integration’ button present on the User Mapping page:

Revoke Integration

of 1 Pages

Mapping of Exotel & Zoho Users

5. API FAQs

5.1. Enabling Applet-Level Call Recording

Enabling Applet-Level Call Recording

Overview

This guide demonstrates how enterprises can dynamically control call recording within their Exotel applet flow using the **Passthru Applet** (GET request) and **Recording API** (POST request). This setup enables selective, event-driven recording control – for example, starting the recording before a greeting or IVR prompt and stopping it before agent transfer.

The implementation combines the**Passthru Applet** and**Call Recordings** to allow real-time backend-triggered recording.

How It Works

1. **Use Passthru Applet (GET):** The Passthru applet sends call information such as CallSID, From, and To parameters to your backend via a GET request.
2. **Backend Triggers Recording API (POST):** Your backend receives the GET request, extracts the CallSID, and immediately makes a POST call to the **Recording API** to start recording.
3. **Continue Call Flow:** The call proceeds through the configured applets (Greeting, IVR, Gather, etc.) while recording remains active.
4. **End-of-Flow Stop Recording:** At the final stage, another Passthru applet sends a GET request to your backend endpoint (e.g., /stop_recording), which triggers a POST API call

to stop recording.

This ensures Exotel only records the specific portion of the call you need, such as the main interaction, and not hold or transfer periods.

Step-by-Step Implementation

1. Configure the Passthru Applet (Start Recording)

- Add a **Passthru Applet** at the point in the flow where you want to begin recording.
- Set the Passthru applet's GET **URL** to a backend endpoint like https://yourdomain.com/start_recording.
- When executed, Exotel performs a **GET** request to this endpoint with call details appended as query parameters:

```
https://yourdomain.com/start_recording?
CallSid=abcd1234efgh5678&From=%2B919900112233&To=08088919888&CallType=outgoin
g
```

Your backend should capture the CallSid from this GET request quer params

2. Backend: Invoke Start Recording API (POST)

Your backend now calls Exotel's Recording API using the captured CallSid.

`POST`

```
https://<your_api_key>:<your_api_token>
<subdomain>/v1/Accounts/<your_sid>/Calls/<CallSID>/recording.json
```

Example:

```
curl --location 'https://<base_url>/v1/Accounts/<AccountSID>/Calls/<CallSID>/recording.j
--header 'Content-Type: application/x-www-form-urlencoded' \
--data-urlencode 'Action=START' \
--data-urlencode 'RecordingChannels=dual' \
--data-urlencode 'RecordingFormat=mp3-hq' \
--data-urlencode 'StatusCallback=<status_callback_url>' \
--data-urlencode 'Leg1Recording=True'
```

Replace `<your_api_key>` and `<your_api_token>` with the API key and token created by you.

- Replace `<your_sid>` with your “Account sid”
- Replace `<subdomain>` with the region of your account
    1. `<subdomain>` of Singapore cluster is @api.exotel.com
    2. `<subdomain>` of Mumbai cluster is @api.in.exotel.com

`<your_api_key>` , `<your_api_token>` and `<your_sid>` are available in the API settings page of your Exotel Dashboard

Parameter Reference:

Parameter	Type	Description
Action	String	START or STOP to control recording.
Recording Channels	String	Optional – Audio channels. • single *(default)* – Both legs mixed. • dual – Caller/callee recorded separately.
Recording Format	String	Optional – Audio quality. • mp3 *(default)* – Standard bitrate. • mp3-hq – High bitrate (32 kbps/channel). Requires enablement via hello@exotel.com.
StatusCallback	URL	Callback endpoint for recording status.
Leg1Recording	Boolean	True to record only the first call leg.

3. Continue with Business Applets

After triggering the start recording API, your flow continues normally with applets such as:

- **Greeting Applet:** Playback welcome message.
- **IVR Applet:** Capture user selections.
- **Gather Applet:** Collect input.
- **Connect Applet:** Transfer to agent.

Example Flow:

```
Passthru (GET → start_recording) → Backend (POST → Start Recording API) → Greeting → IVR → Gather → Passthru (GET → stop_recording)
```

4. Configure Passthru Applet (Stop Recording)

At the end of the flow:

- Add another **Passthru Applet** configured to call a URL like `https://yourdomain.com/stop_recording.`
- This GET request from Exotel again includes the CallSid.

- Your backend receives this GET, extracts the CallSid, and invokes:

```
curl --location 'https://<your_api_key>:<your_api_token><subdomain>/v1/Accounts/<your_si
--header 'Content-Type: application/x-www-form-urlencoded' \
--data-urlencode 'Action=STOP'
```

This cleanly terminates recording at the end of the call.

Recording Access

- **Dashboard:** Under each call log.
- **Call Detail APIs: **https://developer.exotel.com/api/make-a-call-api#call-details

Compliance Notes

- The Passthru applet always sends a **GET request** to your backend; the enterprise must use POST to trigger or stop recording.
- Obtain customer consent per regional compliance rules.
- *mp3-hq* is an optional, on-demand feature.
- Recordings are stored securely in Exotel's environment.

Example Use Case

Scenario: A customer support survey where only the IVR interaction is recorded.

1. Passthru applet sends GET to backend → backend triggers **Start Recording (POST)**.
2. IVR runs and records customer input.
3. Final Passthru sends GET → backend triggers **Stop Recording (POST)** before agent connection.

This ensures only the main customer interaction is captured.

References

Passthru Applet

Call Recordings

Secure Call Recording

5.2. How to perform Listen Whisper Barge using LWB API

This document outlines APIs for performing LWB, to help supervisors perform monitor action on an ongoing call. In order to perform the action, this document describes the below two endpoints which a developer shall use to perform the required action from a supervisor.

1. Get the active legs of the ongoing call: Typically an ongoing call shall have two legs, 1 from the customer and 1 from the agent. This API shall return the leg details in order for the developer to identify which is the agent leg to perform the monitor action.
2. Create the monitor leg: Once the leg is identified, one needs to create another leg on the call to perform the required action (Listen / Whisper / Barge).

NOTE: In Order to use these APIs, one needs to provide the callSID of the ongoing call. This is a dependency on the API. To enable this API in your account, please reach out to hello@exotel.in

1. Get the active legs of the ongoing call

An HTTP GET request to has to be made

https://<your_api_key>:
<your_api_token>@<subdomain>/v1/Accounts/<your_sid>/Calls/<CallSid>/ActiveLegs

- Replace <your_api_key> and <your_api_token> with the API key and token of your account.
- Replace <your_sid> with your “Account sid”
- Replace <subdomain> with the region of your account
    - <subdomain> of Singapore cluster is api.exotel.com
    - <subdomain> of Mumbai cluster is api.in.exotel.com
- Replace <CallSid> with the "Call Sid of your ongoing call"

<your_api_key> , <your_api_token> and <your_sid> are available in the API settings page of your Exotel Dashboard

Sample request :-

curl https://<your_api_key>:<your_api_token>

@api.in.exotel.com/v1/Accounts/<your_sid>/Calls/<CallSid>/ActiveLegs.json

HTTP Response:

On success,

- the HTTP response status code will be 200
- the HTTP body will contain an XML similar to the one below, an array of legs


```
{
"Legs":[
{
"Sid":"XXXXXXXXXX",
"CallSid":"XXXXXXXX",
"AccountSid":"XXXXXX",
"PhoneNumber":"xxxx",
"Status":"in-progress",
"Origin":"outbound",
"LastAction":"",
"DateCreated":"2020-12-22 17:31:06",
"DateUpdated":"2020-12-22 17:31:12",
"Uri":"/v1/Accounts/XXXXX/Calls/XXXXXXX/ActiveLegs"
},
{
"Sid":"XXXXX",
"CallSid":"XXXXX",
"AccountSid":"XXXXX",
"PhoneNumber":"xxxx",
"Status":"in-progress",
"Origin":"outbound-dial",
"LastAction":"",
"DateCreated":"2020-12-22 17:31:13",
"DateUpdated":"2020-12-22 17:31:13",
"Uri":"/v1/Accounts/XXXXX/Calls/XXXXX/ActiveLegs"
}
```


Here is the **Sid** if the Leg identifier is to be used in creating the monitor action on a leg.

On Failure,

<?xml version="1.0" encoding="UTF-8"?>

<TwilioResponse>

<RestException>

<Code>404</Code>

<Message>Given callSID is not in-progress</Message>

</RestException>

</TwilioResponse>sh-3.2#

2. Create the monitor leg

This is the supervisor leg which will get created on successful execution of the below API. On 200 OK, a call attempt shall be made from the Exotel platform to the supervisor and on pick up of the call, the supervisor shall join the ongoing call in "Listen" "Whisper" or a "Barge" mode.

An HTTP POST request to https://<your_api_key>: <your_api_token>@<subdomain>/v1/Accounts/<your_sid>/Calls/<CallSid>/Legs

The following are the POST parameters:

Field	Mandatory / Optional	Data Type	Values
Action	Mandatory	string	“listen” “whisper” “barge”
PhoneNumber	Mandatory	string	A new leg will be created for this phone number. If mobile number, prefix the 10 digits with a 0; Ex:✆✆ 09052161119. If landline number, prefix it with STD code; Ex: 08030752400
TargetLegSid	Optional	string	Logical Leg ID of the leg on which the action is to be performed. Mandatory if Action = whisper
StatusCallback	Optional	string	When the call completes, an HTTP POST will be made to the URL mentioned below with the parameters
StausCallbackEvents	Optional	Array	An array of events for which StatusCallback has to be sent. Currently, only "terminal" is supported
CustomField	Optional	string	Application-specific value which will passed in the statuscallback
StatusCallbackContentType	Optional	string	Allowed values multipart/form-data (default) application/json

HTTP Response:

On success,

- the HTTP response status code will be 200
- the HTTP body will contain an XML similar to the one below. The "Sid" is the unique identifier of the Leg and it will be useful for any future action on this leg

<?xml version="1.0" encoding="UTF-8"?>

<TwilioResponse>

<Leg>

<Sid>XXXXXXXXXXXXXXXXX</Sid>

<CallSid>XXXXXXXXXXXXXXX</CallSid>

<AccountSid>XXXXXXXX</AccountSid>

<PhoneNumber>XXXXXXXXX</PhoneNumber>

<Status>in-progress</Status>

<Origin>monitor</Origin>

<LastAction>barge</LastAction>

<DateCreated>2020-12-22 17:57:40</DateCreated>

<DateUpdated>2020-12-2217:57:40</DateUpdated>

<StartTime>2020-12-2217:57:40</StartTime>

<Uri>/v1/Accounts/XXXXXX/Calls/XXXXXXX/Legs</Uri>

</Leg>

</TwilioResponse>

On failure,

- the HTTP response status code will be non-200.
- the HTTP body will contain an XML (such as the one below) with details of why the request failed.

<?xml version="1.0" encoding="UTF-8"?>

<TwilioResponse>

<RestException>

<Status>400</Status>

<Message>Invalid Parameter: PhoneNumber is missing or invalid</Message>

</RestException>

</TwilioResponse>

Sample HTTP request

curl -H "Content-Type: application/json" --request POST -d '{"Action":"barge","TargetLegSid":"","PhoneNumber":"xxxx","StatusCallback":"","CustomField":"LegsCustom","StatusCallbackContentType":"application/json","StatusCallbackEvents[0]":"terminal"}' https://<Your_account_key>:<Your_account_token>@api.in.exotel.com/v1/Accounts/exotel30m/Calls/<CallSID>/Legs

StatusCallback

Exotel will perform an asynchronous HTTP request to the StatusCallback URL you have specified in your request (if any) once the call completes. List of parameters that will be sent as part of StatusCallback:

Sample StatusCallback payload for 'terminal' event:

"LegSid": "XXXXXXX"

"CallSid": "XXXXXX"

"AccountSid": "XXXXXX"

"DateCreated": "2021-02-08 19:33:59"

"DateUpdated": "2021-02-08 19:34:32"

"StartTime": "2021-02-08 19:33:59"

"EndTime": "2021-02-08 19:34:32"

"PhoneNumber": "XXXXXXXX"

"Status": "completed"

"OnCallDuration": "52"

"Origin": "monitor"

"LastAction": "whisper"

"CustomField": "LegsCustom"

"EventType": "terminal"

3. Upgrade the monitor Leg

Once an action like Listen or Whisper, one can decide to perform the next action like Barge on the same leg created. To support this use case, API supports an upgrade capability where only below fields shown in the table below are accepted

Please note that the monitor call leg should not be disconnected while performing this PUT request. Else you will receive an error that the Leg sid does not exist.

An HTTP PUT request to has to be made

https://<your_api_key>:<your_api_token>@<subdomain>/v1/Accounts/<your_sid>/Calls/<CallSid>/Legs/<Monitor_leg_SID>

- Replace **<your_api_key>** and **<your_api_token>** with the API key and token of your account.
- Replace **<your_sid>** with your “Account sid”
- Replace **<subdomain>** with the region of your account
    - <subdomain> of Singapore cluster is api.exotel.com
    - <subdomain> of Mumbai cluster is api.in.exotel.com
- Replace **<CallSid>** with your “Call sid of the ongoing call”
- Replace **<Monitor_leg_SID>** with your “Leg sid of the Monitor API”

<your_api_key> , **<your_api_token>** and **<your_sid>** are available in the API settings page of your Exotel Dashboard

The following are the PUT parameters:

Field	DataType	Mandatory /Optional	Description
Action	string	Mandatory	A new state for the call. Supported values whisper/ barge. The only transition allowed are: listen ->whisper whisper-> barge listen -> barge
TargetLegSid	string	Mandatory	Logical Leg ID of the leg on which the action is to be performed. Mandatory if Action = whisper Optional if Action = barge

Sample request

curl -H "Content-Type: application/json" --request PUT -d '{"Action":"barge"}' https://<Your_API_Key>:<Your_API_Token>@api.in.exotel.com/v1/Accounts/<your_sid>/Calls/<Youd_Call_Sid>/Legs/<Monitor_leg_SID>

HTTP Response:

On success :-

- the HTTP response status code will be 200
- the HTTP body will contain an XML similar to the one below.

<?xml version="1.0" encoding="UTF-8"?>

<TwilioResponse>

<Leg>

<Sid>XXXXXX</Sid>

<CallSid>XXXXXX</CallSid>

<AccountSid>XXXXX</AccountSid>

<PhoneNumber>XXXXXX</PhoneNumber>

<Status>in-progress</Status>

<Origin>monitor</Origin>

<LastAction>barge</LastAction>

<DateCreated>2020-12-24 10:55:54</DateCreated>

<DateUpdated>2020-12-24 10:56:53</DateUpdated>

<StartTime>2021-02-08 19:33:59</StartTime>

<Uri>/v1/Accounts/XXXXXX/Calls/XXXX/Legs/XX</Uri></Leg></TwilioResponse>

On Failure:

- the HTTP response status code will be non-200.
- the HTTP body will contain an XML (such as the one below) with details of why the request failed.

<?xml version="1.0" encoding="UTF-8"?>

<TwilioResponse>

<RestException>

<Code>404</Code>

<Message>Given legSID does not exist. Please check the legSID passed</Message>

</RestException>

</TwilioResponse>

Get all legs on monitor leg creation success

After the monitor leg is created, the developer can hit the Get the active legs endpoint to check the current status of all the ongoing legs.

Sample request:

curl https://<your_api_key>:<your_api_token>

@api.in.exotel.com/v1/Accounts/<your_sid>/Calls/<>Call_SID/ActiveLegs.json

Sample response:

{

"Legs":[

{

"Sid":"XXXX",

"CallSid":"XXXX",

"AccountSid":"XXXX",

"PhoneNumber":"XXXX",

"Status":"in-progress",

"Origin":"outbound",

"LastAction":"",

"DateCreated":"2020-12-22 17:56:55",

"DateUpdated":"2020-12-22 17:57:02",

"Uri":"/v1/Accounts/XXXX/Calls/XXXX/ActiveLegs"

},

{

"Sid":"XXXX",

"CallSid":"XXXX",

"AccountSid":"XXXX",

"PhoneNumber":"XXXX",

"Status":"in-progress",

"Origin":"outbound-dial",

"LastAction":"",

"DateCreated":"2020-12-22 17:57:03",

"DateUpdated":"2020-12-22 17:57:03",

"Uri":"/v1/Accounts/XXXX/Calls/XXXX/ActiveLegs"

},

{

"Sid":"XXXX",

"CallSid":"XXXX",

"AccountSid":"XXXX",

"EndUserNumber":"XXXX",

"Status":"in-progress",

"Origin":"monitor",

"LastAction":"barge",

"DateCreated":"2020-12-22 17:57:40",

"DateUpdated":"2020-12-22 17:57:40",

"Uri":"/v1/Accounts/XXXX/Calls/XXXX/ActiveLegs"

}

]

}

A typical call flow for LWB API in outbound API connecting agent to customer use case

Call Disconnect API <Hangup>

High-Level Approach

1. Hangup action will be enabled in the ExoML API.
2. Customer to query legs for the callSid and perform hangup action on leg

API Contract:

An HTTP PUT request to **https://<your_api_key>:<your_api_token>@<subdomain>/v1/Accounts/<your_sid>/Calls/<CallSid>/Legs/<LegSid>**

The following are the PUT parameters:

Field	Mandatory/ Optional	DataType	Values
Action	Mandatory	string	“hangup”

Sample Request

```
curl --location --request PUT 'http://<API_KEY>:<API_Token>@api.in.exotel.com/v1/Accounts/<Account_SID>/Calls/<Call_SID>/Legs/<Leg_SDI>' \ --header 'Content-Type: application/x-www-form-urlencoded' \ --data-urlencode 'Action=hangup'
```

