



Virtual Agent–Voice

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Feature Overview

Virtual Agent–Voice (VAV) feature, which was referred to as Customer Virtual Assistant (CVA) in 12.5(1) release, enables the IVR platform to integrate with cloud-based speech services. This feature supports human-like interactions that enable customers to resolve issues quickly and more efficiently within the IVR, thereby reducing the calls directed toward agents.



Note The Dialogflow ES GCP project trial version should not be used in a production environment.

VAV-based IVR enables a new mechanism to leverage cloud-based-AI-enabled speech services. VAV provides the following speech services:

- **Text-to-Speech:** Integration with cloud-based TTS services in your application for Speech Synthesis operations. VAV currently supports [Google Text to Speech](#) service.
- **Speech-to-Text:** Integration with cloud-based ASR services in your application for Speech Recognition operations. VAV currently supports [Google Speech to Text](#) service.
- **Speech-to-Intent:** VAV provides capability of identifying the intent of customer utterances by processing the text that is received from Speech-to-Text operations. VAV offers this service by using cloud-based Natural Language Understanding (NLU) services. VAV currently supports [Google Dialogflow](#) service.

For accessing VAV functionality, Cisco Virtualized Voice Browser (VVB) uses one of the following connectors to leverage AI services:

Cloud-based connector: VVB uses a cloud-based connector to connect to the Cisco CCAI service. This service is enabled through the *VirtualAgentVoice* element of Cisco Unified Call Studio. VAV currently supports Google's Dialogflow CX service via cloud-based connector.

Premise-based connector: VVB uses an original connector to connect to the Google Dialogflow service. This service is enabled through the *Dialogflow* or *DialogflowCX* elements of Cisco Unified Call Studio. VAV currently supports Google's Dialogflow ES and CX services via premise-based connector.



Note You can configure the Virtual Agent–Voice (VAV) feature of VVB 12.5(1) keeping the Cisco Unified Contact Center Enterprise Controller in 12.0 version (as in multistage upgrade). However, in this case, the configuration user interface for the VAV service account will not be available in the Cisco Unified Contact Center Enterprise Administration. So, System Administrators can use the *Command Execution Pane* for such configurations.

For more information, see the *Command Execution Pane* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.

Onboarding Experience

From 12.6(1) release, the VAV feature provides different onboarding experience for OEM users (who use Cisco's contract, billing, and support for Google's speech services) via Webex Control Hub. For details, see the [Create a Contact Center AI configuration](#) article. Non-OEM users use NOAMP in the Unified CCE solution and CCE Administration Portal in the Packaged CCE solution for onboarding.

The following table lists the onboarding channel and Google APIs used for OEM and non-OEM customers:

Release	Services Billing	Onboarding	Google APIs
12.6(1) and above	Cisco-billed (OEM)	Webex Control Hub	AnalyzeContent (V2)
12.5(1) and above	Vendor-billed (non-OEM)	NOAMP/CCEAdmin	DetectIntent (V2)

The following table lists the support for VAV Dialogflow CX and VAV Dialogflow ES via cloud-based or premise-based connectors for OEM and non-OEM customers:

	VAV Dialogflow CX (OEM)	VAV Dialogflow ES (OEM)	VAV Dialogflow CX (Non-OEM)	VAV Dialogflow ES (Non-OEM)
Via cloud-based connector	Yes (12.6(2) and above)	No	No	No
Via premise-based connector	Yes (12.6(1) and above)	Yes (12.5(1) and above)	No	Yes (12.5(1) and above)

VAV via Cloud-Based Connector

Overview

Virtual Agent–Voice via cloud-based connector leverages Cisco's cloud-based Artificial Intelligence (AI) and Natural Language Understanding (NLU) services for designing virtual voice agents and creating complex IVR call flows.

The Webex Contact Center AI (Webex CCAI) services platform enables integration with speech-based services from different vendors. On the premise side, VVB interfaces with the Orchestrator service and connects to the CCAI service via cloud-based connector. This service is enabled through the *VirtualAgentVoice* element of Cisco Unified Call Studio.

For details of the *VirtualAgentVoice* element, refer to the *Element Specifications for Cisco Unified CVP VXML Server and Call Studio* guide at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-programming-reference-guides-list.html>.

The partial response feature is supported via cloud-based connector. It notifies the caller that their request is being processed. By default, the partial prompt will stop playing when the final response is received from the webhook. For more information, see the [Configure Partial Response in Dialogflow CX](#) article.

Important Considerations

Consider the following before configuring VAV via a cloud-based connector:

- Supported codec is u-law.
- This feature is available with Cisco subscription services only.
- Google performs the voice activity detection.
- If the call gets transferred to a real agent, then the transcript of the voice conversation between the customer and the virtual voice agent is displayed in the *Transcript* widget in the Agent Desktop (provided that the *Transcript* widget is configured on the Agent Desktop).
- Non barge-in prompt is supported only until the control gets transferred to the cloud.

