

Configure CCE Virtual Agent Voice Cloud-based Connector

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Introduction

This document describes how to configure Contact Center Enterprise (CCE) Virtual Agent Voice (VAV) Cloud-based Connector.

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Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Unified Contact Center Enterprise (UCCE) Release 12.6.2

- Cisco Package Contact Center Enterprise (PCCE) Release 12.6.2
- Customer Voice Portal (CVP)
- Virtual Voice Browser (VVB)
- Google Dialogflow CX
- Control Hub

Components Used

The information in this document is based on these software versions:

- PCCE Release 12.6.2
- CVP 12.6.2
- Cloud Connect 12.6.2
- Google Dialogflow CX
- Webex Control Hub

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background

Virtual Agent–Voice (VAV) feature, which was referred to as Customer Virtual Assistant (CVA) in CCE 12.5(1) release, enables the interactive voice response (IVR) platform to integrate with cloud-based speech services.

This feature supports human-like interactions that enable you to resolve issues quickly and more efficiently within the IVR, thereby reducing the calls directed toward agents. This helps you interact with Virtual Agent first which offers you a self-service solution, without involving a physical Agent.

VVB uses one of these connectors to leverage AI services:

- **Premise-based connector:** VVB uses a native connector to connect to the Google Dialogflow service. This service is enabled through the Dialogflow ES or DialogflowCX elements of Cisco Unified Call Studio. VAV currently supports Google Dialogflow ES and CX services via premise-based connector.
- **Cloud-based connector:** VVB uses a cloud-based connector to connect to the Cisco CCAI service. This service is enabled through the Virtual Agent Voice element of Cisco Unified Call Studio. VAV currently supports Google Dialogflow CX service via cloud-based connector.

This document only covers the Cloud-based connector configuration.

Important Considerations

Consider this information before configuring VAV via cloud-based connector:

- Supported codec is u-law.
- Voice activity detection is done by Google.
- Port 443 and HTTP/2 must be enabled in the proxy and firewall.
- Allowed list in your network must include these URLs:

- Cloud Connect
- Connector
- Feature

Step 8. Configure CCAI in UCCE and PCCE (SPOG).

Step 9. Create and Design CVP Call Studio Application.

Exchange Self-signed Certificates or Implement CA-signed Certificates.

You need to implement CA-signed certificates or exchange self-signed certificates the CCE components related to the VAV for VAV feature to work. For PCCE certificate exchange or CA-signed are required on: AW, VVB and Cloud Connect. For UCCE certificates are required on: AW, VVB, NOAMP, and Cloud Connect. Review this document for UCCE Exchange certificates: [Exchange Self-Signed Certificates in UCCE 12.6.](#) for CA-signed implementation: [Implement CA-Signed Certificates in 12.6](#), and for PCCE exchange certificate: [Exchange Self-Signed Certificates in PCCE 12.6.](#)

Configure Proxy Server

Proxy server is required if you do not have direct communication between VVB Speech Server (SS) and the Webex CCAI services.

To configure the proxy server use these commands:

```
set speechserver httpsProxy Host
```

```
set speechserver httpsProxy port
```

```
set speechserver httpsProxy nonProxyHosts
```

```
set speechserver httpsProxy Host
```

This command sets the proxy host for the Speech Server. It also asks for credentials, if required.

Command Syntax:

```
set speechserver httpsProxy host <hostname/ip>
```

```
Does proxy require Credentials? [Y/N] y
```

```
Enter UserName: username
```

```
Enter Password: ****
```

Example:

```
admin:set speechserver httpsProxy host abc.com
```

```
Does proxy require Credentials? [Y/N] y
```

```
Enter UserName: username
```

```
Enter Password: ****
```

```
Command successful.
```

```
set speechserver httpsProxy port
```

This command sets the proxy port for the Speech Server.

Command Syntax:

```
set speechserver httpsProxy port <portNumber>
```

Example:

```
admin:set speechserver httpsProxy port 80
```

Command successful.

This command sets the nonProxyHosts for the Speech Server. The traffic does not go via proxy to these hosts.

```
set speechserver httpsProxy nonProxyHosts
```

Command Syntax:

```
set speechserver httpsProxy nonProxyHosts <parameter>
```

Example:

```
admin:set speechserver httpsProxy nonProxyHosts <list of nonProxyHosts separated by commas>
```

Command successful.

The parameter can be a single host or multiple hosts separated by commas

More information in this document: [VVB Operations Guide](#)



Note: You must stop and start Speech Server for the values to be reflected.

Syntax for stopping Speech Server: **utils service stop Cisco Speech Server**

Syntax for starting Speech Server: **utils service start Cisco Speech Server**

Create a Google Project - Provision the Project and the Organization

The integration of Google AI and CCE requires the creation of Google project and this project need to be provision by Cisco. In addition, and organization in the Cisco webex cloud needs to be created for you or Cisco partner. This document explains the steps required to create and provision the project and the organization.

[Provision Google CCAI Hybrid Services with CCE](#)

Create a Dialogflow CX Agent

VAV currently supports Google Dialogflow CX service via cloud-based connector.

A [Dialogflow CX agent](#) is a virtual agent that handles concurrent conversations with your end-users. Dialogflow translates end-user text or audio during a conversation to structured data that your apps and services can understand. You design and build a Dialogflow agent to handle the types of conversations required for your system. For more information about Dialogflow CX you can visit: [Dialogflow CX basics](#).

Here are the steps to create a Dialogflow CX agent.

Step 1. Navigate to <https://dialogflow.cloud.google.com/cx/projects> and log in with the Google account you used when you created the project, and select the project.

Step 2. Select the location and click **Create agent**.

Dialogflow CX Project TestProj...

Agents

Location: us-central1 (Iowa, USA) Location settings Use pre-built agents Create agent

Search Search agents by ID or display name

Display name	Default language	Region
CiscoAgentUS	en	us-central1 (Iowa, USA)

Step 3. Add the name, select time zone and the language. Click **Create**.

Create agent

Display name *
CiscoAgentUSCentral

! Once an agent is created, its [location](#) cannot change.

Location *
us-central1 (Iowa, USA) View

Time zone *
(GMT-8:00) America/Los_Angeles

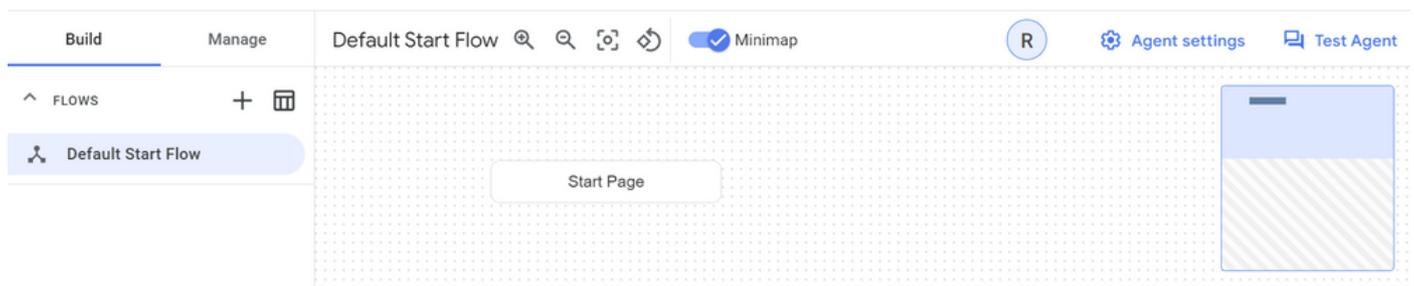
Date and time requests are resolved using this time zone

Default language *
en – English

The language the agent uses

Cancel Create

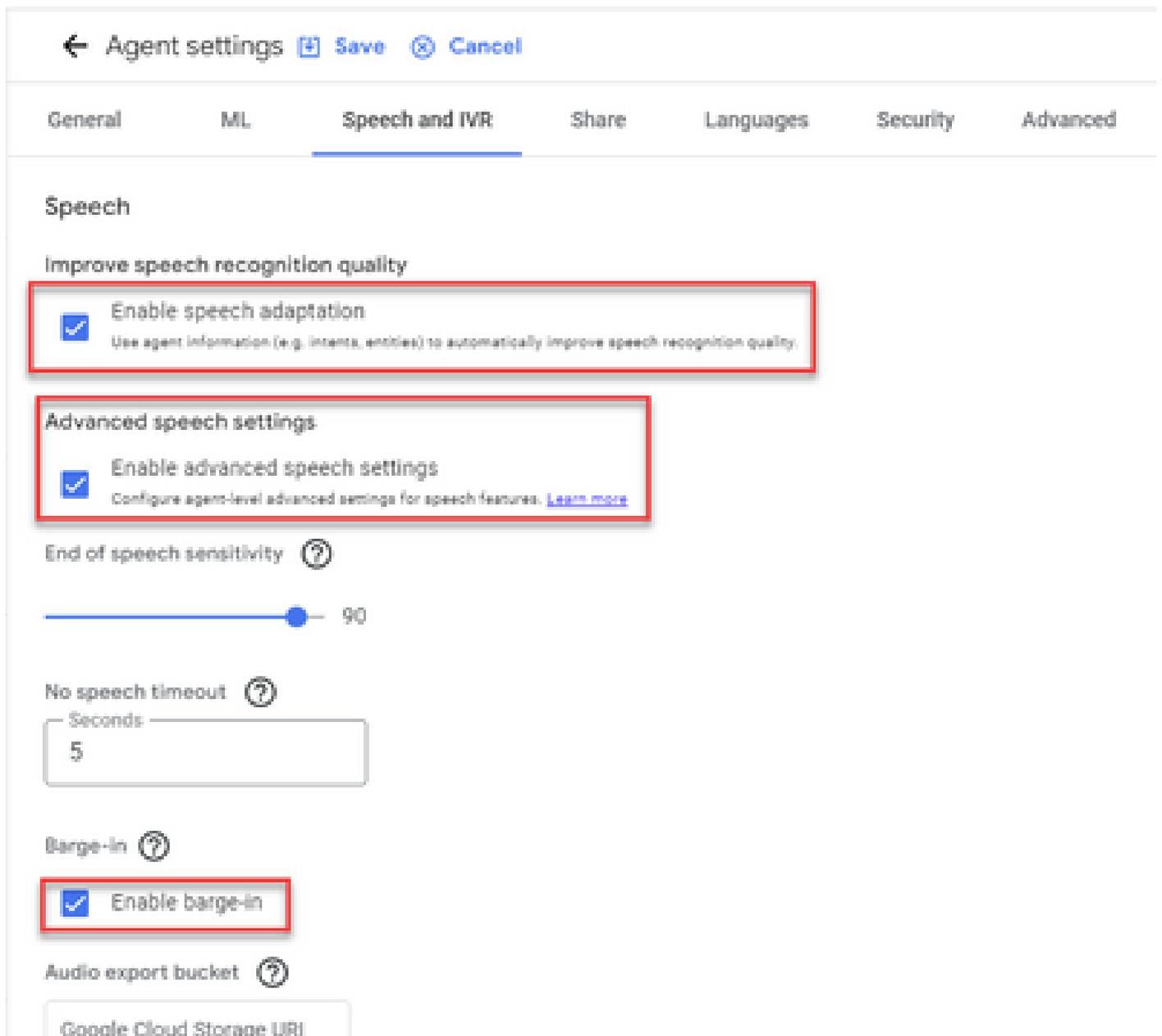
Step 4. The agent is created, and you see the Default Start Flow on the first page.



When you create an agent, the default flow is automatically created in the start page. To change the default settings after the agent is created, select the Agent settings.



In the Speech and IVR section, enable speech adaptation, advance speech settings and barge-in.



If you want to learn on how to setup a Dialogflow CX agent review these Google videos:

[What is Dialogflow CX?](#)

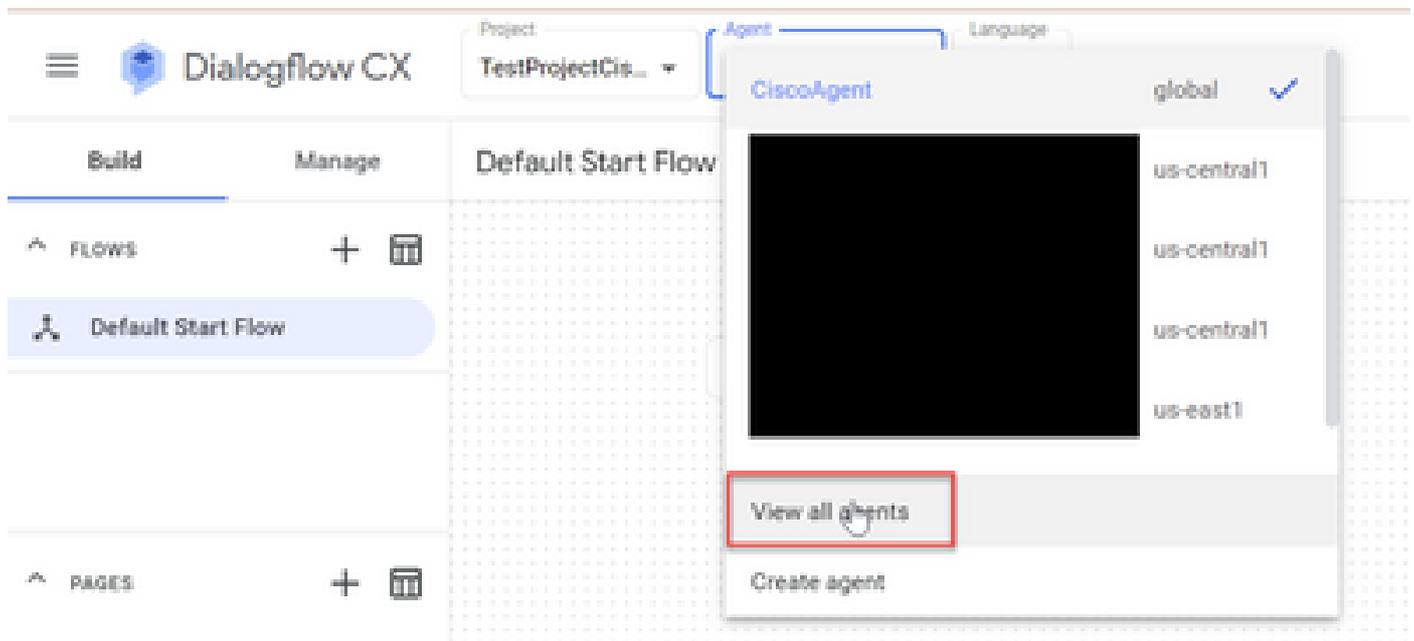
[Introduction to pages and transitions in Dialogflow CX](#)