Sample Response: JSON Response (Default response type is XML)


```
{
"legs": {
"Sid": "80de40c29dXXX83b485f8d4168c",
"CallSid": "9aeaea05XXXX268d3c872168c",
"AccountSid": "exXXXt",
"PhoneNumber": "0720XX45365",
"Status": "in-progress",
"Origin": "outbound",
"LastAction": "hangup",
"DateCreated": "2022-08-12 12:14:44",
"DateUpdated": "2022-08-12 12:14:58",
"StartTime": "2022-08-12 12:14:56",
"ExoPhone": "080XXX92531",
"BackupExoPhone": "0804XXX2531",
"Uri":
"/v1/Accounts/exXXXlt/Calls/9aeaea053872168c/Legs/80de40c29d3b485f8d416
8c"
}
}
```


Sample Response : XML Response

```
<?xml version="1.0" encoding="UTF-8"?>
<TwilioResponse>
 <Legs>
 <Sid>80de40c29d9d8d4168c</Sid>
 <CallSid>9aeaea053de5268d3c872168c</CallSid>
 <AccountSid>abjcw</AccountSid>
 <PhoneNumber>072XX45365</PhoneNumber>
 <Status>in-progress</Status>
 <Origin>outbound</Origin>
 <LastAction>hangup</LastAction>
 <DateCreated>2022-08-12 12:14:44</DateCreated>
 <DateUpdated>2022-08-12 12:14:58</DateUpdated>
 <StartTime>2022-08-12 12:14:56</StartTime>
 <ExoPhone>0804XX2531</ExoPhone>
 <BackupExoPhone>0804XX92531</BackupExoPhone>

<Uri>/v1/Accounts/sdcds/Calls/9aeaea053de5268d3c872168c/Legs/80de40c29d
9d645bd185f8d4168c</Uri>
 </Legs>
</TwilioResponse>
```

Sample Failure Response: XML

```
<?xml version="1.0" encoding="UTF-8"?>
<TwilioResponse>
 <RestException>
 <Code>404</Code>
 <Message>Not Found</Message>
 </RestException>
</TwilioResponse>
```

Sample Failure Response: JSON

```
{
"RestException": {
"Code": 404,
"Message": "Not Found"
}
}
```

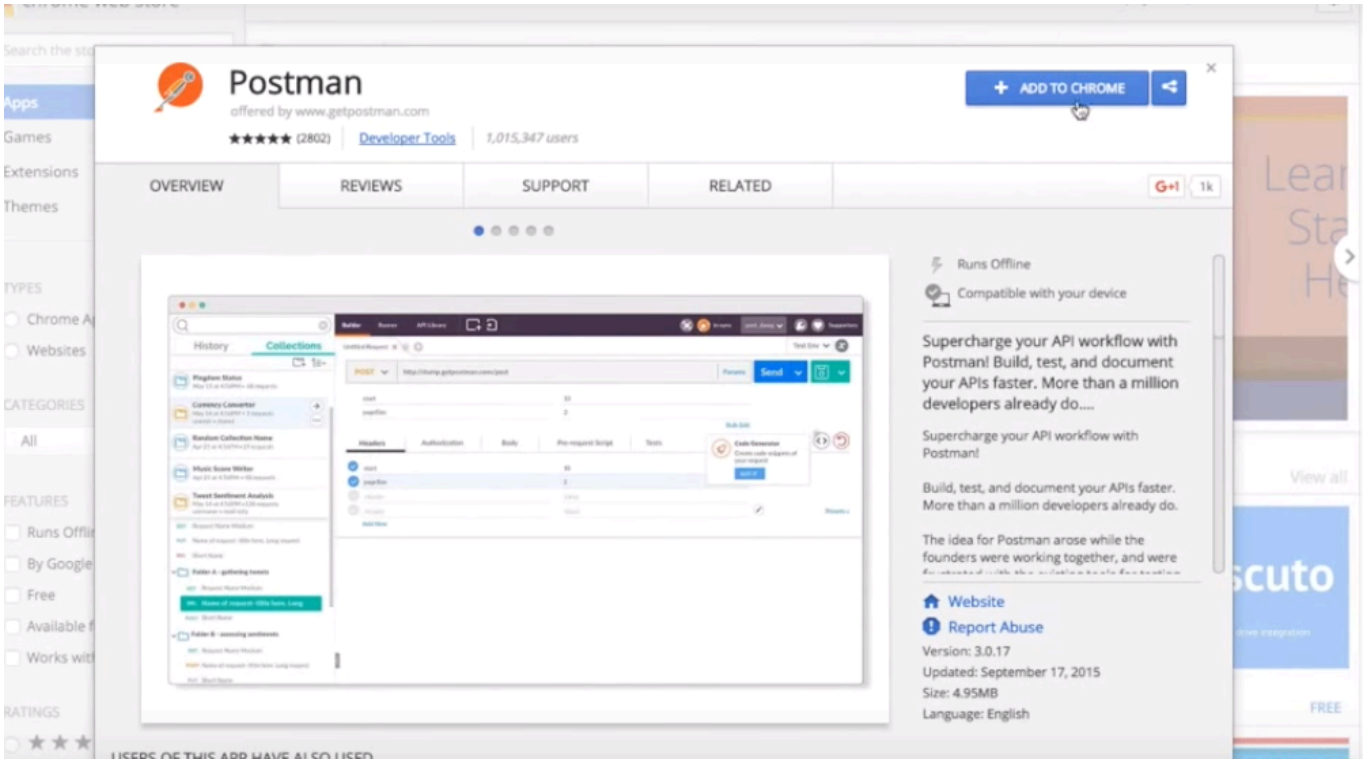

Billing

The supervisor leg will be charged as per the bill plan for calls applied to your account.

5.3. Make an API Outgoing call using Postman

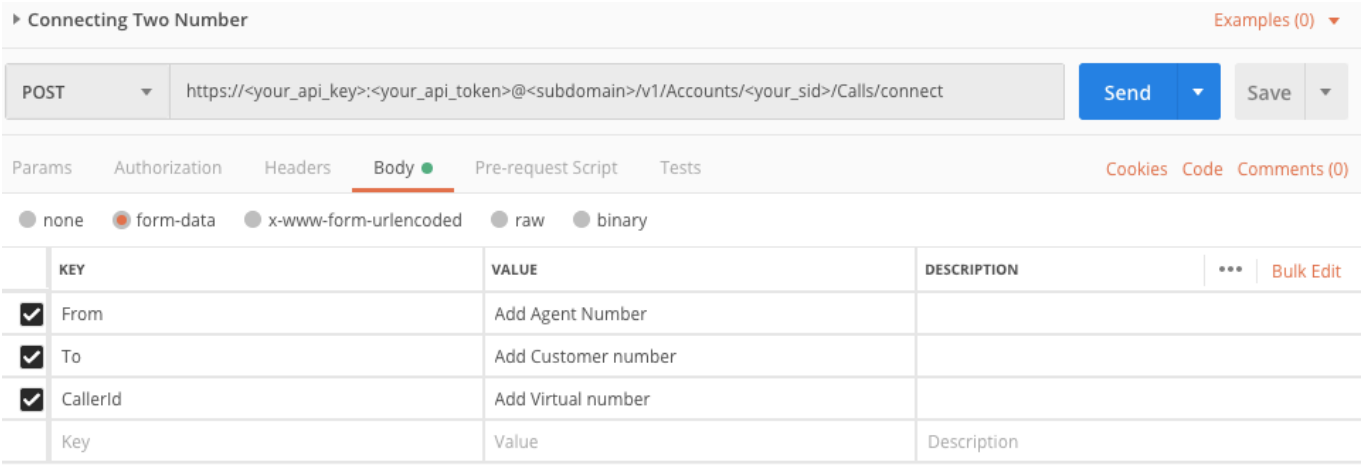
You can use **Postman - a free Google Chrome Extension** - to make an outgoing call using our **Call APIs**, and the steps to do so are as follows:

Step 1 - Add Postman as an Add-on for your Google Chrome browser. This **video tutorial** should be useful.



If the plugin is not working, you can use this function directly by downloading the free Postman App.

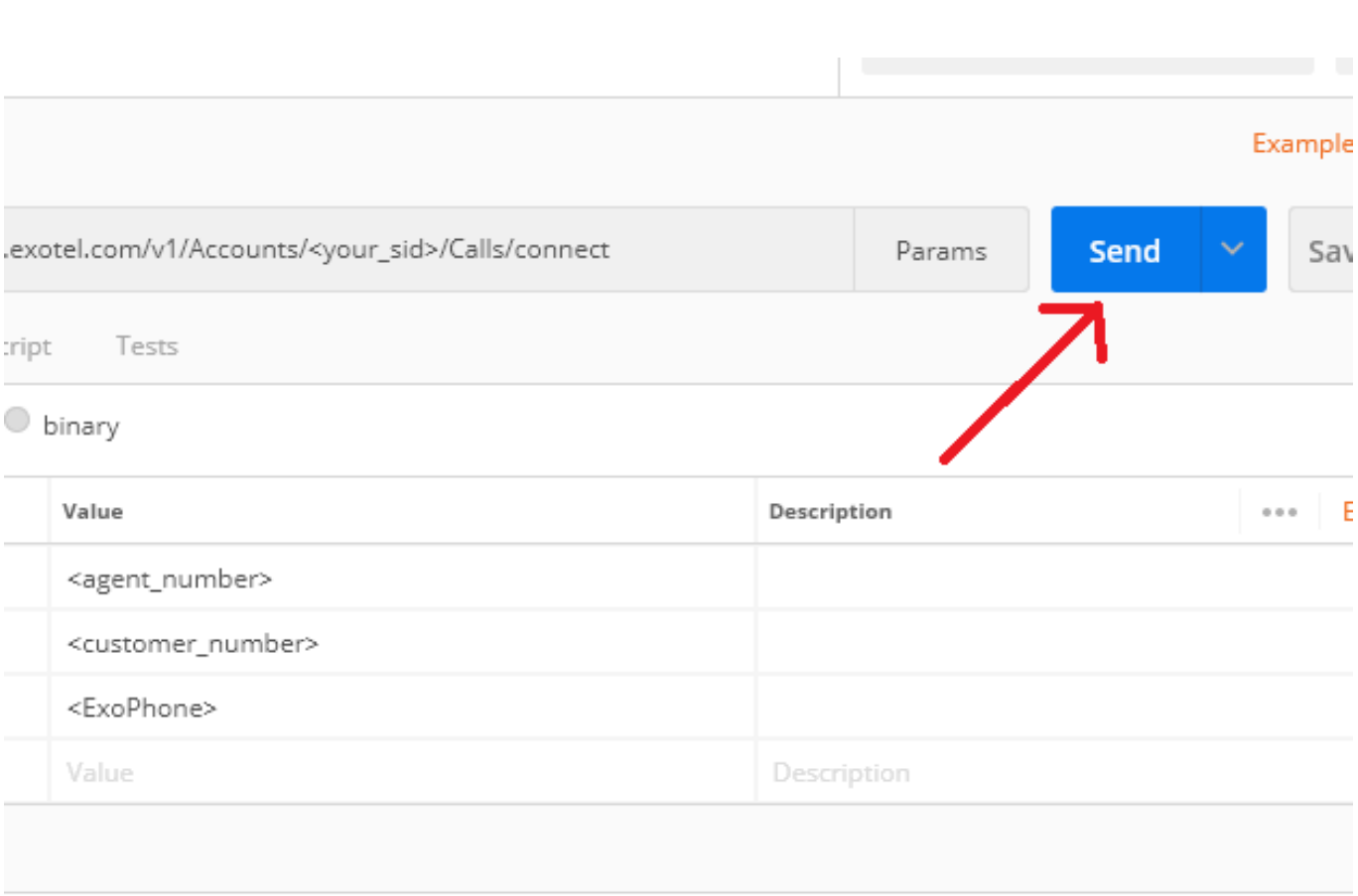
Step 2 - Sign up and begin importing this **collection configuration** after launching the app (by clicking on **https://www.getpostman.com/collections/da36b086217bca1fb732**, the collection's settings will be automatically imported to your Postman app/account).



Step 3 - Replace all the following variables:

<your_api_key>, <your_api_token>, <your_sid>	**How to find my Exotel Key, Exotel Token and Exotel SID?**
<agent_number>	Enter the 'From' or the caller's number, who would answer the call first
<customer_number>	Enter the 'To' or the callee's number, to whom the caller/agent is trying to connect
<ExoPhone>	Enter the virtual number / DID through which you wish to route the call

Step 4 - Click 'Send'


Example
.exotel.com/v1/Accounts/<your_sid>/Calls/connect
Params
Send
Sav
cript
Tests
binary
Value
Description
<agent_number>
<customer_number>
<ExoPhone>
Value
Description

5.4. Leg details API to get all participants details of a Call

This document outlines an API to query all the participants in the completed calls. The use case where this API will be useful

1. Calls where more than 2 participants were there in a call. For Ex:- Dialer, Cold transfer, Connect after connect
2. Listen, Whisper or Barge use case. More details of LWB API is here

NOTE:- In Order to use this API, one needs to provide the callSID of the completed call. This is a dependency for the API

NOTE:- To enable this API in your account, please reach out to hello@exotel.com

To get the details of a call , you will need to make a HTTP GET request to

https://<your_api_key>:<your_api_token>@<subdomain>/v1/Accounts/~exotel_sid~/Calls/<CallSid>/Legs

- <CallSid> is the Sid of the call.
- Replace <your_api_key> and <your_api_token> with the API key and token created by you.

- Replace <your_sid> with your “Account sid”
- Replace <subdomain> with the region of your account
    - <subdomain> of Singapore cluster is api.exotel.com
    - <subdomain> of Mumbai cluster is api.in.exotel.com

<your_api_key> , <your_api_token> and <your_sid> are available in the API settings page of your Exotel Dashboard

In the case of an outbound call originating via the Call APIs (here or here), the "Sid" parameter is returned in the XML response to your request.

In the case of inbound calls, you can get the CallSid by using the Passthru applet.

HTTP Response:

On success, this API will return an HTTP status code of 200 and the response body will contain an XML/JSON (like below) that contains the details of the call.

On failure, the HTTP status code will be a non-200 code which indicates the reason (as discussed here).

Response Body on Success:

```
{
"MetaData":{
"Total":3,
"Count":3
},
"legs":[
{
"Sid":"XXXXXXXXXXXXXX",
"CallSid":"XXXXXXXXXXXXXX",
"AccountSid":"exotelt",
"PhoneNumber":"XXXXXXXXXXXXXX",
"Status":"completed",
"Origin":"outbound",
"LastAction":"",
"DateCreated":"2021-06-24 11:12:39",
"DateUpdated":"2021-06-24 11:13:08",
"OnCallDuration":25,
"Uri":"/v1/Accounts/exotelt/Calls/XXXXXXXXXXXXXX/Legs/XXXXXXXXXXXXXX"
},
{
"Sid":"XXXXXXXXXXXXXX",
"CallSid":"XXXXXXXXXXXXXX",
```

```
"AccountSid":"exotelt",

"PhoneNumber":"XXXXXXXXXXXXX",

"Status":"completed",

"Origin":"outbound-dial",

"LastAction":"",

"DateCreated":"2021-06-24 11:12:48",

"DateUpdated":"2021-06-24 11:12:57",

"OnCallDuration":5,

"Uri":"/v1/Accounts/exotelt/Calls/XXXXXXXXXXXXX/Legs/XXXXXXXXXXXXX"

},

{

"Sid":"XXXXXXXXXXXXX",

"CallSid":"XXXXXXXXXXXXX",

"AccountSid":"exotelt",

"PhoneNumber":"XXXXXXXXXXXXX",

"Status":"completed",

"Origin":"outbound-dial",

"LastAction":"",

"DateCreated":"2021-06-24 11:12:58",

"DateUpdated":"2021-06-24 11:13:07",

"StartTime":"2021-06-24 11:12:58",

"EndTime":"2021-06-24 11:13:08",

"ExoPhone":"XXXXXXXXXX",
```

```
"BackupEcoPhone":"XXXXXXXXXX",



"OnCallDuration":4,

"Uri":"/v1/Accounts/exotelt/Calls/XXXXXXXXXXXXX/Legs/XXXXXXXXXXXXX"

}

]

}
```


The "Status" parameter can take one of the following values:

- queued
- in-progress
- completed
- failed
- busy
- no-answer

The "Origin" parameter can take one of the following values:

- **Inbound:-** Customers dialing into Exotel Virtual number
- **Outbound:-** 1st leg of connect API
- **Outbound-dial:-** Subsequent dial out from Exotel platform post 1st leg is established (either via inbound/outbound)
- **Monitor:-** Supervisor leg performing the Listen / Whisper / Barge actions

1.

Response Body on failure:

```
{
"RestException":{
"Code":400,
"Message":"Bad Request",
"Description":"Please check the callSID passed"
}
}
```


Rate Limit:

This API is rate limited to 200 queries per minute. Once this limit has been crossed, your requests will be rejected with an HTTP 429 'Too Many Requests' code.

5.5. Play dynamic text or audio from URL in connect applet

What is usual?