Prerequisites

To configure VAV via cloud-based connector, you should have completed the following:

-
- The allowed list in your customer's network must include the following URLs:
 - U2C (port 443): US region - <https://u2c-a.wbx2.com/u2c/api/v1/user/catalog>
 - U2C (port 443): Asia region - <https://u2c-r.wbx2.com/u2c/api/v1/user/catalog>
 - U2C (port 443): Europe region - <https://u2c-k.wbx2.com/u2c/api/v1/user/catalog>
 - Orchestrator (port 443): <https://insight-orchestrator.wxcc-us1.cisco.com> and <https://insight-orchestrator.prod-us1.rtmprod.net>
 - ID broker (port 443): <https://idbroker.webex.com>
 - WS Connector (port 443): <https://wsconnector.wxcc-us1.cisco.com> and <https://wsconnector.prod-us1.rtmprod.net>
 - The allowed list of your customer's network must include the following group of URLs:
 - accounts.google.com/o/oauth2
 - *.cisco.com
 - *.ciscoservice.com

- *.ciscoocservice.com
 - *.ciscopark.com
 - *.cloud.google.com/dialogflow
 - *.google.com
 - *.googleapis.com
 - *.gcr.io
 - *.rtmsprod.net
 - *.webex.com
 - *.wbx2.com
- The customer's CX Agent ID and GCP Project ID are created. For more information, refer to Google documentation at <https://dialogflow.cloud.google.com/cx/projects>.
 - Assessment to Quality (A2Q) process for Contact Center AI (CCAI) is completed and Cisco subscription Flex SKU for CX is procured.
 - Customer's GCP project ID is mapped with Cisco's GCP partner projects.
 - Control Hub credentials and Hybrid Org are generated.
 - Access the associated location settings for regions at Google at <https://cloud.google.com/dialogflow/cx/docs/concept/region>
 - Add non-proxy hosts using VVB CLI commands. For more information, refer to the *Command Line Interface > Set Commands* section in the *Operations Guide for Cisco Virtualized Voice Browser* at <https://www.cisco.com/c/en/us/support/customer-collaboration/virtualized-voice-browser/products-maintenance-guides-list.html>.

CCE (on premise):

- Cisco VVB is upgraded to 12.6(2) using a generic COP.
- Cisco Unified CVP and Cisco VVB are configured:
 - Date and time in CVP, VVB, and proxy are synchronized with a common NTP server.
 - Access to DNS server is configured in CVP and VVB.

For more information on NTP and DNS server configurations in CVP, refer to the Microsoft Windows platform documentation.

For more information on NTP and DNS server configurations in VVB, refer to the *Command Line Interface Reference Guide for Cisco Unified Communications Solutions* at <https://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/products-maintenance-guides-list.html>.

- Port 443 and HTTP/2 are enabled in the proxy and firewall.
- Average bandwidth consumption per call is 106 kbps.
- The new Cisco Unified Call Studio application with the *VirtualAgentVoice* element is deployed. You can download and install the latest patch from <https://software.cisco.com/download/specialrelease/c359e375005563ceec2081c9151b482e>.

For details of the *VirtualAgentVoice* element, refer to the *Element Specifications for Cisco Unified CVP VXML Server and Call Studio* guide at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-programming-reference-guides-list.html>.

- Ensure that the Packaged CCE AW, Cloud Connect, and VVB components have access to Webex services to use the Virtual Agent–Voice via cloud-based connector.

CCAI (in Cisco Webex Control Hub):

- Service provider-specific **Integration Connector** is configured. For more details, see the article <https://help.webex.com/en-us/article/9zvadf/Configure-Google-CCAI-connector-for-Webex-Contact-Center>.
 - Design Google Dialogflow CX Agents. For more information, refer to Google documentation at <https://cloud.google.com/dialogflow/cx/docs/>.
 - CX conversational profile ID is created using credentials provided by Cisco via email. For detailed steps, see the section *Create a Conversation Profile using Google Cloud SDK*.
- Note** En-US global customers can create the conversational profile ID through the UI at <https://agentassist.cloud.google.com/projects>. While creating the profile, enable the option **Enable virtual agent** under **Choose to use Dialogflow**. This profile ID can be used both for the Agent Answers and VAV features.

This conversation profile URL must be used to create the CCAI configuration.

- CCAI configuration is created at <https://admin.webex.com/>. For detailed steps, refer to the [Create a Contact Center AI configuration](#) article.

For further assistance, contact [Cisco Support](#).

What to do next

Configure Google Dialogflow CX Agent with Cisco Unified CCE solution.

Configuration Task Flow

Task flow for configuring Google Dialogflow CX Agent with Cisco Unified CCE solution.

