

# Amazon Connect CTI Adapter v5 for Salesforce Classic

## Setup and Installation Guide



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### Abstract

This guide provides the steps to setup the integrations between Amazon Connect and Salesforce using the Amazon Connect CTI Adapter and Amazon Connect Lambda Package for Salesforce.

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## Introduction

The core functionality of the Amazon Connect CTI Adapter provides a WebRTC browser-based Contact Control Panel (CCP) within Salesforce. The Amazon Connect CTI integration consists of two components, a [managed Salesforce package](#) and an [AWS Serverless application](#) deployed to your AWS environment.

With those components, customers can build a deep integration between the Amazon Connect contact center platform and Salesforce, the leading customer relationship management (CRM) platform. The AWS Serverless application package contains a set of common AWS Lambda functions to be used by Amazon Connect to interact with Salesforce.

## Release Notes

Important: when upgrading the CTI Adapter, please make sure that the Salesforce Lambdas are also updated to the newest version.

## 5.10 February 2020

- **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 all 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 Reference Urls - 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:** 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

## 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..results..`, 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.

## 5.2 September 2020

- **Bugfix:** Fix the issue that prevented users from creating a new record using CTI Flows in Classic.
- **Bugfix:** Fix the issue that caused the contact channel analytics to not get updated at the end of a call.
- **Bugfix:** Fix the contact channel analytics recording view.
- **Feature:** Add a CTI block called "Get Chat Message."
- **Feature:** Add a CTI block called "SOQL Query." This block executes an arbitrary SOQL statement and returns the results.

## 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 CTI 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 workflows for Lightning and Classic via a drag and 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 package 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:** Added AC Administrator, AC Agent, and AC Manager permission sets to enforces objects access and fields level security (FLS) as per Salesforce security guideline for managed package. To access 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 and 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 to 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 evaluate security access check for Amazon Connect managed package objects
- **Bugfix:** Contact interaction duration 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 role 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 enforced Salesforce sharing model (record and field level) support.

## 4.4 March 2020

- **This release has significant new features and updates:** Please test and validate version 4.3 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:** OmniChannel workload related 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 4.0 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.

## 3.11 August 2019

- Added support for Salesforce platform encryption
- Fixed issue with logout action not re-rendering the sign-in button
- Fixed documentation issue regarding presence sync sources

- Fixed documentation issue regarding recorded conversations security configuration
- Updated documentation for presence sync rule configuration

### **3.10 July 2019**

- Added support for enabling / disabling softphone popout
- Added support for previousWorkloadPct and newWorkloadPct operands in presence sync rules
- Fixed issue with presence sync rules loading

### **3.9 May 2019**

- Added support for Opportunities for Task association
- Fixed issue with presence sync rules loading
- Fixed issue with state setting when no presence rules defined
- Fixed issue with Task pop in specific config scenarios

### **3.87 May 2019**

- NOTE: The "mini" Task page has been deprecated in this release of the adapter. Users requiring custom functionality may use the page and controller code included in this document as a starting point for a custom Task page of their design.
- Added rules-based configuration of agent presence state between Amazon Connect and Salesforce
- Added enhanced contact attribute display and configuration including clickable hyperlinks, key-value display options, and key-value formatting
- Added option to enable/disable automatic call duration updating on the Task object
- Added functionality to directly pop associated record on click-to-dial avoiding search and pop behavior
- Fixed issue with callback Task pops not occurring in some cases

### **3.7 May 2019**

- Unpublished version

### **3.6 April 2019**

- NOTE: Automatic association of accounts, contacts, leads, or contacts to call activity (Task) records based upon tab navigation has been deprecated. Automatic association of accounts, contact, leads or contacts to call activity (Task) records when a single match is made via ANI lookup OR by contact attribute is supported.
- NOTE: The "mini" Task page will be deprecated in future releases. The default setting is now "DEFAULT\_TASK\_LAYOUT".
- NOTE: Automatic pop of Tasks in an object's (Account, Contact, Lead, Case) subtab is only supported with the object (Account, Contact, Lead, Case) is open in a primary tab.
- Added support for queued callback calls
- Added support for specifying call types for which to create Task objects