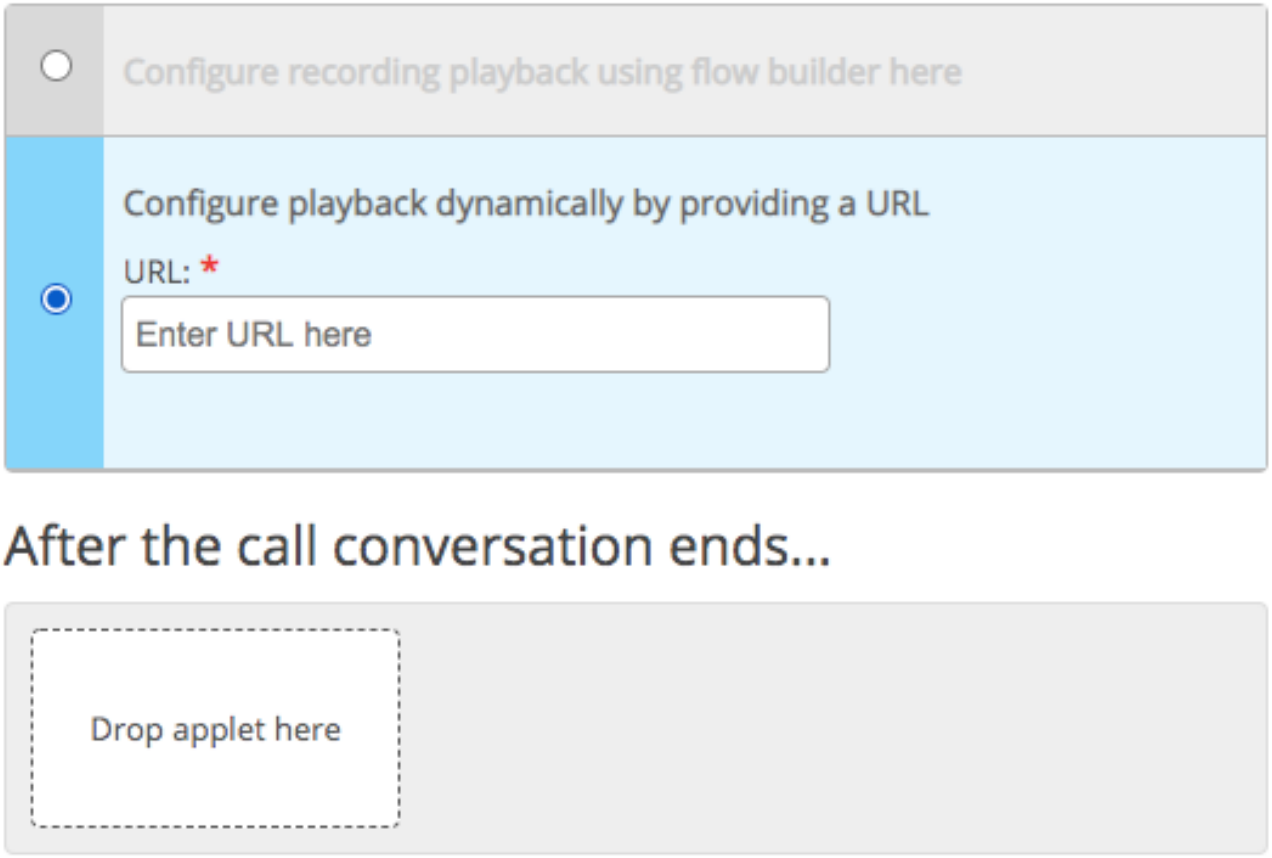
Typically, while configuring your Connect applet, you would enter the text or upload the audio that you want your agents to listen before the call gets connected to the customer. This is static in nature - ie, all your agents will hear the same message / audio.

How to make it dynamic?

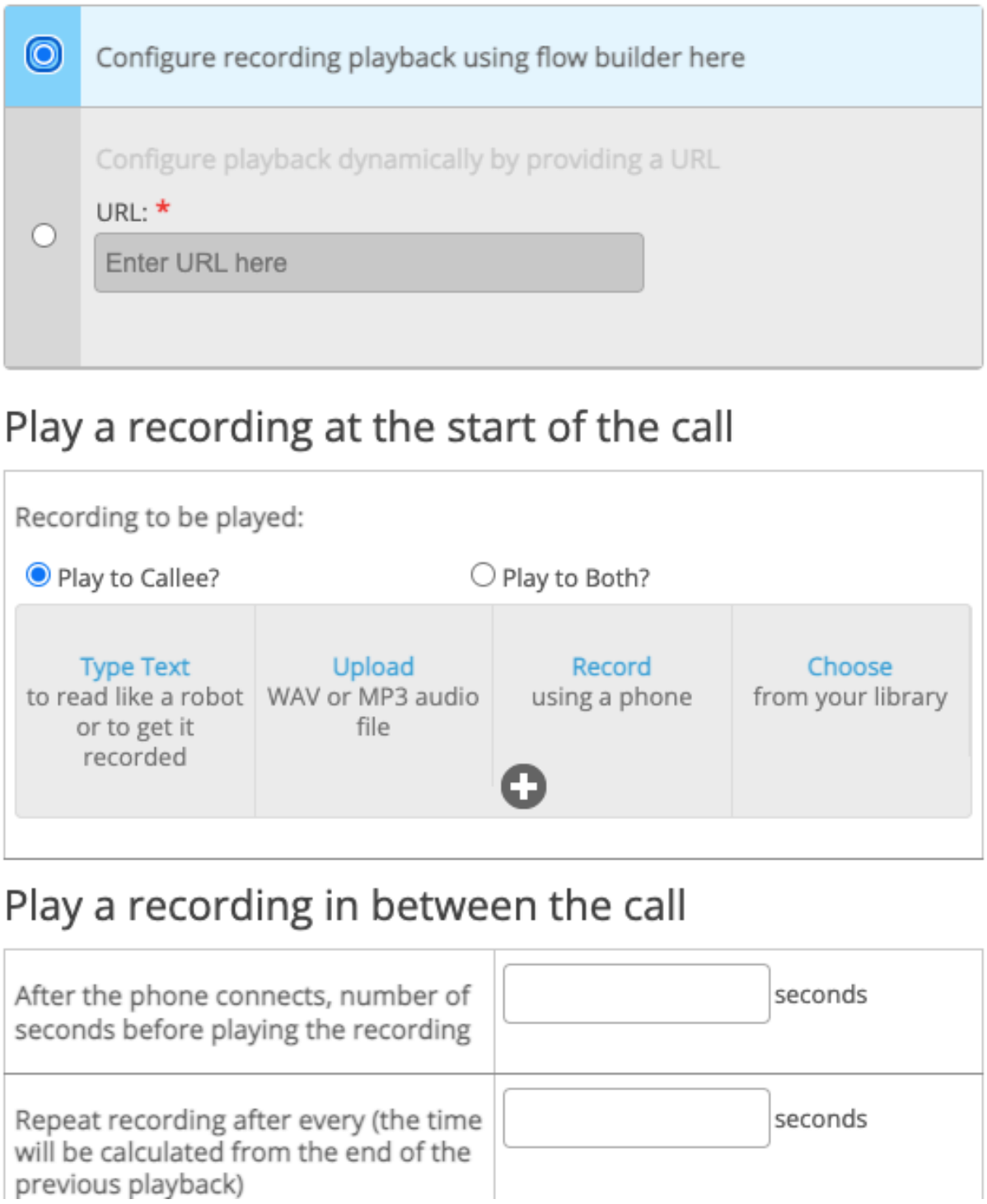
In Exotel, you have an option to make this dynamic - ie, you can potentially play a different greeting to each agent.

In the Connect applet, you can specify a URL (instead of a static text) in the "Read text like a robot" option. See below.

Choose this option if you want to control playback for each user uniquely



Choose this option if you want to have a static playback



When the option is chosen for URL, Exotel will make an HTTP GET request to that URL (which is hosted at your server). Your server can now return either a text or a URL (to an audio file). If it returns a text, the text will be converted to audio using our Text-To-Speech (TTS) engine and then played out.

The applets mentioned above are a part of the Custom App section also called App Builder, to know more about App Builder please follow----> **Exotel App Builder**

HTTP Request from Exotel (to your URL)

The GET request that Exotel makes to the URL will have the following query parameters:

PARAMETER NAME	VALUE
CallSid	string; unique identifier of the call
From	string; the number of the calling party
To	string; your Exotel company number that is being called; this will be from your "Company Numbers" page
DialWhomNumber	string; the number that is being called currently (This might be empty also)

HTTP Response from your web server

Your webserver

- MUST set the **Content-Type** HTTP header to '**application/JSON** and nothing else.
- MUST support a HEAD request from Exotel and return the exact same headers that it would for a GET request.
- The response will look something like

```
{
"start_call_playback":{
"playback_to":"both",
"type":"audio_url",

"value":"http://...mp3..."

OR

"playback_to":"both",

"type": “text”,

"value": "hello, this is a sample text"

OR
"playback_to":"callee",

"type":"audio_url",

"value":"http://...mp3..."

                        OR

               "playback_to":"callee",

               "type": "text",

                         "value": "hello, this is a sample text"



}

“in_call_playback:{


“start_delay”:5,
“repeat_frequency”:10,
“play_to_callee”:true,

“play_to_caller”:false,
```

```
"type": "audio_url",

"value": "http://...mp3"
OR

"type": "text",

"value": "hello, this is a sample text"


}

       "end_call_playback":{


"type": "audio_url",

"value": "http://...mp3"
OR

"type": "text",

"value": "Hello, this is a sample text"

}




}
```

One can choose to give only **start_call_playback** or **in_call_playback** or **end_call_playback** and accordingly the audio will be played to users

NOTE

1. If the customer backend fails to respond to the GET request and Exotel receives 4xx or 5xx responses, then the audio will not be played to the user, and Connect applet will proceed and patch the call between callee and caller
2. The Audio files **MUST** be in the .wav/.mp3, 8Khz Mono format. The bit depth must be 16-bit.

NOTE: All other formats are **not** supported (like 16Kz Mono/Stereo etc)

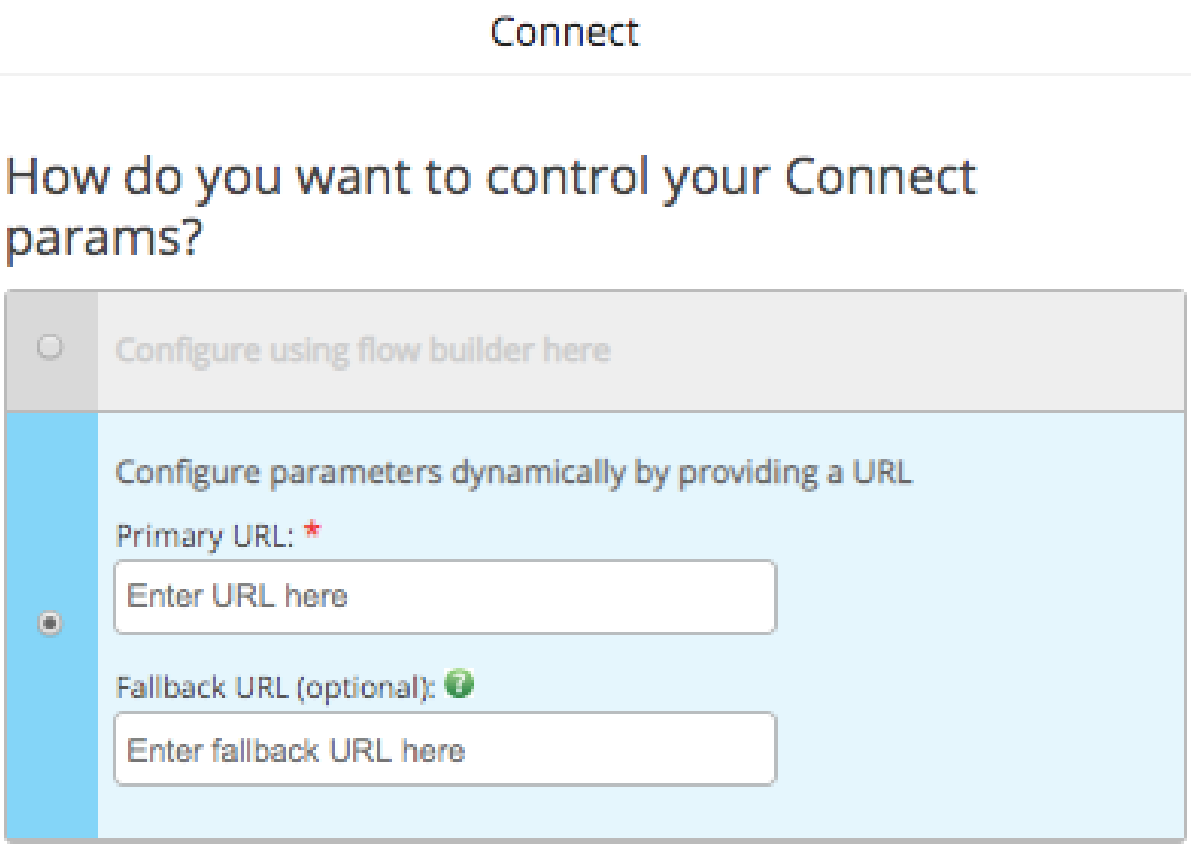
Caching of the audio files

Exotel caches the audio files that it downloads and plays - so that the next time you send the same file, we don't need to download and it will be faster.

Exotel caches the file based on the **name of the URL.** So in case you are changing first-audio.wav, you will need to send in another name the next time (Ex: http://example.com/first-audio-new.wav)

5.6. Programmable Connect: Working with Connect Applet (Dynamic URL)

Connect



You can choose to configure the Connect applet parameters using the flow builder itself or control it dynamically through a URL. However, you will need to configure the transitions (next applet) while building the flow irrespective.

If you choose to configure the parameters dynamically using your application URL, you can set a 'Primary URL' for handling the requests. You can also set a 'Fallback URL' (optional) which will be contacted in case something goes wrong with your 'Primary URL'.

Request

If an application URL is set for Connect applet, Exotel will make a GET request to the URL with the call details as URL-encoded HTTP query parameters.
The following are the parameters of the GET request. Note that only some of this list may be passed to your application - depending on what stage of the flow you have placed the Connect applet.

Header:

Exotel-Version	This value will indicate the version of connect applet parameters against which your endpoint's response will be validated. Current Version: 1.0

Query Parameters:

Parameter Name	Description
CallSid	Unique identifier of the call
CallFrom	In case of an outgoing call, it'll be set to the number from which the call is made. In case of an incoming call, it'll be set to the number from which the call is received
CallTo	In case of an outgoing call, it'll be set to the number being dialed out. In case of an incoming call, it'll be set to the number where the call landed.
Direction	The direction of the call. Possible values: 'incoming' or 'outbound-dial'
Created	Timestamp when the call is created (format : yyyy-mm-dd hh:mm:ss)
DialCallDuration	Value in seconds from the time call is triggered to the second leg of the call till it is over (including conversation time). This value can be set to zero depending on the previous applet and if there's no second leg in the call flow.
StartTime	Timestamp when the call is started (format : yyyy-mm-dd hh:mm:ss)
EndTime	1970-01-01 05:30:00 // Unix time (also known as POSIX time or epoch time) Note that this would be a constant value and you may instead trigger our Call details API a few minutes after the call has been completed, to get the accurate information
CallType	 Scenario Value IVR only, no connect applet call-attempt Call conversation happened completed The client hung up during connect applet

Parameter Name	Description
	client-hangup Connect applet, no agent picked up incomplete Went to voicemail applet voicemail
DialWhomNumber	Shows the number of the agent who was dialed to last
flow_id	Flow id associated with the call
From	In case of an incoming call, it is the number of the caller. In case of an outgoing call, it is the number of the first leg of the call.
To	In case of an incoming call, it is the ExoPhone into which the call came. In case of an outgoing call, it is the number to which the call was made.
Current Time	Current server time (format : yyyy-mm-dd hh:mm:ss)

*These parameters will be passed if certain conditions are met as described below:

Parameter Name	Description
DialCallStatus	This will denote what happened with the second leg of the call if the previous applet was “connect”. Possible values: 'completed', 'busy', 'no-answer', 'failed', 'canceled'
digits	‘digits’ will be passed if there was a 'Gather' or ‘IVR’ applet before this applet and will be equal to the input digits that were entered. NOTE: This parameter comes with a double quote (") before and after the number. You'll have to trim() this parameter for double quotes (") to get the actual digits.
CustomField	If the call was initiated via API, the value that was passed in CustomField in the API call will be set here.
RecordingUrl	This will be populated if the previous applet was "voicemail". It will contain the URL of the voicemail recording. There could be a delay before the recording can be accessed depending on the length of the recording file.

Response

This is the response Exotel will expect to the GET request from your Connect Application URL. The response will decide what parameters will be set while executing Connect during the call flow.

Response Header:

Content-Type	application/json

Sample:

```
{       "fetch_after_attempt":false,       "destination": {
"numbers":["+919812345678"]       },
"outgoing_phone_number":"+918047115777",      "record": true,
"recording_channels":"dual",      "max_ringing_duration":45,
"max_conversation_duration":3600,      "music_on_hold": {
```

```
"type":"operator_tone"      },      "start_call_playback": {
"playback_to":"both"           "type":"text",           "value":"This text
would be spoken out to the callee"      }}
```

Generic

Explanation:

Parameter	Mandatory/Optional	Description
fetch_after_attempt	Optional; default = false	This parameter will indicate if, after each unsuccessful dial attempt within connect, the parameters should be fetched again including destination numbers. `false` will indicate, dial attempt to happen based on the initial response. No subsequent hits to the URL. `true` will indicate if connect parameters including a number to dial should be fetched again (hit the configured URL again) if the dial attempt is unsuccessful. NOTE: If 2 subsequent fetch results contain exactly the same set of destination numbers, Exotel will not make any subsequent attempts even if fetch_after_attempt is set to true. Request: GET /<customer-url> Apart from standard request params, it'll include <connect> params from the previous dial attempts. Response: <Same as above>
destination	Mandatory	Indicates the destination(s) to dial out. numbers An array of numbers to be dialed out in E.164 format. The dial will happen in the order they appear in the array.

Parameter	Mandatory/Optional	Description

		Sample:
		
		“destination”: {
		“numbers”: [“+622131921111”, “+622131921112”]
		}

outgoing_phone_number	Optional; default = Incoming ExoPhone	ExoPhone to be used for dialing out in E.164 format. Validations: • The ExoPhone added should be present in your account. • Restrictions will depend on telecom regulations i.e. another call can only be dial-ed out from the same telecom circle/region. For example, outgoing ExoPhone cannot be set to Delhi where Incoming ExoPhone is in Bangalore. • Both the first leg and the second leg ExoPhones can be connected on the same server. NOTE: If ExoPhone is not present in your account or the ExoPhone is unable to dial out i.e. if the above validation fails, then the call would be dial-ed out using the same ExoPhone as the first leg (where the incoming call landed). **NOTE: Consult with exotel support to use this feature.**
record	Optional; default = false	true/false; Record the call or not

Parameter	Mandatory/Optional	Description
recording_channels	Optional; default = single	To record the caller and callee in separate channels in the recording file. Possible values: • single • dual
max_ringing_duration	Optional; default = 30	Value in seconds to limit the ringing duration. This can be increased up to 60 seconds.
max_conversation_duration	Optional; default = 900 (15 minutes)	Value in seconds to limit the conversation duration to. This can be increased up to 75 minutes (4500 s).

music_on_hold	Optional;
	
	default = default_tone
		Possible Values:
		• default_tone: Exotel default music on hold as present here.
		• operator_tone: Audio returned by the operator on the dialing channel as is.
		• custom_tone: Audio URL as provided in the response.
		