-
- Step 1** Ensure that the Cloud Connect publisher and subscriber nodes are installed.
- For more information, see the *Create VM for Cloud Connect Publisher* and *Create VM for Cloud Connect Subscriber* sections in *Cisco Packaged Contact Center Enterprise Installation and Upgrade Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-installation-guides-list.html>.
- Step 2** Register and add Cloud Connect in Control Hub. For more details, see <https://help.webex.com/en-us/article/n24wo0fb/Register-Cloud-Connect>.
- Step 3** Register Cloud Connect in the Unified CCE Administration console to establish a secure and trusted communication channel between the Cisco Contact Center on-premises deployment and cloud services.

For details, see the *Cloud Connect Administration* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.

Step 4 Configure Cloud Connect with CVP and VVB devices in Unified CCE Administration. For details, see *Configure Cloud Connect* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.

Note After an upgrade, Cloud Connect has to be reconfigured with VVB devices.

Step 5 Import the Cloud Connect certificate to the CVP server.

For details, see the *Unified CVP Security > Import Cloud Connect Certificate to Unified CVP Keystore* section in the *Configuration Guide for Cisco Unified Customer Voice Portal* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-installation-and-configuration-guides-list.html>.

Step 6 View the default CCAI configuration (created as part of CCAI prerequisites). If required, synchronize the configuration (using *Sync* option) in Unified CCE Administration.

For details, see the *Manage Features > Contact Center AI Configuration* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.

Step 7 Design Google Dialogflow CX application.

For more information, refer to Google documentation at <https://dialogflow.cloud.google.com/cx/projects>.

For further assistance, contact the Cisco TAC team.

Hybrid IVR with VAV via Cloud-Based Connector

Dialogflow CX enables contact centers to use cloud-based AI features via Cisco Cloud. With Cisco's Hybrid IVR functionality, customers who have on-premises applications can leverage their traditional ASR/TTS/CRM integrations, along with cloud-based Dialogflow CX AI capabilities. They can select a few nodes or sections of their application to be processed in the cloud and few nodes to be processed on-premises. For example, in an application, OTP generation can be performed on-premises, while other tasks can be processed in the cloud.

Hybrid IVR with Dialogflow CX provides the flexibility to switch from the cloud services to the on-premises application, to use the on-premises subroutine calls, and perform the required operations. After these operations are done, the flow can go back to the cloud services and resume from where it left.

The switching between the cloud services and the on-premises application is achieved by defining a custom payload with an event and associated parameters. This custom payload is passed to the on-premises application. When the flow resumes in the cloud, Dialogflow CX uses the event and parameters that are received from the on-premises application.

The *VirtualAgentVoice* element of Cisco Unified Call Studio is used to engage the Google Dialogflow CX services with Hybrid IVR functionality via Cisco Cloud.

To configure the Hybrid IVR functionality with Dialogflow CX, see [Configure Hybrid IVR, on page 7](#).

**Note**

- Hybrid IVR and IVR transcription functionalities are available *only* with Dialogflow CX from 12.6(2) and higher.
- The *VirtualAgentVoice* element supports both Cisco DTMF and Nuance adapters.

Configure Hybrid IVR

Task flow to configure Hybrid IVR with Google Dialogflow CX agent via Cisco Cloud:

- Step 1** In the Google Dialogflow CX console, select the project and the agent.
- Step 2** In the Google Dialogflow CX agent screen, under the **Build** tab, select the required flow and the required page (**Start/End Flow/End Session**) in this flow, in which a fulfillment is needed from the on-premises application. The details of the selected page appears.
- Step 3** Under **Routes** section, define a route and conditions that satisfy the custom exit criteria, for triggering the transition.
- Step 4** In this route, under **Fulfillment** section, click **Add dialogue option** and select **Custom payload**.
- Note** Only **Custom payload** has to be defined here. Do not add any other dialogue options.

- Step 5** Add the custom payload of type *Execute_Request* that defines the action and elements to be filled in the Unified Call Studio *VirtualAgentVoice* element.

The format for defining the custom payload is as follows:

```
{
  "Execute_Request": {
    "Event_Name": "<Name of the event>",
    "Data": {
      "Params": {
        "<param1 name>": "<param1 value>",
        "<param2 name>": "<param2 value>"
      }
    }
  }
}
```

- Note** Ensure that you map this event name with the same event name in Unified Call Studio *VirtualAgentVoice* element for decision mapping.

- Step 6** Select **Page** under the **Transition** section, to set the transition to the same page when the flow resumes.
- Step 7** For re-entry from the on-premises application to cloud, create an event handler. This event name is to be provided to the *VirtualAgentVoice* element during re-entry. For more information, refer to <https://cloud.google.com/dialogflow/cx/docs/reference/rest/v3/EventHandler>.

