

# Setup and Installation Guide



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## Abstract

This guide details the integration between Amazon Connect and Salesforce Lightning. It covers the installation, configuration, and operation of the two primary components of the integration: the Amazon Connect CTI Adapter for Salesforce and the AWS Serverless Application Repository for Amazon Connect Salesforce integration.

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# Release Notes

## Important Notes

### Spring '22 Release

The Salesforce Spring '22 release introduces a change that will likely cause an install or update to any version of the adapter before 5.18 to fail. In addition if you are using the `ac_PhoneCallListView` component in any version of the adapter, the loading of your component may fail. This component has been deprecated in v5.18.

### WebRTC Plan-B Deprecation

The Plan-B deprecation should not affect any current users of the CTI Adapter, as we utilize the embedded CCP and do not build in connect-rtc-js separately.

**Important:** when upgrading the CTI Adapter, please make sure that the Salesforce Lambdas are also updated to the newest version. Also review the [CTI Adapter Installation Troubleshooting and Common Issues](#) section for known issues and troubleshooting.

## 5.18 January 2022

- **Bug Fix:** Updated the **Get Salesforce Contact ID** block to accept E.164 numbers.
- **Bug Fix:** Fixed **onMessage** event name and label which was causing CTI flows to not trigger.
- **Bug Fix:** Fixed stray template tag in `ac_contactChannelListView` causing Spring '22 package installation failure.
- **Bug Fix:** Deprecated `ac_PhoneCallListView` LWC, as it is an artifact of an old version of the adapter and was causing Spring '22 package installation failure.
- **Bug Fix:** Fixed issue where switching contact tabs didn't update the CCP overlay attributes.
- **Bug Fix:** Fixed issue where some `sfInvoke` operations were returning complex JSON objects that don't work with Connect Contact Flows

## 5.17 November 2021

- **Feature:** Added the integration with Amazon Connect Wisdom, which delivers articles and article recommendations to agents. See [here](#) for more details.
- **Feature:** Added the integration with Voice id, which provides real-time caller authentication. See [here](#) for more details.
- **Bug Fix:** Fixed a bug where CTI Actions would only load if you switched overlay tabs. Now they will load immediately.
- **Bug Fix:** Fixed a few bugs with Contact Attributes Overlay.
  - Where you needed to set they would not populate in the overlay unless the CTI Attribute Name value was the same as the contact attribute key.
  - Selecting DisplayValue of `Key` did not show just the Key value.
  - When using the ShowAllAttributes feature, the already configured CTI Attributes did not maintain the same HTML formatting as before.
- **Bug Fix:** Fixed a bug where DialedNumber\_c was not filled on outbound calls.
- **Bug Fix:** Fixed a bug where Update Contact Attributes didn't work for Chat or Task contacts.
- **Bug Fix:** Fixed a bug where the CTI Flow payload would only contain the CTI Action Additional Data when both CTI Action Payload and Additional Data are configured. Now the CTI Flow payload will have both the CTI Action Payload and Additional Data
- **Enhancement:** Added two new CTI Flow Blocks - Destroy Live Contact and Clear Contact.

# 5.16 August 2021

- **Feature:** Added a `callIncomingDuration` field to the `Contact Interaction Metadata` CTI Flow block, which captures the time between the call coming into an agent and it being accepted/missed/declined.
- **Feature:** Moved the medialess popout page to be an optional feature. Learn how to enable it [here](#)
- **Bug Fix:** Fixed an issue where the `callInteractionDuration` would be too large if the call is missed. It is now defaulted to 0 if the call is not picked up.
- **Bug Fix:** Fixed an issue with the medialess adapter where media was still coming through the adapter and causing audio quality issues. Now, when the medialess option is checked, this will disable the `allowFramedSoftphone` option in CCP config, and media will not be sent through the CCP embedded on Salesforce.
- **Bug Fix:** Fixed an issue where Agents couldn't see some CTI Actions if more than 20 CTI Actions are set up. Now, a scroll bar should appear to navigate to all of them.
- **Bug Fix:** Fixed an issue with the `isInbound` CTI Flow block, which would return false if the Customer hangs up the error before the Agent could answer the call, even if it was inbound.
- **Bug Fix:** Fixed an issue with the `InitialAgentStatus` sub-feature of `SetAgentStatusOnSessionEnd`, which would not follow the `IfProfileNameIncludes` condition.
- **Bug Fix:** Fixed an issue with CCP overlay where if no additional data is added, including Title, Instructions and Fields, the right pointing caret icon will be displayed for detailed form view. Now the execute button will be displayed in this case.
- **Bug Fix:** Fixed an issue with CCP overlay where the order parameter was not affecting the sorting of the CTI Actions in the overlay.
- **Bug Fix:** Fixed an issue with the CCP Element Editor where typing the CTI Action name first caused the cursor to move out of the input box.
- **Bug Fix:** Fixed an issue with the Set Agent Salesforce State CTI Flow block.

# 5.15 July 2021

When installing v5.15, please **confirm that the application was installed for admins only** (see [installation](#) for more details). If you did this by accident, then you will have to [manually edit the profiles](#) to remove the permissions to the objects and pages created by the app.

- **Feature: Guided Setup** The Guided Setup feature helps make the setup process easier. See [Guided Setup](#) for more details.
- **Feature: Chat Widget Integration for SalesForce Experience Cloud(formerly Community Cloud)** Added VisualForce Page component that allows you to add Amazon Connect Chat Widget in your Salesforce Experience Cloud Site.

- **Enhancement:** Changed the default audio recording component in the Contact Channel Analytics for easier setup. See [Contact Channel Analytics](#) for more details.
- **Enhancement:** Created the ExecuteAwsService service for simpler communication between Salesforce and AWS. **WARNING:** If you are using Contact Lens for audio recording you *must* replace your existing AwsGenerateAudioRecordingUrl named credential with the ExecuteAwsService named credential. See [here](#) for more details.
- **Bug Fix:** Fixed an issue with the lambda package that caused Contact Lens Call Recording Streaming to be broken for redacted calls.
- **Bug Fix:** Fixed an issue that caused the "Clear All Properties" CTI Flow Block to clear properties important to the CTI adapter working.
- **Bug Fix:** Added the `DISCONNECT` field to the `Initiation Method` field in Contact Trace Records.

## 5.14 June 2021

- **BugFix:** Added batch processing to CCA Case Trigger and CCA Contact Trigger.
- **Bugfix:** The issue that caused an Attribute label to not display properly in the attributes panel has been fixed.
- **Bugfix:** The issue that caused AC Queue Metrics tab's name showing blank has been fixed.
- **Bugfix:** The issue that caused the Recording Panel button to fail when a url is used for connect instance alias has been fixed.
- **Enhancement:** We now make it possible for voicemail drops to work with queue callbacks.
- **Enhancement:** You can now configure the CT Action Recording Panel's initial state using contact attributes. If you're recording your call, make sure to add an attribute named `RECORDING_STARTED` whose value is `true` in your Contact Flow.
- **Enhancement:** We have added `IfCurrentAgentState` tag to `SetAgentStatusOnSessionEnd` feature, which allows customers to condition this feature on the Agent's current state.

## 5.13 April 2021

- **Feature: CTI Actions - programmable buttons within the CCP overlay**

In this release, we have added a feature called CTI Action which are programmable buttons for your CTI Flows. Each CTI Action is a button that can be programmed to trigger a CTI Flows whose source value is "CTI Action." In addition, CTI Actions can be programmed to ask the agent for additional information via a data entry form. You can use the agent's entry in your CTI Flow with the help of "Get Payload" block. This is a great way to ask your agents to enter ad-hoc data prior to running the CTI Flow to provide additional information as part of a workflow to automate case creation, or start a customer refund process. **If you are upgrading from a previous version of the CTI Adapter, please be sure to review the additional setup steps required for CTI Actions.**

- **Feature: CTI Actions: recording API integration within the CCP overlay**

The CTI Adapter now includes integration with Connect's recording API. This feature allows the agent to control when to start and stop recording a call. Once the recording has started, they can also pause and resume it. For example, agents can pause a recording before asking for sensitive information from your customers. Once the agent stops a recording, you cannot start it again. Use pause/resume buttons after you've started recording a call to control the recording.

- **Enhancement: Voicemail Drops (beta)**

The **beta Voicemail Drops** feature now integrates with CTI Actions. In the beta, voicemail drops were loaded directly into the CCP Overlay. As of 5.13, you will need to create a CTI Action, and use the newly added "Leave a Voicemail" block in the CTI Flow where you can configure the specific voicemail drop and the quick connect name to use for the voicemail.

- **Feature: CCP Overlay: Data panel to receive data from CTI Flows.**

You can now send data from a CTI Flow to the CCP Overlay. The Data panel on CCP Overlay will display any object you pass it from "Send Data to CCP Overlay" block.

- **Feature: CTI Flow Blocks: "Start Recording" and "Stop Recording"**

With "Start Recording" and "Stop Recording" blocks, you can control the voice recording of the call within your CTI Flows.

- **Feature: CTI Flow Block: "Update Contact Attributes"**

You can now update contract attributes using CTI Flows. This block accepts a list of key-value pairs and assigns them to the currently active contact. It may come handy for passing Case id and other important information to the next agent when transferring a call.

- **Feature: CTI Flow Block: "Get Payload"**

The `payload` object contains the arguments passed to the CTI Flow. Now you will be able to use "Get Payload" block to reference a payload key as an input in other blocks on your CTI Flow.

- **Feature: CTI Flow Block: "Send Data to CCP Overlay"**

This block allows you to send data to your agent from a CTI flow. The agent will see this information in the CCP Overlay in a panel entitled "Data."

- **Feature: CTI Flow Block: "Leave a Voicemail"**

This block works with the beta Voicemail Drops feature. When you configure the `voicemailDropName` and `quickConnectName`, it will pass the contact to an IVR to leave a voicemail on the agent's behalf.

- **Feature:** CTI Flow Block: "Get Salesforce Lead ID": This block allows you to get a Salesforce lead by using a phone number.
- **Enhancement:** "Get Salesforce Contact Id" block now uses FIND syntax to search across multiple fields.
- **BugFix:** For the `SetAgentStatusOnSessionEnd` feature, it would occasionally fail if the agent hadn't interacted with the webpage. We solve this by creating a popout to monitor the agent session.
- **Enhancement:** For the `SetAgentStatusOnSessionEnd` attribute, you can now specify multiple values.
- **Enhancement:** When `SetAgentStatusOnSessionEnd` feature is enabled, you can now configure which state the agent should be shown as when they login with the `InitialAgentState` setting.
- **Enhancement:** When `SetAgentStatusOnSessionEnd` feature is enabled, you can now configure which agent to logout when all tabs are closed by setting the Status to Logout.
- **Bugfix:** Addressed issue that caused CTI Flows to be run on every open Salesforce tab.
- **Bugfix:** Addressed an issue in "Get Salesforce Contact Id" block that caused the query to fail if the phone number was in E164 format.
- **Enhancement:** Added the `onDestroy` Event to certain CTI Flow Sources

## 5.12 March 2021

- **Feature:** Added custom setting which will allow customers to enable and disable non-essential triggers (They are disabled by default now). [More details in the troubleshooting section](#)
- **Bugfix:** Addressed additional trigger issue that prevented orgs with 200k+ CCA records from updating Case and Contact records.
- **Bugfix:** Addressed issue where AC Permission sets did not include the `CustomerEndpointAddress` field for the `ContactChannelAnalytics` object.
- **Bugfix:** Addressed issue where AC Permission sets did not include the `MedialessPopout` page.

## 5.11 March 2021

- **Bugfix:** Addressed trigger issue that prevented community and partner users from updating Contact and Case records.

# 5.10 February 2021

- **Feature:** Contact Control Panel (CCP) Audio Device settings option. Admins can toggle Phone type settings and the new [Audio Devices settings](#) for agents to see on their CCP. [Audio Device settings](#) allow the agents to choose audio devices for their speaker, microphone, and ringer.
- **Feature:** Custom Ringtone for chat. Admins can configure a custom ringtone for chat (separate from CCP) from the CTI Adapter configuration page.
- **Enhancement:** The Salesforce built-in Cross Site Request Forgery (CSRF) protection is enabled for Visualforce pages in the CTI Adapter package which improves organizational security to protect against cross site request forgeries.
- **Bugfix:** Decision blocks no longer requires both sockets to be connected.
- **Bugfix:** Click to Dial stopped working after first use until the agent refreshed the page.
- **Bugfix:** Error that prevented Contact Lens app resources from being hosted on a different domain than the Salesforce instance.
- **Bugfix:** Error that prevented Contact Lens app from displaying intermittently when Transcribe was enabled.
- **Bugfix:** Changed the logic for the IsContactTransfer CTI Flow Block which always returned true.
- **Bugfix:** Medialess popout not closing after Salesforce tabs are closed.
- **Bugfix:** Login window did not close automatically after logging into Connect.
- **Bugfix:** Unable to upgrade the package if the Case or Contact object contained encrypted fields.

# 5.9 December 2020

- **Feature:** Contact Lens Integration
- **Feature:** Tasks Integration - Added the Amazon Connect Task Contact as a source to CTI Flow in addition to Task specific events
- **Feature:** CTI Block - Is Task Contact? - Check if the contact is a task
- **Feature:** CTI Block - Create Task Contact - Creating a new task contact with certain inputs.
- **Feature:** CTI Block - Pop Task Contact's ReferenceUrls - Pop any reference urls that are related to the task contact
- Upgraded Salesforce API to v50.0.
- **Feature update:** If you have CCP open on multiple tabs, CTI Flows will be executed only on one of them. The execution will be performed on the current tab, by default. If the agent is currently looking at a different site, a random tab will be selected to perform the execution.
- **Enhancement:** \$User.ProfileId is now available through "userProfile" property.
- **Enhancement:** CTI Flow execution timeout window has been increased to 60 seconds.
- **Feature update:** When the CCP popout is opened, we now ask for a confirmation before refreshing or closing the tab that opened it. Note that if you do close the original tab, the pop out might also be

closed.

- **Bugfix:** Voicemail Drops feature has been fixed.
- **Bugfix:** CTI Flow "Open Subtab" block has been fixed.

## 5.7 November 2020

- **Feature update:** Change audio recording feature in the Contact Channel Analytics page to use an audio streaming approach. Please review the updated [Contact Channel Analytics](#) section for the setup details.
- **Feature:** Add permission set specifically for the audio recording feature
- **Feature:** Localization into 9 languages.
- **Feature:** Add callType to return fields of "Get Contact Properties" block
- **Feature:** Add formatted phone number to return fields of "Get Contact Properties" block
- **Feature:** Add script name to CTI flow definition file.
- **Feature:** Remove context from log outputs
- **Bugfix:** Return field of "Open Primary Tab" was value, not id, as specified. We now provide it in both `value` and `id` fields for backward compatibility.
- **Feature:** Make the error message shown when the execution runs too long more informative.
- **Feature:** Make sure the attributes overlay doesn't open automatically when CCP is opened.  
Documentation: "Create and pop that task" default flow is fixed.
- **Bugfix:** update return value of "Get Agent Configuration" block to match the documentation.
- **Feature:** Increase CTI Flow timeout to 10 seconds.
- **Bugfix:** remove the leading wildcard matcher in "Get Salesforce Contact Id" block query. The wildcard matcher caused performance issues with the query. Going forward make sure the phone number is an exact match to the one in file.
- **Bugfix:** Ensure "Join Strings" block does not ignore boolean false values.
- **Bugfix:** Ensure "Log to Console" block does not ignore boolean false values.
- **Feature:** Add uid field on top of the block on the canvas.
- **Bugfix:** Remove the loginWindow object from log output because it errors with "Cannot convert object to primitive value."
- **Bugfix:** ContactChannel object updates to new agent if previous agent rejected or missed a contact
- **Bugfix:** Changing status to logout now correctly logs agent out
- **Feature:** Rename "Enable Click to Dial?" to "Can Make Outbound Calls?"
- **Feature:** CTI Flow Block - math function - "Multiply"
- **Feature:** CTI Flow Block - math function - "Divide"
- **Feature:** CTI Flow Block - "Get Tab Object Map"
- **Feature:** CTI Flow Block - "Close Salesforce Tab"

- **Feature:** CTI Flow Block - "Delay"
- **Feature:** CTI Flow Block - "Get Primary Tab Ids"
- **Feature:** Improve browser log formatting.
- **Feature:** CTI Flow Block - "Get Tabs With Matching Url"
- **Feature:** *Update Connect agent status when all Salesforce tabs are closed:* You can set the agent status to a specific state if the SetAgentStatusOnSessionEnd feature is turned on and the agent's routing profile name includes the value of IfProfileNameIncludes setting, such as "On-Call." By default, the agent status is set to "Offline" if the feature is enabled and nothing is specified for IfProfileNameIncludes. If this feature is enabled, the agent will be automatically shown as available when they login to Salesforce and the CCP.
- **Feature:** CTI Flow Block - Length"
- **Feature:** CTI Flow Block - "Slice"
- **Feature:** CTI Flow Block - "Cast a Value to a Type"
- **Bugfix:** Agent is able to accept calls when Medialess is turned on.
- **Feature:** CTI Flow Block - "Get CCP Logs" Remove "Initialization" and "Browser" sources
- **Feature:** Allow users to specify Amazon Connect Instance url in CTI Adapter details in addition to Amazon Connect Instance Alias

## 5.5 October 2020

- **Feature:** CTI Flow Block - "Clear All Properties"
- **Feature:** CTI Flow Block - "Unset Property"
- **Feature:** CTI Flow Block - "Show All Attributes"
- **Bugfix:** Attributes panel can now display attributes of transferred contacts.

## 5.4 Late September 2020

- **Feature:** You can now provide additional ad-hoc fields to "Create a Task" block. (Note: the values of these fields don't have a lookup dropdown yet.)
- **Feature:** New CTI Block! - You can now create "counters" with the "Update Counter" and read the value of your counters using "Get Counter" block.
- **Feature:** You can now get the number of open tabs from `openAgentTabs` counter.
- **Feature:** You can now compare multiple things using "Is One Of?" block in CTI Flows.
- **Feature:** New CTI Block! - You can now extract a value from a complex value, such as an array or an object, using the "Extract Value" block. (This comes handy when you retrieve a Salesforce object.)
- **Feature:** New CTI Block! - You can use the Salesforce retrieve API to fetch a record from the server by id using "Retrieve Salesforce Record" block.

- **Feature:** New CTI Block! - You can use the "Get Salesforce Contact Id" to fetch the id of a Salesforce contact by its phone number.
- **Feature:** New CTI Block! - You can now show a window alert using "Alert" block.
- **Feature:** New CTI Block! - You can now use create a complex string using string templates and multiple variables with the help of "String Template" block.
- **Bugfix:** When a screenpop is "deferred," the CTI Block used to return an inexact match and the Id field in the return value of the block would be blank. This issue has been fixed in this release.
- **Bugfix:** Presence sync is working again. The current release also reduces the wait threshold between each presence sync update from 1 second to 100ms, i.e. co-occurring events won't get lost anymore (as much).
- **Bugfix:** The encoding issue affecting "SOQL Block" has been fixed. The single quotes in the SOQL query are no longer encoded as HTML entities.
- **Bugfix:** To access the return value of another block, power users use "magic strings," e.g. `\$.actions.<blockId>.results.<fieldName>`, but these strings used to be cleared in the UI when the block is selected on the canvas. This issue is now fixed.
- **Bugfix:** The spelling of `TaskSubtype` field in "Create a Task" block has been fixed. Your TaskSubtype won't get lost anymore.
- **Bugfix:** Call recording view for a Case has been fixed.
- **Bugfix:** "Is Contact Inbound?" block is working again.
- **Bugfix:** "Is Truthy?" block now works with boolean input values.
- **Bugfix:** Salesforce UI onNavigationChange event listener is working again.
- **Bugfix:** We now alert you to change your instance alias if you try to sign in with instance alias set to "default."

## 5.3 September 2020

- **Bugfix:** Fix the issue that caused ACSFCCP\_CallRecordingTask component to not work.

## 5.1 Late August 2020

- **Bugfix:** Ensure "Get App View" CTI Flow block doesn't break the sidebar
- **Enhancement:** Add "queueARN" field to "Dial Number" CTI Flow block
- **Bugfix:** Ensure some required CTI Flow block fields are not shown as "optional"
- **Bugfix:** Ensure "Save (or Create) a Record" block works as expected
- **Bugfix:** Fix the validation error on "CallDurationInSeconds" field in "Create a Task" block
- **Bugfix:** Fix phantom scrollbar on Windows machines
- **Bugfix:** Fix issue where copying contact attributes to clipboard doesn't work

- **Bugfix:** Fix issue where "saveLog" CTI Flow block throws an error
- **Bugfix:** Fix issue with onOffline Flow event not firing
- **Bugfix:** Fix various omnichannel presence sync bugs
- **Bugfix:** Ensure the CCP default dimensions are adjusted to CCPv2 defaults
- **Feature:** Add block "Set Agent Status By Name on Connect."

## 5.0 August 2020

- **This release has new features and updates:** Please test and validate version 5.0 in your Salesforce sandbox before upgrading this in production.
- **CTI Flows:** CTI Flows replace Lightning CTI Extensions in allowing customers to build their agent for Lightning and Classic via a drag drop UI. Many of the CTI blocks are similar to the Lightning CTI Extension script API calls and can be mapped similarly. Lightning CTI Extension scripts are NOT automatically migrated to CTI Flows. When upgrading the with existing scripts, it will give you the option to download the existing script for reference before building your CTI Flows. We strongly recommend you validate this install/upgrade in a test environment and fully test the CTI Flows against your previous scripts functionality. Please open a support ticket if there is additional functionality you require from your current scripting implementation.
- **Security Profile improvements:** AC Administrator, AC Agent, and AC Manager permission sets to enforces objects access and fields level (FLS) as per Salesforce security guideline for managed package. To Amazon Connect Objects and fields, user should either one of Amazon Connect permission sets AC Administrator, AC Agent, and AC Manager.
- **Attributes:** Amazon Connect CCP (Contact Control Panel) in Lightning Classic now display an overlay for showing attributes consistently.
- **AWS Secrets Manager** support for storing Salesforce credentials.
- **VPC Support:** ability to place Lambdas in VPC
- **New Salesforce API integration:** Exposed new operations in sfinvokeapi read or create Salesforce records(query queryOne, createChatterPost, createChatterComment, lookup\_all, delete)
- **Upgrade:** Amazon Connect Streams API bumped up to version 1.5.
- **Bugfix:** Task creation issue for non connect users - Fixed task trigger apex code, added a validation before security access check for Amazon managed package objects
- **Bugfix:** Contact interaction fixed.
- **Other minor bugfixes and improvements**

## 4.5 April 2020

- **This release has new features and updates:** Please test and validate version 4.5 in your Salesforce sandbox before upgrading this in production.

- **Installation / Configuration:** AC\_Administrator permission set has been added to manage CTI Configuration in addition to AC\_Manager and AC\_Agent. See documentation for further information.
- **API:** Updated support for CCPv2 in Classic/Console. See documentation for Call Center settings.
- **Bugfix:** Updated attribute display to resolve duplicated attributes.
- **Security:** Improved control access at the object-level, the record-level, and at the field level.

## 4.4 March 2020

- **This release has significant new features and updates:** Please test and validate version 4.4 in your Salesforce sandbox before upgrading this in production.
- **Documentation:** Guide has been rewritten and restructured based on feedback.
- **Installation / Configuration:** Improved installation and configuration guide
- **Installation / Configuration:** Added Enhanced Agent Logout functionality to Lightning.
- **API:** Updated to the latest Amazon Connect Streams and Chat libraries
- **API:** Additional extensibility methods provided
- **Setup:** Improved Presence Sync Rule editor
- **Setup:** CTI Adapter validation is performed upon initialization and will inform the user of common misconfigurations.
- **Setup:** Additional CTI Script examples are provided.
- **Setup:** The ability to place the lightning transcript view on Task, Contact Channel, and Contact Channel Analytics object has been added.
- **Bugfix:** Updated allowlisting steps to address login popup issue.
- **Bugfix:** OmniChannel workload data not being usable has been resolved
- **Bugfix:** CTI Attribute issue when processing multiple pieces of contact attribute data has been resolved.
- **Bugfix:** The call transcript now scrolls within a fixed region rather than consuming vertical space.
- **Bugfix:** Finding Task Record in Classic/Console fixed.
- **Security:** The ability to create, update, and delete AC\_CtiAdapter, AC\_CtiScript, AC\_CtiAttribute and AC\_PresenceSyncRule records has been removed from the AC\_Agent permission set.

## 4.2 December 2019

- **This release has significant new features and updates:** Please test and validate version 4.2 in your Salesforce sandbox before upgrading this in production.
- **Installation / Configuration:** Improved installation and configuration guide
- **API:** Lightning CCP Extension scripts and reference guide

- **Setup:** A default CTI adapter and scripts for click-to-dial, voice contact pop, and chat contact pop are not included in the base installation.
- **Editor:** A more robust script editor is included for use in CTI adapter / script configuration.
- **Bugfix:** SSO issue has been resolved

## 4.1 November 2019

- **This release has significant new features and updates:** Please test and validate version 4.1 in your Salesforce sandbox before upgrading this in production. As we look to simplify documentation, this release introduces a new [Amazon Connect CTI Adapter v4 for Salesforce Lightning](#) setup and installation guide. Please review this setup guide in detail to see all the latest changes for Lightning CTI Adapter installations.
- **Classic and Console CTI setup guide:** Please use the [Amazon Connect CTI Adapter v4 for Salesforce Classic](#) setup and installation guide for Classic and Console CTI Adapter installations.
- **Amazon Connect Chat and Contact Control Panel (CCP) v2:** support for Amazon Connect chat and integration of CCP v2. CCP v2 is required for Lightning CTI Adapter installations. CCP v1 is still supported for Classic / Console CTI Adapter installations.
- **Historical and Real-Time Reporting:** updated historical metric functionality with additional metrics and dashboards. Added real-time metrics and dashboards. This functionality requires an update of AWS Serverless Lambda functions for Salesforce.
- **Lightning CCP Extensions and configuration:** We have revamped the approach for the Call Center config and have added a new AC CTI Adapters Lighting config page.
- **High Velocity Sales:** CTI Adapter integration supported for Salesforce High Velocity Sales product.

 [Edit this page](#)

## Key Benefits and Requirements

The key benefits of the Amazon Connect CTI Adapter are:

- **Amazon Connect Voice and Chat:** ability to take voice and chat calls in the salesforce agent experience and advanced screen pop on the incoming phone number, case, account or contact. Agents can also click to dial a number within their contacts.
- **Single Sign-On support:** seamless login with Connect and Salesforce with any standard SAML 2.0 provider.
- **Call disposition and activity management:** configure post call workflows to support your Agent's after call work.

- **Call logging and recording:** Voice and chat interactions can be logged as Salesforce activities and Amazon Connect call recordings can be played within the Salesforce.
- **Omnichannel Presence Sync:** enable Salesforce chat, sms and email to share presence with Amazon Connect. Amazon Connect will know when an agent is handling a Salesforce chat and make them unavailable for a voice call, and vice versa.
- **CTI Flows:** easily customize and extend behaviors within the CTI Adapter such as screenpop and activity management. Default flows along with the API guide provide key examples.
- **High-velocity sales (HVS):** using Salesforce HVS, enable your inside sales team to follow a repeatable pre-define sales cadence for your business. It enables sales managers and reps to work on prioritize list of prospects and follow best sequence of sales outreach activities defined by your sales process.

The key benefits of the AWS Serverless Application Repository for Salesforce are:

- **Access Salesforce Data:** easily inject salesforce data into the customer experience. Businesses can offer personalized greetings and dynamic routing based on customer information, create new objects, update existing records, and delete items based on customer choices in the IVR.
- **Contact center real-time reports:** display real-time contact center metrics within Salesforce from Amazon Connect.
- **Contact center historical reports:** display historical contact center metrics within Salesforce from Amazon Connect.
- **Contact analytics:** transcribe voice calls and perform analysis of the conversations using AI to surface sentiment, keywords, syntax, entities, etc.

We recommend that you initially install and configure the package into your Salesforce sandbox. This will allow you to test the integration, become more familiar with it, and modify it to your needs prior to deploying it to your production org.

If you are using Lighting, you can get a head start by working through the [Build an Amazon Connect Integration Salesforce Trailhead](#).

## Requirements

To successfully deploy, configure, and implement the Amazon Connect integration with Salesforce, you must ensure that the following requirements and prerequisites are in place before.

## Prerequisites - Amazon Connect CTI Adapter

In order to successfully install and configure the Amazon Connect CTI Adapter from the AppExchange you will need:

1. Salesforce
  - a. Salesforce org with Lightning experience
  - b. My Domain configured and deployed to users
2. An Amazon Connect instance
3. SAML Details (If using SAML)

## Prerequisites - AWS Serverless Application Repository for Salesforce

In order to successfully install and configure the Salesforce functions from the Serverless Application Repository, you will also need:

1. A Kinesis stream configured for your Amazon Connect contact trace records (CTRs)
2. Salesforce:
  - a. An API user account
  - b. A new Connected App

## Browser Compatibility

Amazon Connect requires WebRTC to enable soft-phone voice media stream and Websockets to enable soft-phone signaling. Consequently, users are required to use the latest version of either Google Chrome or Mozilla Firefox. For more information, please see the [Amazon Connect documentation](#).

## Salesforce Lightning Support

Please note that following features are currently not supported in Salesforce Lightning:

- Outbound Campaign Calls using Salesforce Omni can be routed to the agent, but the automated screen pops and the dialing of the phone number will not work. The agent will have to click on the record links to open the records and use Salesforce's Click-to-Dial feature to make the phone call.
- Lightning Standard Navigation is not currently supported in App Options for the Amazon Connect CTI Adapter.

# Installing the CTI Adapter and Salesforce Lambdas

## Amazon Connect Salesforce CTI Adapter Managed Package

The Amazon Connect CTI Adapter for Salesforce provides the core integration between the two platforms. It embeds the Amazon Connect Contact Control Panel into Salesforce which provides telephony control as well as access to event data coming from Amazon Connect. Using this adapter, you can configure screen pops based on customer data, automate contact center telephony functions like click-to-dial, and establish presence syncing rules for integration with Salesforce Omni-Channel. This is the base of the integration.

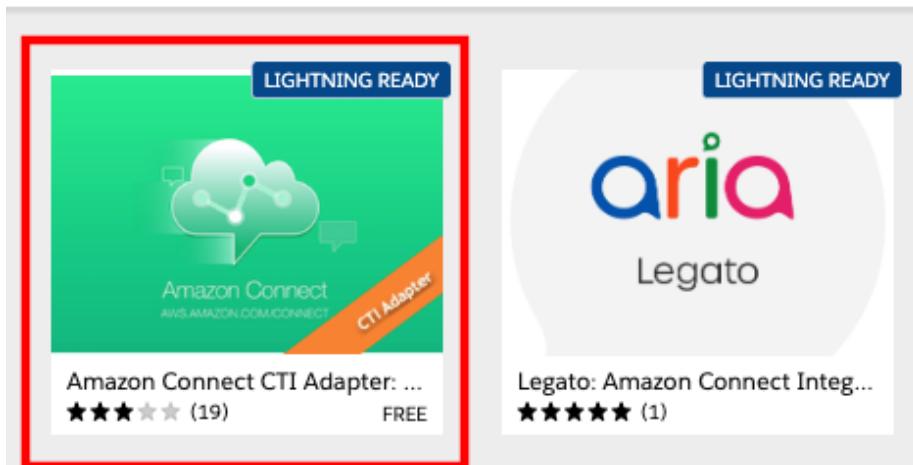
The first step in the deployment of the integration is to install the Amazon Connect CTI Adapter managed package from the AppExchange Marketplace.

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find**, type **AppExchange** (the results will populate without hitting enter)
3. Select **AppExchange Marketplace** from the links provided
4. In the AppExchange window, enter **Amazon Connect** into the **Search AppExchange** field and press enter
5. In the **Search Results**, select **Amazon Connect CTI Adapter**

[\*\*< BACK\*\*](#)

Search Results for "Amazon Connect"

48 Apps · Sorted by Relevance



6. On the **Amazon Connect CTI Adapter** detail page, select **Get It Now**

< BACK

## Amazon Connect CTI Adapter: CTI | Contact Center | IVR | ACD | Call Recording

by Amazon Web Services

Bring the Power of Intelligent CTI to Salesforce Service Cloud



★★★★★

Free



DETAILS

REVIEWS

PROVIDER



Free

The newly updated Amazon Connect CTI Adapter v4 makes it easy to use your Amazon Connect contact center with Salesforce to deliver engaging service with lower cost at any scale. Amazon Connect is cloud-based, self-service, and can be set up in minutes.

Read More

Amazon Connect CTI Adapter for Salesforce Overview and Demo



### Highlights

Setting up Amazon Connect is easy. With only a few clicks in the AWS Management Console, agents can take calls within minutes. The drag-and-drop interface makes it easy to build complex workflows.

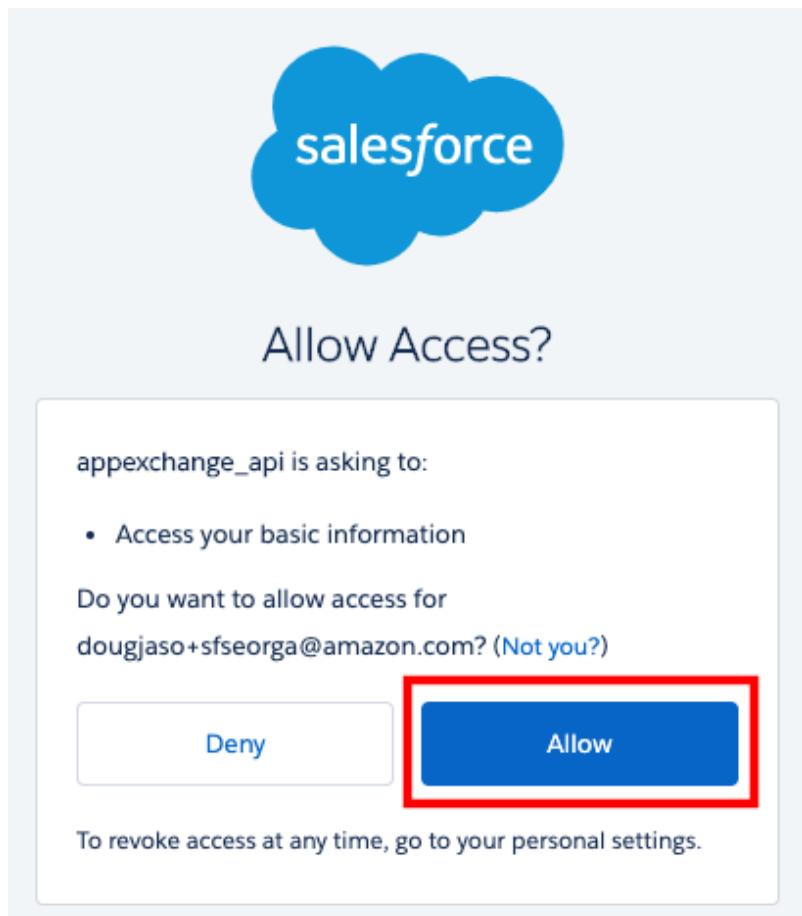
### Contact Information

<https://aws.amazon.com/contact-us/>

Watch Demo

Get It Now

7. If you are presented with the Log In to AppExchange screen, select **Open Login Screen**. You should then be presented with an Allow Access Screen. Choose **Allow**



8. On the **Where do you want to install Amazon Connect CTI Adapter** page, choose the **Install Here** button in the **Install in This Org** section

Where do you want to install Amazon Connect CTI Adapter: CTI | Contact Center | IVR | ACD | Call Recording?

Before you install in a production org, we recommend testing in a sandbox first.

Install in This Org

Get going in the org where you're logged in right now.

**Install Here**

Install in a Sandbox Org

Test in a copy of a production org.

**Install in Sandbox**

**Cancel**

9. On the **Confirm installation details** screen, fill out the **Tell us about yourself** form, check the box to **agree with the terms and conditions**, and optionally select the box to **allow the provider to contact you**. Then select **Confirm and Install**

I have read and agree to the [terms and conditions](#).

Salesforce.com Inc. is not the provider of this application but has conducted a limited security review. Please [click here](#) for detailed information on what is and is not included in this review.

Allow the provider to contact me by email, phone, or SMS about other products or services I might like

**Cancel**

**Confirm and Install**

10. Select **Install for Admins Only**, then choose **Install**. **THIS SELECTION IS VERY IMPORTANT** - if you select the wrong option, then standard users may have access to objects and pages that they shouldn't have access to.



## Install Amazon Connect - Universal Package

By

Install for Admins Only

Install for All Users

Install for Specific Profiles...

**Install**

**Cancel**

11. The CTI Adapter will take some time to install. While it installs, you will be presented with the **This app is taking a long time to install** screen.

12. Choose **Done**.

## aws Install Amazon Connect CTI Adapter: CTI | Contact Center | IVR | ACD | Call Recording

By Amazon Web Services



**This app is taking a long time to install.**

You will receive an email after the installation has completed.

**Done**

13. Once you receive confirmation that the **installation has completed** via email, return to the browser

14. Close the **Amazon Connect CTI Adapter** detail page (if still open)

15. In Quick Find, enter **Installed**, then select Installed Packages from the result

Setup    Home    Objects

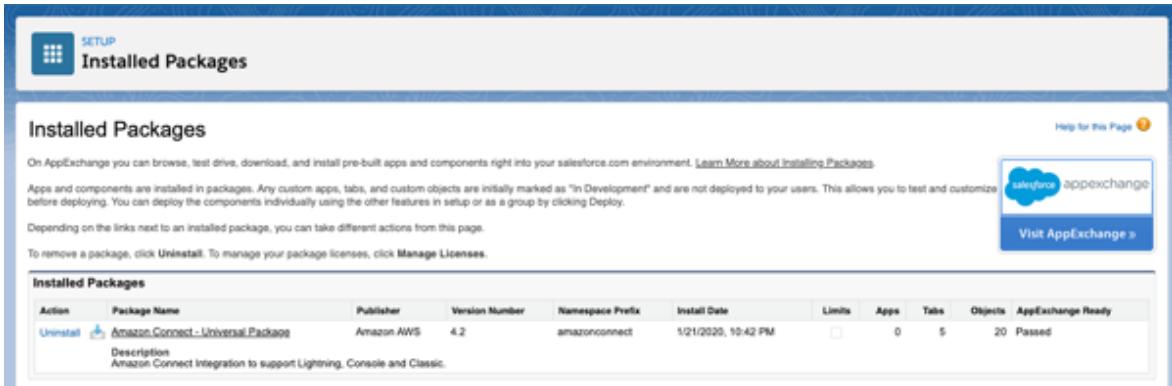
Installed

Apps

Packaging

Installed Packages

16. Once the **Installed Packages** page opens, validate that the **Amazon Connect -- Universal Package** is installed



The screenshot shows the 'Installed Packages' section of the Salesforce Setup. At the top, there's a message about AppExchange and a link to 'Learn More about Installing Packages'. Below that, a note says 'Apps and components are installed in packages. Any custom apps, tabs, and custom objects are initially marked as "In Development" and are not deployed to your users. This allows you to test and customize before deploying. You can deploy the components individually using the other features in setup or as a group by clicking Deploy.' There's also a note about taking actions on package links and managing package licenses.

On the right, there's a 'Visit AppExchange' button. The main table lists one package:

Action	Package Name	Publisher	Version Number	Namespace Prefix	Install Date	Limits	Apps	Tabs	Objects	AppExchange Ready
Uninstall	Amazon Connect - Universal Package	Amazon AWS	4.2	amazonconnect	1/21/2020, 10:42 PM		0	5	20	Passed

Description: Amazon Connect Integration to support Lightning, Console and Classic.

## Amazon Connect Salesforce Lambda package

The Amazon Connect Salesforce Lambda package adds considerable capability to the integration. It includes data connectivity between Amazon Connect and Salesforce for typical tasks like lookups, case creation, and updates. Additionally, it adds new features like real-time and historical data imports, contact trace record imports, recording import, transcription, and contact analytics functions. These capabilities are configurable and can be activated or deactivated on a call-by-call basis.

The Amazon Connect Salesforce Lambda package is delivered via the AWS Serverless Application Repository. The AWS Serverless Application Repository enables you to quickly deploy code samples, components, and complete applications. Each application is packaged with an AWS Serverless Application Model (SAM) template that defines the AWS resources used. There is no additional charge to use the Serverless Application Repository - you only pay for the AWS resources used in the applications you deploy.

1. In a new browser tab, login to the [AWS console](#)
2. Make sure you are in the same region as your Amazon Connect instance
3. Once you have selected the region, navigate to the [Amazon Connect Console](#)
4. Verify that the Amazon Connect instance that you wish to configure is listed
5. Once you have verified your Amazon Connect instance, Open the [Serverless Application Repository Console](#)
6. In the left navigation, select **Available Applications**

# Serverless Application Repository

X

## Available applications

## Published applications

7. In the search area, make sure that **Public applications** is selected, check the box for **Show apps that create custom IAM roles or resource policies**, and enter **Salesforce** in the search field, this will automatically filter the available packages

The screenshot shows the 'Available applications' section of the Serverless Application Repository. At the top, there are two tabs: 'Public applications (4)' (which is selected) and 'Private applications'. Below the tabs is a search bar containing the text 'Salesforce'. Underneath the search bar is a checked checkbox labeled 'Show apps that create custom IAM roles or resource policies'. The main area displays a list of applications, with the third item, 'AmazonConnectSalesForceLambda', highlighted by a red box.

8. Select AmazonConnectSalesForceLambda

The screenshot shows the details page for the 'AmazonConnectSalesForceLambda' application. The application title is 'AmazonConnectSalesForceLambda'. Below it, a note says 'Creates custom IAM roles or resource policies'. A description states: 'The AWS Serverless application package contains a set of common Lambda functions to be used by Amazon Connect to interact with Salesforce, allowing lookup, create and update operations for different Salesforce objects, like Contacts and Cases.' The application has several tags: 'Integration', 'Connect', 'Amazon', 'Salesforce', and 'AmazonConnectSalesforceLambda'. It also has deployment statistics: '26 deployments' and '685 deploy...'. To the right, another application, 'alexa-salesforce-notes-sample', is listed with its own details.

9. When the Application loads, scroll down to the **Application settings** section

10. If you would like to use the Guided Setup feature, **don't change any parameters in the template** and select **Deploy**, and wait for the stack to finish deployment. Then, follow the section below on setting up the ExecuteAwsService named credential. If you are not using the Guided Setup feature, navigate to [here](#) for manual setup instructions (skipping the rest of the instructions on the page).

Deployment status for serverlessrepo-SFConsolidatedLambdaPackage

## Create a new app

## Test app



## Your application has been deployed

Review the application's README for what to do next.

## Permissions

## Resources

 [View CloudFormation Stack](#)

## Setting up the ExecuteAwsService Named Credential

The ExecuteAwsService Named Credential is the entrypoint for the CTI Adapter to communicate with your AWS account. The Apex code uses the Named Credential to call the `sfExecuteAwsService.py` lambda, which uses boto3 to make changes in and retrieve data from your AWS account. Setting up this Named Credential is **not required** if you do not wish to use the features that rely on it (Guided Setup and Contact Lens). In addition, you can alter the permissions given to the `sfExecuteAwsService` lambda to match your security requirements (NOTE: if you choose to do so, do so after you configure up the lambdas as some permissions are added/removed based on how the lambdas are configured).

Before you create the ExecuteAwsService Named Credential, **confirm that the application was installed for admins only**. If not, then standard users may be able to invoke methods that call named credentials. If you did this by accident, then you will have to [manually edit the profiles](#) to remove the permissions to the objects and pages created by the app.

Install Amazon Connect - Universal Package

By

Install for Admins Only

Install for All Users

Install for Specific Profiles...

Install Cancel

1. Navigate to the IAM console in your AWS account, select the **Users** tab, and select **Add Users** to create a new user.

The screenshot shows the AWS Identity and Access Management (IAM) service. The left sidebar has 'Identity and Access Management (IAM)' selected under 'Access management'. The main content area shows the 'Users' section with 7 IAM users listed. At the top right of the user list, there is a blue button labeled 'Add users' which is highlighted with a red box. Above the user list, a blue banner displays a message about the new Users experience.

2. Give your IAM user a name (like `sfExecuteAwsServiceIamUser`). For the Access type, select **Programmatic access**. Click Next.
3. Select **Attach existing policies directly**, then search for and select `invokeSfExecuteAWSServicePolicy`.

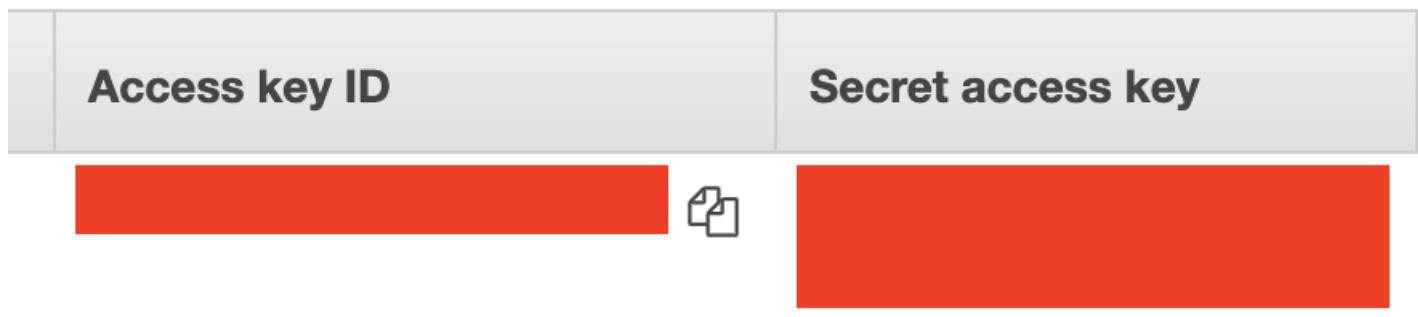
## Add user

1    2    3    4    5

### Set permissions

Filter policies		Showing 2 results	
	Policy name	Type	Used as
<input checked="" type="checkbox"/>	sfexecute	Customer managed	None

4. Click next until the user is created. In the final screen, copy down the **Access Key ID** and the **Secret Access Key**.



5. Next, navigate to the Lambda Console. In the functions tab, search for `sfExecuteAwsService`.

Function name	Description	Runtime	Code size	Last modified
sfExecuteAWSFunction		Python 3.7	3.8 MB	22 days ago

6. Copy down the name of the function. Make sure you are not copying any extra characters.

7. Navigate to your setup section of your Salesforce instance, and search for **Named Credentials**.



Search Setup

Setup

Home

Object Manager ▾

named cr

Security

Named Credentials

Didn't find what you're looking for?  
Try using Global Search.



SETUP

## Named Credentials

## Named Credentials

A named credential specifies a callout endpoint and its required authentication parameter

View: All ▾ Create New View

New Named Credential

8. Select **New Named Credential**. For the values in the next screen, enter the following:

- **Label:** ExecuteAwsService
- **URL:** `https://lambda.{insert AWS region}.amazonaws.com/2015-03-31/functions/{insert lambda function name (copied above)}/invocations`
- **Identity Type:** Named Principle
- **Authentication Protocol:** AWS Signature Version 4
- **AWS Access Key ID:** Access Key ID copied above
- **AWS Secret Access Key:** Secret Access Key
- **AWS Region:** {insert AWS region}
- **AWS Service:** lambda

[Save](#)[Cancel](#)Label Name URL 

#### ▼ Authentication

Certificate  Identity Type Authentication Protocol AWS Access Key ID AWS Secret Access Key AWS Region AWS Service 

9. Click **Save**.

After following the above instructions, follow [these instructions](#) to navigate to the Guided Setup feature.

[!\[\]\(cf8bc438bd46d9bf525c4e2ae3e5b47b\_img.jpg\) Edit this page](#)

# Setting Up The CTI Adapter Using Guided Setup

## Guided Setup

### Provision Amazon Connect Instance?

This setting will provision an Amazon Connect instance in your AWS account. You cannot provision an instance the same time you configure the Adapter or the Lambdas.

### Set up Amazon Connect Salesforce CTI Adapter?

This setting will configure the Salesforce CTI Adapter in your Salesforce instance.

### Set up Amazon Connect Salesforce Lambdas?

This setting will help you set up the Amazon Connect Salesforce Lambdas in your AWS account.

### Set up Audio Recording for Contact Lens?

This setting will help you set up the Audio Recording for Contact Lens

[Next](#)

In order to navigate to the Guided Setup feature, perform the following steps (NOTE: If you are not an admin user then you must first add yourself to the AC\_Administrator permission set, see [here](#) for more details):

1. Navigate to the Service Console in your Salesforce instance.

2. Click the dropdown button in the Service Console navigation bar, and select **Edit**.

The screenshot shows the Salesforce Service Console interface. At the top, there is a blue cloud icon, followed by the text "Service Console". To the right of "Service Console" is a dropdown menu with the word "Cases" and a downward arrow. A red box highlights this dropdown area. Below the main header, there is a section titled "Cases Recently Viewed" with a yellow briefcase icon. It displays "0 items • Updated a few seconds ago". To the right of this section is a "Case Number" filter with a checkbox icon. To the right of the "Recently Viewed" section is a vertical list of links: "Cases" (yellow briefcase icon), "Contacts" (purple person icon), "Accounts" (blue building icon), "Reports" (teal chart icon), "Dashboards" (red circular icon), "Chatter" (blue heart rate icon), "Quick Text" (blue speech bubble icon), "Knowledge" (purple book icon), and an "Edit" link at the bottom (blue pencil icon). A red box highlights the "Edit" link.

3. In the proceeding popup, select **Add More Items**.

## Edit Service Console App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

[Learn More](#) 

NAVIGATION ITEMS (8)

[Add More Items](#)

-  Cases
-  Contacts
-  Accounts
-  Reports
-  Dashboards
-  Chatter
-  Quick Text
-  Knowledge

Reset Navigation to Default 

[Cancel](#)

[Save](#)

4. Click the **+** button next to **AC Guided Setup**, then add the item and **save**.

5. Select the newly added **AC Guided Setup** button in the drawdown menu.



Cases

## Recently Viewed ▾

0 items • Updated 6 minutes ago



### Case Number



Contacts



Accounts



Reports



Dashboards



Chatter



Quick Text



Knowledge



AC Guided Setup



Edit

## Guided Setup Prerequisites

The below sections are linked to from the Guided Setup feature. Only perform the below steps when the Guided Setup feature links to them.

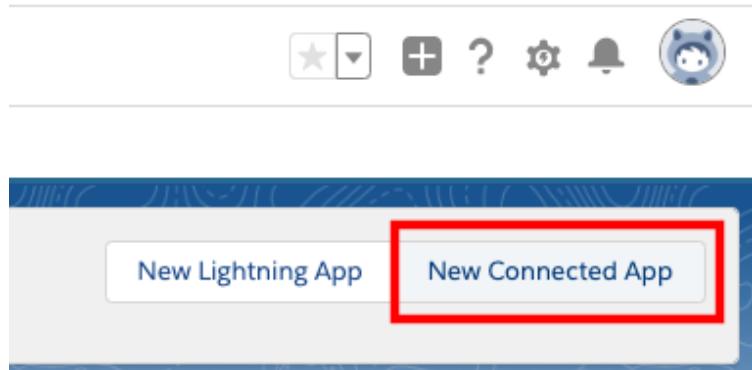
### Create Named Credential

See [here](#) for instructions on setting up the Named Credential.

# Create Connected App

To get access to the environment, a Connected App must be configured with OAuth settings enabled.

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, type **app manager**, then select **App Manager** from the results
3. In the upper right corner, select **New Connected App**



4. On the New Connected App form, enter a name for the Connected App, such as **Amazon Connect Integration** and press tab. This will populate the API Name automatically. Then provide a contact email address

## New Connected App

Connected App Name	Amazon Connect Integration
API Name	Amazon_Connect_Integration
Contact Email	dougjaso@amazon.com

Save Cancel

5. Select the checkbox to **Enable OAuth Settings**

▼ API (Enable OAuth Settings)

Enable OAuth Settings

6. Set the **Callback URL** to <https://www.salesforce.com>

API (Enable OAuth Settings)

Enable OAuth Settings

Enable for Device Flow

Callback URL  https://www.salesforce.com

7. In the Selected OAuth Scopes section, select the following and add them to the Selected OAuth Scopes:

8. Access and manage your data (api)

9. Access your basic information (id, profile, email, address, phone)

10. Select the checkbox for Require Secret for Web Server Flow

11. The **API (Enable OAuth Settings)** section should now look like this

The screenshot shows the 'API (Enable OAuth Settings)' configuration page. Under 'Selected OAuth Scopes', two items are selected: 'Access and manage your data (api)' and 'Access your basic information (id, profile, email, address, phone)'. These items are highlighted with a red border. On the left, under 'Available OAuth Scopes', there is a list of various OAuth scopes. On the right, there are 'Add' and 'Remove' buttons. Other settings shown include 'Enable OAuth Settings' (checked), 'Callback URL' (https://www.salesforce.com), 'Use digital signatures' (unchecked), and several checkboxes for 'Require Secret for Web Server Flow', 'Introspect All Tokens', 'Configure ID Token', 'Enable Asset Tokens', and 'Enable Single Logout'.

12. Select **Save** at the bottom of the screen.

13. Select **Continue** on the New Connected App page

14. You should now be at the new app's page

15. Copy the value for **Consumer Key** to your notepad

16. Select **Click to reveal** next to Consumer Secret and copy the value to your notepad

17. At the top of the detail page, select **Manage**

18. On the Connected App Detail page, select the **Edit Policies** button

19. Set Permitted Users to **Admin approved users are pre-authorized** and choose OK on the pop-up dialog

20. Set IP Relaxation to **Relax IP restrictions**

21. The OAuth Policies section should now look like the following

**OAuth Policies**

Permitted Users: Admin approved users are pre-authorized

Enable Single Logout

IP Relaxation: Relax IP restrictions

Refresh Token Policy: Immediately expire refresh token

22. Select **Save**

## Guided Setup Additional Instructions

The below sections are linked to from the Guided Setup feature. Only perform the below steps when the Guided Setup feature links to them.

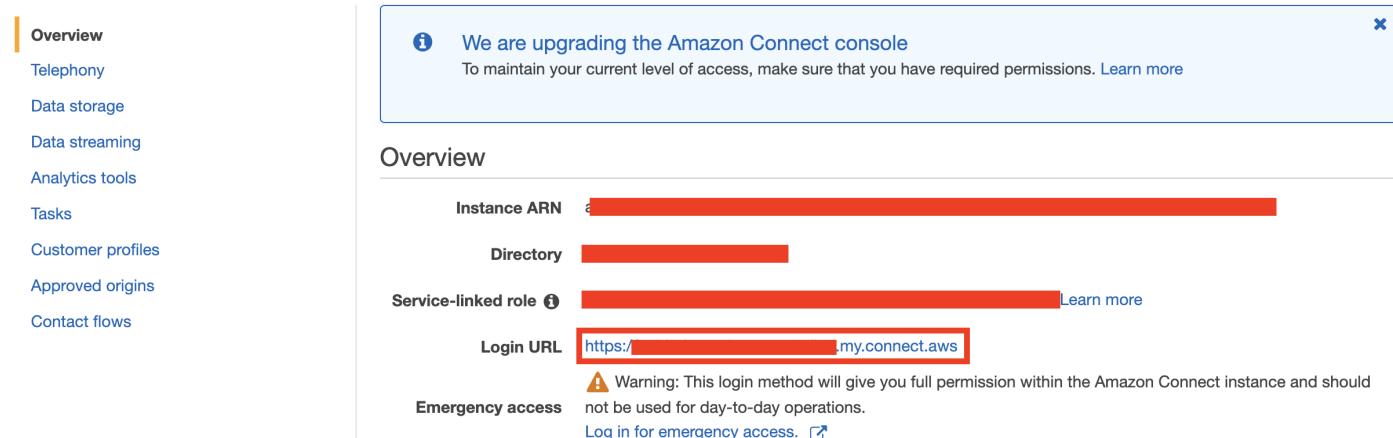
### Retrieve Amazon Connect Instance Url

1. Navigate to the [Amazon Connect Console](#)

2. Select your Instance Alias

3. On the Overview page for your instance, copy the Login URL up until the  (if your login url has one).

Amazon Connect > guidedsetupinstance-8dh3j



The screenshot shows the Amazon Connect Instance Overview page. On the left, there's a sidebar with links: Overview (which is selected and highlighted in orange), Telephony, Data storage, Data streaming, Analytics tools, Tasks, Customer profiles, Approved origins, and Contact flows. The main content area has a header "Overview". Below it, there are several fields: "Instance ARN" (redacted), "Directory" (redacted), "Service-linked role" (redacted) with a "Learn more" link, and "Login URL" which contains the URL [https://\[REDACTED\].my.connect.aws](https://[REDACTED].my.connect.aws). A warning message above the URL says: "We are upgrading the Amazon Connect console. To maintain your current level of access, make sure that you have required permissions. [Learn more](#)". At the bottom, there's an "Emergency access" section with a warning: "Warning: This login method will give you full permission within the Amazon Connect instance and should not be used for day-to-day operations. Log in for emergency access.".

## Add users to the Call Center

1. Log in into your Salesforce org and go to **Setup**

2. In the **Quick Find** field, enter **Call Center**, then select **Call Centers** from the result list

Call Center

✓ Feature Settings

✓ Service

✓ Call Center

**Call Centers**

Directory Numbers

Softphone Layouts

3. If you see the **Say Hello to Salesforce Call Center** page, select **Continue**

4. Select **AC Lightning Adapter**

## All Call Centers

A call center corresponds to a single computer-telephony integration (CTI) system already in place. You can manage Call Center features.

Action	Name ↑
Edit   Del	<b>AC Lightning Adapter</b>
Edit   Del	<a href="#">Amazon Connect CCP Adapter Classic 3.11</a>
Edit   Del	<a href="#">Amazon Connect CCP Adapter Console 3.11</a>

5. On the **AC Lightning Adapter** detail page, select **Edit**

6. On the **AC Lightning Adapter: Manage Users** page, select **Add More Users**.

7. Set filters (if desired) and then choose **Find**.

8. Select the checkbox next to the user to add, then choose **Add to Call Center**.

			Add to Call Center	Cancel
Full Name	Alias	Username	Role	Profile
<input checked="" type="checkbox"/> Douglas Jason	JDou	[REDACTED]	System Administrator	
<input type="checkbox"/> User_Integration	Integ	Integration@00d90000004zrnwseak.com	Analytics Cloud Integration User	
<input type="checkbox"/> User_Security	sec	Insightssecurity@00d90000004zrnwseak.com	Analytics Cloud Security User	

9. Repeat the steps to add more users.

## Add users to a Permission Set

All users must be assigned the required permission set to access Salesforce metadata. The Amazon Connect CTI Adapter includes two Permission Sets, one for agents and one for managers, that grant users the appropriate access for their role. More information on assigning user permissions can be found in the [Salesforce help documentation](#).

1. Log in into your Salesforce org and go to **Setup**

2. In **Quick Find**, enter **Permission** and select **Permission Sets** from the results

3. Choose **AC\_Administrator**, **AC\_Agent** or **AC\_Manager** as appropriate for the user(s)

## Permission Sets

On this page you can create, view, and manage permission sets.

In addition, you can use the Salesforce mobile app to assign permission sets to a user. Download Salesforce from the App Store or Google Play: [iOS](#) | [Android](#)

All Permission Sets		<a href="#">Edit</a>   <a href="#">Delete</a>   <a href="#">Create New View</a>	
<input type="checkbox"/>	Action	Permission Set Label	Description
<input type="checkbox"/>	<a href="#">Del</a>   <a href="#">Clone</a>	<a href="#">AC Administrator</a>	Allows the user to configure Amazon Connect setup and provides full access to Am...
<input type="checkbox"/>	<a href="#">Del</a>   <a href="#">Clone</a>	<a href="#">AC Agent</a>	
<input type="checkbox"/>	<a href="#">Del</a>   <a href="#">Clone</a>	<a href="#">AC Manager</a>	

4. Choose **Manage Assignments**.

5. Choose **Add Assignments**.

6. Select the users to assign the permissions, then choose **Assign**.

Assign Users							<a href="#">Help for this Page</a>
All Users							
<a href="#">View All</a>   <a href="#">All Users</a>   <a href="#">Edit</a>   <a href="#">Create New View</a>							
Action	Full Name	Alias	Username	Last Login	Role	Active	Profile
<input type="checkbox"/>	<a href="#">Chatter.Exped</a>	Chatter	[REDACTED]@chatter.salesforce.com		<input checked="" type="checkbox"/>	<a href="#">Chatter Free User</a>	
<input checked="" type="checkbox"/>	<a href="#">Dwoska.Jason</a>	jdwoska	[REDACTED]	1/21/2020, 10:40 PM	<input checked="" type="checkbox"/>	<a href="#">System Administrator</a>	
<input type="checkbox"/>	<a href="#">User_Integration</a>	inteo	[REDACTED]		<input checked="" type="checkbox"/>	<a href="#">Analytics Cloud Integration User</a>	
<input type="checkbox"/>	<a href="#">User_Security</a>	sec	[REDACTED]		<input checked="" type="checkbox"/>	<a href="#">Analytics Cloud Security User</a>	

7. Repeat these steps as needed for all users

## AC\_Administrator

Object Name	Object Permissions	Total Fields	Tab Settings
AC Agent Performance	Read, Create, Edit, Delete, View All, Modify All	124	--
AC CCP Overlay Elements	No Access	9	--
AC Contact Channel Analytics	Read, Create, Edit, Delete, View All, Modify All	31	Visible
AC Contact Channels	Read, Create, Edit, Delete, View All, Modify All	24	--
AC Contact Trace Records	Read, Create, Edit, Delete, View All, Modify All	50	Visible
Accounts	No Access	25	--
AC CTTI Adapters	Read, Create, Edit, Delete, View All, Modify All	22	Visible
AC CTTI Attributes	Read, Create, Edit, Delete, View All, Modify All	11	--
AC CTTI Scripts	Read, Create, Edit, Delete, View All, Modify All	10	--
AC Events	No Access	--	--
AC Features	Read, Create, Edit, Delete, View All, Modify All	6	--
AC Guided Setup	--	--	Visible
AC Historical Queue Metrics	Read, Create, Edit, Delete, View All, Modify All	119	--
AC Phone Calls	No Access	22	--
AC Presence Sync Rules	Read, Create, Edit, Delete, View All, Modify All	13	--
AC QueueMatrices	No Access	16	--
AC Queue Metric Events	No Access	--	--
AC Queue Metrics	--	--	Visible
AC Real Time Queue Metrics	Read, Create, Edit, Delete, View All, Modify All	16	--
AC Voice Id Channel	Read, Create, Edit, Delete, View All, Modify All	15	--
AC Voicemail Drops	Read, Create, Edit, Delete, View All, Modify All	10	Visible
AC Wisdom	--	--	Visible

## AC\_Manager

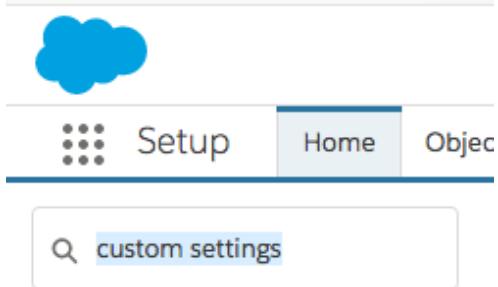
Object Name	Object Permissions	Total Fields	Tab Settings
AC Agent Performance	Read, View All	124	--
AC CCP Overlay Elements	No Access	9	--
AC Contact Channel Analytics	Read, Create, Edit, Delete, View All, Modify All	31	Visible
AC Contact Channels	Read, Create, Edit, View All	24	--
AC Contact Trace Records	Read, Create, Edit, Delete, View All, Modify All	50	--
Accounts	No Access	25	--
AC CTI Adapters	Read	22	Visible
AC CTI Attributes	Read	11	--
AC CTI Scripts	Read	10	--
AC Events	Read, Create	--	--
AC Features	Read	6	--
AC Guided Setup	--	--	--
AC Historical Queue Metrics	Read, View All	119	--
AC Phone Calls	No Access	22	--
AC Presence Sync Rules	Read, View All	13	--
AC QueueMatrices	No Access	16	--
AC Queue Metric Events	Read	--	--
AC Queue Metrics	--	--	Visible
AC Real Time Queue Metrics	Read, View All	16	--
AC Voice Id Channel	Read, Create, Edit, Delete, View All, Modify All	15	--
AC Voicemail Drops	Read, Create, Edit, Delete	10	Available
AC Wisdom	--	--	--

## AC\_Agent

Object Name	Object Permissions	Total Fields	Tab Settings
AC Agent Performance	Read	124	--
AC CCP Overlay Elements	No Access	9	--
AC Contact Channel Analytics	Read, View All	31	Visible
AC Contact Channels	Read, Create, Edit, View All	24	--
AC Contact Trace Records	Read, Edit, View All	50	--
Accounts	No Access	25	--
AC CTI Adapters	Read	22	--
AC CTI Attributes	Read	11	--
AC CTI Scripts	Read	10	--
AC Events	Read, Create	--	--
AC Features	Read	6	--
AC Guided Setup	--	--	--
AC Historical Queue Metrics	Read	119	--
AC Phone Calls	No Access	22	--
AC Presence Sync Rules	Read, View All	13	--
AC QueueMatrices	No Access	16	--
AC Queue Metric Events	Read	--	--
AC Queue Metrics	--	--	Visible
AC Real Time Queue Metrics	No Access	16	--
AC Voice Id Channel	Read, Create, Edit, Delete, View All, Modify All	15	--
AC Voicemail Drops	Read, Create, Edit, Delete	10	Available
AC Wisdom	--	--	--

## Configure the Toolkit settings

1. Navigate to **Setup** then in type **Custom Settings** in Quick Find



2. Next to the Toolkit for Amazon Connect custom setting, choose **Manage**

# Custom Settings

Use custom settings to create and manage custom data at the organization, profile, and user levels. Custom settings data is stored in the database, so you can access it efficiently, without the cost of repeated queries. Custom settings data can be used by formula fields, Visualforce, Apex, and other components.

The screenshot shows a table with columns: Action, Label, Visibility, Settings Type, Namespace Prefix, and Description. There is one row visible:

Action	Label	Visibility	Settings Type	Namespace Prefix	Description
Manage	<a href="#">Toolkit for Amazon Connect</a>	Public	Hierarchy	amazonconnect	Configuration settings of the Toolkit for Amazon Connect.

### 3. Select New

#### Custom Setting

## Toolkit for Amazon Connect

If the custom setting is a list, click **New** to add a new set of data. For example, if the custom setting is a list of phone numbers, you can add data for all users, for a specific user, or for a specific profile.

If the custom setting is a hierarchy, you can add data for the user, profile, or organization level. For example, if the custom setting is a hierarchy of phone numbers, you can add data for a specific user, a specific profile, or just a general organization level.

**New**

#### ▼ Default Organization Level Value

### 4. On the following page, provide the URL to your Amazon Connect instance. This value can be found in your Amazon Connect console.

## Amazon Connect virtual contact center instances

Select a virtual contact center instance to manage its directory, administrator(s), telephony options, data storage, and more.

The screenshot shows a table with columns: Instance Alias, Access URL, and Channels. There are two rows:

Instance Alias	Access URL	Channels
<input type="checkbox"/> [REDACTED]	<a href="https://[REDACTED].f.my.connect.aws">https://[REDACTED].f.my.connect.aws</a>	Inbound, outbound telephony
<input type="checkbox"/> [REDACTED]	<a href="https://[REDACTED].awsapps.com...">https://[REDACTED].awsapps.com...</a>	Inbound, outbound telephony

## Toolkit for Amazon Connect Edit

Provide values for the fields you created. This data is cached with the application.

The screenshot shows a form titled "Edit Toolkit for Amazon Connect". It has a "Save" and "Cancel" button. The "Toolkit for Amazon Connect Information" section contains a "Location" field with a "Url" input field containing the value "https://yourinstancename.a".

5. You will also see the option to enable and disable certain triggers in the package, which you can configure to meet your needs. You can change these whenever you would like to. For more details, see below

These are options we provide that allow you to toggle certain functionality in the adapter.

- CCA Case Trigger - This trigger looks for any ContactChannelAnalytics records that could be related to a updated/inserted Case, and creates a relationship between the two records. This trigger uses batching to process the update requests.
- CCA Contact Trigger - This trigger looks for any ContactChannelAnalytics records that could be related to a updated/inserted Contact, and creates a relationship between the two records. This trigger uses batching to process the update requests.
- Case Contact CCA Trigger - This trigger looks for any Case/Contact records that could be related to an updated/inserted ContactChannelAnalytics record, and creates a relationship between the records.
- Task Trigger - This trigger creates a ContactChannel record for any inserted/updated task that with a **CallObject** field that does not currently have a ContactChannel record created before.

## 6. Select Save

# Create the Softphone Layout

The softphone layout settings will tell the console what resources are available for screenpop by default and what to do under different match conditions.

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** box, type **Softphone**, then choose **Softphone Layouts** from the results
3. If you are presented with the Get Started message, choose **Continue**
4. On the Softphone Layouts page, choose **New**

### Softphone Layouts

Help for this Page ⓘ

A softphone is a customizable call control tool that appears in the sidebar of every salesforce.com page if a user is assigned to a call center and is working on a machine on which a CTI adapter has been installed. Similar to page layouts, you can design custom softphone layouts and assign them to call center users based on their user profile.

Name	Default	Created By Alias	Created Date	Softphone Layout Assignment	Last Modified By Alias	Last Modified Date
No records to display.						