		Sample Values:
		
		{
		“type”: “default_tone”
		}

Parameter	Mandatory/Optional	Description

		{
		“type”: “operator_tone”
		}
		
		{
		"type": "custom_tone",
		"value": "<audio_url>"
		}

parallel_ringing	Optional;	Use this option to dial the numbers in parallel (simultaneously). This will dial all the numbers returned under the destination parameter.
		
		"parallel_ringing": {
		"activate": true,
		"max_parallel_attempts": 5
		}
		
		max_parallel_attempts value can be between 1-10. Default: 5
		
		*Please note this feature is chargeable and consult with your Account Manager or email to hello@exotel.in before using this parameter.

dial_passthru_event_url	Optional;	The URL passed here will be requested for dial start and dial end events. For more details on request, refer to this.
start_call_playback	Optional;	Play a recording to the number that is being called { “playback_to”: “both”,

Parameter	Mandatory/Optional	Description

		“type”: “audio_url”,
		“value”: “http://...mp3”
		}
		OR
		{
		“playback_to”: “both”,
		“type”: “text”,
		“value”: “hello, this is a sample text”
		}
		OR
		{
		“playback_to”: “callee”,
		“type”: “audio_url”,
		“value”: “http://...mp3”
		}
		OR
		{
		“playback_to”: “callee”,
		“type”: “text”,
		“value”: “hello, this is a sample text”
		}
		Configuration for audio file supported in this playback are:
		Sample Rate = 8 kHz
		Bit depth = 16 bit
		Bit rate = 128 kbps
		Channel = mono
		File Format = wav
		
		Note: If the file name returned in case of `audio_url` is the same, it will be cached by our servers. Kindly, provide dynamic file names if the audio to be played is different each time.

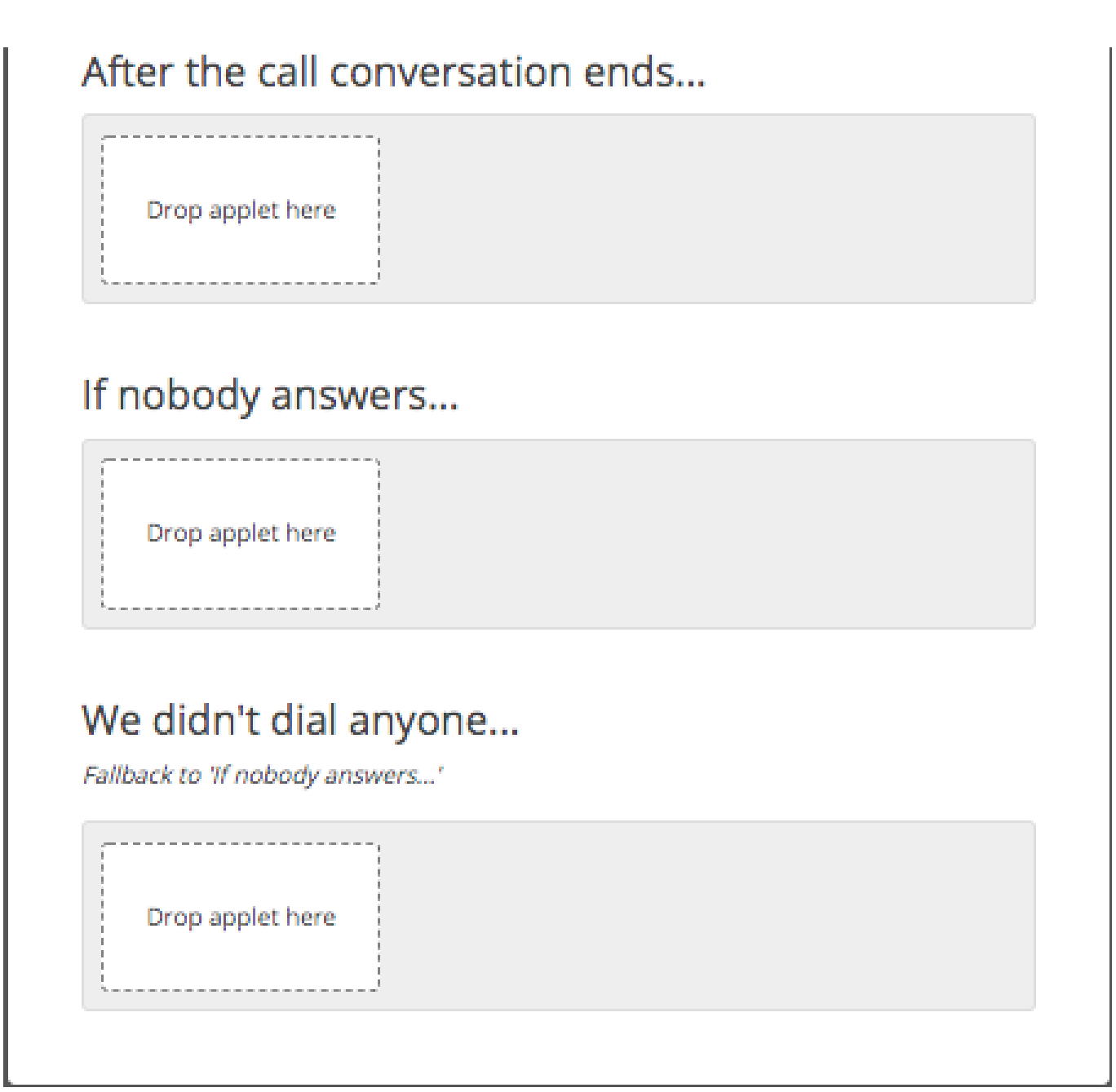
*Above set of parameters can also be controlled through the dashboard if one opts to configure the Connect applet using the flow builder instead of the Application URL.

Cases, where Fallback URL will be triggered, are:

- Primary URL does not return HTTP 200 OK
- Primary URL doesn't return within the timeout period (5 seconds)
- Primary URL returns invalid response:
    - Content-Type should be application/JSON
    - Mandatory parameters are present
    - audio_url / text should be HTTP/HTTPS and returns 200 HTTP code

Transition to next applet

Below transitions are to be set in the call flow builder to decide what to execute next.



Scenarios:

- After the call conversation ends: The applet set here will be triggered if a conversation occurs.
- If nobody answers: The applet set here will be triggered if we dial the number and conversation doesn't occur. If no applet is present in "we didn't dial anyone", it will fallback to this.
- We didn't dial anyone: The applet set here will be triggered if we don't dial. Cases when this can occur:
    - If both Primary and Fallback URL endpoint times out or returns non-2xx response code.
    - If both Primary and Fallback URL endpoint doesn't return a valid payload.

- If the number to dial returned is in invalid format.
- If an empty number (destination) is returned in the response

5.7. How does the Campaigns API work

Before you start a Call Campaign, set a clear objective. We have some use cases here and guidelines here. Based on the business objective, configure a call flow. Campaigns API attempts to make calls to comma-separated ‘From’ numbers specified in the request. When a call is picked up, the flow is executed and status reported. A Campaign schedule determines when to start and end the campaign. Retry logic determines how and when to attempt to call a phone number again in case of failure.

To use Campaigns API, including sample code, please refer to our developer portal

Below are some important considerations to keep in mind while using the API.

- When a request has an invalid number, then the entire request is failed with the number available in the failure message.
- The request will fail on the first invalid number found, the rest of the data is not processed. The developer is encouraged to use the phone number lib to validate his data before sending it.
- Terminal states of a campaign are ‘completed’, ‘failed’, ’deleted’, and 'canceled'. Intermediate states are 'created' , 'in-progress' and 'paused'.
    - Campaign States (intermediate)
        - **created** - A campaign API request that was successfully accepted by the system.
        - **in-progress** - A campaign that has started.
        - **paused** - A campaign, that was scheduled was requested to be paused explicitly.
    - Campaign States (Terminal):
        - **failed** - None of the calls were made (5xx /4xx / invalid numbers) for all of the phone numbers for the campaign. Immediate failures are marked as failed as well with the HTTP status code reflecting the reason for failure.
        - **completed** - all / partial calls (where the end time was reached) were made successfully.

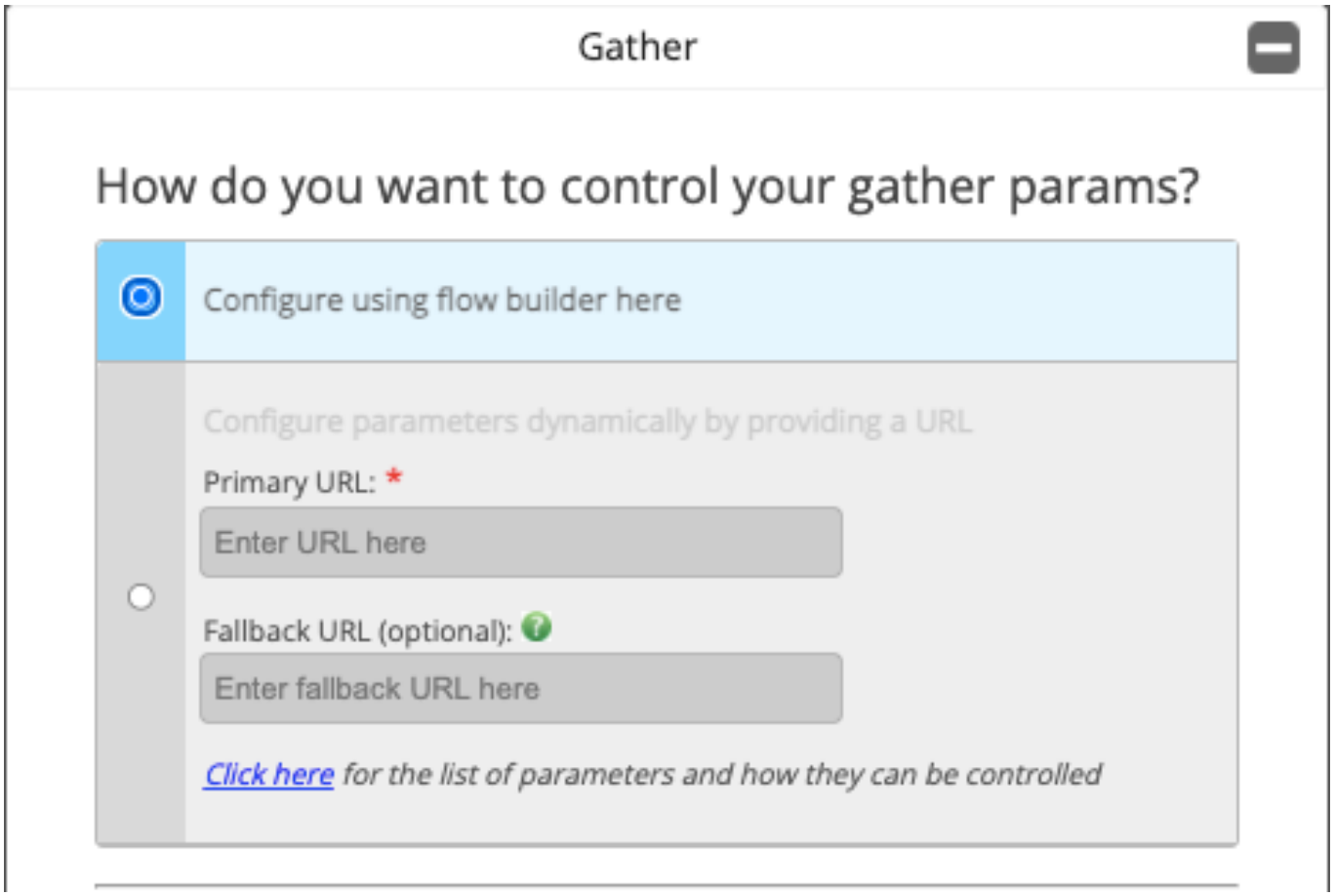
        - **canceled** - A campaign was ‘paused’ but was not resumed ever and end_at was reached is marked as canceled. All the remaining calls for the campaign are marked as failed.
        - **deleted** - A campaign can be marked deleted only if it has not started.
- Call status
    - **in-progress** - When the call is triggered
    - **failed** - no retry was allowed and the status was ‘no-answer’, ‘busy’ or ‘failed’ state
    - **completed** - When this call was ‘completed’ by Exotel
- CustomFields are part of the report. CustomFields value is applicable to all numbers uniformly.
- Campaigns are marked as ‘failed’ if all calls were not attempted. If all calls were attempted, then that call campaign is successful, however, the status of individual calls will determine the success/failure of each call.
- A call to a number that failed (including retries) is marked as “failed”
- DELETE is possible only on campaigns that have not yet started.
- A campaign that is in progress, the below fields can be updated
    - Callbacks
    - Action
- When end_at is specified, Exotel makes its best effort to ensure that calls are completed within that period but is not guaranteed. POST request with end_at will return 200 OK irrespective of whether all calls can be made or not. All numbers that were not called because of timer expiry will be marked as ‘canceled’
- The report captures numbers that were not dialed for a failed campaign as well
- Long-Running Campaigns:
    - A cut-off time, 10.30 am - 9 pm is provisioned, which will imply that no call is made beyond the cut-off time.
- Paused campaigns without an end time specified will expire after 30 days from the start_at time.
- Throttle limits - 200 API requests per min with 60 concurrent channels

5.8. Working with Gather Applet

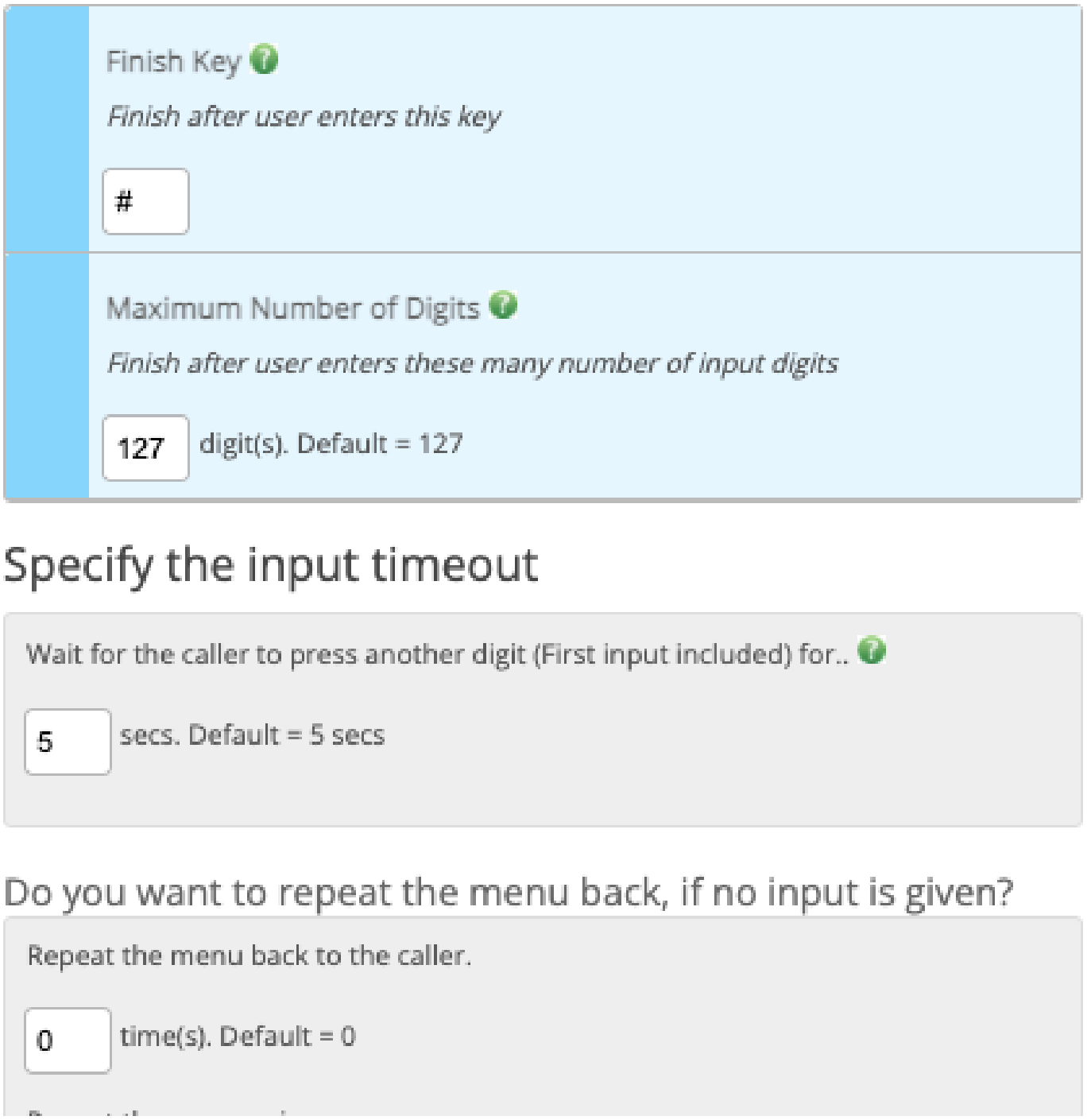
This applet allows you to take numeric information from the user when they are pressing something on their keypads. The information gathered can be used for mobile number input, order id verification etc. along with the Pass-thru applet to process such information in real-time and proceed with an appropriate set of actions with the user on call.

You can choose to configure the gather applet parameters using the flow builder itself or control it dynamically through a URL. However, you'll need to configure the transitions (next applet) while building the flow irrespective.

