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Conversational Custom Chat Integration

Custom adapter framework for third-party messaging applications

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Overview

Conversational Custom Chat Integrations and Chatbot Interoperability is a framework of scriptable APIs you can use to connect the ServiceNow® Virtual Agent server to any chat client. Virtual Agent Chat Server (VACS) supports the following chat client integration out of the box.

- Slack
- Facebook Workplace
- Microsoft Teams
- SN Portal
- SN Mobile App

You need to create a custom adapter to integrate with third-party chat clients. Custom adapters enable third-party chat clients to connect to the Virtual Agent server by using a framework of scriptable APIs. The custom adapter also provides a way to manage and control end-user experience. It transforms messages from a chat client to Virtual Agent Chat Server (VACS), and from Virtual Agent Chat Server (VACS) back to the chat client in a format that your end users can understand. Please visit the product documentation to know more about the Conversational Custom Chat Integrations framework.

This whitepaper providers step-by-step guide to develop a simple Telegram Bot and integrate it with ServiceNow Virtual Agent using custom adapter framework. This is NOT a full-blown production ready solution. This document merely offers boilerplate application and guidance to integrate third-party messaging applications using Custom Chat Integrations framework.

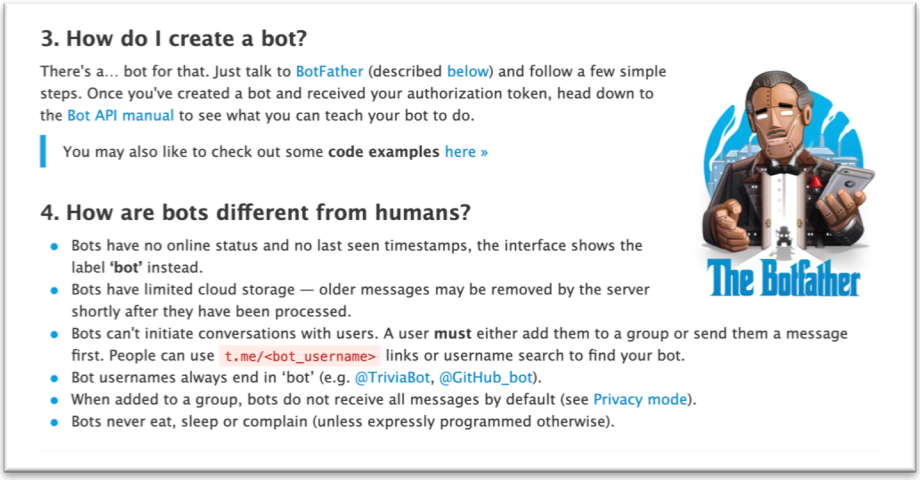
Telegram Configuration

About Telegram

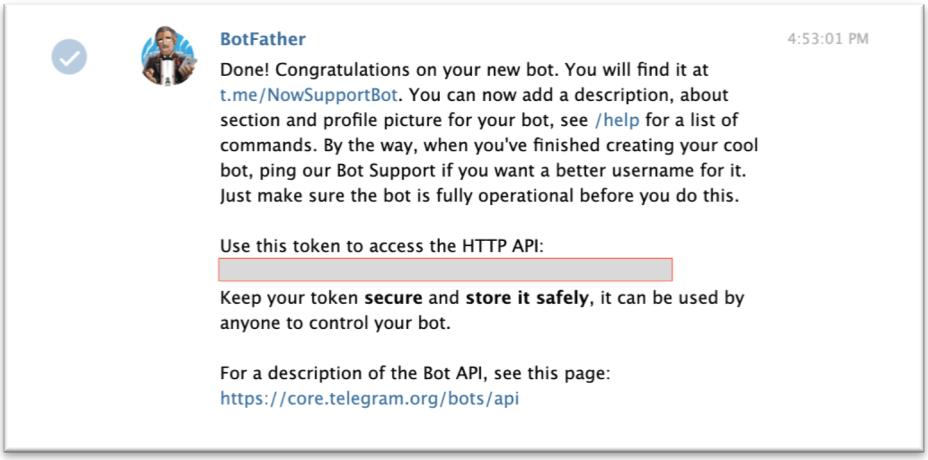
Telegram is a cloud-based mobile and desktop messaging app with a focus on security and speed. Sign up for Telegram using your phone number.