5. Enter a name for the layout, such as **AmazonConnectDefault**, then select the **Is Default Layout** checkbox.

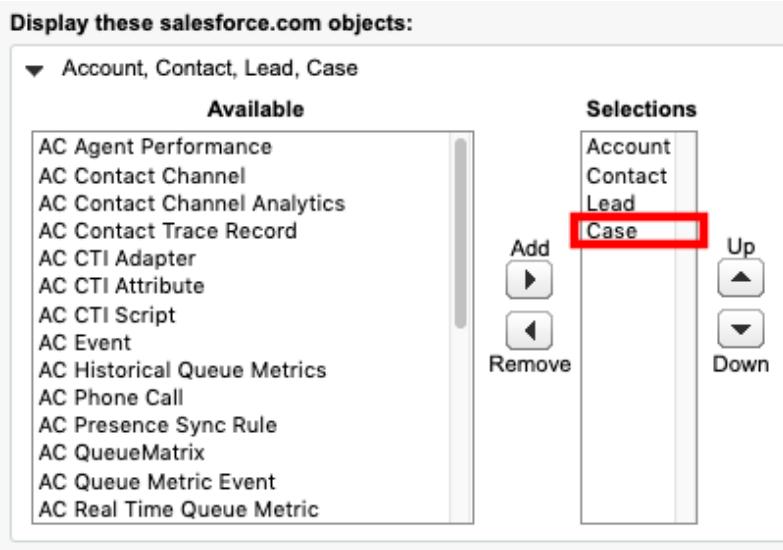
# Softphone Layout Edit

Each softphone layout allows you to customize the appearance of a softphone for inbound, outbound, or self-service page.



The screenshot shows a software interface for editing a softphone layout. At the top, there are 'Save' and 'Cancel' buttons. Below them is a row with a 'Name' label and a text input field containing 'AmazonConnectDefault'. To the right of the input field is a checkbox labeled 'Is Default Layout' which is checked. Both the 'Name' field and the 'Is Default Layout' checkbox are enclosed in a red rectangular box.

6. Expand **Display these salesforce.com objects** and select objects that CTI Connector should be able to search, for a screen-pop query. In this example, Case has been added to the default selection, allowing search and screen-pop by CaseID.



The screenshot shows a configuration screen for selecting objects. On the left, under 'Available' objects, there is a list including 'AC Agent Performance', 'AC Contact Channel', 'AC Contact Channel Analytics', 'AC Contact Trace Record', 'AC CTI Adapter', 'AC CTI Attribute', 'AC CTI Script', 'AC Event', 'AC Historical Queue Metrics', 'AC Phone Call', 'AC Presence Sync Rule', 'AC QueueMatrix', 'AC Queue Metric Event', and 'AC Real Time Queue Metric'. On the right, under 'Selections', there is a list with 'Account', 'Contact', 'Lead', and 'Case'. The 'Case' item is highlighted with a red box. Between the two lists are buttons for 'Add' (with arrows), 'Remove', 'Up', and 'Down'.

7. If desired, configure the search behavior to your requirements



The screenshot shows a list of search behavior configurations. Each item has a 'Edit' link to its right. The items are:

- If single Account found, display: Account Name  
If multiple matches are found, only the Account Name is displayed in Salesforce Classic. In Lightning Experience, all the selected fields are displayed.
- If single Contact found, display: Name  
If multiple matches are found, only the Name is displayed in Salesforce Classic. In Lightning Experience, all the selected fields are displayed.
- If single Lead found, display: Name  
If multiple matches are found, only the Name is displayed in Salesforce Classic. In Lightning Experience, all the selected fields are displayed.
- If single Case found, display: Case Number  
If multiple matches are found, only the Case Number is displayed in Salesforce Classic. In Lightning Experience, all the selected fields are displayed.

8. Additionally, validate the Screen Pop settings. Please note that the default behavior is to not pop a screen if there is more than one result



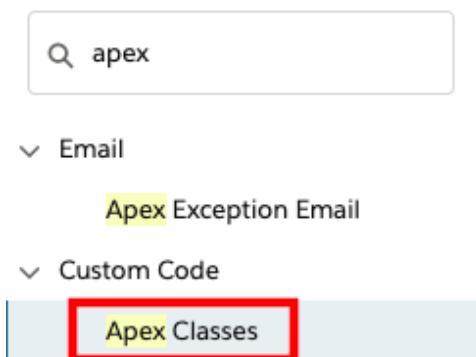
The screenshot shows the 'Screen Pop Settings' configuration screen. It includes sections for 'Screen pops open within', 'No matching records', 'Single-matching record', and 'Multiple-matching records'. Under 'Multiple-matching records', there are radio button options: 'Don't pop any screen' (unchecked), 'Pop to search page' (checked), 'Pop to Visualforce page' (unchecked), and 'Pop to flow' (unchecked). A dropdown menu next to 'Pop to flow' shows the value '--None--'. There are also 'Edit' links for each section and a 'Help about this section' link.

9. Once you have configured the search behavior, choose **Save**

## Retrieve the Salesforce API Version

1. Log in into your Salesforce org and go to **Setup**

2. In the **Quick Find** field, type **apex**, then select **Apex Classes** from the results



3. Select New



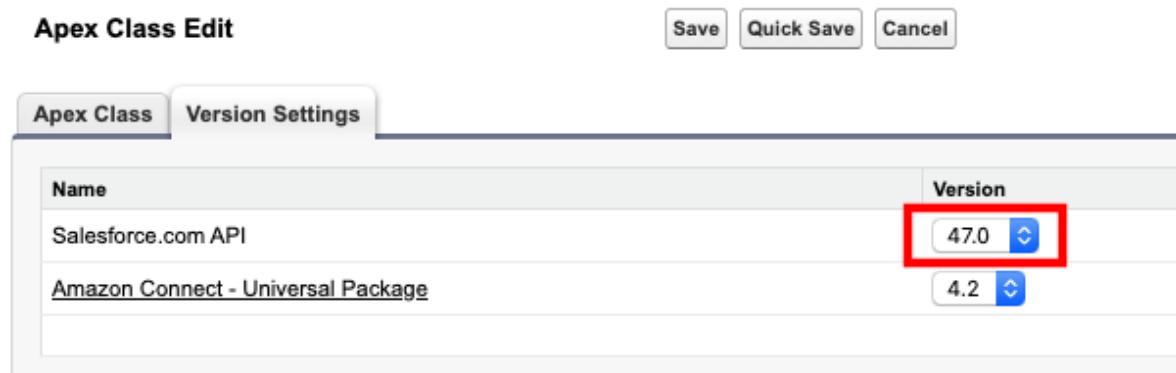
4. Select the Version Settings tab

## Apex Class



5. Note the Salesforce.com API version in your notepad. The pattern of this value is `vXX.X`.

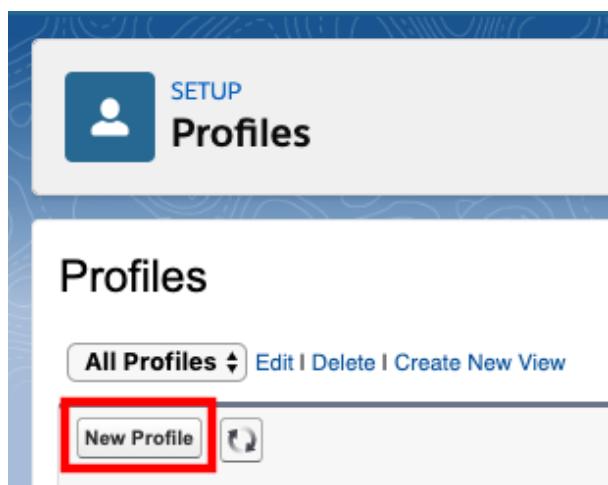
## Apex Class



# Setting up the Salesforce API User

The Lambda functions authenticate with Salesforce via user credentials. It is a common practice to create an API user account for this purpose.

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, type **profiles**, then select **Profiles** from the results
3. Select New Profile



4. Provide a Profile Name, such as **API\_ONLY**
5. From the **Existing Profile** dropdown, select **System Administrator** **NOTE:** You're advised to use a full Salesforce License for the user to be able to set the below permissions and have full access to avoid any other errors.

## Clone Profile

Enter the name of the new profile.

A screenshot of a 'Clone Profile' dialog box. At the top, a message says 'You must select an existing profile to clone from.' Below is a form with three fields:

- 'Existing Profile': A dropdown menu currently set to 'System Administrator'.
- 'User License': A dropdown menu currently set to 'Salesforce'.
- 'Profile Name': An input field containing the text 'API\_ONLY'.

At the bottom of the dialog are two buttons: 'Save' and 'Cancel'.

6. Select **Save** to create the new profile
7. Once the new profile page opens, select the **Edit** button
8. Scroll down to the Administrative Permissions section

9. If the Lightning Experience User checkbox is selected, clear it

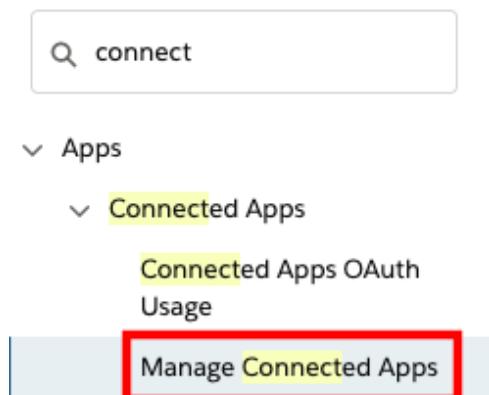


10. Scroll down to the **Password Policies** section at the bottom of the page

11. Set **User password expire in** to **Never expires** **NOTE:** Failure to this may lead to production outages.

12. Select **Save**

13. In the **Quick Find** field, type **connect**, then select **Manage Connected Apps** from the results



14. Select the app you have created earlier, **Amazon Connect Integration**

15. In the profiles section, select **Manage Profiles**

16. Select the new **API\_Only** profile that you just created

17. Select **Save** at the bottom of the page

18. In the **Quick Find** field, type **users** then select **Users** from the results

19. Select New User

20. Set the required fields as:

a. Last Name: apiuser

b. Alias: apiuser

c. Email: provide a valid email address

d. Username: apiuser@<yoursalesforcedomain>.com

e. Nickname: apiuser

21. On the right-hand side, set **User License** to **Salesforce**

22. Set Profile to API\_ONLY

23. Choose **Save**

24. In **Quick Find**, search for "Permission Sets". Select the **AC\_Administrator** permission set.

The screenshot shows the Salesforce Setup interface. The left sidebar has a search bar with 'Perm' and sections for 'Users', 'Permission Set Groups', and 'Permission Sets'. The 'Permission Sets' section is selected. The main area is titled 'Permission Sets' and contains a sub-section 'Permission Sets'. It says 'On this page you can create, view, and manage permission sets.' Below this is a note about using the mobile app. A table lists permission sets with columns for Action, Permission Set Label, Description, and License. The 'AC Administrator' row is highlighted with a red box. The table includes navigation links A through M at the top.

Action	Permission Set Label	Description	Licenses
<input type="checkbox"/>	AC Administrator	Allows the user to configure Amazon Connect setup and provides ...	
<input type="checkbox"/>	AC Agent		
<input type="checkbox"/>	AC_CallRecording		
<input type="checkbox"/>	AC_Manager		

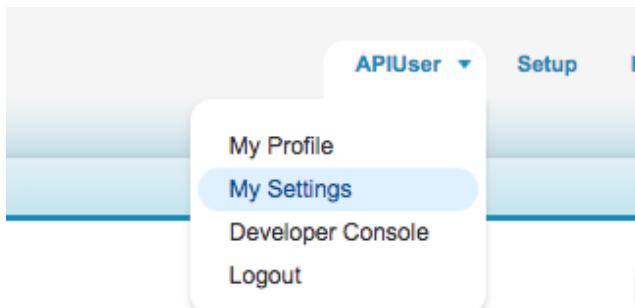
25. Select **Manage Assignments**. Add the apiuser you just created to the permission set.

26. A confirmation email with an **activation link** will be sent to the email address provided. Choose the link to activate your user and set their password

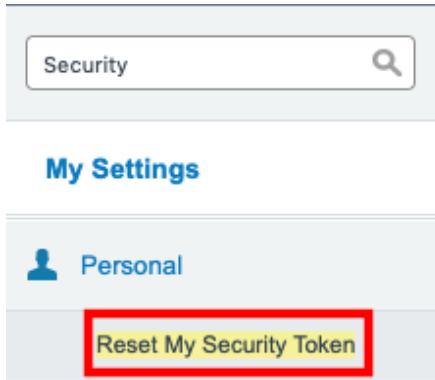
27. Fill out the form to set a password for the API user

28. Select **Change Password**. The API user will log into the Salesforce Classic view

29. Access the API user's personal settings by selecting the username in the top right corner, then choose **My Settings**



30. In the **Quick Find** field, type **security** then select **Reset My Security Token** from the results



31. Select **Reset Security Token**. Your security token will be emailed to you

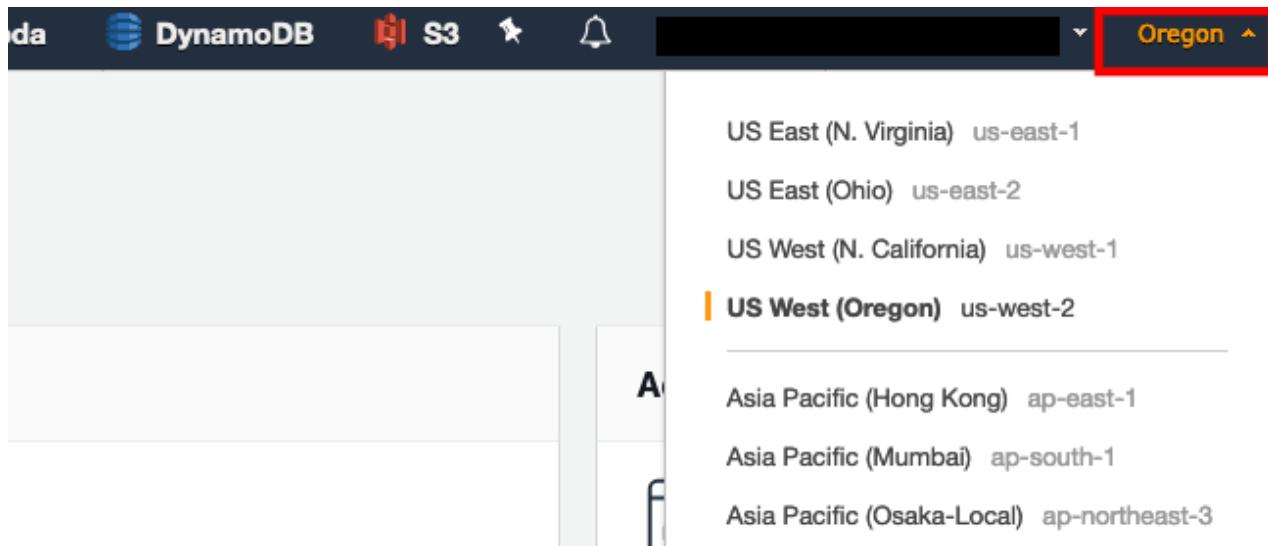
32. Copy the security token from the email to your notepad

## Setting up the SecretsManager Secret

To ensure that your Salesforce credentials are secure, the Lambdas require that the credentials are stored in AWS Secrets Manager. AWS Secrets Manager is a highly secure service that helps you store and retrieve secrets.

1. In a new browser tab, login to the AWS console

2. Make sure you are in the same region as your Amazon Connect instance. You can set the region by expanding the region selector in the upper right and choosing the region



3. Navigate to the [Secrets Manager console](#)

4. Select **Secrets**

5. Select **Store a new secret**

6. Select **Other types of secrets**

7. Make sure **Secret key/value** is selected

8. Enter key value pairs that match the following:

- a. **Key:** Password, **Value:** the password for the API user that you configured in the previous section
- b. **Key:** ConsumerKey, **Value:** the Consumer Key for the Connected App you created in the previous section
- c. **Key:** ConsumerSecret, **Value:** the Consumer Secret for the Connected App you created in the previous section
- d. **Key:** AccessToken, **Value:** this is the access token for the API user that you configured in the previous section

9. For the encryption key, click **Add new key**

10. Select **Create Key**

11. Make sure key type is set to **symmetric**

12. Give your key an **alias**, like *SalesforceCredentialsSecretsManagerKey*

13. Click Next

14. Select administrators you want to have access permission to change the key policy. Make sure you are being as restrictive as possible

15. Click Next

16. Select the users and roles you want to have access to the Salesforce credentials in Secrets Manager. Make sure you are being as restrictive as possible

17. Click Next

18. Click Finish

19. Click on the managed key that you just created (which is *SalesforceCredentialsSecretsManagerKey* in this case).

20. Note down the ARN. This is *SalesforceCredentialsKMSKeyARN* that will be used later when installing the Amazon Connect Salesforce Lambda package.

21. Navigate back to the Secrets Manager setup tab

22. Select the key you just created

## Specify the key/value pairs to be stored in this secret [Info](#)

**Secret key/value**

Plaintext

Password

Password

Remove

ConsumerKey

ConsumerKey

Remove

ConsumerSecret

ConsumerSecret

Remove

AccessToken

AccessToken

Remove

[+ Add row](#)

### Select the encryption key [Info](#)

Select the AWS KMS key to use to encrypt your secret information. You can encrypt using the default service encryption key that AWS Secrets Manager creates on your behalf or a customer master key (CMK) that you have stored in AWS KMS.

SalesforceCredentialsSecretsManagerKey



[Add new key](#)

[Cancel](#)

[Next](#)

23. Click Next

24. Give your secret a name, like *SalesforceCredentials*

25. Click Next

26. Make sure **Disable automatic rotation** is checked.

27. Click Next

28. Click Store

29. Select the secret you just created, and copy the Secret ARN

## SalesforceCredentials

**Secret details**

Encryption key  
SalesforceCredentialsSecretsManagerKey

Secret name  
SalesforceCredentials

Secret ARN

Secret description  
-

**Actions ▾**

## Test the Salesforce Lambda Core Functionality

The package provides a core Lambda function (`sflInvokeAPI`) that supports multiple operations, like lookup, create and update. For the initial validation, sample events are provided within the function. Validating this function provides a good check that the installation and configuration is correct.

Validating the lambda functions requires the use of test events to simulate data coming into the function as it would in a typical deployment. Each function has a set of test event samples included to make validation easier.

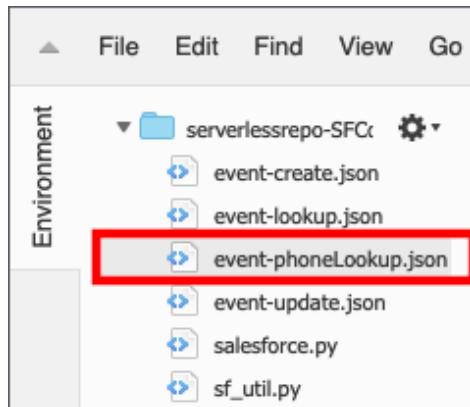
### Validate the core functionality

1. In a new browser tab, login to the [AWS console](#)
2. Open the [AWS Lambda Console](#)
3. In the Filter field, enter `sflInvokeAPI` and press enter, this will filter your list out to the core function that we just installed

Function name	Description	Runtime	Code size
serverlessrepo-SFConsolidatedLambdaPac-sflInvokeAPI-5504EV6KL9E8		Python 3.7	32.1 kB

4. Select the **function name**. First, we will validate a phone number lookup.

5. In the Environment pane, double-click the event-phoneLookup.json file



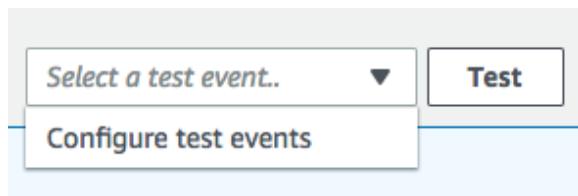
6. The test even JSON will open in the Lambda editor

7. Modify the value for sf\_phone to match the phone number of the test contact you created when you setup the CTI adapter or for any valid contact in your Salesforce org\ NOTE: The phone number must be in [E.164 format](#)

```
1 {
2     "Details": {
3         "Parameters": {
4             "sf_operation" : "phoneLookup",
5             "sf_phone": "+14155551212",
6             "sf_fields": "Id, Name, Email"
7         }
8     }
9 }
```

8. Select the entire JSON event and copy it, then close the **event-phoneLookup.json** tab.

9. In the top-right corner, select drop-down arrow next to **Test** and choose **Configure test events**



10. Select the radio button for **Create new test event** and provide an event name, for example:  
**phoneLookup**

11. Select the existing event JSON and **delete** it. Paste the modified JSON payload you copied from the **event-phoneLookup.json** file

## Configure test event



A function can have up to 10 test events. The events are persisted so you can switch to another computer or web browser and test your function with the same events.

- Create new test event
- Edit saved test events

### Event template

Hello World



### Event name

phoneLookup

```
1 [{}  
2 "Details": {  
3   "Parameters": {  
4     "sf_operation": "phoneLookup",  
5     "sf_phone": "+14155551212",  
6     "sf_fields": "Id, Name, Email"  
7   }  
8 }  
9 ]
```

12. Select **Create** to save your test event

13. By default, your new test event should be selected in the drop-down list to the left of the Test button.

phoneLookup ▾ Test Save

14. Select **Test**

15. If successful, the result will contain fields defined in "sf\_fields" parameter in the invocation event

### Execution result: succeeded ([logs](#))

#### ▼ Details

The area below shows the result returned by your function execution. [Learn more](#)

```
{  
  "Id": "0036g000007mkZ2AAI",  
  "Name": "John Smith",  
  "Email": null,  
  "sf_count": 1  
}
```

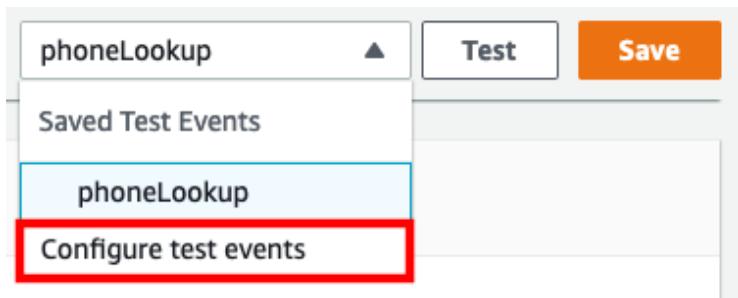
16. Copy the value for the **Id** key in the response. Next, we are going to use that Id to create a Case in Salesforce.

17. In the Environment pane, double-click the **event-create.json** file. Replace the existing ContactId value with the ID value you copied previously.

```
1  {
2      "Details": {
3          "Parameters": {
4              "sf_operation" : "create",
5              "sf_object": "Case",
6              "Origin": "Phone",
7              "Status": "New",
8              "ContactId": "0036g000007mkZ2AAI",
9              "Subject": "Amazon Connect Case",
10             "Priority": "Low"
11         }
12     }
13 }
```

18. Select the entire JSON event and copy it, then close the **event-create.json** tab.

19. In the top-right corner, select drop-down arrow next to **Test** and choose **Configure test events**



20. Select the radio button for **Create new test event** and provide an event name, for example:  
**createCase**

21. Select the existing event JSON and **delete** it. Paste the modified JSON payload you copied from the **event-create.json** file

## Configure test event



A function can have up to 10 test events. The events are persisted so you can switch to another computer or web browser and test your function with the same events.

- Create new test event
- Edit saved test events

### Event template

phoneLookup



### Event name

createCase

```
1  [{}  
2  "Details": {  
3  "Parameters": {  
4  "sf_operation": "create",  
5  "sf_object": "Case",  
6  "Origin": "Phone",  
7  "Status": "New",  
8  "ContactId": "0036g000007mkZ2AAI",  
9  "Subject": "Amazon Connect Case",  
10 "Priority": "Low"  
11 }  
12 }  
13 }
```

22. Select **Create** to save your test event

23. By default, your new test event should be selected in the drop-down list to the left of the Test button.



24. Select **Test**

25. If successful, the result will contain the Case Id

Execution result: succeeded ([logs](#))

▼ Details

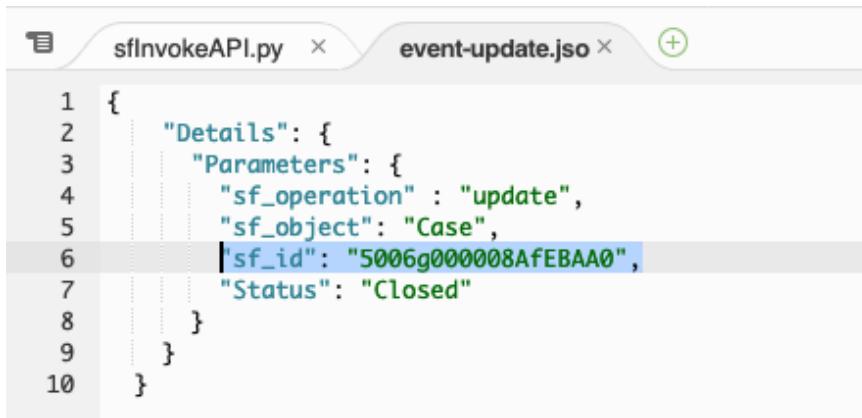
The area below shows the result returned by your function execution. [Learn](#)

```
{  
  "Id": "5006g000008AfEBAA0"  
}
```

26. Copy the value for the **Id** key in the response.

27. When we created the case, the **Status was set to New** and the **Priority to Low**. We are going to use the update operation to close the case.

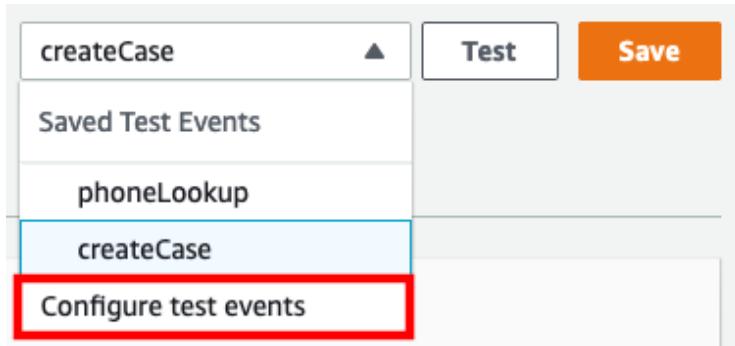
28. In the Environment pane, double-click the **event-update.json** file and replace the existing Case Id in "sf\_id" parameter with the new one you copied from the last test result



```
1 {
2     "Details": {
3         "Parameters": {
4             "sf_operation" : "update",
5             "sf_object": "Case",
6             "sf_id": "5006g000008AfEBAA0",
7             "Status": "Closed"
8         }
9     }
10 }
```

29. Select the **entire JSON event** and copy it, then close the **event-update.json** tab.

30. In the top-right corner, select drop-down arrow next to **Test** and choose **Configure test events**



31. Select the radio button for **Create new test event** and provide an event name, for example:  
**updateCase**

32. Select the existing event JSON and **delete** it. Paste the modified JSON payload you copied from the **event-update.json** file

## Configure test event



A function can have up to 10 test events. The events are persisted so you can switch to another computer or web browser and test your function with the same events.

- Create new test event
- Edit saved test events

### Event template

createCase



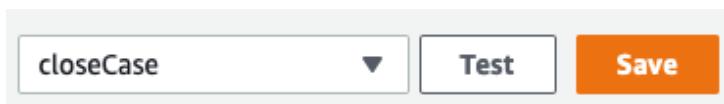
### Event name

closeCase

```
1  [
2    "Details": {
3      "Parameters": {
4        "sf_operation": "update",
5        "sf_object": "Case",
6        "sf_id": "5006g000008AfEBAA0",
7        "Status": "Closed"
8      }
9    }
10 }
```

33. Select **Create** to save your test event

34. By default, your new test event should be selected in the drop-down list to the left of the Test button.



35. Select **Test**

36. If successful, the result will be the **HTTP 204 No Content** success status response code

✓ Execution result: succeeded ([logs](#))

▼ Details

The area below shows the result returned by your function:

```
{  
  "Status": 204  
}
```

37. Log in into your Salesforce org and go to the **Service Console**

38. In the search box, change the object type to Cases and type Amazon Connect Case, then press enter



39. You should find 1 case opened by the API user, and the status should be closed

Cases					
1 Result					
Case Number	Subject	Status	Date/Time Opened	Case Owner Alias	
00001026	Amazon Connect Case	Closed	1/23/2020, 10:13 PM	apiuser	<input type="button" value="View"/>

40. You have completed core function validation

## Allow Amazon Connect to Access the sfInvokeAPI Lambda Function

Once you have validated function, you can use the Amazon Connect console to add the sfInvokeAPI Lambda function to your Amazon Connect instance. This automatically adds resource permissions that allow Amazon Connect to invoke the function.

### Add the Lambda function to your Amazon Connect instance

1. In a new browser tab, login to the [AWS console](#)
2. Navigate to the [Amazon Connect Console](#)
3. Select your **Instance Alias**
4. In the navigation pane, choose **Contact flows**.

[Amazon Connect](#) > sfctifinal022020

The screenshot shows the Amazon Connect navigation pane. The 'Contact flows' link is highlighted with a red box. Other links include Overview, Telephony, Data storage, Data streaming, Application integration, and Contact flows.

- Overview
- Telephony
- Data storage
- Data streaming
- Application integration
- Contact flows**

5. For **AWS Lambda**, select the function that includes sfInvokeAPI in the name

## AWS Lambda

Amazon Connect can interact with your own systems and take different paths in IVR dynamically. To achieve this, invoke AWS Lambda functions in contact flows to interact with your own systems or other services, then build personalized and dynamic experiences based on data returned.

Note: By adding Lambda functions, you are granting Amazon Connect permission to invoke them [Create a new Lambda function](#)

Function  [+ Add Lambda Function](#)

6. Choose **Add Lambda Function**. Confirm that the ARN of the function is added under **Lambda Functions**.

### Lambda Functions

serverlessrepo-AmazonConnectSalesforce-sfInvokeAPI-[REDACTED]	arn:aws:lambda:us-west-2:[REDACTED]function:serverlessrepo-AmazonConnectSalesforce-sfInvokeAPI-[REDACTED]	 <a href="#">Remove</a>
---	---	--

7. The AWS Lambda function has been added to your Amazon Connect instance.

## Create Public/Private key pair for the Cloudfront distribution

Use the following command to generate a private key:

```
openssl genrsa -out private_key.pem 2048
```

Use the following command to generate a public key from the private key: `openssl rsa -pubout -in private_key.pem -out public_key.pem`

## Add Private Key, Access Key to Secrets Manager Secret

To retrieve the Access Key ID:

1. Navigate to the Cloudfront console.
2. In the left hand sidebar, select **Public keys**.
3. Look for the public key that was created by Guided Setup, and copy down the public key's ID

Cache statistics

Popular objects

Top referrers

Usage

Viewers

▼ Security

Origin access identities

Field-level encryption

▼ Key management

Public keys

To add the private key and access key to the Secrets Manager secret:

1. Copy and paste the contents of the private key .pem file into a text editor. Replace every newline character with a space, and then delete the last character. This is most easily done using a "find and replace" feature in your text editor. The resulting string of text should resemble the following:

```
-----BEGIN RSA PRIVATE KEY----- (64 character string) (64 character string)  
(64 character string) (64 character string) (64 character string) (64  
character string) (64 character string) (64 character string) (64 character  
string) (64 character string) (64 character string) (64 character string) (64  
character string) (64 character string) (64 character string) (64 character  
string) (64 character string) (64 character string) (64 character string) (64  
character string) (64 character string) (under 64 character string) -----END RSA  
PRIVATE KEY-----
```

2. Navigate to the "Secrets Manager" service. Select the **SalesforceCredentials**.
3. Under the "Secret value" tab, select "Retrieve secret value" and then "Edit".
4. For the **CloudFrontPrivateKey** field, copy and paste the modified contents of the private key .pem file.  
For the **CloudFrontAccessKeyId** field, copy and paste the **Access Key Id** you recorded above. Your Secrets Manager Secret should look like the following:

## Public keys



Search public keys



ID



## SalesforceCredentials

**Secret details**

Encryption key  
aws/secretsmanager

Secret name  
SalesforceCredentials

Secret ARN  
[REDACTED]

Secret description  
-

**Actions ▾**

**Tags**

**Secret value info**  
Retrieve and view the secret value.

**Secret key/value** | **Plaintext**

```
{
  "CloudFrontPrivateKey": "-----BEGIN RSA PRIVATE KEY-----  

[REDACTED]  

-----END RSA PRIVATE KEY-----",
  "CloudFrontAccessKeyId": [REDACTED]
}
```

**Close** | **Edit**

Please note that your secret may also be formatted stored as a "Secret key/value" secret rather than a "Plaintext" secret; both secret types are valid.

 [Edit this page](#)

# Setting Up The CTI Adapter Managed Package Manually

Below are manual setup instructions for the Salesforce CTI Adapter Managed Package. After following the below steps, be sure to follow the instructions for setting up the Salesforce Lambdas [here](#).

When installing v5.15, please **confirm that the application was installed for admins only** (see [installation](#) for more details). If you did this by accident, then you will have to [manually edit the profiles](#) to remove the permissions to the objects and pages created by the app.

## Set Access Permissions

All users must be assigned the required permission set to access Salesforce metadata. The Amazon Connect CTI Adapter includes two Permission Sets, one for agents and one for managers, that grant users the appropriate access for their role. More information on assigning user permissions can be found in the [Salesforce help documentation](#).

1. Log in into your Salesforce org and go to **Setup**

2. In Quick Find, enter **Permission** and select **Permission Sets** from the results

3. Choose **AC\_Administrator**, **AC\_Agent** or **AC\_Manager** as appropriate for the user(s)

## Permission Sets

On this page you can create, view, and manage permission sets.

In addition, you can use the Salesforce mobile app to assign permission sets to a user. Download Salesforce from the App Store or Google Play: [iOS](#) | [Android](#)

All Permission Sets		<a href="#">Edit</a>   <a href="#">Delete</a>   <a href="#">Create New View</a>
Action	Permission Set Label	Description
<a href="#">Del</a>   <a href="#">Clone</a>	<a href="#">AC Administrator</a>	Allows the user to configure Amazon Connect setup and provides full access to Am...
<a href="#">Del</a>   <a href="#">Clone</a>	<a href="#">AC_Agent</a>	
<a href="#">Del</a>   <a href="#">Clone</a>	<a href="#">AC_Manager</a>	
<a href="#">New</a>		

4. Choose **Manage Assignments**.

5. Choose **Add Assignments**.

6. Select the users to assign the permissions, then choose **Assign**.

Assign Users							<a href="#">Help for this Page</a>	
All Users								
View:		All Users	<a href="#">Edit</a>	<a href="#">Create New View</a>				
Action	Full Name	Alias	Username	Last Login	Role	Active	Profile	
<a href="#">Edit</a>	Charter_Expert	Charter	[REDACTED]@charter.salesforce.com	1/21/2020, 10:40 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Charter Free User	
<a href="#">Edit</a>	Douglas_Jason	iDoug	[REDACTED]		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	System Administrator	
<a href="#">Edit</a>	User_Integration	Integ	[REDACTED]		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Analytics Cloud Integration User	
<a href="#">Edit</a>	User_Security	sec	[REDACTED]		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Analytics Cloud Security User	

7. Repeat these steps as needed for all users

## AC\_Administrator

Object Name	Object Permissions	Total Fields	Tab Settings
ACAgent Performance	Read, Create, Edit, Delete, View All, Modify All	124	--
AC CCP Overlay Elements	No Access	9	--
AC Contact Channel Analytics	Read, Create, Edit, Delete, View All, Modify All	31	Visible
AC Contact Channels	Read, Create, Edit, Delete, View All, Modify All	24	--
AC Contact Trace Records	Read, Create, Edit, Delete, View All, Modify All	50	Visible
Accounts	No Access	25	--
AC CTI Adapters	Read, Create, Edit, Delete, View All, Modify All	22	Visible
AC CTI Attributes	Read, Create, Edit, Delete, View All, Modify All	11	--
AC CTI Scripts	Read, Create, Edit, Delete, View All, Modify All	10	--
AC Events	No Access	--	--
AC Features	Read, Create, Edit, Delete, View All, Modify All	6	--
AC Guided Setup	--	--	Visible
AC Historical Queue Metrics	Read, Create, Edit, Delete, View All, Modify All	119	--
AC Phone Calls	No Access	22	--
AC Presence Sync Rules	Read, Create, Edit, Delete, View All, Modify All	13	--
AC QueueMatrices	No Access	16	--
AC Queue Metric Events	No Access	--	--
AC Queue Metrics	--	--	Visible
AC Real Time Queue Metrics	Read, Create, Edit, Delete, View All, Modify All	16	--
AC Voice Id Channel	Read, Create, Edit, Delete, View All, Modify All	15	--
AC Voicemail Drops	Read, Create, Edit, Delete, View All, Modify All	10	Visible
AC Wisdom	--	--	Visible

## AC\_Manager

Object Name	Object Permissions	Total Fields	Tab Settings
<a href="#">AC Agent Performance</a>	Read, View All	124	--
<a href="#">AC CCP Overlay Elements</a>	No Access	9	--
<a href="#">AC Contact Channel Analytics</a>	Read, Create, Edit, Delete, View All, Modify All	31	Visible
<a href="#">AC Contact Channels</a>	Read, Create, Edit, View All	24	--
<a href="#">AC Contact Trace Records</a>	Read, Create, Edit, Delete, View All, Modify All	50	--
<a href="#">Accounts</a>	No Access	25	--
<a href="#">AC CTI Adapters</a>	Read	22	Visible
<a href="#">AC CTI Attributes</a>	Read	11	--
<a href="#">AC CTI Scripts</a>	Read	10	--
<a href="#">AC Events</a>	Read, Create	--	--
<a href="#">AC Features</a>	Read	6	--
<a href="#">AC Guided Setup</a>	--	--	--
<a href="#">AC Historical Queue Metrics</a>	Read, View All	119	--
<a href="#">AC Phone Calls</a>	No Access	22	--
<a href="#">AC Presence Sync Rules</a>	Read, View All	13	--
<a href="#">AC QueueMatrices</a>	No Access	16	--
<a href="#">AC Queue Metric Events</a>	Read	--	--
<a href="#">AC Queue Metrics</a>	--	--	Visible
<a href="#">AC Real Time Queue Metrics</a>	Read, View All	16	--
<a href="#">AC Voice Id Channel</a>	Read, Create, Edit, Delete, View All, Modify All	15	--
<a href="#">AC Voicemail Drops</a>	Read, Create, Edit, Delete	10	Available
<a href="#">AC Wisdom</a>	--	--	--

## AC\_Agent

Object Name	Object Permissions	Total Fields	Tab Settings
<a href="#">AC Agent Performance</a>	Read	124	--
<a href="#">AC CCP Overlay Elements</a>	No Access	9	--
<a href="#">AC Contact Channel Analytics</a>	Read, View All	31	Visible
<a href="#">AC Contact Channels</a>	Read, Create, Edit, View All	24	--
<a href="#">AC Contact Trace Records</a>	Read, Edit, View All	50	--
<a href="#">Accounts</a>	No Access	25	--
<a href="#">AC CTI Adapters</a>	Read	22	--
<a href="#">AC CTI Attributes</a>	Read	11	--
<a href="#">AC CTI Scripts</a>	Read	10	--
<a href="#">AC Events</a>	Read, Create	--	--
<a href="#">AC Features</a>	Read	6	--
<a href="#">AC Guided Setup</a>	--	--	--
<a href="#">AC Historical Queue Metrics</a>	Read	119	--
<a href="#">AC Phone Calls</a>	No Access	22	--
<a href="#">AC Presence Sync Rules</a>	Read, View All	13	--
<a href="#">AC QueueMatrices</a>	No Access	16	--
<a href="#">AC Queue Metric Events</a>	Read	--	--
<a href="#">AC Queue Metrics</a>	--	--	Visible
<a href="#">AC Real Time Queue Metrics</a>	No Access	16	--
<a href="#">AC Voice Id Channel</a>	Read, Create, Edit, Delete, View All, Modify All	15	--
<a href="#">AC Voicemail Drops</a>	Read, Create, Edit, Delete	10	Available
<a href="#">AC Wisdom</a>	--	--	--

## Configure the Lightning Experience

In this guide, we will configure the CTI Adapter for Service Console (Lightning Experience). You may use the same procedure described in this section for other applications.

### Configure Service Console

First, you need to add the CTI softphone to your Service Console.

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** box, type **App Manager**, then choose **App Manager** from the result list.

App Manager

Apps

App Manager

Didn't find what you're looking for?

Try using Global Search.

3. Expand the drop-down menu associated to Service Console and select **Edit**.

12	Salesforce Chatter	Chatter	The Salesforce Chatter social network, including profiles and feeds	1/21/2020, 8:46 PM	Classic	✓	▼
13	Service	Service	Manage customer service with accounts, contacts, cases, and more	1/21/2020, 8:46 PM	Classic	✓	▼
14	Service Console	LightningService	(Lightning Experience) Lets support agents work with multiple re...	1/21/2020, 8:46 PM	Lightning	✓	▼
15	Site.com	Sites	Build pixel-perfect, data-rich websites using the drag-and-drop Sit...	1/21/2020, 8:46 PM	Classic	Edit	▼

4. Once the **Lightning App Builder** opens, select **Utility Items** from the left Navigation

The screenshot shows the Lightning App Builder interface. At the top, there are two tabs: "Lightning App Builder" and "App Se". Below the tabs is a sidebar titled "APP SETTINGS" containing several options: "App Details & Branding" (which is highlighted with a blue background), "App Options", "Utility Items" (which is highlighted with a red border), "Navigation Items", and "Navigation Rules".

5. Choose **Add Utility Item**, then select **Open CTI Softphone**.

## Utility Items

Give your users quick access to produc

Add Utility Item

Search...

### Standard (16)

-  Chatter Feed
-  Chatter Publisher
-  Einstein Analytics Dashboard
-  Einstein Next Best Action
-  Flow
-  History
-  List View
-  Macros
-  Notes
-  Open CTI Softphone

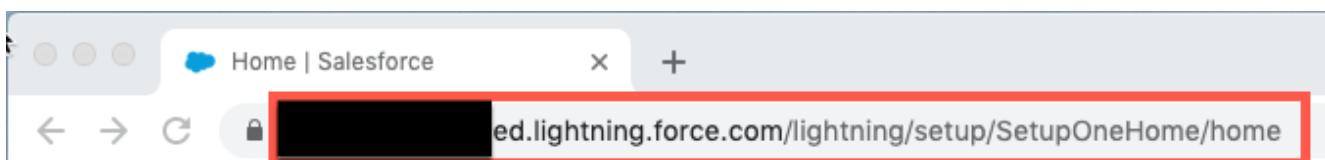
6. Change the Label, if desired, then choose **Save**.

## Allowlist Your Salesforce Org with Amazon Connect

In order to embed the Amazon Connect Contact Control Panel (CCP) into your Service Console, you need to allowlist two (2) domains for your org with Amazon Connect. This allows for cross domain access to the underlying resources required for the CCP to function.

1. Log in into your Salesforce org and go to **Setup**

2. Copy the entire URL of this page and past it to a text document.



3. In the **Quick Find** field, type **visual**, then select **Visual Force Pages** from the results

visual

Custom Code

Visualforce Components

Visualforce Pages

Didn't find what you're looking for?

Try using Global Search.

#### 4. Choose the **AC\_LightningAdapter** Visualforce page

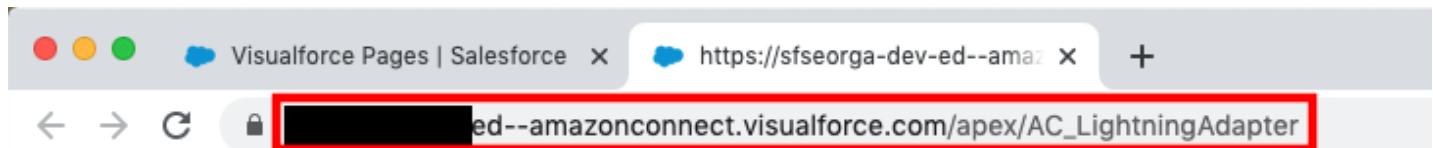
##### Visualforce Pages

Help for this Page

Visualforce Pages provide a robust and easy to use mechanism to create new and exciting user experiences for your application or to enhance existing applications to optimize your users' productivity.

Action	Label	Name	Namespace Prefix	Api Version	Description	Created By Alias	Created Date	Last Modified By Alias	Last Modified Date
Security	AC_CreateCISAdapter	AC_CreateCISAdapter	amazonconnect	47.0	JDoog	JDogg	1/21/2020, 10:41 PM	JDogg	1/21/2020, 10:42 PM
Security	AC_LightningAdapter	AC_LightningAdapter	amazonconnect	47.0	JDoog	JDogg	1/21/2020, 10:41 PM	JDogg	1/21/2020, 10:42 PM
Security	AC_LightningScriptIncludes	AC_LightningScriptIncludes	amazonconnect	47.0	JDoog	JDogg	1/21/2020, 10:41 PM	JDogg	1/21/2020, 10:42 PM

#### 5. On the Visualforce detail page, select the **Preview** button. This will open a new browser tab showing the page content, which should only be a button labelled Sign in to CCP. Copy the entire URL of this page and past it to a text document.



#### 6. In a new browser tab, login to the **AWS console**

#### 7. Navigate to the **Amazon Connect Console**

#### 8. Validate that you are in the correct **AWS region** for your instance, then select your instance alias from the list of instances

##### Amazon Connect virtual contact center instances

Select a virtual contact center instance to manage its directory, administrator(s), telephony options, data storage, and advanced features.

Add an Instance	Remove			
Instance Alias	Access URL	Channels	Create Date	Status
<input type="checkbox"/> sfsetestconsolidated	https://[REDACTED].awsapp...	Inbound, outbound telephony	1/21/2020	Active

#### 9. Choose **Application Integration** from the left navigation

#### 10. Select + Add origin

#### 11. In the Enter origin URL field, enter the URL of the page that you copied in step 2. Only enter the url through the .com, for example:

<https://XXXXXXXXX-dev-ed-.lightning.force.com>

12. Select Add. You should see your org domain listed in the Approved origins section.

#### Approved origins

Once you integrated with a CRM product, add the origins (scheme + host + port) that Amazon Connect will need to have access to.

https://[REDACTED] dev-ed.lightning.force.com

[remove](#)

13. Select + Add origin

14. In the Enter origin URL field, enter the URL of the visualforce page that you copied in step 5. Only enter the url through the .com, for example:

https://XXXXXXXXX-dev-ed--amazonconnect.visualforce.com

15. Select Add. You should see your org domain listed in the Approved origins section

#### Approved origins

Once you integrated with a CRM product, add the origins (scheme + host + port) that Amazon Connect will need to have access to.

https://[REDACTED]-dev-ed--amazonconnect.visualforce.com

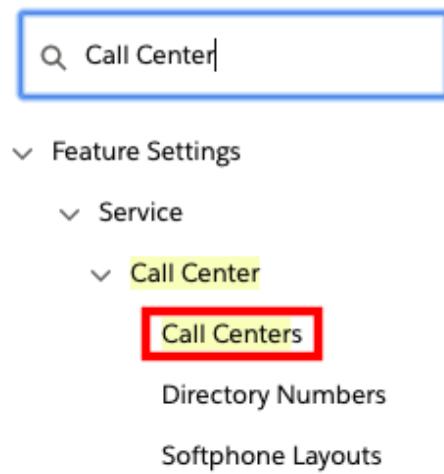
[remove](#)

### Modify the Call Center

Now that you have allowlisted the org in the Amazon Connect Console, you will need to modify the Call Center that was configured in Salesforce when the AppExchange package was installed. Once you complete the configuration, you add users to the Call Center to provide access to it.

1. Log in into your Salesforce org and 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 **AC Lightning Adapter**

## All Call Centers

A call center corresponds to a single computer-telephony integration (CTI) system already in place. You can add more Call Center features.

Action	Name ↑
Edit   Del	<a href="#">AC Lightning Adapter</a>
Edit   Del	<a href="#">Amazon Connect CCP Adapter Classic 3.11</a>
Edit   Del	<a href="#">Amazon Connect CCP Adapter Console 3.11</a>

5. On the **AC Lightning Adapter** detail page, select **Edit**

6. Replace the **CTI Adapter URL** with the AC Lightning Adapter visualforce page url you copied in the previous section.

7. Next, change the values for **Softphone Height to 570** and the **Softphone Width to 330**, and choose **Save**.

8. Once you return to the AC Lightning Adapter detail page, choose **Manage Call Center Users** in the Call Center Users section

9. On the **AC Lightning Adapter: Manage Users** page, select **Add More Users**.

10. Set filters (if desired) and then choose **Find**.

11. Select the checkbox next to the user to add, then choose **Add to Call Center**.

			Add to Call Center	Cancel
Full Name	Alias	Username	Role	Profile
<input checked="" type="checkbox"/> Douglas Jason	JDou	[REDACTED]	System Administrator	Analytics Cloud Integration User
<input type="checkbox"/> User_Integration	Integ	integration@00d690000004znwseak.com		Analytics Cloud Security User
<input type="checkbox"/> User_Security	sec	insightssecurity@00d690000004znwseak.com		

12. Repeat the steps to add more users.

## Configure the Toolkit settings

1. Navigate to **Setup** then in type **Custom Settings** in Quick Find



Setup

Home

Objec

 custom settings

## Custom Code

## Custom Settings

2. Next to the Toolkit for Amazon Connect custom setting, choose **Manage**

## Custom Settings

Use custom settings to create and manage custom data at the organization, profile, and user levels. Custom settings data is stored in the database, so you can access it efficiently, without the cost of repeated queries. Custom settings data can be used by formula fields, Visualforce, Apex, and other components.

Action	Label	Visibility	Settings Type	Namespace Prefix	Description
Manage	Toolkit for Amazon Connect	Public	Hierarchy	amazonconnect	Configuration settings of the Toolkit for Amazon Connect.

3. Select **New**

## Custom Setting

## Toolkit for Amazon Connect

If the custom setting is a list, click **New** to add a new set of data. For example, if the custom setting is a list of phone numbers, you can add a new phone number to the list.

If the custom setting is a hierarchy, you can add data for the user, profile, or organization level. For example, if the custom setting is a hierarchy of phone numbers, you can add a new phone number for a specific user who is running the app, a specific profile, or just a general organization level.

**New**

## ▼ Default Organization Level Value

4. On the following page, provide the URL to your Amazon Connect instance. This value can be found in your Amazon Connect console.

# Amazon Connect virtual contact center instances

Select a virtual contact center instance to manage its directory, administrator(s), telephony options, data storage,

<a href="#">Add an instance</a>	<a href="#">Remove</a>	
Instance Alias	Access URL	Channels
<input type="checkbox"/> [REDACTED]	<a href="https://[REDACTED].f.my.connect.aws">https://[REDACTED].f.my.connect.aws</a>	Inbound, outbound telephony
<input type="checkbox"/> [REDACTED]	<a href="https://[REDACTED].awsapps.com...">https://[REDACTED].awsapps.com...</a>	Inbound, outbound telephony

## Toolkit for Amazon Connect Edit

Provide values for the fields you created. This data is cached with the application.

**Edit Toolkit for Amazon Connect** [Save](#) [Cancel](#)

**Toolkit for Amazon Connect Information**

Location

Url <https://yourinstancename.a>

5. You will also see the option to enable and disable certain triggers in the package, which you can configure to meet your needs. You can change these whenever you would like to. For more details, see below

These are options we provide that allow you to toggle certain functionality in the adapter.

- CCA Case Trigger - This trigger looks for any ContactChannelAnalytics records that could be related to a updated/inserted Case, and creates a relationship between the two records. This trigger uses batching to process the update requests.
- CCA Contact Trigger - This trigger looks for any ContactChannelAnalytics records that could be related to a updated/inserted Contact, and creates a relationship between the two records. This trigger uses batching to process the update requests.
- Case Contact CCA Trigger - This trigger looks for any Case/Contact records that could be related to an updated/inserted ContactChannelAnalytics record, and creates a relationship between the records.
- Task Trigger - This trigger creates a ContactChannel record for any inserted/updated task that with a `CallObject` field that does not currently have a ContactChannel record created before.

6. Select **Save**

## Create the Softphone Layout

Next, we need to create a softphone layout for the solution. The softphone layout settings will tell the console what resources are available for screenpop by default and what to do under different match conditions.

1. Log in into your Salesforce org and go to **Setup**

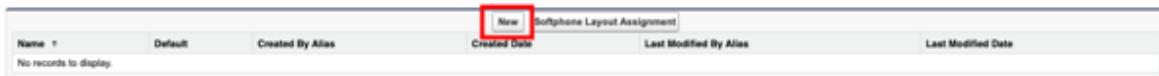
2. In the **Quick Find** box, type **Softphone**, then choose **Softphone Layouts** from the results

3. If you are presented with the Get Started message, choose **Continue**

4. On the Softphone Layouts page, choose **New**

## Softphone Layouts

A softphone is a customizable call control tool that appears in the sidebar of every salesforce.com page if a user is assigned to a call center and is working on a machine on which a CTI adapter has been installed. Similar to page layouts, you can design custom softphone layouts and assign them to call center users based on their user profile.



The screenshot shows a table header for 'Softphone Layout Assignment' with columns: Name, Default, Created By Alias, Created Date, Last Modified By Alias, and Last Modified Date. A red box highlights the 'New' button at the top left of the table area.

5. Enter a name for the layout, such as **AmazonConnectDefault**, then select the **Is Default Layout** checkbox.

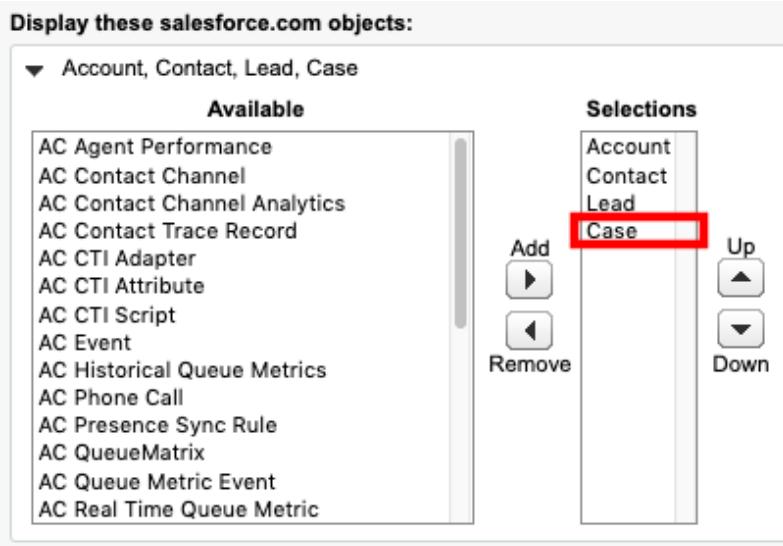
## Softphone Layout Edit

Each softphone layout allows you to customize the appearance of a softphone for inbound, outbound, or self-service pages.



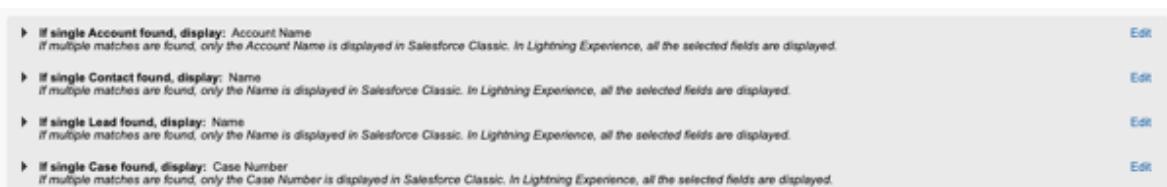
The screenshot shows a form with fields: Name (containing 'AmazonConnectDefault') and Is Default Layout (checkbox checked). A red box highlights both the Name field and the Is Default Layout checkbox.

6. Expand **Display these salesforce.com objects** and select objects that CTI Connector should be able to search, for a screen-pop query. In this example, Case has been added to the default selection, allowing search and screen-pop by CaseID.



The screenshot shows a configuration interface for 'Display these salesforce.com objects'. It has two main sections: 'Available' (left) and 'Selections' (right). The 'Available' section lists various objects like AC Agent Performance, AC Contact Channel, etc. The 'Selections' section shows objects selected for search: Account, Contact, Lead, and Case. The 'Case' object is highlighted with a red box. Below the lists are 'Add' and 'Remove' buttons, and 'Up' and 'Down' buttons for reordering.

7. If desired, configure the search behavior to your requirements



The screenshot shows a list of search behaviors with edit links:

- If single Account found, display: Account Name  
If multiple matches are found, only the Account Name is displayed in Salesforce Classic. In Lightning Experience, all the selected fields are displayed.  
[Edit](#)
- If single Contact found, display: Name  
If multiple matches are found, only the Name is displayed in Salesforce Classic. In Lightning Experience, all the selected fields are displayed.  
[Edit](#)
- If single Lead found, display: Name  
If multiple matches are found, only the Name is displayed in Salesforce Classic. In Lightning Experience, all the selected fields are displayed.  
[Edit](#)
- If single Case found, display: Case Number  
If multiple matches are found, only the Case Number is displayed in Salesforce Classic. In Lightning Experience, all the selected fields are displayed.  
[Edit](#)

8. Additionally, validate the Screen Pop settings. Please note that the default behavior is to not pop a screen if there is more than one result

- ▶ Screen pops open within: Existing browser window [Edit](#)
- ▶ No matching records: Don't pop any screen [Edit](#)
- ▶ Single-matching record: Pop detail page [Edit](#)

▼ Multiple-matching records: Pop to search page [Collapse](#)

- Don't pop any screen
- Pop to search page
- Pop to Visualforce page
- Pop to flow

9. Once you have configured the search behavior, choose **Save**

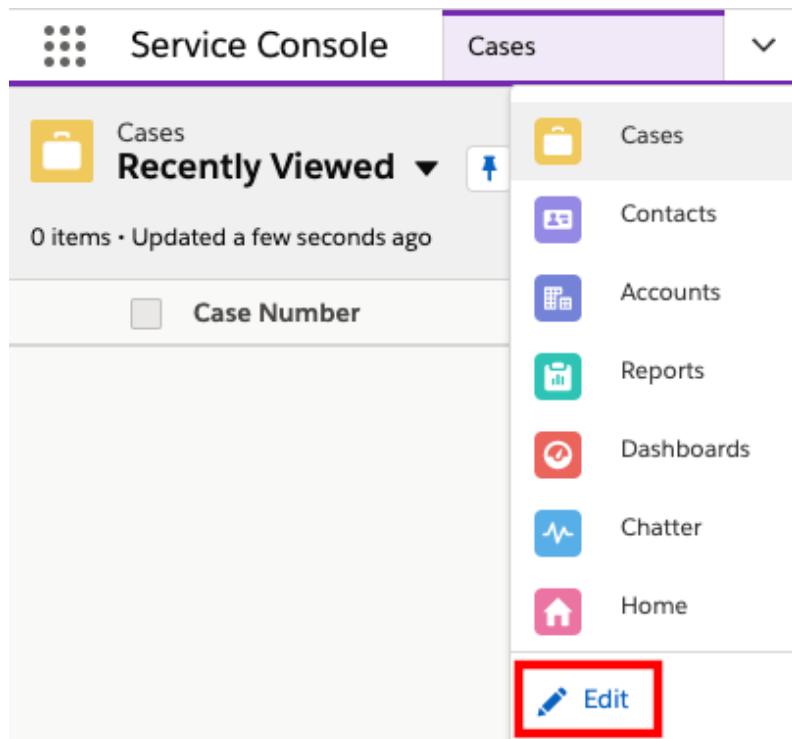
## Initial CTI Adapter Configuration

Once we have setup the Call Center, we need to do a final configuration of the CTI Adapter before we can test the basic configuration. This will tie the Lightning CTI adapter settings to the Call Center.

### Add the CTI Adapter Console App

1. Log in into your Salesforce org and go to the **Service Console**

2. Expand the **navigation menu** by selecting the down arrow and choose **Edit**.



3. On the Edit Service Console App Navigation Items page, select **Add More Items**

## Edit Service Console App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

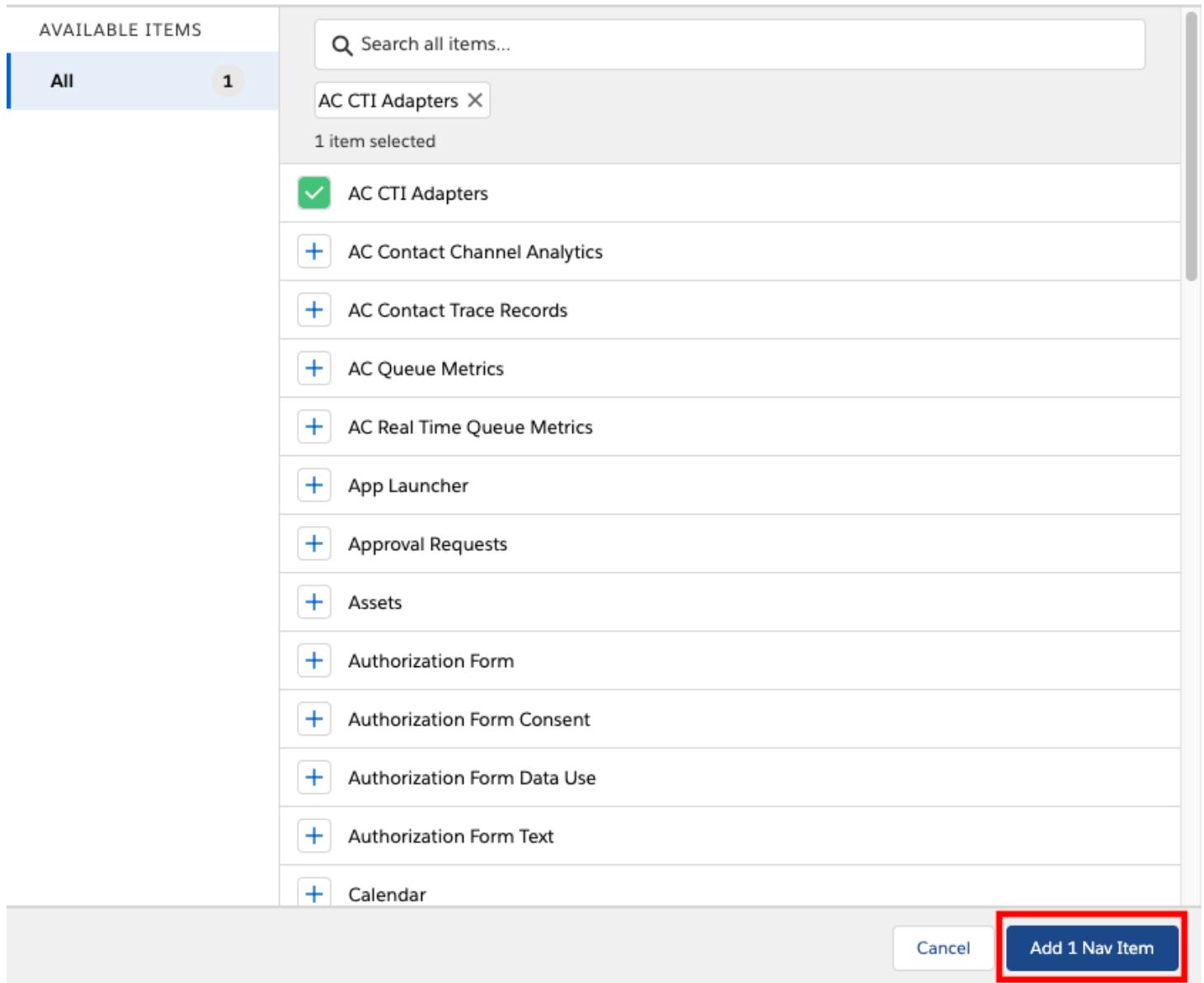
[Learn More](#) 

NAVIGATION ITEMS (7)

[Add More Items](#)

4. Select the + next to **AC CTI Adapters** and select the **Add 1 Nav Item** button

### Add Items



The screenshot shows the 'Add Items' dialog box. On the left, there's a sidebar titled 'AVAILABLE ITEMS' with a 'All' tab selected. A search bar at the top right contains the placeholder 'Search all items...'. Below it is a list of items, each with a plus sign icon and a brief description. The first item, 'AC CTI Adapters', has a green checkmark icon to its left, indicating it is selected. The other items listed are: AC Contact Channel Analytics, AC Contact Trace Records, AC Queue Metrics, AC Real Time Queue Metrics, App Launcher, Approval Requests, Assets, Authorization Form, Authorization Form Consent, Authorization Form Data Use, Authorization Form Text, and Calendar.

Available Items

All 1

Search all items...

AC CTI Adapters X

1 item selected

+ AC CTI Adapters

+ AC Contact Channel Analytics

+ AC Contact Trace Records

+ AC Queue Metrics

+ AC Real Time Queue Metrics

+ App Launcher

+ Approval Requests

+ Assets

+ Authorization Form

+ Authorization Form Consent

+ Authorization Form Data Use

+ Authorization Form Text

+ Calendar

Cancel Add 1 Nav Item

5. If desired, move the **AC CTI Adapters** button up in the navigation Items menu by dragging it up or down the list, then choose **Save** to save changes

6. Select **AC CTI Adapters** from navigation menu

7. If Recently Viewed is selected, select the drop-down and select **All** from the List Views menu.

8. If no ACLightningAdapter entry exists, then select the new button to configure your AC CTI adapters, otherwise select the **ACLightningAdapter**

9. Fill out or confirm the Details as follows:

#### 10. CTI Adapter Name: **ACLightningAdapter**

11. Amazon Connect Instance: The url of your Amazon Connect Instance. You can find this in the Amazon Connect Console as shown below (remove everything after ".com"):

12. Amazon Connect Instance Region: This is the region that your Amazon Connect instance is deployed in. For this field, you will enter the region code. For example, if you have deployed your Amazon Connect instance in US East (N. Virginia), you would enter us-east-1. For a list of region codes, please refer to the [AWS Service Endpoints](#) reference

13. Call Center Definition Name: **ACLightningAdapter** Note: This is the value of the Internal Name in the call center in the Call Center definition

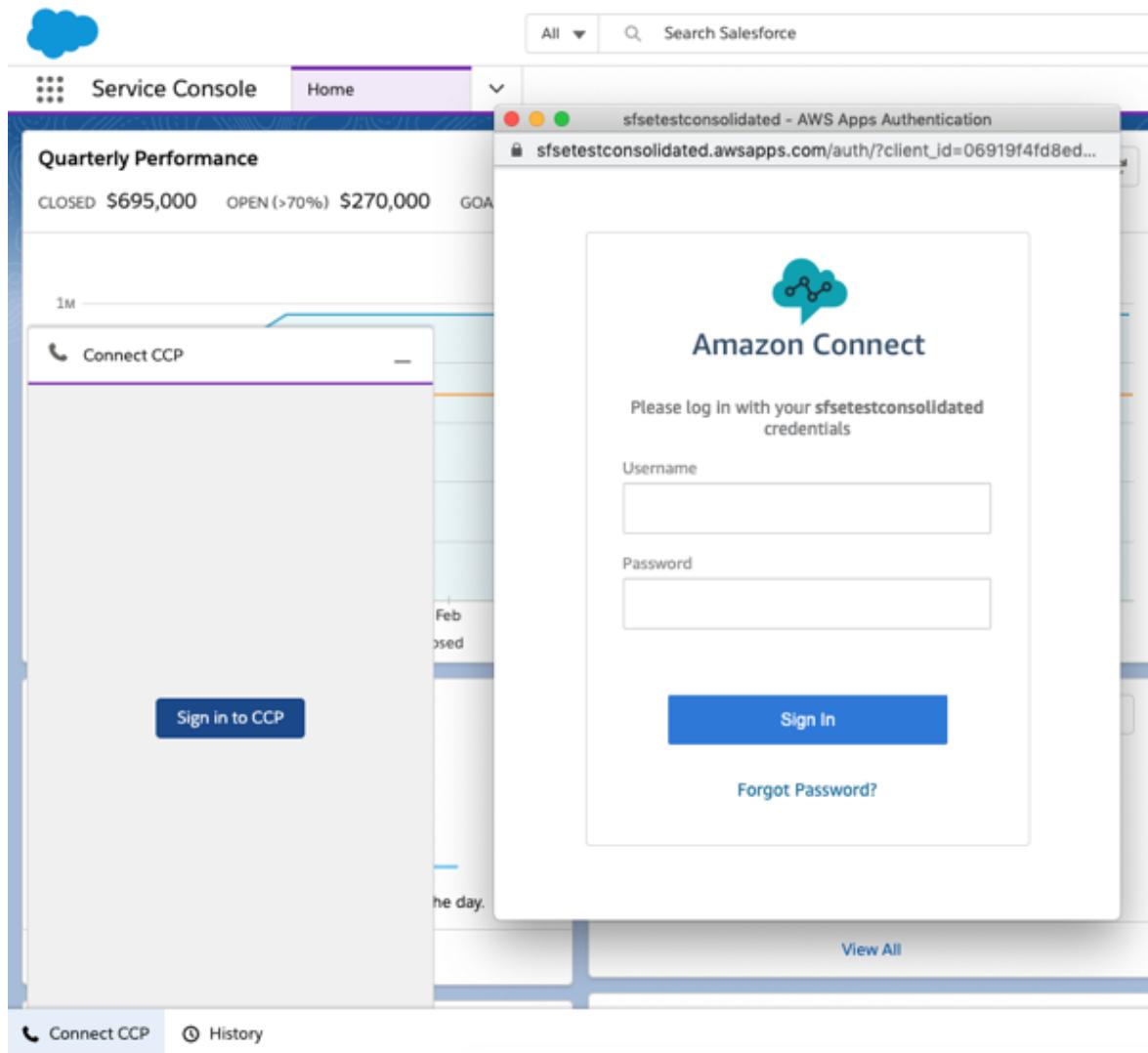
14. Leave all other settings at the default for now, and choose Save

15. Refresh the browser

16. In the bottom left corner of the Service Console, select the CTI Softphone icon

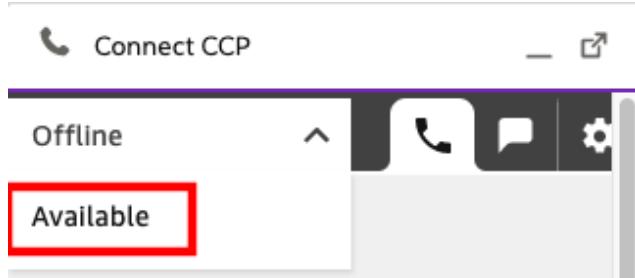


17. Select the **Sign in to CCP** button. A new window will pop up. Enter your Amazon Connect login credentials and select **Sign In**. Make sure to allow Microphone access (if asked by browser) **NOTE:** At this point, this process will only work for Amazon Connect instances configured for local user storage. If you are configuring SAML, please follow the SAML setup process in the [Single Sign On Settings](#) section before continuing.