1. Configure using flow builder

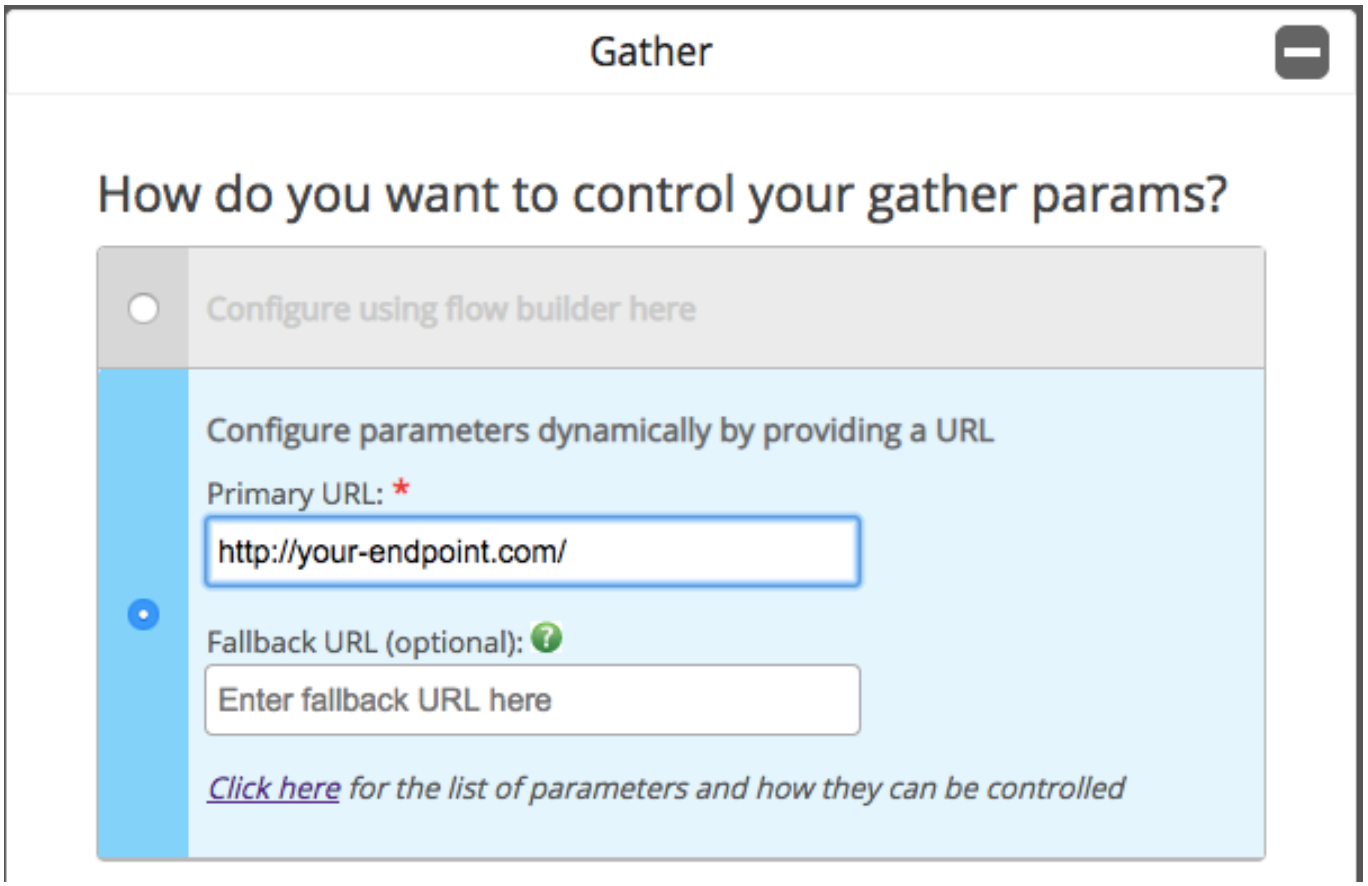


Play a prompt to the caller to enter the input



Specify Key Input behaviour

2. Configure parameters dynamically by providing a URL



In case you choose to configure the parameters dynamically using your application URL, you can set a 'Primary URL' for handling the requests. You can also set a 'Fallback URL' (optional) which will be contacted in case something goes wrong with your 'Primary URL'.

Request

If an application URL is set for gather applet, Exotel will make a GET request to the URL with the call details as URL-encoded HTTP query parameters.

The following are the parameters of the GET request. Note that only some of this list may be passed to your application - depending on what stage of the flow you have placed the gather applet.

Header:

Exotel-Version	This value will indicate the version of gather applet parameters against which your endpoint's response will be validated. Current Version: 1.0

Query Parameters:

Parameter Name	Description
CallSid	Unique identifier of the call
CallFrom	In case of an outgoing call, it'll be set to the number from which the call is made. In case of an incoming call, it'll be set to the number from which the call is received
CallTo	In case of an outgoing call, it'll be set to the number being dialled out. In case of an incoming call, it'll be set to the number where the call landed.
Call status	The status of the call depends on what stage it is at. Possible values: 'queued', 'ringing', 'in-progress', 'completed', 'busy', 'failed', 'no-answer', 'canceled'
Direction	The direction of the call. Possible values: 'incoming' or 'outbound-dial'
Created	Timestamp when the call is created
DialCallDuration	Value in seconds from the time call is triggered to the second leg of the call till it is over (including conversation time). This value can be set to zero depending on the previous applet and if there's no second leg in the call flow.
StartTime	Timestamp when the call is started
EndTime	1970-01-01 05:30:00 // Unix time (also known as POSIX time or epoch time) Note that this would be a constant value and you may instead trigger our Call details API a few minutes after the call has been completed, to get the accurate information
CallType	 Scenario Value IVR only, no connect applet call-attempt

Parameter Name	Description
	Call conversation happened completed The client hung up during connect applet client-hangup Connect applet, no agent picked up incomplete Went to voicemail applet voicemail
DialWhomNumber	Shows the number of the agent who was dialled to last
flow_id	Flow id associated with the call
From	In case of an incoming call, it is the number of the caller. In the case of an outgoing call, it is the number of the first leg of the call.
To	In case of an incoming call, it is the ExoPhone into which the call came. In the case of an outgoing call, it is the number to which the call was made.
Current Time	Current server time (format : yyyy-mm-dd, hh:mm:ss)

*These parameters will be passed if certain conditions are met as described below:

Parameter Name	Description
DialCallStatus	This will denote what happened with the second leg of the call if the previous applet was “connected”. Possible values: 'completed', 'busy', 'no-answer', 'failed', 'canceled'
Legs	An array that will denote detailed information about each leg attempt if the previous applet was “connect”. Sample: Legs[0][CauseCode]=NORMAL_CLEARING Legs[0][Cause]=16 Legs[0][Type]=single Legs[0][OnCallDuration]=21 Legs[0][Number]=07200498123 Meaning: • Legs[i]: I denotes the index of the attempt in the connect applet. If there are multiple numbers attempted, the array’s length will be equal to the total attempts. • CauseCode: Cause code of the call as returned by the operators • Code: Numeric representation of the cause code • Type: single or parallel • OnCallDuration: Time spent by the leg on call. This value could be 0 if there was no conversation with the attempted leg. • Number: Phone number of the attempted leg
digits	‘digits’ will be passed if there was a 'Gather' or ‘IVR’ applet before this applet and will be equal to the input digits that were entered. NOTE: This parameter comes with a double quote (") before and after the number. You'll have to trim() this parameter for double quotes (") to get the actual digits.

Parameter Name	Description
CustomField	If the call was initiated via API, the value that was passed in CustomField in the API call will be set here.
RecordingUrl	This will be populated if the previous applet was "voicemail". It will contain the URL of the voicemail recording. There could be a delay before the recording can be accessed depending on the length of the recording file.

Response

This is the response Exotel will expect to the GET request from your Gather Application URL. The response will decide what parameters will be set while executing gather during the call flow.

Response Header:

Content-Type	application/json

Sample:

```
{"gather_prompt": {    "text": "Hello Kovalan, please provide your order id",
},"max_input_digits": 5,"finish_on_key": "#","input_timeout":
6,"repeat_menu": 2,"repeat_gather_prompt": {    "text": "It seems that you
have not provided any input, please try again."  }}
```

Explanation:

Parameter	Type	Behaviour	Description

gather_prompt	string	Mandatory	URL of the audio file or text which will be played out
			
			Possible Values:
			
			{
			"audio_url": "http://your-endpoint.com/test-audio.mp3"
			}
			OR
			{
			"text": "Please enter your mobile number"
			}

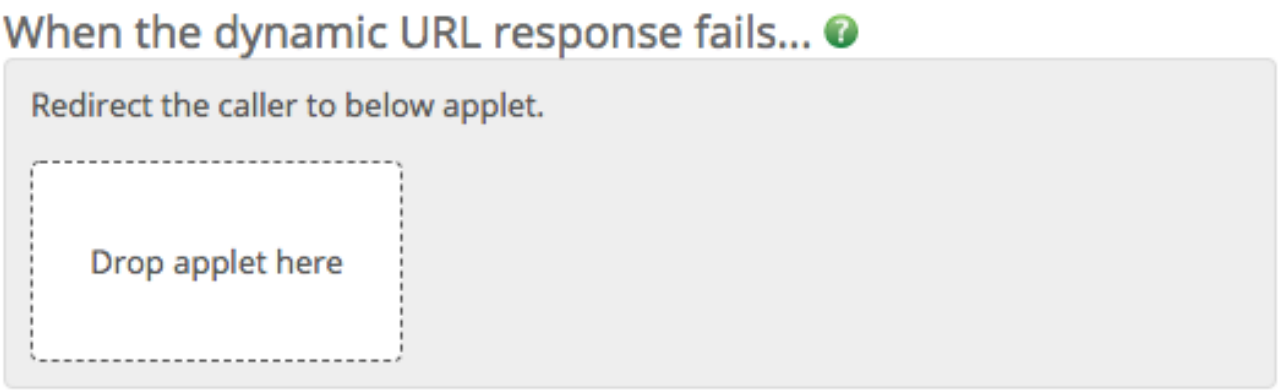
max_input_digits	integer	Optional; default = 255	A maximum number of digits which are expected by the user to be entered, after which the gather should end successfully.
finish_on_key	string	Optional; default = #	Input key after which the gather should end successfully. Allowed: ‘’ (empty string), 0-9, *, # Empty would mean there is no finish key. If null or not set, it’ll take the default value #.
input_timeout	integer	Optional; default = 5 seconds	Time period in seconds between each key press within which the user has to enter another input key (first input included)
repeat_menu	integer	Optional; default = 0	Number of times menu has to be repeated if there is no input provided by the user
repeat_gather_promp	string	Optional; default =	URL or text to be played out if the menu is repeated i.e. in case repeat_menu > 0

Parameter	Type	Behaviour	Description

t		gather_prompt	Possible values:
			{
			"audio_url": "http://your-endpoint.com/test-audio.mp3"
			}
			OR
			{
			"text": "Please enter your mobile number"
			}

*Above set of parameters can also be controlled through the dashboard if one opts to configure the gather applet using the flow builder instead of the Application URL.

NOTE:



When mandatory params are missing, URL is unresponsive (non-2xx) or type validation fails from both Primary and Fallback URL (if set), it will go to URL failure case.

- If optional parameters are not passed in response, it will be set to default.
- If both finish_on_key and max_input_digits are passed, whichever criteria are met first will occur i.e. if finish_on_key is pressed or max_input_digits is reached as per the user's input

Cases, where Fallback URL will be triggered, are:

- Primary URL does not return HTTP 200 OK

- Primary URL doesn't return within the timeout period (5 seconds)
- Primary URL returns invalid response:
    - Content-Type should be application/json
    - Mandatory parameters are present
    - audio_url / text should be http/https and returns 200 HTTP code

5.9. Why does the response time of Connect API vary?

About the API:

- Calls/connect API (POST) is used to connect two numbers or connect a number to a call flow.
- It connects the 'From' number first. Once the person at the 'From' end (Leg 1) picks up the call, it connects to the number provided as 'To' (Leg 2) or the flow (using 'Url').

For more information regarding the API specification, refer here.

What is the API behaviour?

Once Exotel receives an API request (**POST**) on Calls/connect, the platform validates the request. Post validation, Exotel initiates leg 1 (connecting the 'From' number in the API request) of the call by sending the request to the operator switch for call origination (which indicates that we have submitted the request to the operator for initiating the call and does not mean that it is ringing at this stage). Exotel also retries if the call origination fails. All of these actions are performed synchronously.

Upon successful origination of leg 1 of the call, a 200OK HTTP response is returned.

In an event where Exotel is unable to originate the call across any route, 500 Internal Server Error or 504 Gateway Timeout error is returned.

Why is it synchronous?

This is based on the philosophy that the inability to even originate a call is an immediate failure that the caller needs to know right away to enable other workflows.

For instance, if a delivery agent makes a request for an outbound call, the agent would like to know if the call was placed or not.

The analogy to this API request is similar to how you make a phone call from your handset, where you would like to see if the call originated or not as you hit the 'call' button. If the call origination fails, you will see it display on your handset immediately. There are scenarios when we attempt to make a call from our handset and the call does not go through, then, our tendency is to retry manually. However, In the case of this API, we do the heavy lifting so that your call is connected.

Such reliability measures ensure call connectivity is higher and clients can take action based on the API responses.

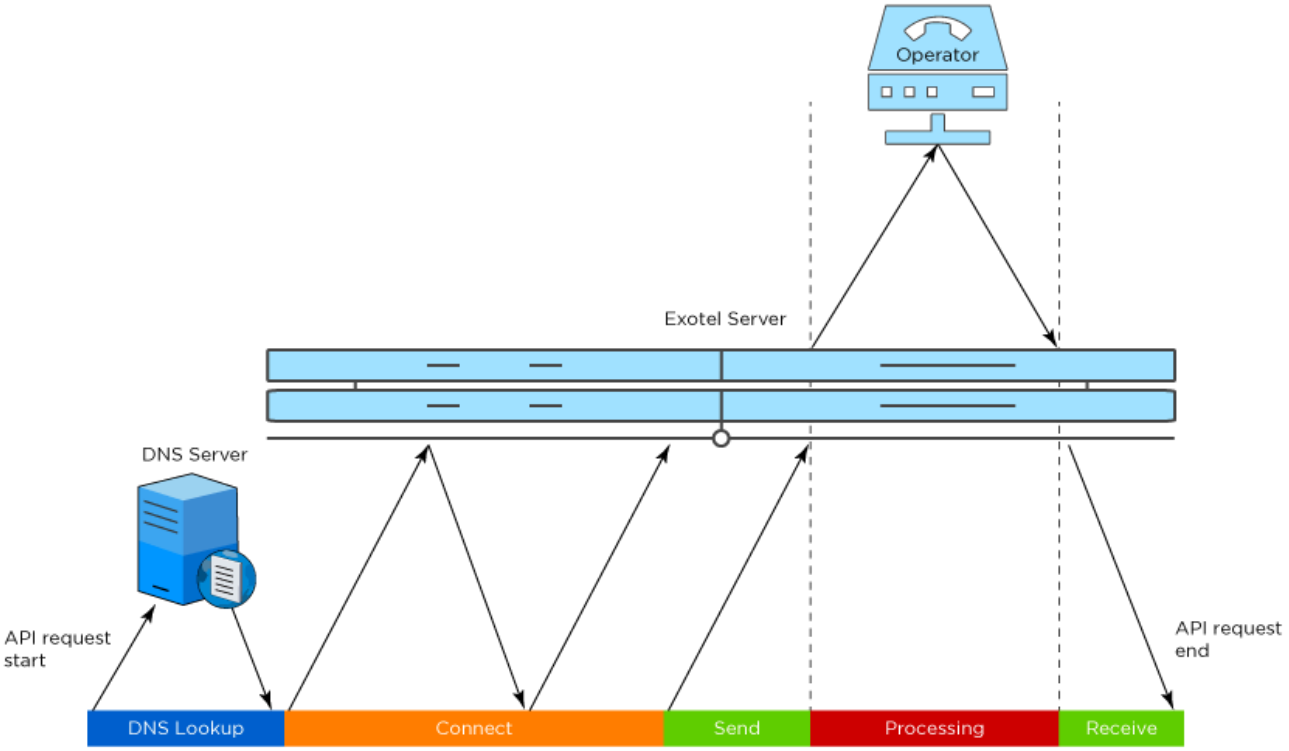
What API response time to expect?

'Response time' here is the total time taken from the instance API request is triggered from your system to Exotel and your system receives a response back to that API request.

The response time (as shown in the figure below) primarily constitutes:

- DNS lookup time
- Connection Time
- Time-taken by the client to send the request and receive the response
- Processing time taken by the server (elaborated further)
- Network latency is involved at each step

By response time, we are referring to the processing time of our platform. Other factors are beyond the scope of our platform and can vary based on the location of the requesting server, network connectivity, internet lines etc..



Historically*, the API latency for Calls/connect API observed is as follows:

Average API latency (in last 6 months)	**~480 ms**
95p API Latency (in last 6 months)	**~1.1 seconds**
99p API Latency (in last 6 months)	**~2.5 seconds**

**as calculated on 22nd October 2018*

Note: Exotel may continue to originate a call, for up to 30 seconds in the worst case.

Based on the above historical trends and behaviour, you can choose to set an appropriate request timeout in your application (this can vary as per your use case, implementation, business criticality etc). However, even if a request is timed out from the client side, our platform may still originate the call as the request might have already been forwarded to the operator switch.

What can cause delays in API response?

As described in the behaviour aspect of the API, Exotel will attempt to originate the call with the operator upon an API request and only then respond back (and not respond immediately upon receiving the request).

Few reasons which can cause a delay in originating the call and hence API latencies are:

- Network latency
- Operator switch takes longer to respond back
- Transient operator/network errors

Exotel has services in place which handle these scenarios by trying alternate routes which may add to the latency but ensure call connectivity is maintained. It's a tradeoff given the unreliable nature of operator networks.