Create a bot

Navigate to Telegram Developer Portal to create your new bot.



Upon successful completion, you should see confirmation message along with "Access Token".



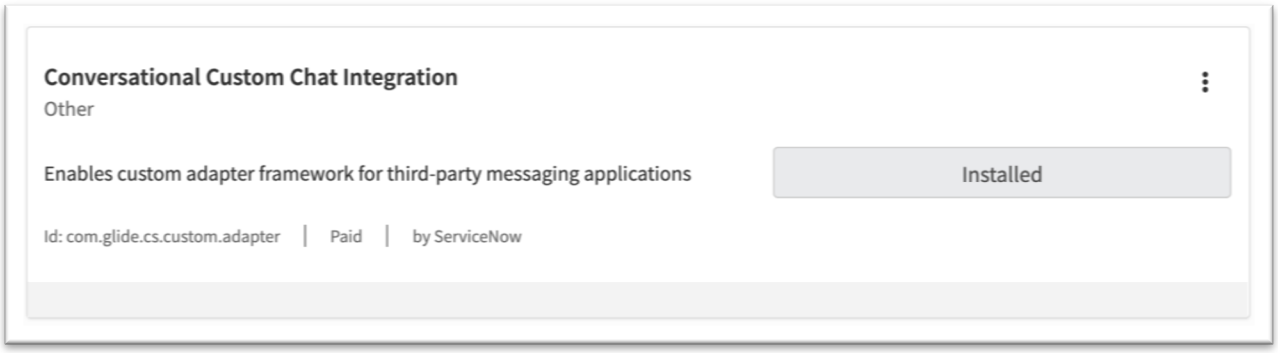
ServiceNow Configuration

Activate Plugins

Activate the following prerequisite plugins –

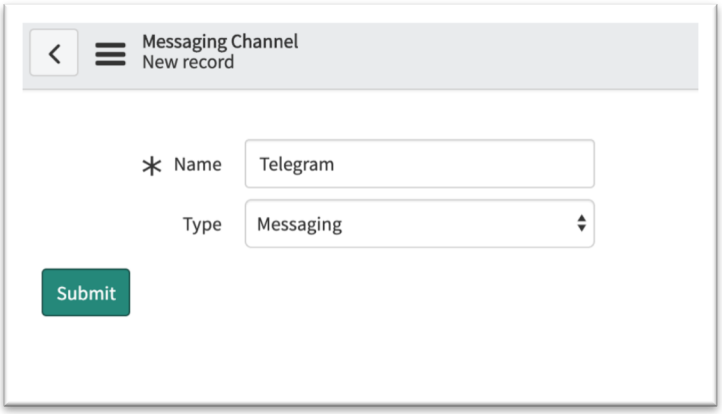
- Glide Virtual Agent (com.glide.cs.chatbot)
- Conversational Custom Chat Integration (com.glide.cs.custom.adapter)
- Customer Service (com.sn_customerservice)
- Advanced Work Assignment (com.glide.awa)
- Conversational Messaging (com.glide.messaging.awa)

"Conversational Custom Chat Integration" plugin enables custom adapter framework for developing third-party messaging applications.



Define Messaging Channel

Define a new messaging channel for "Telegram" by navigating to "Telegram Messenger -> Configuration -> Messaging Channel"



Define Verification Tokens

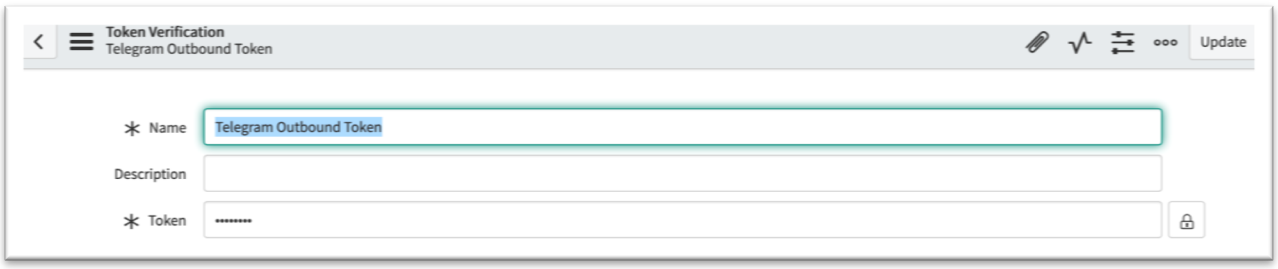
Define inbound and outbound verification tokens for "Telegram" by creating a new record in the "token_verification" table. Navigate to "Telegram Messenger -> Configuration -> Hash Message Verification".