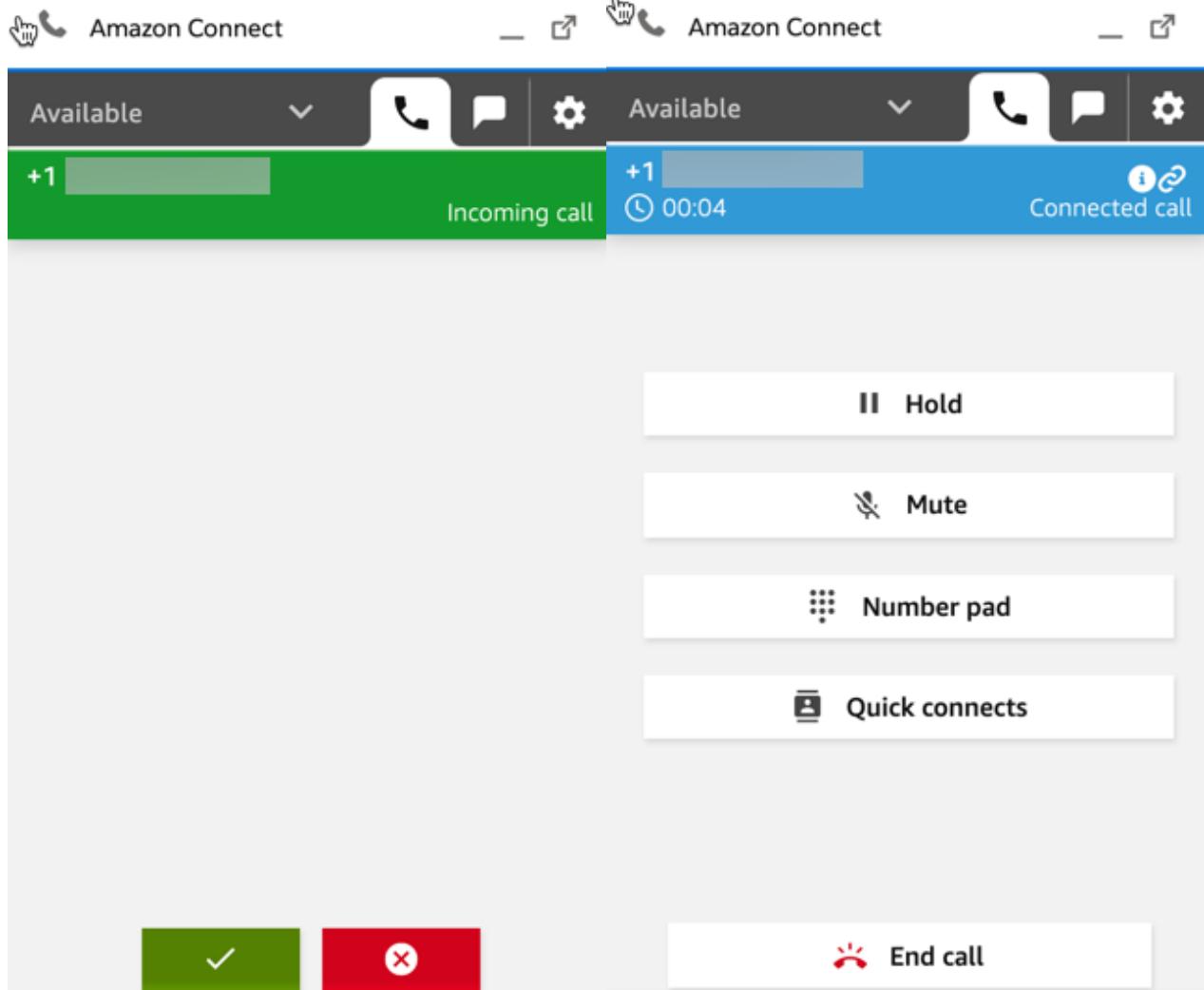


18. Once Login is successful, the pop-up window will automatically close.

19. Expand the status menu and choose Available



20. Make an inbound phone call to your Amazon Connect instance. The CCP will alert you to the incoming call and allow you to accept it. Once you do, the call will be connected



21. **End the call** and clear the contact

22. Set your agent back to **Available**

### Enhanced Agent Logout

You can configure an agent status within "Manage agent status" with "Logout" (case-sensitive) in the status name to enable enhanced agent logout. When the agent selects that logout status in the Contact Control Panel, it will first set the agent in an offline status. It will then logout the agent in Connect and the AWS Console. Here is an example of the agent status configured within Connect:

## Manage agent status

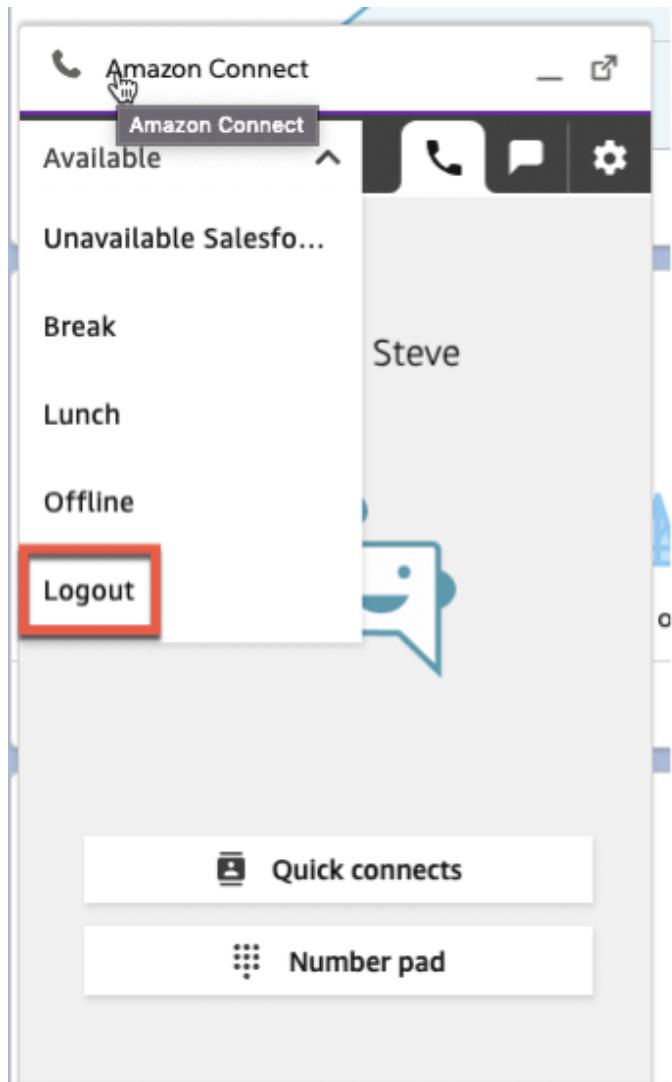
Create new agent status, and drag table rows to specify the order these statuses appear in the Contact Control Panel (CCP). To maintain integrity of historical metrics, agent status cannot be deleted. However, they can be disabled so that they no longer show in the CCP.

Add new agent status

Status name	Description	Type	Enabled for use in CCP
Unavailable Salesforce	Unavailable Salesforce	Custom	<input checked="" type="checkbox"/>
Break	Break	Custom	<input checked="" type="checkbox"/>
Lunch	Lunch	Custom	<input checked="" type="checkbox"/>
Available	Available state	Routable	<input checked="" type="checkbox"/>
Offline	Offline state	Offline	<input checked="" type="checkbox"/>
Logout	Sets the Connect user to offline and then completes logs out the Connect user	Custom	<input checked="" type="checkbox"/>

Save Cancel

Here is an example of an agent selecting the "Logout" status within the Contact Control Panel:



## Validate Basic Screenpop

Next, we will add a contact to Salesforce that has your phone number assigned to it. This will allow us to validate the basic screenpop functionality that is provided with the CTI adapter.

1. Select **Contacts** from the dropdown menu

**Quarterly Performance**

CLOSED \$695,000 OPEN (&gt;70%)

- AC CTI Adapters
- Cases
- Contacts
- Accounts



2. Select **New** from top-right corner

3. Complete the required fields. Make sure that your phone number is entered for the Phone field.

### New Contact

#### Contact Information

Contact Owner  
Jason Douglas

\* Name  
Salutation  
Mr.  
First Name  
John  
\* Last Name  
Smith

Phone  
7048076561

Home Phone

Account Name  
Search Accounts...

Mobile

Title

Other Phone

Department

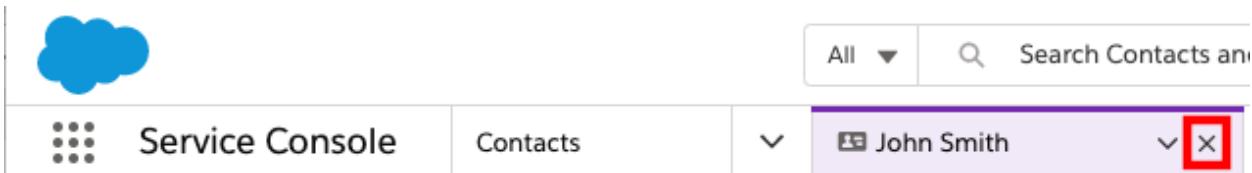
Fax

Birthdate

Email

4. Select **Save**

5. Close the Contact tab by selecting the X next to the name of the contact that you just created



A screenshot of the Salesforce Service Console interface. At the top, there's a blue cloud icon followed by a search bar with the placeholder "Search Contacts an...". Below the search bar is a navigation bar with tabs: "Service Console" (selected), "Contacts", and a dropdown menu. To the right of the dropdown is a contact card for "John Smith" with a red "X" button.

6. Refresh your browser
7. Place another phone call into your instance
8. The new contact should automatically pop-up as it has been recognized by incoming phone number.

 [Edit this page](#)

# Setting Up The Salesforce Lambdas Manually

Below are manual setup instructions for the Salesforce Lambdas.

## Prerequisite Configuration and Data Collection

In order to successfully deploy and utilize the functions in the Amazon Connect Salesforce Lambda package, you will need to validate and configure some items in your Salesforce Org and gather some information from your Amazon Connect instance.

- Check your Salesforce API version
- Create a new Connected App
- Create a new API user
- Gather Amazon Connect information

As you are preparing to deploy the package, it is a good idea to open a text editor and note information as you configure the environment. We will point out the items you will need to provide.

### Check your Salesforce API Version

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, type **apex**, then select **Apex Classes** from the results

apex

- ▽ Email
  - Apex Exception Email
- ▽ Custom Code
  - Apex Classes**
  - Apex Settings
  - Apex Test Execution
  - Apex Test History
  - Apex Triggers

### 3. Select New

<Previous Page | Next Page>

A   B   C   D   E   F   G   H   I   J   K   L   M   N   O   P   Q   R   S   T   U   V   W   X   Y   Z   Other   All
Developer Console <b>New</b> Generate from WSDL Run All Tests Schedule Apex
Action Name ↑ Namespace Prefix Api Version Status Size Without Comments Last Modified By Has Trace Flags

### 4. Select the Version Settings tab

## Apex Class

Apex Class Edit

Save Quick Save Cancel

Apex Class **Version Settings**

1

5. Note the Salesforce.com API version in your notepad. The pattern of this value is `vXX.X`.

## Apex Class

Apex Class Edit

Save Quick Save Cancel

Apex Class Version Settings

Name	Version
Salesforce.com API	47.0
Amazon Connect - Universal Package	4.2

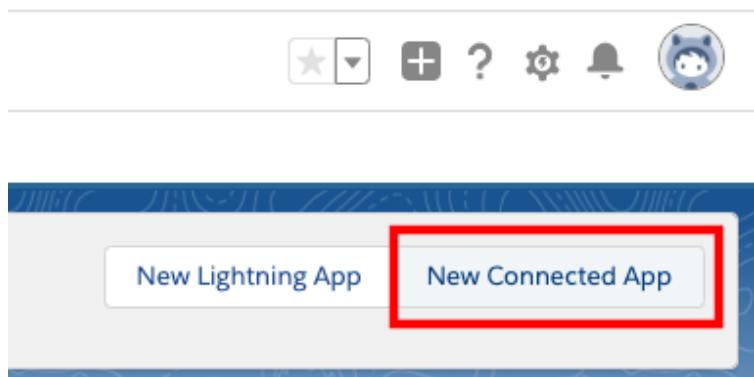
## Create a New Connected App

To leverage the full potential of the integration, Salesforce data needs to be accessed from AWS environment. The package comes with a set of pre-built AWS Lambda functions to lookup, update and

create Salesforce objects within Amazon Connect Contact Flows. These Lambda function access Salesforce using the Salesforce REST API.

To get access to the environment, a Connected App must be configured with OAuth settings enabled.

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, type **app manager**, then select **App Manager** from the results
3. In the upper right corner, select **New Connected App**



4. On the New Connected App form, enter a name for the Connected App, such as **Amazon Connect Integration** and press tab. This will populate the API Name automatically. Then provide a contact email address

## New Connected App

Save Cancel

Basic Information

Connected App Name	Amazon Connect Integration
API Name	Amazon_Connect_Integration
Contact Email	douglasjason@amazon.com

5. Select the checkbox to **Enable OAuth Settings**

▼ API (Enable OAuth Settings)

Enable OAuth Settings

6. Set the **Callback URL** to <https://www.salesforce.com>

API (Enable OAuth Settings)

Enable OAuth Settings

Enable for Device Flow

Callback URL  https://www.salesforce.com

7. In the Selected OAuth Scopes section, select the following and add them to the Selected OAuth Scopes:

8. Access and manage your data (api)

9. Access your basic information (id, profile, email, address, phone)

10. Select the checkbox for Require Secret for Web Server Flow

11. The **API (Enable OAuth Settings)** section should now look like this

The screenshot shows the 'API (Enable OAuth Settings)' configuration page. At the top, 'Enable OAuth Settings' is checked. Below it, 'Callback URL' is set to 'https://www.salesforce.com'. Under 'Selected OAuth Scopes', two items are listed: 'Access and manage your data (api)' and 'Access your basic information (id, profile, email, address, phone)'. A red box highlights the 'Available OAuth Scopes' list, which includes: Access and manage your Chatter data (chatter\_api), Access and manage your Eclair data (eclair\_api), Access and manage your Wave data (wave\_api), Access custom permissions (custom\_permissions), Allow access to your unique identifier (openid), Full access (full), Perform requests on your behalf at any time (refresh\_token, offline\_access), Provide access to custom applications (visualforce), and Provide access to your data via the Web (web). To the right of this list are 'Add' and 'Remove' buttons. Other settings shown include 'Require Secret for Web Server Flow' (checked), 'Introspect All Tokens' (unchecked), 'Configure ID Token' (unchecked), 'Enable Asset Tokens' (unchecked), and 'Enable Single Logout' (unchecked).

12. Select **Save** at the bottom of the screen.

13. Select **Continue** on the New Connected App page

14. You should now be at the new app's page

15. Copy the value for **Consumer Key** to your notepad

16. Select **Click to reveal** next to Consumer Secret and copy the value to your notepad

17. At the top of the detail page, select **Manage**

18. On the Connected App Detail page, select the **Edit Policies** button

19. Set Permitted Users to **Admin approved users are pre-authorized** and choose OK on the pop-up dialog

20. Set IP Relaxation to **Relax IP restrictions**

21. The OAuth Policies section should now look like the following

**OAuth Policies**

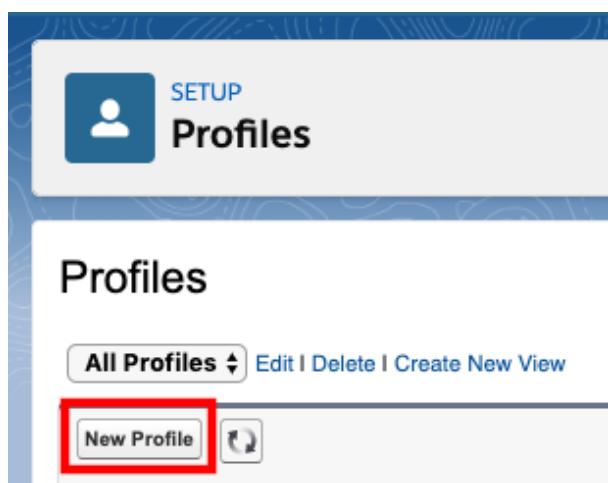
Permitted Users	Admin approved users are pre-authorized	IP Relaxation	Relax IP restrictions
Enable Single Logout	<input type="checkbox"/>	Refresh Token Policy:	<input checked="" type="radio"/> Immediately expire refresh token

## 22. Select Save

### Create a new API user

The Lambda functions authenticate with Salesforce via user credentials. It is a common practice to create an API user account for this purpose.

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, type **profiles**, then select **Profiles** from the results
3. Select New Profile



4. Provide a Profile Name, such as **API\_ONLY**
5. From the **Existing Profile** dropdown, select **System Administrator** **NOTE:** You're advised to use a full Salesforce License for the user to be able to set the below permissions and have full access to avoid any other errors.

## Clone Profile

Enter the name of the new profile.

You must select an existing profile to clone from.

Existing Profile	System Administrator
User License	Salesforce
Profile Name	API_ONLY

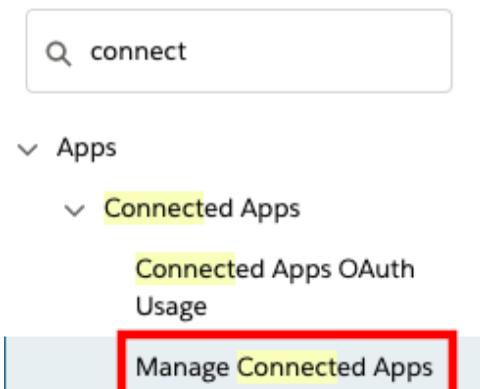
**Save** **Cancel**

6. Select **Save** to create the new profile
7. Once the new profile page opens, select the **Edit** button
8. Scroll down to the Administrative Permissions section
9. If the Lightning Experience User checkbox is selected, clear it



10. Scroll down to the **Password Policies** section at the bottom of the page
11. Set **User password expire in** to **Never expires** **NOTE:** Failure to this may lead to production outages.
12. Select **Save**

13. In the **Quick Find** field, type **connect**, then select **Manage Connected Apps** from the results



14. Select the app you have created earlier, **Amazon Connect Integration**
15. In the profiles section, select **Manage Profiles**
16. Select the new **API\_Only** profile that you just created
17. Select **Save** at the bottom of the page
18. In the **Quick Find** field, type **users** then select **Users** from the results
19. Select New User
20. Set the required fields as:

- a. Last Name: apiuser
- b. Alias: apiuser

- c. Email: provide a valid email address
- d. Username: apiuser@<yoursalesforcedomain>.com
- e. Nickname: apiuser

21. On the right-hand side, set **User License** to **Salesforce**

22. Set Profile to **API\_ONLY**

23. Choose **Save**

24. In **Quick Find**, search for "Permission Sets". Select the **AC\_Administrator** permission set.

The screenshot shows the Salesforce Setup interface. The top navigation bar includes a cloud icon, 'Setup' (selected), 'Home', and 'Object Manager'. A search bar says 'Search Setup'. The left sidebar has sections for 'Users' (with 'Permission Set Groups' and 'Permission Sets' selected), 'Custom Code' (with 'Permissions' selected), and a global search bar. The main content area is titled 'Permission Sets' and contains a sub-section 'Permission Sets'. It says 'On this page you can create, view, and manage permission sets.' Below this is a note about using the mobile app. A toolbar at the top of the list table includes 'All', 'Edit', 'Delete', and 'Create New View'. The table has columns for 'Action', 'Permission Set Label', 'Description', and 'Licenses'. The 'AC Administrator' row is highlighted with a red box. The table footer shows navigation links from 'A' to 'M'.

Action	Permission Set Label	Description	Licenses
<input type="checkbox"/> Clone	AC Administrator	Allows the user to configure Amazon Connect setup and provides ...	
<input type="checkbox"/> Clone	AC Agent		
<input type="checkbox"/> Clone	AC CallRecording		
<input type="checkbox"/> Clone	AC Manager		

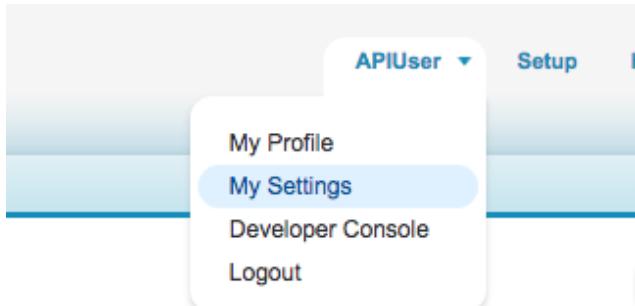
25. Select **Manage Assignments**. Add the apiuser you just created to the permission set.

26. A confirmation email with an **activation link** will be sent to the email address provided. Choose the link to activate your user and set their password

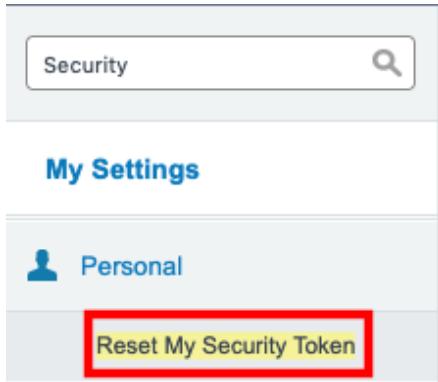
27. Fill out the form to set a password for the API user

28. Select **Change Password**. The API user will log into the Salesforce Classic view

29. Access the API user's personal settings by selecting the username in the top right corner, then choose **My Settings**



30. In the **Quick Find** field, type **security** then select **Reset My Security Token** from the results



31. Select **Reset Security Token**. Your security token will be emailed to you

32. Copy the security token from the email to your notepad

## Gather Information from Your Amazon Connect Instance

The last thing to do before you can install the Amazon Connect Salesforce Lambda Package is gather some details about your Amazon Connect instance. These will be used during the package installation.

1. In a new browser tab, login to the [AWS console](#)
2. Navigate to the [Amazon Connect Console](#)
3. Select your Instance Alias
4. On the Overview page for your instance, copy the string following instance/ in the Instance ARN and paste it to your notepad. This is your Instance ID.

## Overview

Instance ARN    arn:aws:connect:us-east-1:YOUR\_ACCOUNT\_ID:instance/YOUR-INSTANCE-ID-XXX-XXXXXXX

5. In the left nav, select **Data storage**
6. On the **Data storage** page, copy the S3 bucket names for your Call recordings and Exported Reports. The bucket name is everything preceding the first / in the XX will be stored here sections

## Data storage

Saving Amazon Connect data such as call recordings or scheduled reports requires access to an Amazon S3 bucket. Your data storage configurations for Amazon Connect is reflected below.

### Call recordings

Call recording will be stored here	YOUR BUCKET NAME/connect/sfsetestconsolidated/CallRecordings	Edit
Encrypted using this key	aws/connect	

### Chat transcripts

Chat transcripts will be stored here	YOUR BUCKET NAME/connect/sfsetestconsolidated/ChatTranscripts	Edit
Encrypted using this key	aws/connect	

### Live media streaming

Live media streaming	Not enabled	Edit
----------------------	-------------	------

### Exported reports

Exported reports will be stored here	YOUR BUCKET NAME/connect/sfsetestconsolidated/Reports	Edit
Encrypted using this key	aws/connect	

7. In the left nav, select **Data streaming**

8. Note the name of the Kinesis stream configured in the Contact Trace Records section, then select **Create a new Kinesis Stream**. This will take you to the list of Kinesis streams configured in this region.

9. Select the **Kinesis stream name** that matches what was configured in the previous step

10. On the stream detail page, copy the entire value for Stream ARN

**Stream ARN** arn:aws:kinesis:us-east-1:YOUR\_ACCOUNT\_NUMBER:stream/YOUR\_STREAM\_NAME

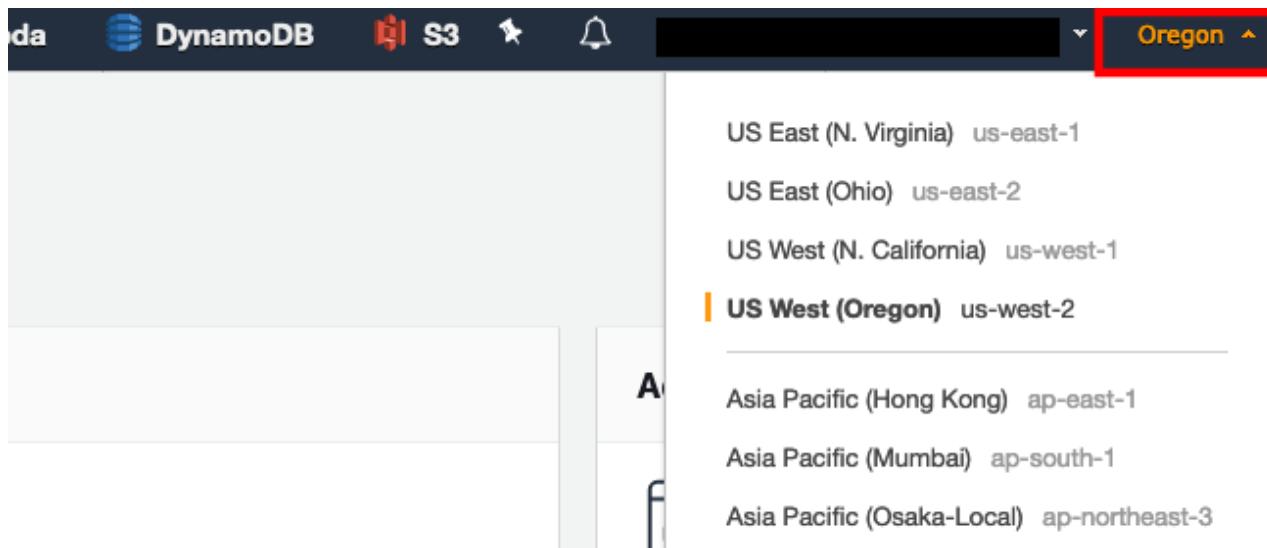
**Status** ACTIVE

## Store Salesforce Credentials in AWS Secrets Manager

To ensure that your Salesforce credentials are secure, the Lambdas require that the credentials are stored in AWS Secrets Manager. AWS Secrets Manager is a highly secure service that helps you store and retrieve secrets.

1. In a new browser tab, login to the AWS console

2. Make sure you are in the same region as your Amazon Connect instance. You can set the region by expanding the region selector in the upper right and choosing the region



3. Navigate to the [Secrets Manager console](#)

4. Select **Secrets**

5. Select **Store a new secret**

6. Select **Other types of secrets**

7. Make sure **Secret key/value** is selected

8. Enter key value pairs that match the following:

a. **Key:** Password, **Value:** the password for the API user that you configured in the previous section

b. **Key:** ConsumerKey, **Value:** the Consumer Key for the Connected App you created in the previous section

c. **Key:** ConsumerSecret, **Value:** the Consumer Secret for the Connected App you created in the previous section

d. **Key:** AccessToken, **Value:** this is the access token for the API user that you configured in the previous section

9. For the encryption key, click **Add new key**

10. Select **Create Key**

11. Make sure key type is set to **symmetric**

12. Give your key an **alias**, like *SalesforceCredentialsSecretsManagerKey*

13. Click Next

14. Select administrators you want to have access permission to change the key policy. Make sure you are being as restrictive as possible

15. Click Next

16. Select the users and roles you want to have access to the Salesforce credentials in Secrets Manager. Make sure you are being as restrictive as possible

17. Click Next

18. Click Finish

19. Click on the managed key that you just created (which is *SalesforceCredentialsSecretsManagerKey* in this case).

20. Note down the ARN. This is *SalesforceCredentialsKMSKeyARN* that will be used later when installing the Amazon Connect Salesforce Lambda package.

21. Navigate back to the Secrets Manager setup tab

22. Select the key you just created

**Specify the key/value pairs to be stored in this secret [Info](#)**

**Secret key/value**      **Plaintext**

Password	Password	<b>Remove</b>
ConsumerKey	ConsumerKey	<b>Remove</b>
ConsumerSecret	ConsumerSecret	<b>Remove</b>
AccessToken	AccessToken	<b>Remove</b>

**+ Add row**

**Select the encryption key [Info](#)**

Select the AWS KMS key to use to encrypt your secret information. You can encrypt using the default service encryption key that AWS Secrets Manager creates on your behalf or a customer master key (CMK) that you have stored in AWS KMS.

SalesforceCredentialsSecretsManagerKey	▼	C
<a href="#">Add new key</a>		

**Cancel**      **Next**

23. Click Next

24. Give your secret a name, like *SalesforceCredentials*

25. Click Next

26. Make sure **Disable automatic rotation** is checked.

27. Click Next

28. Click Store

29. Select the secret you just created, and copy the Secret ARN

AWS Secrets Manager > Secrets > SalesforceCredentials

## SalesforceCredentials

Secret details	Actions ▾
Encryption key SalesforceCredentialsSecretsManagerKey	
Secret name SalesforceCredentials	
Secret ARN	
Secret description -	

30. You should now have all of the information you need to install the package

## Install the Amazon Connect Salesforce Lambda package

1. In a new browser tab, login to the [AWS console](#)

2. Make sure you are in the same region as your Amazon Connect instance

3. Once you have selected the region, navigate to the [Amazon Connect Console](#)

4. Verify that the Amazon Connect instance that you wish to configure is listed

5. Once you have verified your Amazon Connect instance, Open the [Serverless Application Repository Console](#)

6. In the left navigation, select **Available Applications**

# Serverless Application Repository

X

## Available applications

## Published applications

7. In the search area, make sure that **Public applications** is selected, check the box for **Show apps that create custom IAM roles or resource policies**, and enter **Salesforce** in the search field, this will automatically filter the available packages

The screenshot shows the 'Available applications' section of the Serverless Application Repository. At the top, there are two tabs: 'Public applications (4)' (which is selected) and 'Private applications'. Below the tabs is a search bar containing the text 'Salesforce'. Underneath the search bar is a checked checkbox labeled 'Show apps that create custom IAM roles or resource policies'. The main area displays a list of applications, with the first item being 'AmazonConnectSalesForceLambda', which is highlighted with a red box.

8. Select AmazonConnectSalesForceLambda

The screenshot shows the details page for the 'AmazonConnectSalesForceLambda' application. The top navigation bar includes 'Available applications', 'Public applications (4)', and 'Private applications'. The search bar still contains 'Salesforce'. The application card for 'AmazonConnectSalesForceLambda' is shown with its title, a note about creating custom IAM roles or resource policies, a description of its functionality, and its tags: Integration, Connect, Amazon, Salesforce. The 'alexa-salesforce-notes-sample' application is also visible on the right side of the screen.

9. When the Application loads, scroll down to the **Application settings** section

10. Fill in the parameters using the data you gathered in your notepad in the previous section using the following notes:

- a. **Application name:** You can accept the default here or change it as desired

- b. **CTRKinesisARN:** This is the ARN for the Kinesis stream that was configured for Contact Trace Record streaming in Amazon Connect. This is the complete ARN. Amazon Kinesis Firehose is not supported.
- c. **ConnectRecordingS3BucketName:** This is the name of the S3 bucket used to store recordings for your Amazon Connect instance. This is ONLY the bucket name, no sub-folders or suffixes
- d. **ConnectReportingS3BucketName:** This is the name of the S3 bucket used to store exported reports for your Amazon Connect instance. This is ONLY the bucket name, no sub-folders or suffixes
- e. **HistoricalReportingImportEnabled:** true | false - if set to true, the package will include a feature to import Amazon Connect Queue and Agent Historical Metrics into your Salesforce Org. This feature requires you to provide **ConnectReportingS3BucketName**
- f. **LambdaLoggingLevel:** DEBUG | INFO | WARNING | ERROR | CRITICAL - Logging level for Lambda functions
- g. **PrivateVpcEnabled:** Set to true if functions should be deployed to a private VPC. Set VpcSecurityGroupList and VpcSubnetList if this is set to true.
- h. **RealtimeReportingImportEnabled:** true | false - if set to true, the package will include a feature to publish Amazon Connect Queue Metrics into your Salesforce Org. This feature requires you to provide **AmazonConnectInstanceId**
- i. **SalesforceAdapterNamespace:** This is the namespace for CTI Adapter managed package. The default value is **amazonconnect**. If a non-managed package is used, leave this field blank.
- j. **SalesforceCredentialsKMSKeyARN:** This is the ARN for KMS customer managed key that you created in the previous section.
- k. **SalesforceCredentialsSecretsManagerARN:** This is the ARN for the Secrets Manager Secret that you created in the previous section.
- l. **SalesforceHost:** The full domain for your salesforce org. For example `https://mydevorg-dev-ed.my.salesforce.com`. Please make sure that the host starts with `https`, and that the url ends with `.my.salesforce.com`. This url can be found in `Setup` -> `My Domain`.
- m. **SalesforceProduction:** true | false - True for Production Environment, False for Sandbox
- n. **SalesforceUsername:** The username for the API user that you configured in the previous section. Salesforce usernames are in the form of an email address.
- o. **SalesforceVersion:** This is the Salesforce.com API version that you noted in the previous section. The pattern of this value is `vXX.X`.

- p. **VpcSecurityGroupList:** The list of SecurityGroupIds for Virtual Private Cloud (VPC). Not required if PrivateVpcEnabled is set to false.
- q. **VpcSubnetList:** The list of Subnets for the Virtual Private Cloud (VPC). Not required if PrivateVpcEnabled is set to false.
- r. **AmazonConnectInstanceId:** Your Amazon Connect Instance Id. Only required if you enable real time reporting
- s. **AmazonConnectQueueMaxRecords:** Enter record set size for list queue query. Max is 100.
- t. **ContactLensImportEnabled:** true | false - Set to false if importing Contact Lens into Salesforce should not be enabled.
- u. **CTREventSourceMappingMaximumRetryAttempts:** Maximum retry attempts on failure for lambdas triggered by Kinesis Events.
- v. **AmazonConnectQueueMetricsMaxRecords:** Enter record set size for queue metrics query. Max is 100.
- w. **PostcallCTRImportEnabled:** true | false - Set to false if importing CTRs into Salesforce should not be enabled on the package level. This setting can be disabled on a call-by-call basis.
- x. **PostcallRecordingImportEnabled:** true | false - Set to false if importing call recordings into Salesforce should not be enabled on the package level. This setting can be disabled on a call-by-call basis.
- y. **PostcallTranscribeEnabled:** true | false - Set to false if post-call transcription should not be enabled on the package level. This setting can be disabled on a call-by-call basis.
- z. **TranscribeOutputS3BucketName:** This is the S3 bucket where Amazon Transcribe stores the output. Typically, this is the same bucket that call recordings are stored in, so you can use the same value as found in **ConnectRecordingS3BucketName**. Not required if PostcallRecordingImportEnabled, PostcallTranscribeEnabled, ContactLensImportEnabled set to false.

11. Once you have completed the form, select **Deploy**

12. Deployment will take some time, with status updates being provided by the UI. Once it has completely deployed, you will receive a notification on the screen

## Deployment status for serverlessrepo-SFConsolidatedLambdaPackage

[Create a new app](#)[Test app](#)

Your application has been deployed

Review the application's README for what to do next.

[Permissions](#)[Resources](#)[View CloudFormation Stack](#)

## Test the Core Functionality

The package provides a core Lambda function (`sflInvokeAPI`) that supports multiple operations, like lookup, create and update. For the initial validation, sample events are provided within the function. Validating this function provides a good check that the installation and configuration is correct.

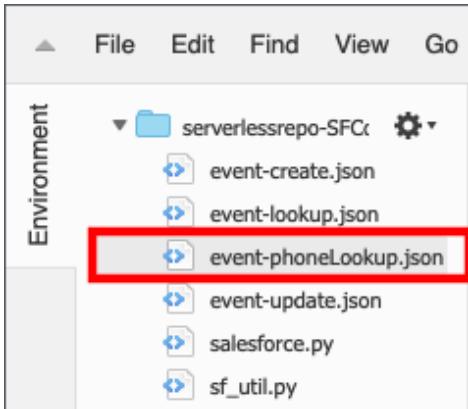
Validating the lambda functions requires the use of test events to simulate data coming into the function as it would in a typical deployment. Each function has a set of test event samples included to make validation easier.

### Validate the core functionality

1. In a new browser tab, login to the [AWS console](#)
2. Open the [AWS Lambda Console](#)
3. In the Filter field, enter `sflInvokeAPI` and press enter, this will filter your list out to the core function that we just installed

Functions (77)			
<input type="button" value="C"/> Actions ▾			
<input type="button" value="Add filter"/> <input type="text"/> Keyword : <code>sflInvokeAPI</code> <input type="button" value="X"/>			
Function name	Description	Runtime	Code size
<input type="radio"/> <a href="#">serverlessrepo-SFConsolidatedLambdaPac-sflInvokeAPI-5504EV6KL9E8</a>		Python 3.7	32.1 kB

4. Select the **function name**. First, we will validate a phone number lookup.
5. In the Environment pane, double-click the `event-phoneLookup.json` file



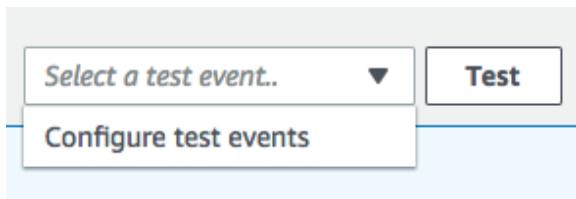
6. The test even JSON will open in the Lambda editor

7. Modify the value for sf\_phone to match the phone number of the test contact you created when you setup the CTI adapter or for any valid contact in your Salesforce org\ NOTE: The phone number must be in [E.164 format](#)

```
1 {
2     "Details": {
3         "Parameters": {
4             "sf_operation" : "phoneLookup",
5             "sf_phone": "+14155551212",
6             "sf_fields": "Id, Name, Email"
7         }
8     }
9 }
```

8. Select the entire JSON event and copy it, then close the **event-phoneLookup.json** tab.

9. In the top-right corner, select drop-down arrow next to **Test** and choose **Configure test events**



10. Select the radio button for **Create new test event** and provide an event name, for example:  
**phoneLookup**

11. Select the existing event JSON and **delete** it. Paste the modified JSON payload you copied from the **event-phoneLookup.json** file

## Configure test event

X

A function can have up to 10 test events. The events are persisted so you can switch to another computer or web browser and test your function with the same events.

- Create new test event
- Edit saved test events

### Event template

Hello World



### Event name

phoneLookup

```
1 [{}]
2 "Details": {
3     "Parameters": {
4         "sf_operation": "phoneLookup",
5         "sf_phone": "+14155551212",
6         "sf_fields": "Id, Name, Email"
7     }
8 }
9 }
```

12. Select **Create** to save your test event

13. By default, your new test event should be selected in the drop-down list to the left of the Test button.

phoneLookup ▼ Test Save

14. Select **Test**

15. If successful, the result will contain fields defined in "sf\_fields" parameter in the invocation event

### Execution result: succeeded ([logs](#))

#### ▼ Details

The area below shows the result returned by your function execution. [Learn more](#)

```
{{
  "Id": "0036g000007mkZ2AAI",
  "Name": "John Smith",
  "Email": null,
  "sf_count": 1
}}
```

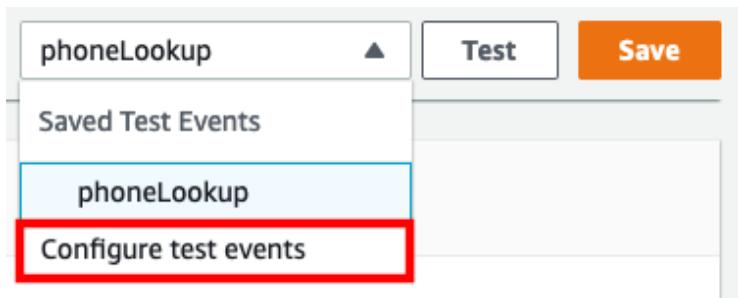
16. Copy the value for the **Id** key in the response. Next, we are going to use that Id to create a Case in Salesforce.

17. In the Environment pane, double-click the **event-create.json** file. Replace the existing ContactId value with the ID value you copied previously.

```
1  {
2      "Details": {
3          "Parameters": {
4              "sf_operation" : "create",
5              "sf_object": "Case",
6              "Origin": "Phone",
7              "Status": "New",
8              "ContactId": "0036g000007mkZ2AAI",
9              "Subject": "Amazon Connect Case",
10             "Priority": "Low"
11         }
12     }
13 }
```

18. Select the entire JSON event and copy it, then close the **event-create.json** tab.

19. In the top-right corner, select drop-down arrow next to **Test** and choose **Configure test events**



20. Select the radio button for **Create new test event** and provide an event name, for example:  
**createCase**

21. Select the existing event JSON and **delete** it. Paste the modified JSON payload you copied from the **event-create.json** file

## Configure test event



A function can have up to 10 test events. The events are persisted so you can switch to another computer or web browser and test your function with the same events.

- Create new test event
- Edit saved test events

### Event template

phoneLookup



### Event name

createCase

```
1  [{}  
2  "Details": {  
3  "Parameters": {  
4  "sf_operation": "create",  
5  "sf_object": "Case",  
6  "Origin": "Phone",  
7  "Status": "New",  
8  "ContactId": "0036g000007mkZ2AAI",  
9  "Subject": "Amazon Connect Case",  
10 "Priority": "Low"  
11 }  
12 }  
13 }
```

22. Select **Create** to save your test event

23. By default, your new test event should be selected in the drop-down list to the left of the Test button.



24. Select **Test**

25. If successful, the result will contain the Case Id

Execution result: succeeded ([logs](#))

▼ Details

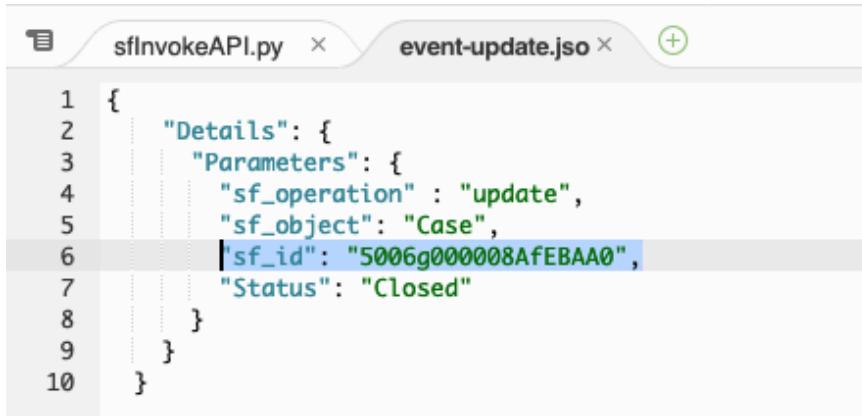
The area below shows the result returned by your function execution. [Learn](#)

```
{  
  "Id": "5006g000008AfEBAA0"  
}
```

26. Copy the value for the **Id** key in the response.

27. When we created the case, the **Status was set to New** and the **Priority to Low**. We are going to use the update operation to close the case.

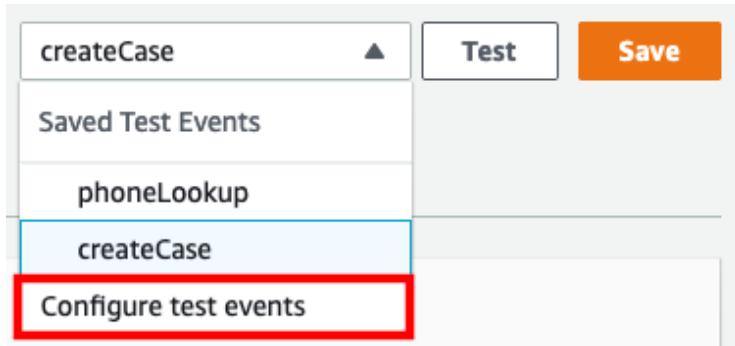
28. In the Environment pane, double-click the **event-update.json** file and replace the existing Case Id in "sf\_id" parameter with the new one you copied from the last test result



```
1 {  
2     "Details": {  
3         "Parameters": {  
4             "sf_operation" : "update",  
5             "sf_object": "Case",  
6             "sf_id": "5006g000008AfEBAA0",  
7             "Status": "Closed"  
8         }  
9     }  
10 }
```

29. Select the **entire JSON event** and copy it, then close the **event-update.json** tab.

30. In the top-right corner, select drop-down arrow next to **Test** and choose **Configure test events**



31. Select the radio button for **Create new test event** and provide an event name, for example:  
**updateCase**

32. Select the existing event JSON and **delete** it. Paste the modified JSON payload you copied from the **event-update.json** file

## Configure test event



A function can have up to 10 test events. The events are persisted so you can switch to another computer or web browser and test your function with the same events.

- Create new test event
- Edit saved test events

### Event template

createCase



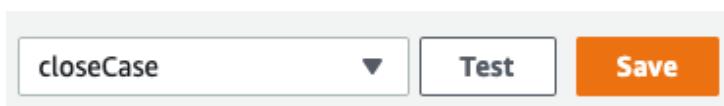
### Event name

closeCase

```
1  [
2    "Details": {
3      "Parameters": {
4        "sf_operation": "update",
5        "sf_object": "Case",
6        "sf_id": "5006g000008AfEBAA0",
7        "Status": "Closed"
8      }
9    }
10 }
```

33. Select **Create** to save your test event

34. By default, your new test event should be selected in the drop-down list to the left of the Test button.



35. Select **Test**

36. If successful, the result will be the **HTTP 204 No Content** success status response code

✓ Execution result: succeeded ([logs](#))

▼ Details

The area below shows the result returned by your function:

```
{  
  "Status": 204  
}
```

37. Log in into your Salesforce org and go to the **Service Console**

38. In the search box, change the object type to Cases and type Amazon Connect Case, then press enter



39. You should find 1 case opened by the API user, and the status should be closed

Cases					
1 Result					
Case Number	Subject	Status	Date/Time Opened	Case Owner Alias	
00001026	Amazon Connect Case	Closed	1/23/2020, 10:13 PM	apiuser	<input type="button" value="View"/>

40. You have completed core function validation

## Allow Amazon Connect to Access the sfInvokeAPI Lambda Function

Once you have validated function, you can use the Amazon Connect console to add the sfInvokeAPI Lambda function to your Amazon Connect instance. This automatically adds resource permissions that allow Amazon Connect to invoke the function.

### Add the Lambda function to your Amazon Connect instance

1. In a new browser tab, login to the [AWS console](#)
2. Navigate to the [Amazon Connect Console](#)
3. Select your **Instance Alias**
4. In the navigation pane, choose **Contact flows**.

[Amazon Connect](#) > sfctifinal022020

The screenshot shows the Amazon Connect navigation pane. The 'Contact flows' link is highlighted with a red box. Other links include Overview, Telephony, Data storage, Data streaming, Application integration, and Contact flows.

- Overview
- Telephony
- Data storage
- Data streaming
- Application integration
- Contact flows**

5. For **AWS Lambda**, select the function that includes sfInvokeAPI in the name

## AWS Lambda

Amazon Connect can interact with your own systems and take different paths in IVR dynamically. To achieve this, invoke AWS Lambda functions in contact flows to interact with your own systems or other services, then build personalized and dynamic experiences based on data returned.

Note: By adding Lambda functions, you are granting Amazon Connect permission to invoke them [Create a new Lambda function](#)

Function serverlessrepo-AmazonConnectSalesforce-sfInvokeAPI-[REDACTED] [+ Add Lambda Function](#)

6. Choose **Add Lambda Function**. Confirm that the ARN of the function is added under **Lambda Functions**.

### Lambda Functions

serverlessrepo-AmazonConnectSalesforce-sfInvokeAPI-[REDACTED]	arn:aws:lambda:us-west-2:[REDACTED]function:serverlessrepo-AmazonConnectSalesforce-sfInvokeAPI-[REDACTED]	<a href="#">Edit</a>	<a href="#">Remove</a>
---	---	----------------------	------------------------

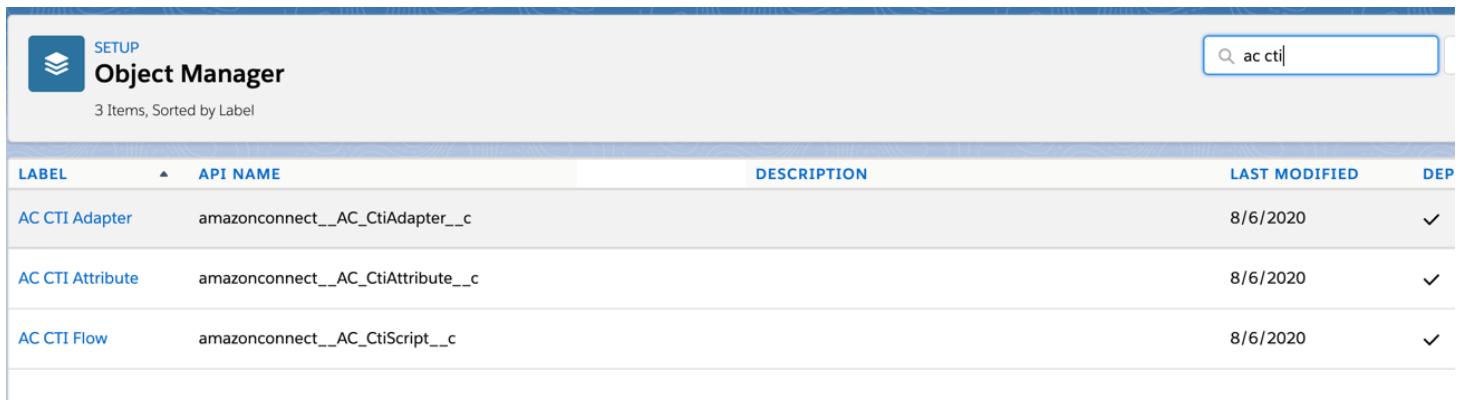
7. The AWS Lambda function has been added to your Amazon Connect instance.

[Edit this page](#)

# Upgrading from an Earlier Version

If you are upgrading from an earlier version of CTI Adapter, there are a few additional things you need to do.

1. Go to the **Setup** section and search for **Object Manager**.
2. In Object Manager section, search for "AC CTI"



The screenshot shows the AWS Lambda Functions page. At the top, there is a dropdown menu set to "serverlessrepo-AmazonConnectSalesforce-sfInvokeAPI-[REDACTED]" and a button "+ Add Lambda Function". Below this, the heading "Lambda Functions" is followed by a table listing one function:

serverlessrepo-AmazonConnectSalesforce-sfInvokeAPI-[REDACTED]	arn:aws:lambda:us-west-2:[REDACTED]function:serverlessrepo-AmazonConnectSalesforce-sfInvokeAPI-[REDACTED]	<a href="#">Edit</a>	<a href="#">Remove</a>
---	---	----------------------	------------------------

3. Open up **AC CTI Adapter**

4. On the left sidebar, click on **Page Layouts**

5. Click on **Page Layout Assignment**

6. On the next page, click on **Edit Assignments**

7. Click on the grey bar at the top of the table to select all rows.

SETUP > OBJECT MANAGER  
AC CTI Adapter

Details

Fields & Relationships

**Page Layouts**

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Search Layouts

Search Layouts for Salesforce

Classic

Triggers

Edit Page Layout Assignment  
**AC CTI Adapter**

The table below shows the page layout assignments for different profiles. Use SHIFT + click or click and drag to select a range of adjacent cells. Use CTRL + click to select multiple cells that are not adjacent. Then choose a new page layout from the drop-down.

Help for this Page

Profiles	Page Layout
Analytics Cloud Integration User	AC CTI Adapter Layout
Analytics Cloud Security User	AC CTI Adapter Layout
Chatter External User	AC CTI Adapter Layout
Chatter Free User	AC CTI Adapter Layout
Chatter Moderator User	AC CTI Adapter Layout
Contract Manager	AC CTI Adapter Layout
Cross Org Data Proxy User	AC CTI Adapter Layout
Custom: Marketing Profile	AC CTI Adapter Layout
Custom: Sales Profile	AC CTI Adapter Layout
Custom: Support Profile	AC CTI Adapter Layout
Force.com - App Subscription User	AC CTI Adapter Layout
Force.com - Free User	AC CTI Adapter Layout
Gold Partner User	AC CTI Adapter Layout
Identity User	AC CTI Adapter Layout
Marketing User	AC CTI Adapter Layout
Minimum Access - Salesforce	AC CTI Adapter Layout
Partner App Subscription User	AC CTI Adapter Layout

Save Cancel

Page Layout To Use: -- Select Page Layout -- 0 Selected 0 Changed

SETUP > OBJECT MANAGER  
AC CTI Adapter

Details

Fields & Relationships

**Page Layouts**

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Search Layouts

Search Layouts for Salesforce

Classic

Triggers

Edit Page Layout Assignment  
**AC CTI Adapter**

The table below shows the page layout assignments for different profiles. Use SHIFT + click or click and drag to select a range of adjacent cells. Use CTRL + click to select multiple cells that are not adjacent. Then choose a new page layout from the drop-down.

Help for this Page

Profiles	Page Layout
Analytics Cloud Integration User	AC CTI Adapter Layout
Analytics Cloud Security User	AC CTI Adapter Layout
Chatter External User	AC CTI Adapter Layout
Chatter Free User	AC CTI Adapter Layout
Chatter Moderator User	AC CTI Adapter Layout
Contract Manager	AC CTI Adapter Layout
Cross Org Data Proxy User	AC CTI Adapter Layout
Custom: Marketing Profile	AC CTI Adapter Layout
Custom: Sales Profile	AC CTI Adapter Layout
Custom: Support Profile	AC CTI Adapter Layout
Force.com - App Subscription User	AC CTI Adapter Layout
Force.com - Free User	AC CTI Adapter Layout

Save Cancel

Page Layout To Use: -- Select Page Layout -- 26 Selected 0 Changed

8. Open the **Page Layout to Use** dropdown and select **AC CTI Adapter Layout -- August 2020**.

9. Click **Save** and go back to **Page Layouts**.

10. Click on the dropdown next to the item labelled **AC CTI Adapter Layout** and click **Delete**.

11. Confirm **Yes** in the next dialogue where you will be asked "Are you sure?"

12. If you see a screen titled **Deletion Problems**, find and click **Delete**.



Deletion problems

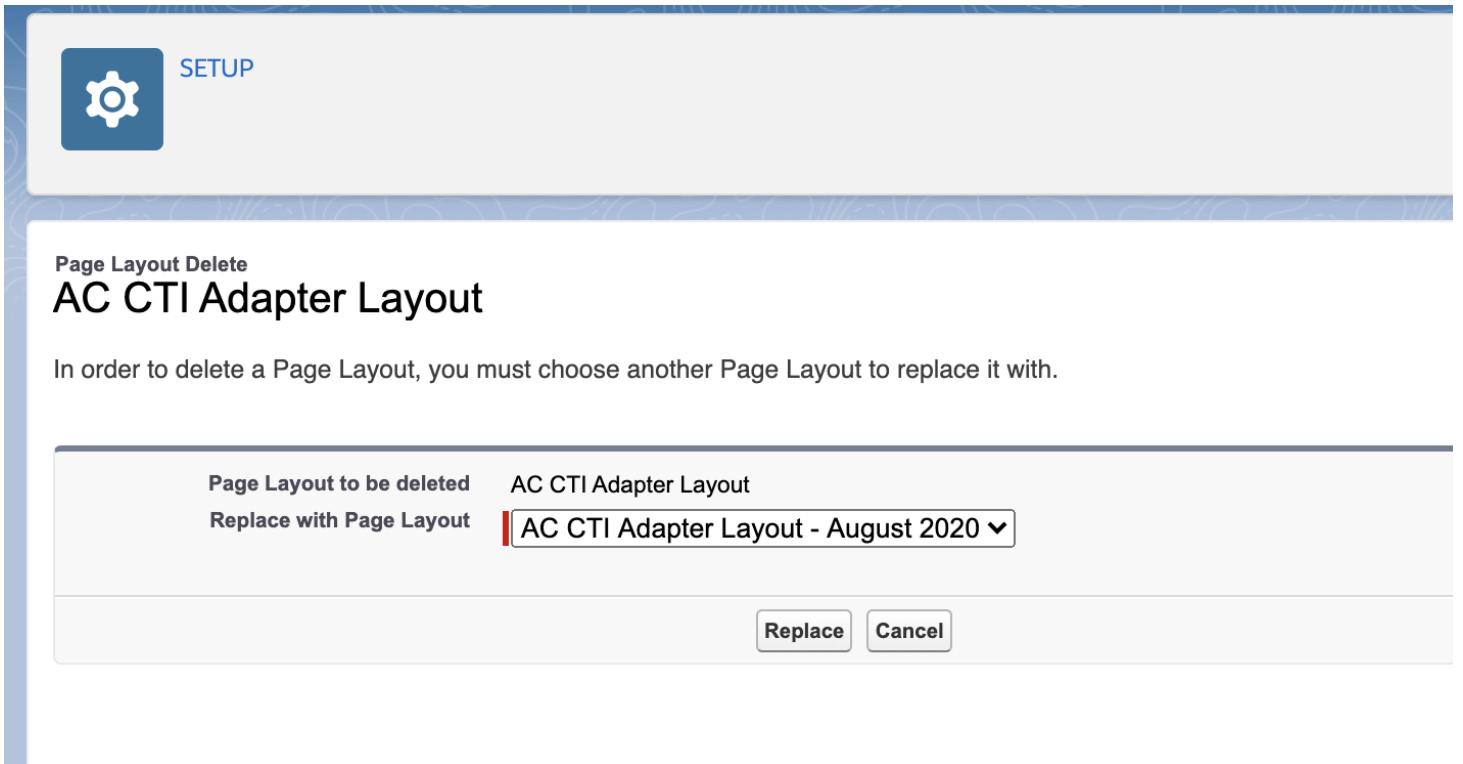
[Back to Previous Page](#)

The attempted delete was invalid for your session. Please refresh your page and try again.

[Delete](#)



13. You will be asked which layout you want to replace it with. Select **AC CTI Adapter Layout -- August 2020** and click **Replace**.



Page Layout Delete  
**AC CTI Adapter Layout**

In order to delete a Page Layout, you must choose another Page Layout to replace it with.

Page Layout to be deleted    AC CTI Adapter Layout  
Replace with Page Layout    **AC CTI Adapter Layout - August 2020**

**Replace** **Cancel**

Now we are going to do the same thing for **AC CTI Script Layout**.

1. Open up **AC CTI Script Layout**
2. On the left sidebar, click on **Page Layouts**
3. Click on **Page Layout Assignment**
4. On the next page, click on **Edit Assignments**
5. Click on the grey bar at the top of the table to select all rows.

Details

Fields &amp; Relationships

**Page Layouts**

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

**Edit Page Layout Assignment**  
**AC CTI Flow**

Help for this Page ?

The table below shows the page layout assignments for different profiles. Use SHIFT + click or click and drag to select a range of adjacent cells. Use CTRL + click to select multiple cells that are not adjacent. Then choose a new page layout from the drop-down.

Save Cancel

Page Layout To Use: -- Select Page Layout -- 0 Selected 0 Changed

**Profiles**

Analytics Cloud Integration User  
Analytics Cloud Security User  
Chatter External User  
Chatter Free User  
Chatter Moderator User  
Contract Manager  
Cross Org Data Proxy User  
Custom: Marketing Profile

**Page Layout**

AC CTI Script Layout  
AC CTI Script Layout



Details

Fields &amp; Relationships

**Page Layouts**

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

**Edit Page Layout Assignment**  
**AC CTI Flow**

Help for this Page ?

The table below shows the page layout assignments for different profiles. Use SHIFT + click or click and drag to select a range of adjacent cells. Use CTRL + click to select multiple cells that are not adjacent. Then choose a new page layout from the drop-down.

Save Cancel

Page Layout To Use: -- Select Page Layout -- 26 Selected 0 Changed

**Profiles**

Analytics Cloud Integration User  
Analytics Cloud Security User  
Chatter External User  
Chatter Free User  
Chatter Moderator User  
Contract Manager  
Cross Org Data Proxy User  
Custom: Marketing Profile

**Page Layout**

AC CTI Script Layout  
AC CTI Script Layout

6. Open the **Page Layout to Use** dropdown and select **AC CTI Flow Layout**.

7. Click **Save** and go back to **Page Layouts**.

8. Click on the dropdown next to the item labelled **AC CTI Script Layout** and click **Delete**.

9. Confirm **Yes** in the next dialogue where you will be asked "Are you sure?"

10. If you see a screen titled **Deletion Problems**, find and click **Delete**.

**Deletion problems**[Back to Previous Page](#)

The attempted delete was invalid for your session. Please refresh your page and try again.

[Delete](#)

11. You will be asked which layout you want to replace it with. Select **AC CTI Flow Layout** and click **Replace**.



SETUP

Page Layout Delete

## AC CTI Script Layout

In order to delete a Page Layout, you must choose another Page Layout to replace it with.

Page Layout to be deleted	AC CTI Script Layout
Replace with Page Layout	<input type="button" value="AC CTI Flow Layout ▾"/>
<input type="button" value="Replace"/> <input type="button" value="Cancel"/>	

12. Go to your **CTI Adapter**.

13. Click on any of the CTI Flows and scroll down to the section labeled **CTI Flow**. You should see something like this:

### Invalid Script

Please note that starting from version 4.6, your scripts will need to be migrated to our new CTI Flows.

You can download your current script below



When you are ready to try out the CTI Flow editor, click Continue.

14. Click **Download** and save your script before clicking **Continue**.

15. Use the CTI Block primitives in the editor to re-create your script as a CTI Flow.

16. Refer to the Sample Flows in the Appendix of this manual.

# CTI Adapter Installation Troubleshooting and Common Issues

## I upgraded my adapter to v5.10, but I cannot see the CCP Config changes

There is a bug with Salesforce that doesn't update a page layout when you upgrade a package. To fix this, go to Setup and search for **Object Manager**. Once you're on the Object Manager page, search for the **AC CTI Adapter** object and click on it. Then go into **Page Layouts** and click on the layout you are using (Typically **AC CTI Adapter Layout – August 2020**). Then, drag and drop the **Audio Device Settings** and **Page Layout Settings** into the desired spot on the page. Finally, hit save.

The screenshot shows the Salesforce Object Manager interface for the 'AC CTI Adapter' object. The left sidebar has a 'Page Layouts' tab selected. The main area shows the 'AC CTI Adapter Detail' page with various configuration fields. A red box highlights the 'Phone Type Settings' field in the 'AC CTI Adapter Detail' section. Another red box highlights the 'Audio Device Settings' section at the bottom of the page.

## Error "refused to run the JavaScript URL because it violates the following Content Security Policy directive..."

This is an allowlisting issue, please review the installation and ensure that both URLs are properly allowlisted.

## Error "refused to frame" Visualforce page

The screenshot shows a browser developer tools console with two error messages. The top message is a 'Refused to frame' error: 'Refused to frame 'https://[REDACTED]amazonconnect.[REDACTED].visual.force.com/' because an ancestor violates the following Content Security Policy directive: 'frame-ancestors 'self''. The bottom message is a 'DevTools failed to load SourceMap' error: 'DevTools failed to load SourceMap: Could not load content for https://c.la1-c1.cs-ord.salesforcedeliveagent.com/content/dev/resources/js/scrt.min.js.map: HTTP'.

This can happen if the customer has checked “Enable clickjack protection” on Salesforce session settings. The solution is to uncheck that.

The screenshot shows the Salesforce Setup interface with the 'Session Settings' page selected. In the 'Clickjack Protection' section, there are four checkboxes:

- Enable clickjack protection for Setup pages
- Enable clickjack protection for non-Salesforce pages (highlighted with a red box and a red arrow)
- Enable clickjack protection for customer Visualforce pages with standard headers
- Enable clickjack protection for customer Visualforce pages with headers disabled

A tooltip for the second checkbox states: "Protect against clickjack attacks and allow framing on whitelisted external domains".

## What are the Disable X Trigger options in the Custom Settings?

The screenshot shows the 'Edit Toolkit for Amazon Connect' page. Under the 'Toolkit for Amazon Connect Information' section, there is a 'Location' header and a list of four triggers with checkboxes:

- Disable the CCA Case Trigger** (checkbox is checked)
- Disable the CCA Contact Trigger** (checkbox is checked)
- Disable the Case Contact CCA Trigger** (checkbox is checked)
- Disable the Task Trigger** (checkbox is checked)

Below the list is a 'Url' input field with a placeholder URL.

These are options we provide that allow you to toggle certain functionality in the adapter.

- CCA Case Trigger - This trigger looks for any ContactChannelAnalytics records that could be related to a updated/inserted Case, and creates a relationship between the two records. This trigger uses batching to process the update requests.
- CCA Contact Trigger - This trigger looks for any ContactChannelAnalytics records that could be related to a updated/inserted Contact, and creates a relationship between the two records. This trigger uses batching to process the update requests.

- Case Contact CCA Trigger - This trigger looks for any Case/Contact records that could be related to an updated/inserted ContactChannelAnalytics record, and creates a relationship between the records.
- Task Trigger - This trigger creates a ContactChannel record for any inserted/updated task that with a `CallObject` field that does not currently have a ContactChannel record created before.

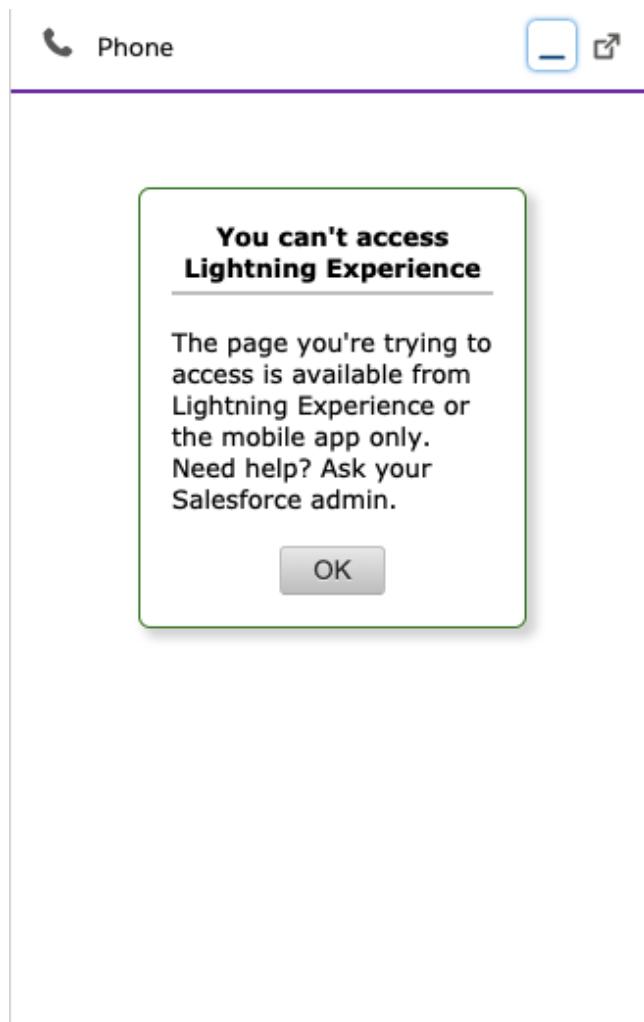
**I upgraded my adapter to v5, but I don't see the CTI Flows feature.**

See the [Upgrading from an Earlier Version](#) section of the installation guide.

**I upgraded my adapter from v3 to v5 and we lost some screenpop functionality.**

All screenpop functionality native to v3 now needs to be recreated using CTI Flows. Please review the [CTI Flow Examples](#) for more details, all screenpop functionality from v3 has been recreated.

**The CCP doesn't show up in service console and I instead see the following image:**



Copy the full url of the lightning adapter visualforce page into the call center.

**Certain picklists are missing picklist items.**

When upgrading from a version of the package to a higher version of the package in which new picklist items were added to a picklist, those new picklist items won't be installed. This is a [known Salesforce issue](#).

**How to remove permissions to Visualforce pages, Apex classes for a desired profile**

1. Navigate to **Setup** and search for "Profiles".

2. Select the desired profile.

3. Select either **Visualforce Page Access** or **Apex Class Access**.

The screenshot shows the Salesforce Setup interface. In the top navigation bar, 'Setup' is selected. Below it, there's a search bar with 'profiles' typed in. On the left, a sidebar has 'Users' expanded, with 'Profiles' listed under it. A message says 'Didn't find what you're looking for? Try using Global Search.' The main content area is titled 'SETUP Profiles'. It shows two permission sets: 'Apex Class Access' (Permissions to execute Apex classes) and 'Visualforce Page Access' (Permissions to execute Visualforce pages).

4. Select **Edit** and remove any desired permissions. All permissions can be removed because permissions are managed through permission sets, not through profiles.

[Edit this page](#)

# CTI Adapter Details

The CTI Adapter configuration begins with the adapter details. These fields provide the basic information needed to relate the Adapter to the call center configuration in Salesforce and, ultimately, to the agents and supervisors that will be using the platform.

This screenshot shows the 'Details' tab of the CTI Adapter configuration. It lists various settings:

Setting	Value
CTI Adapter Name	ACLightningAdapter
Amazon Connect Instance	<a href="https://sfadAPTERtest.awsapps.com/">https://sfadAPTERtest.awsapps.com/</a>
Custom Ringtone	(empty)
Softphone Popout Enabled	<input checked="" type="checkbox"/>
Medialess	<input type="checkbox"/>
Audio Device Settings	<input type="checkbox"/>
Owner	[Redacted]
Amazon Connect Instance Region	us-east-1
Call Center Definition Name	ACLightningAdapter
Debug Level	Off
Presence Sync Enabled	<input checked="" type="checkbox"/>
Phone Type Settings	<input checked="" type="checkbox"/>

At the bottom, there's a section for 'Single SignOn (SSO)'.

## Update the CTI Adapter Details

1. **CTI Adapter Name:** provide a unique name for this CTI adapter definition

2. **Amazon Connect Instance:** This was configured in a previous section. This is the instance url for your Amazon Connect instance.

3. **Amazon Connect Instance Region:** This is the code for the region that you have deployed your Amazon Connect instance to. This is required for the Amazon Connect chat APIs to work correctly. If you do not use the chat feature of Amazon Connect, this field is not necessary

4. **Custom Ringtone:** This allows for overriding the built-in ringtone with any browser-supported audio file accessible by the user.