Best Practices:

- Applications consuming this API are advised to handle the response internally in an asynchronous or non-blocking manner. This will depend on the implementation and programming language used.
- Set connection timeout and request timeout separately in your application. The time taken to establish a connection from an application client to Exotel will primarily depend on the network and location of your server. The request timeout can be set as per the API behaviour and response time trends detailed above.

5.10. How to monitor the status of your SMS?

For an SMS sent via Exotel SMS API, you can find out the delivery status of the SMS via two means:

A. PULL: You can pull the status by querying Exotel for the specific SMS that you sent.

For this you need to make a GET request to SMS API

https://<your_api_key>:<your_api_token>@<subdomain>/v1/Accounts/<ExotelSid>/SMS/Messages/<SmsSid>

- Replace <your_api_key> and <your_api_token> with the API key and token created by you. This can be found here: https://my.exotel.com/apisettings/site#api-credentials
- Replace <your_sid> with your “Account sid”
- Replace <subdomain>with the region of your account
  - <subdomain> of Singapore cluster is api.exotel.com
  - <subdomain> of Mumbai cluster is api.in.exotel.com

Ex: curl "https://asd23df:abcdefgh@api.exotel.com/v1/Accounts/Exotel/SMS/Messages/4dd44cc0f7010ee43ca256126f3efc88"

B. PUSH: You can have Exotel push the SMS status to you after the SMS reaches any terminal state (ie, "sent", "failed" or "failed-dnd").

For this, you need to pass an additional parameter "StatusCallback" along with your other parameters (like 'From', 'To' and 'Body').

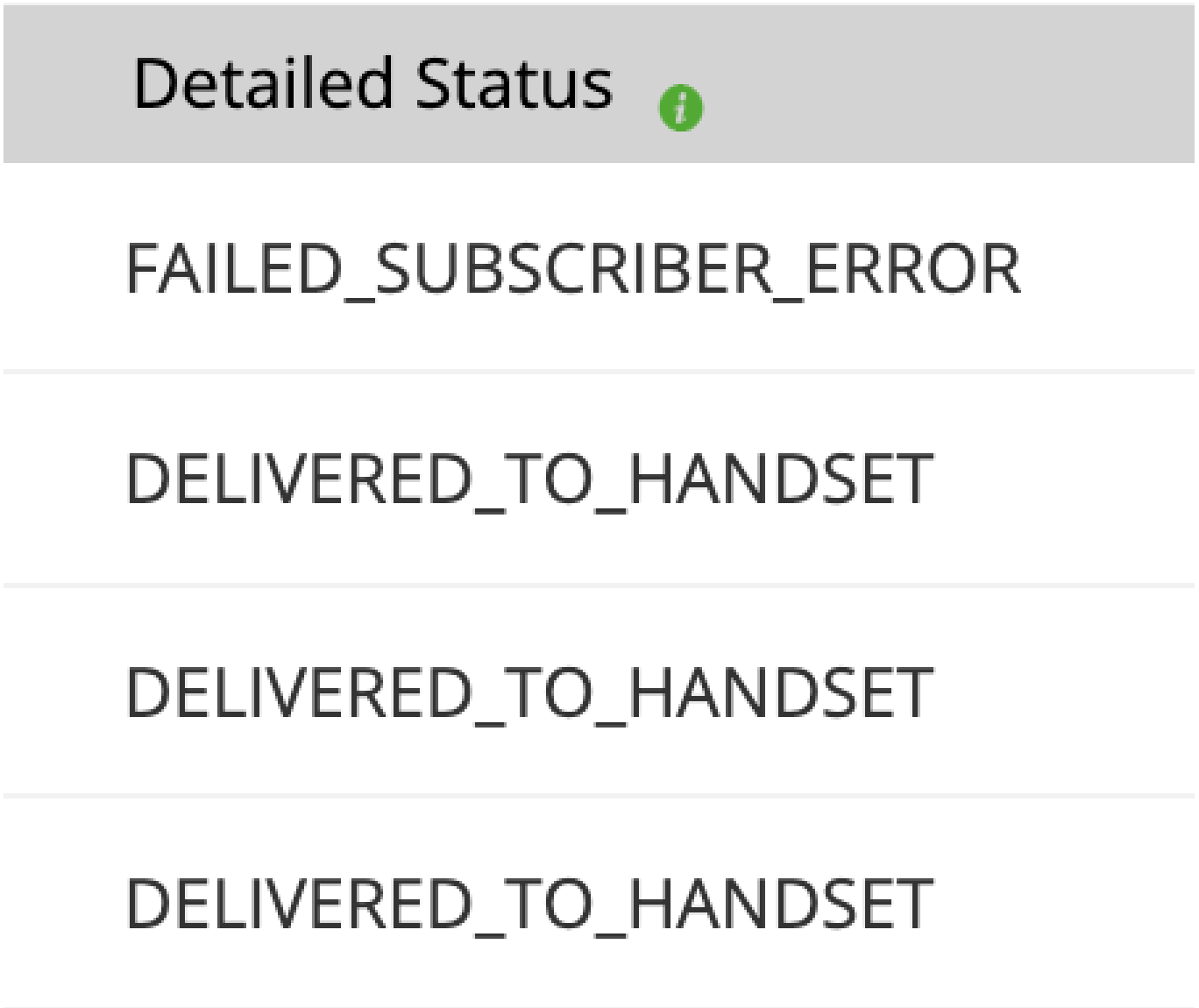
=> This parameter should be a URL that is hosted by you. Ex: http://example.com/

=> Exotel will make a POST request to the above URL with the following parameters:

- SmsSid - The Sid (unique id) of the SMS that you got in response to your request
- To - Mobile number to which SMS was sent
- Status - one of queued, sending, submitted, sent, failed-dnd, failed
- SmsUnits - The number of SMS units being sent

- DetailedStatus - Human readable word that explains what happened to the message
- DetailedStatusCode - Exotel's Detailed Status code corresponding to the DetailedStatus
- DateSent - The date on which the message was sent
- CustomField - The custom field that was set in the POST request. (Will be returned only if it was set)

DASHBOARD: You can also monitor the status of your SMS from the Outbox section of the dashboard.



Also, refer to How to check SMS status from the dashboard

SMS STATS: The SMS Stats dashboard gives you a high-level overview of your SMS stats.

The dashboard is accessible as SMS Stats (Beta) under the SMS section of your Exotel portal.

5.11. How do I integrate Exotel into my CRM?

Exotel is a cloud-based telephony system i.e. all of Exotel data is available over the web. This makes it cross-linkable with other cloud-based applications easily such as CRM, ERP, CMS, etc. There are 3 broad classifications of API implementations:

1. Incoming Calls/SMS via Passthru:
   The Passthru Applet makes an HTTP GET request onto a URL (on your server) with the details of the call. Every call accumulates data as the call progresses. For example, at the beginning of a call, the only data available is "From Number", "Time of Call" & "Call SID". As the call progresses, more information gets added to this call such as "To Number", "End Time", "Duration", "Recording URL". The fundamental principle of these integrations is to be able to pass on the call details onto your CRM to make an Auto-Entry. You can also use the "Agent Passthrough" to identify which agent is getting the call if the implementation involves popping-up the details of the customer on your CRM page.
2. Call API:
   The Call API is an HTTP-based REST API that allows you to trigger an outbound call using a button on your internal application. You can make use of the "Status Callback" to auto-update the details once the call has completed. You can even use the Call API to trigger IVR calls (calls from machine to human) and ask for a set of responses.
3. SMS API:
   The SMS API is also an HTTP-based REST API that allows you to trigger SMSs using actions/buttons at your internal application.

A combination of these 3 will give you extensive integration between Exotel and your CRM application. As the APIs are HTTP REST-based, Exotel can be integrated with any cloud-based application. Having said this, we offer native integration with the leading CRMs like the one listed below:

1. Salesforce

2. Zoho CRM

3. Zoho Desk

4. Zoho Bigin

5. Zoho One

6. Freshdesk

7. Freshworks CRM (Fresh Sales)

8. HubSpot

9. LeadSquared

5.12. Passing a Custom field in API

```
Question: Customer calls on my virtual number from Exotel and Exotel lets me know via callback that I have indeed received a call from this number. For this I am using miss called plus app. However, I was wondering if its possible for me to pass some custom fields per mobile number which you can then send it back to me as part of the callback in passthru applet.
```

Unfortunately, It is not possible to pass along your own parameter for incoming calls. But in most cases, we have found that it is possible to maintain the necessary custom variables & their values at your end. Because the From & To number is unique for a phone call (You can also include a timestamp if needed or use the CallSid field that you get in the pings), you could persist the custom values at your end and load them as soon as you get the ping from Exotel.

Passing a custom variable is possible for outbound calls via API. See the CustomField Parameter in our call connect API. We have listed all our APIs here **https://developer.exotel.com/api#call**

5.13. Metadata of a phone number

The number metadata API provides the following metadata of a given number:

- Telecom Circle
- Human readable Telecom Circle name
- Number type
- Operator (Carrier) that the number belongs to
- Whether the number is under DND or not

If all you want is to see/read the details of a phone number, use our **Phone number details page**

Request Format:

```
GET https://<your_api_key>:<your_api_token><subdomain>/v1/Accounts/<your_sid>/Numbers/~number~
```

Copy

https://<your_api_key>:<your_api_token>
<subdomain>/v1/Accounts/<your_sid>/Numbers/~number~

- Replace <your_api_key> and <your_api_token> with the API key and token created by you.
- Replace <your_sid> with your “Account sid”
- Replace <subdomain>with the region of your account
    - <subdomain> of Singapore cluster is api.exotel.com
    - <subdomain> of Mumbai cluster is api.in.exotel.com

<your_api_key> , <your_api_token> and <your_sid>onExotel Dashboard

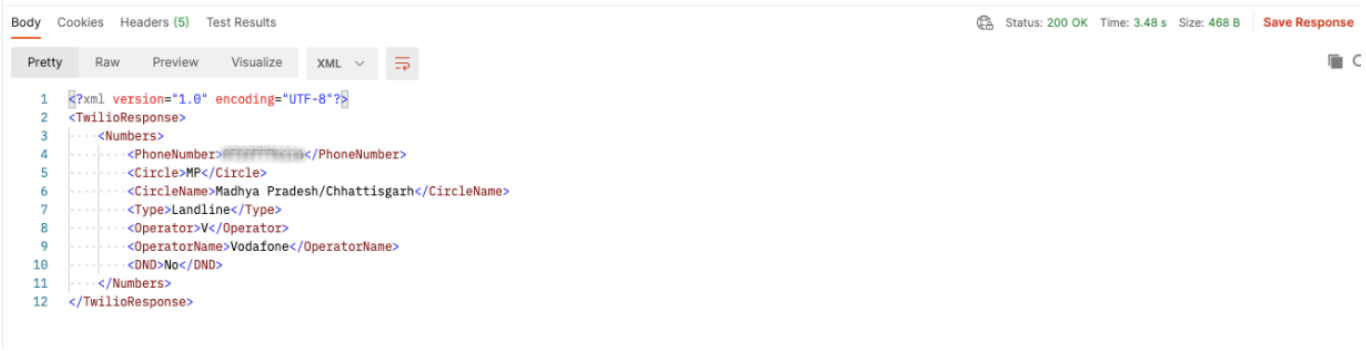
Example:https://roopit:afancytokenwordhere007@api.exotel.com/v1/Accounts/roopit/Numbers/9916766748

Response:

The response comes back in XML

Parameter Name	VALUE
PhoneNumber	Reformatted phone number string
Circle	Two-character **telecom circle code**.
CircleName	The human-readable string of the Circle code. Ex: Haryana Telecom Circle (excludes Faridabad, Gurgaon & Panchkula)
Type	'Mobile' or 'Landline'
Operator & OperatorName	"AC" => "Aircel","A" => "Airtel","AL" => "Allianz","B" => "BSNL","D" => "Dishnet","E" => "Etisalat","H" => "HFCL","I" => "Idea","LO" => "Loop","MT" => "MTNL","P" => "Ping","R" => "Reliance","S" => "Sistema","ST" => "S Tel","T" => "Tata","U" => "Unitech","VI" => "Videocon","V" => "Vodafone"
DND	'Yes' 'No' 'Unavailable'

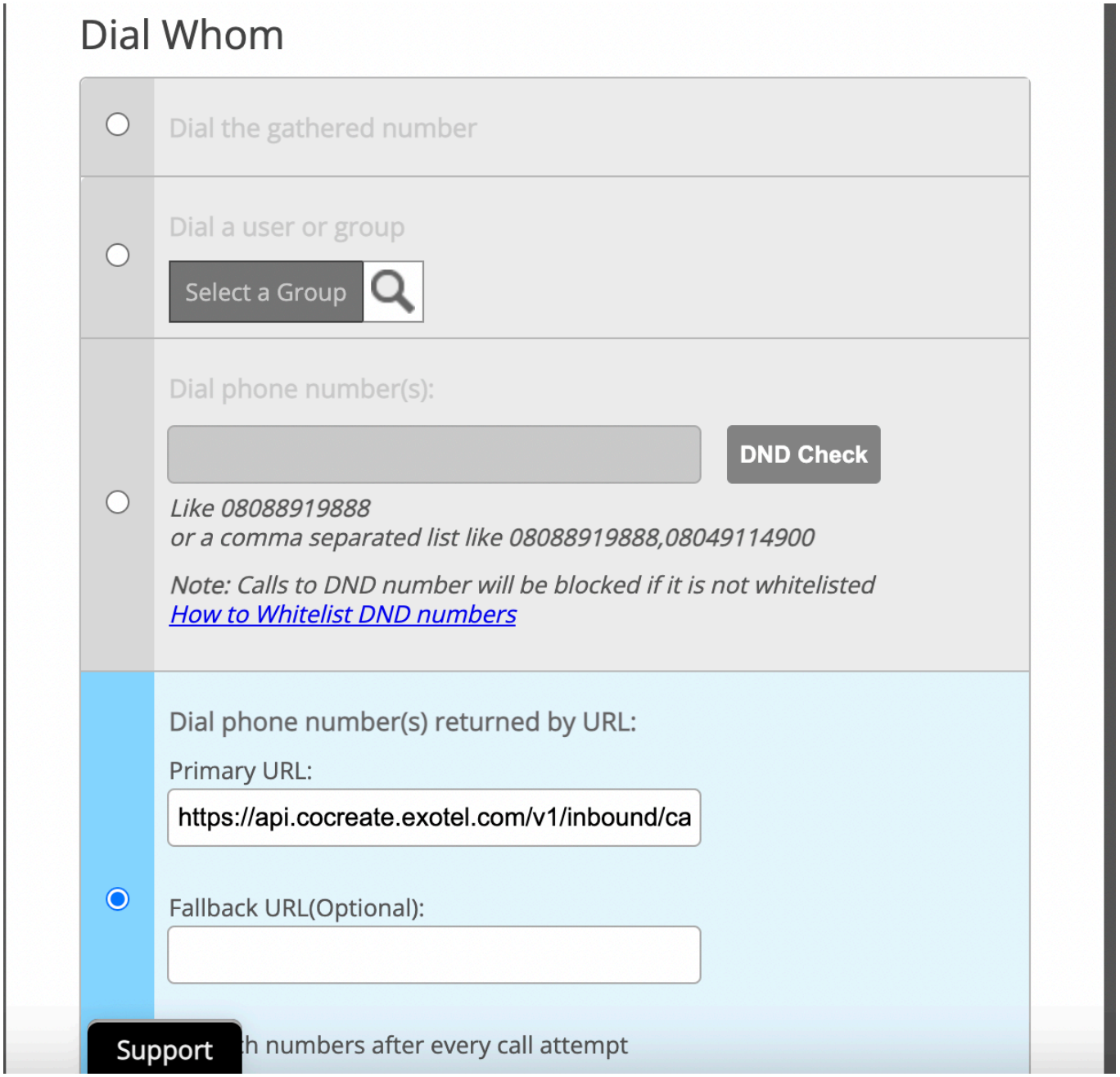
Example:



Please note the DND status fetched using the mentioned API may not be accurate as the DND statuses are not published as per recent updates by TRAI.

5.14. Dial using number from a URL

In the Connect applet, in the "Dial Whom" section, there is an option to "Dial phone number (or phone number returned by this URL)". You can specify a URL in the text box. When the text box contains a URL, Exotel will make an HTTP GET request to that URL, and the URL should return a number in the HTTP response. This is the number that Exotel will try dialing, and connecting the caller to.



For a detailed list of parameters, refer to the updated documentation here.

NOTE: This option will be available only if your KYC docs have been submitted & approved.

5.15. Greeting using dynamic text or audio from URL

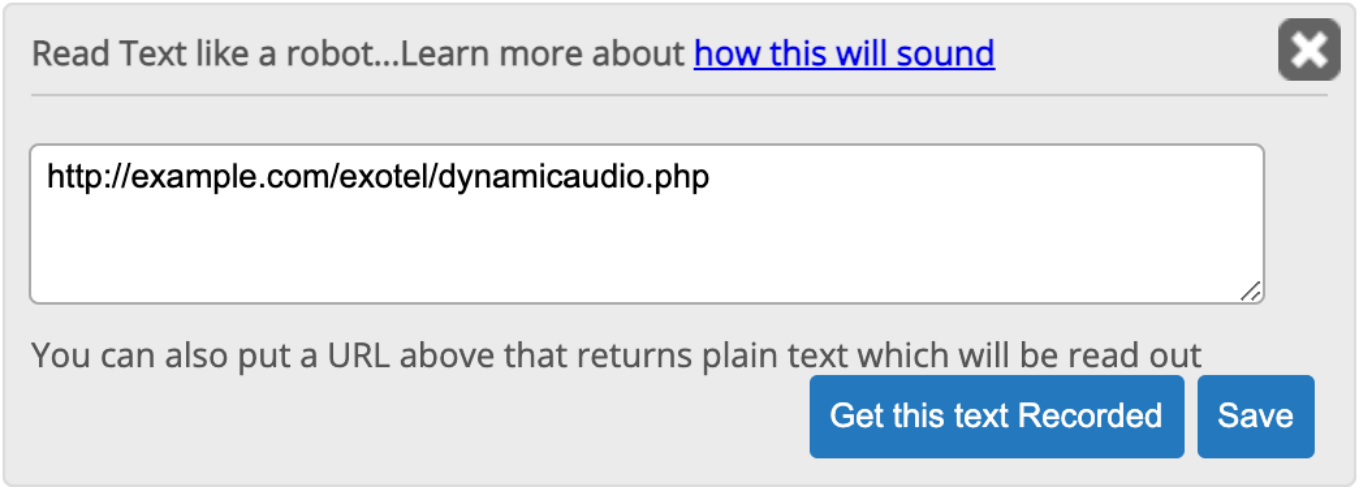
What is usual?