It's the responsibility of the Dialogflow CX developer to create this event handler. Otherwise, the application fails.

VAV via Premise-Based Connector

Virtual Agent–Voice via premise-based connector leverages Google's cloud-based Artificial Intelligence (AI) and Natural Language Understanding (NLU) services for designing virtual voice agents and creating complex IVR call flows.

VAV currently supports two flavors of Google Dialogflow services via premise-based connector:

VAV for Dialogflow CX

Overview

Virtual Agent–Voice for Dialogflow CX leverages Google's Dialogflow CX service that allows designing virtual voice agents and creating and connecting complex IVR call flows.

Using Google Dialogflow CX, multiple agents can be created under the same Project ID. These agents can be accessed and managed for different lines of business with a single Google account. For more information, refer to the Google Dialogflow CX documentation at <https://cloud.google.com/dialogflow/cx/docs>.

VVB uses a premise-based connector to connect to the Google Dialogflow service. This service is enabled through the *DialogflowCX* element of Cisco Unified Call Studio.

For details of the *DialogflowCX* element, refer to the *Element Specifications for Cisco Unified CVP VXML Server and Call Studio, Release 12.6(1)* guide at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-programming-reference-guides-list.html>.



Note

- Only u-law codec is supported.
 - This feature is available with Cisco subscription services only.
-

Prerequisites

For supported minimum versions, refer to the *Cisco Unified Customer Voice Portal > New Features > Virtual Agent–Voice for Dialogflow CX* section in the *Release Notes for Cisco Contact Center Enterprise Solutions Release 12.6(1)*.



Note

Ensure that the Packaged CCE AW and Cloud Connect Components have access to Webex services and the VVB components have access to both Webex and Google services to use the Virtual Agent–Voice for Dialogflow CX via premise-based connector.

To configure Google Dialogflow CX, you should have completed the following procedures:

- The customer's CX Agent ID and GCP Project ID are created. For more information, refer to Google documentation at <https://dialogflow.cloud.google.com/cx/projects>.
- Assessment to Quality (A2Q) process for Contact Center AI (CCAI) is completed and Cisco subscription Flex SKU for CX is procured.

- Customer's GCP project ID is mapped with Cisco's GCP partner projects.
- Control Hub credentials and Hybrid Org are generated.

For assistance, you can contact the Cisco TAC team.

- CX conversational profile ID is created using credentials provided by Cisco via email. For details, see [Create a Conversation Profile using Google Cloud SDK, on page 10](#).

This conversation profile URL is to be used for creating the CCAI configuration.

- Cisco Unified CVP and Cisco VVB are configured:
 - Date and time in CVP, VVB, and proxy are synchronized with a common NTP server.
 - Access to DNS server is configured in CVP and VVB.

For more information on NTP and DNS server configurations in CVP, refer to the Microsoft Windows platform documentation.

For more information on NTP and DNS server configurations in VVB, refer to the *Command Line Interface Reference Guide for Cisco Unified Communications Solutions* at <https://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/products-maintenance-guides-list.html>.

- Port 443 and HTTP/2 are enabled in the proxy and firewall.
- The new Cisco Unified Call Studio application with the *DialogflowCX* element and *VirtualAgentVoice* element is deployed. You can download and install the latest patch from <https://software.cisco.com/download/specialrelease/c359e375005563ceec2081c9151b482e>.

For details of the *DialogflowCX* element and *VirtualAgentVoice* element, refer to the *Element Specifications for Cisco Unified CVP VXML Server and Call Studio, Release 12.6(1)* guide at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-programming-reference-guides-list.html>.

What to do next

Configure Google Dialogflow CX Agent with Cisco Unified CCE solution.

Configuration Task Flow

Task flow for configuring the Google Dialogflow CX Agent with Cisco Packaged CCE solution.

Step 1 Ensure that the Cloud Connect publisher and subscriber nodes are installed.

For more information, see the *Create VM for Cloud Connect Publisher* and *Create VM for Cloud Connect Subscriber* sections in *Cisco Packaged Contact Center Enterprise Installation and Upgrade Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-installation-guides-list.html>.

Step 2 Register Cloud Connect in the Unified CCE Administration console to establish a secure and trusted communication channel between the Cisco Contact Center on-premises deployment and cloud services.

For details, see the *Cloud Connect Administration* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.