Inbound verification token

Create a random verification token to authenticate inbound messages from Telegram Bot. This token will be used during the Telegram webhook registration process.

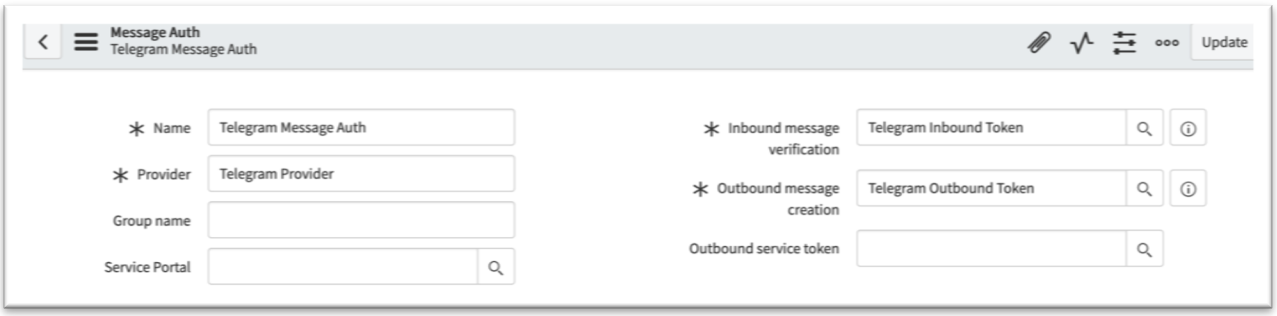
Outbound verification token

Use “Access Token” generated by the Telegram Bot during the registration process.



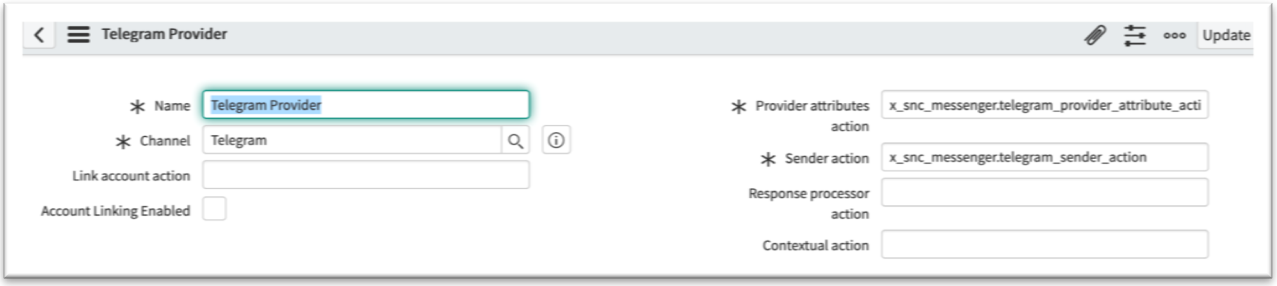
Define Message Auth

Define a new Message Auth for "Telegram" by creating a new record in the "message_auth" table. Navigate to "Telegram Messenger -> Configuration -> Message Auth".



Define Messaging Provider

Define a new messaging provider for "Telegram" by creating a new record in the "sys_cs_provider" table. Navigate to "Telegram Messenger -> Configuration -> Messaging Provider".