Typically, while configuring your app, you would enter the text or upload the audio that you want your callers to listen to. This is static in nature - i.e., all your callers will hear the same message/audio.

How to make it dynamic?

In Exotel, you have an option to make this greeting dynamic - i.e., you can potentially play a different greeting to different callers.

In the Greeting (or Menu) applet, you can specify a URL (instead of a static text) in the "Read text like a robot" option. See below.



When the text box contains a URL, Exotel will make an HTTP GET request to that URL (which is hosted at your server). Your server can now return either a text or a URL (to an audio file). If it returns a text, the text will be converted to audio using our Text-To-Speech (TTS) engine and then played out.

The applets mentioned above are a part of the Custom App section also called App Builder, to know more about App Builder please follow----> **Exotel App Builder**

HTTP Request from Exotel (to your URL)

The GET request that Exotel makes to the URL will have the following query parameters:

PARAMETER NAME	VALUE
CallSid	string; unique identifier of the call
From	string; the number of the calling party
To	string; your Exotel company number that is being called; this will be from your "Company Numbers" page
DialWhomNumber	string; the number that is being called currently (This might be empty also)
CustomField	string; This is set if CustomField was provided while initiating an Outbound call (Not applicable for IB calls)

To know more about passing custom fields, while making an Outbound call, please follow ---> APIs

HTTP Response from your web server

Your web server:

- MUST set the **Content-Type** HTTP header to '**text/plain**' and nothing else.
- MUST support a HEAD request from Exotel and return the exact same headers that it would for a GET request.

In case you want to read out a text,

- The HTTP response body must contain the text to be read out in plain English - and nothing else. Such as this:

> Thanks for calling Super Kart. Your order has already been shipped. It will reach you in 2 to 3 business days.

In case you want to play an audio

- The HTTP response body must contain the URL of the audio file (one per line). Such as this:

> **http://example.com/first-audio.wav**
> **http://example.com/second-audio.wav**

- The Audio files **MUST** be in the .wav/.mp3, 8Khz Mono format. The bit depth must be 16 bit.

NOTE: All other formats are **not** supported (like 16Kz Mono/Stereo etc)

Caching of the audio files

Exotel caches the audio files that it downloads and plays - so that the next time you send the same file, we don't need to download and it will be faster.

Exotel caches the file based on the **name of the URL.** So in case you are changing first-audio.wav, you will need to send in another name the next time (Ex: http://example.com/first-audio-new.wav)

Note: If you do not wish to play the dynamic content, you can also play a voice message by adding the context instead of the URL. Please find the link useful on How can I request a voice

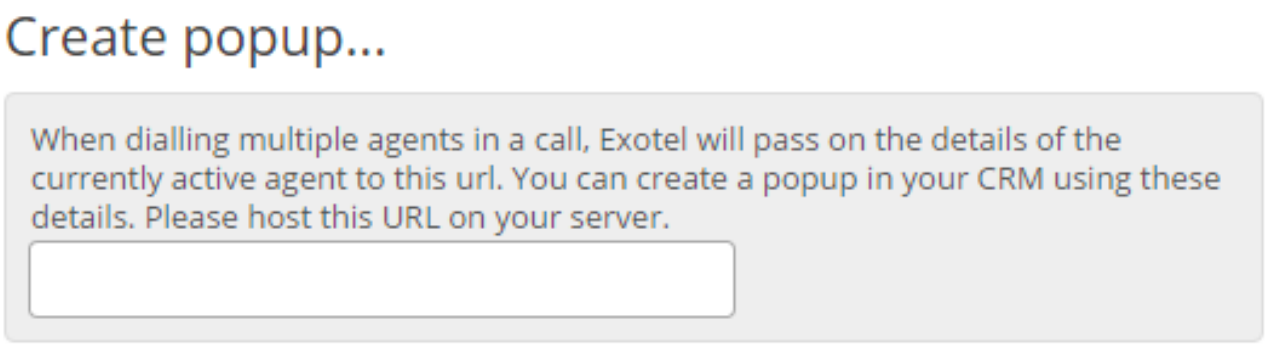
over and where can I find my voice over recordings?

5.16. How can I get data of a call into another system using Exotel API?

There are two ways to monitor incoming calls in real time without using reports at all:

1. Use the Passthru applet - You can put the Passthru applet at the end of every incoming flow for all your shifts. This applet will basically transfer all call details (who called, who picked up, date, time, etc.) to a URL hosted on your CRM. Please add the URL in the Passthru applet and the Exotel system will make a GET request to that URL with the encoded call parameters and you'd be able to receive them at your end.
   This way, you will get all the call details in real-time on your CRM.

2. Use Agent Popup - this will help you monitor which agent picked up which call at what time. As soon as an agent picks up a call, the Exotel system will make a GET request to a URL provided by you and transfer the call details (caller's number, time, date, and the agent's number who picked up). This will be received on your end. This will be done in real-time, as soon as the agent picks up a call, with no delay whatsoever. It will be like a pop-up appearing on your CRM.
   The URL will be entered in a box on the CONNECT applet under the heading "During the Call".



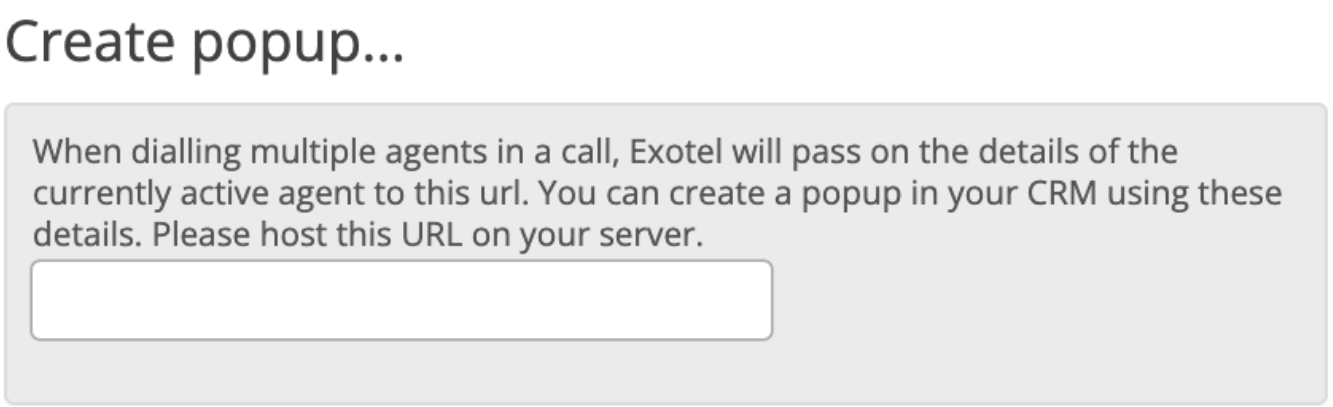
3. Use **Status Callback**- this works for outbound API calls. The outbound calling API has a parameter called StatusCallback where you can pass your endpoint URL hosted by your CRM and after the call is finished an HTTP POST request will be made to the endpoint URL that you have passed in the StatusCallback parameter and call details (caller's number, time, date, and the agent's number who picked upand custom filed can also be added) will be transferred to your CRM.

Please click here to know more about the StatusCallback parameter.

5.17. Getting a Popup when agent receives a call

To create a Popup for an agent when he receives a call, this needs to be configured in connect applet in the call flow. In the connect applet, you need to go to the section titled "Create popup...", shown below.

Here, enter the endpoint URL where the data has to be pushed to create the popup.



When configured with a URL, Exotel will pass on to that URL details of the agent who is currently being called. It makes a GET request to the URL with the following query parameters:

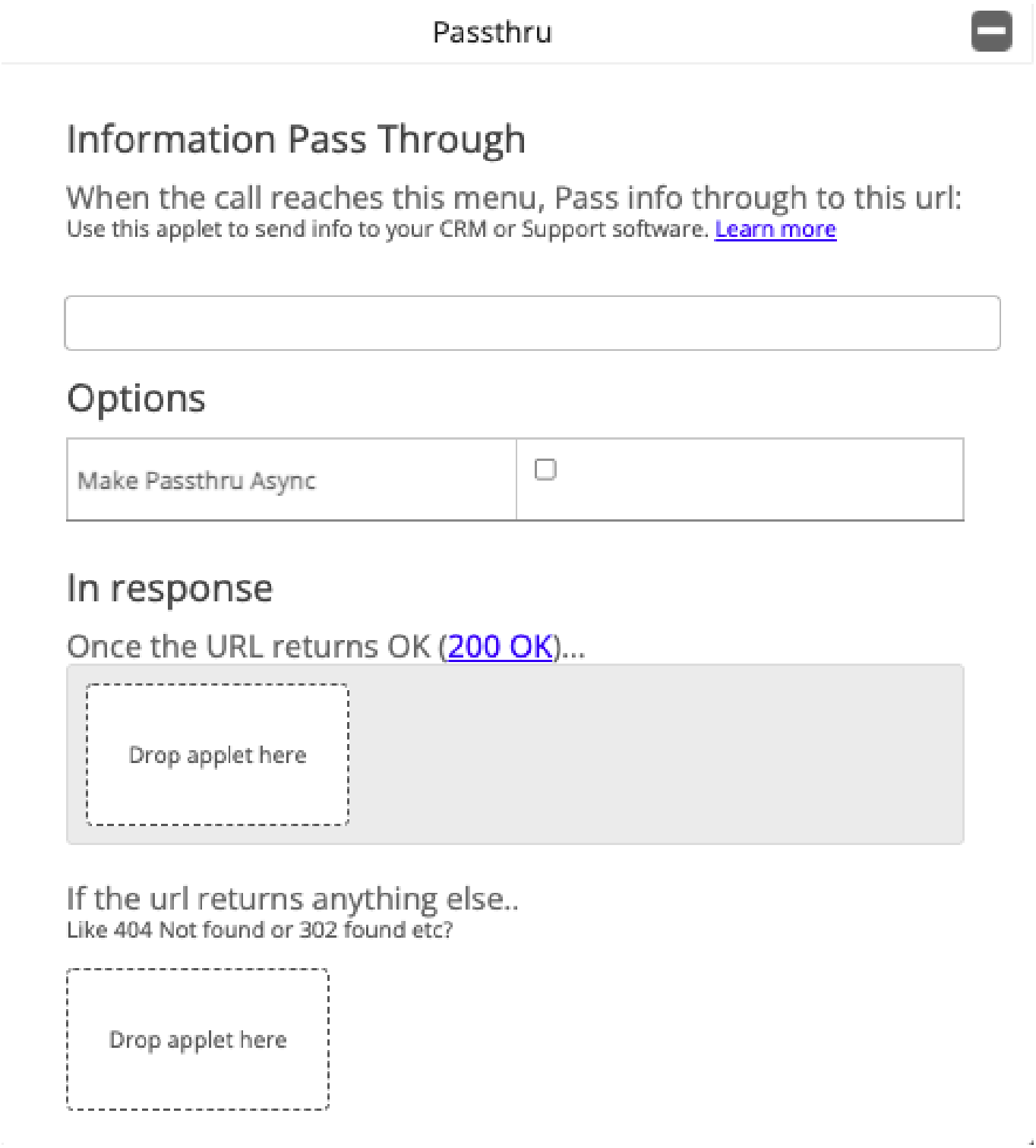
PARAMETER NAME	VALUE
CallSid	string; unique identification for every single call
From	string; the number of the caller (customer in this case)
DialWhomNumber	string, the number of the agent
Status	busy: Status is sent as 'busy' when the above agent is being called. free: Status is sent as 'free' when the call to the above agent ends. The free status will also be triggered, when the call ends or the call didn't go through or the agent didn't pick up the call.
EventType	string, This shall have values of '' Dial'', ''Ringing'', ''Answered'', ''Terminal''

NOTE:-

- To get a Ringing event or Answered event in the connect applet, it needs to be enabled by Exotel for your account
- The ringing event is dependent on the operator and it may not be reported if the operator doesn't provide it in certain cases. If the ringing event is not available then the RingDuration is set as 0.

5.18. Working with Passthru Applet

Using the Passthru applet in the call flow you can get Exotel to talk to your Application URL and pass on details about the call as and when it happens. Your application can now process this information and decide which path (success/failure) the flow should take next. This applet helps to dynamically control the flow as well as store the call details in your CRM system or other applications.



The Passthru applet passes the call details to the URL configured. It makes a GET request to the URL with the call details as URL-encoded HTTP query parameters.

Passthru can be used in 2 modes (by toggling the checkbox to 'Make Passthru Async'):

- Sync: Exotel will immediately pass the call details synchronously during the call flow execution. In this case, it is possible only to make a binary decision with Passthru. For example, You can return back a "200 OK" for choice A and "302 Found" for Choice B.

Read more about HTTP response codes here. Please note, that the person on call will have to wait for the next action to be executed until your URL responds back.

- Async: Exotel will asynchronously pass the call details without interrupting the call flow execution. Use this option if you don't want to dynamically change flow execution i.e. select the next applet based on Passthru response. This will ensure the person on call doesn't wait for the time period it takes for Passthru to be executed i.e. your URL to respond back.

The following are the query parameters of the GET request. Note that only some of this list may be passed to your application - depending on what stage of the flow you have placed the pass-through applet.

Query Parameters:

Parameter Name	Description
CallSid	Unique identifier of the call
CallFrom	In case of an outgoing call, it'll be set to the number from which the call is made. In case of an incoming call, it'll be set to the number from which the call is received
CallTo	In case of an outgoing call, it'll be set to the number being dialed out. In case of an incoming call, it'll be set to the number where the call landed.
CallStatus	The status of the call depends on what stage it is at. Possible values: 'queued', 'ringing', 'in-progress', 'completed', 'busy', 'failed', 'no-answer', 'canceled'
Direction	The direction of the call. Possible values: 'incoming' or 'outbound dial
Created	Timestamp when the call is created
DialCallDuration	Value in seconds from the time the call is triggered to the second leg of the call till it is over (including conversation time). This value can be set to zero depending on the previous applet and if there's no second leg in the call flow.
StartTime	Timestamp when the call is started
EndTime	1970-01-01 05:30:00 // Unix time (also known as POSIX time or epoch time) Note that this would be a constant value and you may instead trigger our Call details API a few minutes after the call has been completed to get accurate information
CallType	Scenario Value IVR only, no connect applet call-attempt Call conversation happened completed

Parameter Name	Description
	The client hung up during connect applet client-hangup Connect applet, no agent picked up incomplete Went to voicemail applet voicemail
DialWhomNumber	Displays the number of the agent who was dialed to last
From	In case of an incoming call, it is the number of the caller. In the case of an outgoing call, it is the number of the first leg of the call.
To	In case of an incoming call, it is the ExoPhone on which the call landed. In case of an outgoing call, it is the number to which the call was made.
Current Time	Current server time (format : yyyy-mm-dd hh:mm:ss)

*These parameters will be passed if certain conditions are met as described below:

Parameter Name	Description
DialCallStatus	This will denote what happened with the second leg of the call if the previous applet was “connect”. Possible values: 'completed', 'busy', 'no-answer', 'failed', 'canceled'
Legs	An array that will denote detailed information about each leg attempt if the previous applet was “connect”. Sample: Legs[0][CauseCode]=NORMAL_CLEARING Legs[0][Cause]=16 Legs[0][Type]=single Legs[0][OnCallDuration]=21 Legs[0][Number]=07200498123 Meaning: • Legs[i]: i denotes the index of the attempt in the Connect applet. If there are multiple numbers attempted, the array’s length will be equal to the total attempts. • CauseCode: Cause code enum of the call as derived from the ISDN cause code returned by the carriers. A list of CauseCode can be found here • Cause: Numeric representation of the CauseCode. A list of Causes can be found here • Type: single or parallel • OnCallDuration: Time spent by the leg on call. This value could be 0 if there was no conversation with the attempted leg. • Number: Phone number of the attempted leg
digits	‘digits’ will be passed if there was a 'Gather' or ‘IVR’ applet before this applet and will be equal to the input digits that were entered. NOTE: This parameter comes with a double quote (") before and after the number. You'll have to trim() this parameter for double quotes (") to get the actual digits.

Parameter Name	Description
CustomField	If the call was initiated via API, the value that was passed in CustomField in the API call will be set here.
RecordingUrl	This will be populated if the previous applet was "Connect" or "Voicemail". It will contain the URL of the conversation in the Connect Applet (if enabled) or voicemail recording. There could be a delay before the recording can be accessed depending on the length of the recording file.
OutgoingPhoneNumber	This will be populated if the previous applet was “connect”. It indicates which ExoPhone (Virtual Number) was used to dial out in the Connect Applet.

Deprecated parameters:

The following parameters have been deprecated and are no longer supported. Some of these values might be passed inadvertently and applications should not rely on them anymore

RecordingAvailableBy
ForwardedFrom
ProcessStatus
tenant_id
flow_id

Samples Responses for different scenarios.