**5. Call Center Definition Name:** This was configured in a previous section. This is the internal name of the Call Center configured in Salesforce setup. This value links the CTI Adapter to the Call Center, and ultimately to the agents.

**6. Softphone Popout Enabled:** Salesforce supports softphone pop out in Console and Lightning Experience modes. When the softphone is popped out, it opens in a new browser window external to the Salesforce UI. This is helpful in use cases where the call controls are regularly needed but the agent also needs full access to the entire console.

**7. Debug Level:** For future use

**8. Medialess:** Amazon Connect supports running in VDI environments, however best practice is to send the actual audio stream via a separate CCP. Selecting the medialess option will configure the Salesforce CCP to run in medialess mode, which provides the data that Salesforce needs for screenpop while the audio is streamed to a local CCP.

**9. Presence Sync Enabled:** This setting allows the adapter to use the presence rules to sync state from Amazon Connect to Salesforce Omni-Channel.

**10. Audio Device Settings** Turning this setting on allows the Agent to setup a custom audio device for their speaker, microphone and ringer in the adapter (Speaker and Ringer settings not available on Firefox). You may have to add this field to the layout manually. [See troubleshooting](#).

**11. Phone Type Settings** Turning this setting on allows the Agent to change their Phone Type in the CCP. You may have to add this field to the layout manually. [See troubleshooting](#).

## Medialess Popout CCP

To enable a popout CCP for agents to use, you need to enable it using [Features](#).

1. Open the CTI Adapter that you have medialess enabled on.
2. In the bottom tabs, select the [Features](#) section and click [New](#).
3. Set the [AC Feature Name](#) to be **EnableMedialessPopout**
4. Set the [Value](#) to be **Enabled:true**
5. Ensure that the [Active](#) checkbox is checked, then hit Save.
6. Now refresh your page, and you should see the a popup created, which you can use to handle media.

## Single Sign On Settings

The Amazon Connect CTI Adapter supports single sign on(SSO) via SAML integration. This allows customers that use a SAML provider for authentication into Amazon Connect. You will need the SSO URL for your provider and the Relay State settings for your Amazon Connect instance.

For general information on configuring SAML for Amazon Connect, please refer to: [Amazon Connect Administrator Guide: Configure SAML for Identity Management in Amazon Connect](#).

If you wish to use **Salesforce** as your identity provider for Single Sign On, please follow the setup instructions in [Appendix B - Configuring Salesforce as Your Identity Provider](#).

For information about configuring specific SAML providers to work with Amazon Connect:

- [AWS Single Sign-On](#)
- [Okta](#)

Once you have your SAML integration working with Amazon Connect, you will need to create the Amazon Connect Single Sign On URL and validate that it works correctly, then configure the Lightning CTI adapter and login the agent.

**Note:** With the new Amazon Connect instance urls (`*.my.connect.aws`) you must put the full URL into the `Amazon Connect Instance` field in the AC CTI Adapter record for SSO to work.  
Ex: using `https://myinstance.my.connect.aws` instead of `my instance`.

## Identify the SSO URL components

In order to authenticate with Amazon Connect, you need your IdP login URL from your SAML provider and a relay state URL that will redirect the authenticated user to your Amazon Connect instance.

Your IdP Login URL will resemble the following (Salesforce is shown):

```
https://m*****run-dev-ed.my.salesforce.com/idp/login?app=0sp0N000000Caid
```

The 'RelayState' will be in the following format:

```
https://console.aws.amazon.com/connect/federate/[object Object]?
destination=%2Fconnect%2Fccp
```

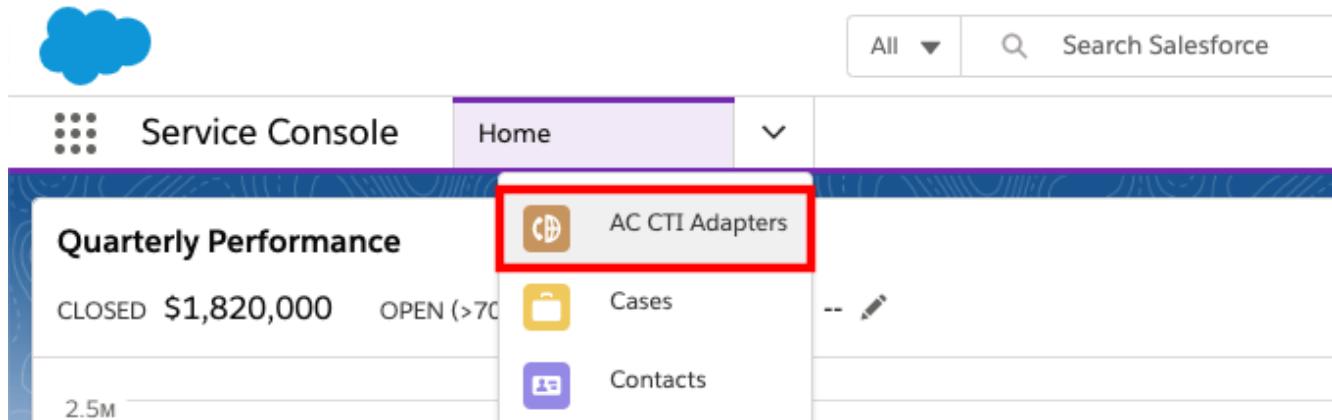
Please note that "console.aws.amazon.com" refers to US-East-1 region (N. Virginia). If your Amazon Connect instance is in a different region, please use the region Console URL. For example:

```
https://us-west-2.console.aws.amazon.com/connect/federate/[object Object]?
destination=%2Fconnect%2Fccp
```

## Configure the CTI Lightning Adapter in Salesforce

Now we are ready to complete the last step in the configuration process: Adding the SSO settings to the Lightning Adapter. This will configure the adapter to authenticate via SSO and redirect to the Amazon Connect Contact Control Panel once authentication completes.

1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose **AC CTI Adapters**.



3. Select **ACLightningAdapter**

4. Scroll down to the Single SignOn (SSO) section and choose the pencil icon of either field to edit

A screenshot of the AC Lightning Adapter configuration page. It shows a section titled 'Single SignOn (SSO)' with two fields: 'SSO Url' and 'SSO Relay State'. Each field has a small edit icon (pencil) to its right. A red box highlights the edit icon for the 'SSO Relay State' field.

5. For the SSO Url, paste your IdP login URL up to the first question mark (if one exists). A couple of examples are provided: Salesforce:

```
https://m*****run-dev-ed.my.salesforce.com/idp/login?app=0sp0N00000Caid
```

Microsoft ADFS:

```
https://sts.yourcorp.com/adfs/ls/idpinitiatedsignon.aspx
```

6. Paste this portion of the URL into the **SSO Url** field

A screenshot of the AC Lightning Adapter configuration page. It shows the 'Single SignOn (SSO)' section with the 'SSO Url' field containing the URL 'https://sample-dev-ed.my.salesforce.com/idp/login'. The entire 'SSO Url' input field is highlighted with a yellow background.

7. For the SSO Relay State: IF you had a question mark in your login URL, paste everything AFTER the question mark into the SSO Relay state field, then add &RelayState= to the end, and append your relay state URL. For example:

```
app=0sp0N00000Caid&RelayState=https://console.aws.amazon.com/connect/federate/[object Object]?destination=%2Fconnect%2Fccp
```

IF you did not have a Question Mark, then enter &RelayState= into the SSO Relay State field and append your relay status URL to it. For example:

```
&RelayState=https://console.aws.amazon.com/connect/federate/[object Object]?destination=%2Fconnect%2Fccp
```

8. Example of a completed SSO section (Salesforce is shown)

#### ▼ Single SignOn (SSO)

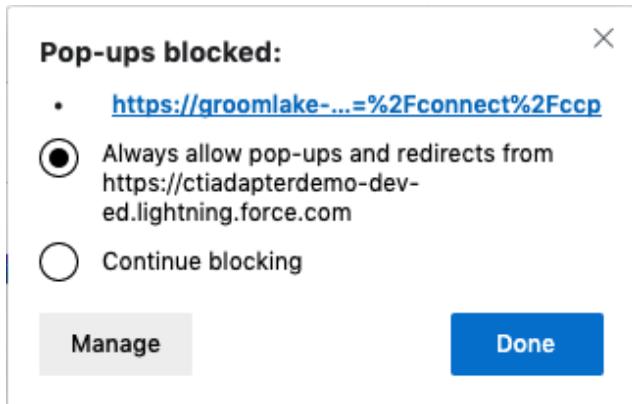
SSO Url

SSO Relay State

9. Choose **Save**

10. **Refresh** your browser to make the changes take effect

a. **NOTE:** If you receive a blocked popup warning, select the warning and change the setting to always allow popups from your Salesforce org, then refresh the browser again



11. After a few seconds, a new window should pop up for a moment. This window is performing the authentication and setting your session cookie. Once it does this, it will close automatically.



Change status ▾



Initializing...

12. Once the authentication window closes, select the **phone icon** in the console toolbar to open the CCP  
Note: You may also receive popups to allow notifications and microphone access. Please accept both.
13. You should now see the authenticated and logged in CCP

ACLightningAdapter | Sale

AdapterTest Burner Accounts -...

Service Console AC CTI Adapters

Recently Viewed

1 item · Updated 4 minutes ago

Search this list...

Amazon Connect

Offline

Welcome Jason

Quick connects

Number pad

Amazon Connect History

14. SSO Configuration is complete

Edit this page

# CTI Attributes

CTI Attributes provide the ability to reference and display contact attribute data within the Amazon Connect Contact Control Panel (CCP). This allows for easy access to data or URLs that may be necessary for agents to perform tasks external to Salesforce. Adding attributes does not import data directly into Salesforce. Instead, it is simply available in the CCP for the life of the contact.

## Attribute Properties

When configuring CTI attributes, you will need to complete the configuration with the following information:

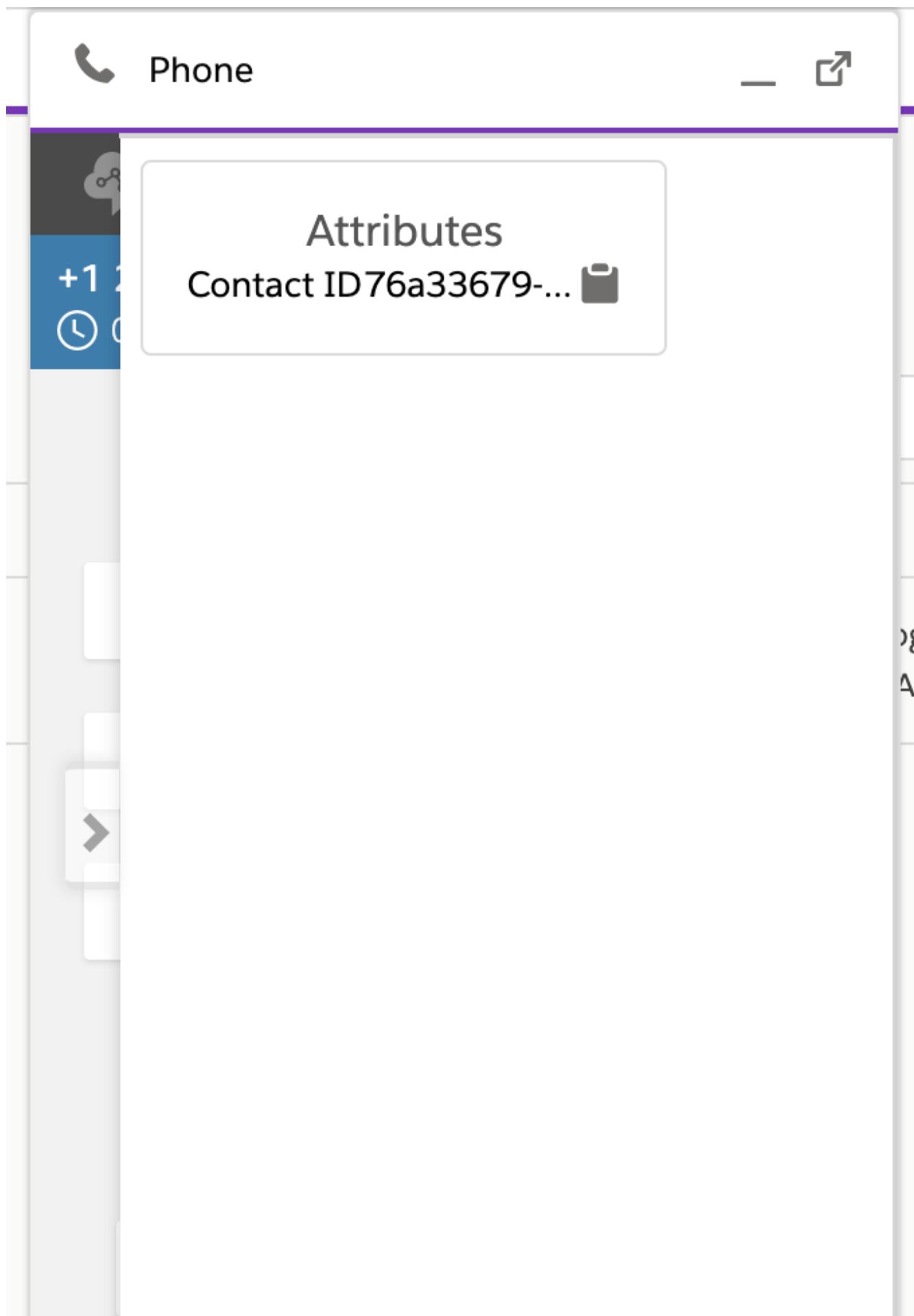
- **CTI Attribute Name:** the user-friendly name that will identify this attribute configuration. This is not the name or key of the attribute itself.

Note: in v5.16 there is a bug where this has to be the same as the contact attribute name/key.

- **Label:** will be displayed in the CCP as the label for the attribute value.
- **Display:** indicates how this attribute should be displayed. Options are:
  - --None--: this attribute will not be displayed, however it will be available for use. Typically, this is used to define attributes that will be used in URLs.
  - Key-Value: the attribute label and value will both be displayed as a key-value pair
  - Key: only the label is displayed. This can be used to create sections in the attribute list. For example, you could have an "Address" label followed by individual attributes for street, city, state, country, postal code, etc
  - Value: only the value is displayed. This can be used when displaying several values under one section or when displaying a URL that needs no label.
- **Type:** indicates if this is a text or URL attribute
- **Style:** allows you to specify a CSS style rule for the display of this attribute. The style will apply to both the label and the value.
- **Format:** the format allows you to define which contact attributes will be used in the value of this CTI attribute. Contact attributes are referenced by their key name enclosed in double curly braces. For example, an Amazon Connect contact attribute of accountId would be referenced as `accountId`.
- **Active (checkbox):** indicates if this CTI attribute is active

- **Default Value:** value to be displayed if the contact attribute referenced is not found

Once you set the CTI attributes, you access them by choosing the appropriate icon during a connected contact



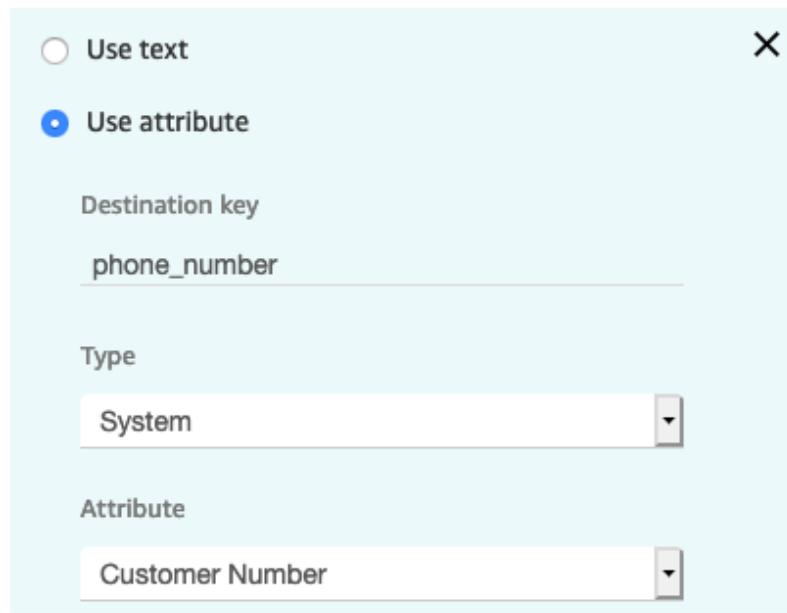
[!\[\]\(b0f02414bca6ed451f9b4dcc5967adaa\_img.jpg\) Phone](#)[!\[\]\(7f114da54f6713a69070026b242ac2c7\_img.jpg\) History](#)[!\[\]\(89a0a73970388b7142fbb1d692ce89fc\_img.jpg\) Notes](#)[!\[\]\(b0dfda2ca0ce5fa5d2ed64c73c99521d\_img.jpg\) Macros](#)

## CTI Attributes Example Walkthrough

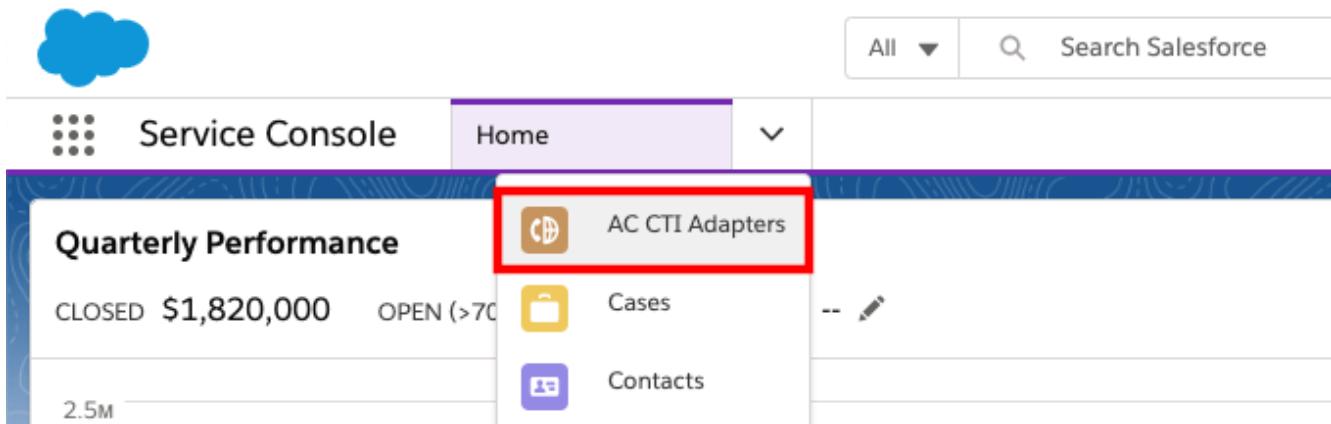
Since there are endless use cases for CTI attributes, this guide will walk through a couple examples that show you how both text and hyperlink based attributes are configured, presented, and used. These examples are not intended to remain in your configuration and are instead designed to provide you with the experience of configuring a functional attribute.

### Adding a Text-based CTI Attribute

In this example, we will walk through creating a new CTI Attribute based on a contact attribute named "phone\_number" and add it to the CCP. In our scenario, the contact flow has set this attribute using input from the customer to indicate their phone number of record. In order for this example to work, your contact flow must also set a contact attribute named "phone\_number"



1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose **AC CTI Adapters**.



3. Select **ACLightningAdapter**

4. Scroll down to the **Attributes** section and select New

Attributes (0)  
0 items · Sorted by CTI Attribute Name · Updated a few seconds ago

New

5. Provide a **CTI Attribute Name** value, for example: customer\_phone

6. Provide the **Label** name, for example: Callback Phone

7. Select the **Display** option, in this case: Key-Value

8. Select Text as the **Type**

9. For **Style**, enter the following: color: red

10. In the **Format** field, enter `phone_number` to reference the incoming contact attribute

11. Set **Default Value** to unk

12. Choose Save

CTI Adapter

ACLightningAdapter

\* CTI Attribute Name

customer\_phone

\* Label

Callback Phone

\* Display

Key-Value

\* Type

Text

Style

color: red

\* Format

{phone\_number}

Active



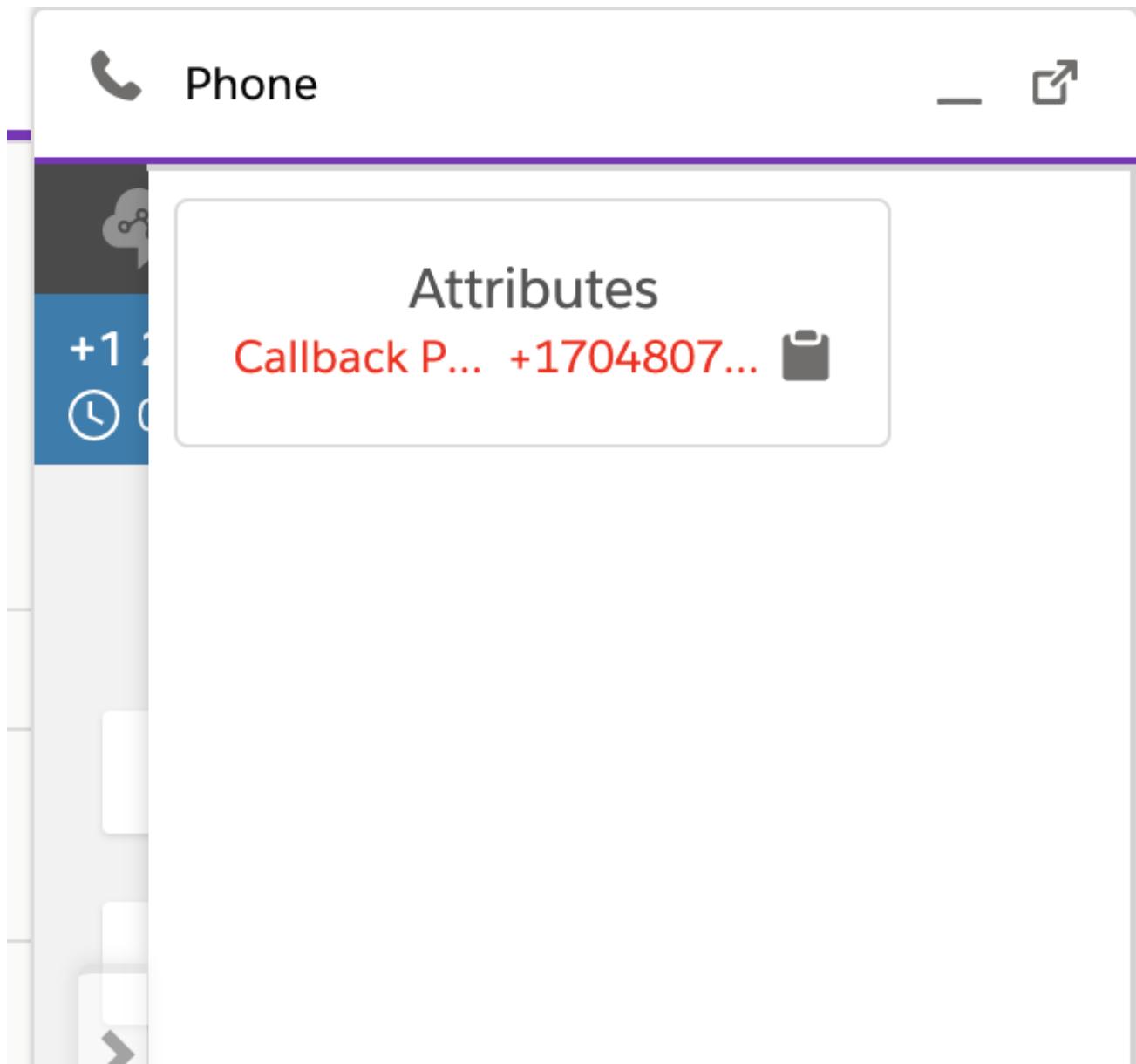
Default Value

unk

13. Refresh your browser

14. Place a new call into your Amazon Connect instance and accept the call as an agent

15. Once the call is connected, select the text attribute icon to expand the CTI Attributes



16. Note the Style formatting. Also note that you can quickly copy the content of the attribute by selecting the clipboard icon.

17. Disconnect the contact.

### **Adding a Hyperlink-based CTI Attribute**

In this example, we will walk through creating a new hyperlink CTI Attribute that incorporates a contact attribute named "postal\_code" and add it to the CCP. In our scenario, the contact flow has set this attribute using a data query into Salesforce. In order for this example to work, your contact flow must also set a contact attribute named "postal\_code"

Use text

Use attribute

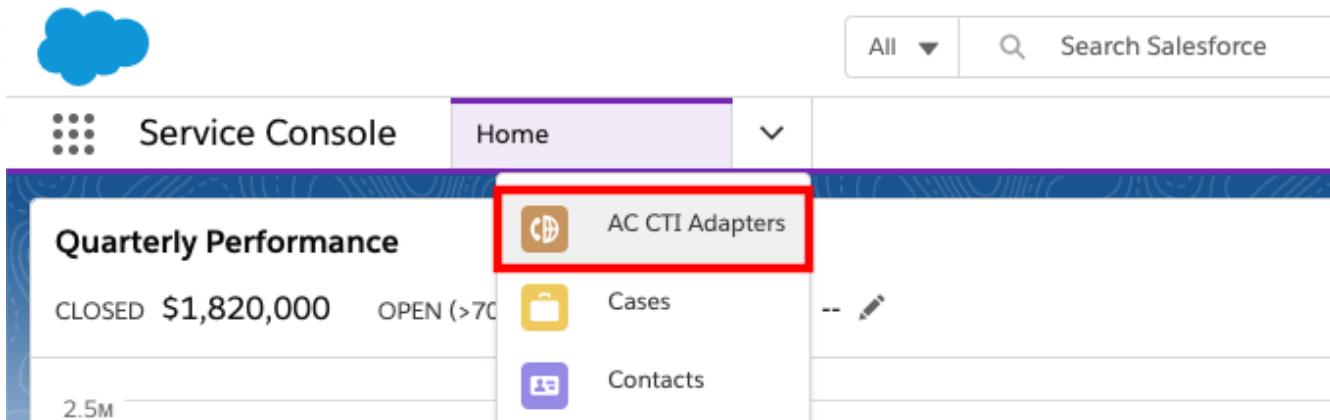
Destination key  
postal\_code

Type  
External

Attribute  
postCode

1. Log in into your Salesforce org and go to the **Service Console**

2. Expand the **navigation menu** by selecting the down arrow and choose **AC CTI Adapters**.



3. Select **ACLightningAdapter**

4. Scroll down to the **Attributes** section and select New

The screenshot shows the 'Attributes' section of the AC CTI Adapters page. It has a header 'Attributes (0)' and a note '0 items · Sorted by CTI Attribute Name · Updated a few seconds ago'. At the bottom right is a 'New' button, which is highlighted with a red box.

5. Provide a **CTI Attribute Name** value, for example: postal\_code

6. Provide the **Label** name, for example: MapIt

7. Select the **Display** option, in this case: Key-Value

8. Select Hyperlink as the **Type**

9. Leave **Style** blank

10. In the **Format** field, enter

[https://www.google.com/maps/search/\[object Object\]](https://www.google.com/maps/search/[object Object])

to append the incoming contact attribute to the URL

11. Set **Default Value** to unk

12. Choose Save

**Cross-origin resource sharing (CORS)**

The CORS configuration, written in JSON, defines a way for client web applications that are loaded in one domain to interact with resources in a different domain. [Learn more](#)

[Edit](#) [Copy](#)

```
[  
 {  
   "AllowedHeaders": [  
     "Access-Control-Allow-Origin"  
   ],  
   "AllowedMethods": [  
     "GET"  
   ],  
   "AllowedOrigins": [  
     "https://[REDACTED].visualforce.com",  
     "https://[REDACTED].lightning.force.com"  
   ],  
   "ExposeHeaders": []  
 }]  
 //
```

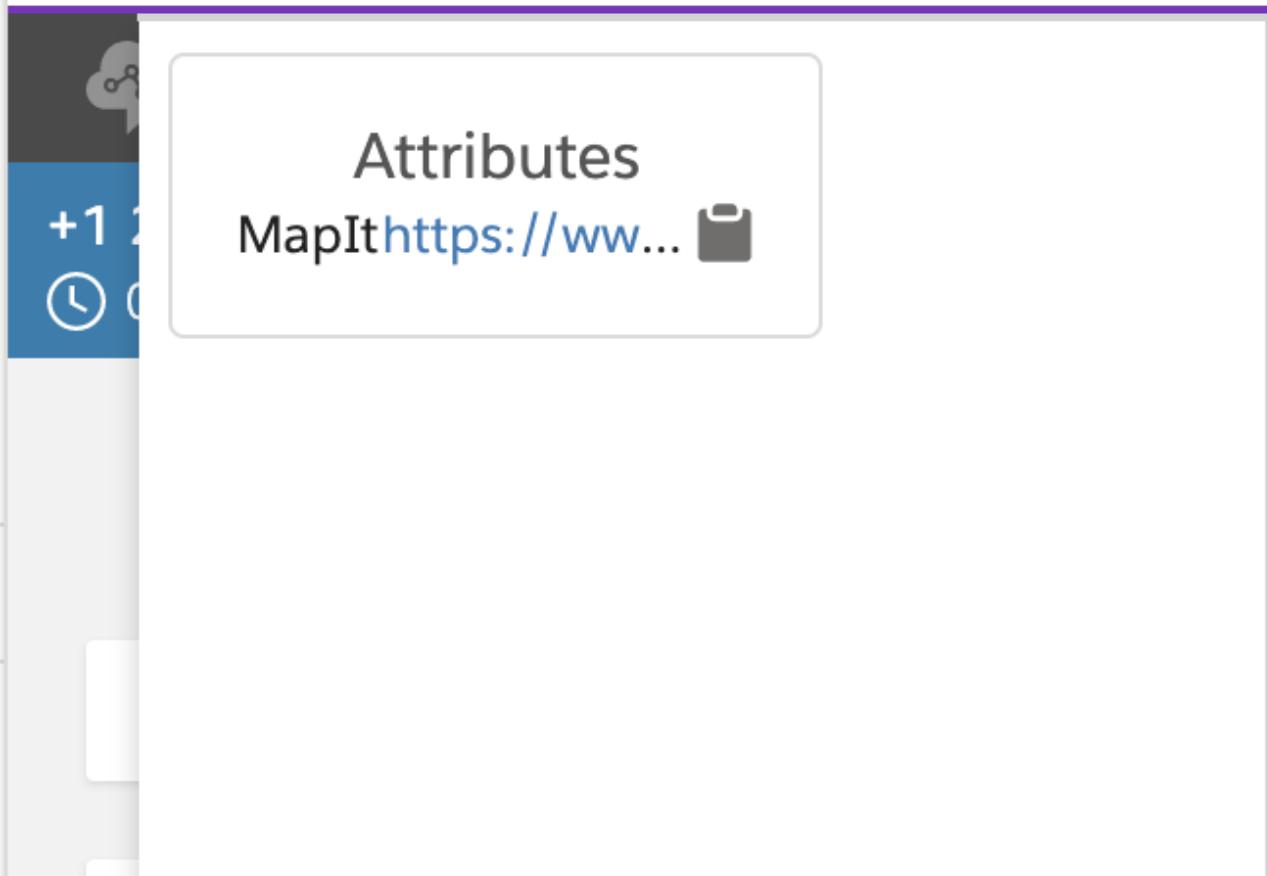
13. Refresh your browser

14. Place a new call into your Amazon Connect instance and accept the call as an agent

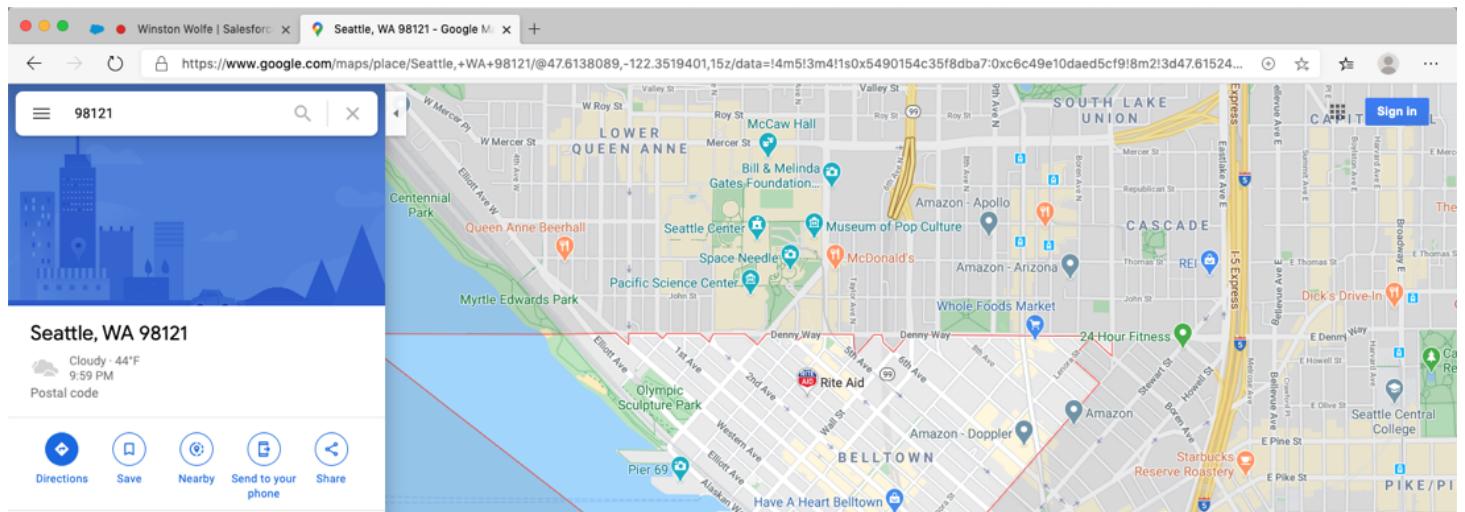
15. Once the call is connected, select the hyperlink attribute icon to expand the CTI Attributes



Phone



16. Select the URL and observe the page load



17. Disconnect the contact.

## CTI Attribute Additional Features

### Enabling CTI Attribute Additional Features

The additional CTI Attribute features allow you to further customize CTI Attributes.

1. In Service Console, navigate to your CTI Adapter

2. Scroll down to the features section of your AC CTI Adapter and select new

3. Set the AC Feature Name to **FEATURE\_CTI\_ATTRIBUTES**

4. Fill the value text box to contain the following settings:

- ShowAttributesIfEmpty** (Boolean, default true): show attributes text box when contact has no attributes
- ShowAllAttributes** (Boolean, default false): show all attributes, including attributes with no values

\* AC Feature Name

FEATURE\_CTI\_ATTRIBUTES

Value

```
ShowAttributesIfEmpty: true  
ShowAllAttributes: true
```

Active



CTI Adapter

ACLightningAdapter

## 5. Select Save

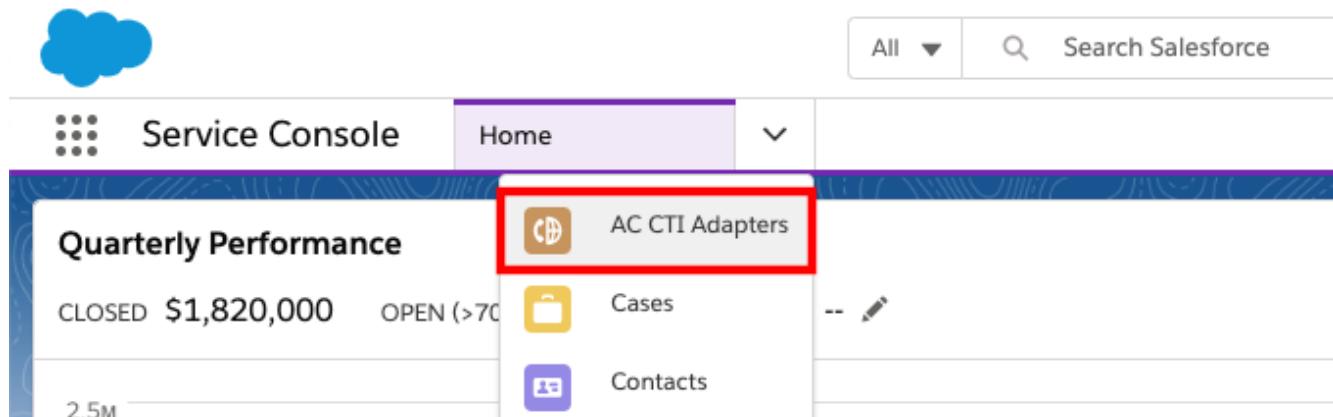
 [Edit this page](#)

# CTI Flow

The CTI Adapter provides a mechanism to customize the behavior of the adapter based on your business needs without needing to edit the underlying Visualforce pages, which could negatively impact overall adapter function. This is accomplished through CTI Flows.

A CTI Flow consist of "actions" that represent an API call to parts of Salesforce or Amazon Connect API. Like a JavaScript function, each action can take inputs and provide outputs, or returns values, that you can use from other actions.

To create a new CTI Flow, log in into your Salesforce org and go to the **Service Console**. Expand the **navigation menu** by selecting the down arrow and choose **AC CTI Adapters**.



Select **ACLightningAdapter**. Scroll down to the **CTI Flows** section and select New to create a new CTI Script.



Provide a user-friendly name in the **CTI Flow Name** field. And click **Save**.

## New CTI Script

### Information

CTI Script Name

\* CTI Adapter

 ACLightningAdapter

Active



Debugger Breakpoint



\* Source

\* Event

Description

Script to set agent to Offline when first logging in.

This will take you to a form where you can fill in name and adapter of the CTI Flow. There are a couple of fields that you may be unfamiliar with: **Source** and **Event**.

Let's look at **Source** field first.

\* Source

Amazon Connect Voice Contact

--None--

Initialization

Amazon Connect Agent

✓ Amazon Connect Voice Contact

Amazon Connect Queue Callback Contact

Amazon Connect Chat Contact

Salesforce Agent

You can think of Source as the "origin" of the CTI Flow. There are currently 7 sources: Initialization, an Agent on Connect, Voice Contact on Connect, Queue Callback Contact on Connect, Chat on Connect, Salesforce Agent or Salesforce UI.

Each source comes with a set of events that you can hook into, i.e. your CTI Flow will be executed when one of these events fire. Typically, you will have only one flow for a combination of a source and an event. (You can find out more about sources and events in [Appendix C - CTI Flow Sources and Events](#).)

For the purposes of this example, we selected **Amazon Connect Voice Contact** source and **onConnecting** event. Now click Save and on the next page scroll down till you find the **CTI Flow** section.

## Details

### ▼ Information

CTI Flow Name

**Create Screenpop**

Source

**Amazon Connect Voice Contact**

Description

Created By



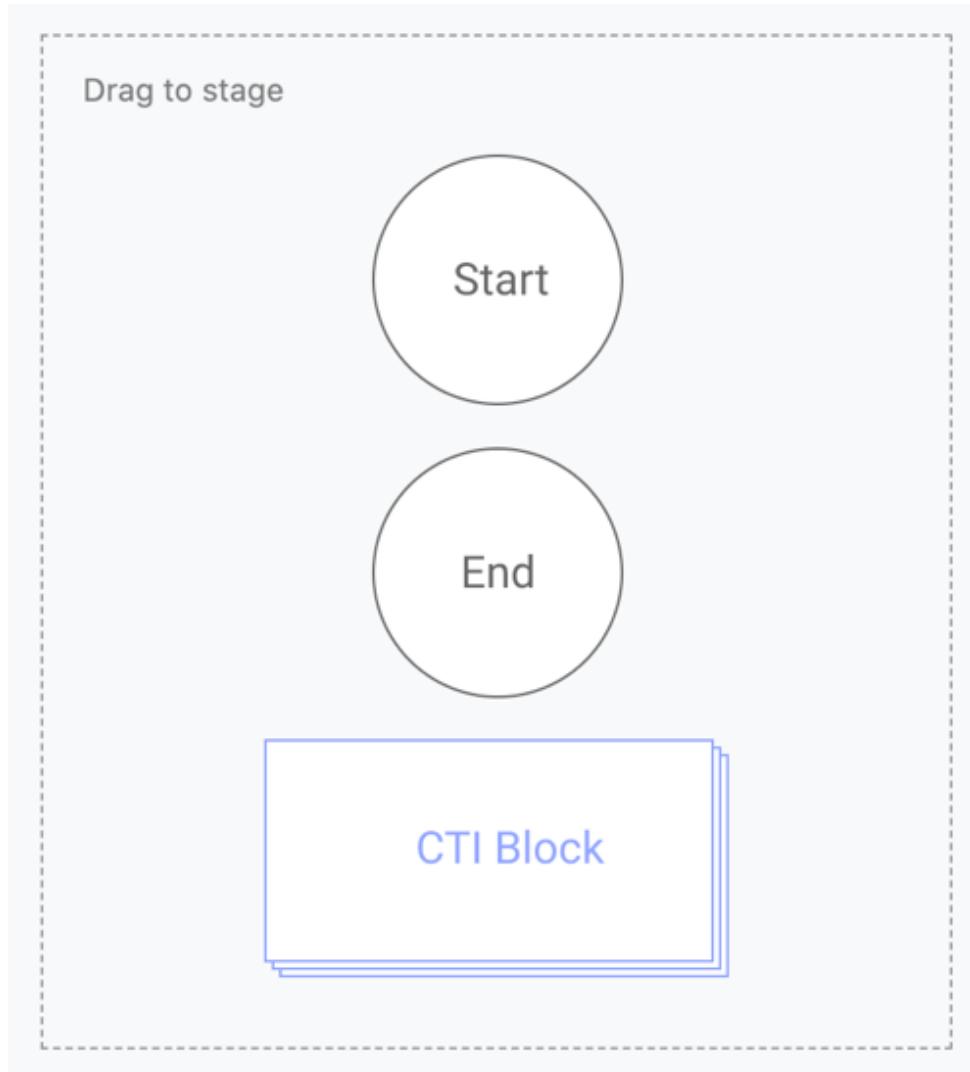
**Amazon Connect, 7/23/2020 9:10 AM**

### ▼ CTI Flow

Main Menu

Save

Let's build a CTI Flow that opens a screenpop in Salesforce when a voice call comes.



You can start using by dragging the item called **CTI Block** from the sidebar in the Main Menu over the stage, which is marked by a grid pattern.

When you drop the block, you will see a modal titled **Explorer**. This modal contains a list of actions you can choose from.

## Explorer

The screenshot shows the CTI Explorer interface with a search bar containing 'phone'. Below the search bar are sections for 'Categories' and 'Tags', both with dropdown menus. A message indicates 'Showing 13 actions'. On the right, there are four action cards:

- Format Phone Number**: Formats a phone number for a country code. It has a 'Parameters' button and a 'Select' button.
- Format Phone Number (E164)**: Formats a phone number for a country code in E164 format. It has a 'Parameters' button and a 'Select' button.
- Get Softphone Layout**: The query to get softphone layout. It has a 'What it calls:' section with the code `ac.Utils.Salesforce.getSoftphoneLayout()` and a 'Select' button.
- Show Softphone Panel**: The command to show softphone panel. It has a 'What it calls:' section with the code `ac.Utils.Salesforce.showSoftphonePanel()` and a 'Select' button.

In the **Search** field, search for **Phone** and Select the action called **Get Customer Phone Number** from the results on the right.

The screenshot shows the CTI Block editor with a modal window for the **Get Customer Phone Number** action. The modal includes:

- Change type ▾**
- Get Customer Phone Number** (the selected action)
- ID: uid-0**
- Remove** and **About this action** buttons
- Return Values** section:
  - phone**: Phone number of the caller.
  - country**: Country of the phone number.

On the stage, there is a blue-bordered box labeled **Get Customer Phone Number**, with a red circular handle on the top-left and a green circular handle on the top-right.

You should now see a block on the stage for the action you selected, and the sidebar will display some information about this action, including its return value.

(Note: If you'd like to change the label of the action, doubleclick on it. This will open a text editor. Make your changes and when you're finished click outside the node to save your label.)

Some actions can be configured using input fields to provide arguments to function calls, as well. This action does not have any input fields, and returns two values ---- **phone** and **country**.

Now let's drag another CTI Block over the stage and find an action called **Search and Screenpop**.

Change type ▾

## Search And Screenpop

ID: uid-9

 Remove

 About this action

### Arguments

searchParams 

Enter a value

queryParams 

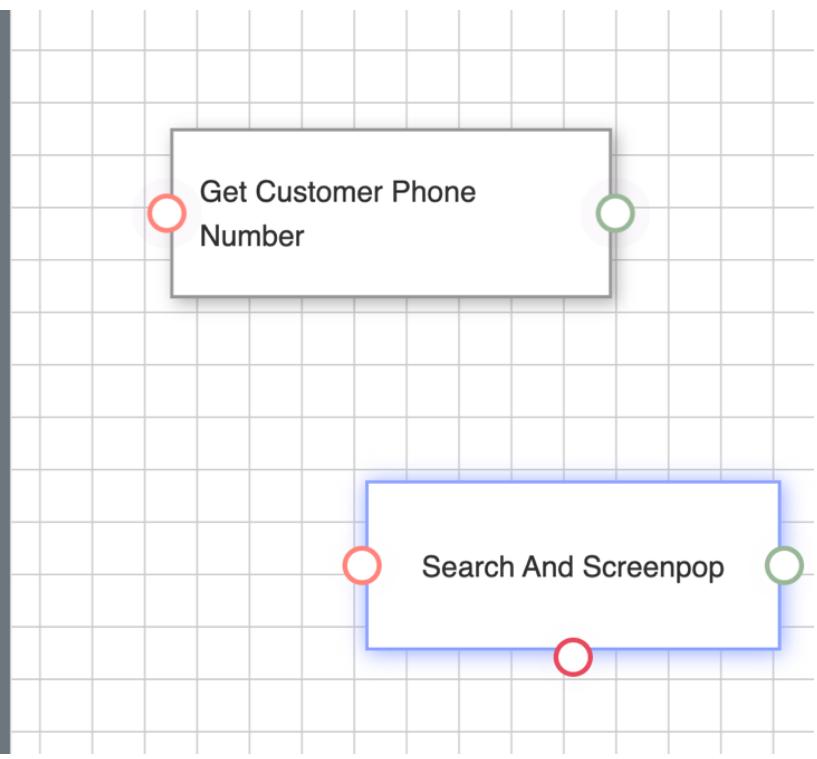
Enter a value

defaultFieldValues 

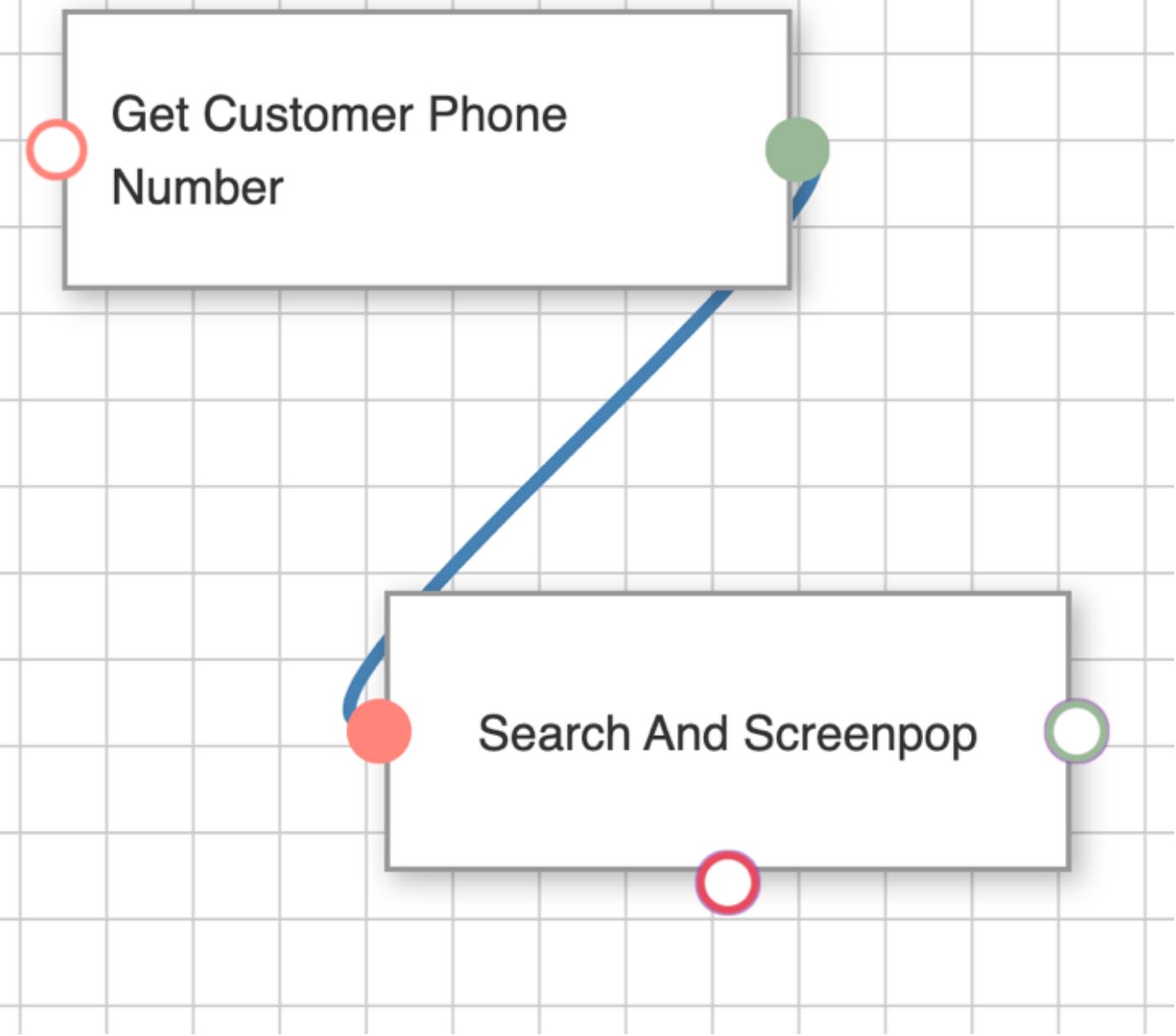
Add a field

deferred 

Connect these blocks by clicking the green socket (green means "done") on **Get Customer Phone**, which will display a blue line that tracks your mouse cursor around the stage.



Now, click on the pink socket, i.e. the **input** socket, which is to the left of the **Search and Screenpop** block. If the connection is successful, the sockets will turn into a solid color and the blue line will connect them. (There are some restrictions on which sockets you can connect together. For example, you cannot connect output of an action to its own input socket or connect two inputs.) If you are not happy with this connection, you can hover over it and double click to remove.



Now we'd like to get the phone number of the customer and use it in **Search and Screenpop**. Here is a tip: if two actions are connected, you can use the return values of the first action in the input fields of the next action. (You can even use the return values of actions connected to the last action, and the ones connected to that, and so on.)

This action has only two options, and we want to use the one called "phone" for this field.

Change type ▾

## Search And Screenpop

ID: uid-2

Remove

About this action

### Arguments

searchParams

GET CUSTOMER PHONE NUMBER (UID-0)

phone

country

Add a field

deferred

callType

## Search And Screenpop

ID: uid-9

Remove

About this action

### Arguments

searchParams

ValueOf

queryParams

Add New Value

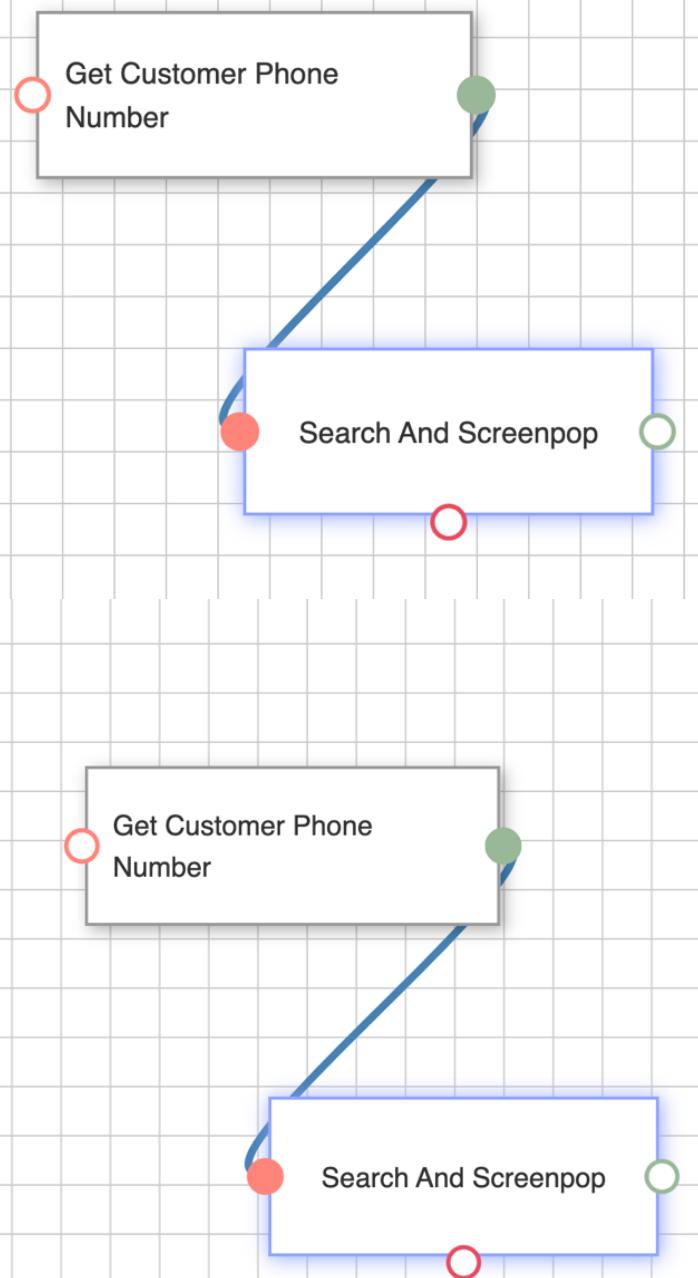
Add a field

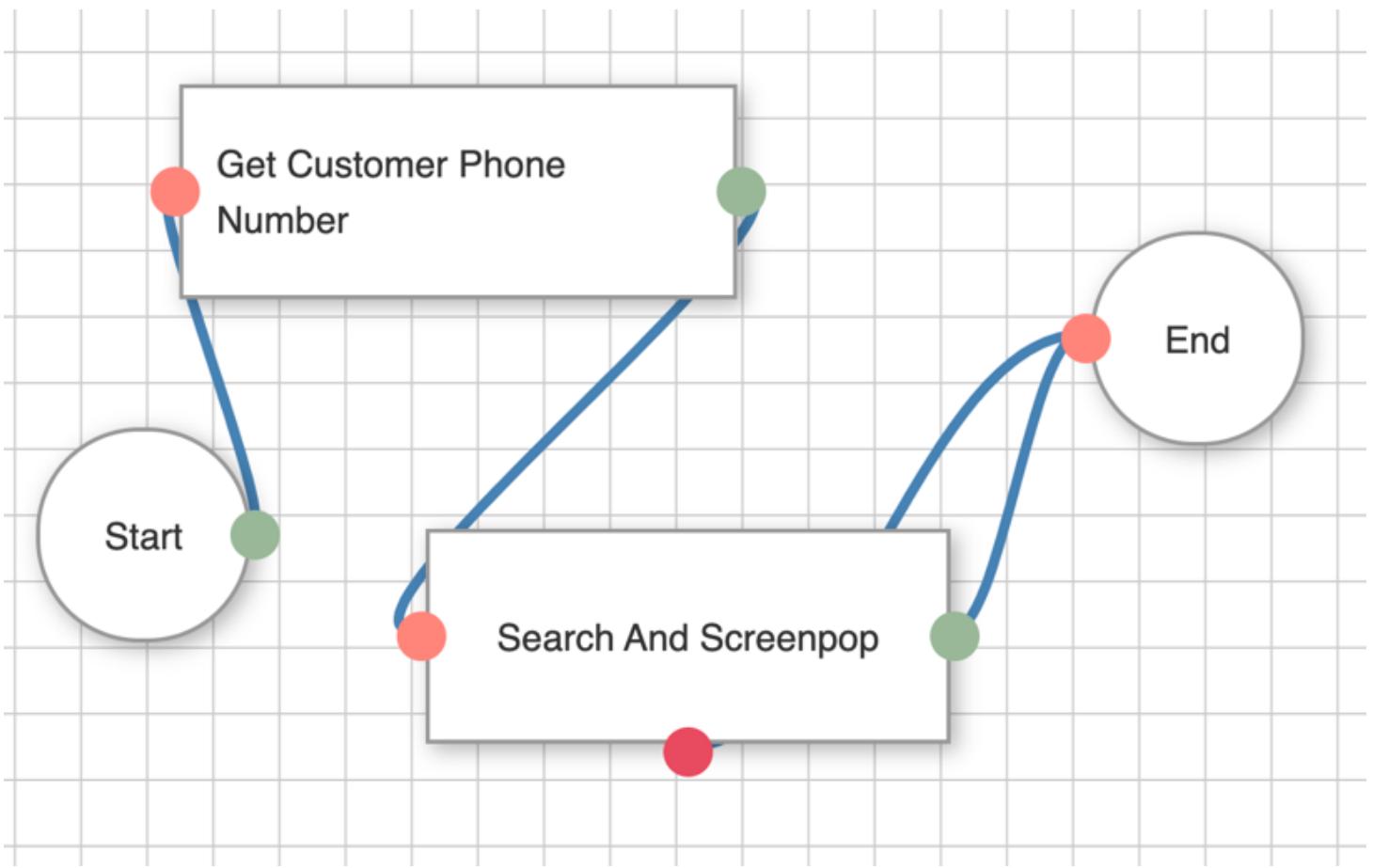
deferred

callType

If you want to enter a custom input value, you can type that, and select \*\*Add New Value\*\* from the dropdown.

And make sure to set **callType** to "inbound." Finally, add the **Start** and **End** nodes and connect everything together.





When you're finished, click **Save** in the sidebar. That's it. You created your first CTI Flow.

To test your flow, go to your **Service Console**, and make a call from a number that is in the profile of a Contact. As the call is displayed in your CCP dashboard, Salesforce will pop open the contact of the caller in a separate tab.

[Edit this page](#)

## Presence Sync Rules

The CTI Adapter supports bidirectional synchronization of agent state between Amazon Connect and Salesforce Omnichannel. This allows you to tightly control agent availability for different contact/media types dependent on current agent state. This section of the guide assumes that you have Omnichannel configured appropriately. If you do not and wish to test this function, please refer to the section [Configure Salesforce Omnichannel for Testing](#).

NOTE: In order for Presence Sync to work, the CTI Adapter must be configured to allow it. See [CTI Adapter Details](#) for more information.

NOTE: After Salesforce Winter '22 Release, users need to have View Setup and Configuration OR View DeveloperName permission via a profile or permission set to use this feature. See [New Permission Requirements for DeveloperName Field](#) for more information.

Presence Sync Rules are evaluated based on specific events. The available events are:

- **Connect Agent State Change:** The Connect agent's state has changed.
- **Salesforce Agent State Change:** The Salesforce agent's state has changed.
- **Salesforce Agent Logout:** The Salesforce agent has logged out.
- **Salesforce Work Accepted:** The Salesforce agent has accepted work.
- **Salesforce Workload Changed:** The Salesforce agent's workload has changed.

Once the event is triggered, the CTI adapter will evaluate the provided criteria. The criteria is established by comparing Operand A, using standard comparator options, against Operand B. Possible options for Operand A and B are:

- **Connect Agent New State:** The Connect agent's new state value
- **Connect Agent Old State:** The Connect agent's old (previous) state value
- **Salesforce Agent New State:** The Salesforce agent's new state value
- **Salesforce Service Channel:** The service channel upon which the Salesforce agent has accepted work
- **Salesforce Previous Workload:** The Salesforce agent's previous workload
- **Salesforce Previous Workload Pct:** The Salesforce agent's previous workload expressed as a percent of configured capacity
- **Salesforce New Workload:** The Salesforce agent's new workload
- **Salesforce New Workload Pct:** The Salesforce agent's new workload expressed as a percent of configured capacity
- **Salesforce Configured Capacity:** The Salesforce agent's configured capacity
- **Static Value:** The user may provide a value. For example, a custom agent state name or other alphanumeric value. When Static Value is selected a "Value" field becomes visible to accept the users static value input.

Available comparators are:

- **Equal to:** Are Operand A and Operand B equal
- **Not equal to:** Are Operand A and Operand B not equal
- **Greater than:** Is Operand A greater than Operand B

- **Greater than or equal to:** Is Operand A greater than or equal to Operand B
- **Less than:** Is Operand A less than Operand B
- **Less than or equal to:** Is Operand A less than or equal to Operand B

## Configuring Statuses

Presence Sync Rules require statuses in both Amazon Connect and Salesforce. In this example, we will add two additional statuses to each side of the configuration and prepare rules that sync both clients to the same state regardless of which agent sets the status. Essentially, you will configure the status sync similar to the following example:

When a sets status to b	Set x to y
Amazon Connect sets status to Available	Omnichannel to Available
Omnichannel sets status to Available	Amazon Connect to Available
Amazon Connect sets status to Working -- Phone	Omnichannel to Working -- Phone
Omnichannel sets status to Working -- Media	Amazon Connect to Working - Media

## Amazon Connect System Statuses

The following Amazon Connect CCP statuses are system statuses that can be used in presence sync. Please note however that these statuses are restricted and you cannot set the Amazon Connect status to the below.

- Busy - agent is in a call
- Pending - agent is receiving a request for a queue callback
- PendingBusy - agent is receiving call
- CallingCustomer - agent is calling customer
- AfterCallWork - agent is in the after call work screen

## Create Presence Statuses in Amazon Connect

Agents are responsible for setting their status in the Contact Control Panel (CCP). Typically, the only time an agent's status changes is when they manually change it in the CCP however Presence Sync Rules can automate the process when conditions are met.

Amazon Connect provides two default status values:

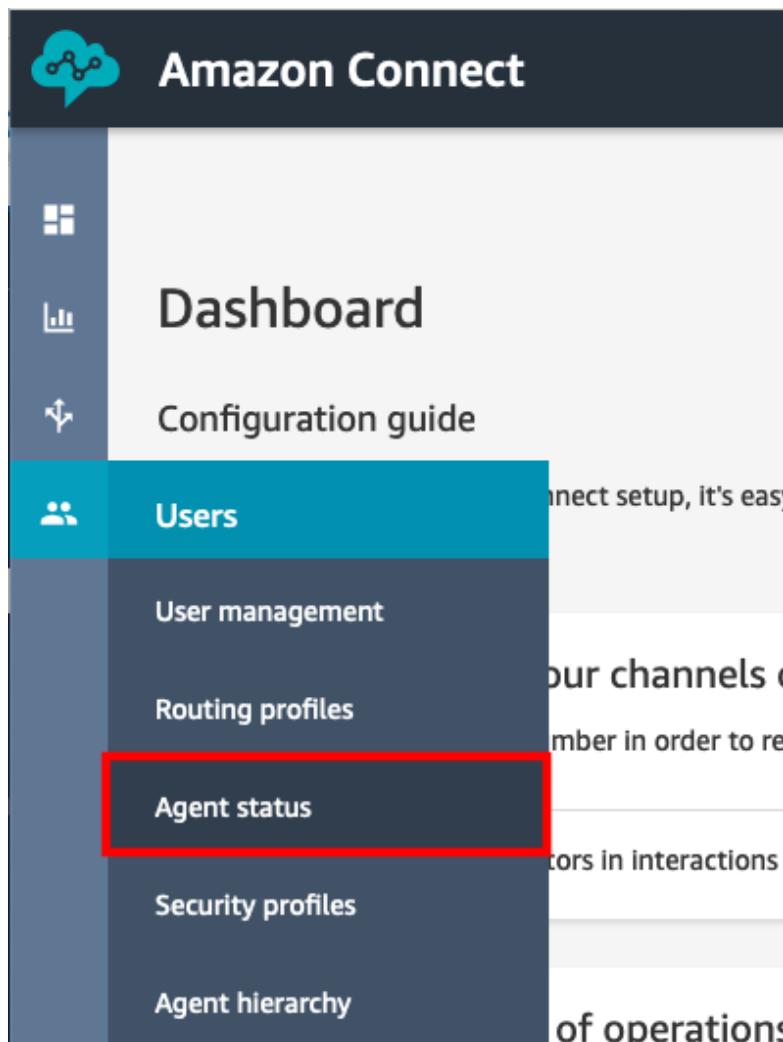
- Available
- Offline

You can change the name of these values, and you can add new ones. For example, you might add a status for Lunch, and another for Training. These and the default status values will be used for reporting, metrics, and resource management.

**Note:** When you add a new status, it will always be **Custom**, not routable.

### Create an Amazon Connect status

1. Login to your Amazon Connect instance as an Administrator
2. From the left navigation, choose **Users**, then select **Agent status**



3. Select **Add new agent status**
4. Provide a Status name and Description. Leave the Enabled checkbox selected.

Status name	Description	Type	Enabled for use in CCP
Lunch	Lunch	Custom	<input checked="" type="checkbox"/>

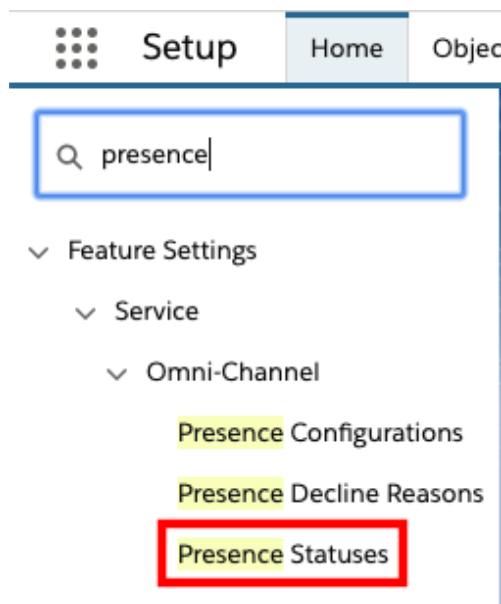
5. Select Save. Repeat as desired for the remaining statuses that you wish to add.

# Create Presence Statuses in Salesforce

You will need to configure presence statuses to reflect the different presence states that you wish your Omni-Channel agents to enter. These do not need to match agent statuses in Amazon Connect exactly, but it does make it easier to track what you are doing.

## Create a Salesforce presence status

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, enter presence and choose **Presence Statuses** from the results



3. In the Presence Statuses page, choose New
4. Provide a status name, for example Lunch
5. Set the Status options appropriately, for example, Busy
  - a. For Online statuses, you will need to provide a channel. Please reference the [Omni-Channel documentation](#) for details
6. Choose Save

# Presence Statuses

Let agents indicate when they're online and available to receive work items from a specific service channel, or whether they're away or offline.

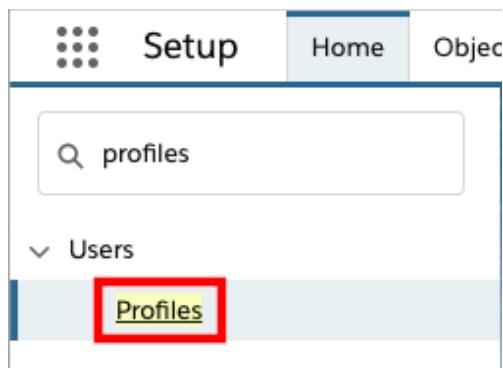
The screenshot shows a configuration page for a presence status. At the top right are 'Save' and 'Cancel' buttons. Below is a section titled 'Basic Information' with fields for 'Status Name' (set to 'Lunch') and 'Developer Name' (also set to 'Lunch'). Underneath is a section titled '▼ Status Options' which includes a note about choosing online or busy status. It features two radio buttons: 'Online' (unchecked) and 'Busy' (checked). At the bottom right are 'Save' and 'Cancel' buttons.