- Step 3** Configure Cloud Connect with CVP and VVB devices in Unified CCE Administration. For details, see *Configure Cloud Connect* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.
- Step 4** Import the Cloud Connect certificate to the CVP server.
For details, see the *Unified CVP Security > Import Cloud Connect Certificate to Unified CVP Keystore* section in the *Configuration Guide for Cisco Unified Customer Voice Portal* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-installation-and-configuration-guides-list.html>.
- Step 5** Create Contact Center AI (CCAI) configuration in Cisco Webex Control Hub at <https://admin.webex.com>. A CCAI configuration leverages CCAI Connectors to invoke the CCAI services.
For detailed steps to set up Integration Connectors, see the <https://help.webex.com/en-us/article/9zvadfb/Configure-Google-CCAI-connector-for-Webex-Contact-Center> article.
For detailed steps to create CCAI configuration, see the *Create a Contact Center AI configuration* article. This default config can be used for accessing multiple AI services on multiple devices.
- Step 6** View the default CCAI configuration. If required, synchronize the configuration (using *Sync* option) in Unified CCE Administration.
For details, see the *Manage Features > Contact Center AI Configuration* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.
- Step 7** Design Google Dialogflow CX Agents. For more information, refer to Google documentation at <https://dialogflow.cloud.google.com/cx/projects>.
- Step 8** Configure a welcome event for all Google Dialogflow CX Agents. For details, see [Create a Welcome Event, on page 13](#).
- Note**
- You can configure custom events to override the default welcome event. Provide the element data *event_name* in the Dialogflow CX element and ensure that you configure the same name in the CX Agent to start the flow. For instructions, see [Configure custom events in Dialogflow CX](#).
 - For further assistance, contact [Cisco Support](#).

Create a Conversation Profile using Google Cloud SDK



Note The steps in the following procedure are for reference only. For more details, refer to Google Documentation.

- Step 1** Get the agent ID:
- Open <https://dialogflow.cloud.google.com/cx/projects>.
 - Select the appropriate project. The list of configured agents is displayed.
 - Note the agent ID to be configured. If no new agents are created, you can select a preconfigured agent.

Step 2 Create a user via Google IAM (Identity and Access Management) and add the following roles: Dialogflow API admin, Service Account Token Creator, and Service Account user .

For more information, see <https://cloud.google.com/iam/docs/creating-managing-service-accounts>.

Step 3 Install and configure the Google SDK on your system.

For more information, see <https://cloud.google.com/sdk/docs/quickstart>.

Step 4 When you are asked to log in during the installation of Google SDK, log in using the ID of the agent for whom you want to create the conversation profile.

Note You can also log in using the same ID to the GCP CLI with the command `gcloud auth login` after installing the Google SDK.

Step 5 Run the following command: `gcloud auth print-access-token --impersonate-service-account=Service Account ID`

For more information, see <https://cloud.google.com/iam/docs/impersonating-service-accounts>.

Step 6 Create the conversation profile using REST API for Dialogflow by using Postman:

- a) In the Postman workspace, select the method as **POST**.
- b) In the URL field, add the address in the following format after replacing the *regionId* and *projectId* appropriately:
`https://<regionId>-dialogflow.googleapis.com/v2beta1/projects/<projectId>/locations/<regionId>/conversationProfiles`
- c) Under the **Headers** section, add the following key values for Authorization and Content-type:
 - Authorization: *Bearer <token generated with the Google command>*
 - Content-type: *application/json*
- d) Under the **Body** section, select **raw**. From the last dropdown, select **JSON**.
- e) In the code space, enter the following code (after replacing the *regionId*, *projectId*, and *agentId* in the **agent** tag with actual values):

```
{
  "name": "TACCXTest",
  "automatedAgentConfig": {
    "agent": "projects/<projectId>/locations/<regionId>/agents/<agentId>"
  },
  "displayName": "TACCXTest",
  "humanAgentAssistantConfig": {
    "messageAnalysisConfig": {
      "enableEntityExtraction": true,
      "enableSentimentAnalysis": true
    }
  }
}
```

- f) Click **Send** to run the command.

Example response:

```
{
  "name": "projects/projectrtp2020/locations/us-central1/conversationProfiles/Q1036mwSua3cjg",
  "displayName": "TACCXTest",
  "automatedAgentConfig": {
    "agent":
      "projects/projectrtp2020/locations/us-central1/agents/40d0-aa2a-1bf453d9bf5c/environments/draft"
  },
  "humanAgentAssistantConfig": {
    "notificationConfig": {},
  }
}
```

```

"messageAnalysisConfig": {
  "enableEntityExtraction": true,
  "enableSentimentAnalysis": true
},
"languageCode": "en-US"
}

```

In the above example response, the following conversation profile is obtained:
projects/projectrtp2020/locations/us-central1/conversationProfiles/dQlO36mwSUa3cJg.

You can use this profile while creating the Control Hub configuration.

For more information, see <https://cloud.google.com/sdk/gcloud/reference>.