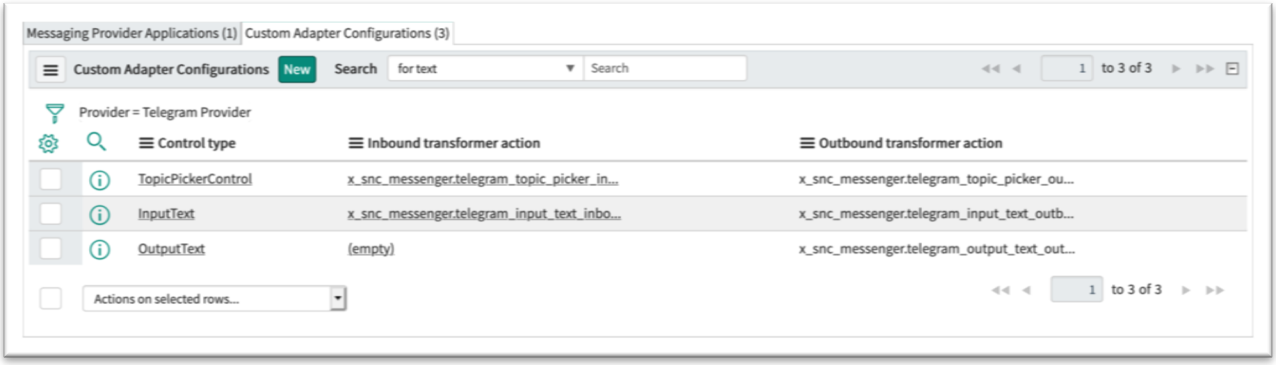


Enter following Flow Designer Actions –

Attribute	Flow Designer Action
Provider attributes action	x_snc_messenger.telegram_provider_attribute_action
Sender action	x_snc_messenger.telegram_sender_action

Define Messaging Provider

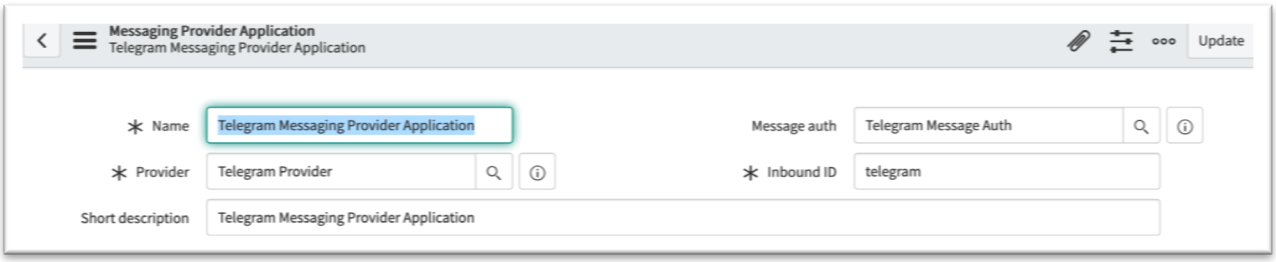
Define inbound and outbound transformation actions for different Control Types.



Control Type	Inbound Transformer Action	Outbound Transformer Action
Topic Picker Control	x_snc_messenger.telegram_topic_picker_inbound_transformer	x_snc_messenger.telegram_topic_picker_outbound_transformer
InputText	x_snc_messenger.telegram_input_text_inbound_transformer_action	x_snc_messenger.telegram_input_text_outbound_transformer_action
OutputText		x_snc_messenger.telegram_output_text_outbound_transformer_action