[Create a single-flow conversational agent](#)

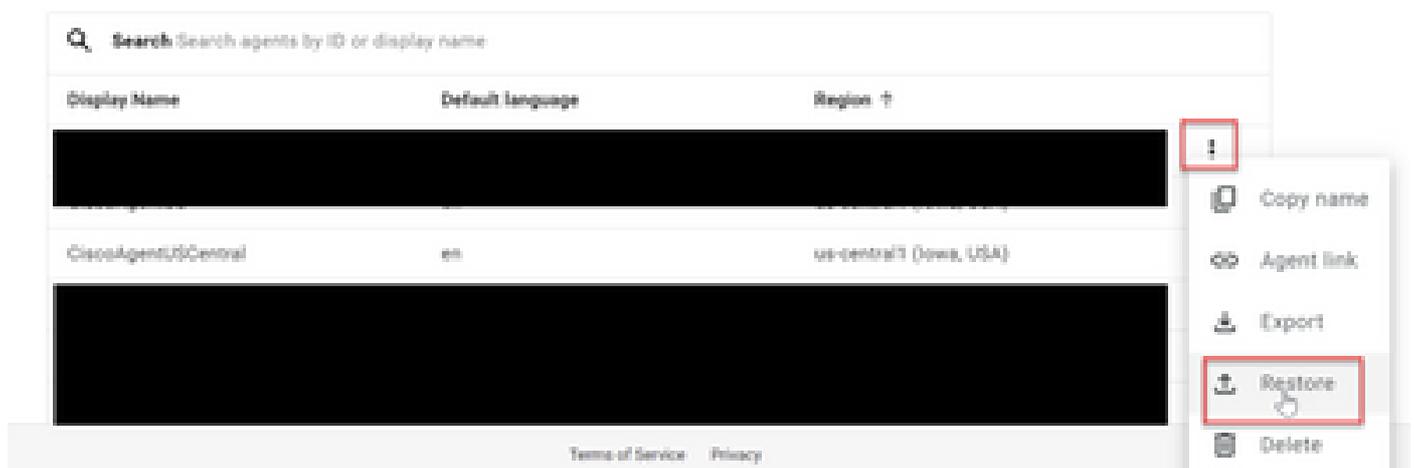
Import a Dialogflow CX Agent

You can import a Dialogflow CX agent, instead of building the agent from scratch. After you have created the agent, you can import a previously created and built Dialogflow CX agent. In this example, a Dialogflow CX agent created by Cisco Engineering team is used.

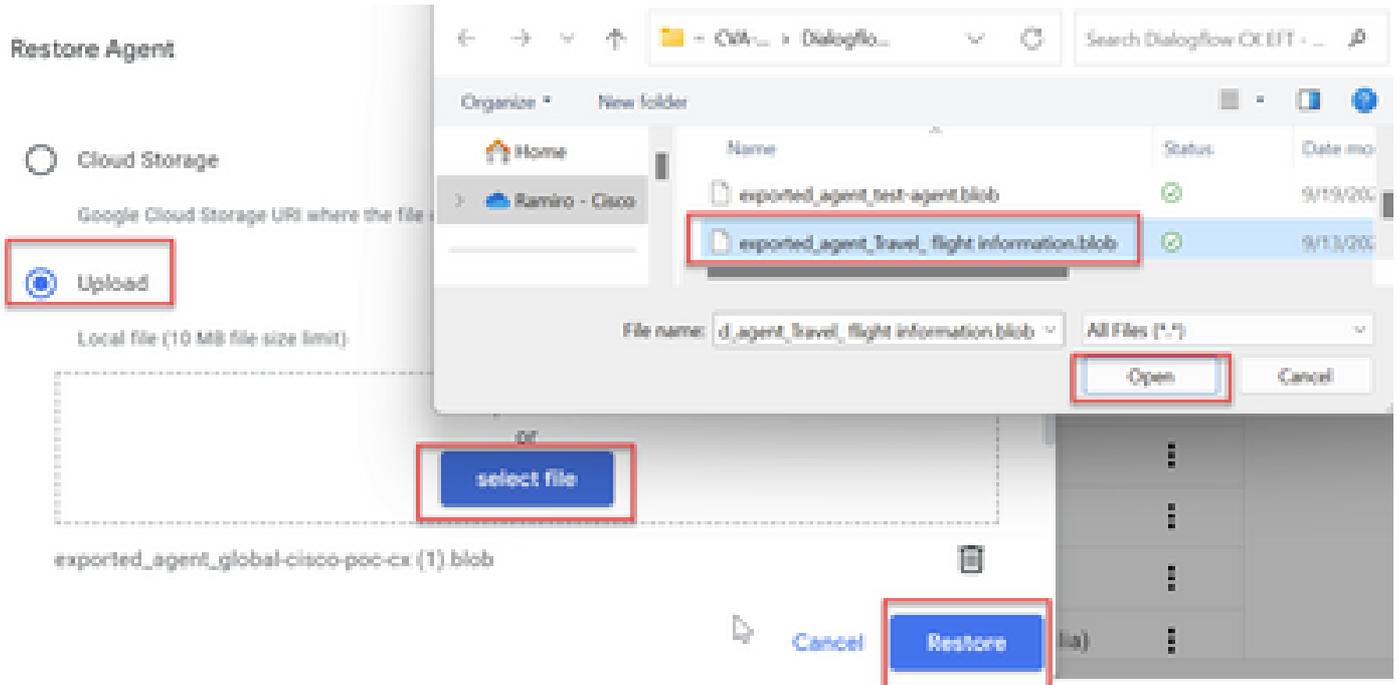
Step 1. On the Agent section, select **View all agents**.



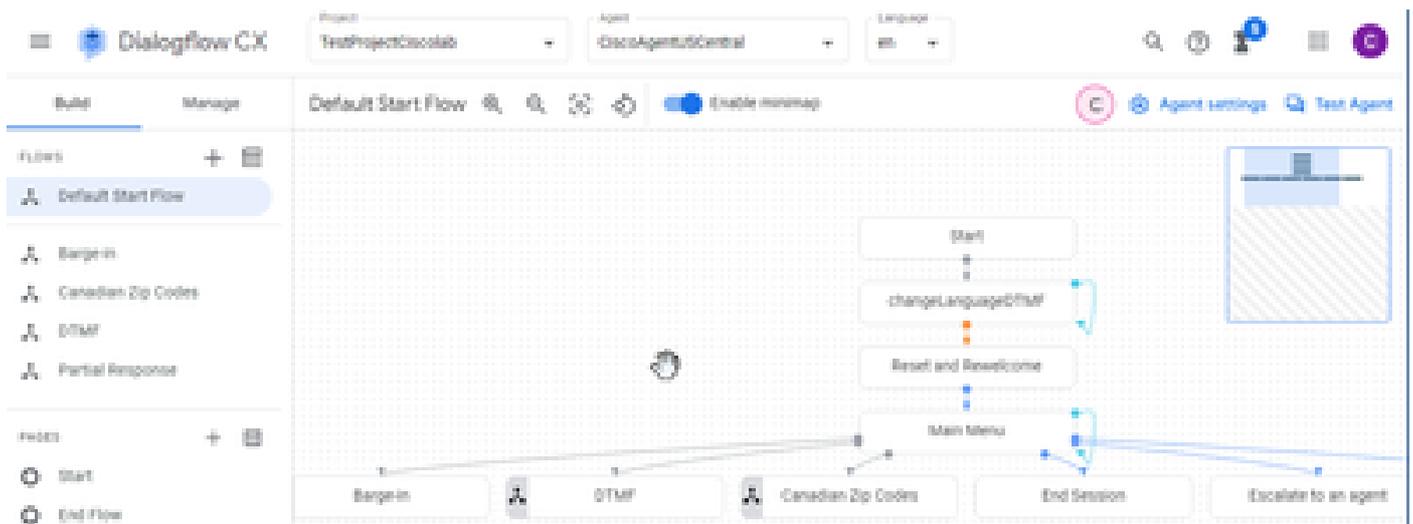
Step 2. Select the the agent that you created, and click **Restore**.



Step 3. On the Restore window, click **Upload**, then select the download file and click **Restore**.



Now, you see the agent imported.



You can download a Cisco Dialogflow CX agent sample (exported_agent_Travel_flight information_VAV.blob) from: [VAV Call Studio Application and Dialogflow CX Agent Sample](#)

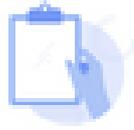
Create a Dialogflow CX Agent - Pre-built Agent

You can use Google pre-built agent templates in order to decrease the design time when building a Dialogflow CX agent.

Here are the steps to use a Pre-built agent.

Step 1. On the Dialogflow CX page, select the project and then select **Use pre-built agents**.

Agents



No agent is created yet

An agent is a virtual agent that handles conversations with your end-users. It is a natural language understanding module that understands the nuances of human language. [Learn more](#)

Create agent

Use pre-built agents

Step 2. Select the Pre-built agent you want to use. In this example, the **Travel: car rental** agent is used.

← Prebuilt Agents

Prebuilt agents are currently only available in English.

🔍 Search

Small talk

Beginner



Customize and personalize your agent with simple questions and responses.

Features

- Pages

Travel: baggage claim

Beginner



Create or check the status of a claim related to lost, delayed, or damaged baggage.

Features

- Bagexp entities

Travel: car rental

Beginner



Start a new car rental reservation.

Features

- System entities

Step 3. Click **Import**.

Travel: car rental

Start a new car rental reservation.

Sample head intent utterances

- I need to reserve a van.
- Hi, I'm traveling to LA for the weekend and I need to rent a car while I'm down there.
- I need help booking an SUV.

Link

[Documentation link](#)

Cancel

Import

Step 4. Select the location. You see the new agent created.

Import pre-built agent

i Currently, you can only set location for pre-built agent.

Agent name

Travel: car rental

! Once an agent is created, its [location](#) cannot change.

Location

us-central1 (Iowa, USA)

Edit

! You have selected a location that has not been configured yet.
If your system requires data residency guarantees (uncommon) or customer-managed encryption keys (uncommon), read about [regionalization and location settings](#) before creating this agent.

Time zone

(GMT-8:00) America/Los_Angeles

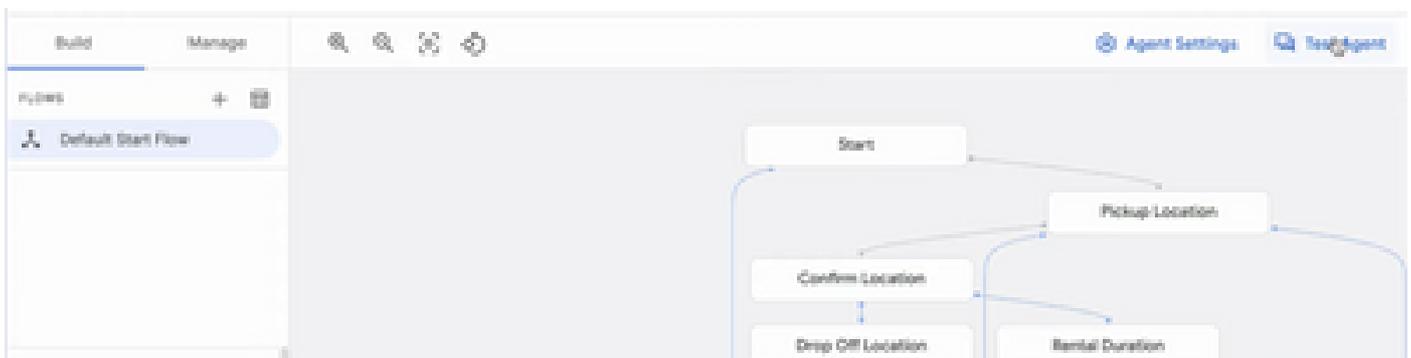
Date and time requests are resolved using this time zone

Default language

en – English

The language the agent uses

Enable stackdriver logging



More information on this Google video: [Use Pre-built agent template to create a Dialogflow CX agent](#)

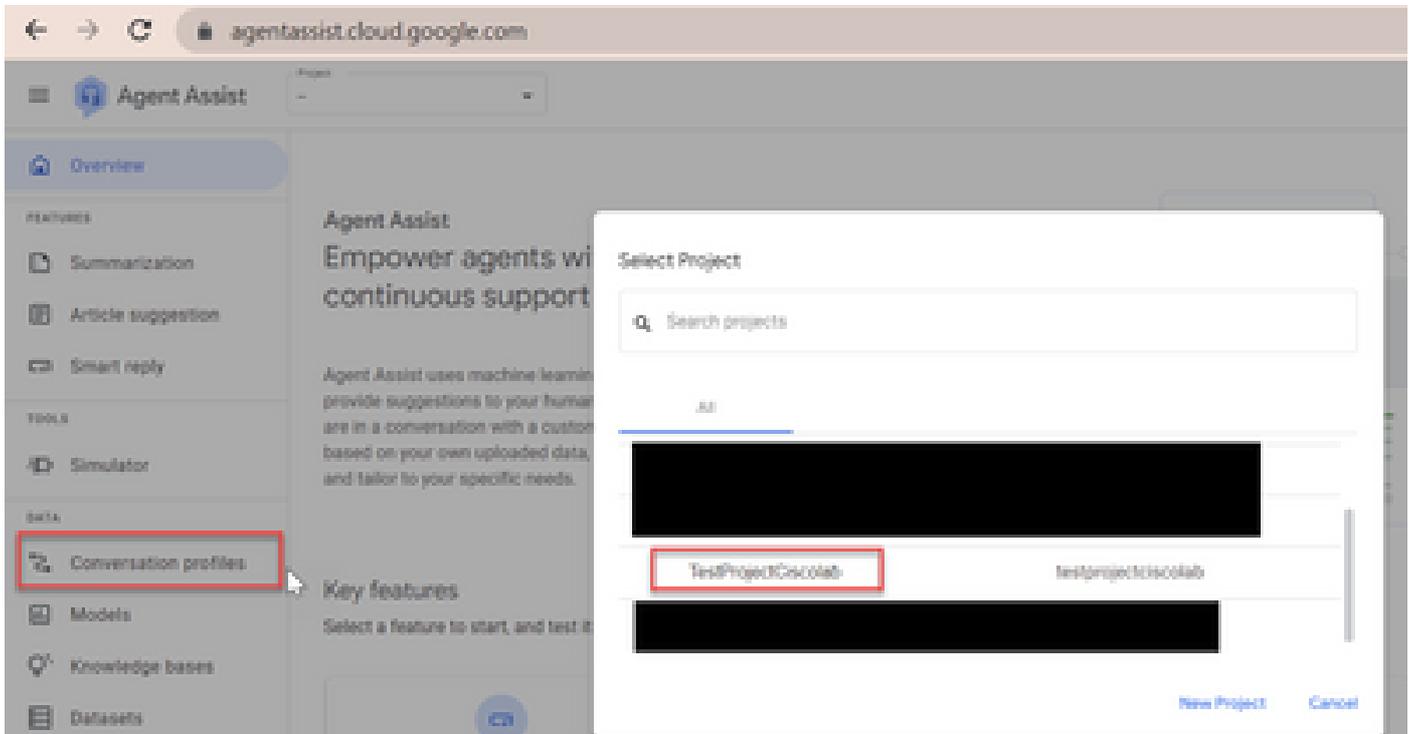
Create an Agent Conversation Profile

An agent conversation profile is a a set of configuration parameters that define the behavior of the

Dialogflow agent in a conversation with a caller.