7. Repeat as necessary for all desired statuses

## Configure Enabled Service Presences Status Access in Salesforce

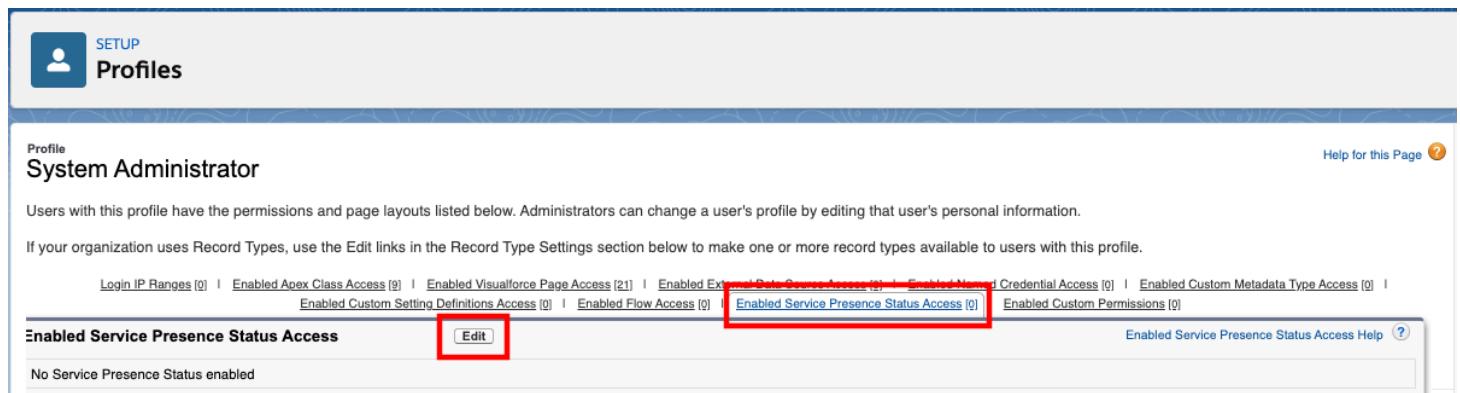
1. Log in into your Salesforce org and go to **Setup**

2. In the **Quick Find** field, enter profiles and choose **Profiles** from the results



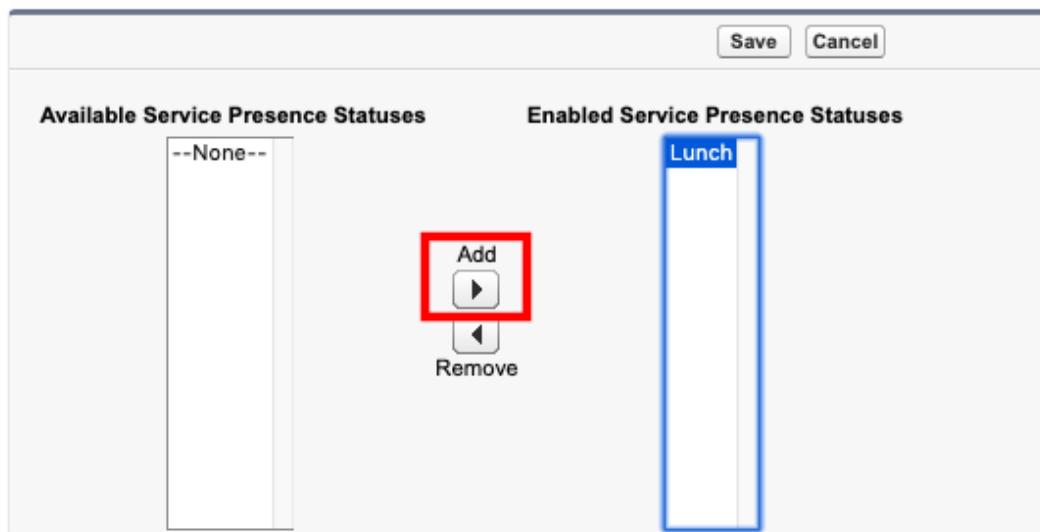
3. Select the profile assigned to your users

4. Hover over the Enabled Service Presence Status link and choose Edit



5. Select the available status from the left, then choose the Add button to add it to the Enabled Service Presence Statuses field

## Enable Service Presence Status Access



6. Select Save
7. Repeat as necessary for other statuses or profiles.

## Configure Presence Sync Rules

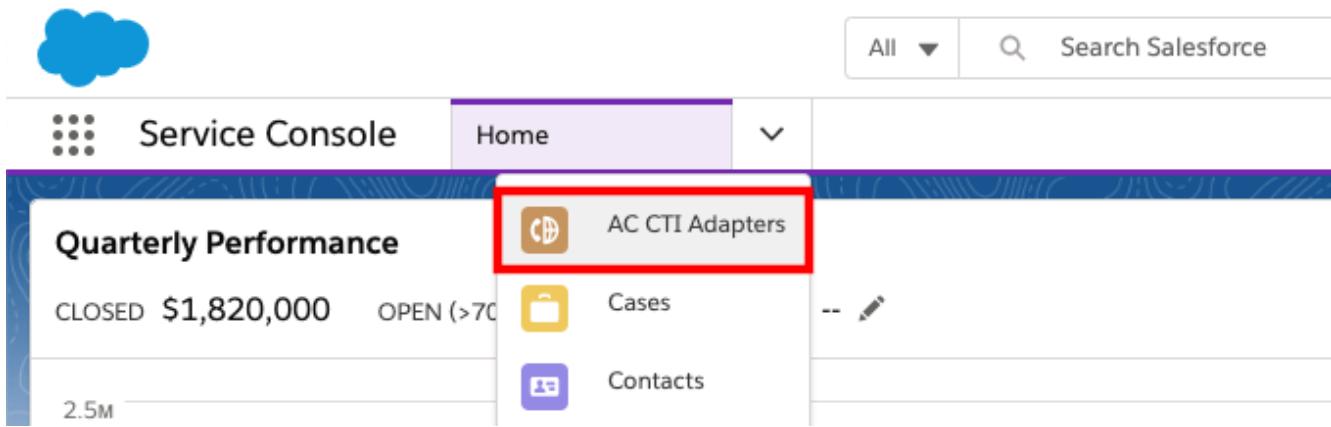
The CTI Adapter provides a rules-based presence status synchronization system allowing for flexibility in mapping agent states between Amazon Connect and Salesforce Omni-Channel.

Presence synchronization actions may be configured based upon manual agent state changes (agent goes on break), system agent state changes (answering a call), omnichannel agent work (agent accepts an email), and omnichannel workload changes (agent completes an email) as examples.

As the scope of presence sync rules can vary wildly, this example will show you how to change state based on Amazon Connect agent state change and Salesforce agent state change.

### Create a Presence Sync Rule

1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose **AC CTI Adapters**.



3. Select **ACLightningAdapter**

4. Scroll down to the **Presence Sync Rules** section

5. Select **New** to create a new presence sync rule

6. Provide a **Presence Sync Rule Name** to identify the use case of this rule. For example: Connect agent switches to Lunch

A screenshot of the 'New AC ...' Presence Sync Rule creation screen. At the top, there are tabs for 'ACLightningAda...', 'New AC ...' (which is active and highlighted in purple), and a close button. Below the tabs, there's a form with a label 'Provide a user friendly name for this presence sync rule and specify if this rule is currently active.' A required field 'Presence Sync Rule Name' is present, containing the value 'Connect agent switches to Lunch'. There's also a checkbox labeled 'Active' which is checked.

7. Select **Next**

8. For Source, select **Connect Agent State Change**, and select **Next**

9. For Operand A, choose **Connect Agent New State**

10. Set the Comparator to **Equal to**

11. Set Operand B to **Static Value**

12. For Operand B Value, enter **Lunch** (Or whatever state you have created in Amazon Connect)\*\*

Configure the criteria that is evaluated to determine if the rule's action should be applied.

If the expressions configured here evaluates to 'true", the rule's action is applied. If the expression configured here evaluates to 'false', the rule's action is not applied.

\* Operand A  
Connect Agent New State

\* Comparator  
Equal to

\* Operand B  
Static Value

\* Operand B Value  
Lunch

13. Select **Next**

14. For Destination, choose **Salesforce Agent State**

15. Set the Value to **Lunch** (Or whatever state you have configured in Salesforce) **NOTE:** the static value for Salesforce Omni-Channel status is the Developer Name, not the Status Name

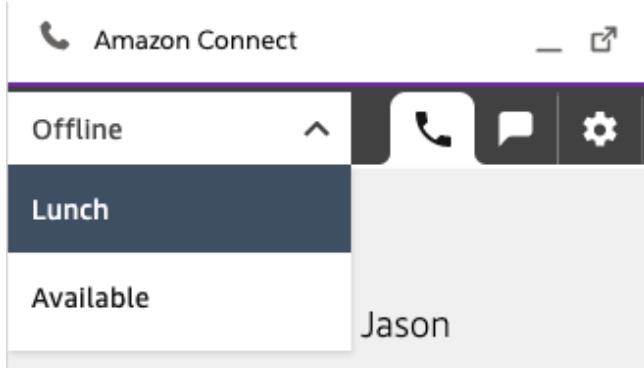
16. Select **Save**.

17. Refresh your browser

18. In the bottom left corner of the Service Console, select the CTI Softphone icon



19. Set your Amazon Connect agent status to Lunch



20. Observe that the Omni-Channel status switches to Lunch

The screenshot shows the Salesforce Omni-Channel interface. At the top, there's a header with the text "Omni-Channel" and a small user icon. Below the header, a status bar indicates "Lunch" with a yellow dot. A message says "You have no active requests." with a close button "X". At the bottom of the status bar, there are two links: "New (0)" and "My work (0)".

21. Repeat this process as desired to configure your presence sync rules.

[Edit this page](#)

# Localization

## Prerequisites

CTI Adapter will use Translation Workbench to maintain translated values for metadata and data labels in your Salesforce org. In order for that to work, you need to enable Translation Workbench in your org.

1. From Setup, in the Quick Find box, enter Translation Language Settings, and then select Translation Language Settings.
2. On the welcome page, click Enable.

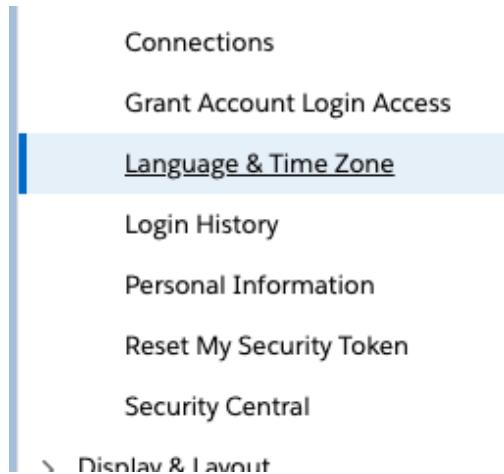
## Setting your preferred language

Starting from v5.6, Amazon Connect Salesforce CTI adapter is localized in nine new languages: Spanish, French, Brazilian Portuguese, Korean, Italian, German, (Simplified/Traditional) Chinese, and Japanese.

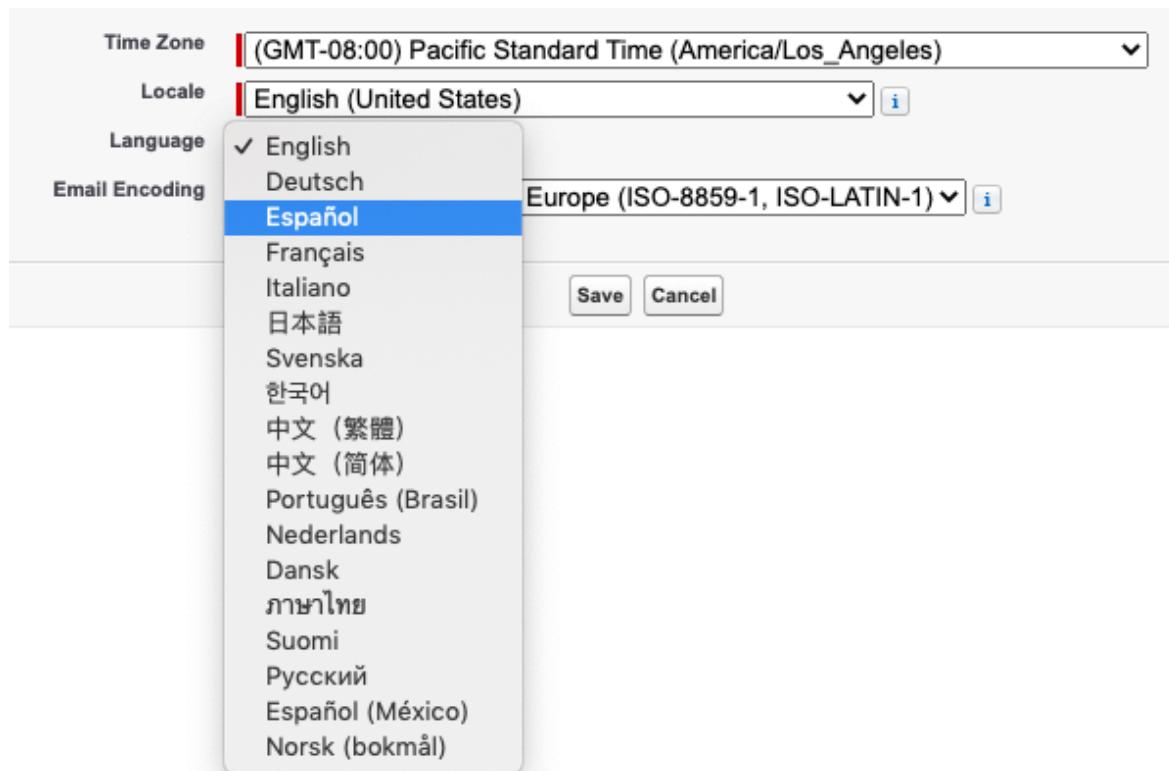
Change the language by selecting the username in the top right corner, then click on "My Settings".

The screenshot shows the Salesforce user profile settings menu. At the top, there's a toolbar with icons for star, plus, question mark, gear, and bell, followed by a user icon. Below the toolbar, a dropdown menu is open, showing the user's name "cticanarycell-1sydprod-dev-ed.my.salesfor..." and two links: "Settings" and "Log Out". At the bottom of the menu, there's a "Quick Find" search bar and a "USERNAMES" section.

On the setting page on the left panel go to "Personal" and then select "Language & Time Zone".



You can then select your preferred language. Note that CTI adapter only have nine languages built within the package.



Click save and the page will reload. That's it. You can check in other pages to see if it actually applies your change. For example here is a screenshot of CTI Flow Editor in Spanish.

## Explorer



## Buscar

Buscar por nombre



## Categorías

Filtrar por categoría



## Etiquetas

Filtrar por etiqueta



Mostrar 100 acciones

Guardar búsqueda

## If-else

Cambie el flujo del script en función del valor de los campos que obtenga o almacene. Se trata de una utilidad "if-else" sencilla para el flujo.

[Parámetros >](#)

## Qué llama:

```
ac.Utils.Common.decision(..  
.)
```

[Seleccionar](#)

## CoreCast

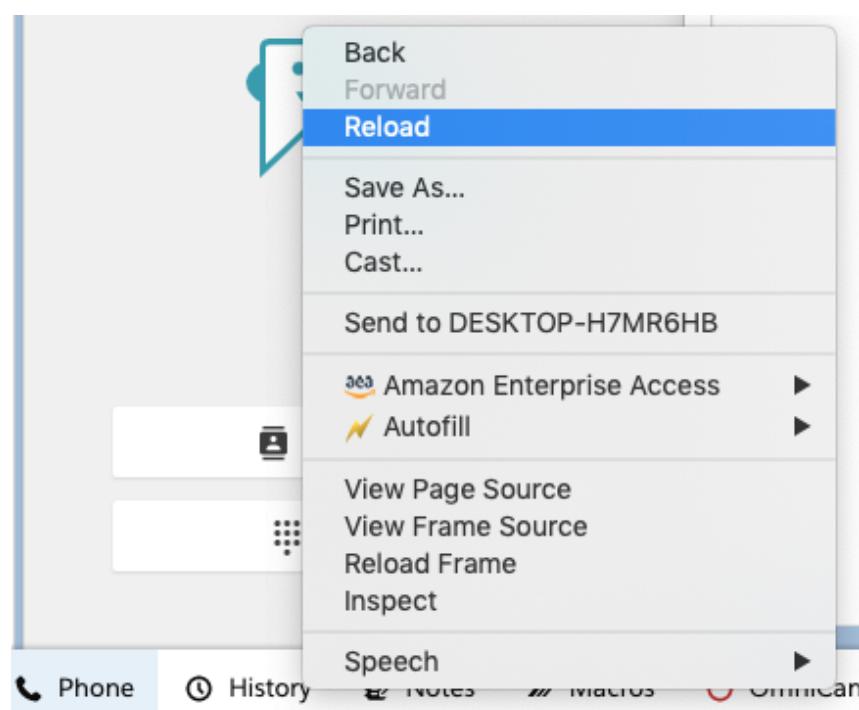
Cast an input value to a Javascript type, such as Number or String.

[Parámetros >](#)[Seleccionar](#)

## Solicitud HTTP

## Obtener la propiedad

Click on Phone pannel on the bottom to see if CCP has been localized. If not right click on CCP and reload.



# Additional Notes

Please note that not all fields can be localized to different languages due to a couple reasons. Here are places that cannot be localized:

- Dashboard. Salesforce dashboards do not support localization.
- Flexipages. This means the page with tabs that you can find in AC CTI Adapter page in lightning.

The screenshot shows a navigation bar with tabs: Attributes (underlined), CTI Flows, Presence Sync Rules, and Features. Below the tabs is a section titled "Attributes (0)" with a small icon of a database table.

- Reports. This is a missing functionality in Salesforce.

[Edit this page](#)

# Set Agent Status on Session End

This feature automatically sets the status of the agent to "Offline" — or to any status you choose — when the agent closes all his Salesforce tabs. **Disclaimer:** This feature will popup a window to perform the logout functionality. This window must stay open for the feature to work, but it does not have to be visible (i.e. can be put in the background).

You can configure this feature by heading to the feature panel on your CTI Adapter and clicking new.

The screenshot shows a navigation bar with tabs: Attributes, CTI Flows, Presence Sync Rules, and Features (underlined). Below the tabs is a section titled "Features (0)" with a small icon of a gear. A red arrow points from the text above to the "New" button in the bottom right corner of the section.

Then for "AC Feature Name", enter: `SetAgentStatusOnSessionEnd`

# New AC Feature

## Information

\* AC Feature Name

SetAgentStatusOnSessionEnd

Value

Active



\* CTI Adapter



ACLightningAdapter



You can optionally specify which status the agents should be changed to when they end the session. By default, this is "Offline," but you can configure it using the **Status** setting of the feature.

\* AC Feature Name

SetAgentStatusOnSessionEnd

Value

Status:Away

When turned on, the feature will apply to all agents. If you'd rather have it apply to a small subset, you can configure **IfProfileNameIncludes** setting.

\* AC Feature Name



SetAgentStatusOnSessionEnd



Value

Status:Away

IfProfileNameIncludes:On-Call|

Now only the agents that have "On-Call" in their Connect routing profile name will be shown as "Offline" when they end their session. This setting can accept multiple, comma-separated profile names, as well.

If you would also like to control this feature based on the current state of the agent, you can add the `IfCurrentAgentState` tag to the feature, and assign a comma separated list of statuses that you would like the feature to execute on.

\* AC Feature Name

SetAgentStatusOnSessionEnd

Value

Status:Offline  
SessionEndTimer:20  
IfCurrentAgentState:Available, At Lunch

From this example, only agents who have a current status of "Available" or "At Lunch" will be moved to a state of "Offline" when they end their session.

The example above also utilizes the `SessionEndTimer` feature as well. This delays the state change for the desired amount of time (default of 5 seconds). In the example above it sets the delay to 20 seconds. This feature is useful to account for agent's with slow internet refreshing their page - with 5 seconds, it may change the state of the agent before the refresh loads all of the assets again, while 20 seconds could be enough time for the assets to load, and stop the state change.

You can also have the Status be set to `Logout`, which will append the functionality of the logout feature mentioned [here](#) - logging the agent out of the CCP upon session ending. It will not log the user out if a call is ongoing.

When your agents log back in, they will be shown as "Available" by default. If you'd like to control which status to set your agents, you can configure it with `InitialAgentState` setting.

Note that this feature does not work with Salesforce Pop-Out utilities. This means that it won't be working if CCP is popped out from utility bar. This is because the pop-out window is a different window managed by

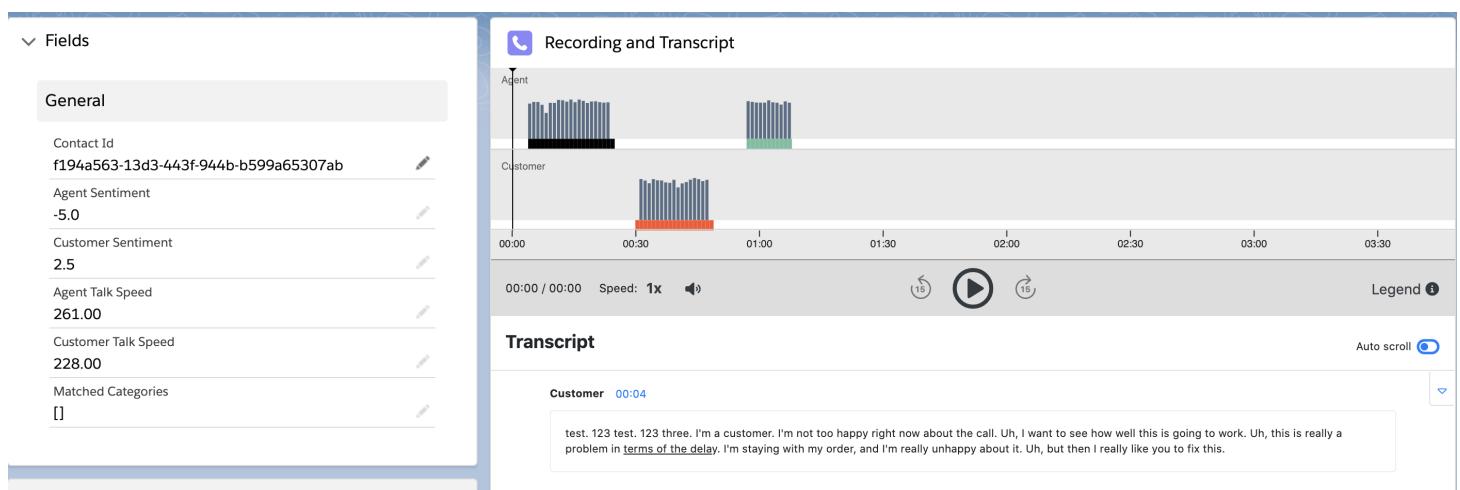
Salesforce and we are not able to track any session on that window.

 [Edit this page](#)

# Contact Lens

CTI Adapter now gives you access to your post-call Contact Lens data on your Salesforce instance. To configure this feature, you must have installed and configured the AWS Serverless application.

Three or four minutes after the call, a new Contact Channel Analytics record is created with the recording url with only the call recording. In another three minutes, this record is updated with Contact Lens recording, transcript and other metadata.



The new record is also associated automatically with a Case and Contact through their Amazon Connect contact id. This means that you will be able to configure your case record page with a related list that lists all the calls related to a case.

## Prerequisites

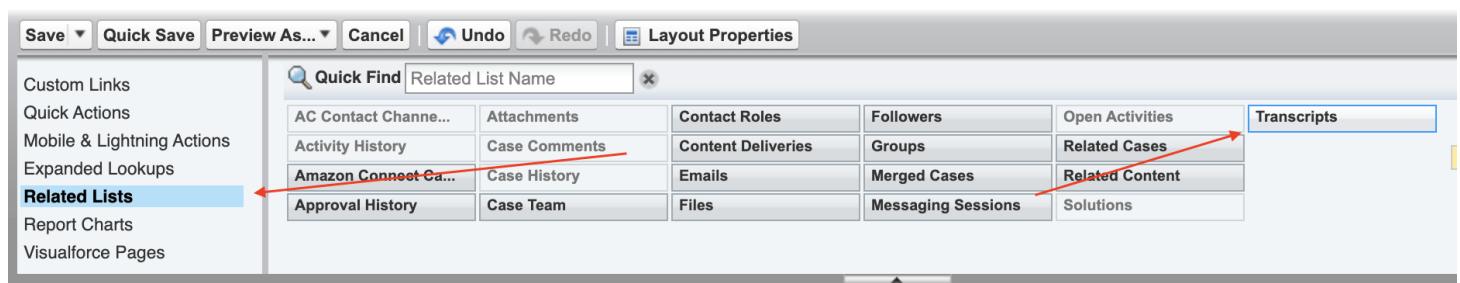
In order to set up Contact Lens you must first follow the steps detailed in the below sections:

1. [Set up ExecuteAwsService Named Credential](#)
2. [Set up Contact Channel Analytics](#)

## Configuring Related Transcripts List for Case Object

1. Go to the "Setup" section.
2. Search for "Object Manager" in Quick Find.
3. Go into "AC Contact Channel Analytics" object.

4. Click on "Fields & Relationships"
5. Select the "Case" field.
6. Click on "Set Field-Level Security" button.
7. In the "Field-Level Security for Profile" panel, select "Visible" for all the profiles where this field should appear.
8. Click "Save"
9. Click "View Field Accessibility" button.
10. Select "Case" field from "Field accessibility for Field" dropdown.
11. Select the profile for which you want to enable this field.
12. Mark "Field-Level Security" of the field as "Visible" and save.
13. Go to a Case record page.
14. Click on "Edit Page" under the gear button on upper right corner of the page.
15. Select "Related List - Single" from left sidebar, and drop it into "Related" section.
16. Click on the item you just dropped to focus on it.
17. In the right sidebar, select "Case Layout (previewed)"
18. Click on "Related Lists" and find "Transcripts" field in the panel.



19. Drag "Transcripts" into the "Related Lists" section on the body of the page.
20. Click "Save" and return to the page editor.
21. Focus on the item you dropped in step 15 again.
22. In the right sidebar, under the "Related List" dropdown, find and select "Transcripts" field.
23. Click "Save" to save the page layout.

24. Click "Activation..."

25. Go into "App Default." Click on "Assign as App Default."

ORG DEFAULT

APP DEFAULT

APP, RECORD TYPE, AND PROFILE

Set this page as the default for Case records for specific Lightning apps. An app default page displays for all specific app, record type, and profile assignments are made.

**Assign as App Default**

26. Select the apps you'd like the related list to appear. Click "Next" twice, and then finally click "Save."

Now your related transcripts should appear on the Case record page.

Whenever you update the Amazon Connect contact id of this case, the related list will be updated to associate the transcripts associated with your contact.

Follow the same steps above for Contact.

## Setting up the Audio Recording Streaming

In order to stream Audio in Contact Lens, you must first set up the Audio Recording Streaming feature. It is recommended to use the Guided Setup feature to set up audio recording streaming.

### Guided Setup

#### Provision Amazon Connect Instance?

This setting will provision an Amazon Connect instance in your AWS account. You cannot provision an instance the same time you configure the Adapter or the Lambdas.

#### Set up Amazon Connect Salesforce CTI Adapter?

This setting will configure the Salesforce CTI Adapter in your Salesforce instance.

#### Set up Amazon Connect Salesforce Lambdas?

This setting will help you set up the Amazon Connect Salesforce Lambdas in your AWS account.

#### Set up Audio Recording for Contact Lens?

This setting will help you set up the Audio Recording for Contact Lens



Next

If you do not wish to use the Guided Setup feature, then see below steps for manual setup steps:

### AWS Side Setup

1. See [these steps](#). Follow the sections *Creating key pairs for your signers*, and *Adding a signer to a distribution*. Make sure to record the **public key ID**.
2. Copy and paste the contents of the private key .pem file into a text editor. Replace every newline character with a space, and then delete the last character. This is most easily done using a "find and

replace" feature in your text editor. The resulting string of text should resemble the following:

```
-----BEGIN RSA PRIVATE KEY----- (64 character string) (64 character string)  
(64 character string) (64 character string) (64 character string) (64 character  
string) (64 character string) (64 character string) (64 character string) (64 character  
string) (64 character string) (64 character string) (64 character string) (64 character  
string) (64 character string) (64 character string) (64 character string) (64 character  
string) (64 character string) (64 character string) (64 character string) (64 character  
string) (64 character string) (under 64 character string) -----END RSA  
PRIVATE KEY-----
```

3. Navigate to the "Secrets Manager" service. Select the **SalesforceCredentials**.
4. Under the "Secret value" tab, select "Retrieve secret value" and then "Edit".
5. For the **CloudFrontPrivateKey** field, copy and paste the modified contents of the private key .pem file.  
For the **CloudFrontAccessKeyId** field, copy and paste the **Access Key Id** you recorded above. Your Secrets Manager Secret should look like the following:

The screenshot shows the AWS Secrets Manager interface for a secret named 'SalesforceCredentials'. It includes sections for 'Secret details' (Encryption key: aws/secretsmanager, Secret name: SalesforceCredentials, Secret ARN: [REDACTED]), 'Tags' (Edit tags), and 'Secret value' (Info: Retrieve and view the secret value). The 'Secret value' section is expanded, showing a JSON object with two fields: 'CloudFrontPrivateKey' containing the RSA private key (redacted) and 'CloudFrontAccessKeyId' containing the Access Key ID (redacted). The entire JSON object is enclosed in curly braces {}.

```
{  
    "CloudFrontPrivateKey": "-----BEGIN RSA PRIVATE KEY-----  
[REDACTED]  
-----END RSA PRIVATE KEY-----",  
    "CloudFrontAccessKeyId": [REDACTED]  
}
```

Please note that your secret may also be formatted stored as a "Secret key/value" secret rather than a "Plaintext" secret; both secret types are valid.

6. Navigate to your Salesforce instance. Navigate to setup, then search for "Visualforce pages."

7. Select the **AC\_RecordingViewer** visualforce page, and select "preview." Copy the url of the opened page up until `.com`. Make sure not to include any characters after `.com`.
8. Navigate back to aws, to the s3 bucket where your audio recording files are stored. This s3 bucket should be the same bucket as the **ConnectRecordingS3BucketName** parameter to the serverless application.
9. In the bucket details, select the **Permissions** tab and then the **CORS configuration** tab and paste the following. Replace the AllowedOrigin with the url copied in step 9. Additionally, add in the `...lightning.force.com` url to your instance to the configuration.

```
[  
 {  
   "AllowedHeaders": ["Access-Control-Allow-Origin"],  
   "AllowedMethods": ["GET"],  
   "AllowedOrigins": ["{url copied in step 9}"],  
   "https://{{instanceName}}.lightning.force.com/"],  
   "ExposeHeaders": []  
 }  
 ]
```

### Cross-origin resource sharing (CORS)

The CORS configuration, written in JSON, defines a way for client web applications that are loaded in one domain to interact with resources in a different domain. [Learn more](#)

```
[  
 {  
   "AllowedHeaders": [  
     "Access-Control-Allow-Origin"  
   ],  
   "AllowedMethods": [  
     "GET"  
   ],  
   "AllowedOrigins": [  
     "https://{{instanceName}}.lightning.force.com"--amazonconnect.visualforce.com"  
   ],  
   "ExposeHeaders": []  
 }  
 ]
```

[Edit](#) [Copy](#)

10. Select Save

11. Navigate to the "Lambda" aws service. Search for term "sfgenerate" and copy down the full name of the sfGenerateAudioRecordingStreaming lambda. This will be used in the next section.

The screenshot shows the AWS Lambda Functions page. At the top, there is a breadcrumb navigation: Lambda > Functions. Below the navigation, a search bar contains the text "sfgenerate" with a magnifying glass icon. To the right of the search bar, it says "1 match". There are two buttons: "sfgenerate" with a delete icon and "Clear filters". A table below has a single row. The first column is a small blue circular icon. The second column is a red rectangular button containing the text "-sfGenerateAudioRecordingStreaming-". The third column is another red rectangular button. The entire row is highlighted with a red background.

12. Navigate back to the "Lambda" aws service main page and navigate to the **us-east-1 region**. Select **create function**.

The screenshot shows the AWS Lambda main page. At the top, there is a navigation bar with the AWS logo, "Services ▾", and "Oregon ▾ Support ▾". On the left, there is a sidebar with "AWS Lambda" selected, "Updated console (preview)" (with a "Learn more" link), and a "Dashboard" button. The main content area shows a breadcrumb navigation: Lambda > Functions. Below it, a table header says "Functions (30)". To the right of the table, it says "Last fetched 10 seconds ago". There are "Actions" and "Create function" buttons. The "Create function" button is highlighted with a red border. At the bottom right of the main area, there are page navigation buttons (1, 2, 3) and a refresh icon.

13. Enter a function name, like **sfSig4RequestToS3**.

14. Select **change default execution role**, and **use an existing role**. Search for and select **sfSig4RequestToS3Role**.

**Function name**

Enter a name that describes the purpose of your function.

Use only letters, numbers, hyphens, or underscores with no spaces.

**Runtime** [Info](#)

Choose the language to use to write your function.

**Permissions** [Info](#)

By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

**▼ Change default execution role****Execution role**

Choose a role that defines the permissions of your function. To create a custom role, go to the [IAM console](#).

- Create a new role with basic Lambda permissions
- Use an existing role
- Create a new role from AWS policy templates

**Existing role**

Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.

15. Select **create function**. On the next screen, copy and paste the contents from [this file](#) into the function body, and then select **Deploy**.

16. Select the actions dropdown, and then select **Deploy to Lambda@Edge**.

17. Select the Cloudfront Distribution that was created by the Salesforce Lambdas serverless application, then check off the "I acknowledge..." check box, then select deploy.

## Deploy to Lambda@Edge

X

### Configure CloudFront trigger

#### Distribution

The CloudFront distribution that will send events to your Lambda function.

 arn:aws:cloudfront::081220768822:distribution/E2QLTUNXSSI70W

X

#### Cache behavior

Choose the cache behavior you would like this Lambda function to be associated with.

\* ▾

#### CloudFront event

Choose one CloudFront event to listen for.

Origin request ▾

**Include body**

Select "Include body" if you want to read the request body for viewer request or origin request events.

[Learn more](#).

### Confirm deploy to Lambda@Edge

- I acknowledge that on deploy a new version of this function will be published with the above trigger and replicated across all available AWS regions.

Lambda will add the necessary permissions for Amazon CloudFront to invoke your Lambda function from this trigger.

[Learn more](#) about the Lambda permissions model.

Cancel

Deploy

### Post Call Contat Lens Data Import

If you want to import Contact Lens data, please follow the steps for [Post Call Contact Lens Import](#).

### Common Audio Streaming Setup Issues

1. Verify that the Secrets Manager secret contains both the `CloudFrontPrivateKey` and `CloudFrontAccessKeyID` items.
2. Verify that your Cloudfront distribution's behavior is set to use `Trusted Key Groups`, and that the correct Key Group is selected.

Restrict Viewer Access  Yes  No

Trusted Key Groups or Trusted Signer  Trusted Key Groups  Trusted Signer

**Trusted Key Groups**

Trusted Key Group Name
keyGroup1 <span style="float: right;">X</span>

3. Verify that your Cloudfront distribution's behavior contains the sfSig4RequestToS3 edge lambda

Edge Function	CloudFront Event	Function ARN/Name	Include Body
Lambda@Edge	Origin Request	arn:aws:lambda:us-east-1:...	<input type="checkbox"/> X

4. Verify that your S3 bucket CORS configuration is correct

```
[  
  {  
    "AllowedHeaders": [  
      "Access-Control-Allow-Origin"  
    ],  
    "AllowedMethods": [  
      "GET"  
    ],  
    "AllowedOrigins": [  
      "https://...amazonconnect.visualforce.com"  
    ],  
    "ExposeHeaders": []  
  }  
]
```

5. Verify that your named credentials are correctly set up

6. Verify that your user is added to the AC\_CallRecording permission set

[Edit this page](#)

# CTI Actions

Customers can now extend their Contact Control Panel (CCP) with customizable buttons called CTI Actions. These buttons can be configured in Salesforce and used to simplify common agent actions. For example, you can add a button that transfers calls to a manager, start and stop recordings, automate case creation, or

start a customer refund process. CTI Actions are configured in the CTI Adapter's Actions Admin panel to execute [CTI Flows](#) which are process blocks that enable you to easily design agent workflows within our Salesforce integration.

You can configure a CTI Action in the CCP Element Editor page.

The screenshot shows the CCP Element Editor interface with the title 'CCP Element Editor' at the top. Below it, there's a section titled 'Actions' with three steps: 'Step 1: Name and Flow', 'Step 2: Payload (optional)', and 'Step 3: Additional Data (optional)'. Step 1 is active, showing a 'Save' button and other options like 'Quick Save' and 'Delete'. A note says: 'This section asks you for some required information about your action. It is the only required section you need to fill to create an action.' In the 'Action Name' field, 'Leave Voicemail' is entered. A note below it says: 'The name agents will see.' In the 'CTI Flow' dropdown, 'Leave a Voicemail' is selected. A note below the dropdown says: 'In this field, you will see all CTI Flows in this account whose source field is CCP Overlay.' In the 'Order' field, '0' is entered. A note below it says: 'Position of the action in the overlay.'

Make sure that you have created a CTI Flow and it uses the source "CTI Action." Only these CTI Flows will be displayed in the dropdown field.

You can optionally specify a payload to pass to the CTI Flow. This allows your agents to enter additional data about the customer or information about the call to pass into the CTI Flow. The CCP Element Editor gives you the ability to add input fields into your form.

## Actions

Step 1: Name and Flow	<b>Save</b> Quick Save <b>Delete</b> Cancel
Step 2: Payload (optional)	In this section, you will build a form that will be displayed to the agents prior to triggering the CTI Flow. The form data will be passed as a payload to the executed flow.
Step 3: Additional Data (optional)	<b>Overview</b> Form fields <b>New field +</b>

This section collects some basic information about the form, such as title and instructions. Both fields are optional.

(optional)

**Title**  
Enter a short title for the form.

(optional)

**Instructions**  
Enter a few lines about how to fill out this form.

**Form fields ▶**

## Actions

Step 1: Name and Flow	<b>Save</b> Quick Save <b>Delete</b> Cancel
Step 2: Payload (optional)	In this section, you will build a form that will be displayed to the agents prior to triggering the CTI Flow. The form data will be passed as a payload to the executed flow.
Step 3: Additional Data (optional)	<b>Overview</b> Form fields <b>New field +</b>

**Field Name**  
This is the name of the field in your payload. It should be a camelCased word.

**Label**  
The label is a human readable text shown to the agent next to the input field.

**Field Type** Text **Order** 0  
You have the option to select a text input or a dropdown.

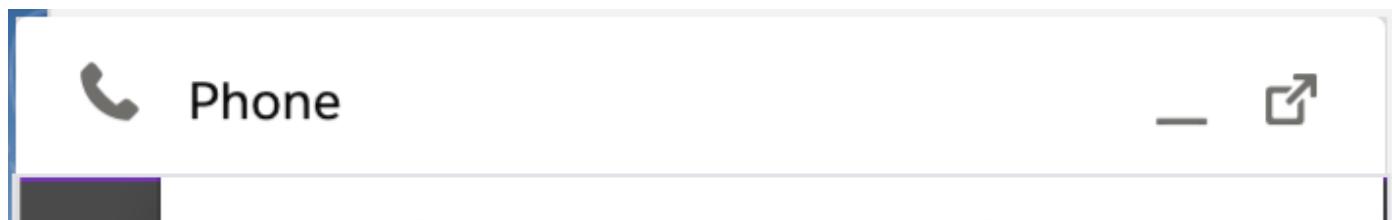
**Field Required**

**Cancel** **Finish**

**◀ Overview**

## CCP Overlay

The **Actions** panel in the CCP overlay drawer displays the CTI Action buttons where your agents have easy access to them as they are interacting with customers.



Attributes	Actions
Send Customer Giftcard	▶
Activate Customer Account	<button>Execute</button>
Transfer to Manager	<button>Execute</button>
Give customer refund	<button>Execute</button>
Open a Case	<button>Execute</button>
▶ Find Cases for Customer	<button>Execute</button>
Create Task and Contact and Screenpop	<button>Execute</button>
VIP	<button>Execute</button>
Transfer to Manager	<button>Execute</button>
Transfer to Peer	<button>Execute</button>

If a CTI Action requires additional input by the agent, its name will be followed by an arrow and when the agent clicks on this button, it will open the configured form. Otherwise, it will be shown with an "Execute" button next to its name.



Phone



Attributes

Actions



Go back

## Customer Gift Card

Please fill in these details about the user.

First name\*

John



Last name\*

Doe

Telephone

Submit

## Receiving Data from CTI Flows

In addition to agents sending data to the CTI Flow, they can also receive data from a CTI Flow.. When a CTI Flow sends some information to the CCP overlay, it will be displayed in the Data panel.



Phone



Attributes

Data



+1 3

Data Sink

foo

bar



Here is how you would configure your CTI Flow to send data back to the CCP overlay.

## Send Data to CCP Overlay

ID: uid-9 [i](#)

### Arguments

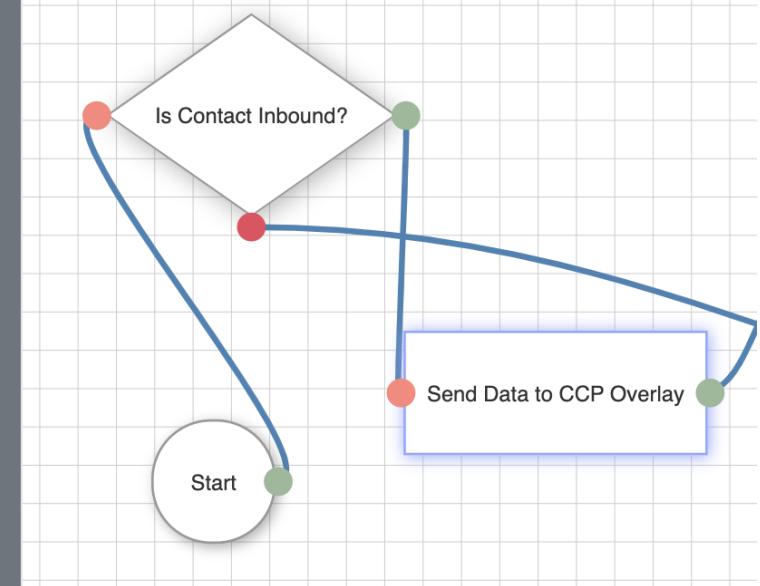
value [i](#) optional

foo

bar



Add a field



## Upgrading from an earlier version

If you are upgrading the Salesforce package from an earlier version of CTI Adapter, there are a few additional steps to follow:

1. Go to Setup
2. In "Quick Find," search for "Picklist Value Sets" and click on the result.
3. Select "AC\_CtiScriptSource" on "Picklist Value Sets" page.
4. Scroll down to "Values" section
5. Click "New" to add a new value.
6. In the textarea, enter "ctiAction" and save
7. Scroll down to the new field you added, "ctiAction," and click "Edit."
8. Update the label to "CTI Action" and save.

[Edit this page](#)

## Recording Controls

Recording Controls panel in the CCP Overlay allows your agents to control the recording behavior of the call.



Phone





Attributes

Recording Controls



Start recording

Pause recording



---

This panel integrates to Amazon Connect [call recording API](#). To use it, make sure to add [Set recording behavior block](#) in your Contact Flow. The controls will be activated during a call.

---

This can be useful when you don't want to record every call, and give the agent the ability to pause and resume a recording.

Note that once a recording is stopped, it cannot be restarted. After starting a recording, you should use pause/resume button to control it.

This panel is disabled by default. You can enable it by adding `FEATURE_RECORDING_PANEL` feature flag to your CTI Adapter, with the setting `Enabled: true`.

## Setup

First, create an IAM user and give it the managed policy `AmazonConnect_FullAccess`.

The screenshot shows the AWS IAM Permissions page. At the top, there are tabs for **Permissions**, **Groups**, **Tags**, and **Security credentials**. The **Permissions** tab is selected. Below the tabs, a section titled **▼ Permissions policies (1 policy applied)** is shown. A blue button labeled **Add permissions** is visible. Under the policy list, there is a section titled **Attached directly** containing one policy named **AmazonConnect\_FullAccess**, which is highlighted with a blue background and an orange icon.

Copy the access key and secret of this user (from the "Security credentials" tab.) Next, go to your Salesforce instance Setup section. Search for Named Credentials in the left sidebar, and create a new credential named `AmazonConnectAPI`. (The name and the label should be identical.)

# Named Credential Edit: AmazonConnectAPI

Specify the callout endpoint's URL and the authentication settings that are required for

The screenshot shows the 'Named Credential Edit' interface. At the top right are 'Save' and 'Cancel' buttons. Below them are three fields: 'Label' (AmazonConnectAPI), 'Name' (AmazonConnectAPI), and 'URL' (https://connect.us-east-1.amazonaws.com). A section titled 'Authentication' is expanded, showing fields for 'Certificate' (with a browse icon), 'Identity Type' (Named Principal), 'Authentication Protocol' (AWS Signature Version 4), 'AWS Access Key ID' (AKIAUYVLTXECVPW5), 'AWS Secret Access Key' (redacted), 'AWS Region' (us-east-1), and 'AWS Service' (connect).

Label	AmazonConnectAPI
Name	AmazonConnectAPI
URL	https://connect.us-east-1.amazonaws.com
<b>Authentication</b>	
Certificate	[Browse]
Identity Type	Named Principal
Authentication Protocol	AWS Signature Version 4
AWS Access Key ID	AKIAUYVLTXECVPW5
AWS Secret Access Key	[Redacted]
AWS Region	us-east-1
AWS Service	connect

Fill in https://connect.us-east-1.amazonaws.com as the url. For Identity Type, select "Named Principal" and for "Authentication Protocol" select "AWS Signature Version 4." Then fill in the "AWS Access Key Id" and "AWS Access Secret" fields with your IAM user credentials. And for AWS Region, use the region of your Connect instance. And for the AWS Service, fill in connect .

## Synchronizing Recording State with Contact Attributes

The Connect API does not provide a way for us to check that the recording has already been started when a call is answered. This may result in the UI panel falling out of sync with the actual state of the contact. If you

have configured your contacts to be recorded automatically, using the Contact Flow, you must take care to add a contact attribute to indicate that:

Attribute Name: RECORDING\_STARTED Attribute Value: true

If you have configured this attribute, then the recording controls will be in sync with the recording state.

 [Edit this page](#)

## Voicemail Drops

You can find the complete documentation for this feature [in this pdf](#).

 [Edit this page](#)

## Chat Widget Integration

SalesForce Experience Cloud allows you to setup a website for your customers easily, with the included template, you can setup a help center, or a customer service website with just a few clicks. Amazon Connect CTI Adapter now provides you a chat-widget component, and you can use it in the Experience Cloud Builder App to add the Amazon Connect Chat Widget to any page you want.

The screenshot below shows an example of having the chat widget added to a help center website. Please note that this feature does not support **Build Your Own(LWR)** and **Salesforce Tabs + Visualforce** template.



# What can we help you with?

Search the help center...



Account Support	FAQ	Return Policy
Shipping Fees		

⌄

**How can we help?**

Customer has joined the chat

Timing has joined the chat

Customer                                  Sent at 9:40 AM  
Hello, I need help with my order shipment.

Timing                                  9:40 AM  
What is your order number?

Type a message

**End chat**

powered by salesforce

To start using this feature, you can either follow the steps below to setup an Experience Cloud Site for testing purpose, or you can skip to the next section if you are already familiar with SalesForce Experience Cloud. **\*\*Setup experience cloud site:\*\***

- Go to Setup
- Search for Digital Experience
- Enable Digital Experience

The screenshot shows the Salesforce Setup interface with the following details:

- Left Sidebar:** Includes a search bar with "digital", a "SETUP" button, and a "Settings" icon. Below these are sections for "Feature Settings" (expanded) and "Digital Experiences" (selected).
- Header:** "Experiences" with a sub-header: "Build pixel-perfect websites, portals, communities, and forums with Experience Cloud. [Learn More](#)".
- Content Area:**
  - Enable Digital Experiences:** A section with a "Save" button and a note: "After you enable digital experiences in your org, you must still create, configure, customize, and then activate a site before it's live and available to users." A checked checkbox "Enable Digital Experiences" is shown.
  - Select a domain name:** A note: "Important: The domain name is used in all of your digital experiences and can't be changed after you save it." It shows a "Sample Domain Name" as "MyCompany.na162.force.com". To its right, three sample URLs are listed: "MyCompany.na162.force.com/customers", "MyCompany.na162.force.com/developers", and "MyCompany.na162.force.com/partners".
  - Domain Name Input:** A text input field with placeholder "-developer-edition.na162.force.com" and a "Check Availability" button.

- Create a new Site by clicking New button

The list shows Experience Cloud sites in your org. Clicking on the URL takes you directly to the site. If you're not a member, the URL isn't linked.

**Maximum number of sites (including active, inactive, and preview): 100**

All Sites	New
No Sites	

- Choose Help center template to create a new site

**Choose the Experience You Love**

BROWSE BY:

All Sales Service Commerce Installed

**Build Your Own (LWR)**  
by Salesforce

Unparalleled Performance • Standards-Based Customization •

Develop blazing fast digital experiences, such as websites, microsites, and portals, using the Lightning...

**B2C Commerce**  
by Salesforce

Live search • Product filtering • Einstein Product Recommendations •

Create a responsive ecommerce store that provides easy customization of store layout and template, configure...

**Help Center**  
by Salesforce

Self-Service • Curated Knowledge • Case Deflection • Guest Case Creation

Give your customers the answers they're looking for. Customers can search for and read articles and contact...

**Customer Account Portal**  
by Salesforce

**Customer Service**  
by Salesforce

**Build Your Own**  
by Salesforce

- Go to Builder of the new site

The screenshot shows the 'My Workspaces' section of the Experience Cloud Site Builder. It displays seven workspace cards:

- Builder**: Build, brand, and customize your site's pages.
- Moderation**: Monitor posts and comments, create rules.
- Content Management**: Organize, manage, and build collections for your Experience Cloud site.
- Gamification**: Keep your members engaged with recognition badges.
- Dashboards**: Examine the health of your site with reports and dashboards and engage with members.
- Administration**: Configure settings and properties for your experience.
- Guided Setup**: Configure features and integrations with step-by-step instructions.

- This will be the place to setup chat widget feature in the following sections. You can get yourself familiar with this Builder before moving to the next section.

## Setup chat widget for your experience cloud sites.

- Option 1: Setting up using out-of-box VisualForce page. Choose this if you need the chat widget only on one specific page.
- Option 2: Setting up using Lightning Component based on VisualForce page. Choose this if you need the chat widget only on one specific page but you don't have the license for the VisualForce page component in the experience cloud builder. It is a workaround for Option1.
- Option 3: Setting up using custom header. Choose this if you want the chat widget exists across all pages.

### Option 1: Setting up using VisualForce page.

- Follow instructions [here](#) to setup your Chat Widget and copy the script to a text editor.
- Go to Service Console
- Go to AC CTI Adapter. If the CTI Adapter Owner is **Amazon Connect – Universal Package**, please update it to yourself or any other real user.
- Go to Features tab
- Click New to create a new Feature

- In the Name field, put FEATURE\_CHAT\_WIDGET
- In the Value field, input the following key value pairs based on your chat widget script. If you didn't enable the security feature of chat widget, you don't need to add the key value pair for authEndpoint

Example ChatWidget key value pairs input

```
{
  "cloudfrontId": "dg9yx063wiht",
  "widgetId": "5338d219-92c7-427e-8b10-26a8f4dfb3d1",
  "openChatColor": "white",
  "openChatBackgroundColor": "#826359",
  "closeChatColor": "white",
  "closeChatBackgroundColor": "#940eb9",
  "snippetId": "QVFJREFIaUpTVGJkNWhNc0Q1WHpHYnFQTkJyYXN0.....",
  "authEndpoint": "https://www.yourdomain.com/yourAuthEndpoint"
}
```

The input above is for the following example ChatWidget Script

```
<script type="text/javascript">
(function(w, d, x, id){
  s=d.createElement('script');
  s.src='https://dg9yx063wiht.cloudfront.net/amazon-connect-chat-interface-client.js';
  s.async=1;           cloudfrontId
  s.id=id;
  d.getElementsByTagName('head')[0].appendChild(s);
  w[x] = w[x] || function() { (w[x].ac = w[x].ac || []).push(arguments) };           widgetId
})(window, document, 'amazon_connect', '5338d219-92c7-427e-8b10-26a8f4dfb3d1');
amazon_connect('styles', { openChat: { color: 'white', backgroundColor: '#826359' },
closeChat: { color: 'white', backgroundColor: '#940eb9' } });
amazon_connect('snippetId', 'QVFJREFIaU...');

</script>           snippetId

```

script:

```
<script type="text/javascript">
  (function(w, d, x, id){
    s=d.createElement('script');
    s.src='https://dg9yx063wiht.cloudfront.net/amazon-connect-chat-
interface-client.js';
    s.async=1;
    s.id=id;
    d.getElementsByTagName('head')[0].appendChild(s);
    w[x] = w[x] || function() { (w[x].ac = w[x].ac || []).push(arguments) };

  })(window, document, 'amazon_connect', '5338d219-92c7-427e-8b10-
```

```

26a8f4dfb3d1');
    amazon_connect('styles', { openChat: { color: 'white', backgroundColor: '#826359' }, closeChat: { color: 'white', backgroundColor: '#940eb9' } });
    amazon_connect('snippetId',
'QVFJREFIaUpTVGJkNWhNc0Q1WHpHYnFQTkJyYXN0.....=');
</script>

```

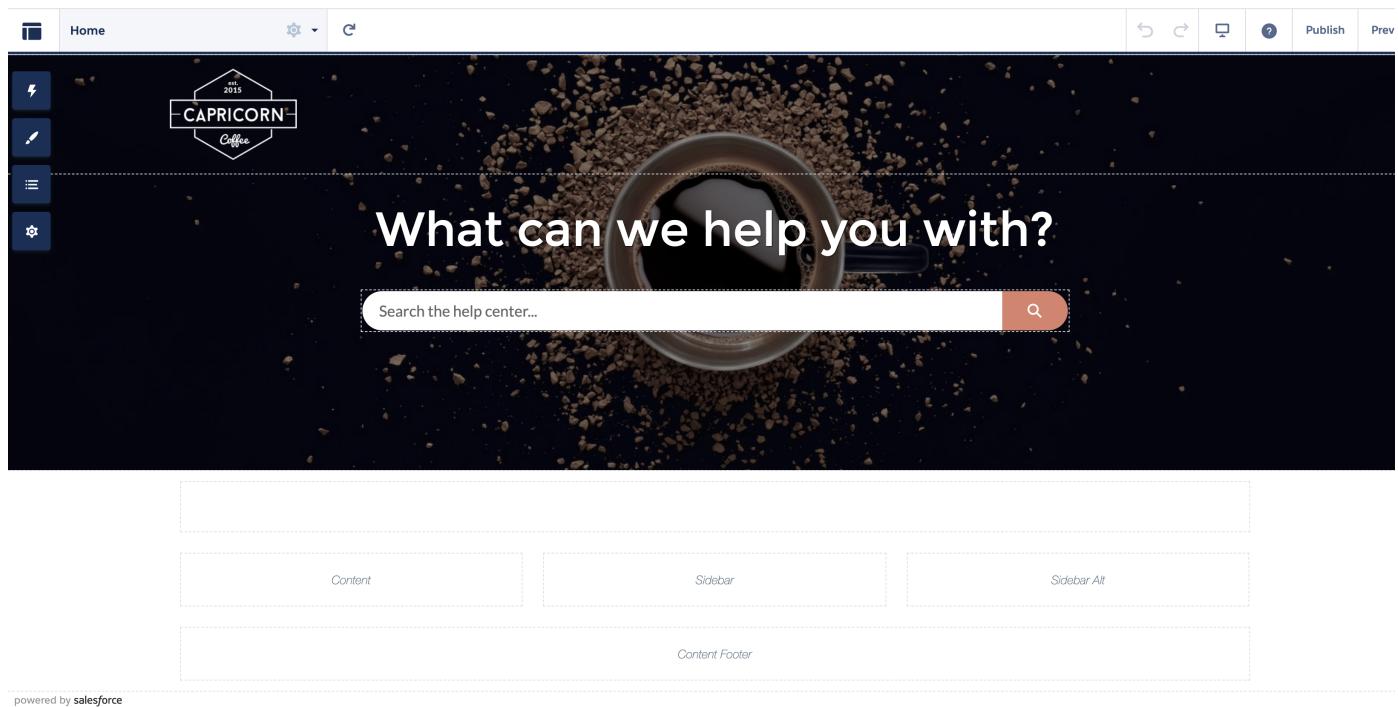
## Example Call back function for JWT

```

amazon_connect('authenticate', function(callback) {
  window.fetch('https://www.yourdomain.com/yourAuthEndpoint').then(res => {
    res.json().then(data => {
      callback(data.data);
    });
  });
});

```

- Click Save
- Go to Setup
- Go to VisualForce page
- Select AC\_ChatWidget
- Click Preview
- You should see a chat icon on the right bottom corner. If not, check browser console for error messages
- Copy the AC\_ChatWidget visualforce page URL.
- Go to your Experience Cloud Builder



- Open Components

IT

Home

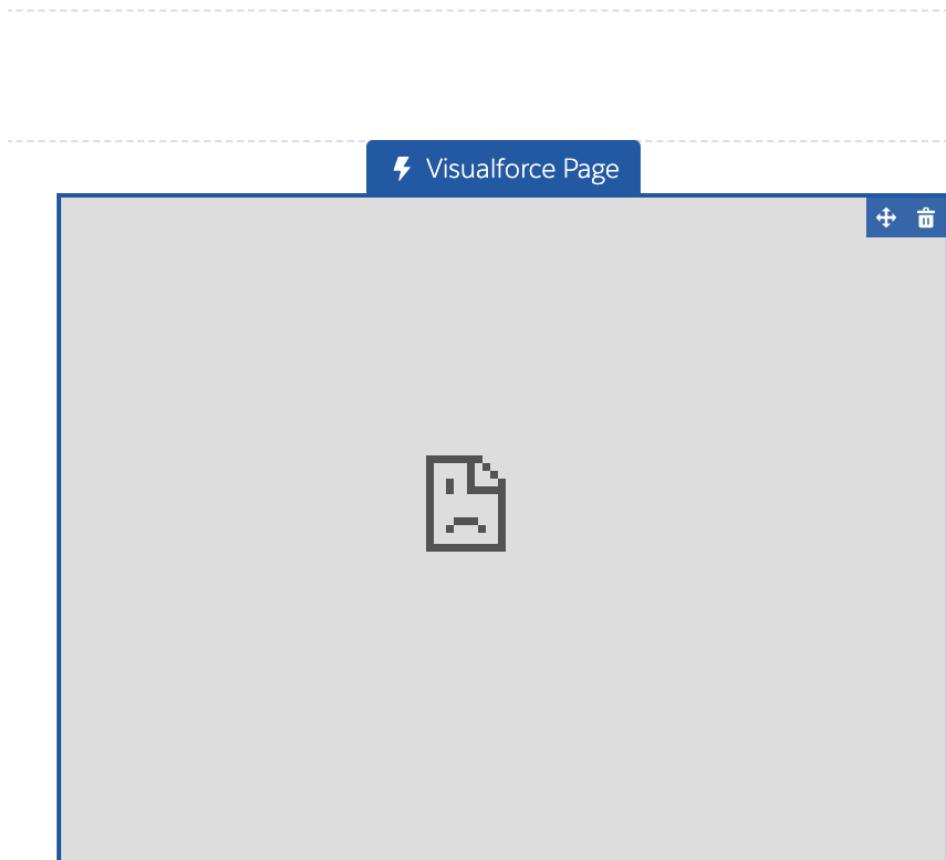
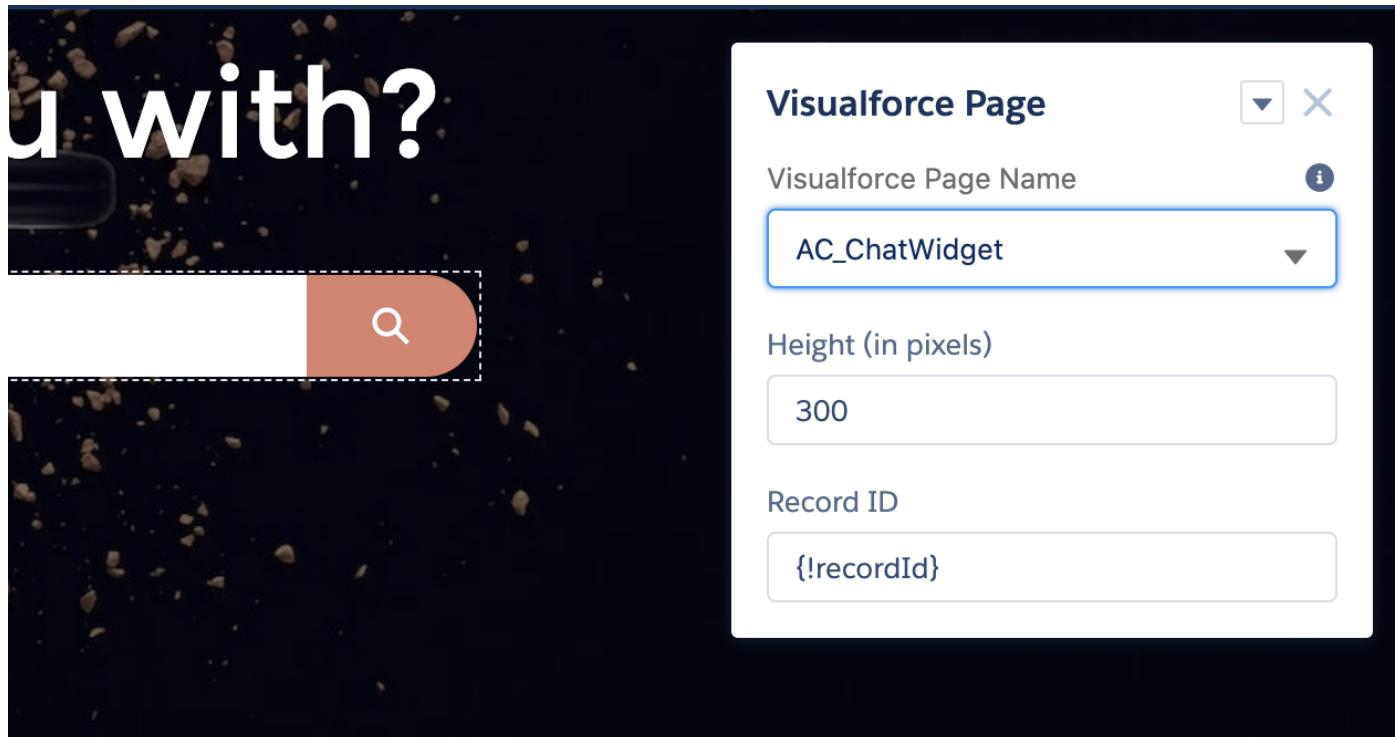
Components

Search...

CONTENT (12)

- CMS Collection
- CMS Connect (HTML)
- CMS Connect (JSON)
- CMS Single Item
- Headline
- HTML Editor
- Language Selector
- Recommendations Carousel
- Rich Content Editor
- Tabs
- Tile Menu
- Visualforce Page

- Drag and drop Visualforce Page to your page. If you didn't enable chat widget security, you need to change the Visualforce Page Name to AC\_ChatWidget. If you enabled security for ChatWidget, change it to AC\_ChatWidgetWithJWT



- Go to Settings→General→Guest User Profile and click in to the Guest User Profile

## Guest User Profile

Configure access for guest or unauthenticated users. [Learn More](#)  
[dev3test Profile](#)

- Inside Guest user profile, go to Enabled Visualforce Page Access
- Add amazonconnect.AC\_ChatWidget( or AC\_ChatWidgetWithJWT if you have enabled security for chat widget)

## Enable Visualforce Page Access

Select the Visualforce pages that you want to make accessible at this Salesforce site.

The screenshot shows a configuration interface for enabling Visualforce pages. At the top right are 'Save' and 'Cancel' buttons. Below them are two main sections: 'Available Visualforce Pages' and 'Enabled Visualforce Pages'. The 'Available' section contains a long list of Visualforce page names, many of which begin with 'amazonconnect.AC\_'. The 'Enabled' section contains a similar list, also starting with 'amazonconnect.AC\_'. The 'amazonconnect.AC\_ChatWidget' page is specifically highlighted with a blue border around its entry in the 'Enabled' list, indicating it has been selected for configuration.

Available Visualforce Pages	Enabled Visualforce Pages
amazonconnect.ACSCFCCP_ObjectType	CommunitiesLogin
amazonconnect.ACSCFCCP_PostCallUpdateTask	CommunitiesSelfReg
amazonconnect.AC_AgentStatusSessionEnd	CommunitiesSelfRegConfirm
amazonconnect.AC_CCPElementEditor	CommunitiesTemplate
amazonconnect.AC_CallRecordingTask	Exception
amazonconnect.AC_ClassicAdapter	FileNotFoundException
amazonconnect.AC_ClassicScriptIncludes	ForgotPassword
amazonconnect.AC_ConsoleAdapter	ForgotPasswordConfirm
amazonconnect.AC_ConsoleScriptIncludes	InMaintenance
amazonconnect.AC_CtiFlowEditor	SiteLogin
amazonconnect.AC_CtiScriptEditor	SiteRegister
amazonconnect.AC_HelperIncludes	SiteRegisterConfirm
amazonconnect.AC_HelperIncludesCcpV1	UnderConstruction
amazonconnect.AC_HelperIncludesCcnV2	amazonconnect.AC_ChatWidget

- Click Save

- Go to Enable Apex Class Access and add amazonconnect.AC\_ChatWidgetController

Select the Visualforce pages that you want to make accessible at this Salesforce site.

		Save	Cancel
<b>Available Apex Classes</b>		<b>Enabled Apex Classes</b>	
amazonconnect.AC_CTCF_PostComputeTaskController amazonconnect.AC_AmazonConnectAPI amazonconnect.AC_CCAContactLens amazonconnect.AC_CCPElementEditorController amazonconnect.AC_CCPOverlayController amazonconnect.AC_CTIFlowController amazonconnect.AC_CaseCCATriggerBatch amazonconnect.AC_ContactCCATriggerBatch amazonconnect.AC_ContactChannelController amazonconnect.AC_ContactChannelWrapper amazonconnect.AC_CtiScriptExtension amazonconnect.AC_PhoneCallController amazonconnect.AC_PhoneCallWrapper amazonconnect.AC_PostInstallHandler amazonconnect.AC_QueueMetricsController		amazonconnect.AC_ChatWidgetController	
		<input type="button" value="Add"/> <input type="button" value="Remove"/>	

- Click Publish button on the top right to publish the website

Home

General

View and edit the main properties of your site.

**Site Details**

**Template**

Help Center

**Public Access**

Public can access the site

Publish

- Copy the published website URL in Settings→Published Status
- Go back to Amazon Connect Chat Widget website, add following url to the allow-list Domains:
  - The AC\_ChatWidget visualforce page URL, remove everything after .com
  - The published website URL to chat widget allow-list origin, remove everything after .com
- Go to Setup→Sharing Settings. Search for AC CTI Adapter Sharing Rules. Create a new Rule for Guest user so that they have the object access. Make sure in Step2 the Rule Type is Guest user access, the Steps 3 you put a proper criteria, for testing purpose you can put CTI Adapter Name not equal to 1. In Step 4 Share with the Guest user profile of the community website you are working on, and change the

## Access level to Read Only

SETUP  Sharing Settings

Setup Help for this Page ?

### AC CTI Adapter Sharing Rule

Use sharing rules to make automatic exceptions to your organization-wide sharing settings for defined sets of users.

Note: "Roles and subordinates" includes all users in a role, and the roles below that role. This includes portal roles that may give access to users outside the organization.

You can use sharing rules only to grant wider access to data, not to restrict access.

**Step 1: Rule Name** |= Required Information

Label	<input type="text" value="test"/>
Rule Name	<input type="text" value="test"/> 
Description	<input type="text"/>

**Step 2: Select your rule type**

Rule Type  Based on record owner  Based on criteria  Guest user access, based on criteria

**Step 3: Select which records to be shared**

This sharing rule grants access to guest users without login credentials. By modifying the default settings in accordance with these criteria, you're allowing immediate and unlimited access to all records matching these criteria to anyone accessing the site, even without logging in. To secure your site and its data from guest users, consider all the use cases and implications, and implement security controls that you think are appropriate for the sensitivity of your data. Salesforce isn't responsible for any exposure of your data to guest users related to this change from default settings.

Criteria	Field	Operator	Value	
	--None--	--None--		AND
	--None--	--None--		AND
	--None--	--None--		AND
	--None--	--None--		AND
	--None--	--None--		

[Add Filter Logic...](#)

Additional Options  Include records owned by high-volume users 

**Step 4: Select the users to share with**

Share with

**Step 5: Select the level of access for the users**

Access Level

**Buttons:** Save Cancel

**Verify the change:** Open your published website in a incognito window, you should be able to use chat widget to chat as a customer and chat to your agent without login Note: If you want to setup chat widget for authorized user group only, you could change the settings to the guest profile to the authorized user profile.