Step 7 Create the conversation profile using REST API for Dialogflow by using Postman:

- a) Add headers: Content-type Application/json.
- b) Authorization: Bearer - add the token generated with the Google command.
- c) Add the method as POST.
- d) In the URL section, add the address after replacing the regionId and the projectId appropriately. The address is in the following format:
<https://<regionId>-dialogflow.googleapis.com/v2beta1/projects/<projectId>/locations/<regionId>/conversationProfiles>
- e) In the body section, choose RAW and JSON.
- f) In the **Agent** tag, use the appropriate regionId, projectId, and agentId.

```

{
  "name": "TACCXTest",
  "automatedAgentConfig": {
    "agent": "projects/<projectId>/locations/<regionId>/agents/<agentId>"
  },
  "displayName": "TACCXTest",
  "humanAgentAssistantConfig": {
    "messageAnalysisConfig": {
      "enableEntityExtraction": true,
      "enableSentimentAnalysis": true
    }
  }
}

```

Example response:

```

{
  "name": "projects/tacprojectrtp2020/locations/us-central1/conversationProfiles/dCv41CluQlO36mwSUa3cJg",
  "displayName": "TACCXTest",
  "automatedAgentConfig": {
    "agent":
    "projects/tacprojectrtp2020/locations/us-central1/agents/5cca975a-bbb3-40d0-aa2a-1bf453d9bf5c/environments/draft"
  },
  "humanAgentAssistantConfig": {
    "notificationConfig": {},
    "messageAnalysisConfig": {
      "enableEntityExtraction": true,
      "enableSentimentAnalysis": true
    }
  },
  "languageCode": "en-US"
}

```

This is the conversation profile that you obtain in the example.

projects/tacprojectrtp2020/locations/us-central1/conversationProfiles/dCv4IC1uQlO36mwSUa3cJg. You can use this profile while creating the Control Hub configuration.

For more information, see <https://cloud.google.com/sdk/gcloud/reference>.

- Step 8** In a new browser tab, open <https://agentassist.cloud.google.com/> and select the appropriate project. The list of profiles is displayed.
- Step 9** Click the copy icon next to the profile ID to be used. Copy the profile URL in the following format:
projects/<project_ID>/locations/<location>/conversationProfiles/<profile ID>.
- You can use this profile URL while creating the Control Hub configuration.

Create a Welcome Event

Create a welcome event to be played to the caller when a call is initiated.

-
- Step 1** Open <https://dialogflow.cloud.google.com/cx/projects>.
- Step 2** Select the project and agent for which the welcome event is to be configured.
- Step 3** In the Google Dialogflow CX Agent screen, click **Default Start Flow** in the left panel.
- Step 4** Click **Start > Event handlers**.
- Step 5** In the right panel, click **Add event handler**.
- Step 6** Check the **Use custom event** checkbox.
- Step 7** In the **Custom Event** textbox, type **welcome_event**.
- Step 8** In the **Agent says** textbox, type the welcome message to be played.
- Step 9** Save the changes.
- Note** To override the default welcome event, provide the element data *event_name* in the DialogflowCX element. The same name must be configured in the CX Agent to start the flow.

VAV for Dialogflow ES



Note The Dialogflow ES GCP project trial version should not be used in a production environment.

Dialogflow ES via VVB (OEM Users)

Overview

Virtual Agent–Voice (VAV) feature provides an enhanced onboarding experience to OEM customers via Webex Control Hub. All contract, billing, and support are managed through Cisco for OEM customers and they can use Cisco services coupled with Google’s cloud-based-AI-enabled speech services.

A single config ID generated via Control Hub can be leveraged across all CVP/VVB instances as compared to the earlier experience where each instance was required to be configured individually.

Prerequisites

The prerequisites for configuring Virtual Agent–Voice for OEM users are:

- OEM users must provision Google Contact Center AI (CCAI) for Cisco Contact Center Enterprise. For details, see the [Create a Contact Center AI configuration](#) article.
- CVP/VVB configuration:
 - Enable access to cloud-based services from CVP and VVB directly or via proxy.
For details, see the *Cisco Unified Customer Voice Portal > Operations Console (NOAMP) > Integration > Cloud Connect > Configure CVP or VVB Devices for Cloud Connect* section in the *Administration Guide for Cisco Unified Customer Voice Portal* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-installation-and-configuration-guides-list.html>.
 - Synchronize the date/time in CVP, VVB, and proxy with a common NTP server.
 - Configure access to DNS server in CVP/VVB.

For more information on NTP and DNS server configurations in CVP, refer to the Microsoft Windows platform documentation.

For more information on NTP and DNS server configurations in VVB, refer to the *Command Line Interface Reference Guide for Cisco Unified Communications Solutions* at <https://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/products-maintenance-guides-list.html>.

- The following table lists the required versions for Cisco Unified CVP, Cisco VVB, Cloud Connect, CCE components (Router, Logger, AW, and PG), and ICM.