Here are the steps to create an agent conversation profile.

Step 1. Log in to [Google Agent Assist](#). Select Conversation profile and choose the project you previously have created with the Dialogflow CX agent.



Step 2. Click **Create**.



Step 3. Ensure the Agent Assist URL uses the same location as the agent you want to create the conversation profile. In this example, you see that the URL is in location global.



The agent you previously created is on **us-central1**, so you have to replace the location to continue.



Step 4. Add the name and the language.

← New conversation profile

Display name

This will help you find this profile in the conversation profiles list

Display name

CPDialogflowCXagent

Language

Specify a language for your conversation profile

Language *

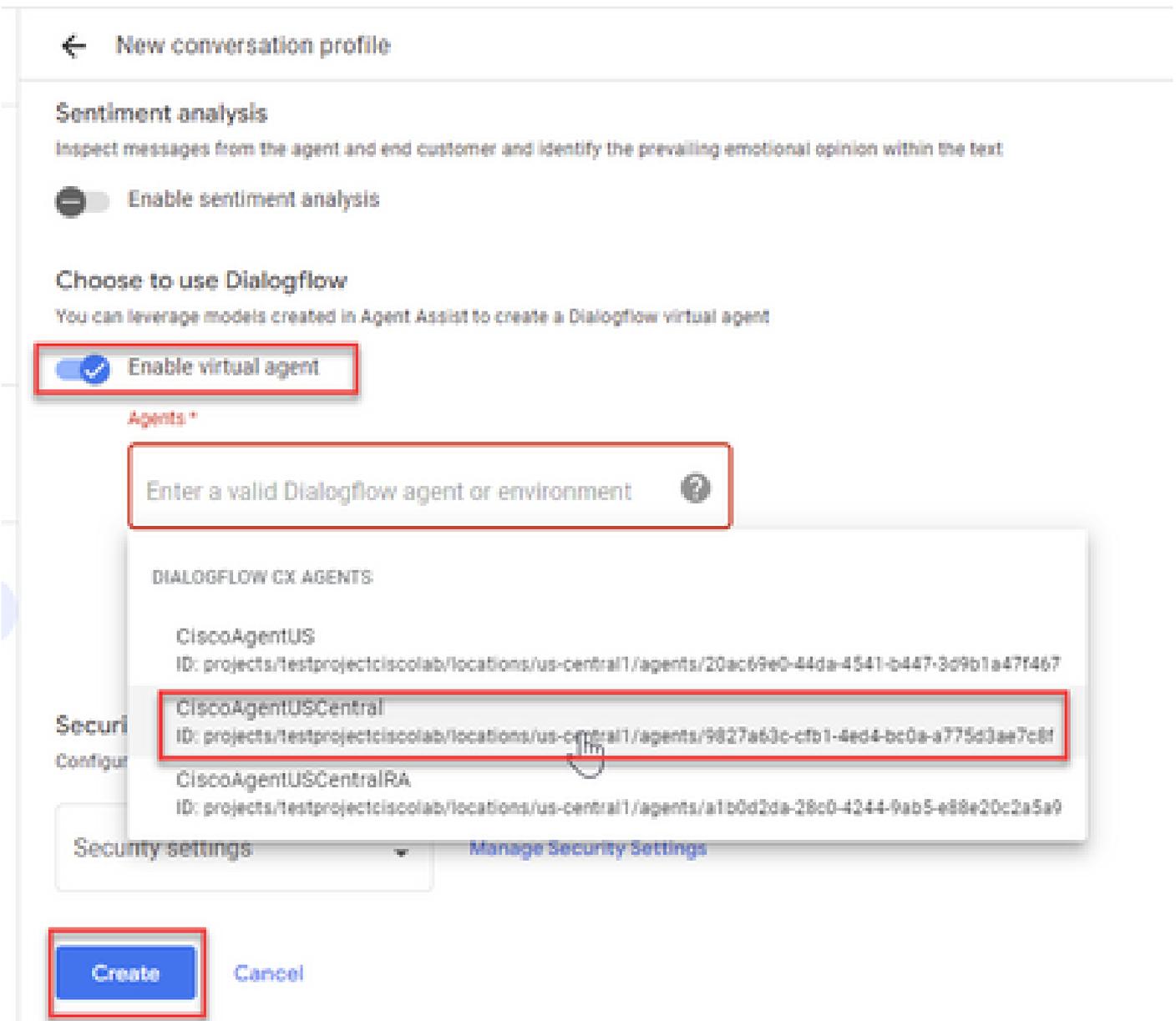
English (United States)

Suggestion types

Select all of the kinds of assistance you would like this profile to surface to agents

- Smart reply
Surface pre-written responses
- Article suggestion
Surface articles contextual to the conversation
- FAQs
Auto-surface answers to customer questions
- Conversation summarization ⓘ
Generate a summary of a conversation

Step 5. Scroll-down and select Enable Virtual agent and then select the Dialogflow CX agent.



Now the conversation profile is created for the agent.

Configure CCAI in Webex Control Hub

Step 1. Ensure that the Cloud Connect publisher and subscriber are installed. For more information, see the *Install Cloud Connect* section in [Cisco Unified Contact Center Enterprise Installation and Upgrade Guide 12.6.2](#).

Step 2. Log in to Webex Control Hub (admin.webex.com). Navigate to Contact Center and click **Cloud Connect**.

SERVICES

 Updates & Migrations

 Messaging

 Meeting

 Calling

 Vidcast

 Contact Center >

 Connected UC

 Hybrid



webex Control Hub

Search

< Main Menu

TENANT SETTINGS

- General
- Digital
- Integrations
- Cloud Connect

General

Service Details	Country of Operation	United States of America
	Tenant Timezone	America/New_York

Step 3. On Cloud Connect window enter the name and the Fully Qualified Domain Name (FQDN) of Primary Cloud Connect and click Register.

Add Cloud Connect Cluster

Display Name

Display Name of the on-premises Cloud Connect cluster which is being Registered to the cloud

FQDN

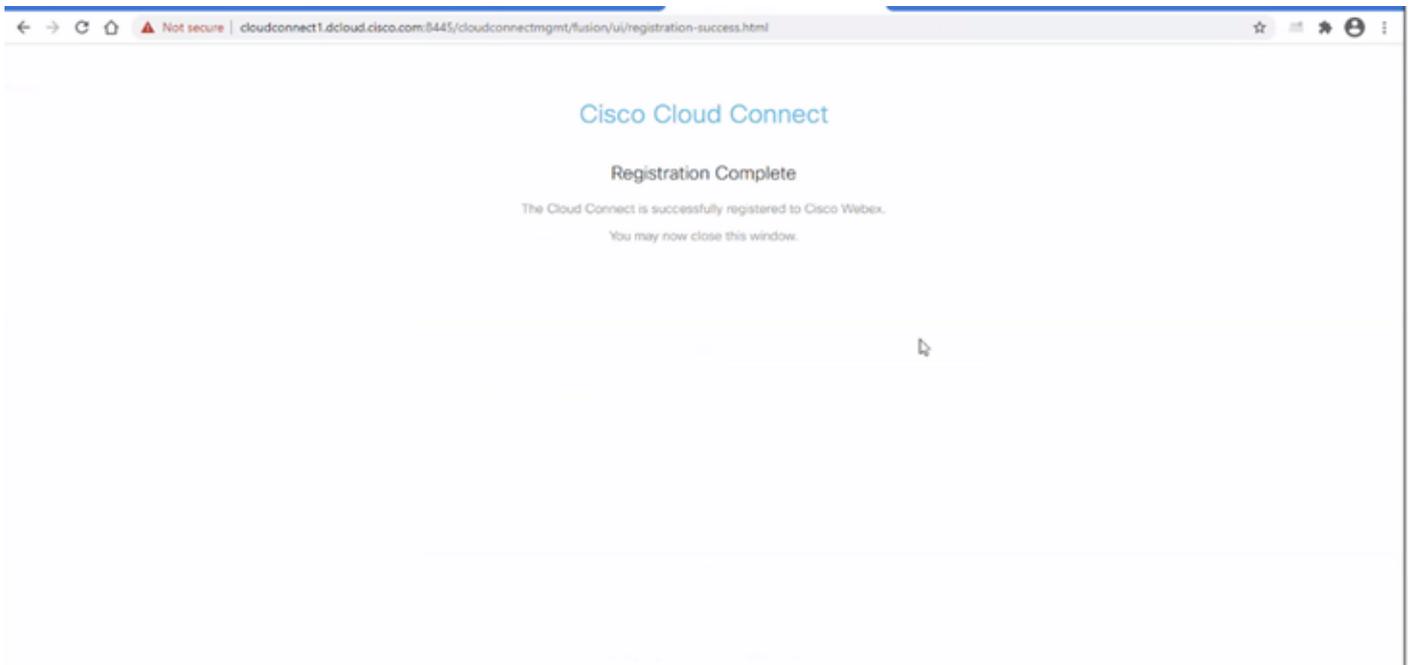
Enter the FQDN of primary Cloud Connect node from the deployment being Registered

 **Note:** When adding the Cloud Connect in Webex Control Hub, ensure that the Cloud Connect FQDN is accessible from the PC where the Control Hub is opened.

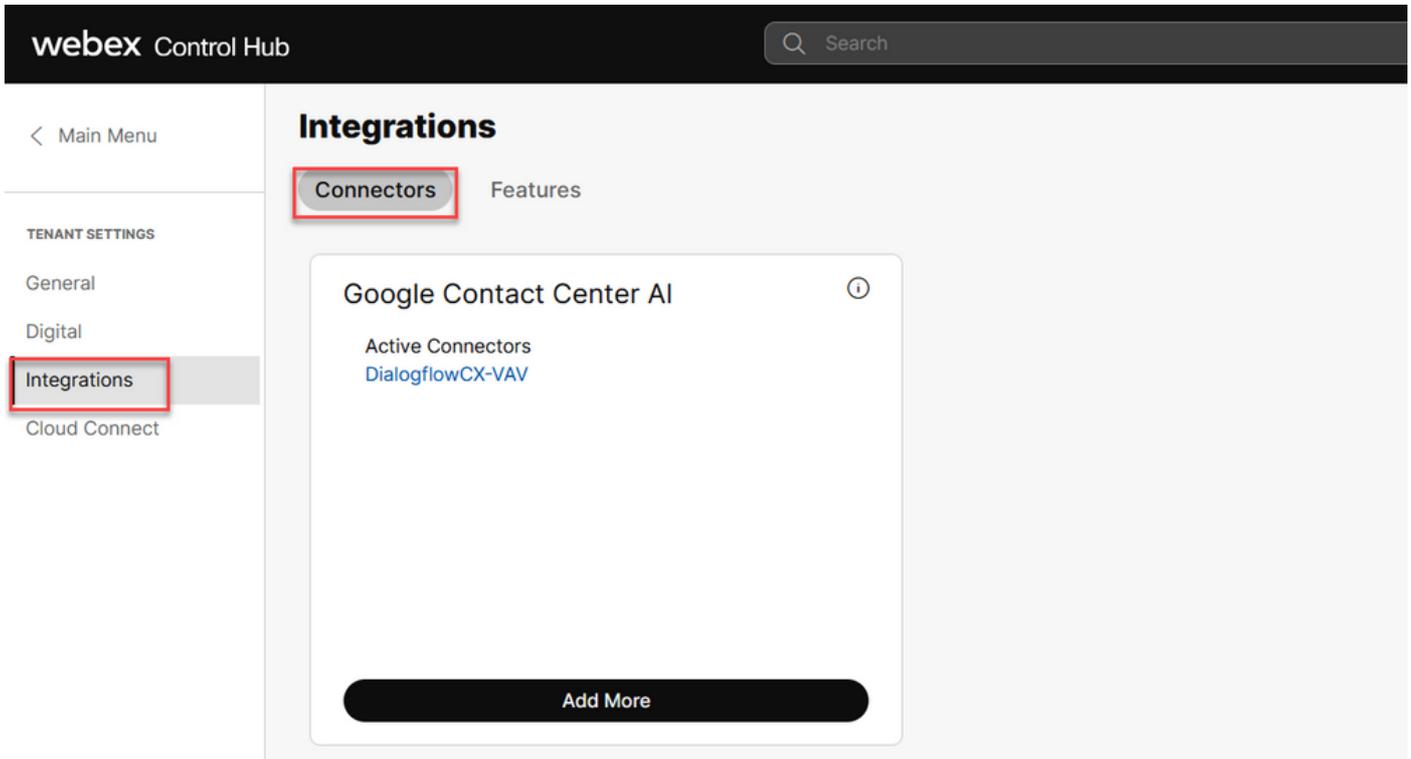
Step 4. Select Allow access to the Cloud Connect node and click **Continue**.