- Added support for enabling / disabling automatic call duration updates of call activity (Task) objects.
- Fixed issue with secondary click-to-dial in console mode
- Fixed issue with Task pop occurring during call connecting when set to start of call
- Fixed issue with call context data remaining after a call has ended
- Fixed issue with contact attributes being displayed after a call has ended or has been missed
- Fixed issue with click to dial with ani match to multiple Salesforce objects

### **3.1 March 2019**

- Added ability to specify DEFAULT\_TASK\_LAYOUT for the Call Activity Page setting
- Added ability to specify static values used during initial task creation
- Added support for Standard Lightning navigation
- Added support for secondary click-to-dial in Console mode
- Fixed issue with primary tab closing upon call activity (Task) save
- Fixed issue with Case handling and Task association

### **3.0 February 2019**

- Removed requirement for Omni-channel to be enabled to perform installation
- Added ability to specify custom ringtone
- Added ability to enable or disable the automatic creation of task (call activity) objects
- Added ability to specify a page to select creation of Lead or Contact when an object with matching ANI is not found
- Added ability specify task (call activity) object pop at the start of call, end of call, or to disable pop
- Added ability to edit task (call activity) subject
- Added automatic setting of whold and whatId on task (call activity) objects
- Added ability to specify a custom task pop page
- Added ability to include agent friendly name when creating task (call activity) objects for calls delivered to agent queues
- Added ability to add third call participant via click to dial
- Added call attributes display in classic mode
- Fixed call attributes display being persistent when no attributes are defined
- Added ability for automatic task creation on outbound calls
- Upgraded API to amazon connect streams 1.3
- Added support for Lightning Flow Setup

## **Further Reading**

For additional information, see the following:

- Amazon Connect CTI Adapter for Salesforce:  
[https://appexchange.salesforce.com/appxListingDetail?  
listingId=a0N3A00000EJH4yUAH](https://appexchange.salesforce.com/appxListingDetail?listingId=a0N3A00000EJH4yUAH)

- Amazon Connect User Guide:  
<https://docs.aws.amazon.com/connect/latest/userguide/using-amazon-connect.html>
- Amazon Connect Admin Guide:  
<https://docs.aws.amazon.com/connect/latest/adminguide/what-is-amazon-connect.html>
- Amazon Connect API Reference:  
<https://docs.aws.amazon.com/connect/latest/APIReference>Welcome.html>
- Amazon Connect Release Notes:  
<https://docs.aws.amazon.com/connect/latest/adminguide/amazon-connect-release-notes.html>
- Amazon Connect FAQ:  
<https://aws.amazon.com/connect/faqs>

# Key Benefits and Requirements

## Key Benefits

The key benefits of the adapter include:

- **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.
- **IVR data dips:** easily inject salesforce data into the customer experience. Businesses can offer personalized greetings and dynamic routing based on customer information.
- **Call disposition and activity management:** configure post call workflows to support your Agent's after call work.
- **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.
- **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.
- **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.

- **Lightning CCP extensions:** easily customize and extend behaviors within the CTI Adapter such as screenpop and activity management. Default scripts 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.

We recommend that you initially install the package into your Salesforce sandbox. After the package is installed, you can configure your Salesforce Call Center configuration within Salesforce.

The next step is to allowlist your Salesforce Visualforce domain within your Amazon Connect Application integration. This allows cross-domain access to your Amazon Connect instance.

If you want to quickly get setup with basic CTI capabilities in Lightning, we suggest you walk through our Salesforce trailhead available at <https://sfdc.co/Amazon-Connect>.

## Requirements

To successfully create, configure, and implement the Amazon Connect CTI Adapter for Salesforce, you must ensure that the requirements and prerequisites described in this section are in place before you start.

### Prerequisites

To install the Amazon Connect CTI package, you must:

1. Have a running instance of Salesforce Classic, Salesforce Console, or Lightning Experience
2. Create an Amazon Connect instance (<https://aws.amazon.com/connect/>)

### 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 (<https://aws.amazon.com/connect/resources/#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. Console navigation is fully supported.