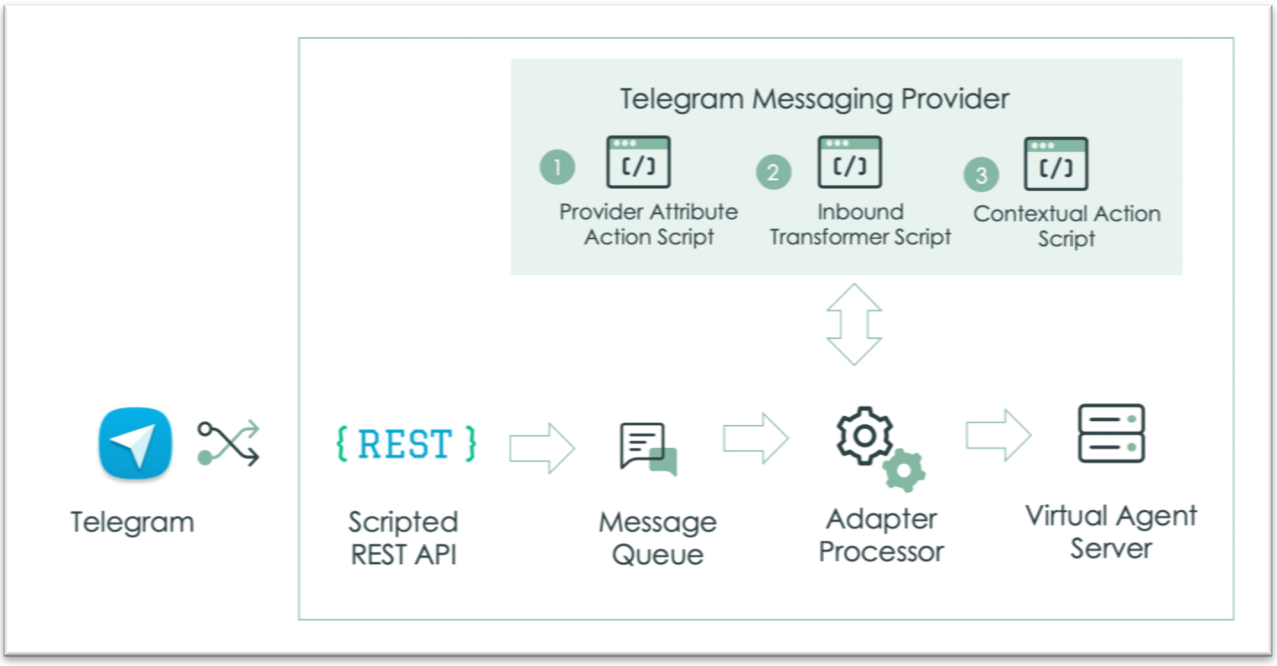
Define Messaging Provider Application

Define a new messaging provider Application for "Telegram" by creating a new record in the "sys_cs_provider_application" table. Navigate to "Telegram Messenger -> Configuration -> Messaging Provider Applications".



ServiceNow Development

Inbound Integration Architecture



Note: Refer ServiceNow product documentation for additional details.

Telegram Message Structure

Telegram "Message" object represents incoming or outgoing Telegram Message. Please visit Telegram API documentation to understand the structure of this object.

Sample Telegram Message

```
{
    "data": {
        "update_id": 837802716,
        "message": {
            "message_id": 43,
            "from": {
                "id": 1278637050,
                "is_bot": false,
                "first_name": "Peter",
                "last_name": "Parker",
                "language_code": "en"
            },
            "chat": {
                "id": 1278637050,
                "first_name": "Peter",
                "last_name": "Parker",
                "type": "private"
            },
            "date": 1593025169,
            "text": "Hello Telegram how is it going?"
        }
    },
    "url": "https://XXXXXXX.service-
now.com/api/x_snc_messenger/telegram/webhook/servicenowtoken",
    "userId": 1278637050,
    "requestId": 837802716,
    "token": "servicenowtoken"
}
```

Scripted REST API

API	Resource	Resource Path
Telegram	Webhook	/api/x_snc_messenger/telegram/webhook/{token}

Scripted REST API offers endpoint Url which acts as a Telegram webhook. Telegram will send an HTTPS POST request to this endpoint, containing a JSON-serialized Update. Scripted REST API executes following activities –

- Retrieve token from the incoming request

- Retrieve user information and payload from the incoming request
- Submit the message to the queue for the subsequent processing

Provider Attribute Action Script

Flow Designer Action	Description
telegram_provider_attribute_action	Process incoming telegram message to extract token, payload and user details.

Provider Attribute Actions Script is invoked by the "Adapter Processor" to process the newly received message. This script is responsible for executing following activities –