You see Cloud Connect registration completed.

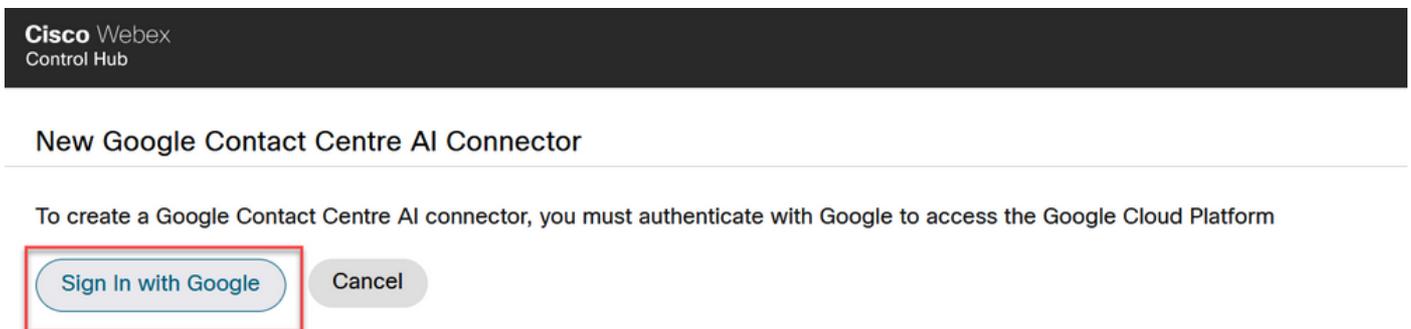


Step 5. Add a Connector. On the Contact Center window select **Integrations** and then **Connectors** tab.



Step 6. If a connector is already added and you need to add one more, click on Add More. Sign in with Google and continue with the instructions.

 **Note:** The user account that you sign in with Google must have the owner role of the google project.



Step 7. Provide the Google Project, the Cisco Project and the Google Service Account provided by Cisco when provisioning the Google Project. Click **Save**.

New Google Contact Centre AI Connector

Name

CCAI Project Name

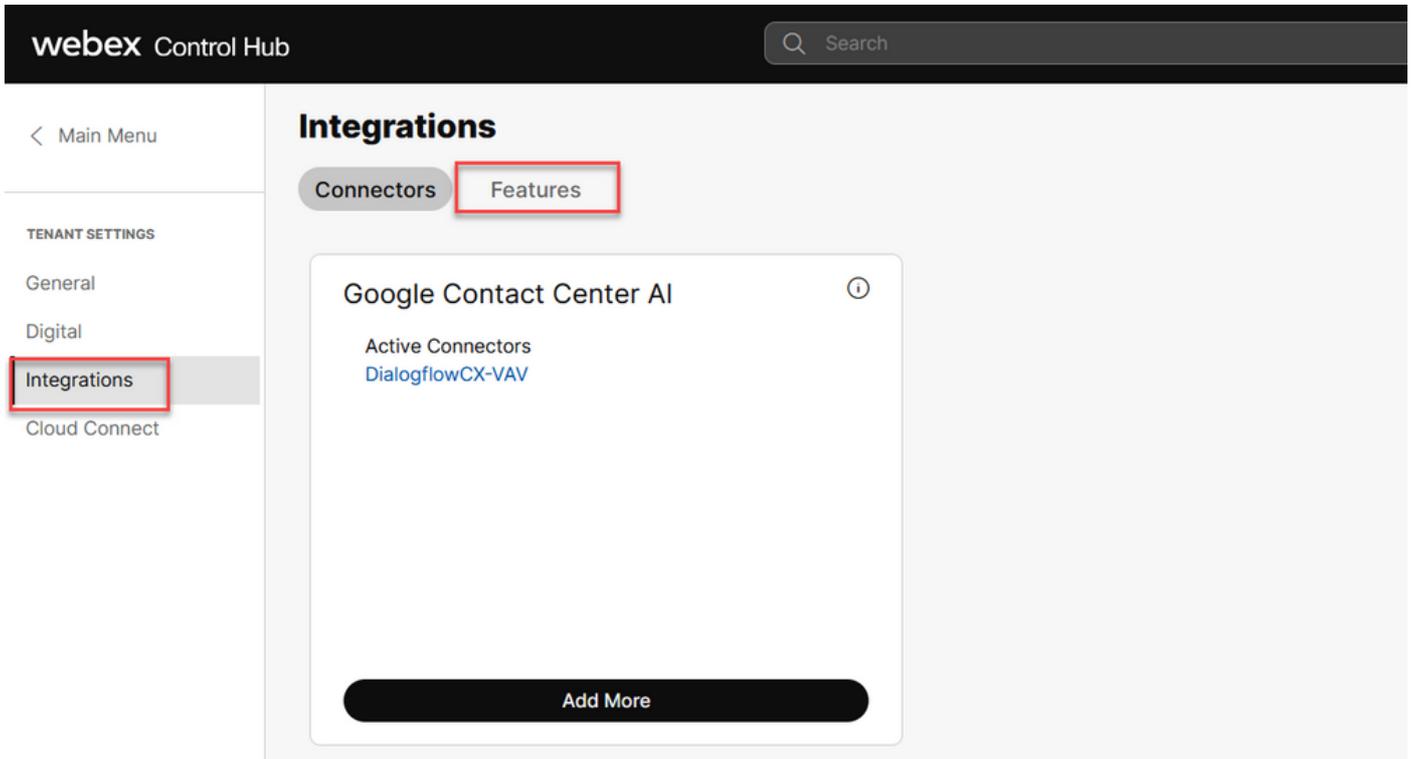
Cisco-Provided Project Name

Google Cloud Service Account

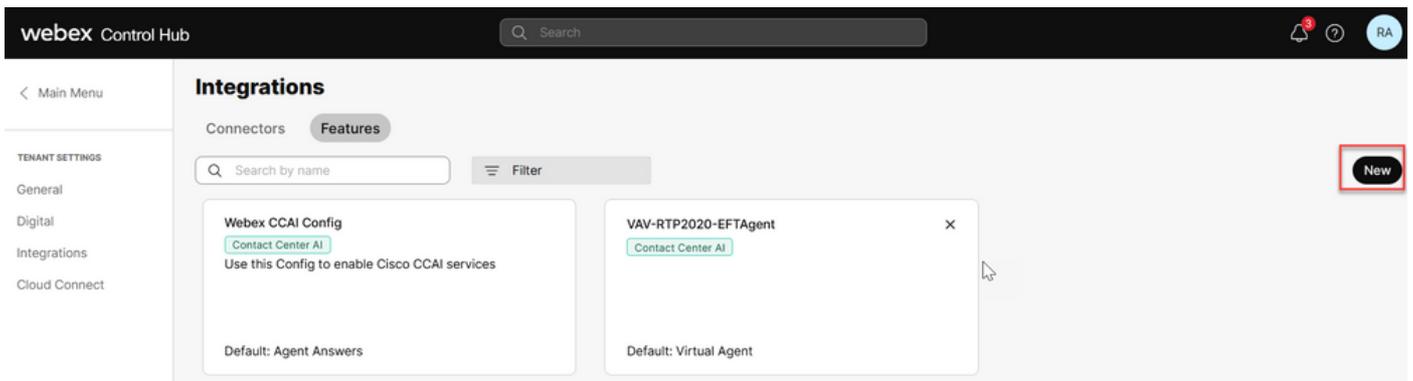
Cancel

Save

Step 8. Now add the features. On the Contact Center page, click **Integrations** and **Features** and then click **New**.



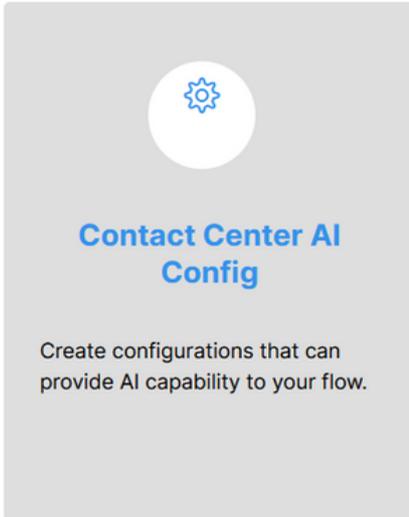
Step 9. You are now in the Create a New Contact Center Feature page. Click **New. Contact Center AI Config**.



Step 10. You are now in the Contact Center Feature page. Click **Contact Center AI Config**.

Create New Contact Center Feature

×



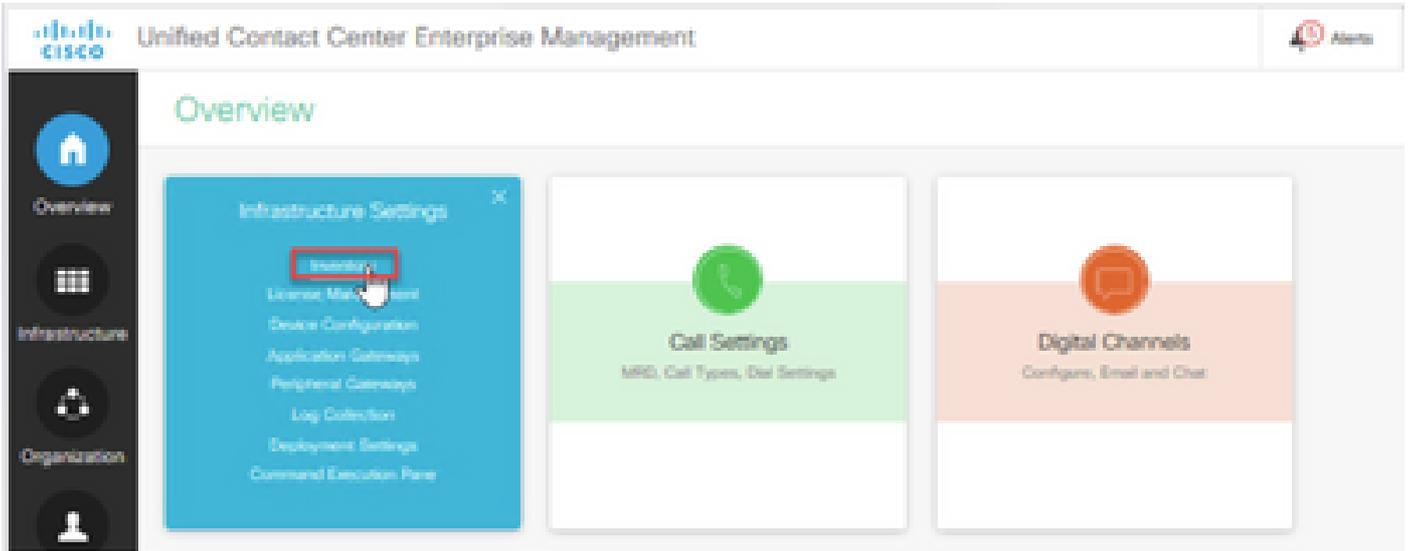
Step 11. Provide the feature information, select the connector already added and the Google agent conversation profile created.

A screenshot of the webex Control Hub interface. The top navigation bar is black with "webex Control Hub" on the left and a search bar on the right. A left sidebar shows "Main Menu" and "TENANT SETTINGS" with sub-items: "General", "Digital", "Integrations", and "Cloud Connect". The main content area is titled "Features" and "New Contact Center AI Config". The form includes: "Config Name" (required, empty text input); "Description" (empty text area); "Google Contact Center AI Connectors" (dropdown menu with "Select a Connector" selected); "Google Conversation profile" (required, empty text input with a note: "A Profile is the Google configuration for the conversation. To know more visit [here](#)"); and two checkboxes: "Apply as default for Agent Answers" and "Apply as default for Virtual Agent". Red boxes highlight the connector dropdown, the profile input, and the "Apply as default for Virtual Agent" checkbox.

Configure CCAI in UCCE and PCCE (SPOG)

PCCE Configuration

Step 1. On CCE AW, open Unified CCE Administration tool and navigate to Inventory.



Step 2. Scroll-down and click on external machines.

External Machines

Step 3. Select Cloud Connect Publisher and provide the Fully Qualify Domain Name (FQDN), the username and password.

Add Machine ✕

Type Cloud Connect Publisher

Note: The Cloud Connect Subscriber will be added automatically

Hostname/IP Address*

Cloud Connect Administration

Username*

Password*

Cloud Connect is added and in sync.