## Option 2: Setting up using out-of-box Lightning Component.

- Follow instructions [here](#) to setup your Chat Widget and copy the script to a text editor.
- Go to Service Console
- Go to AC CTI Adapter. If the CTI Adapter Owner is [Amazon Connect – Universal Package](#), please update it to yourself or any other real user.
- Go to Features tab

- Click New to create a new Feature
- In the Name field, put FEATURE\_CHAT\_WIDGET
- In the Value field, input the following key value pairs based on your chat widget script. If you didn't enable the security feature of chat widget, you don't need to add the key value pair for authEndpoint

Example ChatWidget key value pairs input

```
{
  "cloudfrontId": "dg9yx063wiht",
  "widgetId": "5338d219-92c7-427e-8b10-26a8f4dfb3d1",
  "openChatColor": "white",
  "openChatBackgroundColor": "#826359",
  "closeChatColor": "white",
  "closeChatBackgroundColor": "#940eb9",
  "snippetId": "QVFJREFIaUpTVGJkNWhNc0Q1WHpHYnFQTkJyYXN0.....=",
  "authEndpoint": "https://www.yourdomain.com/yourAuthEndpoint"
}
```

The input above is for the following example ChatWidget Script

```
<script type="text/javascript">
(function(w, d, x, id){
  s=d.createElement('script');
  s.src='https://dg9yx063wiht.cloudfront.net/amazon-connect-chat-interface-client.js';
  s.async=1;      cloudfrontId
  s.id=id;
  d.getElementsByTagName('head')[0].appendChild(s);
  w[x] = w[x] || function() { (w[x].ac = w[x].ac || []).push(arguments) };      widgetId
})(window, document, 'amazon_connect', '5338d219-92c7-427e-8b10-26a8f4dfb3d1');
amazon_connect('styles', { openChat: { color: 'white', backgroundColor: '#826359' },
  closeChat: { color: 'white', backgroundColor: '#940eb9' } });
amazon_connect('snippetId', 'QVFJREFIaU...');
</script>          snippetId
```

script:

```
<script type="text/javascript">
  (function(w, d, x, id){
    s=d.createElement('script');
    s.src='https://dg9yx063wiht.cloudfront.net/amazon-connect-chat-
interface-client.js';
    s.async=1;
    s.id=id;
    d.getElementsByTagName('head')[0].appendChild(s);
    w[x] = w[x] || function() { (w[x].ac = w[x].ac || []).push(arguments) };
  })(window, document, 'amazon_connect', '5338d219-92c7-427e-8b10-
```

```

});(window, document, 'amazon_connect', '558d219-92c7-427e-8b10-
26a8f4dfb3d1');

amazon_connect('styles', { openChat: { color: 'white', backgroundColor:
'#826359'}, closeChat: { color: 'white', backgroundColor: '#940eb9'} });

amazon_connect('snippetId',
'QVFJREFIaUpTVGJkNWhNc0Q1WHpHYnFQTkJyYXN0.....=');

</script>

```

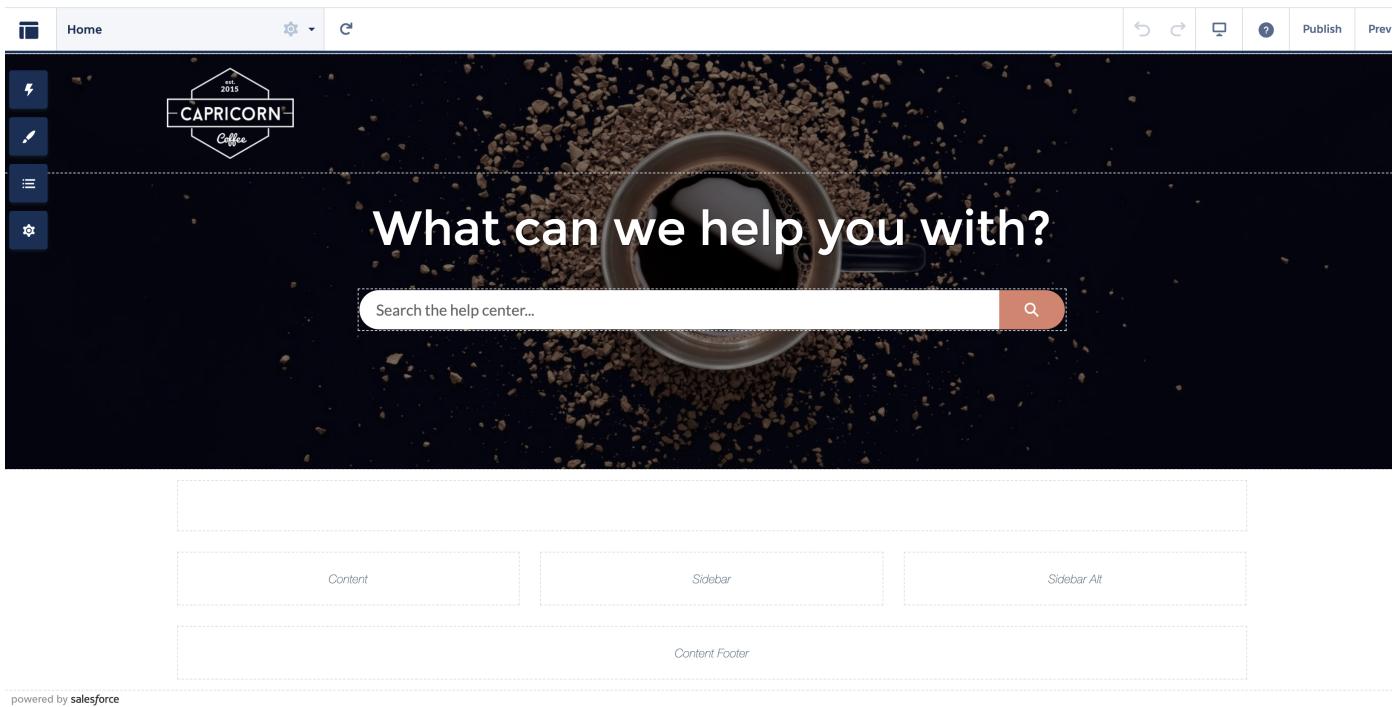
## Example Call back function for JWT

```

amazon_connect('authenticate', function(callback) {
  window.fetch('https://www.yourdomain.com/yourAuthEndpoint').then(res => {
    res.json().then(data => {
      callback(data.data);
    });
  });
});

```

- Click Save
- Go to Setup
- Go to VisualForce page
- Select AC\_ChatWidget
- Click Preview
- You should see a chat icon on the right bottom corner. If not, check browser console for error messages
- Copy the AC\_ChatWidget visualforce page URL.
- Go to your Experience Cloud Builder



- Open Components

The screenshot shows the Home screen of a Content Editor interface. On the left, there is a vertical sidebar with four icons: a lightning bolt (top), a pen (second), a list (third), and a gear (bottom). The main area is titled "Components" and features a search bar with a magnifying glass icon and the placeholder "Search...". Below the search bar, a section titled "CONTENT (12)" is expanded, showing a list of components with their corresponding icons:

- CMS Collection
- CMS Connect (HTML)
- CMS Connect (JSON)
- CMS Single Item
- Headline
- HTML Editor
- Language Selector
- Recommendations Carousel
- Rich Content Editor
- Tabs
- Tile Menu
- Visualforce Page

- Drag and drop iFrame Component to your page



# Components



Search...



Record Detail



Related Record List

## SALES (1)



Campaign Marketplace

## SUPPORT (6)



Case Deflection



Channel Menu



Contact Request Button & F...



Contact Support Button



Contact Support Form



Embedded Service Appoint...

## TOPICS (3)



Featured Topics



Topic Catalog



Trending Topics

## ▼ CUSTOM COMPONENTS (1)



Some components in this section are blocked due to the site's security level setting. [More Details](#)



iFrame Component

Get more on the AppExchange

- Change Chat Widget URL to <your-website-domain>/apex/amazonconnect\_\_AC\_ChatWidget if you did not enable the security for the chat widget. If you have enabled security, change it to <your-website-domain>/apex/amazonconnect\_\_AC\_ChatWidgetWithJWT
  - You will have the website domain once it is published. The URL is in Settings→General→Published Status, and the part from https to .com is your website domain. If you haven't published it yet, you can update it once it is published and re-publish the website.
  - If you have site name, you need to append /<site-name> after your domain name. For example if the published website is demo-developer-edition.na111.force.com/testing/s/, your Chat Widget URL should be:
    - If security disabled --> demo-developer-edition.na111.force.com/testing/amazonconnect\_\_AC\_ChatWidget
    - If security enabled --> demo-developer-edition.na111.force.com/testing/amazonconnect\_\_AC\_ChatWidgetWithJWT
- Go to Settings→General→Guest User Profile and click in to the Guest User Profile

### Guest User Profile

Configure access for guest or unauthenticated users. [Learn More](#)  
[dev3test Profile](#)

- Inside Guest user profile, go to Enabled Visualforce Page Access

- Add amazonconnect.AC\_ChatWidget( or AC\_ChatWidgetWithJWT if you have enabled security for chat widget)

## Enable Visualforce Page Access

Select the Visualforce pages that you want to make accessible at this Salesforce site.

Available Visualforce Pages		Enabled Visualforce Pages	
<code>amazonconnect.ACSFCCP_ObjectType</code>	<code>amazonconnect.AC_AgentStatusSessionEnd</code>	<code>CommunitiesLogin</code>	<code>CommunitiesSelfReg</code>
<code>amazonconnect.ACSFCCP_PostCallUpdateTask</code>	<code>amazonconnect.AC_CCPElementEditor</code>	<code>CommunitiesSelfRegConfirm</code>	<code>CommunitiesTemplate</code>
<code>amazonconnect.AC_CallRecordingTask</code>	<code>amazonconnect.AC_ClassicAdapter</code>	<code>Exception</code>	<code>FileNotFoundException</code>
<code>amazonconnect.AC_ClassicScriptIncludes</code>	<code>amazonconnect.AC_ConsoleAdapter</code>	<code>ForgotPassword</code>	<code>ForgotPasswordConfirm</code>
<code>amazonconnect.AC_ConsoleScriptIncludes</code>	<code>amazonconnect.AC_CtiFlowEditor</code>	<code>InMaintenance</code>	<code>SiteLogin</code>
<code>amazonconnect.AC_CtiScriptEditor</code>	<code>amazonconnect.AC_HelperIncludes</code>	<code>SiteRegister</code>	<code>SiteRegisterConfirm</code>
<code>amazonconnect.AC_HelperIncludesCcpV1</code>	<code>amazonconnect.AC_HelperIncludesCcpV2</code>	<code>UnderConstruction</code>	<code>amazonconnect.AC_ChatWidget</code>

- Click Save
- Go to Enable Apex Class Access and add `amazonconnect.AC_ChatWidgetController`

## Enable Apex Class Access

Select the Visualforce pages that you want to make accessible at this Salesforce site.

Available Apex Classes		Enabled Apex Classes	
<code>amazonconnect.ACSTFCPR_PostCallUpdateTaskController</code>	<code>amazonconnect.AC_AmazonConnectAPI</code>	<code>amazonconnect.AC_ChatWidgetController</code>	
<code>amazonconnect.AC_CCAContactLens</code>	<code>amazonconnect.AC_CCPElementEditorController</code>		
<code>amazonconnect.AC_CCPOverlayController</code>	<code>amazonconnect.AC_CTIFlowController</code>		
<code>amazonconnect.AC_CaseCCATriggerBatch</code>	<code>amazonconnect.AC_ContactCCATriggerBatch</code>		
<code>amazonconnect.AC_ContactChannelController</code>	<code>amazonconnect.AC_ContactChannelWrapper</code>		
<code>amazonconnect.AC_CtIScriptExtension</code>	<code>amazonconnect.AC_PhoneCallController</code>		
<code>amazonconnect.AC_PostInstallHandler</code>	<code>amazonconnect.AC_PhoneCallWrapper</code>		
<code>amazonconnect.AC_QueueMetricsController</code>			

- Click Publish button on the top right to publish the website

- Copy the published website URL in Settings→Published Status
- Go back to Amazon Connect Chat Widget website, add following url to the allow-list Domains:

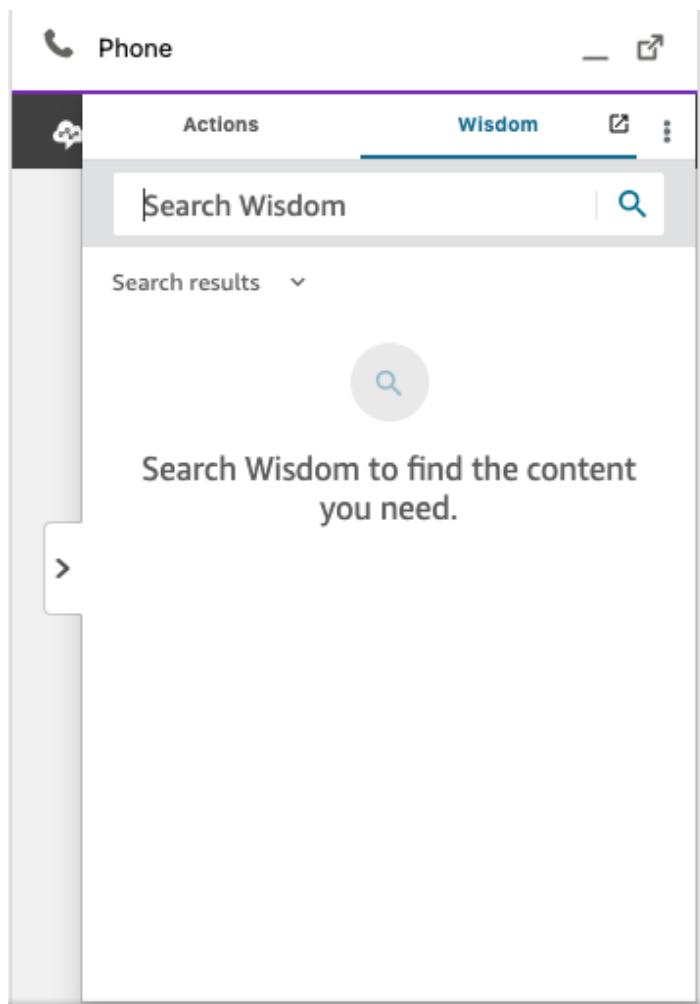
\* The AC\_ChatWidget visualforce page URL, remove everything after .com  
 \* The published website URL to chat widget allow-list origin, remove everything after .com

**Verify the change:** Open your published website in a incognito window, you should be able to use chat widget to chat as a customer and chat to your agent without login

[Edit this page](#)

# Wisdom Integration

The Amazon Connect CTI Adapter allows for integration with Amazon Connect Wisdom.



The integration between Wisdom and the CTI Adapter first requires that Wisdom is set up in the Amazon Connect instance that the CTI Adapter is integrated with. See [here](#) for full instructions.

Before proceeding with the below, please ensure that Wisdom articles are properly showing up in your Wisdom instance for the specific user you are testing.

#### **Amazon Connect Wisdom Permission Sets:**

Salesforce users accessing Amazon Connect Wisdom in Salesforce must belong to either the *AC\_Wisdom* permission set, or the *AC\_Administrator* permission set.

1. In *setup*, search for and select *permission sets*.
2. Select either the *AC\_Wisdom* or the *AC\_Administrator* permission set
3. Select *Manage Assignments*, and add all relevant users to the permission set of choice.

#### **Setting up Amazon Connect Wisdom in the CCP Overlay:**

1. Navigate to your CTI Adapter

2. Scroll down to the Features section and create a new feature

The screenshot shows a navigation bar with tabs: Attributes, CTI Flows, Presence Sync Rules, and Features. The 'Features' tab is highlighted with a blue underline. Below the tabs, there is a button labeled 'Features (0)' with a small icon of a gear and a plus sign. To the right of this button is a white rectangular button with the word 'New' in blue text.

3. Create a new feature with the following values:

- AC Feature Name - FEATURE\_WISDOM\_PANEL
- Value - Enabled: true

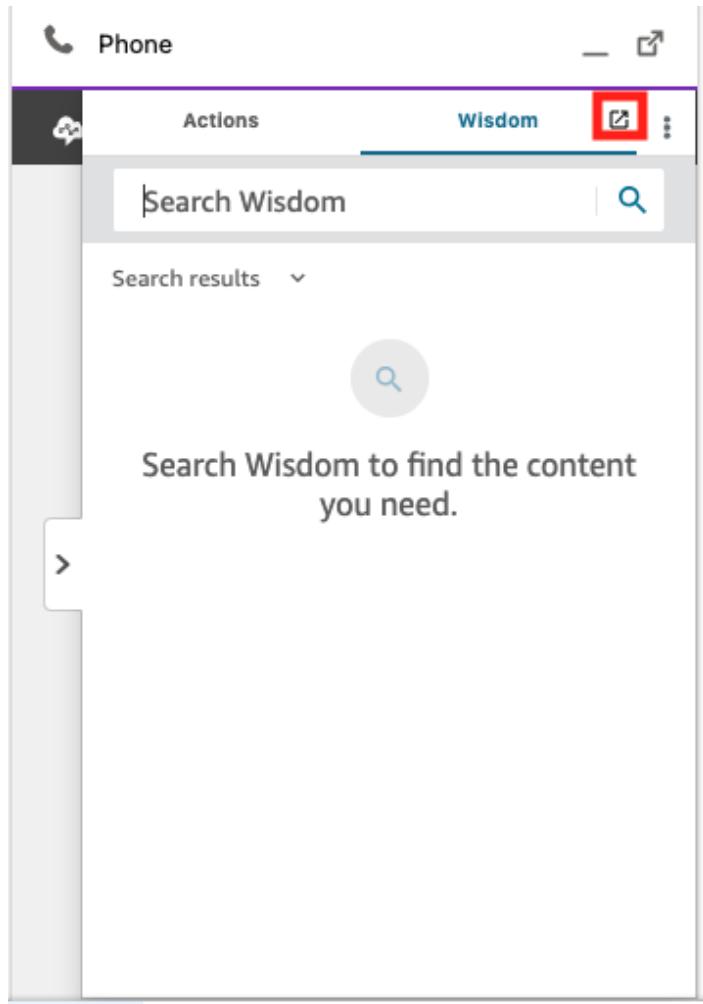
The screenshot shows a dialog box for creating an AC Feature. The title bar says 'AC Feature' and the feature name is 'FEATURE\_WISDOM\_PANEL'. The configuration fields are:

- AC Feature Name: **FEATURE\_WISDOM\_PANEL**
- Value: **Enabled: true**
- Active:

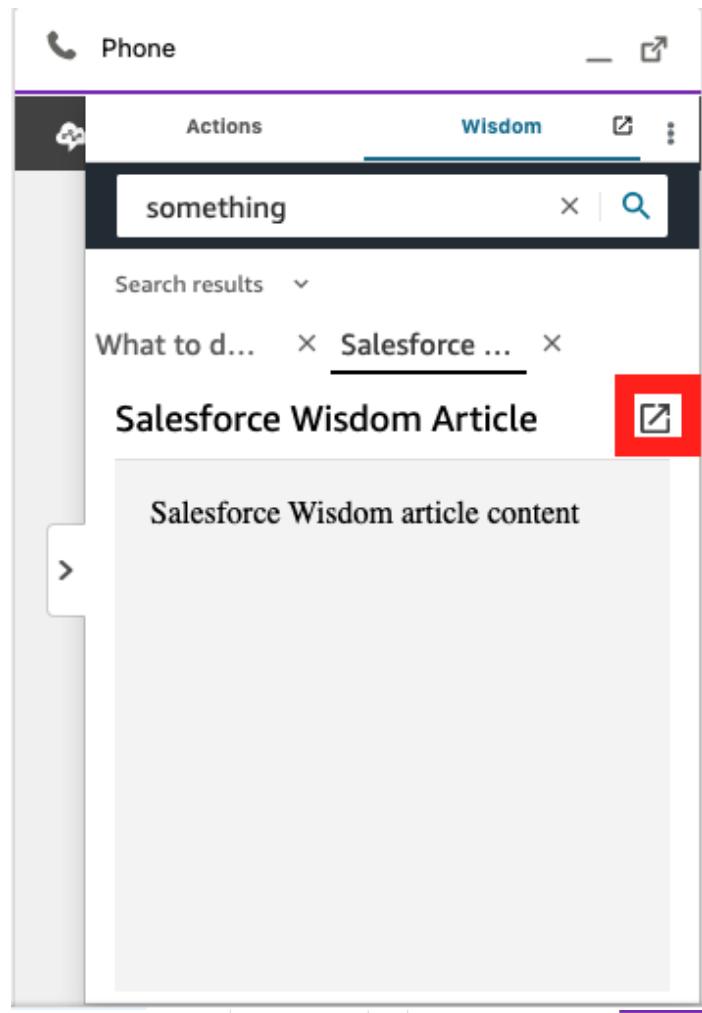
4. Open the ccp, observe that there is a tab with Wisdom in the CCP Overlay.

The screenshot shows the CCP (Customer Care Platform) overlay. At the top, there is a header with a phone icon and the word 'Phone'. Below the header, there is a navigation bar with tabs: Actions, **Wisdom**, and a third tab represented by three dots. The 'Wisdom' tab is currently selected. Below the navigation bar is a search bar with the placeholder text 'Search Wisdom' and a magnifying glass icon. Underneath the search bar, there is a message: 'Search results' followed by a large circular placeholder icon with a magnifying glass symbol. Below this, the text 'Search Wisdom to find the content you need.' is displayed.

Wisdom can be popped out into a new window by pressing pop out button.



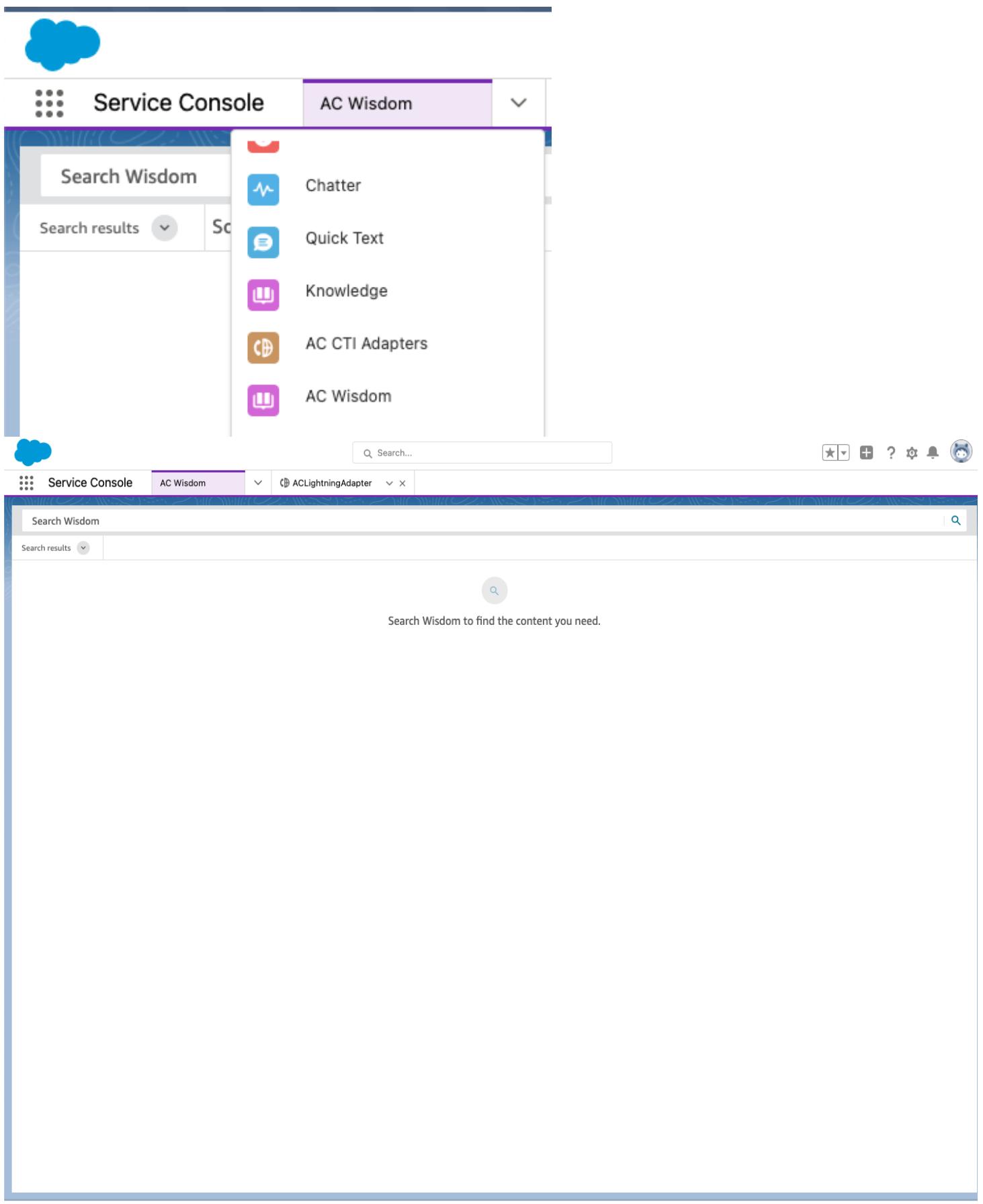
In addition, articles that originated in Salesforce Knowledge have a button that pops out the article into Salesforce Knowledge.



A screenshot of the Salesforce Service Console Knowledge tab. The top navigation bar includes "Service Console", "Knowledge", "ACLightningAdapter", and "Salesforce Wisdom ...". The main content area shows a "Knowledge" section for a "Salesforce Wisdom Article". The article details are: Article Record Type: FAQ; Article Number: 000001007; Publication Status: Draft; Last Modified Date: 11/4/2021, 4:03 PM; Version Number: 0. Below this are tabs for "Details", "Related", and "Versions", with "Details" being active. The "Information" section contains fields for Title (Salesforce Wisdom Article) and URL Name (Salesforce-Wisdom-Article). The "Article Details" section contains fields for Question (Salesforce Wisdom Article Content) and Answer. To the right, there's a "Was this article helpful?" section with upvote and downvote counts (0 each) and a "Categories (0)" section with an "Expand All" button.

## Accessing the Tabbed Version of Wisdom:

Wisdom is also accessible in Tabbed form.



### Accessing the Component Version of Wisdom:

The final method of accessing Wisdom in Salesforce is through the Wisdom component.

1. Navigate to Object Manager in Setup

2. Select either Task or Case (note: the Wisdom component is embeddable in other pages as well, but you may need to write custom classes in order to do so.)
3. Select *Page Layouts*
4. Select the appropriate layout
5. Select *Visualforce Pages* in the top component

The screenshot shows the Salesforce Object Manager interface for the 'Task' object. The left sidebar has tabs for 'Details', 'Fields & Relationships', 'Page Layouts' (which is selected), 'Lightning Record Pages', 'Buttons, Links, and Actions', and 'Compact Layouts'. In the main area, there's a 'Task Layout' toolbar with buttons for 'Save', 'Quick Save', 'Preview As...', 'Cancel', 'Undo', 'Redo', and 'Layout Properties'. Below the toolbar is a 'Quick Find' search bar labeled 'Page Name'. A list of Visualforce pages is displayed in a grid, with 'AC\_WisdomTask' highlighted.

Page Name
ACSFCCP_CallRecord...
ACSFCCP_CallTask
AC_CallRecordingTask
ACSFCCP_PostCallU...
<b>AC_WisdomTask</b>

6. Click and drag the appropriate Wisdom visualforce page into the desired location
7. Save the layout
8. Navigate to a task page

The screenshot shows a task page in the Salesforce Lightning Experience. At the top, there are buttons for 'Mark Complete', 'Edit Comments', 'Change Date', and 'Change Status'. Below that is a search bar with the placeholder 'Search Wisdom' and a magnifying glass icon. A message below the search bar says 'Search Wisdom to find the content you need.' There are also sections for 'Assigned To' and 'Name'.

[Edit this page](#)

# Voice Id

The Amazon Connect CTI Adapter allows for integration with Amazon Connect Voice Id.

The integration between Voice Id and the CTI Adapter first requires that Voice Id is set up in the Amazon Connect instance that the CTI Adapter is integrated with. See [here](#) for full instructions.

Before proceeding with the below, please ensure that Voice Id works as expected in a standalone CCP.

## Enabling the Voice Id Trigger:

1. In Setup, search for Custom Settings.
2. Click on Custom Settings, and click Manage on the row with the **Toolkit for Amazon Connect** setting
3. Click into your setting (or create one if it doesn't exist)

The screenshot shows the 'Custom Setting' section under 'Toolkit for Amazon Connect'. It includes a note about adding new data or hierarchies. The table has a header row with 'Name', 'Value', and 'Description'. A red box highlights the 'New' button in the top right corner of the table area.

4. Search and assign the toolkit for either your profile or user, and then uncheck Disable the Voice Id Channel Trigger

## Toolkit for Amazon Connect Edit

Provide values for the fields you created. This data is cached with the application.

The screenshot shows the 'Edit Toolkit for Amazon Connect' page. Under 'Toolkit for Amazon Connect Information', there are five checkboxes for triggers: 'Disable the CCA Case Trigger', 'Disable the CCA Contact Trigger', 'Disable the Case Contact CCA Trigger', 'Disable the Task Trigger', and 'Disable the Voice Id Channel Trigger'. Below these checkboxes is a 'Url' field with a magnifying glass icon. A red box highlights the 'Url' field.

5. Enter the domain of Amazon Connect instance in the Url field (if it doesn't exist already).
6. Click save.

After following the above steps, **AC\_VoiceIdChannel\_\_c** records will start to be created on calls where Voice Id is active. These records can be viewed in the AC Voice Id Channel tab:



Service Console

AC Voice Id Channel



All ▾

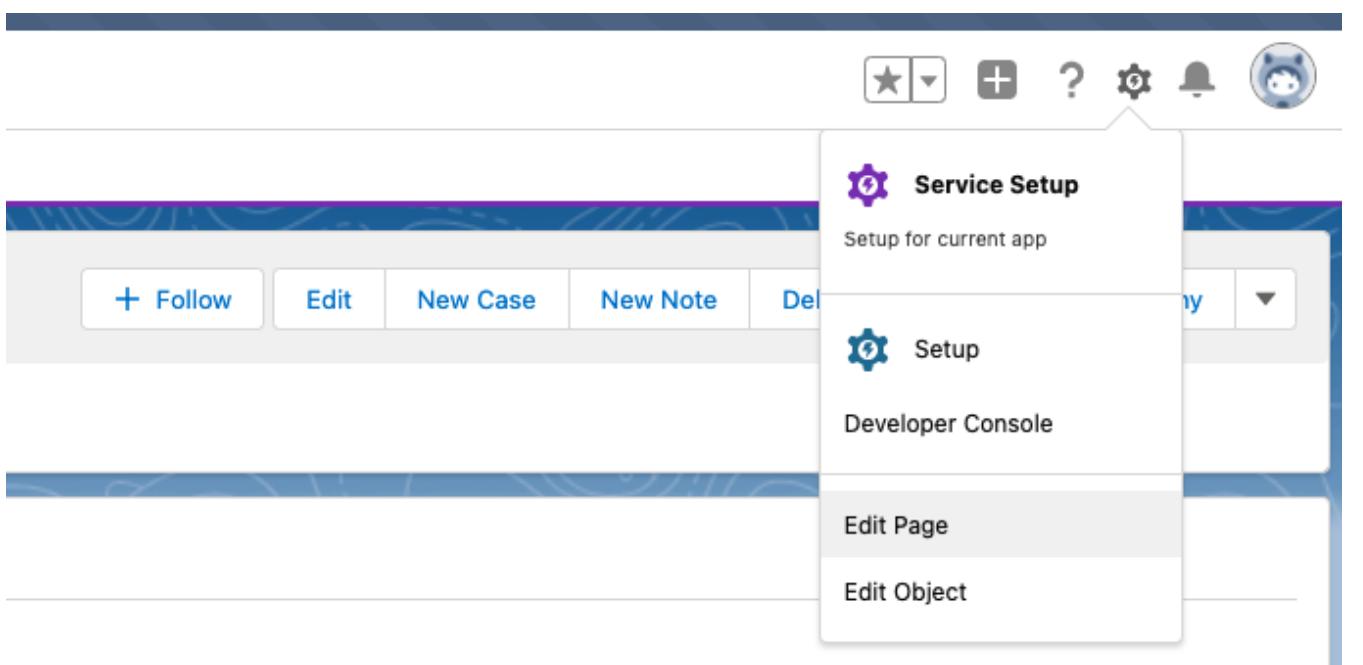


50+ items • Updated a few seconds ago

Search this list...

 AC Voice Id Channel Name ↓ Voice Id Channel 000000109 Voice Id Channel 000000108 Voice Id Channel 000000107 Voice Id Channel 000000106 Voice Id Channel 000000105 Voice Id Channel 000000104 Voice Id Channel 000000103**Adding Voice Id Components:** Add the Voice Id component to the contacts page:

1. Navigate to Contacts list, and create a contact with the phone number you'll use for testing.
2. Click into the created Contact page, on the right-top corner, click the Setup icon and then click Edit Page.



3. Find `ac_VoiceIdChannelListView` in the custom components list, drag and drop it into the page.

4. Save and return to the record page. Click activate and assign as Org Default if prompted.

Add the Voice Id component to the Task/Cases page:

1. Open the task record page, and Edit Page (same steps as Contacts).
2. Find `ac_VoiceIdChannelDetailView` in the custom components list, drag and drop it into the page.

3. Save and return to the record page. Click activate and assign as Org Default if prompted.

The screenshot shows a Salesforce interface for a Case record. The top navigation bar includes tabs for 'Call' and 'Case'. The main title is 'Voice Id Channel Record' with a note 'No Voice Id Record found.' Below this is a 'Feed' section with tabs for 'Feed' (selected) and 'Details'. Under 'Feed', there are buttons for 'Post', 'Log a Call', 'Change Priority', and 'Close the Case'. A text input field says 'Share an update...' with a 'Share' button. At the bottom of the feed section, there's a search bar 'Search this feed...', and icons for 'Most Recent Activity' and 'All Updates' (selected). Other tabs include 'Emails', 'Call Logs', 'Text Posts', and 'Status Changes'.

[Edit this page](#)

# Accessing the Salesforce API from Amazon Connect Contact Flows Using AWS Lambda

The most commonly used feature of the AWS Serverless Application Repository for Salesforce is accessing/updating Salesforce data using the `sflnvokeAPI` Lambda function. This function allows an Amazon Connect contact flow to perform the following operations against your Salesforce org:

- **Lookup:** queries Salesforce for objects based on the parameters passed to it
- **Create:** creates a Salesforce object based on the parameters passed to it
- **Update:** updates a Salesforce object based on the parameters passed to it
- **Phone Lookup:** uses Salesforce Object Search Language (SOLS) to construct text-based search queries against the search index, which gives significant performance improvement when searching phone number fields.
- **Delete:** deletes a Salesforce object based on the parameters passed to it
- **Query:** executes a Salesforce Object Query Language (SOQL) query on the Salesforce instance. Can return multiple entries.

- **QueryOne**: executes a Salesforce Object Query Language (SOQL) query on the Salesforce instance. Returns result only when one entry is returned from the query.
- **CreateChatterPost**: creates a chatter post.
- **CreateChatterComment**: creates a chatter comment.
- **Search**: performs a search against the Salesforce instance, returning all results.
- **SearchOne**: performs a search against the Salesforce instance, returning at most one result.

**NOTE:** naming of the Lambda function will vary based on template data, but sfInvokeAPI will always be a part of the name.

When you invoke this Lambda function from your contact flows, you will need to pass along parameters that inform the function as to which Salesforce operation you wish to execute, as well as pass along any required parameters. Depending on your use case, this can require reference to the [Salesforce REST API](#) or the [Salesforce Connect REST API](#) documentation. The core parameters are:

- **sf\_operation**: specifies which operation to run. Options are lookup, create, update, phoneLookup, query, queryOne, createChatterPost, createChatterComment
- **sf\_object**: defines what type of object you are referencing. Examples include Case, Contact, Task, etc.
- **sf\_fields**: the fields you want to receive back from Salesforce when an operation completes successfully
- **sf\_id**: the unique identifier for a Salesforce object. Typically used in update operations
- **sf\_phone**: contains the phone number used to search when performing a phone lookup

## Salesforce Lookup

This operation is invoked by setting **sf\_operation** to **lookup**. In this case, the Lambda function queries Salesforce for objects based on the parameters passed to it. For lookup, the following parameters are required:

- sf\_object
- sf\_fields

Any additional parameters passed will be evaluated as conditional arguments for the lookup.

Note that this operation only returns the first item of the query results. If you want to have all results returned from Salesforce, set **sf\_operation** to **lookup\_all**.

In the contact flow example below, we are looking for a specific case based on customer input.

The screenshot shows the configuration of an AWS Lambda function. It consists of three main sections:

- Function input parameters:** This section is expanded and shows:
  - Destination key:** `CaseNumber`
  - Type:** `Lex slots`
  - Attribute:** `case_id`
- Destination key:** This section is expanded and shows:
  - Value:** `sf_operation`
- Value:** This section is expanded and shows:
  - Destination key:** `sf_fields`
  - Value:** `Id`

This operation returns a response of:

```
{  
  "Id": "5006g00000AaIs7AAF",  
  "sf_count": 1  
}
```

For **lookup\_all** the operation returns a response of:

```
{  
  "sf_records_0_Id": "5006g00000AaIs7AAF",  
  "sf_records_1_Id": "5006g00000AaIs7AAE",  
  "sf_count": 2  
}
```

Note that `sf_count` is the count of records matched and not the count of fields in the response. This means all fields that start with `sf_records_i` count as one record. If the query above returned the Name as well as the Id the response will be:

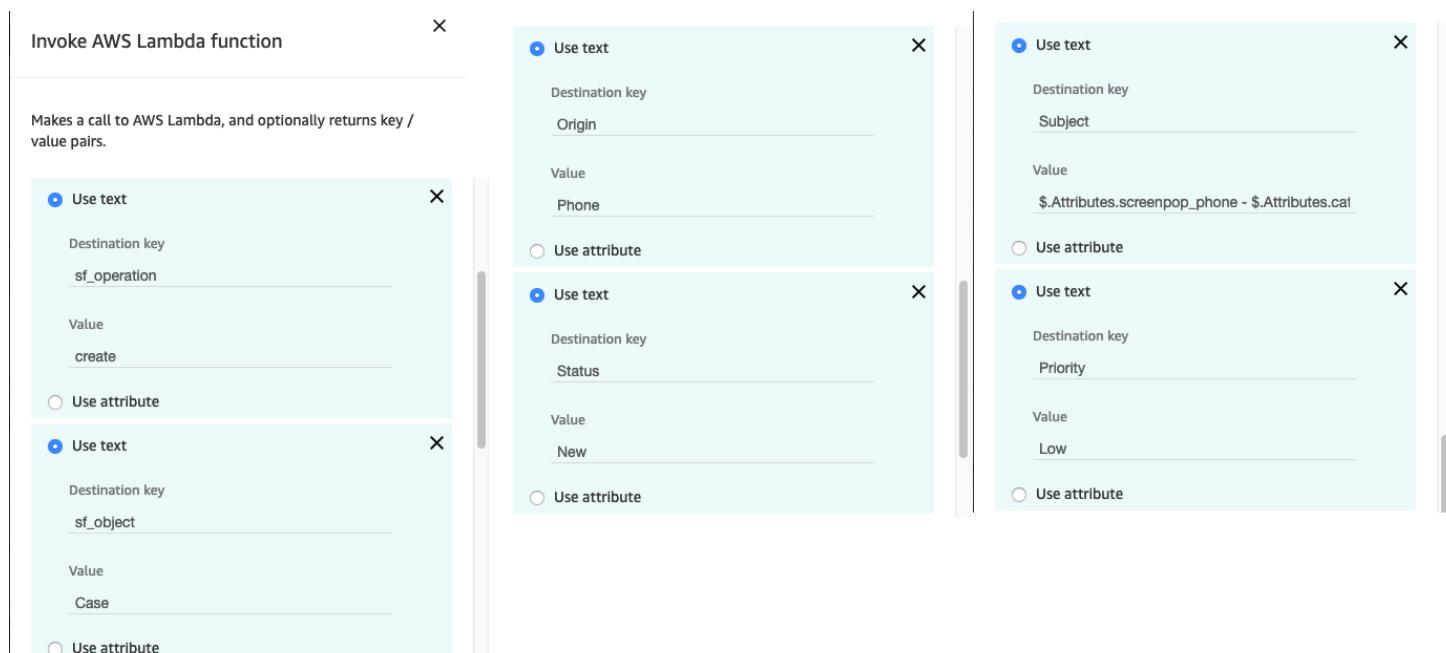
```
{  
    "sf_records_0_Id": "5006g00000AaIs7AAF",  
    "sf_records_0_Name": "Name0",  
    "sf_records_1_Id": "5006g00000AaIs7AAE",  
    "sf_records_1_Name": "Name1",  
    "sf_count": 2  
}
```

## Salesforce Create

This operation is invoked by setting `sf_operation` to **create**. In this case, the Lambda function creates a Salesforce object based on the parameters passed to it. For create, the following parameters are required:

- `sf_object`
- Specify additional parameters for the Salesforce object to be created. Please be sure to include all parameters required to create the Salesforce object.

In the contact flow example below, we creating a new case based on customer input.



This operation returns a response of:

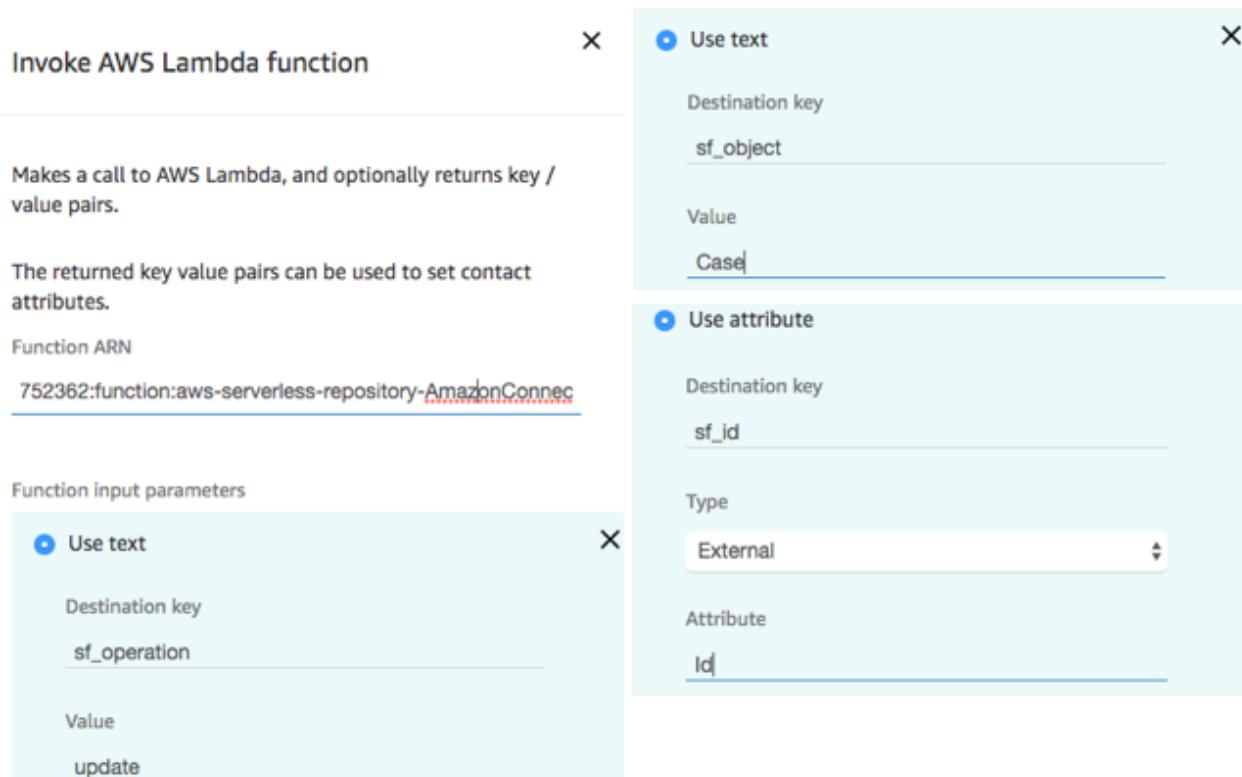
```
{  
    "Id": "5006g00000BLqurAAD"  
}
```

# Salesforce Update

This operation is invoked by setting **sf\_operation** to **update**. In this case, the Lambda function updates a Salesforce object based on the parameters passed to it. For update, the following parameters are required:

- `sf_object`
- `sf_id`
- Specify additional parameters for the Salesforce object to be created. Please be sure to include all parameters required to create the Salesforce object.

In the contact flow example below, we are updating a specific case.



This operation returns a response of:

```
{  
    "Status": "204"  
}
```

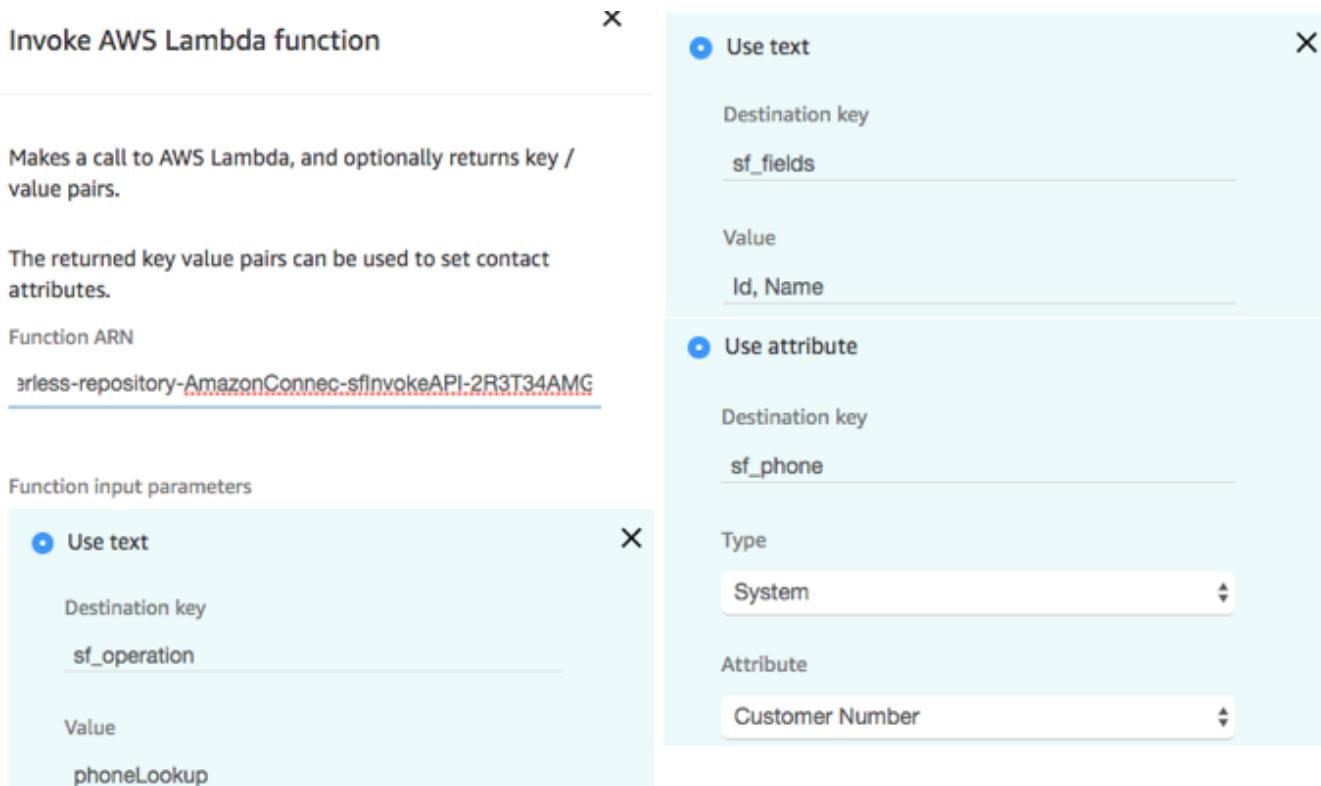
The "204" status indicates a success.

# Salesforce Phone Lookup

This operation is invoked by setting **sf\_operation** to **phoneLookup**. In this case, the Lambda function uses Salesforce Object Search Language (SOLS) to construct text-based search queries. For phoneLookup, the following parameters are required:

- sf\_phone
- sf\_fields

In the contact flow example below, we look for a customer by phone number.



This operation returns a response of:

```
{
  "Id": "5006g00000BLqurAAD",
  "sf_count": "1",
  "Name": "Jim Smith"
}
```

## Salesforce Delete

This operation is invoked by setting **sf\_operation** to **delete**. In this case, the Lambda function deletes a Salesforce object based on the parameters passed to it. For delete, the following parameters are required:

- sf\_object
- sf\_id

In the contact flow example below, we deleting an existing case based on customer input.

Use text

X

Destination key

sf\_object

Value

Case

Use attribute

Use text

X

Destination key

sf\_id

Value

5004T000004gsR1QAI

Use attribute

[Add another parameter](#)

## Invoke AWS Lambda function X

Makes a call to AWS Lambda and optionally returns key/value pairs, which can be used to set contact attributes. [Learn more](#)

Function ARN

Select a function

serverlessrepo-AmazonConnectSalesforce-sfInvokeAPI- ▾

Use attributes

Function input parameters

Use text

X

Destination key

sf\_operation

Value

delete

### Use attribute

This operation returns a response of:

```
{  
  "Response": "None"  
}
```

## Salesforce query

This operation is invoked by setting **sf\_operation** to **query**. In this case, the Lambda function uses Salesforce Object Query Language (SOQL) to conduct a query against the Salesforce instance. For query, the following parameter is required:

- query

Any additional parameters will replace text values in the original query so that queries can be dynamic based on values stored within the contact flow. For example, the parameter set:

- query: "select field from object"
- field: "Id"
- object: "Task"

Will result in the query: "select Id from Task".

In the contact flow example below, we look for a customer by phone number.

## Function input parameters

Use text X

Destination key

sf\_operation

Value

query

Use attribute X

Use text X

Destination key

query

Value

select Id from Contact where Phone LIKE '%numl

Use attribute X

(full text of the value is "select Id from Contact where Phone LIKE '%number%'")

Use text

X

 Use attribute

Destination key

number

Type

System



Attribute

Customer Number



This operation returns a response of:

```
{  
  "sf_records_0_Id": "00303000001RZfIAAw",  
  "sf_count": 1  
}
```

Note that `sf_count` is the count of records matched and not the count of fields in the response. This means all fields that start with `sf_records_i_` count as one record. If the query above returned the Name as well as the Id and matched more than one record, the response will be:

```
{  
  "sf_records_0_Id": "00303000001RZfIAAw",  
  "sf_records_0_Name": "Name0",  
  "sf_records_1_Id": "00303000001RZfIAAE",  
  "sf_records_1_Name": "Name1",  
  "sf_count": 2  
}
```

## Salesforce queryOne

This operation is invoked by setting **sf\_operation** to **queryOne** (case sensitive). In this case, the Lambda function uses Salesforce Object Query Language (SOQL) to conduct a query against the Salesforce instance, returning a result only when one record is returned from the query. For query, the following parameter is required:

- query

Any additional parameters will replace text values in the original query so that queries can be dynamic based on values stored within the contact flow. For example, the parameter set:

- query: "select field from object"
- field: "Id"
- object: "Task"

Will result in the query: "select Id from Task".

In the contact flow example below, we look for a customer by phone number.

Use text



Destination key

sf\_operation

Value

queryone

Use attribute

Use text



Destination key

query

Value

select Id from Contact where Phone LIKE '%numl

Use attribute

(full text of the value is "select Id from Contact where Phone LIKE '%number%'")



Use text

Use attribute

Destination key

number

Type

System



Attribute

Customer Number



This operation returns a response of:

```
{  
  "Id": "00303000001RZfIAAW",  
  "sf_count": 1  
}
```

## Salesforce createChatterPost

This operation is invoked by setting **sf\_operation** to **createChatterPost** (case sensitive). In this case, the Lambda function uses the Salesforce Connect REST API to create a chatter post (see [here](#)). For createChatterPost, the following parameters are required:

- sf\_feedElementType
- sf\_subjectId
- sf\_messageType
- sf\_message

The following parameter is optional:

- sf\_mention

(refer to the api reference for value types)

Any additional parameters will replace text values in the sf\_message so that messages can be dynamic based on values stored within the contact flow. For example, the parameter set:

- sf\_message: "Please help me with case `caseId`"
- casId: 1234

Will result in the message: "Please help me with case 1234".

In the contact flow example below, we leave a chatter post on a contact.

Use text



Destination key

sf\_operation

Value

createChatterPost

Use attribute

Use text



Destination key

sf\_feedElementType

Value

FeedItem

Use attribute

Use text

X

Destination key

sf\_subjectId

Value

00303000001RZflAAW

Use attribute

Use text

X

Destination key

sf\_messageType

Value

Text

Use attribute

Use text



Destination key

sf\_message

Value

I had a problem during the call. My contact id is {}

Use attribute

(full text of the value is "I had a problem during the call. My contact id is `contactId`.")

Use text



Use attribute

Destination key

contactId

Type

System



Attribute

Contact id



The operation returns a response of:

{

```
"Id": "0D503000000ILY5CA0"
```

```
}
```

See the chatter post appear attached to the Subject:

Activity

## Chatter

Post

Poll

Question

Share an update...

Share



Search this feed...



apiuser

1m ago



I had a problem during the call. My contact id is 31b41a0b-75a8-449d-adb8-3f5f247a73d6.

Like

Comment



Write a comment...

Salesforce createChatterComment

This operation is invoked by setting **sf\_operation** to **createChatterComment** (case sensitive). In this case, the Lambda function uses the Salesforce Connect REST to create a chatter comment (see [here](#)). For **createChatterComment**, the following parameters are required:

- sf\_feedElementId
- sf\_commentType
- sf\_commentMessage

(refer to the api reference for value types)

Any additional parameters will replace text values in the sf\_commentMessage so that messages can be dynamic based on values stored within the contact flow. For example, the parameter set:

- sf\_commentMessage: "Please help me with case **caseId**"
- casId: 1234

In the contact flow example below, we leave a comment on a chatter post.

Use text



Destination key

sf\_operation

---

Value

createChatterComment

---

Use attribute

Use text



Destination key

sf\_feedElementId

---

Value

0D503000000ILY5CAO

---

Use attribute

Use text

Destination key

sf\_commentType

Value

Text

 Use attribute Use text

Destination key

sf\_message

Value

This concern has been addressed.

 Use attribute

The operation returns a response of:

```
{  
    "Id": "0D70300000ChhNCAS"  
}
```

See the chatter post appear attached to the Subject:



apiuser

8m ago



I had a problem during the call. My contact id is dda99fbf-6186-4125-ba59-c461d620fdbd.

1 comment · Seen by 1

Like

Comment



apiuser



a few seconds ago

This concern has been addressed.

Like



Write a comment...

## Salesforce search

This operation is invoked by setting **sf\_operation** to **search** (case sensitive). In this case, the Lambda function uses the Salesforce REST to perform a parameterized search (see [here](#)). For search, the following parameters are required:

- q
- sf\_fields
- sf\_object

The following parameters are optional:

- where
- overallLimit

(refer to the api reference for value types)

See the below example:

Use text X

Destination key

sf\_operation

---

Value

search

---

Use attribute

Use text X

Destination key

q

---

Value

test

---

Use attribute

Use text



Destination key

sf\_object

Value

Case

Use attribute

Use text



Destination key

sf\_fields

Value

Subject, Status

Use attribute

Use text

X

Destination key

overallLimit

Value

3

 Use attribute Use text

X

Destination key

where

Value

Status like 'New'

 Use attribute

The operation returns a response of:

```
{  
  "sf_records_0_Id": "50001000001B9e6AAG",  
  "sf_records_0_Subject": "test subject",  
  "sf_records_0_Status": "New",  
  "sf_records_1_Id": "50001000001B9eWAAS",  
  "sf_records_1_Subject": "test subject",  
  "sf_records_1_Status": "New",  
  "sf_records_2_Id": "50001000001BDgiAAG",  
  "sf_records_2_Subject": "test subject",  
  "sf_records_2_Status": "New",  
}
```

```
        "sf_count": 3  
    }
```

Note that `sf_count` is the count of records matched and not the count of fields in the response. This means all fields that start with `sf_records_i_` count as one record.

## Salesforce searchOne

This operation is invoked by setting `sf_operation` to **searchOne** (case sensitive). In this case, the Lambda function uses the Salesforce REST to perform a parameterized search (see [here](#)). For search, the following parameters are required:

- `q`
- `sf_fields`
- `sf_object`

The following parameter is optional:

- `where`

(refer to the api reference for value types)

See the below example:

Use text



Destination key

sf\_operation

Value

searchOne

Use attribute

Use text



Destination key

q

Value

test subject unique

Use attribute

Use text



Destination key

sf\_object

Value

Case

Use attribute

Use text



Destination key

sf\_fields

Value

Subject, Status

Use attribute

Use text



Destination key

overallLimit

Value

3

Use attribute

Use text



Destination key

where

Value

Status like 'New'

Use attribute

The operation returns a response of:

```
{  
  "Id": "50001000001BIn6AAG",  
  "Subject": "test subject unique",  
  "Status": "New",  
  "sf_count": 1  
}
```

# Amazon Connect Historical Metrics in Salesforce

Amazon Connect can generate a number of historical metric reports to monitor efficiency and utilization, agent performance, and other information about your contact center. Amazon Connect provides you the ability to schedule execution and export of reports, in comma separated value (CSV) format, to the S3 bucket of your choice. This enables broad compatibility across many analytics and WFM tools.

With the AWS Serverless Repository for Salesforce, you can configure the automatic import of reporting data from Amazon Connect into Salesforce. Two different historical reports are available to transport Agent and Queue interval data from Amazon Connect to Salesforce. Once these have been configured and scheduled, you will begin to see data available in the reports that have been included with the CTI Adapter.

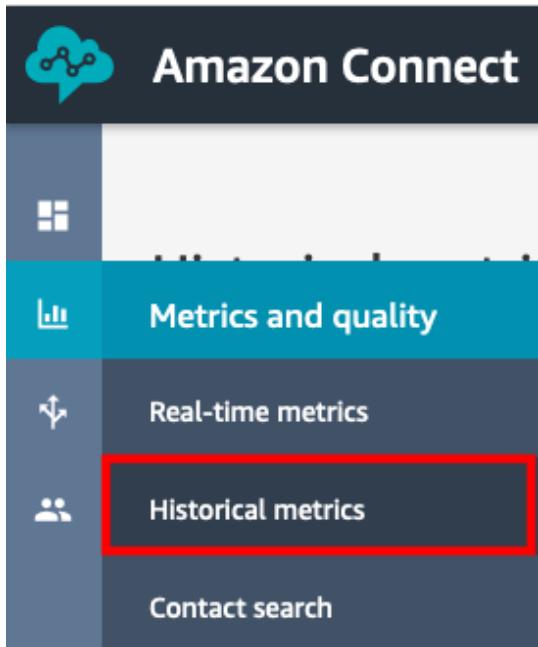
## Configuring the AWS Services

When you configure schedule reports to run in Amazon Connect, they are saved to your reporting Amazon S3 bucket upon execution. As a part of the schedule configuration, you can determine the frequency with which data is exported. The standard configuration is for execution every 30 minutes; however you can increase the interval time to suit your requirements.

Once you have the reports configured and scheduled, you will then need to activate the trigger for the reports bucket that will invoke an AWS Lambda function included in the AWS Serverless Repository for Salesforce. This function will process the report and import the data to Salesforce.

### Configuring the Historical Reports in Amazon Connect

1. Login to your Amazon Connect instance as an Administrator
2. From the left navigation, choose **Metrics and Quality** then select **Historical metrics**



3. On the **Historical metrics** page, select Contact metrics

## Historical metrics

Select the type of report and metrics you would like to view.

A screenshot of the 'Historical metrics' interface. It shows three categories: 'Queues', 'Agents', and 'Phone numbers'. The 'Queues' category is selected, indicated by a red rectangle around its 'Contact metrics' button. The 'Agents' category has 'Agent performance' listed, and the 'Phone numbers' category has 'Contact metrics' listed. Each category has a dropdown arrow icon on the right.

4. Once the **Historical metrics: Queues** report loads, select the cog in the upper right to edit the report

5. On the **Interval & Time** range tab, set the parameters as follows:

a. Interval: 30 minutes

b. Time Zone: UTC

c. Time Range: Last 24 Hours

6. Leave the **Groupings** and **Filters** tabs set to their defaults

7. Select the **Metrics** Tab.

8. Select ALL selectable options

9. Select **Apply**

10. Once the report saves, select the dropdown menu next to the Save button and choose Schedule

11. Set the name as **sflIntervalQueue** and choose **Continue**

12. On the **Note** screen, choose **Continue**

13. On the **Recurrence** tab in the Schedule Report setup, set the options as:

a. Generate this report: Hourly

b. Every: 0.5 hour(s)

c. Starting at: 1AM

d. For the Previous: 0.5 hour(s)

**Schedule Report**

**sflIntervalQueue**

**Recurrence**      **Delivery Options**

Generate this report

Hourly ▾      every 0.5 ▾ hour(s)

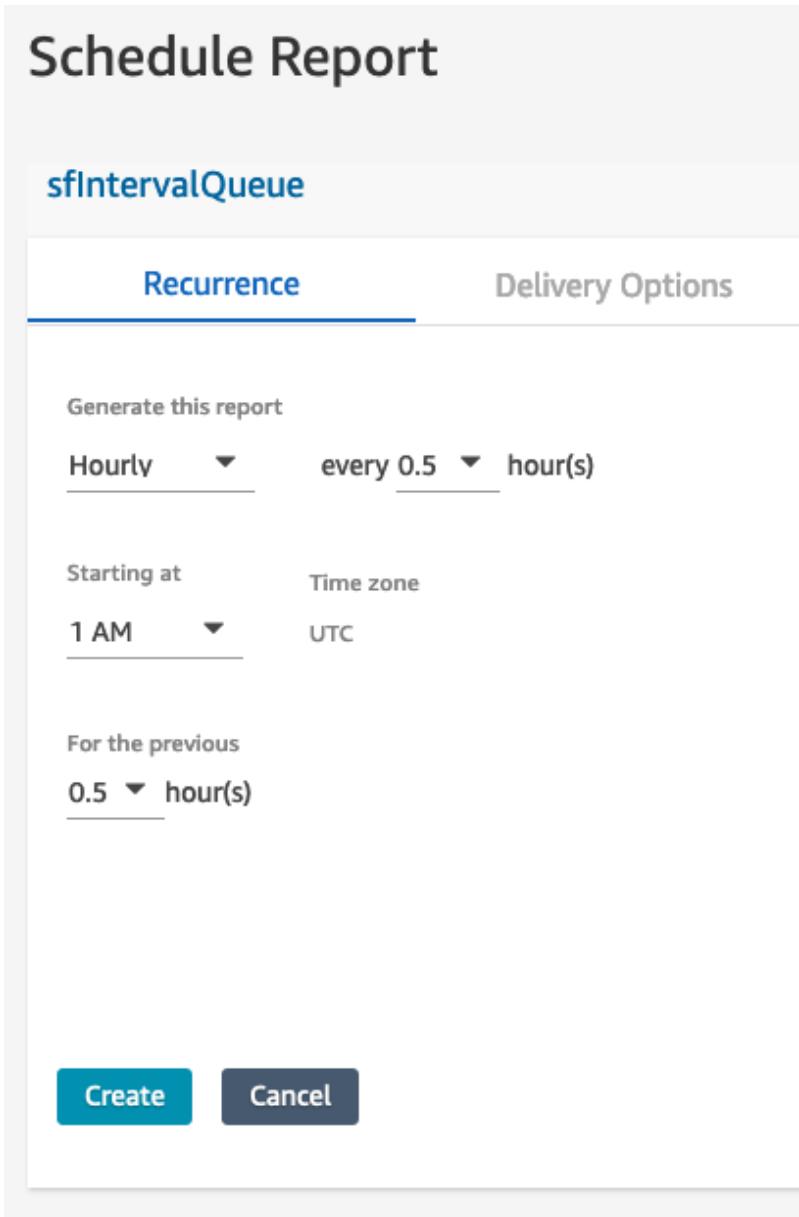
Starting at      Time zone

1 AM ▾      UTC

For the previous

0.5 ▾ hour(s)

**Create**      **Cancel**



14. Select the **Delivery Options** tab

15. In the Prefix field, enter **SFDC/Queue**

# Schedule Report

## sIntervalQueue

Recurrence

Delivery Options

Default location

connect-[REDACTED]/connect/sfctifinal022020/Reports

Prefix

SFDC/Queue

File name

connect-[REDACTED]/connect/sfctifinal022020/Reports/SFDC/Queue/sIntervalQueue-YYYY-MM-DDThh:mm:ssZ.csv

16. Note the File name. The file name contains the bucket, path, and filename that will be used when executing the report. You will use the **bucket name** and **path** in later steps.

# Schedule Report

## sIntervalQueue

Recurrence

Delivery Options

Default location

connect-b0e7681ccc4d/connect/sfctifinal022020/Reports

Prefix

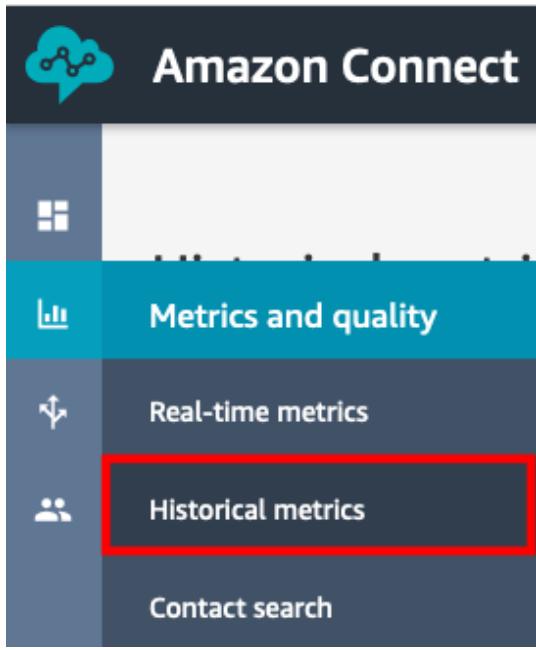
SFDC/Queue

File name

connect-[REDACTED]/connect/sfctifinal022020/Reports/SFDC/Queue/sIntervalQueue-YYYY-MM-DDThh:mm:ssZ.csv

17. Choose **Create**

18. Once the report is created, from the left navigation, choose **Metrics and Quality** then select **Historical metrics**



19. On the **Historical metrics** page, select **Agent performance**

## Historical metrics

A screenshot of the 'Historical metrics' page. At the top, there's a message: 'Select the type of report and metrics you would like to view.' Below it are three tabs: 'Queues' (selected), 'Agents' (highlighted with a red rectangle), and 'Phone numbers'. Each tab has a 'Contact metrics' dropdown arrow to its right. The 'Agents' tab also has a 'Agent performance' tab highlighted with a red rectangle.

20. Once the **Historical metrics: Agents** report loads, select the cog in the upper right to edit the report

21. On the **Interval & Time** range tab, set the parameters as follows:

- a. Interval: 30 minutes
- b. Time Zone: UTC
- c. Time Range: Last 24 Hours

22. Leave the **Groupings** and **Filters** tabs set to their defaults

23. Select the **Metrics** Tab.

24. Select the following metrics (deselect any others):

**Note** You should be able to use all metrics, but these are the important ones.

- After contact work time
- Agent on contact time
- Agent idle time
- Non-Productive Time
- Average after contact work time
- Average handle time
- Average customer hold time
- Average agent interaction and customer hold time
- Average agent interaction time
- Contacts agent hung up first
- Contacts handled
- Contacts handled incoming
- Contacts handled outbound
- Contacts put on hold
- Contacts hold disconnect
- Contacts transferred out
- Contacts transferred out internal
- Contacts transferred out external
- Error status time
- Agent answer rate
- Agent non-response
- Occupancy
- Online time
- Agent interaction and hold time
- Agent interaction time

- Average outbound agent interaction time
- Average outbound after contact work time

25. Select **Apply**

26. Once the report saves, select the dropdown menu next to the Save button and choose Schedule

27. Set the name as **sflIntervalAgent** and choose **Continue**

28. On the **Note** screen, choose **Continue**

29. On the **Recurrence** tab in the Schedule Report setup, set the options as:

a. Generate this report: Hourly

b. Every: 0.5 hour(s)

c. Starting at: 1AM

d. For the Previous: 0.5 hour(s)

**Schedule Report**

**sflIntervalAgent**

Recurrence	Delivery Options
Generate this report Hourly ▾ every 0.5 ▾ hour(s) Starting at 1 AM ▾ Time zone UTC For the previous 0.5 ▾ hour(s)	

30. Select the **Delivery Options** tab

31. In the Prefix field, enter **SFDC/Agent**

## sfIntervalAgent

### Recurrence

### Delivery Options

Default location

connect-[REDACTED]connect/sfctifinal022020/Reports

Prefix

SFDC/Agent

File name

connect-[REDACTED]/connect/sfctifinal022020/Reports/SFDC/Agent/sfIntervalAgent-YYYY-MM-DDThh:mm:ssZ.csv

32. Note the File name. The file name contains the bucket, path, and filename that will be used when executing the report. You will use the **bucket name** and **path** in later steps.

File name

connect-[REDACTED]/connect/sfctifinal022020/Reports/SFDC/Agent/sfIntervalAgent-YYYY-MM-DDThh:mm:ssZ.csv

33. Choose **Create**

Once you have created the two reports and set their schedule, the next thing you will need to do is to configure a trigger that executes a Lambda function when the report is generated and stored in S3.

### Creating the AWS Lambda Trigger for the Queue Data

1. In a new browser tab, login to the [AWS console](#)
2. Open the [AWS Lambda Console](#)
3. In the Add filter field of the AWS Lambda console, enter sfIntervalQueue and press enter to filter the list of functions
4. Select the Lambda function that includes sfIntervalQueue in the name
5. Expand the Designer section
6. Select Add trigger

## ▼ Designer

[Go back to application serverlessrepo-AmazonConnectSalesforceLambda](#)



7. In Trigger configuration, select S3 from the dropdown list

Lambda > Add trigger

## Add trigger

### Trigger configuration

Select a trigger



DynamoDB

aws database nosql



Kinesis

analytics aws streaming



S3

aws storage



SNS

aws messaging notifications pub-sub push

S3



SQS

aws queue

8. Referring to the notes from the report configuration earlier, select the appropriate bucket

9. Change the Event type to PUT

10. Referring to the notes from the report configuration earlier, set the Prefix to the path value for your report

11. Set the Suffix to .csv

12. The trigger configuration should now be similar to the following:

## Add trigger

### Trigger configuration

 S3  
aws storage

**Bucket**  
Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.  
connect-[REDACTED] ▼ C

**Event type**  
Select the events that you want to have trigger the Lambda function. You can optionally set up a prefix or suffix for an event. However, for each bucket, individual events cannot have multiple configurations with overlapping prefixes or suffixes that could match the same object key.

PUT ▼

**Prefix - optional**  
Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.  
connect/sfctifinal022020/Reports/SFDC/Queue/

**Suffix - optional**  
Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters.  
.CSV

Lambda will add the necessary permissions for Amazon S3 to invoke your Lambda function from this trigger. [Learn more](#) about the Lambda permissions model.

**Enable trigger**  
Enable the trigger now, or create it in a disabled state for testing (recommended).

Cancel Add

13. Select **Add**

14. If everything has been configured correctly, you should receive a success message.

## Creating the AWS Lambda Trigger for the Agent Data

1. In a new browser tab, login to the [AWS console](#)

2. Open the [AWS Lambda Console](#)

3. In the Add filter field of the AWS Lambda console, enter sflIntervalAgent and press enter to filter the list of functions
4. Select the Lambda function that includes sflIntervalAgent in the name
5. Expand the Designer section
6. Select Add trigger

The screenshot shows the AWS Lambda Configuration page. At the top, there are three tabs: Configuration (highlighted in orange), Permissions, and Monitoring. Below the tabs, a section titled "Designer" is expanded, indicated by a downward arrow icon. A blue link "Go back to application serverlessrepo-AmazonConnectSalesforceLambda" is visible. On the right side, there is a Lambda function card for "serverlessrepo-Am...ntervalQueue-3ZN" and a "Layers" section. At the bottom left, a button labeled "+ Add trigger" is highlighted with a red rectangular box.

7. In Trigger configuration, select S3 from the dropdown list

## Add trigger

### Trigger configuration

Select a trigger



DynamoDB

aws database nosql



Kinesis

analytics aws streaming



S3

aws storage



SNS

aws messaging notifications pub-sub push

S3



SQS

aws queue

8. Referring to the notes from the report configuration earlier, select the appropriate bucket

9. Change the Event type to PUT

10. Referring to the notes from the report configuration earlier, set the Prefix to the path value for your report

11. Set the Suffix to .csv

12. The trigger configuration should now be similar to the following:

# Add trigger

## Trigger configuration



S3

aws storage

### Bucket

Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.

connect-[REDACTED]



### Event type

Select the events that you want to have trigger the Lambda function. You can optionally set up a prefix or suffix for an event. However, for each bucket, individual events cannot have multiple configurations with overlapping prefixes or suffixes that could match the same object key.

PUT



### Prefix - optional

Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.

connect/sfctifinal022020/Reports/SFDC/Agent/

### Suffix - optional

Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters.