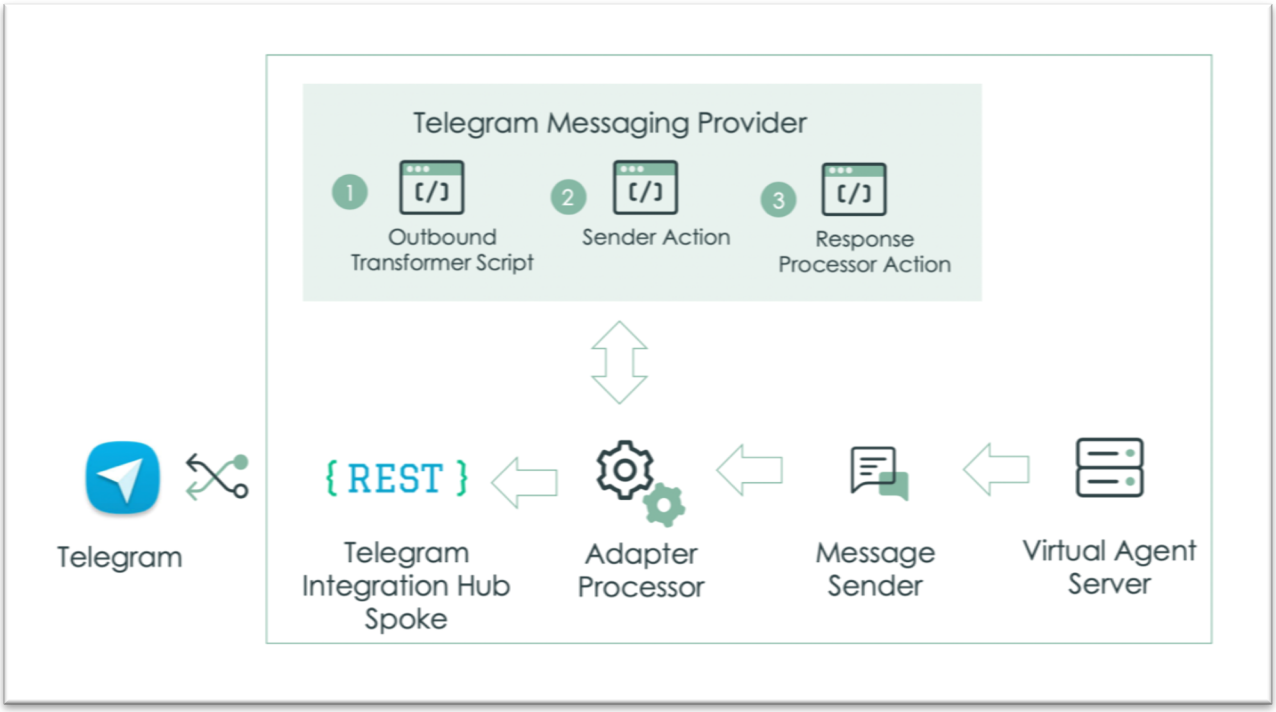
- Parse incoming message to extract token, username, and message from the payload.

Inbound Transformer Script

The inbound transformer scripts convert incoming messages in a format that the Virtual Agent recognizes. It determines the required value to be injected into the rich control that is presented to the user. Following inbound transformation scripts are defined for Telegram integration –

Flow Designer Action	Description
telegram_input_text_inbound_transformer	Transforms telegram text message into Virtual Agent text message.
telegram_topic_picker_inbound_transformer	Action to transform Topic Picker rich control.

Outbound Integration Architecture



Note: Refer ServiceNow product documentation for additional details.

Sender Action Script

Flow Designer Action	Description
telegram_sender_action	Sender action script triggers a subflow to asynchronously send outbound message
telegram_sender_action_subflow	Flow sends outbound message by triggering telegram sender API action
Telegram_sender_action_api	Flow Action which invokes Telegram REST API action
Telegram_sender_action_rest	Flow action to invoke Telegram SendMessage REST API

Webhook Configuration

A webhook is a way for a web app to communicate real-time information. Use "setWebhook" method to specify an endpoint Url and receive incoming updates via an outgoing webhook. Whenever there is an update for the bot, Telegram will send an HTTPS POST request to the specified endpoint, containing a JSON-serialized Update. Refer Telegram API documentation for additional details.

```
curl
https://api.telegram.org/bot<token>/setWebhook?url=https://<instance>.service
-nonw.com/api/x_snc_messenger/telegram/webhook/<inbound verification token>
```

Upon successful completion, you should see following confirmation message.

```
{"ok":true,"result":true,"description":"Webhook was set"}
```

Summary

This whitepaper providers step-by-step guide to develop a simple Telegram Bot and integrate it with ServiceNow Virtual Agent using custom adapter framework. This is NOT a full-blown production ready solution. This document merely offers boilerplate application and guidance to integrate third-party messaging applications using Custom Chat Integrations framework.