Cloud Connect

Cloud Connect 1 ✕

cloudconnect1.dcloud.cisco.com

Address: 198.18.133.103

Sync Status:  In Sync

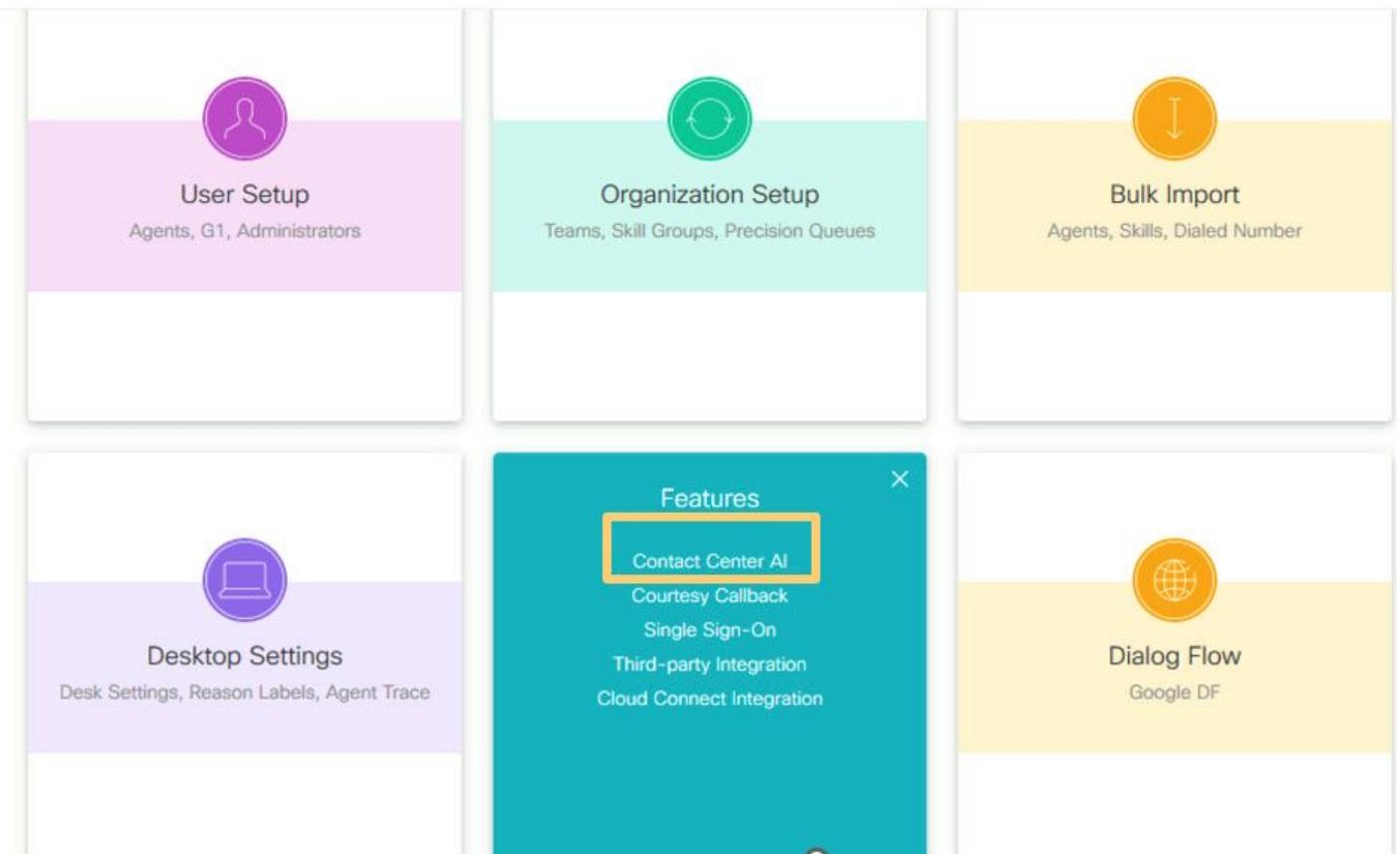
 **Note:** Ensure that you have previously exchange certificates between CCE components or implement

 CA-signed certificates. Refer to these documents for PCCE certificate exchange and implementation: [Exchange Self-Signed Certificates in PCCE 12.6](#). and [Implement CA-Signed Certificates in 12.6](#).

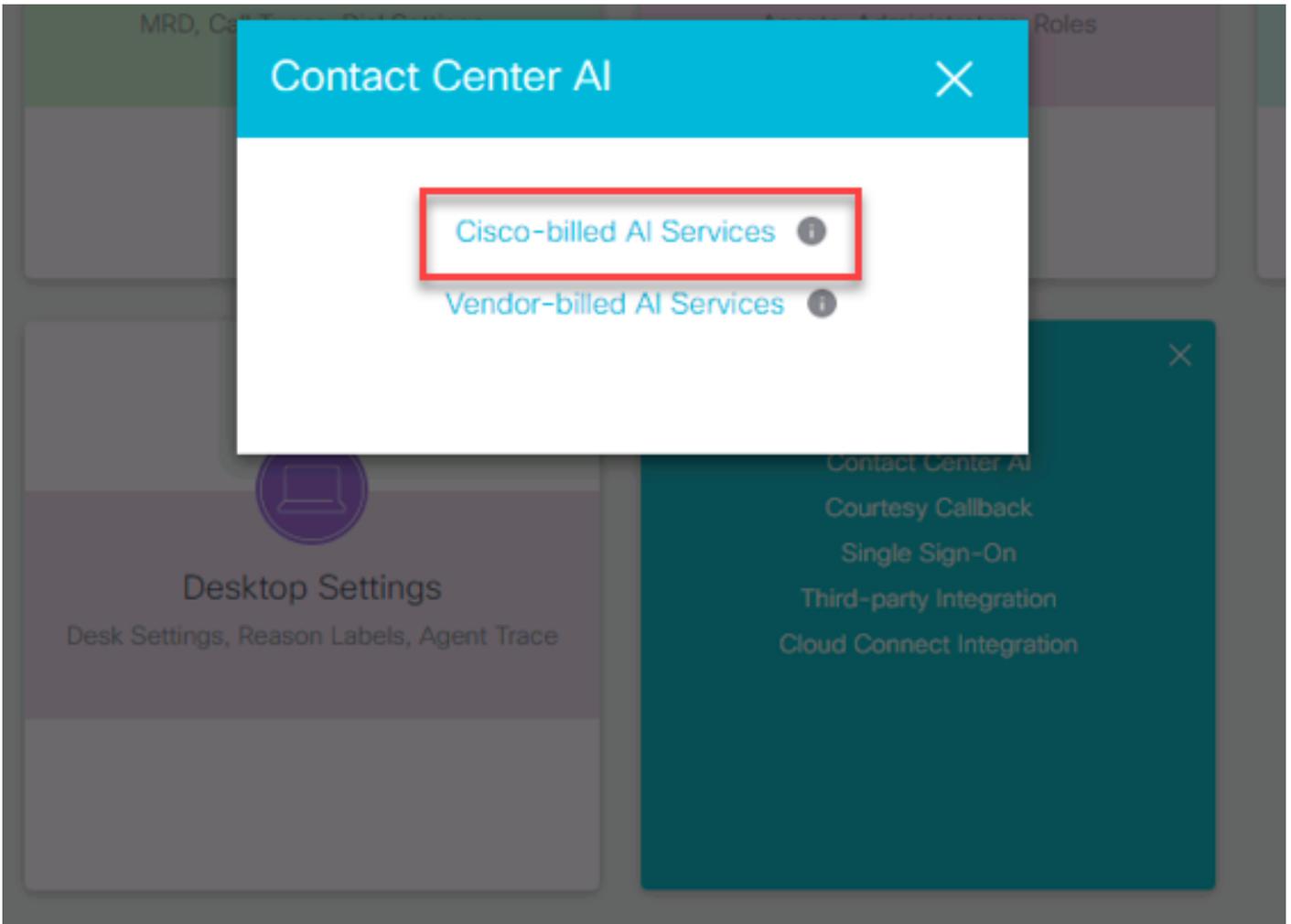
Step 4. Validate default configuration. View the default CCAI configuration (created as part of CCAI configuration in Webex Control Hub). If required, synchronize the configuration (using *Sync* option), in the CCE Admin.

Step 4a. On the CCE Admin, navigate to the features card, and select Contact Center AI.

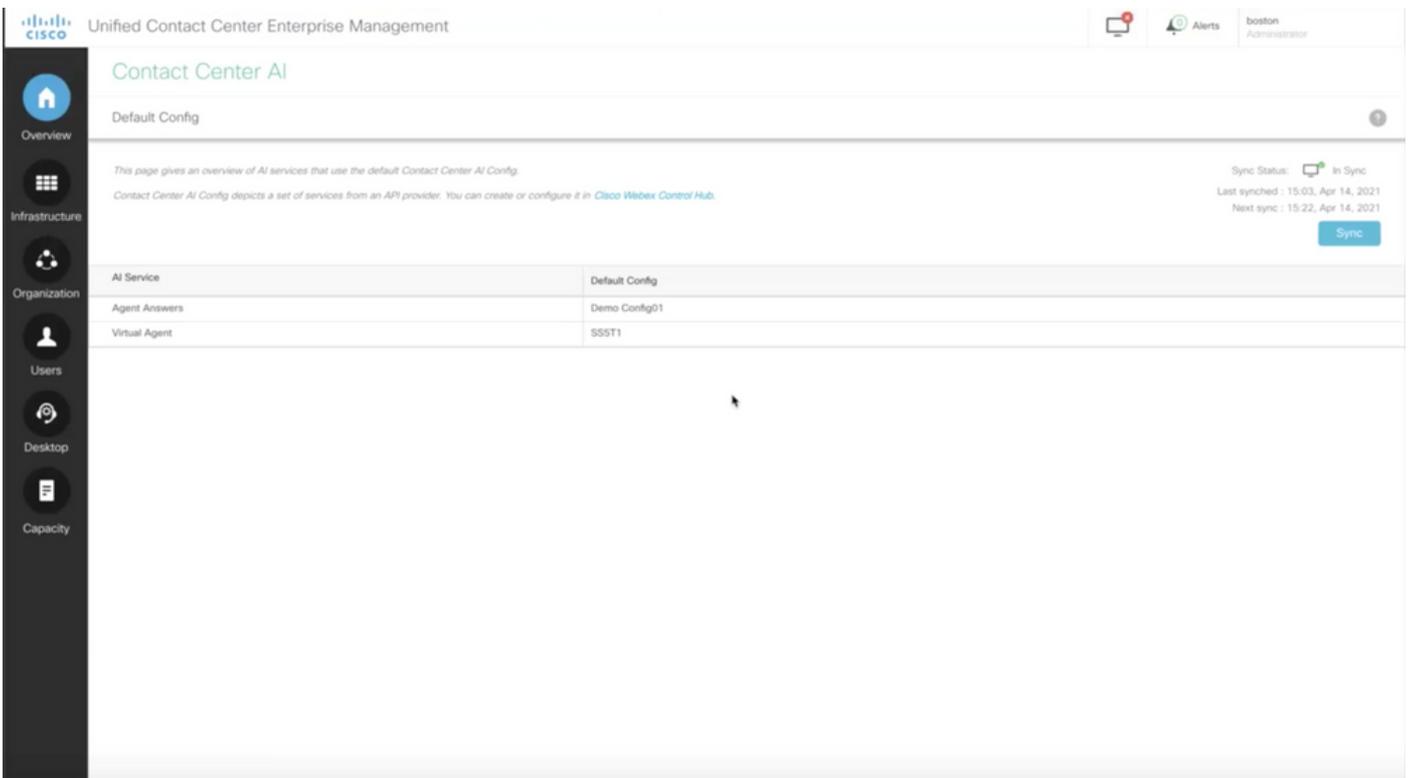
Overview



Step 4b. Select Cisco-billed AI Services

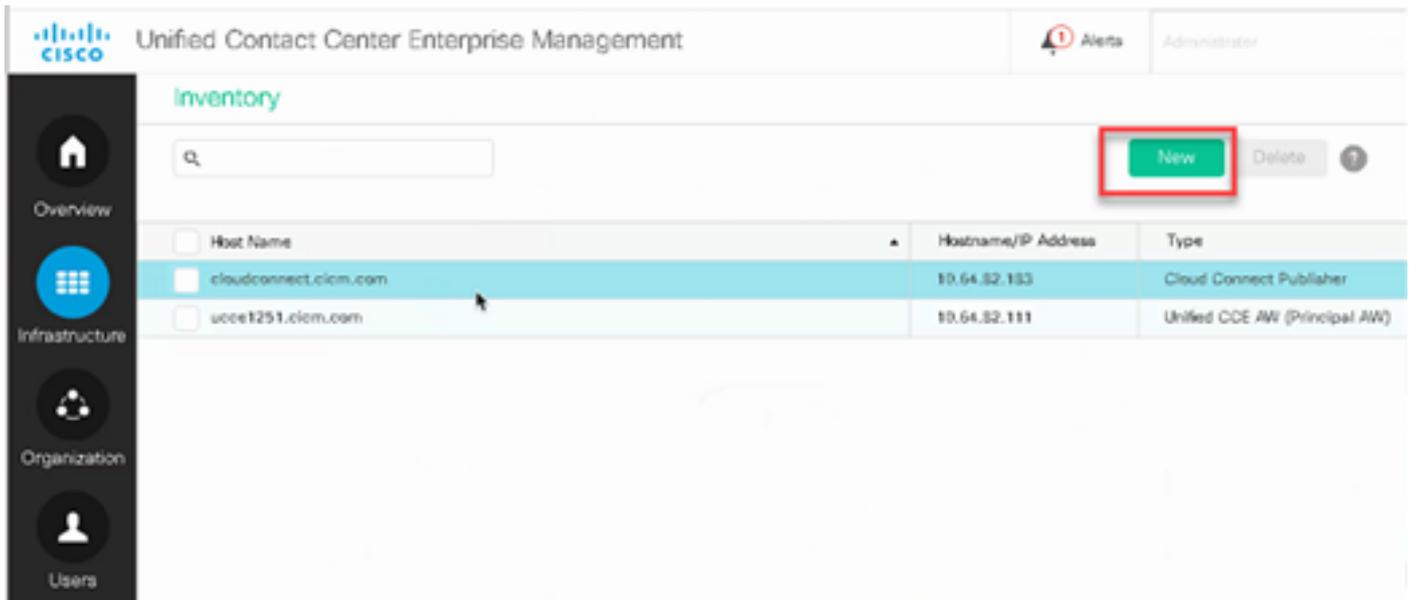


Step 4c. You see the default configuration for the virtual agent.