1) Sample Response for a Completed call where the previous applet is a Connect Applet with Recording URL:

CallSid	56ad12c0e29d[redacted]
CallFrom	086605[redacted]
CallTo	080468[redacted]
CallStatus	completed
Direction	incoming
Created	Wed, 27 Dec 2023 12:17:05
DialCallDuration	19
RecordingUrl	https:[redacted]/E...
StartTime	2023-12-27 12:17:05
EndTime	1970-01-01 05:30:00
DialCallStatus	completed
CallType	completed
DialWhomNumber	094490[redacted]
flow_id	7[redacted]
tenant_id	15
From	086605[redacted]
To	080468[redacted]
RecordingAvailableBy	Wed, 27 Dec 2023 12:22:26
CurrentTime	2023-12-27 12:17:26
OutgoingPhoneNumber	080468[redacted]
Legs	[{"Number":"094490[redacted]","Type":"single","OnCallDuration":"8","CallerId":"080468[redacted]","CauseCode":"NORMAL_CLEARING","Cause":"16","DisconnectedBy":"Caller"}]

2) Sample Response for a Completed call where previous applet is a Gather/IVR Applet:

CallSid	b8013b5546750a[redacted]
CallFrom	086605[redacted]
CallTo	080468[redacted]
CallStatus	in-progress
Direction	incoming
Created	Wed, 27 Dec 2023 12:26:25
DialCallDuration	25
RecordingUrl	https:/[redacted]/E...
StartTime	2023-12-27 12:26:25
EndTime	1970-01-01 05:30:00
DialCallStatus	completed
CallType	completed
DialWhomNumber	094490[redacted]
ProcessStatus	ready
flow_id	7[redacted]
tenant_id	15
From	086605[redacted]
To	080468[redacted]
RecordingAvailableBy	Wed, 27 Dec 2023 12:32:01
CurrentTime	2023-12-27 12:27:01
digits	"15246"

3) Sample Response for a Completed call where the call was initiated via an API, with the value that was passed in CustomField of the API request.

CallSid	402cd0139019[redacted]
CallFrom	086605[redacted]
CallTo	080468[redacted]
CallStatus	completed
Direction	outbound-dial
Created	Wed, 27 Dec 2023 12:53:35
DialCallDuration	35
RecordingUrl	https:[redacted]/E...
StartTime	2023-12-27 12:53:35
EndTime	1970-01-01 05:30:00
DialCallStatus	completed
CallType	completed
DialWhomNumber	094490[redacted]
flow_id	7[redacted]
tenant_id	15
From	086605[redacted]
To	080468[redacted]
RecordingAvailableBy	Wed, 27 Dec 2023 12:59:13
CurrentTime	2023-12-27 12:54:13
CustomField	Hello there
OutgoingPhoneNumber	080468[redacted]
Legs	[{"Number":"09449[redacted]","Type":"single","OnCallDuration":...

Note: The response you get from Passthru cannot be customised. However, you can add a Custom field only via the **Outgoing call to connect number to a call flow API**.

Looking to streaming metadata using Passthru? Learn how to receive stream metadata post-call, link **here**

5.19. Outbound Call to connect an Agent to a Customer

This API will connect the two numbers given for an agent and the customer. It will connect the ‘From’ number first. Once the person at the ‘From’ end picks up the phone, it will connect to the number provided in the ‘To’. You can choose which number to be connected first by giving that number in the ‘From’ field.

An HTTP POST request to https://<your_api_key>:<your_api_token>@<subdomain>/v1/Accounts/<your_sid>/Calls/connect has to be made

- Replace <your_api_key> and <your_api_token> with the API key and token created by you.
- Replace <your_sid> with your “Account sid”
- Replace <subdomain>with the region of your account
    - <subdomain> of Singapore cluster is api.exotel.com
    - <subdomain> of Mumbai cluster is api.in.exotel.com

<your_api_key> , <your_api_token> and <your_sid> are available on the API settings page of your **Exotel Dashboard**

The following are the POST parameters:

PARAMETER NAME	MANDATORY /OPTIONAL	VALUE
From	Mandatory	The Agent's phone # that will be called first If mobile number, prefix the 10 digits with a 0; Ex: ✆✆ 09052161119. If landline number, prefix it with STD code; Ex: 08030752400
To	Mandatory	Your customer's phone number. If mobile number, prefix the 10 digits with a 0; Ex:✆✆ 09052161119. If landline number, prefix it with STD code; Ex: 08030752400
CallerId	Mandatory	This is your Exotel Number (pick one from the 'Company Numbers' page)
CallType	Mandatory	
TimeLimit	Optional	The time limit (in seconds) that you want this call to last. The call will be cut after this time. (max. 14400 i.e. 4 hours)
TimeOut	Optional	The time (in seconds) to ring the called parties (both first and second call leg)
StatusCallback	Optional	When the call completes, an HTTP POST will be made to the URL mentioned with the following four parameters: CallSid - an alpha-numeric unique identifier Status - One of completed, failed, busy, no-answer. RecordingUrl - link to the call recording (if it exists) DateUpdated - time when the call state was updated last
MaxRetries	Optional	The number of times the call should be retried if we get failed or no-answer status from 1st leg. (Default value: 3)

"trans" - for Transactional Calls

~~"promo" - for Promotional calls~~ No longer supported by Exotel

HTTP Response:

On success,

- the HTTP response status code will be 200
- the HTTP body will contain an XML similar to the one below. The "Sid" is the unique identifier of the call and it will be useful to log this for future debugging purposes.

<?xml version="1.0" encoding="UTF-8"?>

<TwilioResponse>
<Call>

<Sid>xxxxxxxxxxxxxxxxxxxxx</Sid>
<ParentCallSid/>

<DateCreated>2012-08-17 12:31:49</DateCreated>

<DateUpdated>2012-08-17 12:31:49</DateUpdated>

<AccountSid>xxxxxxxxx</AccountSid>

<To>09052161119</To>

<From>09739761117</From>

<PhoneNumberSid>xxxxxxx</PhoneNumberSid>

<Status>in-progress</Status>

<StartTime>2012-08-17 12:31:49</StartTime>

<EndTime>2012-08-17 12:32:57</EndTime>

<Duration></Duration>

<Price></Price>

<Direction>outbound-api</Direction>

<AnsweredBy/>

<ForwardedFrom/>

```
<CallerName/>
<RecordingUrl/>

 <Uri>/v1/Accounts/xxxxxxxx/Calls/xxxxxxxxxxxxxx</Uri>

 </Call>

</TwilioResponse>
```

On failure,

- the HTTP response status code will be non-200.
- the HTTP body will contain an XML (such as the one below) with details of why the request failed.

```
<TwilioResponse>
<RestException>
<Status>404</Status>
<Message>No matching results</Message>
</RestException>
</TwilioResponse>
```

Rate Limit:

This API is rate limited to 200 calls per minute. Once this limit has been crossed, your requests will be rejected with an HTTP 429 'Too Many Requests' code.

Sample PHP Code:

An **example PHP code for this is available on Github**

Sample Ruby Code:

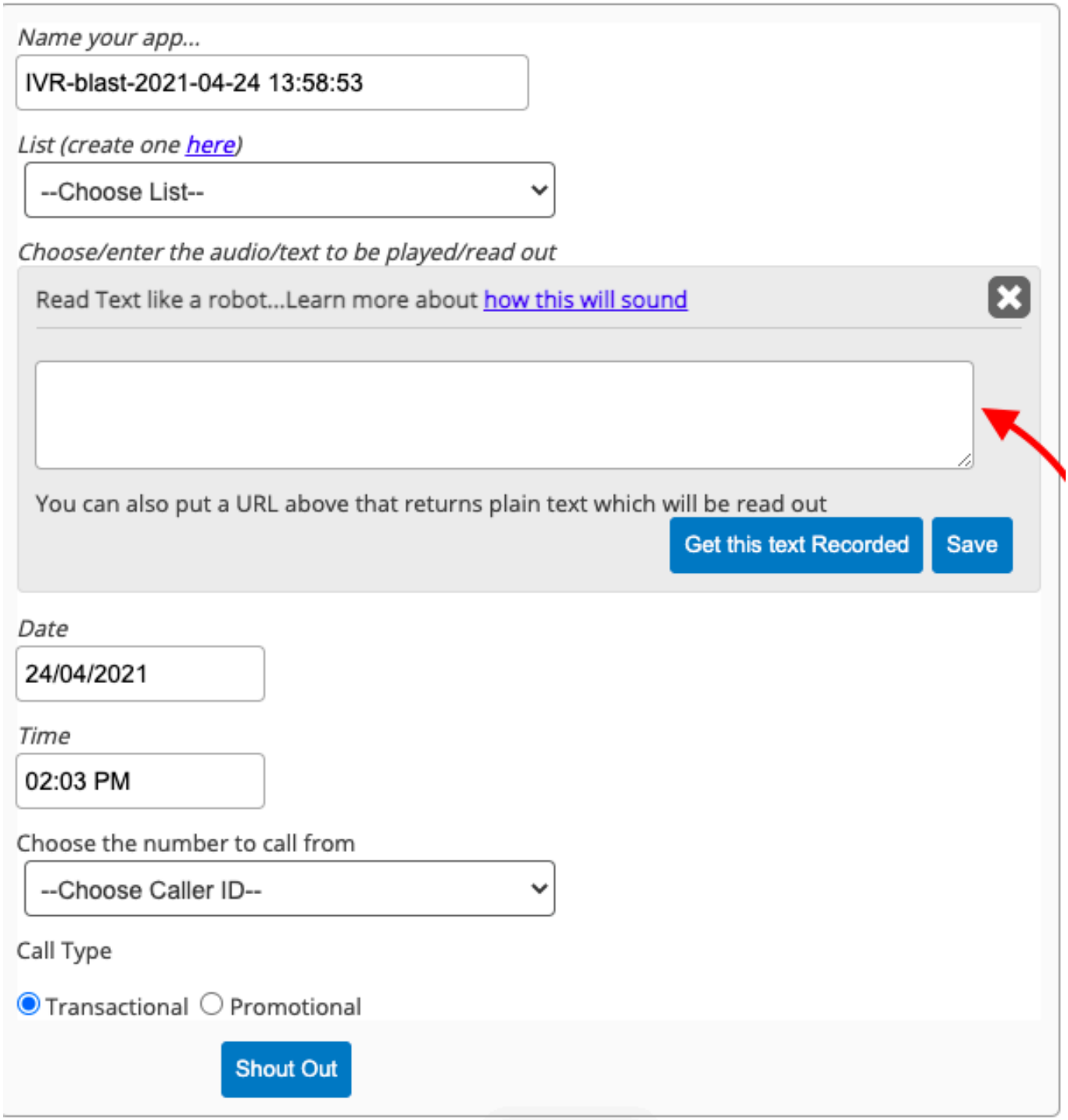
Sample code is available at **Github** and Ruby Gem available at **rubygems.org**

5.20. API to convert text to high quality voice using Shout Out app

Question: How do I convert text to high-quality voice and deliver it to cell phones? Can you provide me with an API for such a task? These text messages would be different for different customers.

Solution: You may use our "**Shout Out**" app to create bulk IVR call campaigns in minutes. Simply choose a list and the message to play out and schedule the time to Shout Out!

Here's how: Download the Shout Out app from the app store. Put a URL that can return text in the text box. The parameters for this URL will be the same as for the **Passthru applet**. Because one of the parameters is the phone number, your URL can return different text for different callers, and the content will be read out using our Text to Speech engine.



Read more about **greeting callers using dynamic text or audio**.

5.21. Outbound Call to connect a Customer to an App

This API will first call the customer, and once they pick up the phone, it will connect them to an app (aka flow) that you have created in the system - like your landing app, or any other app that can play a greeting, have IVR etc.

A HTTP POST request to https://<your_api_key>:<your_api_token>@<subdomain>/v1/Accounts/<your_sid>/Calls/connect has to be made

- Replace <your_api_key> and <your_api_token> with the API key and token created by you.
- Replace <your_sid> with your “Account sid”
- Replace <subdomain>with the region of your account
    - <subdomain> of Singapore cluster is api.exotel.com
    - <subdomain> of Mumbai cluster is api.in.exotel.com

<your_api_key> , <your_api_token> and <your_sid> are available in the API settings page of your **Exotel Dashboard**

The following are the POST parameters:

PARAMETER NAME	MANDATORY/OPTIONAL	VALUE
From	Mandatory	The customer phone # that will be called first In the case of mobile numbers, prefix the 10 digits with a 0; Ex: 09052161119. In case of landline number, prefix it with STD code; Ex: 08030752400
CallerId	Mandatory	This is your Exotel Number (pick one from the 'Company Numbers' page)
CallType	Mandatory	"trans" - for Transactional Calls
Url	Mandatory	"http://my.exotel.in/exoml/start/*~appid~*" where *~appid~* is the identifier of the app (or flow) that you want to connect to once the 'From' number picks up the call
TimeLimit	Optional	The time limit (in seconds) that you want this call to last. The maximum is 4 hours. The call will be cut after this time.
TimeOut	Optional	The time (in seconds) to ring the called parties (both first and second call leg). Maximum is 1 minute (which, we hear is mandated by TRAI)
Status Callback	Optional	When the call completes, an HTTP POST will be made to the URL mentioned with the following four parameters **(This data will be passed in the Message body and as multipart/form-data)** : CallSid - an alpha-numeric unique identifier Status - {completed, failed, busy, no-answer} RecordingUrl - link to the call recording (if it exists) DateUpdated - time when the call state was updated last
Custom Field	Optional	Any application-specific value that will be passed back as a parameter while doing a GET request to the URL mentioned in your **Passthru Applet** or **Greetings Applet**.

HTTP Response:

On success,

- the HTTP response status code will be 200
- the HTTP body will contain an XML such as what's given below. The "Sid" is the unique identifier of the call and will be useful to log this for future debuggability purposes.

```
<?xml version="1.0" encoding="UTF-8"?>

<TwilioResponse>

 <Call>

 <Sid>xxxxxxxxxxxxxxxxxxxxx</Sid>

 <ParentCallSid/>

 <DateCreated>2012-08-17 12:31:49</DateCreated>

 <DateUpdated>2012-08-17 12:31:49</DateUpdated>

 <AccountSid>xxxxxxxxx</AccountSid>

 <To>09052161119</To>

 <From>09739761117</From>

 <PhoneNumberSid>xxxxxxx</PhoneNumberSid>

 <Status>in-progress</Status>

 <StartTime>2012-08-17 12:31:49</StartTime>

 <EndTime>2012-08-17 12:32:57</EndTime>

 <Duration></Duration>

 <Price></Price>

 <Direction>outbound-api</Direction>

 <AnsweredBy/>
```

```
<ForwardedFrom/>

<CallerName/>

<RecordingUrl/>

<Uri>/v1/Accounts/xxxxxxxx/Calls/xxxxxxxxxxxxxx</Uri>

</Call>

</TwilioResponse>
```

On failure:

- the HTTP response status code will be non 200
- the HTTP body will contain an XML such as below with the details of why the request failed

```
<TwilioResponse>
<RestException>
<Status>400</Status>
<Message>Invalid Call Parameters: No 'From' specified</Message>
</RestException>
</TwilioResponse>
```

Rate Limit:

This API is rate limited to 200 calls per minute. Once this limit has been crossed, your requests will be rejected with an HTTP 429 'Too Many Requests' code.

You can run this API in cURL, NodeJS, PHP, Python, and Ruby. The requests can be taken from the **developer portal**

Sample PHP Code:

An **example PHP code for this is available on Github**

Sample Ruby Code:

Sample code is available at Github and Ruby Gem available at rubygems.org

5.22. Call API to get details of a Call

To get details of a call (including Status, Price, etc.), you will need to make an HTTP GET request to

https://<your_api_key>:<your_api_token>@<subdomain>/v1/Accounts/~exotel_sid~/Calls/<CallSid>

Replace <your_api_key> and <your_api_token> with the API key and token created by you.

Replace <your_sid> with your “Account sid”

Replace <subdomain> with the region of your account

<subdomain> of Singapore cluster is @api.exotel.com

<subdomain> of Mumbai cluster is @api.in.exotel.com

<your_api_key>, <your_api_token> and <your_sid> are available on the API settings page of your Exotel Dashboard

In case of an outbound call originating via the Call APIs (here or here), the "Sid" parameter is as returned in the XML response to your request.

In case of inbound calls, you can get the CallSid by using the Passthru applet.

HTTP Response:

On success, this API will return an HTTP status code of 200 and the response body will contain an XML (like below) that contains the details of the call.

On failure, the HTTP status code will be a non-200 code which indicates the reason (as discussed here).

IMPORTANT NOTE: Some of the parameters of the call (like Duration, Price, EndTime etc.) are updated asynchronously after the call ends. So it might take some time after the call ends (~ 5 mins on average) for these parameters to be populated correctly.

Response Body on Success:

<?xml version="1.0" encoding="UTF-8"?><TwilioResponse><Call>
<Sid>xxxxxxxxxxxxxxxxxxxxx</Sid><ParentCallSid/><DateCreated>2012-08-17 12:31:49</DateCreated><DateUpdated>2012-08-17 12:31:49</DateUpdated>
<AccountSid>xxxxxxxxx</AccountSid><To>09052161119</To><From>09739761117</From>
<PhoneNumberSid>xxxxxxx</PhoneNumberSid><Status>completed</Status>
<StartTime>2012-08-17 12:31:49</StartTime><EndTime>2012-08-17 12:32:57</EndTime>
<Duration>123</Duration><Price>2.3</Price><Direction>outbound-api</Direction>
<AnsweredBy/><ForwardedFrom/><CallerName/><RecordingUrl/>
<Uri>/v1/Accounts/xxxxxxxx/Calls/xxxxxxxxxxxxxx</Uri></Call></TwilioResponse>

The "Status" parameter can take one of the following values:

- queued

- in-progress

- completed

- failed

- busy

- no-answer

Response Body on failure:<?xml version="1.0" encoding="UTF-8"?><TwilioResponse>
<RestException><Status>xxx</Status><Message>xxxxxxxxxxxxxxxxxxxx</Message>

</RestException></TwilioResponse>

Rate Limit:

This API is rate-limited to 200 queries per minute. Once this limit has been crossed, your requests will be rejected with an HTTP 429 'Too Many Requests' code.

A detailed explanation about using the call detail API can be understood from our **developer portal**.