CVP	VVB	Cloud Connect	CCE Components	ICM
12.5 and higher	12.5 and higher	NA	11.6/12.0 with A2Q approval	11.6/12.0 with A2Q approval

VAV Onboarding for OEM Users Task Flow

Follow this procedure to provision Google CCAI with Cisco Unified Contact Center Enterprise. A single configuration created via Control Hub can be used for accessing multiple AI services, such as VAV and Agent Answers on multiple devices.

Step 1 Create a CCAI configuration in Cisco Webex Control Hub at <https://admin.webex.com>. A CCAI configuration leverages CCAI Connectors to invoke the CCAI services.

For details, see the [Create a Contact Center AI configuration](#) article. This default config can be used for accessing multiple AI services on multiple devices.

- Note** While creating a CCAI configuration (explained in the article [Create a Contact Center AI configuration](#)):
- Skip the creation of conversation profile.
 - Select the **Apply as default for Virtual Agent** configuration, because it is mandatory for ASR and TTS.

- Step 2** Ensure that the Cloud Connect publisher and subscriber are installed.
- For more information, see the *Create VM for Cloud Connect Publisher* and *Create VM for Cloud Connect Subscriber* sections in *Cisco Packaged Contact Center Enterprise Installation and Upgrade Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-installation-guides-list.html>.
- Step 3** Register Cloud Connect in the Unified CCE Administration console to establish a secure and trusted communication channel between the Cisco Contact Center on-premises deployment and cloud services.
- For details, see the *Cloud Connect Administration* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.
- Step 4** Configure Cloud Connect with CVP and VVB devices in Unified CCE Administration. For details, see *Configure Cloud Connect* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.
- Step 5** Import the Cloud Connect certificate to the CVP server.
- For details, see the *Unified CVP Security > Import Cloud Connect Certificate to Unified CVP Keystore* section in the *Configuration Guide for Cisco Unified Customer Voice Portal* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-installation-and-configuration-guides-list.html>.
- Step 6** View the default CCAI configuration (created in step 1). If required, synchronize the configuration (using *Sync* option) in Unified CCE Administration.
- For details, see the *Manage Features > Contact Center AI Configuration* section in the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html>.



- Note** To change or override the default config (created in step 1), configure the `CCAI.configId` property of the `Dialogflow` element in Call Studio.
- For details, see the *Dialogflow Element > Custom VoiceXML Properties* section in the *Element Specifications for Cisco Unified CVP VXML Server and Call Studio* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-programming-reference-guides-list.html>.

Migration for OEM Users

OEM users migrating from 12.5(1) or 12.5(1a) to 12.6(1) must onboard via Webex Control Hub for better experience and enhanced security. They can continue to use the old method of key generation by retaining their old configurations until their onboarding via Webex Control Hub is complete.

Important Considerations

VVB periodically refreshes the CCAI configurations. Whenever these configurations are changed in the Control Hub, it may take up to 10 minutes for the changes to reflect in VVB. For applying the changes instantly, you need to restart the VVB speech server service.

Dialogflow ES via VVB (Non-OEM Users)

Overview

From 12.5(1) release, non-OEM users use NOAMP in Unified CCE solution, and CCE Administration Portal in Packaged CCE solution for VAV onboarding.

The following table lists the onboarding channel and Google APIs used for non-OEM customers:

Release	Services Billing	Onboarding	Google APIs
12.6(1) and 12.6(2)	Vendor-billed (non-OEM)	NOAMP/CCEAdmin	DetectIntent (V2)

Prerequisites

- Enable access to cloud-based services from CVP and VVB directly or via proxy. For details, see the *Cisco Unified Customer Voice Portal > Operations Console (NOAMP) > Integration > Cloud Connect > Configure CVP or VVB Devices for Cloud Connect* section in the *Administration Guide for Cisco Unified Customer Voice Portal* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-installation-and-configuration-guides-list.html>.
- Synchronize the date/time in CVP, VVB, and proxy with a common NTP server.
- Configure access to DNS server in CVP/VVB.

For more information on NTP and DNS server configurations in CVP, refer to the Microsoft Windows platform documentation.

For more information on NTP and DNS server configurations in VVB, refer to the *Command Line Interface Reference Guide for Cisco Unified Communications Solutions* at <https://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/products-maintenance-guides-list.html>.

- Access key for Google Text-to-Speech. For more information, see <https://cloud.google.com/text-to-speech/docs/quickstart-client-libraries>.
- Access key for Google Speech-to-Text. For more information, see <https://cloud.google.com/speech-to-text/docs/quickstart-client-libraries>.
- Configure Dialogflow Agent:
 1. Get the Dialogflow Agent Key. For more information, see <https://dialogflow.com/docs/reference/v2-auth-setup>.
 2. Migrate your Dialogflow Agent to Enterprise Essential (**Console Left Bar > Migrate from Standard to Enterprise Essential**).
 3. Enable the enhanced Speech Model in Dialogflow console (**Settings > Speech > Enable Enhanced Speech Model and Data Logging**).