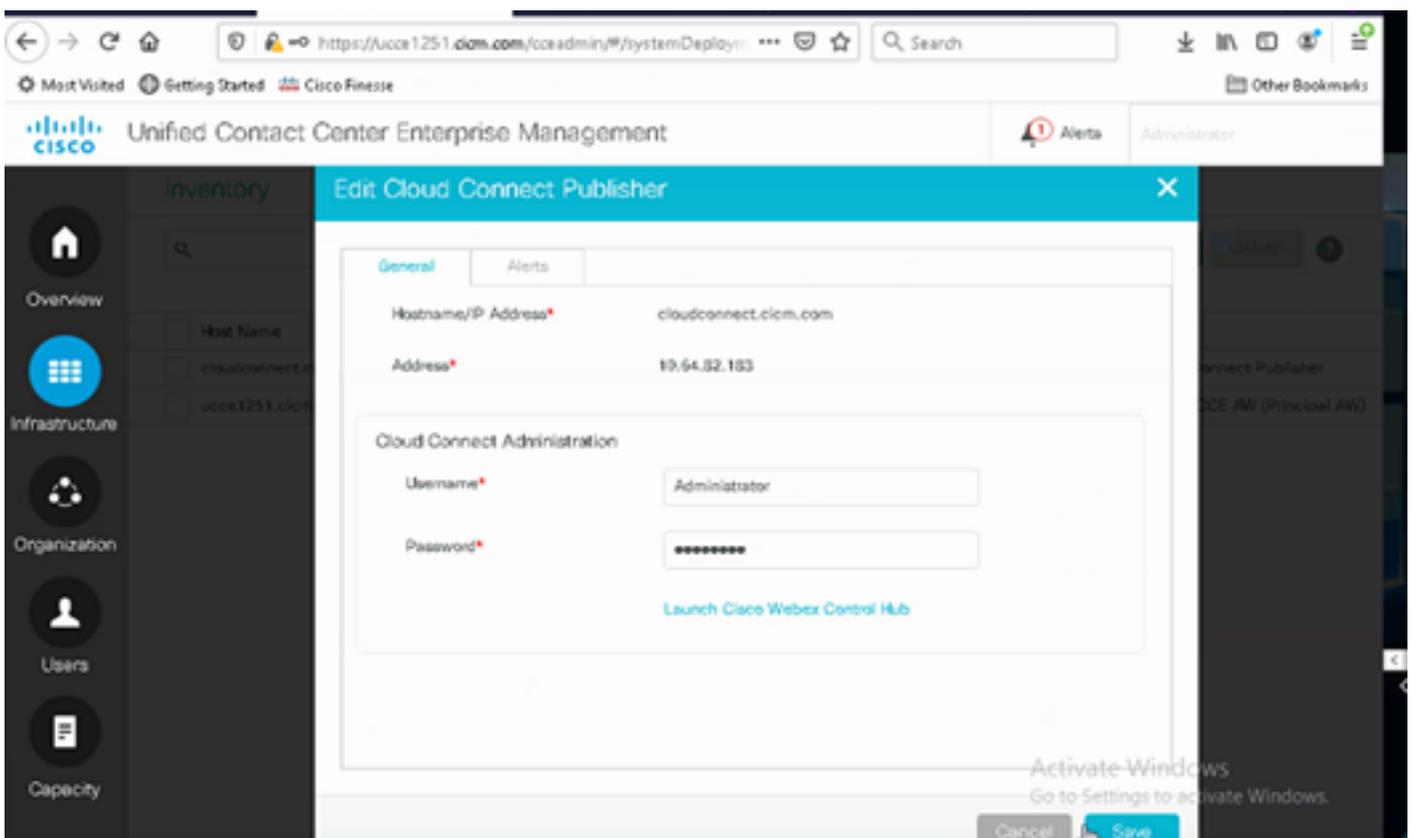


UCCE Configuration

Step 1. On CCE AW, open Unified CCE Administration tool and navigate to Inventory. Click **New**.

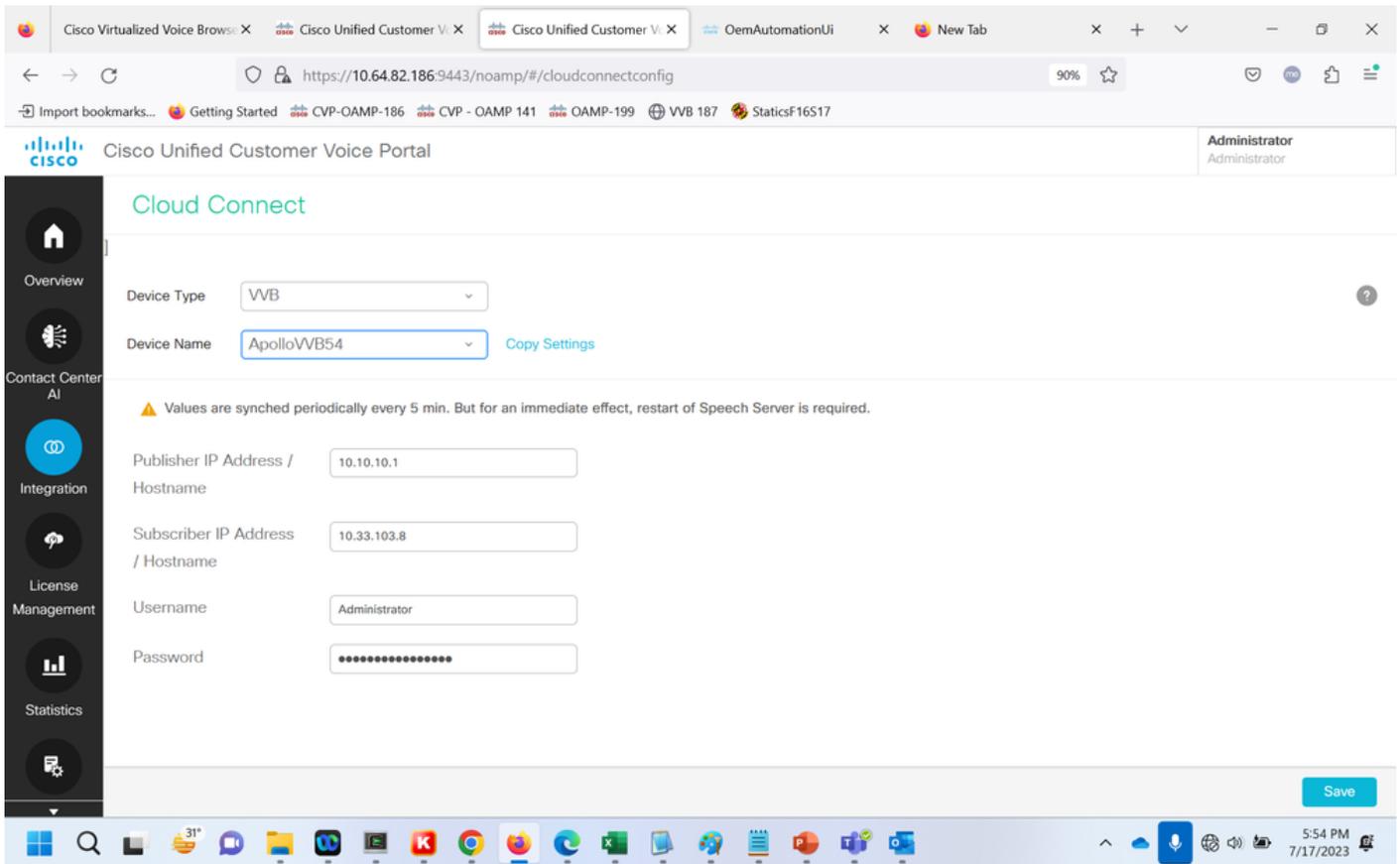


Step 2. Add Cloud Connect and provide the FQDN and credentials.



Note: Ensure that you have previously exchanged certificates between CCE components or implement CA-signed certificates. Refer to these documents for UCCE certificate exchange and implementation: [Exchange Self-Signed Certificates in UCCE 12.6](#), and implementation: [Implement CA-Signed Certificates in 12.6](#).

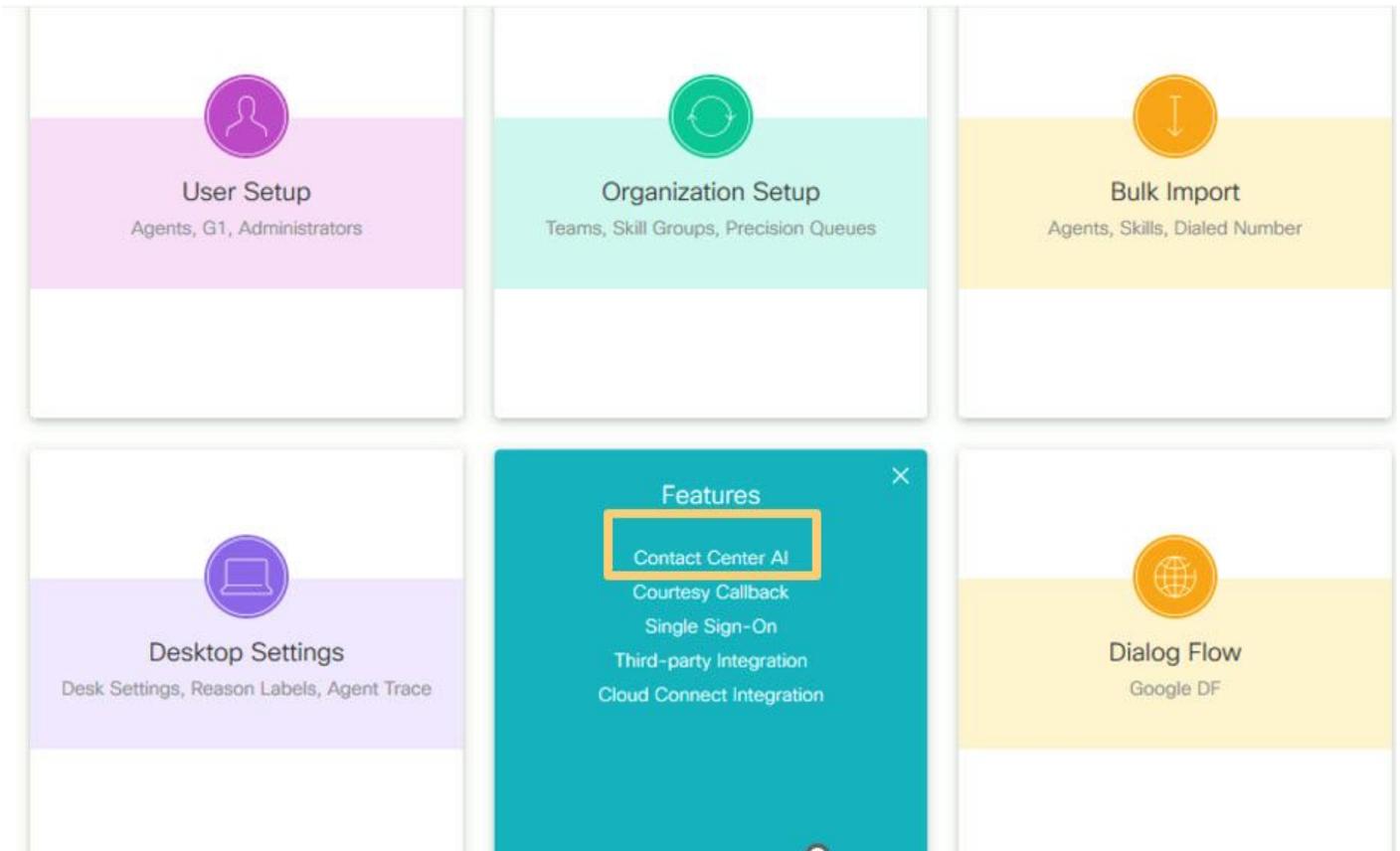
Step 3. Configure Cloud Connect in the CVP Operations Console (OAMP). For details see the section *Configure CVP Devices for Cloud Connect* in the *Administration Guide for Cisco Unified Customer Voice Portal*.



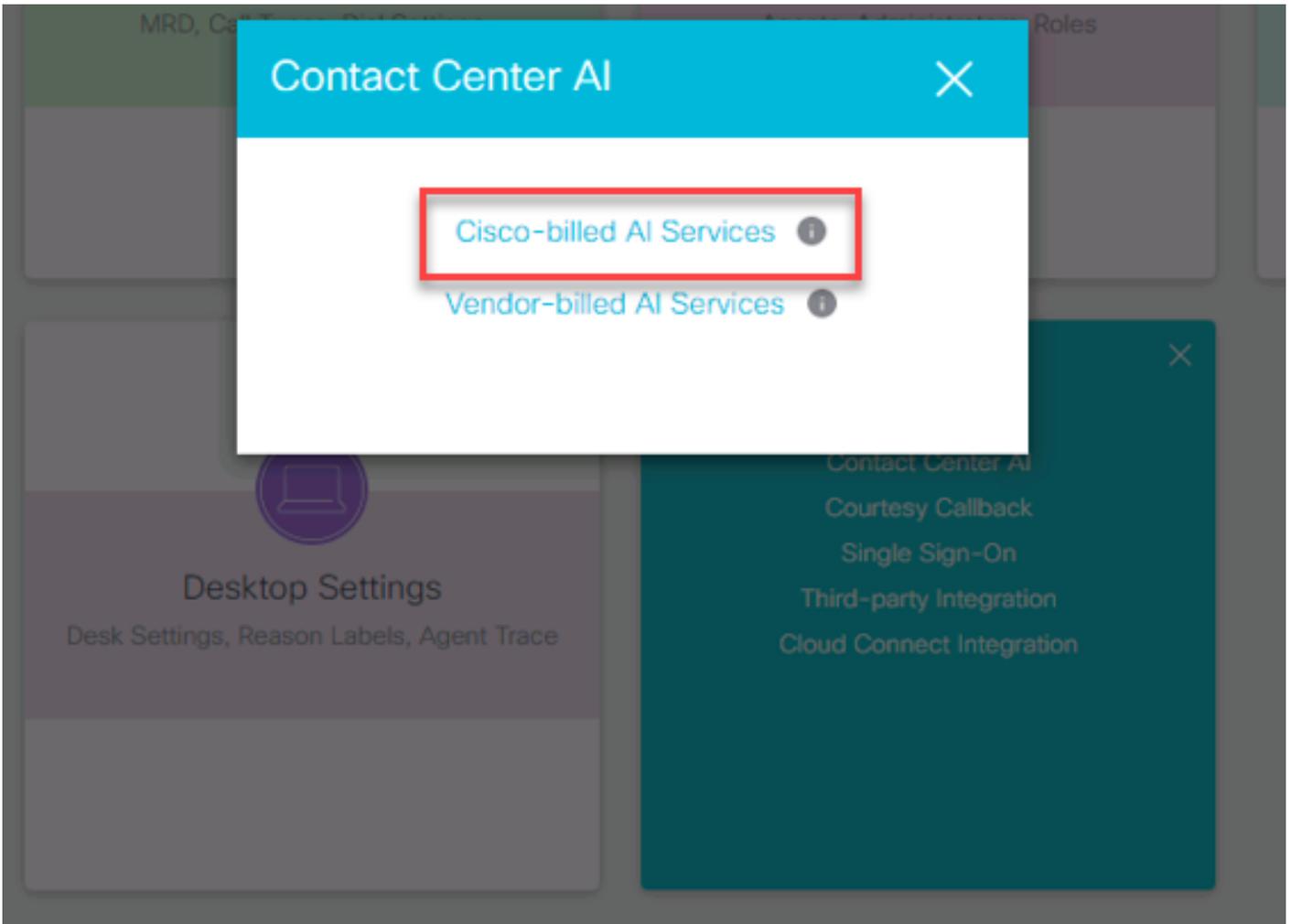
Step 4. Validate the Google CCAI default configuration. View the default CCAI configuration (created as part of the configuration of CCAI in Webex Control Hub). If required, synchronize the configuration (using *Sync* option), in the CVP Operations Console (NOAMP for Cisco Unified CCE).