.csv

Lambda will add the necessary permissions for Amazon S3 to invoke your Lambda function from this trigger. [Learn more](#) about the Lambda permissions model.

#### Enable trigger

Enable the trigger now, or create it in a disabled state for testing (recommended).

[Cancel](#)[Add](#)

13. Select Add

14. If everything has been configured correctly, you should receive a success message.

## Verifying the Data Import in Salesforce

Once you have configured the reports and added the triggers, you should start to see data in Salesforce after ~30 minutes. The Amazon Connect CTI Adapter comes with a predefined set of reports. These reports can be customized and additional reports can be created by leveraging the imported data.

### Viewing Amazon Connect Reports in Salesforce

1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose **Reports**

3. In the left Navigation, select **All Folders**

4. Select the **Amazon Connect Reports** folder

The screenshot shows the AWS Service Console interface. At the top, there's a navigation bar with icons for Home, Service Catalog, Lambda, and Reports. Below it, a dropdown menu is open, showing 'Reports' and 'All Folders'. Under 'All Folders', it says '1 item'. A table lists 'RECENT' and 'CREATED BY ME' sections. The 'Recent' section contains a single item: 'Amazon Connect Reports', which is highlighted with a red box.

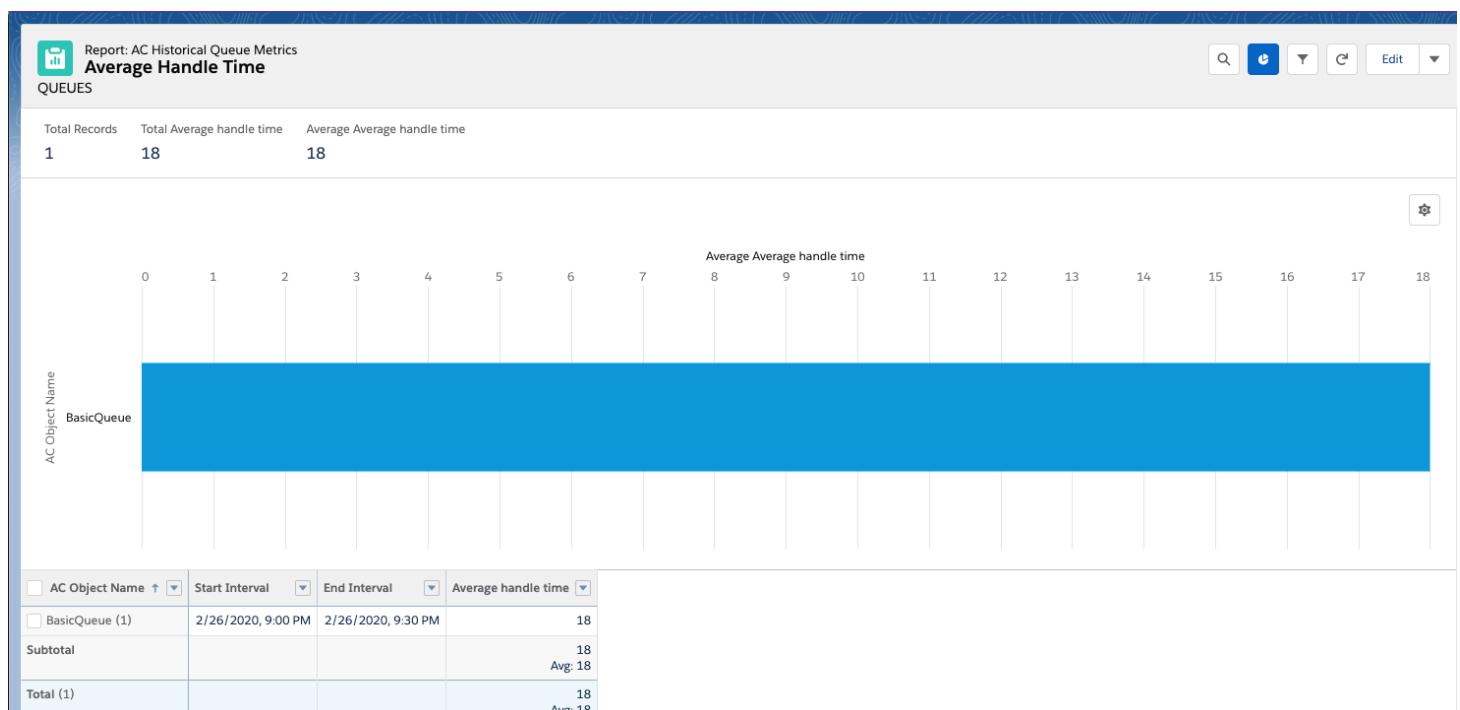
RECENT	Name
Recent	Amazon Connect Reports
Created by Me	

5. In the list of reports, choose Average Handle Time queue report

The screenshot shows the 'Reports' section with 'All Folders > Amazon Connect Reports'. It displays '30 items'. On the left, there's a sidebar with categories: 'RECENT', 'CREATED BY ME', 'PRIVATE REPORTS', 'PUBLIC REPORTS', and 'ALL REPORTS'. The main area shows a table with columns: 'Name', 'Description', and 'Folder'. The 'Average Handle Time' report is listed under 'QUEUE' and is highlighted with a red box. Other reports include 'Average Queue Abandon Time', 'Average Occupancy Today', 'Average Handle Time Today', and 'Agent Performance (Current User)'.

RECENT	Name	Description	Folder
Recent	Average Queue Abandon Time	QUEUES	Amazon Connect Reports
Created by Me	Average Occupancy Today		Amazon Connect Reports
Private Reports	Average Handle Time	QUEUES	Amazon Connect Reports
Public Reports	Average Handle Time Today		Amazon Connect Reports
All Reports	Agent Performance (Current User)		Amazon Connect Reports

6. Once the report loads, you should see data (provided calls have queued in this Amazon Connect instance today)



# Amazon Connect Real-Time Metrics in Salesforce

The CTI adapter includes real-time reporting tools which provide visibility into critical data which help improve the utilization of your agents and allows insight into overall queue performance. Once you have deployed the AWS Serverless Application Repository for Salesforce your Amazon Connect instance will push real-time metric data to Salesforce every 15 seconds. This data can be viewed from two tools that were included with the CTI Adapter installation.

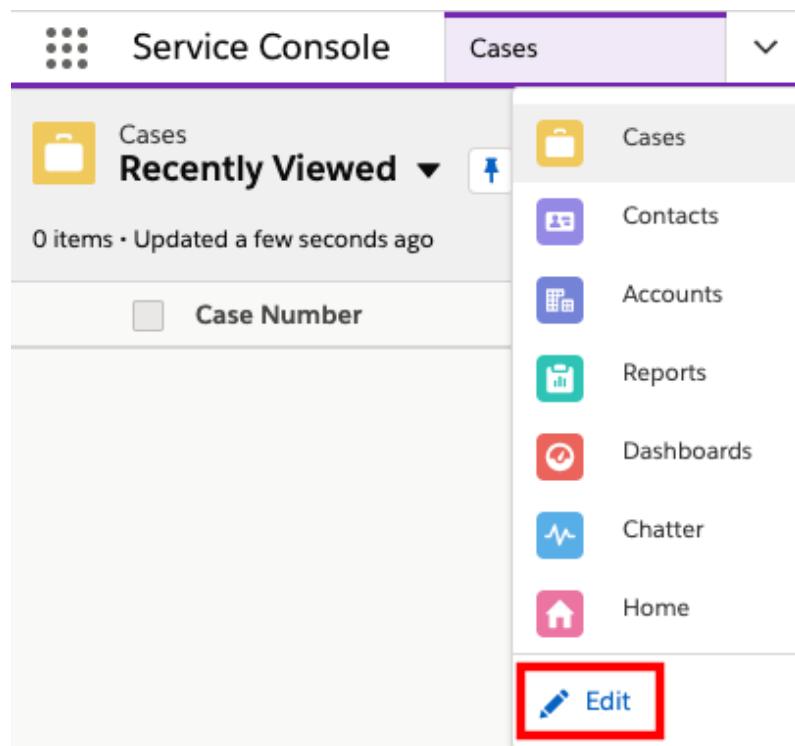
The first view, AC Queue Metrics queue provides details about current queue staffing and the distribution of contacts by queue. The second view, AC Real Time Queue Metrics, allows you to select a specific queue and view the real-time metrics for that queue.

## Deployment and Configuration

Once you have deployed the AWS Serverless Application Repository for Salesforce and provided the appropriate credentials, there is no further configuration required to make the data flow work. The only remaining task is to add the real-time views to your Salesforce console.

### Adding Real-Time Reports to the Service Console

1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose **Edit**.



3. On the Edit Service Console App Navigation Items page, select **Add More Items**

## Edit Service Console App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

[Learn More](#) ⓘ

NAVIGATION ITEMS (7)

[Add More Items](#)

4. Select the + next to **AC Queue Metrics** and **AC Real Time Queue Metrics**

5. Select **Add 2 Nav Items**

6. Change the order of your Navigation Items if desired, then choose **Save**

## Edit Service Console App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

[Learn More](#) ⓘ

ⓘ 2 items added to your list. Save your updates.

NAVIGATION ITEMS (10)

[Add More Items](#)

≡ AC CTI Adapters X

≡ Cases

≡ Contacts

≡ Accounts

≡ Reports

≡ Dashboards

≡ Chatter

≡ Home

≡ AC Queue Metrics X

≡ AC Real Time Queue Metrics X

[Reset Navigation to Default](#) ⓘ

[Cancel](#)

[Save](#)

7. Once the save completes, expand the **navigation menu** by selecting the down arrow and choose **AC Queue Metrics**

The screenshot shows the Service Console interface. At the top, there's a navigation bar with icons for Home, Service Catalog, Applications, and more. Below it, a dropdown menu is open under 'AC CTI Adapters'. The menu items include 'AC CTI Adapters' (selected), 'Recently Viewed' (with a note '1 item · Updated a few seconds ago'), 'CTI Adapter', 'ACLightning', and 'AC Queue Metrics'. The 'AC Queue Metrics' item is highlighted with a red box.

8. The AC Queue Metrics view will display and any relevant data will update every 15 seconds.

The screenshot shows the 'AC Queue Metrics' view. At the top, there's a header with icons for Home, Service Catalog, Applications, and more. Below it, a sub-header says 'AC Queue Metrics'. The main content area is titled 'Real Time Metrics' and 'Live Queue Data'. It displays a table with columns: Queue Name, Agents Available, Agents Error, Agents Non Productive, Agents Online, Agents Staffed, Agents After Contact Work, Contacts In Queue, Contacts Scheduled, and Oldest Contact Age. One row is shown for 'BasicQueue'.

Queue Name	Agents Available	Agents Error	Agents Non Productive	Agents Online	Agents Staffed	Agents After Contact Work	Contacts In Queue	Contacts Scheduled	Oldest Contact Age
BasicQueue	1	1	0	2	2	0	0	0	0

9. Scroll down to view the \*\*AC Contact Metrics Dashboard

The screenshot shows the 'AC Contact Metrics' dashboard. At the top, there's a header with icons for Home, Service Catalog, Applications, and more. Below it, a sub-header says 'AC Contact Metrics'. The main content area is divided into several cards:

- Contacts Incoming:** Sum of Contacts Incoming for 'BasicQueue' is 4.
- Contacts Queued:** Sum of Contacts queued for 'BasicQueue' is 4.
- Contacts Handled Incoming:** Sum of Contacts handled incoming for 'BasicQueue' is 4 (100% of 4).
- Contacts Abandoned:** Sum of Contacts abandoned for 'BasicQueue' is 0.
- Average Queue Abandon Time:** Sum of Average queue abandon time for 'BasicQueue' is 0.
- Average Handle Time:** Sum of Average handle time for 'BasicQueue' is 18.
- Contact Handle Time:** Sum of Contact handle time for 'BasicQueue' is 75.
- Average Service Level 120 Seconds:** Average Service level 120 seconds for 'BasicQueue' is 100%.

10. Expand the **navigation menu** by selecting the down arrow and choose \*\*AC Real Time Queue Metrics



Service Console

AC Queue Metrics



The screenshot shows the Service Console interface. At the top, there's a navigation bar with icons for Service Console, AC Queue Metrics, and a dropdown arrow. Below this is a sidebar titled "AC Queue" with a blue icon. The sidebar contains sections for "Real Time" (Live Queue Data) and "Queue Name" (BasicQueue). To the right of the sidebar is a vertical list of metrics: AC CTI Adapters, AC Queue Metrics, AC Real Time Queue Metrics (which is highlighted with a red box), Cases, Contacts, Accounts, and Reports.

11. Change the List View to **ALL**

The screenshot shows the "AC Real Time Queue Metrics" page. At the top, there's a header with a monitor icon, the title, and a search icon. Below the header, it says "1 item · LIST VIEWS". A dropdown menu is open, showing two options: "All" (which has a checked checkmark) and "Recently Viewed (Pinned list)".

12. Select a queue to view the detailed real-time statistics for that specific queue

 AC Real Time Queue Metric  
**BasicQueue**

## Related Details

Queue Name	BasicQueue
Queue ARN	
Agents After Contact Work	0
Agents Available	0
Agents Error	1
Agents Non Productive	0
Agents OnCall	0
Agents Online	1
Queue Id	3caa8bb5-9426-4b58-8bae-f405b6360cbe

Created By  
 [apiuser](#), 2/24/2020, 4:51 PM

Owner	 <a href="#">apiuser</a>
Agents Staffed	1
Contacts In Queue	0
Contacts Scheduled	0
Oldest Contact Age	0

Last Modified By  
 [apiuser](#), 2/26/2020, 9:38 PM [Edit this page](#)

# Contact Channel Analytics

In addition to the CTI adapter's native ability to provide direct playback links to call recordings in Amazon Connect, the AWS Serverless Application Repository for Salesforce includes several functions that allow you to process recordings, perform quality analytics functions, and bring data into Salesforce.

This processing is done post-call, using the Contact Trace Record (CTR) as the initiation path. The following quality analytics options are available:

- **Call Recording Streaming:** streams the actual audio file into Salesforce. This option is not mandatory for the others to function.
- **Recording Transcript:** you can choose to have your call recordings transcribed to text and presented in a visual format that resembles a chat conversation. This allows for quick scanning of a call to identify key segments of conversation. This option is required if you wish to include the next level of analysis
- **AI-Driven Contact Analysis:** once the recordings have been transcribed to text, you can also indicate that you wish to do further analysis of the conversation using [Amazon Comprehend](#). Available options

are:

- **Sentiment Analysis:** returns the overall sentiment of the conversation (Positive, Negative, Neutral, or Mixed).
- **Keyphrase Extraction:** returns the key phrases or talking points and a confidence score to support that this is a key phrase.
- **Language Detection:** returns the dominant language with a confidence score to support that a language is dominant
- **Custom Entities:** allows you to customize the AI to identify terms that are specific to your domain
- **Syntax Analysis:** analyze the transcript using tokenization and Parts of Speech (PoS), and identify word boundaries and labels like nouns and adjectives within the text.

If you would like to set up streaming with Contact Lens, please finish the [Call Recording Streaming](#) section below and then follow the [Contact Lens Streaming](#) instructions and possibly the [Post Call Contact Lens Import](#) instructions.

## Call Recording Streaming

You can stream Call Recordings in your Salesforce Org. This allows for easy access to the recordings from within Salesforce and can be used in conjunction with the other contact channel analytics features to provide a complete view of the customer interaction.

The import of call recordings is not required to activate the other contact channel analytics features.

Once enabled during the AWS Serverless Application Repository for Salesforce, recording import is activated on a call by call basis by adding a specific contact attribute. This attribute is used during Contact Trace Record processing to trigger the call import.

NOTE: After Call Work time is a part of the Contact Trace Record. As such, CTRs are not generated until the agent leaves the after call work state. If you are not seeing a recording import, please make sure the agent has completed the call and left the after call work state.

### Cloudformation Template

To make sure that the AWS resources are set up, make sure that the *PostcallRecordingImportEnabled* parameter is set to true in your Cloudformation stack:

CloudFormation > Stacks > [REDACTED]

Stacks (13) C

Filter by stack name

Active View nested < 1 >

Stack info Events Resources Outputs Parameters Template Change sets

Parameters (25)

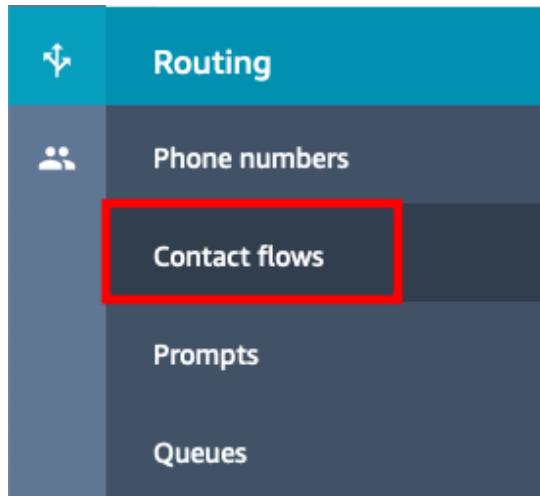
Search parameters

Key	Value
AmazonConnectInstanceId	[REDACTED]
AmazonConnectQueueMaxRecords	[REDACTED]
AmazonConnectQueueMetricsMaxRecords	[REDACTED]
CTREventSourceMappingMaximumRetryAttempts	[REDACTED]
CTRKinesisARN	[REDACTED]
ConnectRecordingS3BucketName	[REDACTED]
ConnectReportingS3BucketName	[REDACTED]
HistoricalReportingImportEnabled	[REDACTED]
LambdaLoggingLevel	[REDACTED]
PostcallCTRImportEnabled	[REDACTED]
PostcallRecordingImportEnabled	true

**Note:** If you are expecting more than 1000 concurrent calls, you may have to increase the timeout for the `sfCTRTrigger` lambda.

## Enabling call recording streaming

1. Login to your Amazon Connect instance as an Administrator
2. From the left navigation, choose **Routing** then select **Contact flows**



3. Open the contact flow that you want to use to enable call recording import. This contact flow must have Amazon Connect's native recording turned on.
4. In your contact flow, before you transfer to queue, add a new **Set contact attributes** block
5. Configure the block to set a contact attribute as follows:
  - a. **Destination key:** postcallRecordingImportEnabled

b. **Value:** true

Attribute to save

The screenshot shows a configuration dialog for saving a contact attribute. It has two main sections: 'Use text' (selected) and 'Use attribute'. Under 'Use text', there is a 'Destination key' field containing 'postcallRecordingImportEnabled' and a 'Value' field containing 'true'. A close button 'X' is located at the top right of the dialog.

Use text X

Destination key  
postcallRecordingImportEnabled

Value  
true

Use attribute

6. **Save** the Set contact attributes block. Make sure it is appropriately connected to your contact flow, and **Publish** the flow.
7. Wait approximately 2 minutes to give the contact flow time to publish.
8. Place a call, connect to your agent, speak for a few moments to test the audio, then end the call. Make sure the agent exits after call work
9. After a minute or so, a new Contact Channel Analytics record should be imported, and when opening it, you should be able to stream the audio. (See section [Adding Contact Channel Analytics to the Service Console](#). below).

#### **Adding users to the AC\_CallRecording permission set**

This step is only necessary for non admin user accounts.

1. In the setup search box, search for "Permission sets". Select the "AC\_CallRecording" permission set. Select "Manage Assignments".



Setup

Home

Object Manager ▾

 Perm

Users

Permission Set Groups

Permission Sets

Custom Code

Custom Permissions

Didn't find what you're looking for?  
Try using Global Search.

SETUP

## Permission Sets

Permission Set  
**AC\_CallRecording**

Find Settings... | Clone | Delete | Edit Properties | **Manage Assignments**

**Permission Set Overview**

Description	License
Session Activation Required	<input type="checkbox"/>
Last Modified By	Bomi Lee, 10/12/2020, 5:07 PM

**Apps**

**Assigned Apps**  
Settings that specify which apps are visible in the app menu

**Assigned Connected Apps**  
Settings that specify which connected apps are visible in the app menu

2. Select "Add Assignments". Add the users that should have access to the audio recordings and select "assign".

SETUP

## Permission Sets

Assign Users  
All Users

View: All Users | Edit | Create New View

Action	Full Name	Alias	Username	Assign	Cancel
<input type="checkbox"/>   Edit					
<input checked="" type="checkbox"/>   Edit   Login					
<input checked="" type="checkbox"/>   Edit   Login					
<input checked="" type="checkbox"/>   Edit   Login					
<input type="checkbox"/>   Edit   Login					
<input type="checkbox"/>   Edit   Login					
<input type="checkbox"/>   Edit   Login					
<input type="checkbox"/>   Edit   Login					
<input type="checkbox"/>   Edit   Login					

## Adding Contact Channel Analytics to the Service Console

1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose **Edit**.



The screenshot shows the Service Console navigation bar. On the left, there's a sidebar titled 'Recently Viewed' with a 'Case Number' filter. On the right, a vertical navigation menu lists 'Cases', 'Contacts', 'Accounts', 'Reports', 'Dashboards', 'Chatter', 'Home', and an 'Edit' button, which is highlighted with a red box.

3. On the Edit Service Console App Navigation Items page, select **Add More Items**

### Edit Service Console App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

[Learn More](#) i

NAVIGATION ITEMS (7)

[Add More Items](#)

4. Select the + next to **AC Contact Channel Analytics**

5. Select **Add 1 Nav Item**

6. Change the order of your Navigation Items if desired, then choose **Save**

## Edit Service Console App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

[Learn More](#) i

i 1 item added to your list. Save your updates.

NAVIGATION ITEMS (11)

[Add More Items](#)

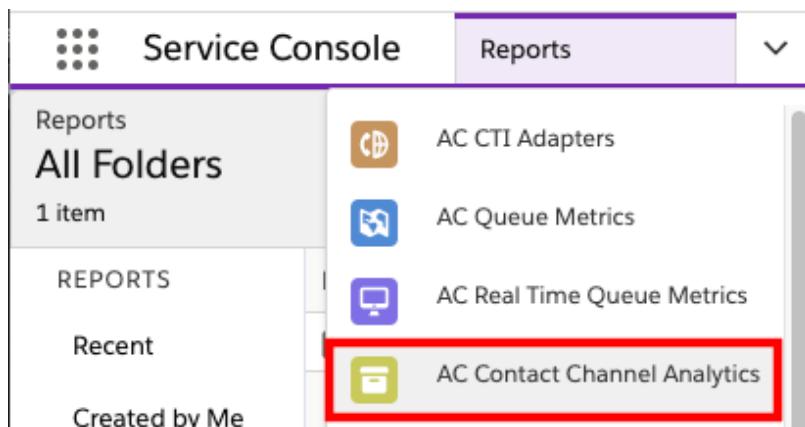
<small>≡</small>	 AC CTI Adapters	<small>X</small>
<small>≡</small>	 AC Queue Metrics	<small>X</small>
<small>≡</small>	 AC Real Time Queue Metrics	<small>X</small>
<small>≡</small>	 Cases	
<small>≡</small>	 Contacts	
<small>≡</small>	 Accounts	
<small>≡</small>	 Reports	
<small>≡</small>	 Dashboards	
<small>≡</small>	 Chatter	
<small>≡</small>	 Home	
<small>≡</small>	 AC Contact Channel Analytics	<small>X</small>

[Reset Navigation to Default](#) i

[Cancel](#)

[Save](#)

7. Once the save completes, expand the **navigation menu** by selecting the down arrow and choose **AC Contact Channel Analytics**



The screenshot shows the Service Console navigation menu. At the top, there's a purple bar with the text "Service Console" and "Reports". Below this is a navigation menu with several sections: "All Folders" (containing "Reports" and "1 item"), "REPORTS", "Recent", and "Created by Me". On the right side of the menu, there's a list of items: "AC CTI Adapters", "AC Queue Metrics", "AC Real Time Queue Metrics", and "AC Contact Channel Analytics". The "AC Contact Channel Analytics" item is highlighted with a red rectangular box.

8. Change the list view from Recently Viewed to **All**

AC Contact Channel Analytics  
Recently Viewed ▾

0 items LIST VIEWS

All

✓ Recently Viewed (Pinned list)

9. Once the view refreshes, you should see your record(s)

AC Contact Channel Analytics  
All

1 item · Sorted by Contact Channel Analytics Name · Filtered by all ac contact channel analytics · Updated a few seconds ago

Contact Channel Analytics Name ↑

1 CCA 000001

10. Select the recording to open it

11. In the top right, you will see a button to stream the recording.

AC Contact Channel Analytics  
CCA 000022

Fields

General

Recording

0:00 / 0:24

12. NOTE: The recording playback, waveform, and transcript views are only active when you also choose to activate recording transcripts.

## Recording Transcripts

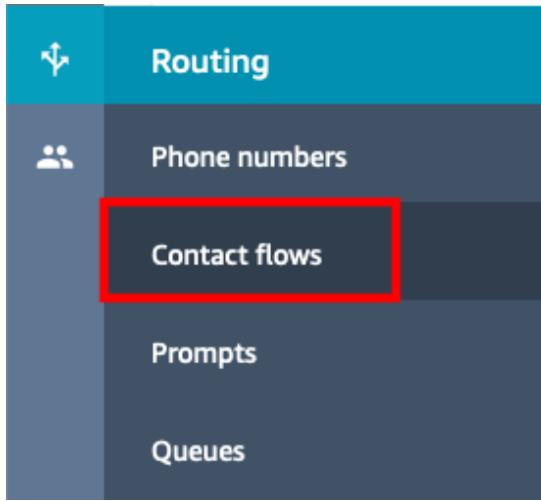
Enabling the Recording Transcripts activates a process to run your contact recordings through Amazon Transcribe which uses a deep learning process to convert text to speech accurately and quickly. In addition, this process also creates a visual waveform of the recording, enables the in-app recording playback, and provides a visual representation of the conversation.

Once enabled during the AWS Serverless Application Repository for Salesforce, recording transcription is activated on a call by call basis by adding a specific contact attribute. This attribute is used during Contact Trace Record processing to trigger the transcription.

Make sure the Salesforce user accessing recording transcription are added to the AC\_CallRecording permission set, as described in the previous section.

### Enabling recording transcription

1. Login to your Amazon Connect instance as an Administrator
2. From the left navigation, choose **Routing** then select **Contact flows**



3. Open the contact flow that you want to use to enable call transcription. This contact flow must have Amazon Connect's native recording turned on, since the transcription is dependent on it.
4. In your contact flow, before you transfer to queue, add a new **Set contact attributes** block
5. Configure the block to set two contact attributes as follows:
  - i. Attribute 1: enables the transcription process
    - a. **Destination key:** postcallTranscribeEnabled
    - b. **Value:** true
  - ii. Attribute 2: specifies the transcription language
    - a. **Destination key:** postcallTranscribeLanguage
    - b. **Value:** en-US (See [Amazon Transcribe API Reference](#) for valid language codes)

The image shows two separate configuration panels, each with a header, input fields, and a close button (X). The first panel is titled 'Use text' and contains fields for 'Destination key' (postcallTranscribeEnabled) and 'Value' (true). The second panel is also titled 'Use text' and contains fields for 'Destination key' (postcallTranscribeLanguage) and 'Value' (en-US). Both panels have a radio button labeled 'Use attribute' at the top left.

**Use text**

Destination key  
postcallTranscribeEnabled

Value  
true

**Use attribute**

**Use text**

Destination key  
postcallTranscribeLanguage

Value  
en-US

**Use attribute**

6. **Save** the Set contact attributes block. Make sure it is appropriately connected to your contact flow, and **Publish** the flow.
7. Wait approximately 2 minutes to give the contact flow time to publish.
8. Place a call, connect to your agent, speak for a few moments from both the agent and the customer side to generate a good transcript, then end the call. Make sure the agent exits after call work
9. The transcription will take at least as long as the call did. Wait an appropriate amount of time for the transcription to be available.

## Accessing transcriptions

1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose AC Contact Channel Analytics. If you have not previously added AC Contact Channel Analytics to the navigation menu, complete the steps found in [Adding Contact Channel Analytics to the Service Console](#).

The screenshot shows the Service Console interface with a sidebar on the left containing a chart titled 'Quarterly Performance' and some statistics. A vertical navigation menu is open on the right, listing several options: Home, Omni Supervisor, Reports, AC CTI Adapters, AC Contact Channel Analytics (which is highlighted with a red box), and AC Contact Trace Records.

3. Change the list view from Recently Viewed to All

The screenshot shows the 'AC Contact Channel Analytics' list view. At the top, there's a header with a folder icon, the title 'AC Contact Channel Analytics', a 'Recently Viewed' dropdown, and a refresh icon. Below the header, it says '0 items' and 'LIST VIEWS'. There are two buttons: 'All' (which is highlighted with a red box) and 'Recently Viewed (Pinned list)' (which has a checked checkmark). A tooltip 'Recently Viewed (Pinned list)' is visible over the 'Recently Viewed' button.

4. Once the view refreshes, you should see your record(s)

The screenshot shows the 'AC Contact Channel Analytics' list view after refreshing. It displays '3 items · Updated a few seconds ago'. The table has columns for Contact Channel Analytics Name and Contact Id. There are three records listed:

	Contact Channel Analytics Name	Contact Id
1	<input type="checkbox"/> CCA 000002	6df455ce-8e7e-4ee8-806d-b5dff9758d66
2	<input type="checkbox"/> CCA 000001	c3a70eeb-4a9e-4605-8871-4bd0d58c9b51
3	<input type="checkbox"/> CCA 000000	a14b0510-2db7-441c-aac2-55018eb4cbde

5. Select a record to view the details.

6. Once the record opens, note the recording, and the visual version of the transcription

The screenshot shows the Amazon Connect interface. At the top, there's a recording bar with a play button, the duration '0:00 / 0:24', and a volume slider. Below it is a 'Transcript' section. The transcript starts with a 'Contact Started' event from the agent. The customer says 'is the test.' and the agent responds 'is to test.' The customer asks 'And see if the transcript work' and the agent replies 'See if the transcript'. Finally, the customer says 'from Contact line.' and the agent responds 'I'm contact?'. Each message includes a timestamp.

Recording

▶ 0:00 / 0:24

Contact Started

is the test.  
Customer • 2.16 • 2.42

is to test.  
Agent • 1.88 • 2.17

See if the transcript  
Agent • 3.39 • 3.63

And see if the transcript work  
Customer • 3.49 • 3.69

I'm contact?  
Agent • 5.53 • 5.76

from Contact line.  
Customer • 5.69 • 6

7. Also note that the transcriptions for each side of the conversation are also included as attachments.

## AI Driven Contact Analysis

Enabling the AI Driven Contact Analysis function allows you to process the transcribed text using [Amazon Comprehend](#). Amazon Comprehend is a natural language processing service that uses machine learning to find insights and relationships in text.

Once enabled during the AWS Serverless Application Repository for Salesforce, contact analysis is activated on a call by call basis by adding a specific contact attribute. This attribute is used during Contact Trace Record processing to trigger the Amazon Comprehend task.

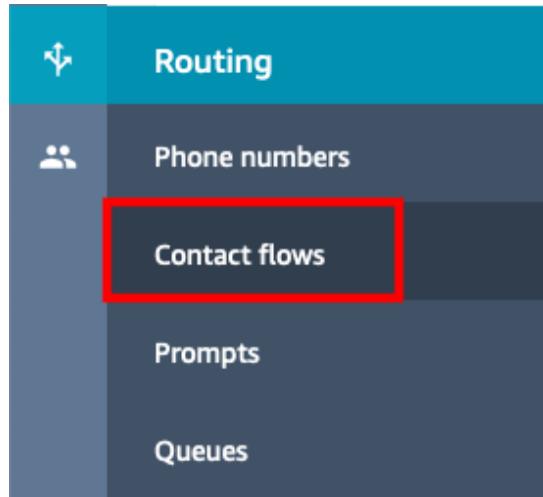
There are five functions available with the integration. Each function is triggered by a code. You can use one code in your contact attribute, or string multiple together as a comma separated list. The available codes and their functions are:

- **snt = Sentiment Analysis**
- **kw = Keyphrase Extraction**
- **dl = Language Detection**
- **ne = Custom Entities**
- **syn = Syntax Analysis**

### Enabling AI Driven Contact Analysis

1. Login to your Amazon Connect instance as an Administrator

2. From the left navigation, choose **Routing** then select **Contact flows**



3. Open the contact flow that you want to use to enable AI Driven Contact Analytics. This contact flow must have Amazon Connect's native recording turned on, and transcription enabled as these are both prerequisites for the analytics function.

4. In your contact flow, before you transfer to queue, add a new **Set contact attributes** block

5. Configure the block to set a contact attribute as follows:

a. **Destination key:** postcallTranscribeComprehendAnalysis

b. **Value:** snt,dl,kw,syn

– In this example, we are performing sentiment analysis, language detection, and keyphrase extraction

Attribute to save

Use text ×

Destination key  
postcallTranscribeComprehendAnalysis

Value  
snt,dl,kw

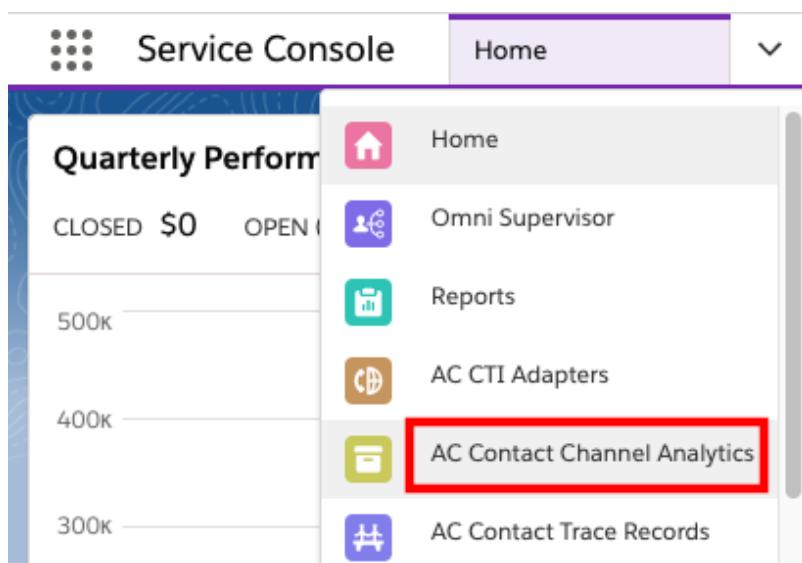
Use attribute

6. **Save** the Set contact attributes block. Make sure it is appropriately connected to your contact flow, and **Publish** the flow.

7. Wait approximately 2 minutes to give the contact flow time to publish.
8. Place a call, connect to your agent, speak for a few moments from both the agent and the customer side to generate a good transcript, then end the call. Make sure the agent exits after call work
9. The contact analysis runs after the transcription, which will take at least as long as the call did. Wait an appropriate amount of time for the analysis to be available.

## Accessing the AI Driven Contact Analysis

1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose AC Contact Channel Analytics. If you have not previously added AC Contact Channel Analytics to the navigation menu, complete the steps found in [Adding Contact Channel Analytics to the Service Console](#).



3. Change the list view from Recently Viewed to **All**



4. Once the view refreshes, you should see your record(s)



3 items • Updated a few seconds ago

	<input type="checkbox"/> Contact Channel Analytics Name	>Contact Id
1	<input type="checkbox"/> CCA 000002	6df455ce-8e7e-4ee8-806d-b5dff9758d66
2	<input type="checkbox"/> CCA 000001	c3a70eeb-4a9e-4605-8871-4bd0d58c9b51
3	<input type="checkbox"/> CCA 000000	a14b0510-2db7-441c-aac2-55018eb4cbde

5. Select a record to view the details.

6. Once the record opens, note the Keywords, Sentiment, and Dominant Language

Contact Channel Analytics Name  
CCA 000003

Contact Id  
1dcf1bd2-4aeb-4c75-ad19-  
85d538035584

Keywords  
a problem, my account number,  
the first place, my account  
number, 1234 1285, time, your  
competitors

Named Entities

Sentiment  
NEGATIVE,  
0.9559353590011597

Dominant Language  
en

Channel

Created By  
 apiuser, 2/27/2020, 1:13 PM

Last Modified By  
 apiuser, 2/27/2020, 1:15 PM

Edit this page

# Contact Trace Record Import

In Amazon Connect, data about contacts is captured in contact trace records (CTR). This data can include the amount of time a contact spends in each state: customer on hold, customer in queue, agent interaction time. The basis for most historical and real-time metrics in Amazon Connect is the data in the CTR. When you create metrics reports, the values displayed for **most** (not all) metrics in the report are calculated using the data in the CTRs.

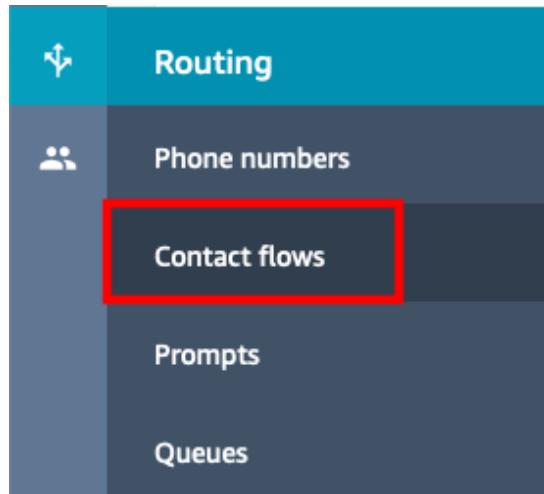
CTRs are available within your Amazon Connect instance for 24 months from the time when the associated contact was initiated. You can also stream CTRs to Amazon Kinesis to retain the data longer, and perform advanced analysis on it. Additionally, with the AWS Serverless Application Repository for Salesforce, you can import Contact Trace Records into your Salesforce org.

## Contact Trace Record Import

Once enabled during the AWS Serverless Application Repository for Salesforce, CTR import is activated on a call by call basis by adding a specific contact attribute. This attribute is used during Contact Trace Record processing to trigger the import task.

### Enabling Contact Trace Record Import

1. Login to your Amazon Connect instance as an Administrator
2. From the left navigation, choose **Routing** then select **Contact flows**



3. Open the contact flow that you want to use to enable call recording import.
4. In your contact flow, before you transfer to queue, add a new **Set contact attributes** block
5. Configure the block to set a contact attribute as follows:
  - a. **Destination key:** postcallCTRImportEnabled
  - b. **Value:** true

#### Attribute to save

Use text X

Destination key  
`postcallCTRImportEnabled`

Value  
`true`

Use attribute

6. **Save** the Set contact attributes block. Make sure it is appropriately connected to your contact flow, and **Publish** the flow.
7. Wait approximately 2 minutes to give the contact flow time to publish.
8. Place a call, connect to your agent, speak for a few moments, then end the call. Make sure the agent exits after call work
9. The Contact Trace Record is emitted shortly after call completion and the import happens almost immediately.

**Note:** If you are expecting more than 1000 concurrent calls, you may have to increase the timeout for the `sfCTRTrigger` lambda.

#### Adding Contact Trace Records to the Service Console

1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose **Edit**.



The screenshot shows the Service Console navigation bar. On the left, there's a sidebar titled 'Recently Viewed' with a 'Case Number' filter. To the right is a vertical navigation menu with icons and labels: Cases, Contacts, Accounts, Reports, Dashboards, Chatter, Home, and Edit. The 'Edit' button is highlighted with a red box.

3. On the Edit Service Console App Navigation Items page, select **Add More Items**

### Edit Service Console App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

[Learn More](#) i

NAVIGATION ITEMS (7)

[Add More Items](#)

4. Select the + next to **AC Contact Trace Records**

5. Select **Add 1 Nav Item**

6. Change the order of your Navigation Items if desired, then choose **Save**

## Edit Service Console App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

[Learn More](#) i

i 1 item added to your list. Save your updates.

NAVIGATION ITEMS (12)

[Add More Items](#)

<small>≡</small> AC CTI Adapters	X
<small>≡</small> AC Queue Metrics	X
<small>≡</small> AC Real Time Queue Metrics	X
<small>≡</small> AC Contact Channel Analytics	X
<small>≡</small> Cases	
<small>≡</small> Contacts	
<small>≡</small> Accounts	
<small>≡</small> Reports	
<small>≡</small> Dashboards	
<small>≡</small> Chatter	
<small>≡</small> Home	
<small>≡</small> AC Contact Trace Records	X

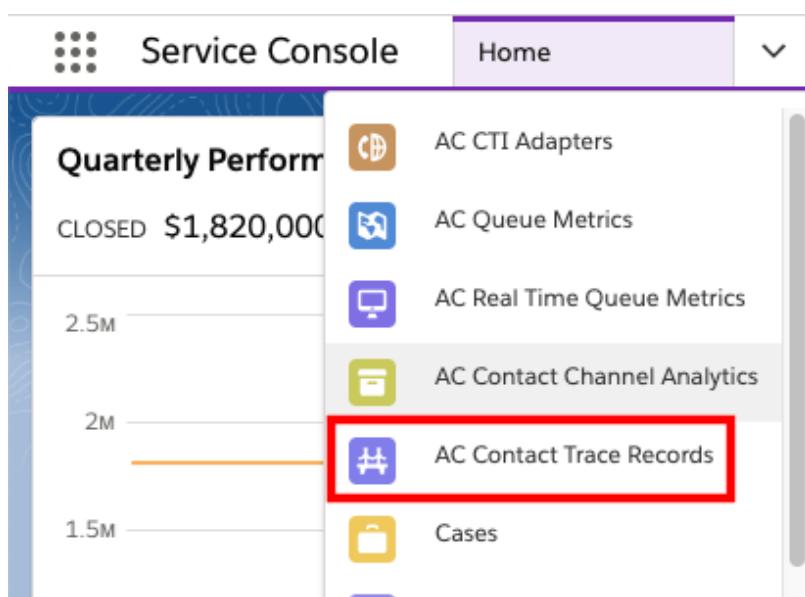
[Reset Navigation to Default](#) i

[Cancel](#)

[Save](#)

7. Once the save completes, expand the **navigation menu** by selecting the down arrow and choose AC

### Contact Trace Records

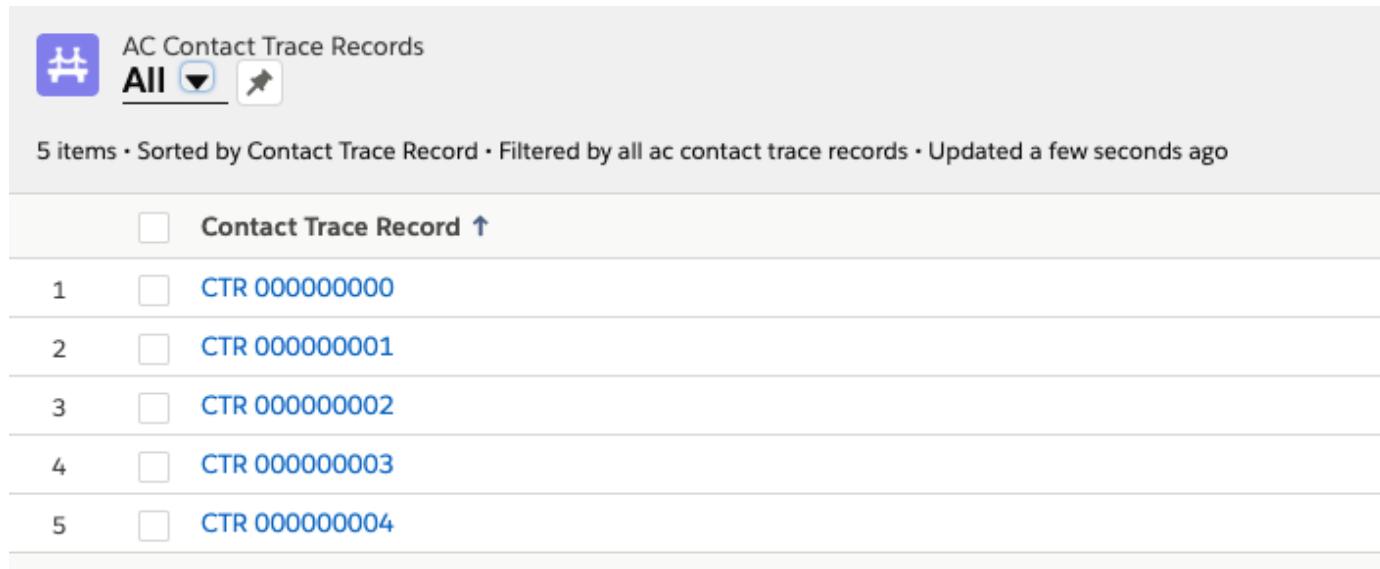


8. Change the list view from Recently Viewed to **All**



The screenshot shows a list view for 'AC Contact Trace Records'. At the top, there's a dropdown menu labeled 'Recently Viewed ▾' with a blue icon. Below it, a sub-menu titled 'LIST VIEWS' is displayed, containing two items: 'All' (which is highlighted with a red box) and 'Recently Viewed (Pinned list)'.

9. Once the view refreshes, you should see your record(s)



The screenshot shows the 'AC Contact Trace Records' list view with 'All' selected. It displays 5 items, each with a checkbox and a Contact Trace Record ID: CTR 000000000, CTR 000000001, CTR 000000002, CTR 000000003, and CTR 000000004. The list is sorted by Contact Trace Record.

10. Select a record to view it

11. Note the ContactId value from Amazon Connect

## Display Additional Contact Trace Record Data

By default, the AC Contact Trace Record layout only contains the ContactId. However, all of the CTR data has been imported. It is likely that you will want to customize this view to show more data.

### Customizing the AC Contact Trace Record Layout

1. Log in into your Salesforce org and go to **Setup**

2. In the **Quick Find** field, enter object and choose **Object Manager** from the results

object

▼ Data

Big Objects

▼ Objects and Fields

Object Manager

Picklist Value Sets

Schema Builder

▼ Integrations

3. In the Object Manager, find the **AC Contact Trace Record** object and select it

Name	Label	Last Modified
AC Contact Channel Analytics	amazonconnect__AC_ContactChannelA	2/24/2020 ✓
AC Contact Trace Record	amazonconnect__AC_ContactTraceRecc	2/24/2020 ✓
AC CTI Adapter	amazonconnect__AC_CtiAdapter__c	2/24/2020 ✓

4. In the left navigation, choose **Page Layouts**

5. Select **AC Contract Trace Record Layout**

6. Select items from the Fields section and add them to the layout as you wish. In the example below, I have selected Agent Username, Queue Name, Queue Duration, After Contact Work Duration, Agent Interaction Duration, and Attributes

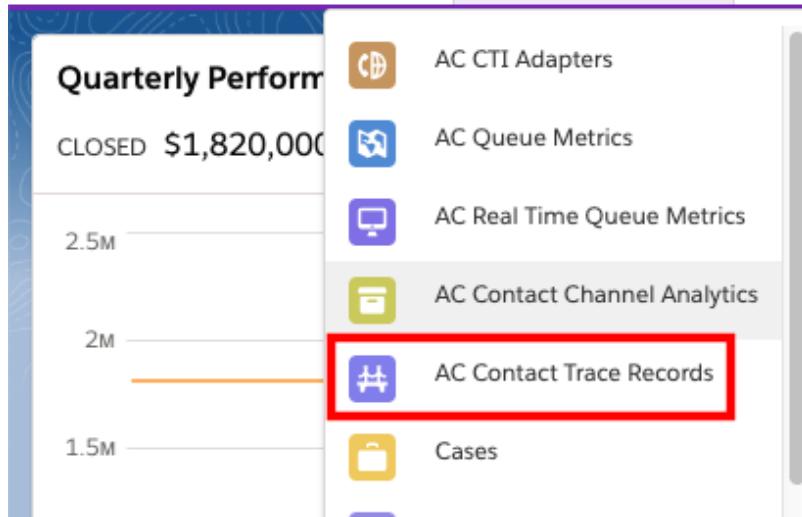
Information (Header visible on edit only)	
Contact Trace Record	GEN-2004-001234
* Channel	Sample Text
* ContactId	Sample Text
After Contact Work Duration	76,916
Agent Interaction Duration	37,408
Owner	Sample Text
Agent Username	Sample Text
Queue Name	Sample Text
Queue Duration	18,140
Attributes	Sample Text

7. Save the layout

8. Return to the **Service Console**

9. Refresh the browser

10. Expand the **navigation menu** by selecting the down arrow and choose **AC Contact Trace Records**



11. Select a contact trace record

12. You should now see your modified layout

The figure shows the detail view for an AC Contact Trace Record. The top header says "AC Contact Trace Record" and "CTR 000000003". Below the header, there are two tabs: "Related" and "Details", with "Details" being the active tab. The "Details" tab contains the following fields:

Field	Value
Contact Trace Record	CTR 000000003
Channel	VOICE
ContactId	71662532-8da9-41bf-bba1-3755ed070cdd
After Contact Work Duration	2
Agent Interaction Duration	10
Created By	apiuser, 2/27/2020, 10:38 AM
Owner	apiuser
Agent Username	doug [REDACTED]@com
Queue Name	BasicQueue
Queue Duration	24
Attributes	{"phone_number": "+17048076561", "postal_code": "98121", "postcallCTRImportEnabled": "true", "postcallRecordingImportEnabled": "true", "postcallTranscribeEnabled": "true", "postcallTranscribeLanguage": "en-US"}
Last Modified By	apiuser, 2/27/2020, 10:38 AM

Edit this page

# Postcall Contact Lens Import

Contact Lens for Amazon Connect is a set of machine learning (ML) capabilities integrated into Amazon Connect. With Contact Lens for Amazon Connect, contact center supervisors can better understand the sentiment, trends, and compliance of customer conversations to effectively train agents, replicate successful interactions, and identify crucial company and product feedback.

Contact Lens are available within your Amazon Connect instance in CTR page, and Contact Lens data are stored in Amazon Connect S3 bucket. With the AWS Serverless Application for Salesforce (Amazon Connect Salesforce Lambda), you can import Contact Lens data into your Salesforce org.

## Contact Lens Import

Before using AWS Serverless Application (Amazon Connect Salesforce Lambda) to import Contact Lens data, you need to enable Contact Lens in Amazon Connect. More information can be found at <https://docs.aws.amazon.com/connect/latest/adminguide/enable-analytics.html>.

Once enabled during the installation of AWS Serverless Application (Amazon Connect Salesforce Lambda), Contact Lens import is activated on a call by call basis by adding a specific contact attribute. This attribute is used during Contact Lens processing to trigger the import task.

### Creating the AWS Lambda Trigger for the Contact Lens Data

1. Make sure you set **ContactLensImportEnabled** to **true** during the deployment of Amazon Connect Salesforce Lambda application.
2. Once the deployment is finished, you need to configure a trigger that invokes a Lambda function when Contact Lens output file is generated and stored in S3.
3. In a browser tab, login to the [AWS Console](#).
4. Open the [AWS Lambda Console](#).
5. In the filter field of the AWS Lambda console, enter sfProcessContactLens and press enter to filter the list of functions.
6. Select the Lambda that includes sfProcessContactLens in the name.
7. Expand the Designer section.
8. Select Add trigger

## ▼ Designer

[Go back to application serverlessrepo-AmazonConnectSalesforceLambda](#)

The screenshot shows the AWS Lambda Designer interface. At the top, there's a navigation bar with tabs: Configuration, Permissions, and Monitoring. Below that, a section titled 'Designer' has a 'Go back to application serverlessrepo-AmazonConnectSalesforceLambda' link. The main area displays a Lambda function with the ARN: 'serverlessrepo-Amazo nConnectS-sfProcessC ontactLens-X7O29Q1 V175S'. To the right of the ARN is a 'Layers' icon. On the left, there's a red-bordered box containing a '+ Add trigger' button.

9. In Trigger configuration, select S3 from the dropdown list

Lambda > Add trigger

## Add trigger

### Trigger configuration

Select a trigger



DynamoDB

aws database nosql



Kinesis

analytics aws streaming



S3

aws storage



SNS

aws messaging notifications pub-sub push

S3



SQS

aws queue

10. Select the bucket of your Amazon Connect instance. You can find your Amazon Connect bucket name by clicking on your Amazon Connect instance alias in Amazon Connect console.

11. Change the Event type to PUT.

12. Set the Prefix to **Analysis/Voice/2020**. Note that this might change as the date changes so you will need to update this on the first day of every new year.

13. Set the Suffix to .json

14. The trigger configuration should now be similar to the following:

## Add trigger

### Trigger configuration



S3

aws storage

#### Bucket

Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.

connect-[REDACTED]



#### Event type

Select the events that you want to have trigger the Lambda function. You can optionally set up a prefix or suffix for an event. However, for each bucket, individual events cannot have multiple configurations with overlapping prefixes or suffixes that could match the same object key.

PUT



#### Prefix - optional

Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.

Analysis/Voice/2020

#### Suffix - optional

Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters.

.json

Lambda will add the necessary permissions for Amazon S3 to invoke your Lambda function from this trigger. [Learn more](#) about the Lambda permissions model.

The Lambda console no longer supports disabling S3 and CloudWatch Logs triggers. Delete these triggers to stop further actions.

#### Recursive invocation

If your function writes objects to an S3 bucket, ensure that you are using different S3 buckets for input and output. Writing to the same bucket increases the risk of creating a recursive invocation, which can result in increased Lambda usage and increased costs. [Learn more](#)

I acknowledge that using the same S3 bucket for both input and output is not recommended and that this configuration can cause recursive invocations, increased Lambda usage, and increased costs.

Cancel

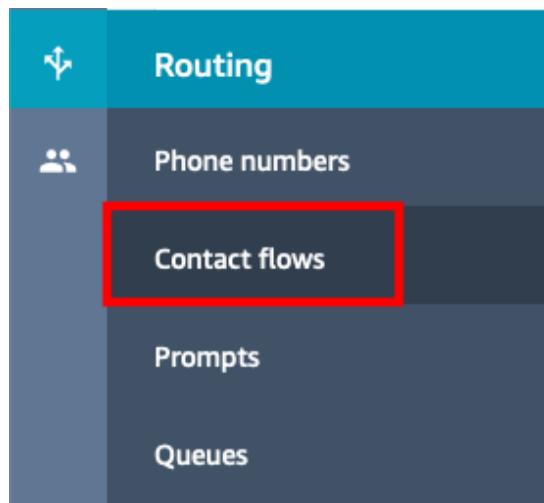
Add

15. Select Add

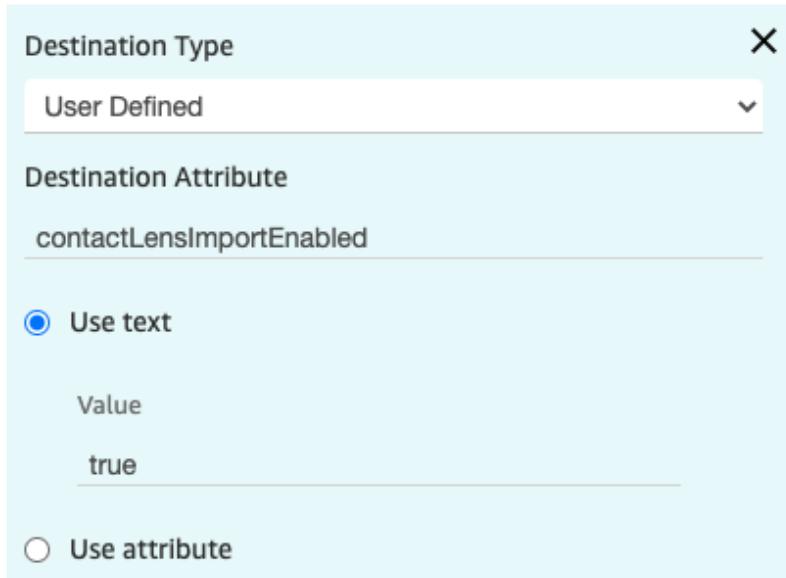
16. If everything has been configured correctly, you should receive a success message.

## Enabling Contact Lens Import

1. Login to your Amazon Connect instance as an Administrator
2. From the left navigation, choose **Routing** then select **Contact flows**



3. Open the contact flow that you want to use to enable Contact Lens import.
4. In your contact flow, before you transfer to queue, add a new **Set contact attributes** block
5. Configure the block to set a few contact attributes:
  - To turn on Contact Lens data import, set **contactLensImportEnabled** to **true**.



- For recording import, there are two options: original call recording and redacted call recording.  
**Note that you can only import one of the recordings for each contact.**
  - To turn on original recording import, set **postcallRecordingImportEnabled** to **true**

**Destination Type** X

User Defined ▼

**Destination Attribute**

`postcallRecordingImportEnabled`

Use text

Value

true

Use attribute

- To turn on redacted recording import, set `postcallRedactedRecordingImportEnabled` to **true**

**Destination Type** X

User Defined ▼

**Destination Attribute**

`postcallRedactedRecordingImportEnabled`

Use text

Value

true

Use attribute

- Save the Set contact attributes block. Make sure it is appropriately connected to your contact flow, and **Publish** the flow.
- Wait approximately 2 minutes to give the contact flow time to publish.
- Place a call, connect to your agent, speak for a few moments, then end the call. Make sure the agent exits after call work
- The Contact Lens data is emitted a couple of minutes after call completion and the import happens almost immediately.

# Configuring My Domain in Salesforce

The latest CTI adapter includes several lighting components that provide a better administrative user experience. Salesforce requires that My Domain be enabled to make use of lightning components. Setting up My Domain is a fairly simple setup, but it does require some time for the changes to propagate, so it will be helpful to complete this configuration in advance of your CTI adapter deployment.

## Register Your Domain

Step 1 in the process is registering your domain in Salesforce. This allows you to check availability of the domain and complete the registration process. It will take some amount of time for the registration to complete.

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, enter **My Domain**, then select **My Domain** from the result list

A screenshot of the Salesforce Setup interface. At the top, there's a navigation bar with icons for Home and Object. Below it is a search bar containing the text "My domain". Underneath the search bar, a list of categories is shown, with "Company Settings" expanded. A result named "My Domain" is listed under this category, and it is highlighted with a red rectangular box. Below the list, there's a message: "Didn't find what you're looking for? Try using Global Search."

3. In the **My Domain Step 1** section, enter your desired domain name and select **Check Availability** to determine if the domain is available.

A screenshot of the "Choose Your Domain Name" step in the My Domain setup wizard. The heading says "Choose Your Domain Name". Below it, instructions say: "Enter a domain name and check whether it's available. Be sure of your name before registering. Only Salesforce Customer Support can change your domain name once it's registered. Your domain name can be up to 34 characters. It can include letters, numbers, and hyphens; but it can't start or end with a hyphen." An input field contains the URL "https://sfseorgb-dev-ed.my.salesforce.com/", and a "Check Availability" button below it is highlighted with a red rectangular box.

4. If the domain is not available, you will need to try a different name.
5. If the domain is available, select \*\*Register Domain

[Check Availability](#)  Available

**Register Domain** After you click Register Domain, Salesforce takes a few minutes to update its naming registries. You receive an email when it's done.

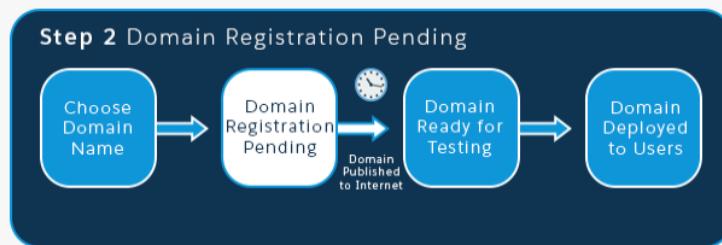
6. The domain registration process will begin. You will receive an email once it is complete. Once you receive the confirmation, you may continue with the next section.

## My Domain

[Help for this Page](#) 

### My Domain Step 2

Showcase your company's brand and keep your data more secure by adding a custom domain name to your Salesforce URL. Because having a custom domain is more secure, some Salesforce features require it. It's easy to set up My Domain—the hardest part is choosing a name that your stakeholders can agree on.



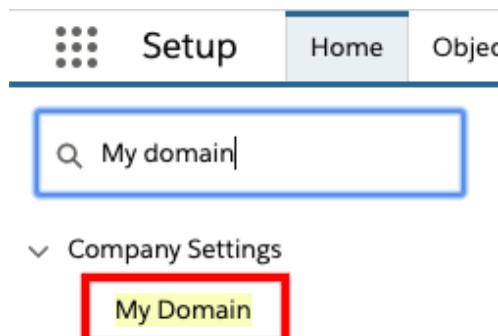
Your domain name is **sfseorgb-dev-ed.my.salesforce.com**

 Registering your domain. You'll receive an email when it's ready for testing.

## Deploy the Domain to Your Users

Once the domain registration process completes, you then need to deploy the domain to your users.

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, enter **My Domain**, then select **My Domain** from the result list



The screenshot shows the Salesforce Setup interface. The top navigation bar has tabs for **Setup**, **Home**, and **Object**. Below the navigation is a search bar containing the text **My domain**. Under the search bar, there is a list of categories, with **Company Settings** expanded. Within **Company Settings**, the **My Domain** item is highlighted with a red box. At the bottom of the page, there is a message: **Didn't find what you're looking for? Try using Global Search.**

3. In the **My Domain Step 2** section, note the domain name, then select the **Log in** button to login using the new domain.

Your domain name is **sfseorgb-dev-ed.my.salesforce.com**

Your domain name is ready. Log in to test it out.

[Log in](#)

To test your new domain, click tabs and links. If you've customized the UI, check for hard links to your original URL.

4. Once the login completes, you should see your new domain in the address bar of your browser. You should also be returned to the My Domain configuration.

5. Select the Deploy to Users button to deploy your domain

Your domain name is **sfseorgb-dev-ed.my.salesforce.com**

Your domain name is ready. Log in to test it out.

[Log in](#)

To test your new domain, click tabs and links. If you've customized the UI, check for hard links to your original URL.

[Deploy to Users](#) Roll out the new domain to your org. [i](#)

6. You should get a popup message that warns you about the domain deployment. Select OK.

...edded page at sfseorgb-dev-ed.my.salesforce.com says

When you deploy the new domain, we activate it immediately. Only Salesforce Customer Support can disable or change your domain name once it's deployed.

[Cancel](#)

[OK](#)

7. Deployment should now be complete

 [Edit this page](#)

# Configure Salesforce Omnichannel for Testing

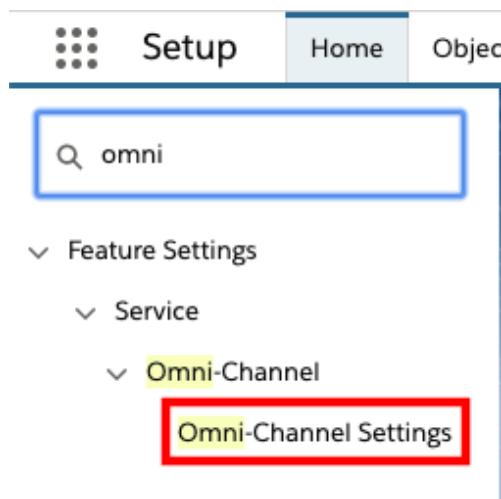
In order to sync your Connect User status with your Omni-Channel agent status, you must configure Omni-Channel Presence Syncing. This will make your Omni-Channel presence status match your Amazon Connect Agent Status and vice versa.

## Enable Omnichannel

First, we must enable omni-channel. Once you enable Omni-Channel, you will have access to the other components in Salesforce that will be required for Omni-Channel setup.

## Enable Omnichannel in Your Salesforce Org

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, enter omni and choose **Omni-Channel Settings** from the results



3. Select the checkbox for Enable Omni-Channel and choose Save

## Omni-Channel Settings

Omni-Channel routes work items to your support agents. It sets agent capacity for accepting work and agent availability.

The screenshot shows the 'Omni-Channel Settings' page. It contains several configuration options with checkboxes:

- Enable Omni-Channel**: This checkbox is checked and highlighted with a blue border.
- Enable Skills-Based Routing**: This checkbox is unchecked.
- Enable Secondary Routing Priority**: This checkbox is unchecked.
- Display a login confirmation upon loading a console with Omni-Channel**: This checkbox is unchecked.

At the bottom right of the page are 'Save' and 'Cancel' buttons.

4. Omni-Channel is now enabled.

## Configure Presence Statuses

Once you have enabled Omni-Channel, you will need to configure presence statuses to reflect the different presence states that you wish your Omni-Channel agents to enter. These do not need to match agent statuses in Amazon Connect exactly, but it does make it easier to track what you are doing.

### Add a Presence Status

1. Log in into your Salesforce org and go to **Setup**

2. In the **Quick Find** field, enter presence and choose **Presence Statuses** from the results

The screenshot shows the ServiceNow navigation bar with tabs for Setup, Home, and Object. A search bar at the top contains the text "presence". Below the search bar, a sidebar menu is open under "Feature Settings". The "Service" and "Omni-Channel" sections are expanded. Under "Omni-Channel", three options are listed: "Presence Configurations", "Presence Decline Reasons", and "Presence Statuses", which is highlighted with a red rectangular border.

3. In the Presence Statuses page, choose New

4. Provide a status name, for example Lunch

5. Set the Status options appropriately, for example, Busy

6. For Online statuses, you will need to provide a channel. Please reference the [Omni-Channel documentation](#) for details

7. Choose Save

## Presence Statuses

Let agents indicate when they're online and available to receive work items from a specific service channel, or whether they're away or offline.

The screenshot shows the "Presence Statuses" creation form. At the top right are "Save" and "Cancel" buttons. The first section, "Basic Information", contains fields for "Status Name" (set to "Lunch") and "Developer Name" (set to "Lunch"). Below this is a section titled "Status Options" with a note: "Choose whether agents are online or busy when they use this status. Online statuses let agents receive new work items. Busy statuses make them unavailable." Two radio buttons are shown: "Online" (unchecked) and "Busy" (checked). At the bottom right are "Save" and "Cancel" buttons.

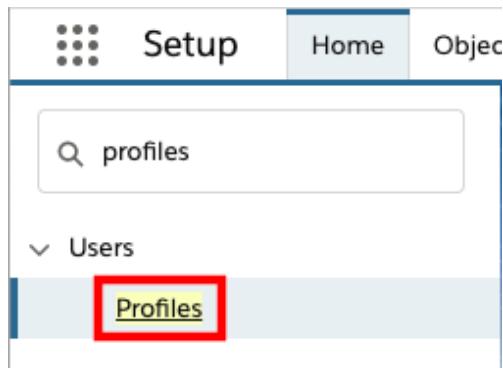
8. Repeat as necessary for all desired statuses

# Configure Profiles to Use the New Statuses

Before agents can use the statuses that have been configured, you will need to make sure that they have been provided rights to them. This is done by modifying the profiles assigned to your agents.

## Modify Profiles to Use New Statuses

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, enter profiles and choose **Profiles** from the results

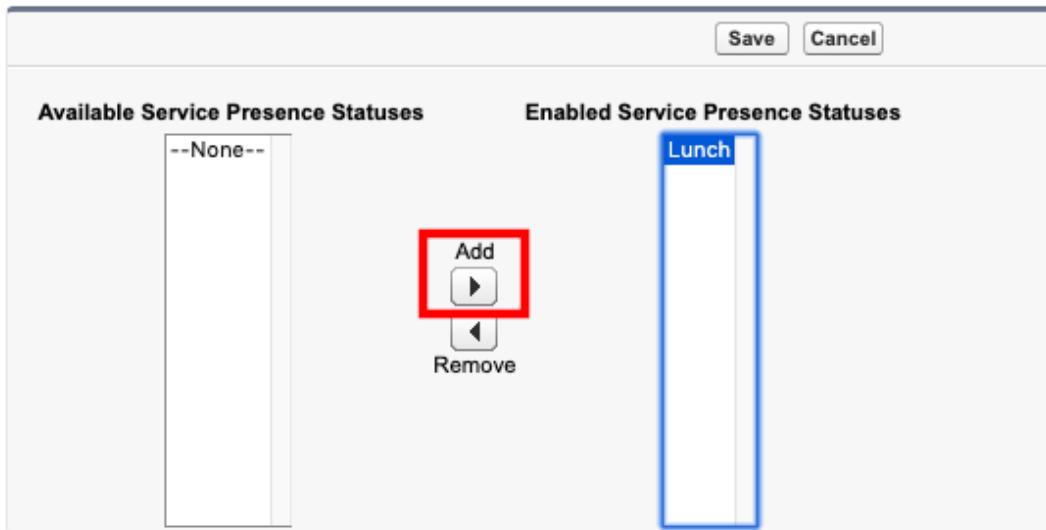


3. Select the profile assigned to your users
4. Hover over the Enabled Service Presence Status link and choose Edit

A screenshot of the 'Profiles' page for the 'System Administrator' profile. The page title is 'Profile System Administrator'. It shows various permission settings like 'Login IP Ranges', 'Enabled Apex Class Access', etc., with many links highlighted with red boxes. A specific section 'Enabled Service Presence Status Access' is shown with an 'Edit' button highlighted with a red box. Below this section, it says 'No Service Presence Status enabled'.

5. Select the available status from the left, then choose the Add button to add it to the Enabled Service Presence Statuses field

## Enable Service Presence Status Access



6. Select Save
7. Repeat as necessary for other statuses or profiles.

## Add Omni-Channel to the Utility Bar

To provide agents access to the Omni-Channel tool, you will need to add it to the Service Console.

### Add the Omni-Channel Utility Item

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** box, type **App Manager**, then choose **App Manager** from the result list.

The screenshot shows the Salesforce App Manager search results. The search bar at the top contains 'App Manager'. Below it, under the 'Apps' section, 'App Manager' is listed and highlighted with a red box. Other items like 'Salesforce Chatter' and 'Service' are also visible.