Note If this option is enabled, speech recognition data is shared with Google. For more information see <https://cloud.google.com/speech-to-text/docs/enhanced-models>.

- Non-OEM users must enable speech services and generate JSON key. To know more about enabling speech services, see [Enable Speech Services \(For Non-OEM Users\), on page 17](#). To know more about generating JSON key, see [Generate JSON Key \(for Non-OEM Users\), on page 18](#).
- The following table lists the required versions for Cisco Unified CVP, Cisco VVB, Cloud Connect, CCE components (Router, Logger, AW, and PG), and ICM.

CVP	VVB	Cloud Connect	CCE Components	ICM
12.5 and higher	12.5 and higher	NA	11.6/12.0 with A2Q approval	11.6/12.0 with A2Q approval



Note Trial version of Dialogflow ES GCP project should not be used in production environment.

VAV Onboarding for Non-OEM Users Task Flow

- Step 1** Enable speech services for your account.
To know more about enabling speech services, see [Enable Speech Services \(For Non-OEM Users\), on page 17](#).
- Step 2** Generate JSON key for your account.
To know more about generating JSON key, see [Generate JSON Key \(for Non-OEM Users\), on page 18](#).
- Step 3** Configure VVB devices for speech services.
For details, see the *Cisco Unified Customer Voice Portal > Operations Console (NOAMP) > Contact Center AI > Configuration for Vendor-Billed AI Services* section in the *Administration Guide for Cisco Unified Customer Voice Portal* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-installation-and-configuration-guides-list.html>.

Enable Speech Services (For Non-OEM Users)

To enable speech services, follow these steps:

1. Log in to your Dialogflow account at <https://dialogflow.cloud.google.com/>.
2. Scroll down on the homepage and click **Project ID** of your Dialogflow agent.
This takes you to the Google Cloud Platform (GCP) homepage.
3. Select **APIs & Services** from the left pane (through the hamburger menu).
4. Select the API services (such as Cloud Text-to-Speech, Cloud Speech-to-Text, and Dialogflow) to be enabled.

5. Click **Enable** to enable the selected API for the given Project ID.

Generate JSON Key (for Non-OEM Users)

To generate the JSON key, follow these steps:

1. In the GCP homepage, select **IAM & Admin** from the left pane (through the hamburger menu).
2. Select **Service accounts** which shows the list of your enabled services.
3. Select the service for which the JSON key is to be generated.
4. Click the ellipsis menu on the right and click **+Create Key**.
5. Select JSON as **Key type** and then click **Create**.

The key is downloaded.

For best results:

- Migrate your Dialogflow Agent to Enterprise Essential (**Console Left Bar > Migrate from Standard to Enterprise Essential**).
- Enable the enhanced Speech Model in Dialogflow console (**Settings > Speech > Enable Enhanced Speech Model and Data Logging**).

If this option is enabled, speech recognition data is shared with Google. For more information see <https://cloud.google.com/speech-to-text/docs/enhanced-models>.

Documentation Resources

The following table lists the reference documents for VAV.

Information	Resource
Sample VAV Application	See https://github.com/CiscoDevNet/cvp-sample-code/tree/master/CustomVirtualAssistant .
Design Considerations	<i>Design Considerations for Integrated Features > Virtual Agent–Voice Considerations</i> section in <i>Solution Design Guide</i> at https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-implementation-design-guides-list.html .
VAV configuration in PCCE Deployment	<i>Virtual Agent–Voice</i> section in <i>PCCE Administration and Configuration Guide</i> at https://www.cisco.com/c/en/us/support/customer-collaboration/packaged-contact-center-enterprise/products-maintenance-guides-list.html .
TTS Prompt Cache Management and proxy setting for Speech Server	<i>VVB Operations Guide</i> at https://www.cisco.com/c/en/us/support/customer-collaboration/virtualized-voice-browser/products-maintenance-guides-list.html .

Information	Resource
Proxy settings for VXML Server	See the <i>VXML Server Configuration > Proxy Settings in VXML Server for Virtual Agent–Voice</i> section in <i>CVP Configuration Guide</i> at https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-installation-and-configuration-guides-list.html .
Configuration of Call Studio elements for VAV	The following chapters in <i>CVP Element Specification Guide</i> at https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-programming-reference-guides-list.html : <ul style="list-style-type: none"> • <i>Dialogflow Element</i> • <i>DialogflowIntent Element</i> • <i>DialogflowParam Element</i> • <i>Transcribe Element</i>
VAV Speech Configuration APIs	See <i>VAV Speech Configuration</i> section in <i>VVB Developer Guide</i> at https://developer.cisco.com/site/customer-voice-portal/documents/virtual-voice-browser/ .