Step 4a. On the CCE Admin, navigate to the features card, and select Contact Center AI.

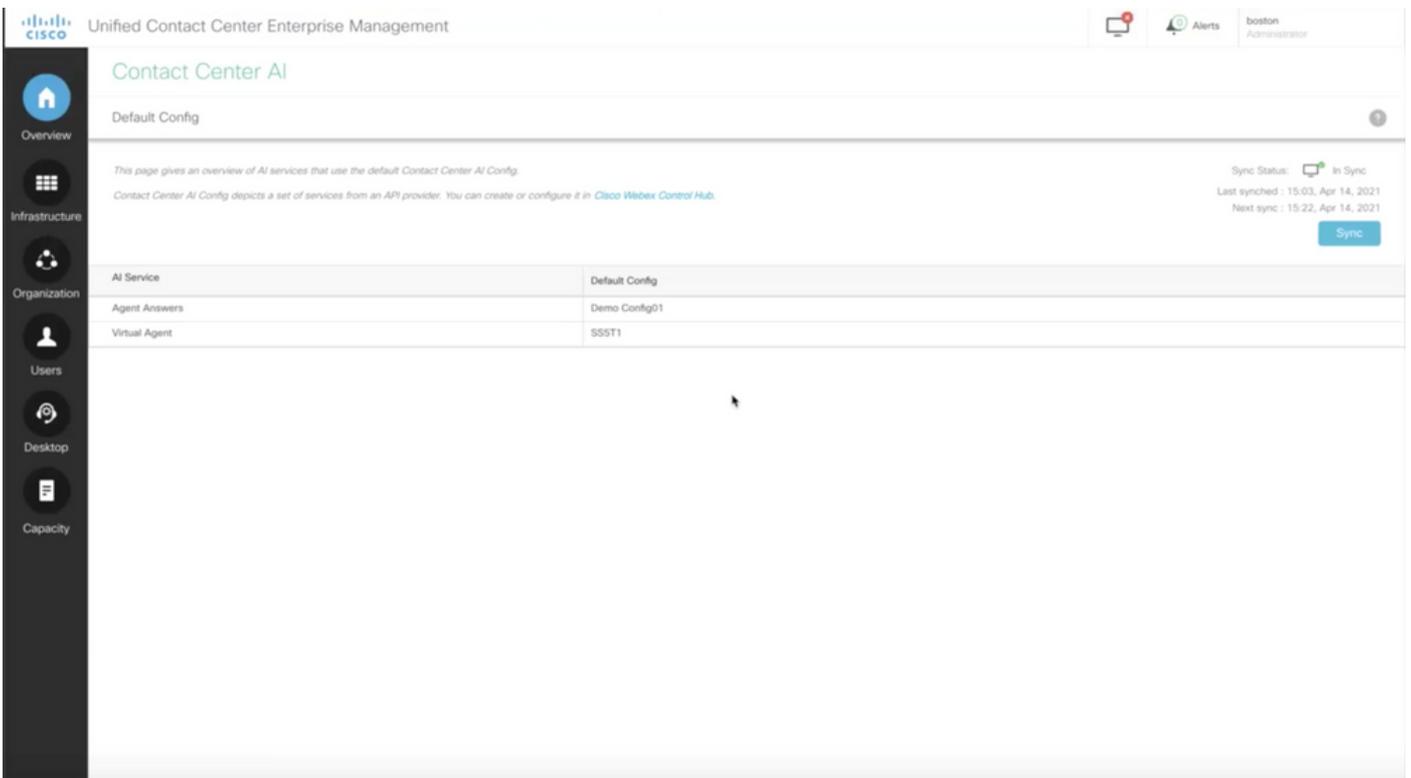
Overview



Step 4b. Select Cisco-billed AI Services.

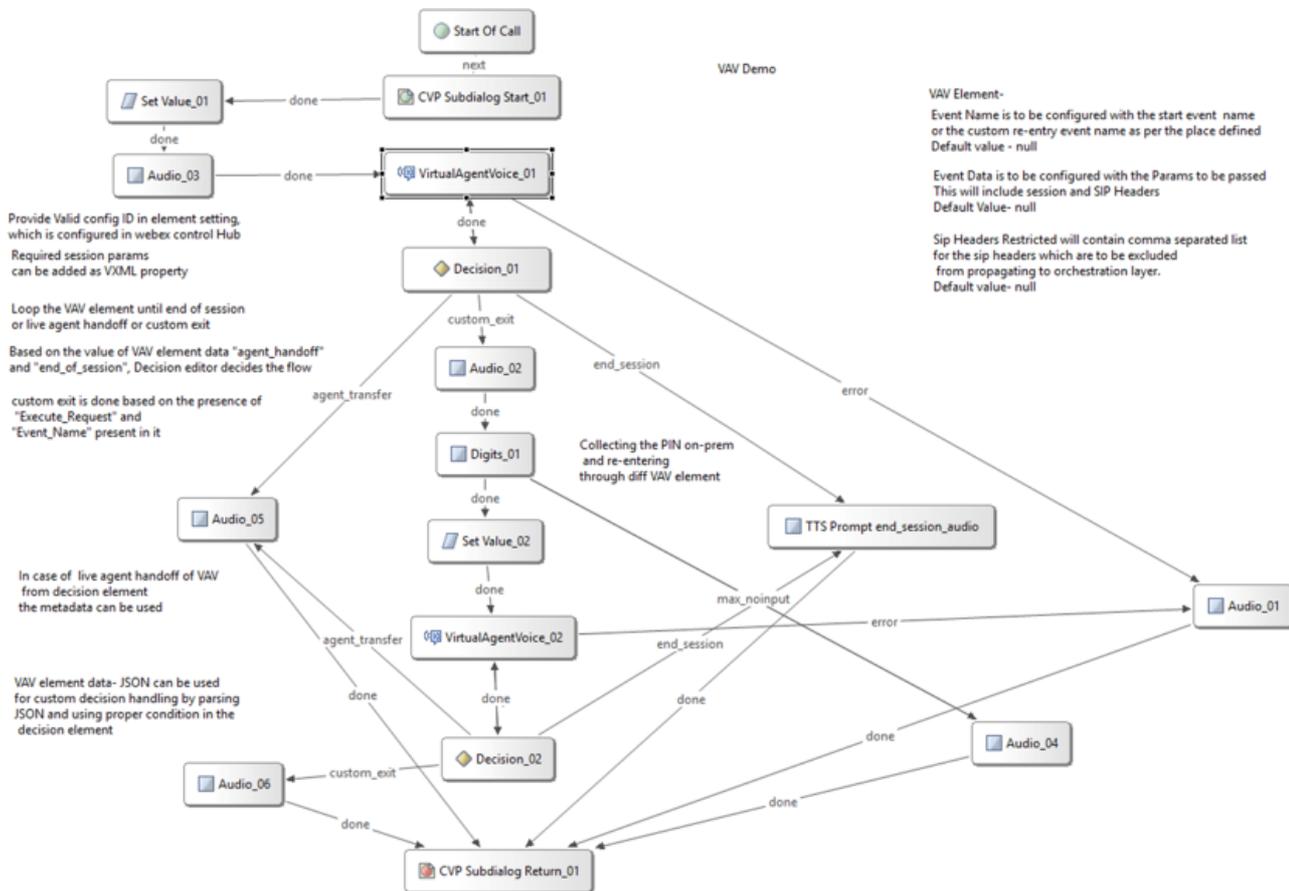


Step 4c. You see the default configuration for the virtual agent.

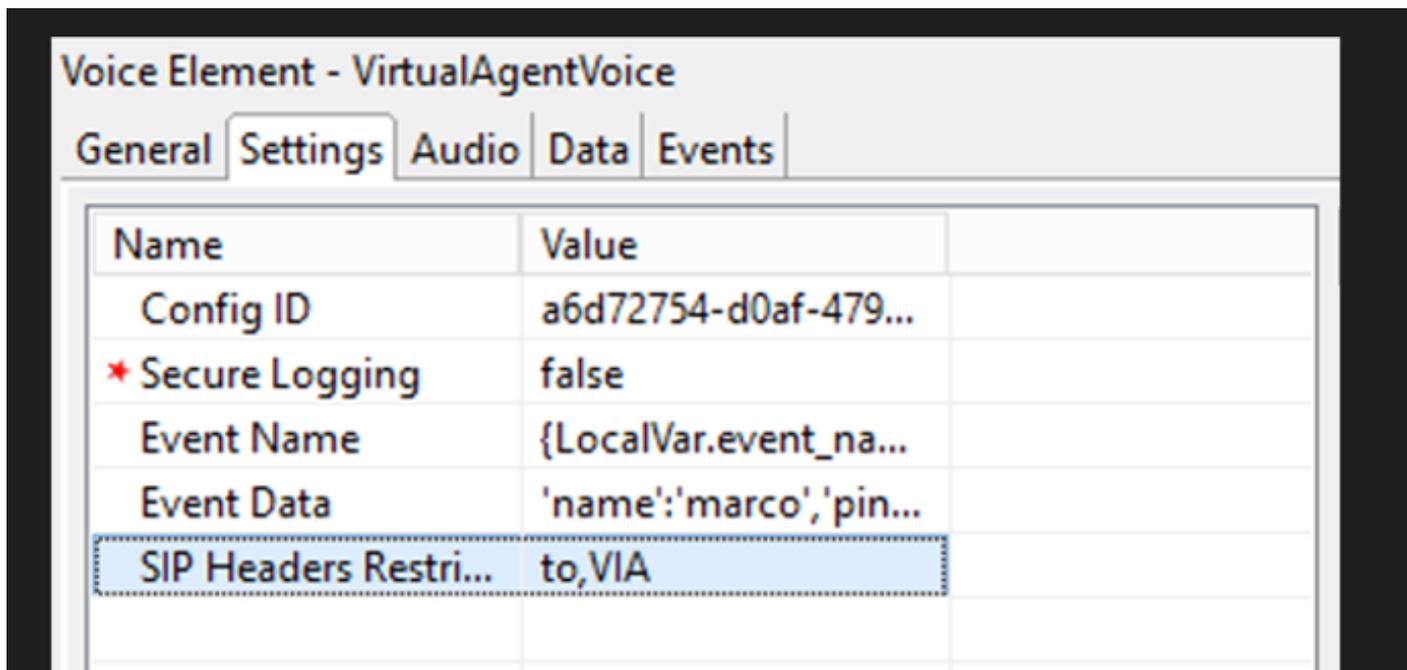


CVP Configuration

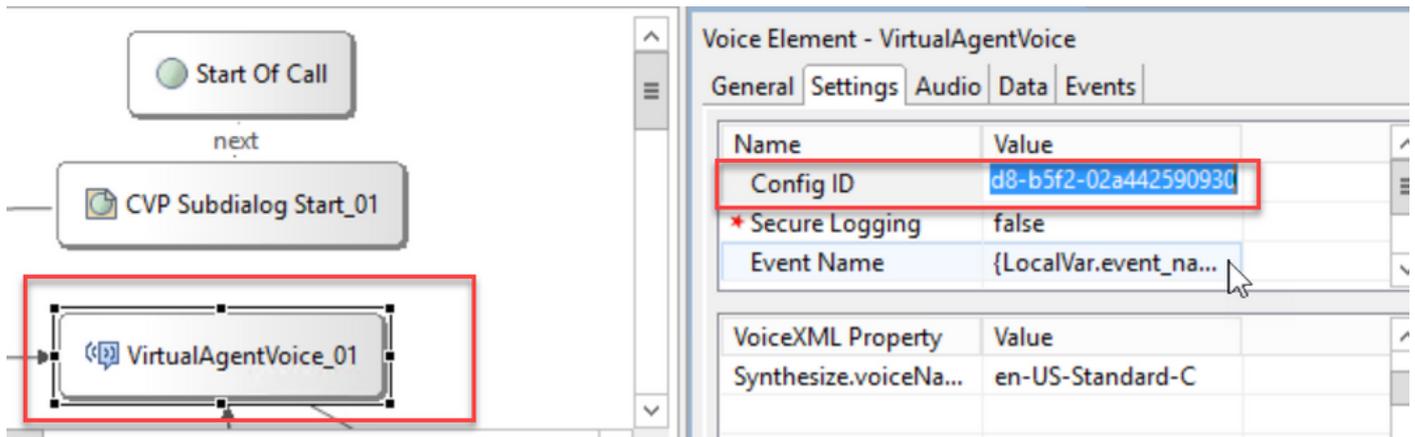
Step 1. On CVP Call Studio, open the call studio application. You can use a Cisco sample call studio application to test in a lab environment. You can download it from here: [Call Studio VAV Sample Application](#).