3. Expand the drop-down menu associated to Service Console and select **Edit**.

12	Salesforce Chatter	Chatter	The Salesforce Chatter social network, including profiles and feeds	1/21/2020, 8:46 PM	Classic	✓	▼
13	Service	Service	Manage customer service with accounts, contacts, cases, and more	1/21/2020, 8:46 PM	Classic	✓	▼
14	Service Console	LightningService	(Lightning Experience) Lets support agents work with multiple re...	1/21/2020, 8:46 PM	Lightning	✓	▼
15	Site.com	Sites	Build pixel-perfect, data-rich websites using the drag-and-drop Sit...	1/21/2020, 8:46 PM	Classic	Edit	▼

4. Once the **Lightning App Builder** opens, select **Utility Items** from the left Navigation

## APP SETTINGS

## App Details &amp; Branding

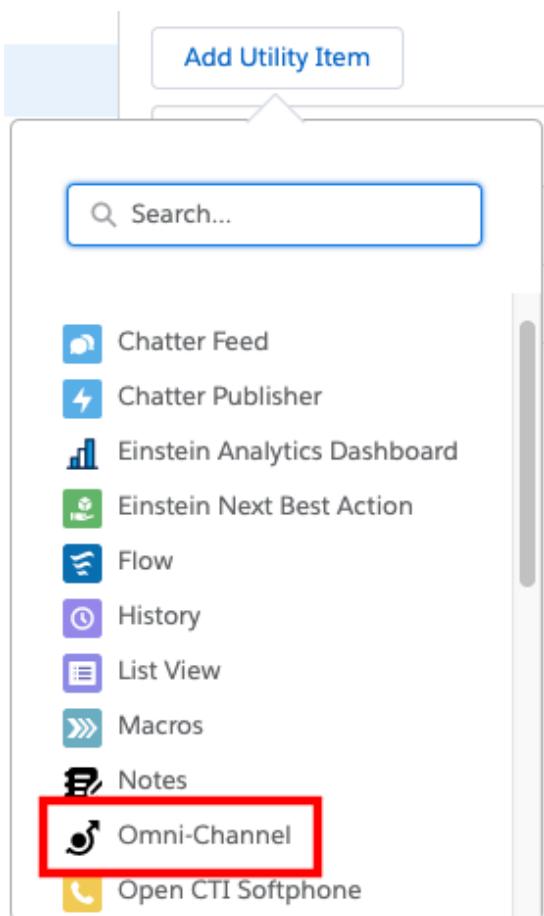
App Options

Utility Items

Navigation Items

Navigation Rules

5. Choose Add Utility Item, then select Omni-Channel



6. Adjust the order of the utility items as desired and select Save.

7. Return to the Service Console and refresh your browser.

8. You should now see the Omni-Channel utility item.

---

📞 Amazon Connect

⭕ Omni-Channel

⌚ History

✍ Edit this page

# Appendix B: Configuring Salesforce as Your Identity Provider

## Prerequisites

To complete the SSO integration between Salesforce and Amazon Connect, you need:

1. An Amazon Connect Instance configured for SAML authentication
2. Appropriate AWS permissions to create Identity and Access Management (IAM) roles and policies
3. Administrator permissions for your Salesforce Org
4. Amazon Connect CTI Adapter AppExchange package installed and configured

## Configuring Salesforce as an Identity Provider

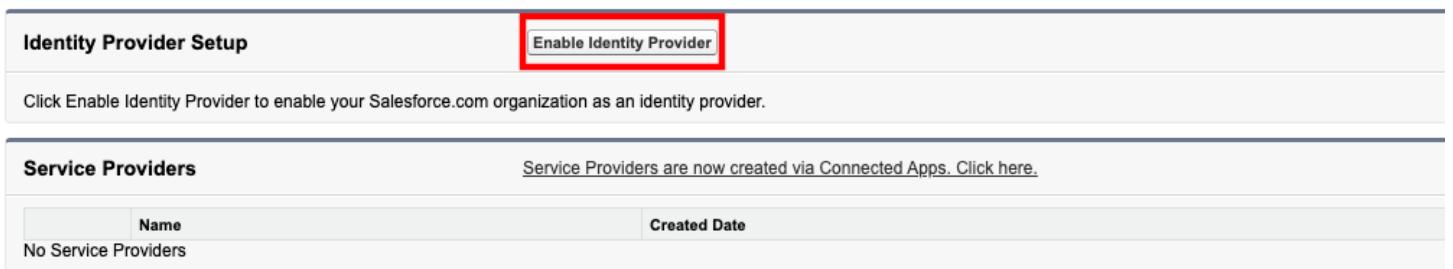
First, we need to enable Salesforce to act as an identity provider (IdP). An IdP performs end user authentication and provides the credentials to the requesting service provider. In this case, Salesforce server as the IdP and Amazon Connect the service provider, while being embedded in Salesforce.

### Setup Identity Provider & Download Metadata

1. Log in into your Salesforce org and go to **Setup**.
2. In the **Quick Find** field, type **Identity Provider**, then select **Identity Provider** from the result list
3. Identity Provider may be enabled by default. If not, choose **Enable Identity Provider**, then select the appropriate certificate and select **Save**.

## Identity Provider

Enable Salesforce.com as an identity provider so you can use single sign-on with other web sites, and define the appropriate service providers whose applications support single sign-on. You can switch to different service providers without having to log in again. [Learn more...](#)



The screenshot shows the 'Identity Provider Setup' page. At the top, there is a button labeled 'Enable Identity Provider' which is highlighted with a red box. Below this, a message says 'Click Enable Identity Provider to enable your Salesforce.com organization as an identity provider.' Under the heading 'Service Providers', it says 'Service Providers are now created via Connected Apps. Click here.' There is a table with columns 'Name' and 'Created Date', showing 'No Service Providers'.

4. Choose **Download Metadata** and save the file to your computer.

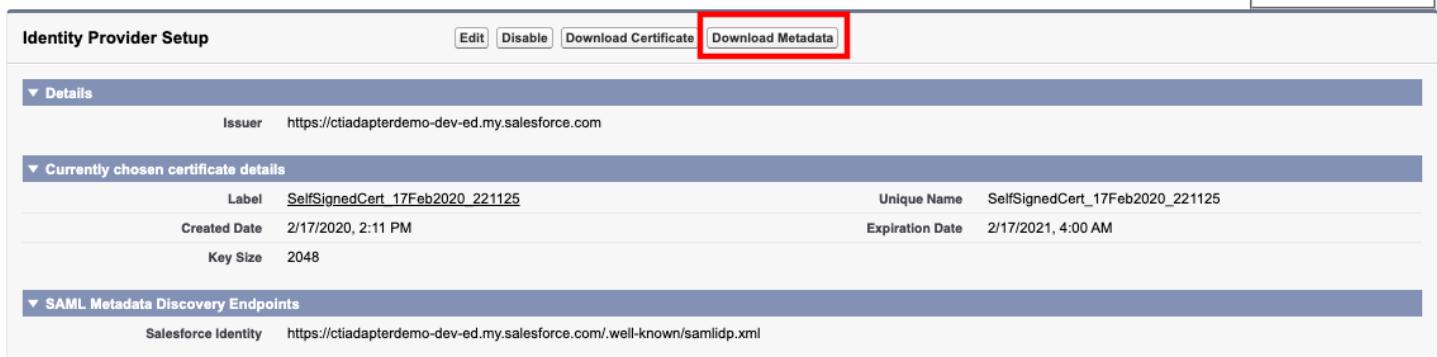
## Identity Provider

[Help for this Page](#) 

Enable Salesforce.com as an identity provider so you can use single sign-on with other web sites, and define the appropriate service providers whose applications support single sign-on. You can switch to different service providers without having to log in again. [Learn more...](#)

### Quick Tips

- [Certificates and Keys](#)
- [About Single Sign-On](#)
- [My Domain](#)



The screenshot shows the 'Identity Provider Setup' page. The 'Download Metadata' button is highlighted with a red box. Below it, there are sections for 'Details' (Issuer: https://ctiadapterdemo-dev-ed.my.salesforce.com), 'Currently chosen certificate details' (Label: SelfSignedCert\_17Feb2020\_221125, Created Date: 2/17/2020, 2:11 PM, Unique Name: SelfSignedCert\_17Feb2020\_221125, Expiration Date: 2/17/2021, 4:00 AM, Key Size: 2048), and 'SAML Metadata Discovery Endpoints' (Salesforce Identity: https://ctiadapterdemo-dev-ed.my.salesforce.com/.well-known/samlidp.xml).

## Configure the Identity Provider, Policy, and Role in the AWS Console

Next, you need to configure the identity provider (Salesforce) in the AWS console and provide access to Amazon Connect via IAM policies and roles. This allows AWS to acknowledge Salesforce as the identity provider and to provide users authenticated through Salesforce with the access required to login to Amazon Connect.

### Configure the Identity Provider

1. Login to the [AWS console](#)
2. Open the [AWS identity and Access Management \(IAM\) Console](#)
3. Select **Identity providers**

## Identity and Access Management (IAM)

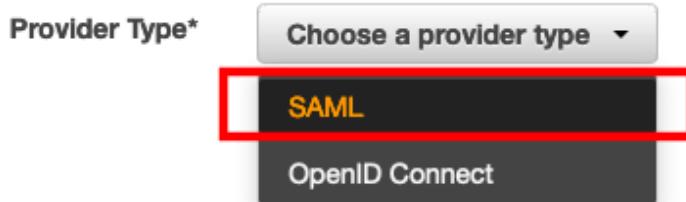
- [Dashboard](#)
- [Access management](#)
  - [Groups](#)
  - [Users](#)
  - [Roles](#)
  - [Policies](#)
  - [Identity providers](#)
- [Account settings](#)

4. Choose **Create Provider**

5. On the Configure Provider screen, select **SAML** as the Provider Type

## Configure Provider

Choose a provider type.



6. Set the Provider Name to **SalesforceConnect**

7. Import the metadata file you downloaded previously by selecting Choose File and navigating to the downloaded metadata file.

8. Select Next Step

9. Choose Create

10. The Identity provider has been created

## Create the IAM Role and Policy

1. Login to the [AWS console](#)

2. Open the [AWS identity and Access Management \(IAM\) Console](#)

3. Select **Roles**, then choose **Create role**

4. Choose **SAML 2.0 federation**

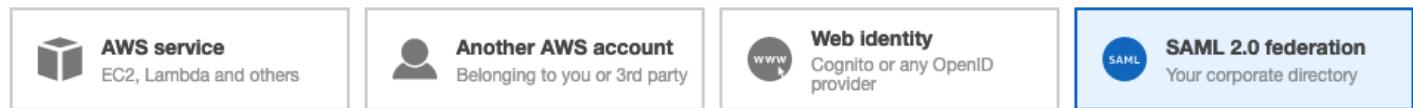
5. In the SAML provider dropdown, select the provider you just created, which should be named **SalesforceConnect**

6. Select the radio button for **Allow programmatic and AWS Management Console access**. The Attribute and Value fields should auto-populate

## Create role

1 2 3 4

### Select type of trusted entity



Allows users that are federated with SAML 2.0 to assume this role to perform actions in your account. [Learn more](#)

### Choose a SAML 2.0 provider

If you're creating a role for API access, choose an Attribute and then type a Value to include in the role. This restricts access to users with the specified attributes.

SAML provider

Allow programmatic access only  
 Allow programmatic and AWS Management Console access

Attribute

Value\*

Condition

7. Select **Next: Permissions**

8. On the Attach permissions policies page, select **Create policy**. This will open a new browser tab.

9. Choose the **JSON** tab to switch to the JSON editor

10. Replace the existing JSON with the following:

```
{  
  "Version": "2012-10-17",  
  "Statement": [  
    {  
      "Sid": "Statement1",  
      "Effect": "Allow",  
      "Action": "connect:GetFederationToken",  
      "Resource": [  
        "arn:aws:sso:::federationTokenProvider/  
      ]  
    }  
  ]  
}
```

```
        "*/YOUR ARN*/user/${aws:userid}"  
    ]  
}  
}
```

11. Replace **YOUR ARN** with the ARN of your Amazon Connect instance. To find your Amazon Connect instance ARN:
12. Open a new tab in your browser and navigate to [Amazon Connect Console](#)
13. Click on the name (alias) of your Amazon Connect instance
14. Copy the Instance ARN and paste it to your computer's notepad (you will use it in a few places)
15. Choose **Review policy**
16. Set the Name to **SalesforceConnectPolicy**
17. Select **Create Policy**
18. Once the Policy has been created, close the tab, go back to the original (Role) tab in your browser and select the **Refresh** button (do not refresh the browser)
19. In the search field, enter **SalesforceConnectPolicy** and select the box to attach the policy.

## Create role

1    2    3    4

### ▼ Attach permissions policies

Choose one or more policies to attach to your new role.

Filter policies	Showing 1 result
Policy name	Used as
<input checked="" type="checkbox"/> SalesforceConnectPolicy	None

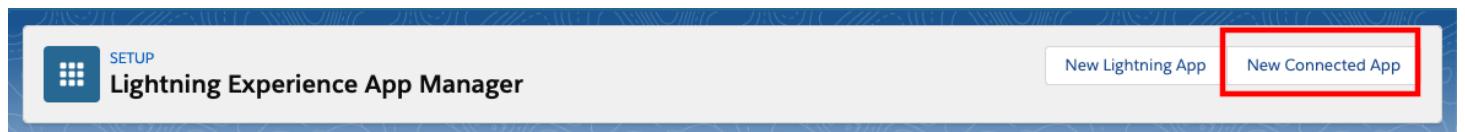
20. Choose **Next: Tags** and set tags if desired, then choose **Next: Review**
21. Name the Role **SalesforceConnectRole** and provide a description if you like
22. Select Create role

## Complete the Base Salesforce Configuration

Next, you need to configure a Connect App in Salesforce and provide further configuration to complete the SAML integration.

## Create the Connected App in Salesforce

1. Log in into your Salesforce org and go to **Setup**
2. In the **Quick Find** field, type **App Manager**, then select **App Manager** from the result list
3. Select New Connected App



4. Provide a name for the Connected App, such as **AmazonConnectSAML**, then press tab and the API Name should auto-populate
5. Provide an email contact address

## New Connected App

Save Cancel

**Basic Information**

Connected App Name	AmazonConnectSAML
API Name	AmazonConnectSAML
Contact Email	douglas+ctiadapterdemo@amazon.ci
Contact Phone	
Logo Image URL	<input type="text"/> <a href="#">Upload logo image</a> or <a href="#">Choose one of our sample logos</a>
Icon URL	<input type="text"/> <a href="#">Choose one of our sample logos</a>
Info URL	<input type="text"/>
Description	<input type="text"/>

6. In the Web App Settings section, choose **Enable SAML**
7. Leave Start URL empty
8. Set Entity Id to the same name that you gave the Identity Provider in the IAM console, which should be **SalesforceConnect**
9. Set ACS URL as <https://signin.aws.amazon.com/saml>
10. Set Subject Type as **Persistent ID**

**Web App Settings**

Start URL	<input type="text"/>
Enable SAML	<input checked="" type="checkbox"/>
Entity Id	SalesforceConnect
ACS URL	<a href="https://signin.aws.amazon.com/saml">https://signin.aws.amazon.com/saml</a>
Enable Single Logout	<input type="checkbox"/>
Subject Type	Persistent ID
Name ID Format	urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified
Issuer	<a href="https://ctiadapterdemo-dev-ed.my.salesforce.com">https://ctiadapterdemo-dev-ed.my.salesforce.com</a>
IdP Certificate	Default IdP Certificate
Verify Request Signatures	<input type="checkbox"/>
Encrypt SAML Response	<input type="checkbox"/>

11. Choose **Save**. The screen should refresh and the new Connected App should be displayed

12. Scroll down to the **Custom Attributes** section and select **New**

13. Set Key as <https://aws.amazon.com/SAML/Attributes/RoleSessionName>

14. Set Value as **\$User.Email**

15. Select **Save**

## Create Custom Attribute

Key	<input type="text" value="https://aws.amazon.com"/>
Value	<input type="text"/> <span style="border: 1px solid blue; padding: 2px;">\$User.Email</span>
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

16. Select New again to configure another custom attribute

17. Set Key as <https://aws.amazon.com/SAML/Attributes/Role>

18. The Value is going to be a combination of the Identity Provider and IAM Role ARNs.

a. In a new tab, open the [AWS identity and Access Management \(IAM\) Console](#)

b. On the left navigation, select **Identity providers**

- c. Select the Identity provider you created earlier, which should be named **SalesforceConnect**
- d. Copy the **Provider ARN** to your computer's notepad
- e. Return to the IAM console and select **Roles**
- f. Select the Role you created earlier, which should be **SalesforceConnectRole**
- g. Copy the **Role ARN** to your computer's notepad
- h. Format the combined value as follows: 'Identity Provider ARN' & ',' & 'Role ARN'
- i. Paste the formatted value into the Custom Attribute Value

19. Select **Save**

## Create Custom Attribute

The screenshot shows a 'Create Custom Attribute' dialog box. The 'Key' field is set to 'https://aws.amazon.com'. The 'Value' field contains the following expression:  
'arn:aws:iam::YOURACCOUNT:saml-provider/SalesforceConnect' & ',' &  
'arn:aws:iam::YOURACCOUNT:role/SalesforceConnectRole'  
At the bottom of the dialog, there are 'Save' and 'Cancel' buttons.

- 20. At the top of the Connected App description, select **Manage**
- 21. Scroll down to the **SAML login Information** section
- 22. Copy the **IdP-Initiated Login URL** to your computer's notepad
- 23. Scroll down to find the Profiles section, then select **Manage Profiles**
- 24. Select a profile from the list, for example System Administrator for testing purposes
- 25. Choose **Save**
- 26. Open a new tab in your browser and navigate to IdP-Initiated Login URL that you copied in an earlier step

27. The browser will redirect to AWS Console and log you in automatically as a federated user **Note:** you may be able to see AWS services, but you should have no configuration rights.

# AWS Management Console

28. The Federated Login consists of the Role name and your Salesforce email address.

29. Initial validation is complete

## Complete the Amazon Connect Configuration

The last step in the SAML setup is to add users to Amazon Connect that exist in your Salesforce org, then validate login. It is critical that the usernames for both platforms match exactly.

### Add Users to Amazon Connect

1. In a new browser tab, login to the [AWS console](#)
2. Open the [Amazon Connect Console](#)
3. Select the name (alias) of your Amazon Connect instance
4. Choose **Login as administrator**

### Overview

Instance ARN	arn:aws:connect:us-west-2: <span style="background-color: black; color: black;">XXXXXXXXXX</span> instance: <span style="background-color: black; color: black;">XXXXXXXXXX</span>
Directory	ctiadapterdemo
Service-linked role	<span style="color: blue;">i</span> AWSServiceRoleForAmazonConnect_ <span style="background-color: black; color: black;">XXXXXXXXXX</span> <a href="#">Learn more</a>
Login URL	<a href="https://ctiadapterdemo.awsapps.com/connect/login">https://ctiadapterdemo.awsapps.com/connect/login</a>

5. Within the Amazon Connect administration portal, select **Users** then choose **User Management**
6. Leave **Create and setup a new user** selected and choose **Next**
7. Complete the First and Last name fields as appropriate
8. Set the login name to match the **Email Address** of your Salesforce user
9. Set the **Routing Profile**. In this example, the default Basic Routing Profile is shown

10. Set the **Security Profile**. In this example, *Admin* is shown

The screenshot shows the 'Add new user' process in the Amazon Connect console. The 'Add user details' step is active. The user's first name is Jason, last name is Douglas, and the login name is jctladapterdemo@amazon.com. Under 'Routing Profile', a basic routing profile is assigned. Under 'Security Profiles', the 'Admin' profile is selected. Under 'Phone Type', the 'Soft phone' option is chosen, and the 'Auto-Accept Call' checkbox is not checked.

11. Select **Save**

12. Select **Create Users**

13. Repeat this process as required for your staff

## Final Configuration for the Lightning Experience

Now that all of the underlying pieces are in place, the last steps are to create the Amazon Connect Single Sign On URL and validate that it works correctly, then configure the Lightning CTI adapter and login the agent.

### Create the Amazon Connect SSO URL

You create the Amazon Connect SSO URL by combining the IdP-Initiated Login URL that you copied earlier, and a relay state URL that will redirect the authenticated user to your Amazon Connect instance.

The 'RelayState' will be in the following format:

```
https://console.aws.amazon.com/connect/federate/[object Object]?
destination=%2Fconnect%2Fccp
```

Please note that "console.aws.amazon.com" refers to US-East-1 region (N. Virginia). If your Amazon Connect instance is in a different region, please use the region Console URL. For example:

```
https://us-west-2.console.aws.amazon.com/connect/federate/[object Object]?
destination=%2Fconnect%2Fccp
```

1. To begin, format the relay state URL by replacing **InstanceId** with your Instance Id. To find your Amazon Connect Instance Id:

a. Open a new tab in your browser and navigate to the [Amazon Connect Console](#)

b. Click on the name (alias) of your Amazon Connect

c. From the Instance ARN, copy the portion after the '/'. This is the Instance Id

## Overview

Instance ARN arn:aws:connect:us-east-1:XXXXXXXXXX:instance/f0c669ee-21dc-XXXXXXXXXX

Directory XXXXXXXXXX

Login URL <https://XXXXXXXXXX.awsapps.com/connect/login>

[Login as administrator](#)

2. Concatenate the 'IdP-Initiated Login URL' and the 'RelayState', by combining the two with "&RelayState=" in between, for example:

```
https://mXXXXXXXXXrun-dev-ed.my.salesforce.com/idp/login?  
app=0sp0N00000Caid&RelayState=https://console.aws.amazon.com/connect/federate/  
Object]?destination=%2Fconnect%2Fccp
```

3. This is the Final SSO URL, needed for the Amazon Connect Lightning CTI Adapter Configuration.

4. To validate this URL:

a. Open a new tab in the same browser that you are logged into Salesforce

b. Paste the fully concatenated URL into the new browser and press enter

c. You should automatically login and be redirected to the Amazon Connect Contact Control Panel.

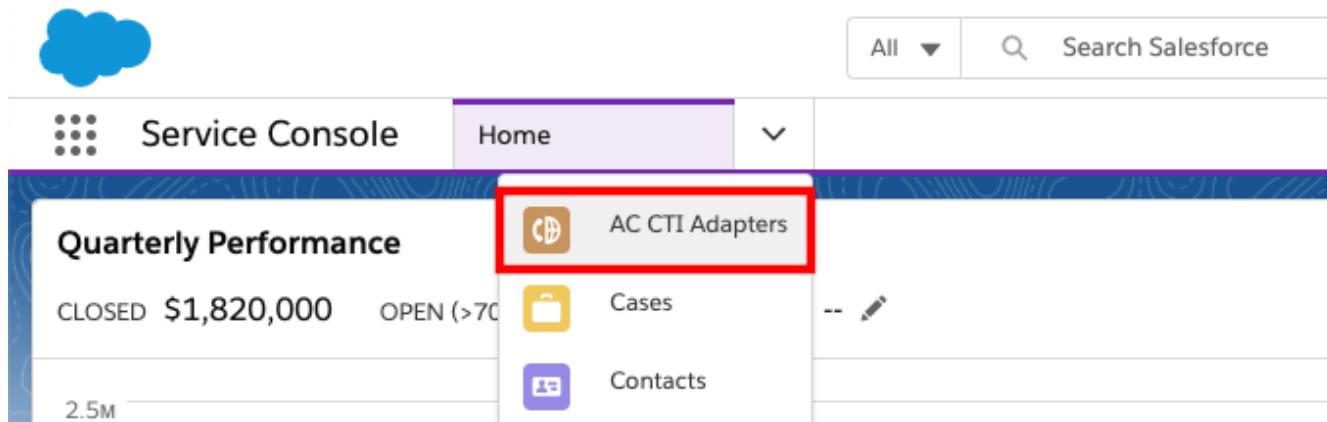
5. Once you validate the full URL, you are ready to add it to the Lightning Adapter

## Configure the CTI Lightning Adapter in Salesforce For SSO

Now we are ready to complete the last step in the configuration process: Adding the SSO settings for Salesforce to the Lightning Adapter. This will configure the adapter to authenticate via SSO and redirect to the Amazon Connect Contact Control Panel once authentication completes.

1. Log in into your Salesforce org and go to the **Service Console**

2. Expand the **navigation menu** by selecting the down arrow and choose **AC CTI Adapters**.



3. Select **ACLightningAdapter**

4. Scroll down to the Single SignOn (SSO) section and choose the pencil icon of either field to edit

▼ Single SignOn (SSO)

SSO Url

SSO Relay State



5. For the SSO Url, copy the first part of the SSO URL that you created previously, up to the first question mark (do not copy the question mark), for example:

`https://mXXXXXrun-dev-ed.my.salesforce.com/idp/login?`

`app=0sp0N00000Caid&RelayState=https://console.aws.amazon.com/connect/federat  
e/<b>InstanceId</b>?destination=%2Fconnect%2Fccp`

6. Paste this portion of the URL into the **SSO Url** field

▼ Single SignOn (SSO)

SSO Url

`https://sample-dev-ed.my.salesforce.com/idp/login`

7. For the SSO Relay State, copy everything AFTER the question mark (do not copy the question mark), for example:

`https://mXXXXXrun-dev-ed.my.salesforce.com/idp/login?`

`app=0sp0N00000Caid&RelayState=https://console.aws.amazon.com/connect/federat  
e/<b>InstanceId</b>?destination=%2Fconnect%2Fccp`

8. Paste this portion of the URL into the **SSO Relay State** field

## ▼ Single SignOn (SSO)

SSO Url	<input type="text" value="https://sample-dev-ed.my.salesforce.com/idp/login"/>
SSO Relay State	<input type="text" value="app=0sp6g000000XZyd&amp;RelayState=https://us-west-2.console.aws.amazon.com/connect/federate/YOUR-INSTANCE-ID?destination=%2Fconnect%2Fccp"/>

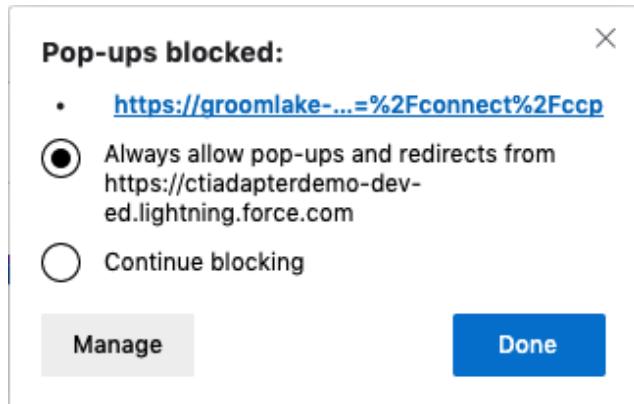
## 9. Choose Save

Note: With the new Amazon Connect instance urls (`*.my.connect.aws`) you must put the full URL into the `Amazon Connect Instance` field in the AC CTI Adapter record for SSO to work.

Ex: using `https://myinstance.my.connect.aws` instead of `my instance`.

## 10. Refresh your browser to make the changes take effect

- a. **NOTE:** If you receive a blocked popup warning, select the warning and change the setting to always allow popups from your Salesforce org, then refresh the browser again



11. After a few seconds, a new window should pop up for a moment. This window is performing the authentication and setting your session cookie. Once it does this, it will close automatically.



Change status ▾



Initializing...

12. Once the authentication window closes, select the **phone icon** in the console toolbar to open the CCP  
Note: You may also receive popups to allow notifications and microphone access. Please accept both.
13. You should now see the authenticated and logged in CCP

ACLightningAdapter | Sale

AdapterTest Burner Accounts -...

Service Console AC CTI Adapters

Recently Viewed

1 item · Updated 4 minutes ago

Search this list...

Amazon Connect

Offline

Welcome Jason

Quick connects

Number pad

Amazon Connect History

14. Configuration is complete

Edit this page

# Appendix C: CTI Flow Sources and Events

The following sources are defined in the adapter for use with CTI Flows:

- Initialization
  - onInit -- The CTI adapter has initialized.
- Amazon Connect Agent
  - onRefresh -- The Connect agent's data was updated.
  - onStateChange -- The Connect agent's state changed.
  - onRoutable -- The Connect agent became available for contacts.
  - onNotRoutable -- The Connect agent became unavailable for contacts.
  - onOffline -- The Connect agent's state was set to "Offline".
  - onError -- The Connect agent encountered a system error.
  - onAfterCallWork -- The Connect agent entered "After Call Work".
  - onInit -- The Connect agent has logged in.
- Amazon Connect Voice Contact
  - onIncoming -- The voice contact is incoming. Note: This event fires for queued callback contact only.
  - onConnecting -- The voice contact is connecting. Note. This event fires for inbound and outbound contacts except queued callback contacts.
  - onConnected -- The voice contact is connected.
  - onEnded -- The voice contact is ended or destroyed.
  - onRefresh -- The voice contact is updated.
  - onAccepted -- A voice contact is accepted.
  - onPending -- The voice contact is pending.

- onMissed -- The voice contact is / was missed.
- onDestroy - The voice contact is destroyed.
- Amazon Connect Chat Contact
  - onConnecting -- The chat contact is connecting.
  - onConnected -- The chat contact is connected.
  - onEnded -- The chat contact ended.
  - onRefresh -- The chat contact is updated.
  - onAccepted -- The chat contact is accepted.
  - onPending -- The voice contact is pending.
  - onMessageReceived -- A message was received from the customer
  - onMessageSent -- A message was sent to the customer
  - onMissed -- The chat contact was missed.
  - onDestroy - The voice contact is destroyed.
- Amazon Connect Task Contact
  - onIncoming -- The tasks contact is incoming.
  - onConnecting -- The task contact is connecting.
  - onConnected -- The task contact is connected.
  - onEnded -- The task contact ended.
  - onRefresh -- The task contact is updated.
  - onAccepted -- The task contact is accepted.
  - onPending -- The voice contact is pending.
  - onMissed -- The task contact was missed.
  - onDestroy - The voice contact is destroyed.
  - onTransferInitiated -- When the server has initiated the task transfer.

- onTransferSucceeded -- When the task transfer has succeeded.
  - onTransferFailed -- When the task transfer has failed.
  - onTaskExpiring -- Triggers 2 hours before the task expires.
  - onTaskExpired -- When the task has expired.
- Salesforce Agent
    - onStateChange -- The Salesforce agent's state changed.
    - onWorkAccepted -- The Salesforce agent accepted work.
    - onWorkloadChanged -- The Salesforce agent's workload changed.
  - Salesforce UI
    - onClickToDial -- A phone number, within the Salesforce UI, was clicked.
    - onNavigationChange
    - onHvsWorkStart

 [Edit this page](#)

## Appendix D: CTI Flow Examples

### Voice Contact Screenpop (Legacy Adapter Support)

**Source:** Amazon Connect Voice Contact

**Event:** onConnecting

[Download](#)

### Chat Contact Screenpop

**Source:** Amazon Connect Chat Contact

**Event:** onConnecting

[Download](#)

## **Click-to-Dial**

**Source:** Amazon Connect Chat Contact

**Event:** onClickToDial

[Download](#)

## **Screen Pop on Customer Phone Number**

**Source:** Amazon Connect Voice Contact

**Event:** onConnecting

[Download](#)

## **Screen Pop a Case on Contact Attribute Data (if it exists) or Pop a New Case (if it does not)**

**Source:** Amazon Connect Voice Contact

**Event:** onConnecting

[Download](#)

## **Create a Task (Call Activity) and Pop That Task**

**Source:** Amazon Connect Voice Contact

**Event:** onConnecting

[Download](#)

## **Screenpop on Customer Email Address (in contact attribute data)**

**Source:** Amazon Connect Chat Contact

**Event:** onConnecting

[Download](#)

## **Create a Task (Call Activity) and Pop That Task**

**Source:** Amazon Connect Chat Contact

**Event:** onConnecting

[Download](#)

## Default CTI Flows

The following zip file includes default flows, which are automatically added and activated on new installations of the package. However, if you are upgrading from an earlier version you may need to replace your legacy script with the new flow.

[Download](#)

 [Edit this page](#)

# Appendix E: Integration with Salesforce High Velocity Sales

## What is High Velocity Sales?

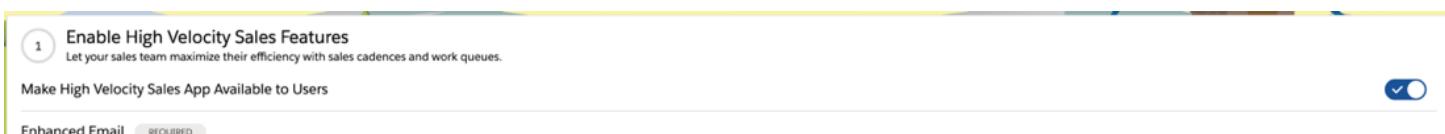
Salesforce HVS (HVS) is a process for your inside sales team to follow a repeatable pre-defined sales cadence for your business. It enables sales managers and representatives to work on a prioritized list of prospects and follow best sequence of sales outreach activities as defined by your sales process.

## Enabling the Integration with High Velocity Sales

In order to make HVS works for your connect users, you must enable High Velocity Sales in your Salesforce Org.

### Enable High Velocity Sales

1. From Setup, enter High Velocity Sales in the Quick Find box, then select High Velocity Sales.
2. Toggle "Enable High Velocity Sales Features" from disable to enable state



The screenshot shows the 'Enable High Velocity Sales Features' section in the Salesforce Setup. It includes a description: 'Let your sales team maximize their efficiency with sales cadences and work queues.', a checkbox labeled 'Make High Velocity Sales App Available to Users', and a required field 'Enhanced Email' with a checked toggle switch.

## Call Outcomes for Branching

In this step, you can define call disposition values which can be used to branch sales cadence to define next best action for your sales process.

## Define Call Outcomes for Branching

1. From Setup, enter High Velocity Sales in the Quick Find box, then select High Velocity Sales.
2. Edit the Define Call Outcomes for Branching.
3. Enter the call result values used by your org next to related call outcomes.

3 Configure High Velocity Sales

Define Call Outcomes for Branching RECOMMENDED

Call results are disposition values such as "Left Voicemail" that are captured when you log a call. Relate those values to call outcomes to display this data in reports and use it as branching criteria for sales cadences.

Call Outcomes  
Displays in reports and the Sales Cadence Builder.

Call Back Later

Left Voicemail

Meaningful Connect

Not Interested

Unqualified

Call Result Values  
Enter related call result values. If you have multiple, separate each value with a comma.

Call Back later, No Answer

Left Voicemail

Connected

Not Interested

Unqualified

Cancel  Save

## Assign HVS permission sets to Connect Users

For creating Sales Cadence, you need to have **High Velocity Sales Cadence Creator** permission set otherwise assign the **High Velocity Sales User** permission set to sales users.

### Assign the permission set

1. From Setup, enter permission Sets in Quick Find box, and then select Permission Sets.
2. Select permission set, then click Manage Assignments to assign the permission set to users.

## Create Sales Cadence

In HVS application, you will need to create a Sales Cadence based on Sales process

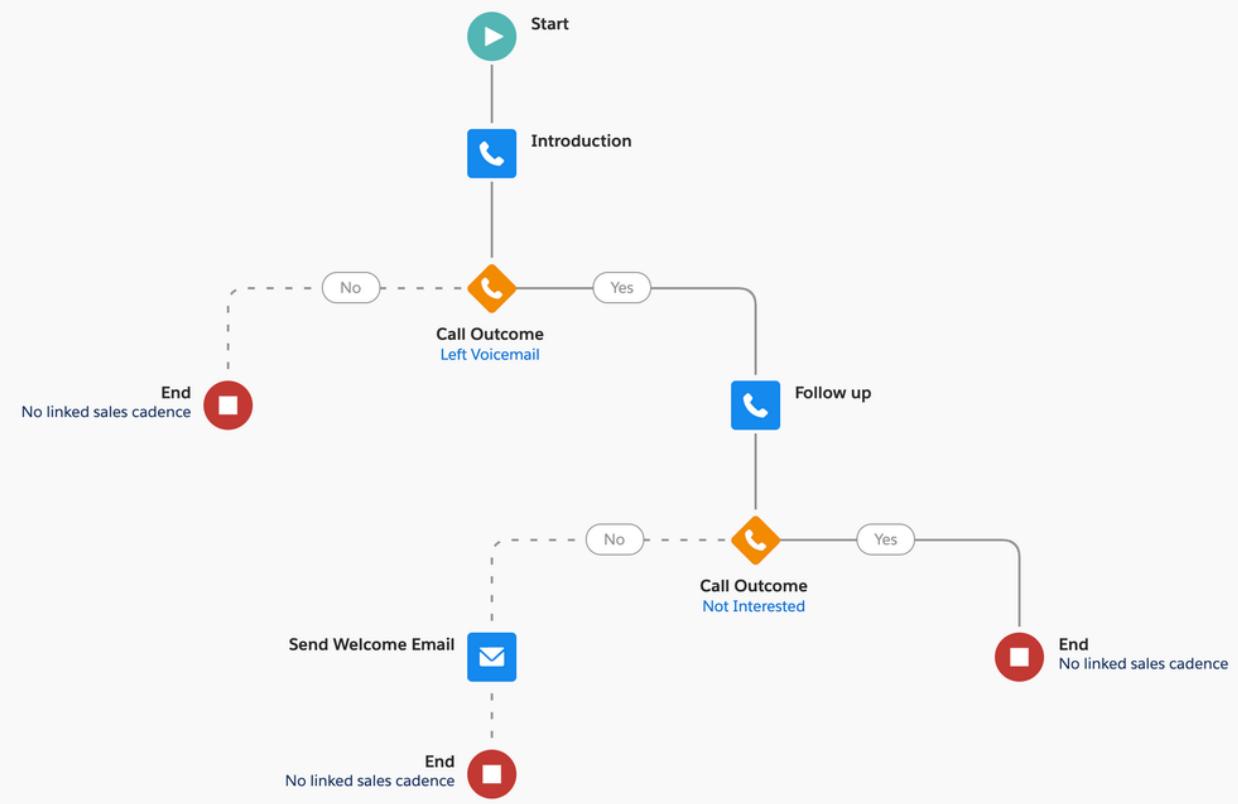
### Create a Sales Cadence

1. Choose **Sales Cadence** from navigation menu.
2. Click the down arrow button then click **New**
3. Enter name and description. Click **Save** button which opens **Sales Cadence** builder screen.

The screenshot shows the Microsoft Sales Cadence builder interface. On the left, there's a sidebar titled 'Recently Viewed' with items like 'Sales Cadence 1' and 'New Sales Cadence'. The main area is titled 'New Sales Cadence' and contains a form with fields for 'Name' and 'Description'.

4. Click + sign in the builder to add a step. Choose a type of step you want to add for your sales cadence.

Once you finish adding steps, click the **Activate** button. Once a sales cadence is active, you can add leads, contact, and personal accounts to Sales Cadence.



## Assigning Prospects

You can assign a prospect to a Sales Cadence either on a prospect detail page or through an automated flow. In this example, using prospect detail page to assign a sales cadence.

The screenshot shows the Salesforce Contact page for a lead named Jo Jim. At the top, there's a navigation bar with status steps: New, Contacted, Nurturing, Unqualified, and Converted. Below this, the lead's information is listed: Title (Title), Company (Test), Phone ((212) 121-2111), and Email. A sidebar on the left titled "Sales Cadence Steps" indicates that Jo Jim is not currently in a sales cadence and has a blue button to "Add to Sales Cadence". The main content area shows an "Activity" tab selected, with options to Log a Call, New Task, or New Event. There's a text input field for a call recap and a "Add" button. Below this, there's a toggle switch for "Email insights only" which is disabled. To the right, filters are set to "Within 2 months • All activities • All types" with a refresh and expand all link. A section titled "Upcoming & Overdue" shows a message: "No next steps. To get things moving, add a task or set up a meeting." It also notes that the list is filtered and has a "Show All Activities" button.

Click **Add to Sales Cadence** button to add this prospect to a Sales Cadence.

## Create and Map Dispositions

In this step you need to add a disposition field on Activity object and map disposition options to what is defined in HVS call outcomes. In this example, I am going to create a picklist field and add it to default task page layout to track disposition value for each call.

### Create and map disposition fields

1. Go to the Setup screen then click **Object Manager**
2. Click **Activity Object**
3. In Fields and Relationships section select **New**
4. Select a picklist field and choose **Next**
5. Enter require information and add HVS call outcomes as picklist options.
6. Select all default options and add this filed on Task page layout. (If there is already a field called **Call Result** on Task Page layout then remove it from the page layout.)
7. Choose **Save**

## Field Information

Field Label	Call Result
Field Name	Call_Result
API Name	Call_Result_c
Description	
Help Text	
Data Owner	
Field Usage	
Data Sensitivity Level	
Compliance Categorization	
Created By	Sunil Sinha, 10/10/2019 11:04 PM

Object Name **Activity**  
Data Type **Picklist**

Modified By Sunil Sinha, 10/10/2019 11:04 PM

## General Options

Required   
Default Value 

## Picklist Options

Restrict picklist to the values defined in the value set   
Controlling Field [\[New\]](#)

## Field Dependencies

[New](#)

No dependencies defined.

## Values

[New](#) [Reorder](#) [Replace](#) [Printable View](#) [Chart Colors](#)

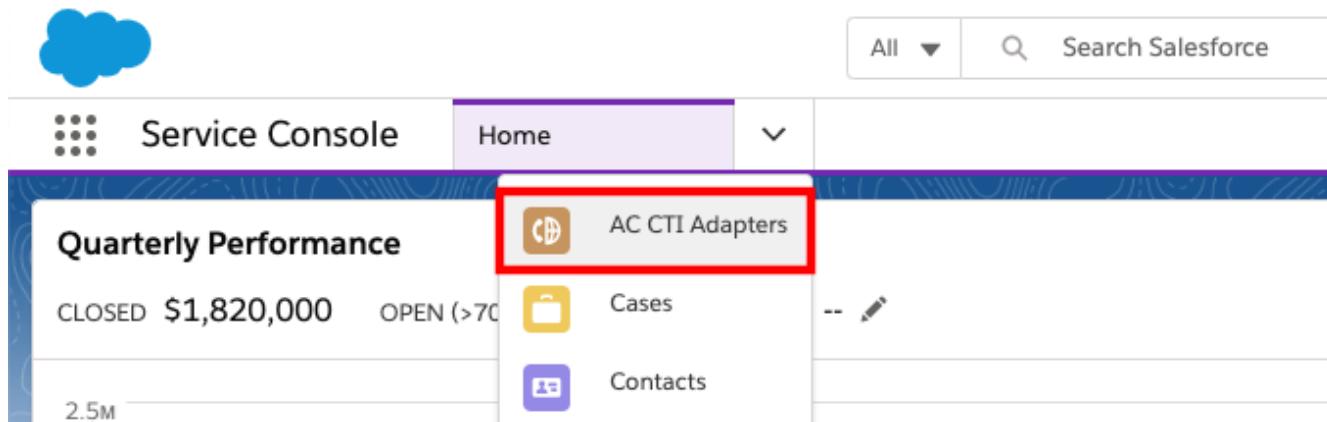
Action	Values	API Name	Default	Chart Colors	Modified By
Edit   Del   Deactivate	Completed	Completed	<input type="checkbox"/>	Assigned dynamically	Sunil Sinha, 10/10/2019 11:04 PM
Edit   Del   Deactivate	Connected	Connected	<input type="checkbox"/>	Assigned dynamically	Sunil Sinha, 10/10/2019 11:04 PM
Edit   Del   Deactivate	Left Voicemail	Left_Voicemail	<input type="checkbox"/>	Assigned dynamically	Sunil Sinha, 10/10/2019 11:04 PM
Edit   Del   Deactivate	Not Interested	Not_Interested	<input type="checkbox"/>	Assigned dynamically	Sunil Sinha, 10/10/2019 11:04 PM
Edit   Del   Deactivate	Unqualified	Unqualified	<input type="checkbox"/>	Assigned dynamically	Sunil Sinha, 10/10/2019 11:04 PM

## Setup CTI Flows for High Volume Sales

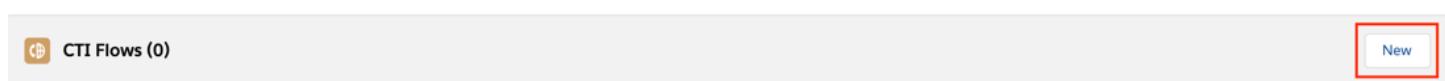
Next you will need to create a new set of CTI Flows for High Volume Sales.

### Configuring the CTI Flow

1. Log in into your Salesforce org and go to the **Service Console**
2. Expand the **navigation menu** by selecting the down arrow and choose **AC CTI Adapters**.



3. Select **ACLightningAdapter**
4. Scroll down to the **Scripts** section
5. Select New to create a new CTI Flow



6. In the **CTI Flow Name** field, enter **Voice onHvsWorkStart**

7. Make sure the checkbox for **Active** is selected

8. For the **Source**, select **Salesforce UI**

9. For the **Event**, select **onHvsWorkStart**

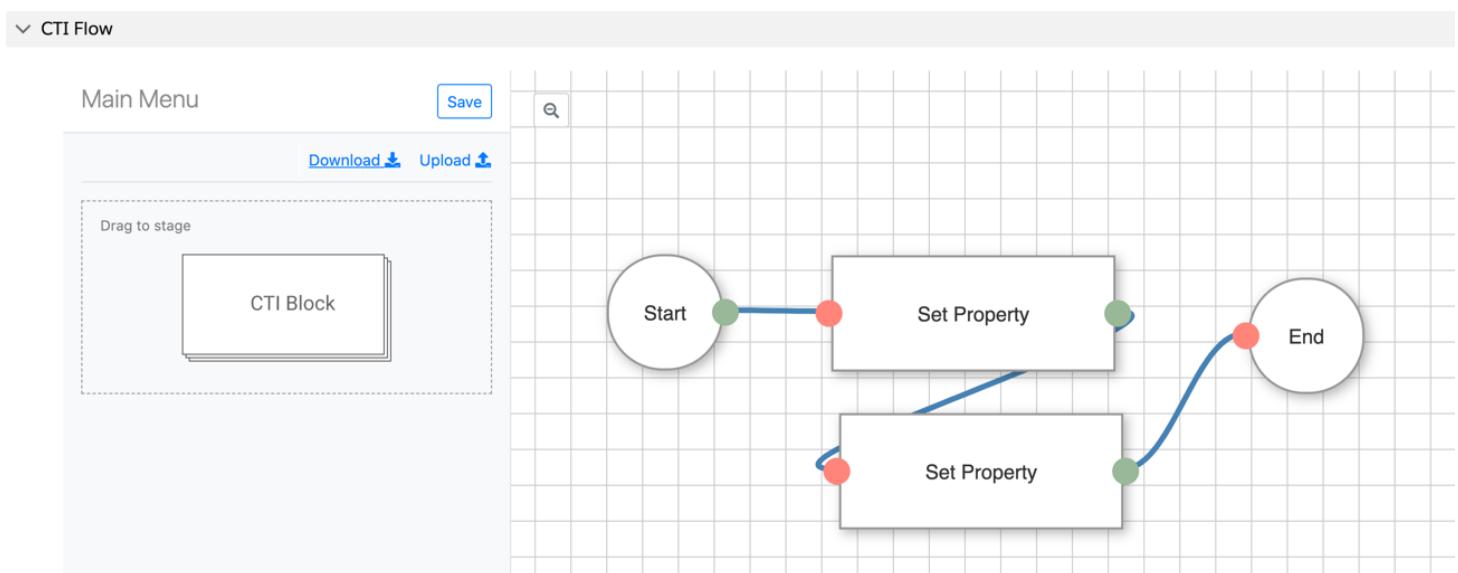
10. Provide a **Description**

11. Click **Save**.

12. Scroll down and click on the link **Voice onHvsWorkStart**.

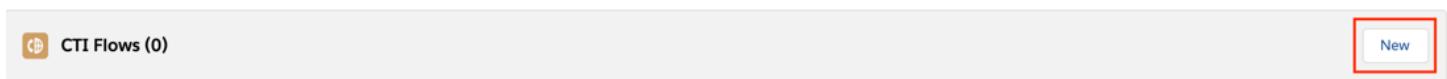
13. [Download this file](#)

14. Click **Upload** and find the file you just downloaded. You should now see this:\*\*



15. Click **Save**. This creates a CTI Flow that is invoked when you start a HVS work and capture the workId for the third CTI Flow below.

16. Go back to the CTI Adapter page and select **New** in CTI Flows section to create another CTI Flow.



17. In the **CTI Flow Name** field, enter **HVS Voice onConnecting**

18. Make sure the checkbox for **Active** is selected

19. For the **Source**, select **Amazon Connect Voice Contact**

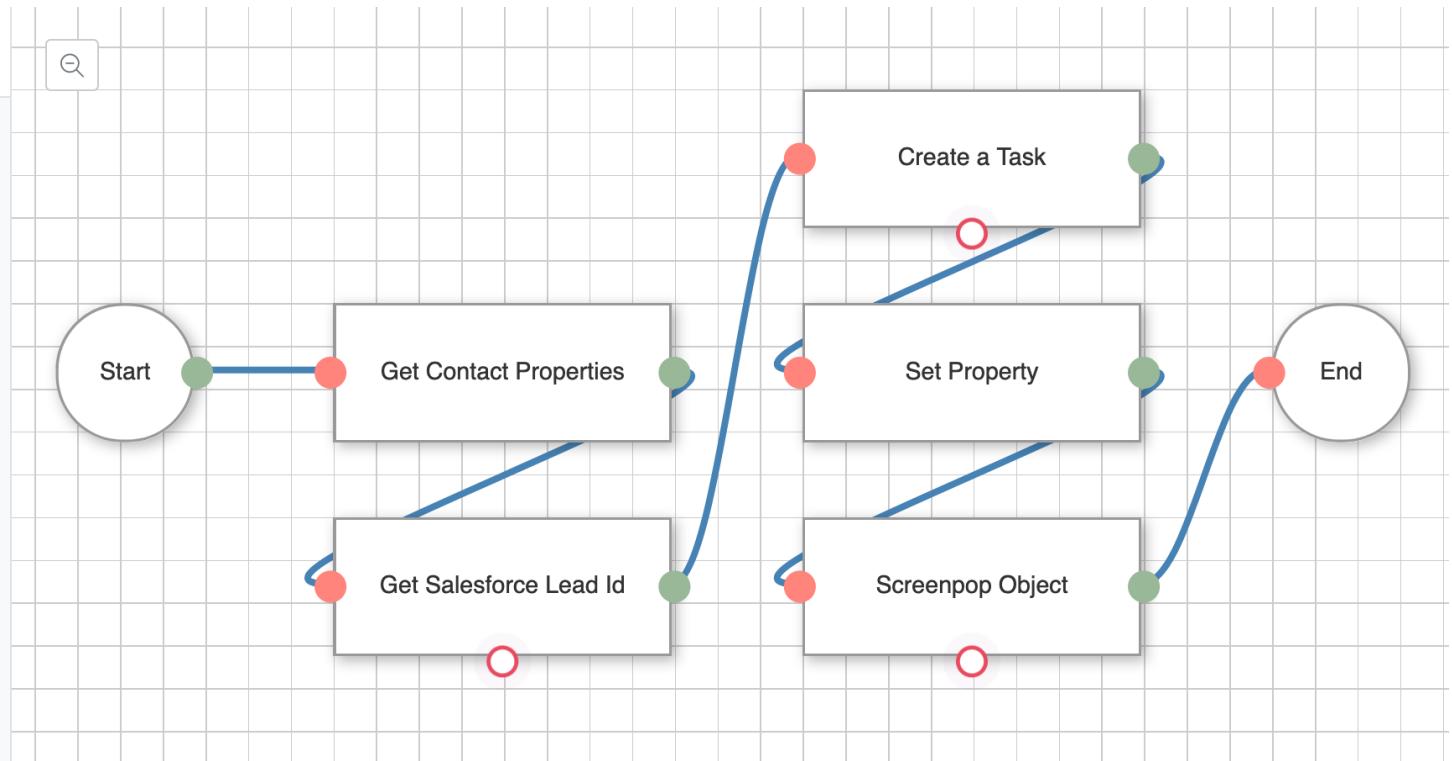
20. For the **Event**, select **onConnecting**

21. Provide a **Description** and Save

22. Scroll down and click on the link **HVS Voice onConnecting**.

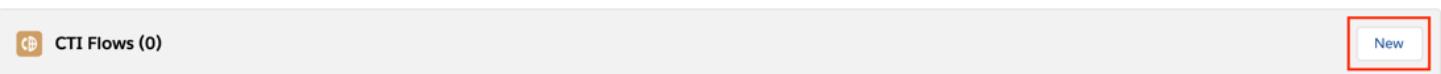
23. [Download this file](#)

24. Click **Upload** and find the file you just downloaded. You should now see this:



25. Click **Save**. This creates a CTI Flow creates task for the voice contact and save the taskId for the third CTI Flow below. If you already have a CTI Flow that creates task for voice contact, you do not need to add this one but just need to add a **Set Property** CTI Block to save the taskId

26. Go back to the CTI Adapter page and select **New** in CTI Flows section to create another CTI Flow.



27. In the **CTI Flow Name** field, enter **HVS Voice onRoutable**.

28. Make sure the checkbox for **Active** is selected

29. For the **Source**, select **Amazon Connect Agent**

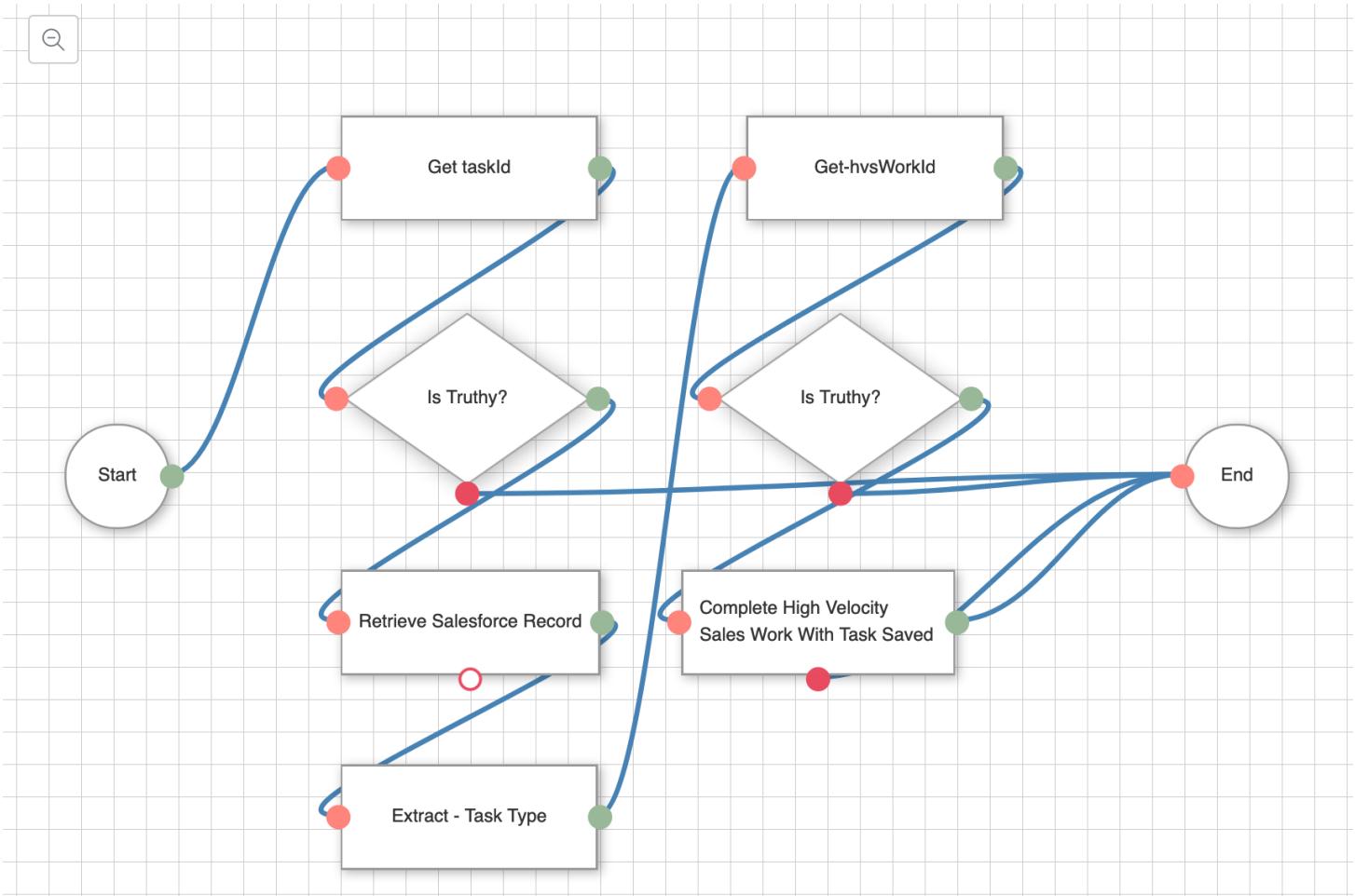
30. For the **Event**, select **onRoutable**

31. Provide a **Description** and Save

32. Scroll down and click on the link **HVS Voice onRoutable**

33. [Download this file](#)

34. Click **Upload** and find the file you just downloaded. You should now see this:



35. Click **Save**. This CTI Flow is executed before your agent is back to routable and retrieves the call result based on the task Id you set in the second CTI Flow, and use it to complete the HVS work

36. Once you've created the flows refresh your browser and the new scripts will take effect.

## Expected Behavior

### 1. Adding Lead to the Sales Cadence you created

The screenshot shows the Salesforce Lead Details page for 'Mr. Timing Tang'. The lead status is 'Contacted'. In the 'Sales Engagements' section, there is a red box highlighting the 'Sales Cadence Steps' area. A message says 'Timing Tang is not currently in a sales cadence.' Below it is a blue button labeled 'Add to Sales Cadence'. The rest of the page shows standard lead information like title, phone, and email, along with activity logs and campaign history sections.

## 2. Make a call to the lead using the call button

The screenshot shows the Salesforce interface with the following details:

- Sandbox: ACCT1**
- Einstein Activity Capture is enabled.** To start using it, connect your email and calendar to Salesforce.
- High Velocity Sales** - Leads
- Yiming demo** - Lead record
- Timing Tang** - Contact record
- HVS - voice** - Task record
- Status: Contacted**
- Activity** tab selected
- Log a Call** button highlighted
- Sales Cadence Steps** section: Step 1, Call, Introduction Attempt 1: Introduction to CTI Adapter
- Upcoming & Overdue** section: Call: Introduction Attempt 1, Yiming demo, Timing Tang, YimingTestCompany (Today)

## 3. An outbound call is made and a task is created and popup

The screenshot shows the Salesforce interface with the following details:

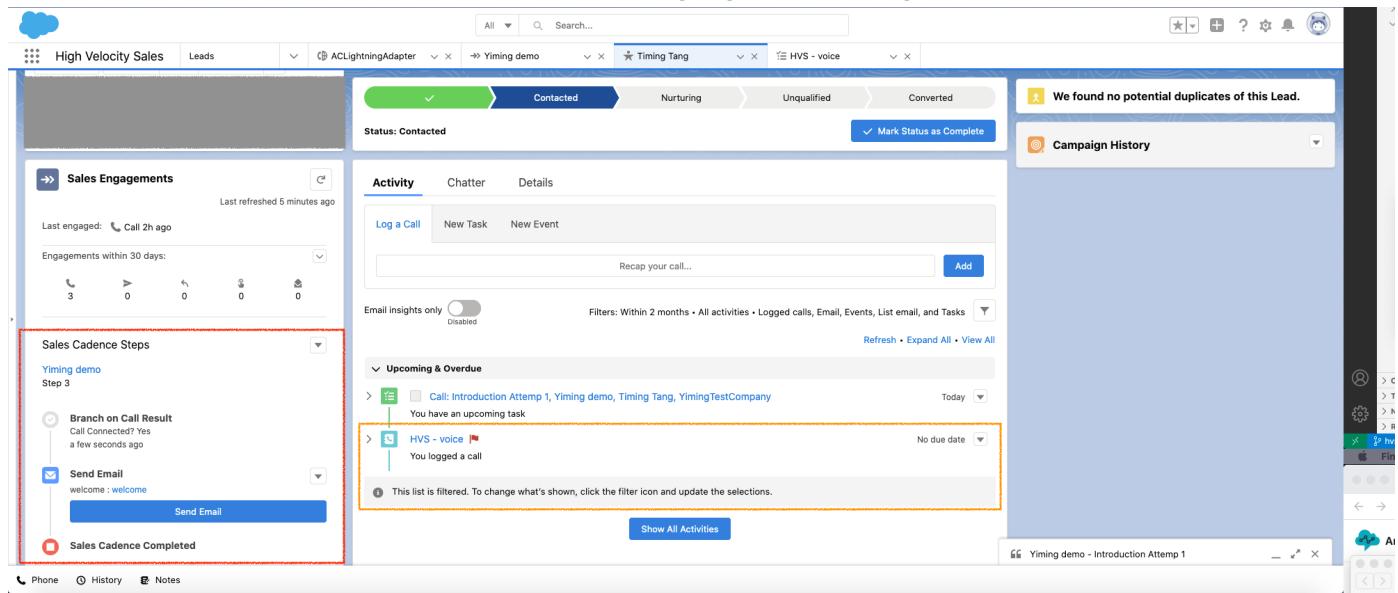
- Task HVS - voice** - Related To: Timing Tang
- Details** tab selected
- Phone** button active, showing 'Connected call'
- Related To**: Name: Timing Tang, Call Duration
- Call Type**: Outbound, Task Subtype: Call
- Last Modified By**: Yiming Wang, 7/20/2021 1:42 PM
- Notes**: Yiming demo - Introduction Attempt 1

## 4. While agent is in After Call Work status, Agent update the Call Result of the popup task and click Save.

The screenshot shows the Salesforce interface with the following details:

- Task HVS - voice** - Related To: Timing Tang
- Call Object Identifier**: Yiming Wang
- Call Result** dropdown open, showing options like 'None', 'Call Back Later', 'Left Voicemail', 'Meaningful Connect', 'Not Interested', and 'Unqualified'.
- Last Modified By**: Yiming Wang, 7/20/2021 1:42 PM
- Save** button visible at the bottom

5. Agent click Close Contact to be available for the next call. The third CTI Flow will be invoked to retrieve the call result and the Sales Cadence Steps for this lead will be updated (highlighted in red below). The popup task should be linked to the lead as well (highlighted in orange below).



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## Appendix F: CTI Flow Blocks

### If-else

Change the flow of your script depending on value of fields you fetch or store. This is a simple "if-else" utility for your flow.

### HTTP Request

Make an HTTP request.

### Get Property

Fetches a property from the local data store. You can access a property you have retrieved from the local store by referring to the return value of this block.

### Get All Properties

Returns all stored properties.

### Format Phone Number

Formats a phone number for a country code.

## Format Phone Number (E164)

Formats a phone number for a country code in E164 format.

## Format a Date object

Returns a formatted date.

## Is Truthy?

This is a utility to branch your flow depending on the truthiness of a value.

## Set Property

Assigns a value to a property in the local data store.

## Log to Console

Sends a static or dynamic value from an action to a logger.

## Show Modal

The command to open modal.

## Enable Click To Dial?

The query to determine whether Click to Dial should be enabled.

## Enable Click To Dial

The command to enable Click to Dial.

## Disable Click To Dial

The command to disable Click to Dial.

## Get App View Info

The command to get App View information.

## **Get Softphone Layout**

The query to get softphone layout.

## **Get Agent Workload on Salesforce**

Returns the agent's current workload.

## **Complete High Velocity Sales Work With Task Saved**

This methods allow your CTI implementation to communicate with High Velocity Sales (HVS) to handle HVS work.

## **Refresh View**

The command to refresh the view.

## **Show Softphone Panel**

The command to show softphone panel.

## **Hide Softphone Panel**

The command to hide softphone panel.

## **Set Softphone Panel Height**

The command to set the height of softphone panel.

## **Set Softphone Panel Width**

The command to set the width of softphone panel.

## **Screenpop Object**

The command to open a screenpop with information from object.

## **Screenpop Url**

The command to screenpop a url in a new browser tab or browser window.

## **Screenpop Object Home**

The command to screenpop to an object's home page.

## **Screenpop List**

The command to screenpop a list view.

## **Screenpop Search**

The command to screenpop search results based upon the search input. Not to be confused with "Search And Screenpop."

## **Screenpop New Record**

The command to screenpop to a new record of the specified type with specified default field values.

## **Search And Screenpop**

This command searches objects specified in the softphone layout for a given string. Returns search results and screen pops any matching records. Not to be confused with "Screenpop Search."

## **Run Apex**

The command to run an apex method. Make sure the apex method is in a class that extends the AC\_Utils class, and your class must be specified in the extensions list of `AC_CtiScript__c.page` Visualforce page. [See the Salesforce documentation for an example.](#)

## **Get Agent State from Salesforce**

The command to get an agent's state.

## **Set Agent State on Salesforce**

The command to set an agent's presence state on Salesforce.

## **Login Agent on Salesforce**

The command to login an agent on Salesforce.

## **Logout Agent on Salesforce**

The command to logout an agent on Salesforce.

## **Save (or Create) a Record**

The command to save or create a Salesforce object.

## **Create a Task**

The command to create a Task. (The Subject of the task will be a string made up of upto 3 field values.)

## **Is Contact "Do Not Call"?**

The query to check if the Contact requested not to be called.

## **Dial Number**

The command to dial a phone number or to conference to an endpoint.

## **Mute Agent**

The command to mute the agent.

## **Unmute Agent**

The command to unmute the agent.

## **Get Agent Status from Connect**

The command to get the current presence status of the agent from Connect.

## **Set Agent Status on Connect**

The command to set the current presence status of the agent on Connect.

## **Set Agent Status By Name on Connect**

The command to set the current presence status of the agent on Connect by name of the state.

## **Set Agent as Available on Connect**

The command to set the current state of the agent to "Available."

## **Get Quick Connection List**

Gets the list of quick connects available to the current agent

## **Get Transfer Connection List**

Gets the list of quick connects available to the current agent.

## **Get Endpoint by Phone Number**

Generates and returns an endpoint for a provided phone number.

## **Get Available Agent States**

Gets all of the available agent states including custom states.

## **Get Agent Name**

Returns the agent's user friendly display name for the agent.

## **Get Agent Extension**

Returns the phone number that is dialed by Amazon Connect to connect calls to the agent for incoming and outgoing calls, if softphone is not enabled.

## **Get Agent Deskphone Number**

Returns the phone number that is dialed by Amazon Connect to connect calls to the agent for incoming and outgoing calls, if softphone is not enabled.

## **Is Agent Softphone Enabled?**

Checks if agent softphone is enabled. Branches in different directions if it is or not.

## **Change Agent to Softphone**

Changes the current agent to softphone mode.

## **Change Agent to Deskphone**

Changes the current agent to desktop phone mode with the specified phone number.

## **Get Agent Configuration**

Returns the phone number that is dialed by Amazon Connect to connect calls to the agent for incoming and outgoing calls, if softphone is not enabled.

## **Get Agent Dialable Countries**

Returns the list of dialable countries for the current agent.

## **Create Task Contact**

The command to create a task contact that is sent to the provided quick connect endpoint. The quick connect must be available to any queue the agent has access too.

## **Get Contact Attribute**

The command to get value of an attribute from the contact in the current session.

## **Is Voice Contact?**

The command to determine if the contact is a voice contact.

## **Is Chat Contact?**

The command to determine if the contact is a chat contact.

## **Is Task Contact?**

The command to determine if the contact is an amazon connect task contact.

## **Is Contact Inbound?**

The command to determine if the contact is inbound.

## **Is Contact Transfer?**

The command to determine if the contact is transferred.

## **Is Callback?**

The command to determine if the contact is a queue callback.

## **Get Contact Properties**

The command to get properties of a contact.

## **Get Customer Phone Number**

The command to get customer phone number of a contact.

## **Get Contact Interaction Metadata**

The command to get metadata about a contact interaction.

## **Pop Task Contact's Reference Urls**

The command to pop any reference urls if the contact is a task. Returns the number of urls popped.

## **Query value**

The query to execute an arbitrary SOQL statement and returns the results.

## **Get Salesforce Lead Id**

The command to get a salesforce lead id using a formatted phone number.

## **Open Salesforce Primary Tab**

Opens a new primary tab to display the content of the specified URL.

## **Open Salesforce Sub Tab**

Opens a new subtab (within a primary tab) that displays the content of a specified URL.

## **Get Focused Primary Tab Object Id**

Returns the object ID of the primary tab on which the browser is focused.

## **Get Focused Subtab Object Id**

Returns the object ID of the subtab on which the browser is focused.

## **Call jQuery Method**

Perform a method call on a jQuery selection with your arguments.

## Replace String

Perform a .replace() method on an input string.

## Text Starts With Value

Checks whether a text input starts with one of the values.

## Text Ends With Value

Checks whether a text input ends with one of the values.

## Join Strings

Concatenates 2 values into a string.

## SOQL Query

The query to execute an arbitrary SOQL statement and returns the results.

## Multiply

Multiply two numbers.

## Divide

Divide two numbers.

## Get Tab Object Map

Returns a map of all visible primary tabs and their associated objects (if available).

## Close Salesforce Tab

Closes the Salesforce with a given id.

## Delay

Delays execution for a period of time. (Keep in mind that your flow may be stopped if it runs longer than the maximum allowed execution window of 10 seconds.)

## Get Primary Tab Ids

Returns all of the IDs of open primary tabs.

## Get Tabs With Matching Url

Returns the ids of the primary tabs with the url matching a provided string.

## Length

Returns the length of a value.

## Slice

Returns the slice of a value.

## Cast a Value to a Type

Cast an input value to a Javascript type, such as Number or String.

## Get CCP Logs

The command to get the logs of agent from Connect.

## Clear All Properties

Clears all stored properties.

## Unset Property

Removes the value assigned to a property in the local data store.

## Show Attributes

This command displays the contact attributes in the CCP overlay.

## Is Task Contact?

Check if the contact is a task

## Create Task Contact

Creating a new task contact with certain inputs.

## Pop Task Contact's ReferenceUrls

Pop any reference urls that are related to the task contact

## Start Recording

Use the contact recording API to start recording the call.

## Stop Recording

Use the contact recording API to stop recording the call.

## Update Contact Attributes

Use the Connect API to update the attributes of the current contact.

## Get Payload

Retrieve the payload of the CTI Flow. (The payload can be configured by CTI Actions.)

## Send Data to CCP Overlay

Send an object to Data panel of CCP Overlay.

## Leave a Voicemail

Use Voicemail drops to leave a voicemail.

## Destroy Agent Connection to Live Contact

Destroys destroy the agent's connection to any live contact that is currently being handled by the CTI Flow. This is being deprecated for contacts in ACW. Use the ClearContact block for Clear ACW functionality.

## Clear Contact

Clears a contact that is no longer being worked on - i.e. it's one of ERROR, ACW, MISSED, REJECTED.

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