Step 2. Click the Virtual Agent Voice element and select the settings tab in order to open the element settings.

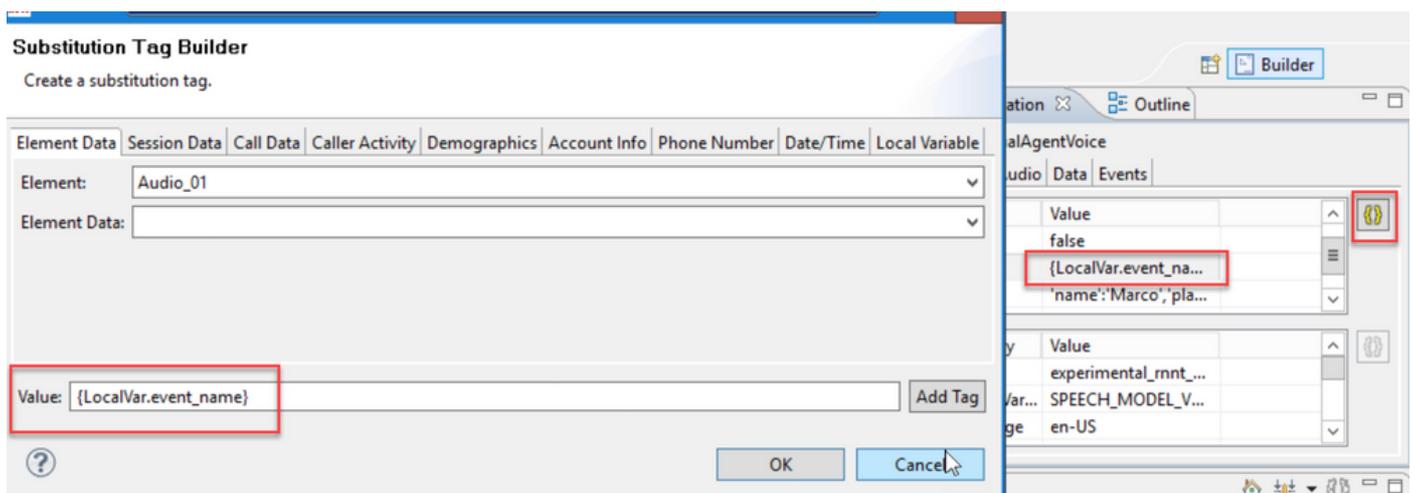


Step 3. On the Config ID copy the id from the Webex Control Hub CCAI feature that you creates. Leave it blank if you have selected a default virtual agent in the Webex Control Hub feature configuration.



Step 4. In previous integration of Dialogflow CX with Cisco Contact Center, you were required to create a welcome event. This is still required in CCE 12.6.2 version if you are using an on-prem based connector. However, for Cloud-based connector you have the option to specify your own event and parameters passed to Google Dialogflow. Click on the Event Name, and specify the name of the event you are passing to Google Dialogflow. Ensure that you create this event in your Dialogflow CX agent.

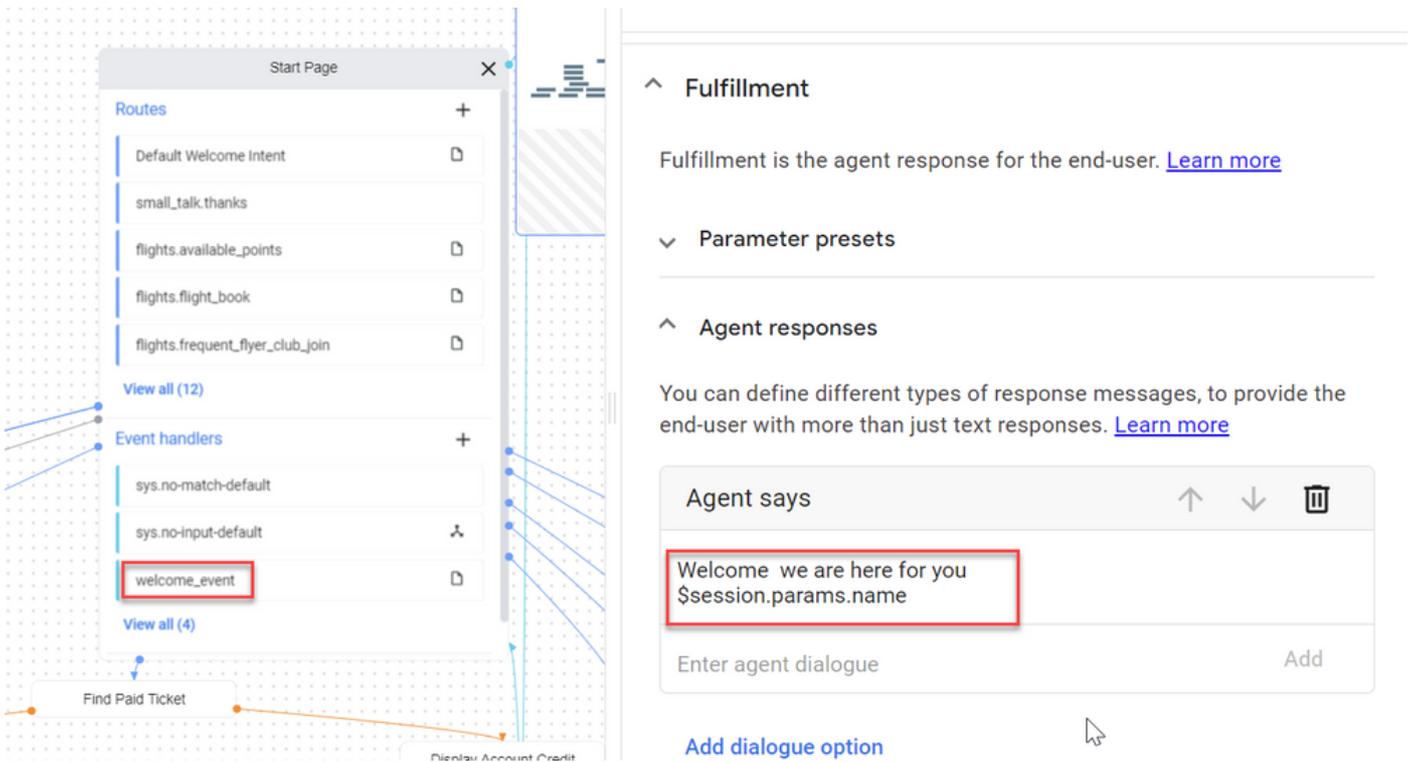
In this example, the event name is passed as a local variable that was defined in a previous element.



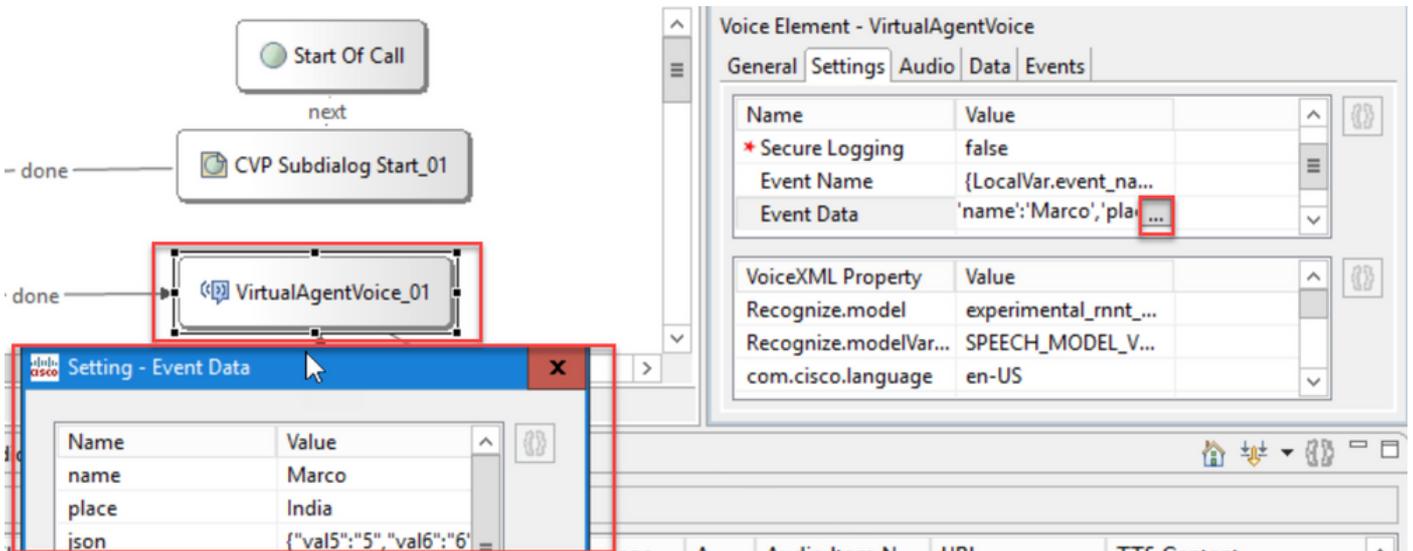
The variable was defined in the set variable event.



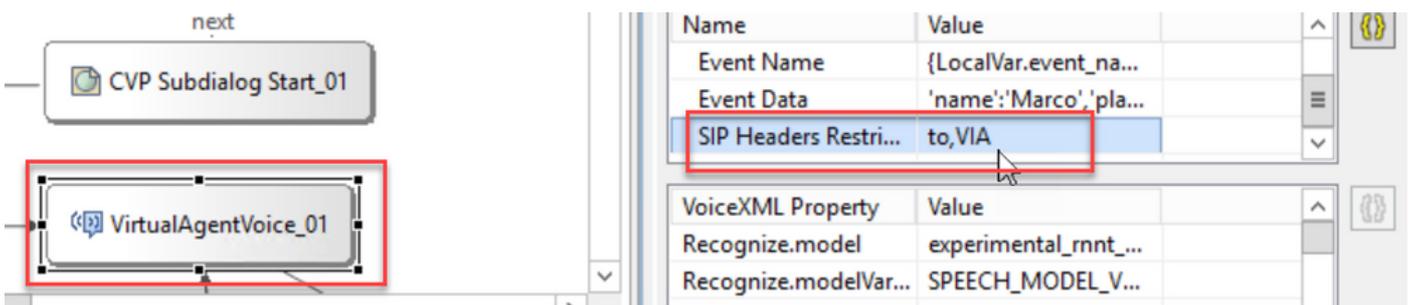
Event in the Dialogflow CX Agent.



Step 5. On the Event Data, add the parameters that you want to pass with the Event Name to Google Dialogflow CX. Click ... to open the Event Data field. in this example, three variables are passed, Name, Place and json type field values.



Step 6. SIP Header restrictions allows you to filter what information from the SIP messages is sent to Google Dialogflow CX agent. This is to prevent that personal or critical information is passed via the cloud.



Step 7. To improve the Automatic Speech Recognition (ASR), Text-to-Speech (TTS) and Natural Language Understanding (NLU) interaction with Google Dialogflow a set of VXML parameters have been added.

VoiceXML Property	Value
Recognize.model	experimental_rnnt_short
Recognize.modelVariant	SPEECH_MODEL_VARIANT_UNSPEC
com.cisco.language	en-US
Synthesize.voiceGender	female
Synthesize.voiceName	en-US-Standard-C

Recognize Models

This is used to specify the machine learning model to be used by the cloud speech-to-text transcription to improve the recognition results.

You can find more information in this documents:

[Enhanced Models](#)

[Select Enhanced Models](#)

Recognize Models Variant

Contains the model variant name. String Recognize.modelVariant. For example, these four values are supported as model.

- USE_STANDARD
- SPEECH_MODEL_VARIANT_UNSPECIFIED
- USE_ENHANCED
- USE_BEST_AVAILABLE (default)

Synthesize Voice Gender

Set the gender type for Synthesize operation.

Synthesize Voice Name

Set the voice name for Synthesize operation. Helps to select the voice and the accent in which the prompts have to be played.

Here are the supported voices and languages by Google: [Google Voice and Language Support](#).

Configure Partial Response in Dialogflow CX

The partial response feature plays an interim message and engages the caller while the webhook response is processing the request in the background. The webhook request in Dialogflow CX often takes longer to receive a response. If there is no interim response to the caller while the webhook response is processing the request, the caller is kept completely silent and could hang up the phone. To avoid this, use the partial response to notify the caller that their request is still being processed.

- If the webhook returns the actual response before or during the partial response, the system stops the partial response and plays the final response to the callers.
- The first prompt response that is received from Dialogflow CX agent does not support partial response.
- Barge-in cannot be enabled for the partial response prompt to allow the callers to interrupt an agent response.

 **Note:** Partial response is configured on Google Dialogflow CX agent. This support is available only from ES1 of 12.6(2) VVB base release. For more information review this document: [Google Partial Response](#)

For more information about partial response, you can review this document: <https://help.webex.com/en-us/article/nzlot2u/Configure-Partial-Response-in-Dialogflow-CX>

Verify

There is currently no verification procedure available for this configuration.

Troubleshoot

There is currently no troubleshooting procedure available for this configuration.

Related Information

- [UCCE Features guide 12.6.2](#)
- [Exchange Self-Signed Certificates in UCCE 12.6](#)
- [Implement CA-Signed Certificates in 12.6](#)
- [Exchange Self-Signed Certificates in PCCE 12.6](#)
- [Provision Google CCAI Hybrid Services with CCE](#)
- [Google - Dialogflow CX Introduction](#)
- [Google - Use Pre-built agent template to create a Dialogflow CX agent](#)
- [Google - Introduction to pages and transitions in Dialogflow CX](#)
- [Google - Create a single-flow conversational agent](#)
- [Cisco Unified Contact Center Enterprise Installation and Upgrade Guide 12.6.2](#)
- [Call Studio VAV Sample Application](#)
- [VXML Element Specification Guide](#)
- [Enhanced Models](#)
- [Select Enhanced Models](#)
- [Google Voice and Language Support](#)
- [Technical Support & Documentation - Cisco Systems](#)