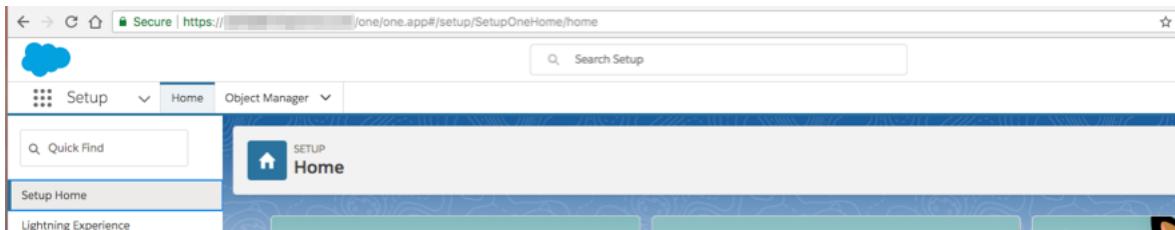
# Installing the Amazon Connect CTI Adapter for Salesforce Package

## Lightning Flow Setup Installation

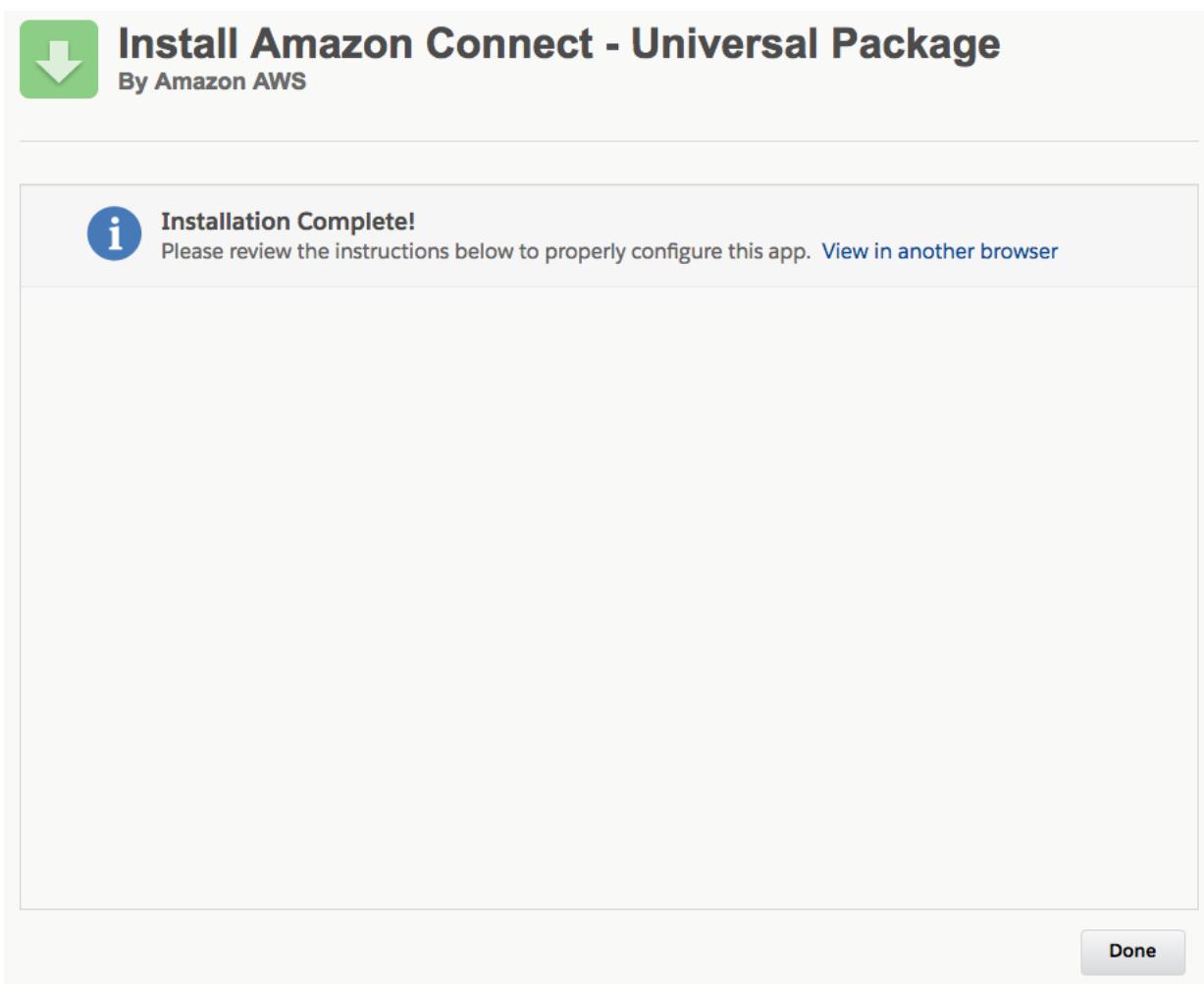
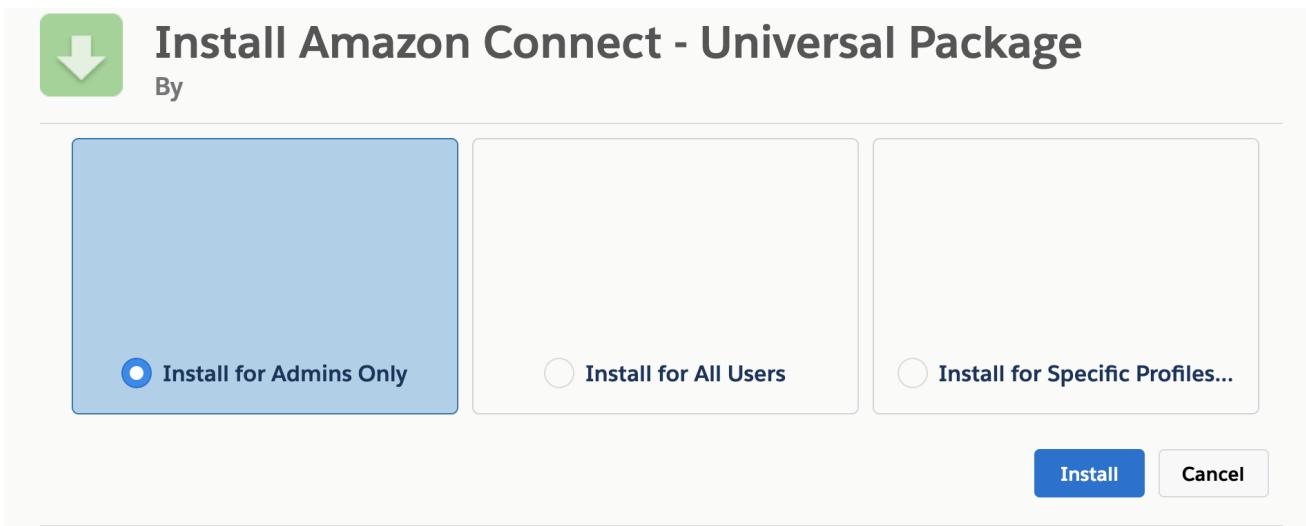
1. Navigate to **Service Setup** within the Lightning UI under the gear icon.
2. Click **View All**
3. Search for or select **Add Phone Support**
4. Click **Start** on the **Voice Setup** screen
5. Under **Select Your Voice Provider**, select Amazon Connect CTI Adapter
6. Agree to the terms and conditions and click **Install Package**
7. Under **Add Voice Service Provider Details**, add the URL to your Amazon Connect instance (see instructions below if you are unsure). You will also need to allowlist your Salesforce domain within Amazon Connect.
8. Under **Who's Answering the Phone?**, select the name of the users you would like to access the phone configuration. This can be modified later under the Call Center configuration.
9. Click Finish. You can also launch the Amazon Connect Setup Guide.

## Installing from the Salesforce AppExchange

1. Log in into your Salesforce instance and open **Setup**.



2. Open the [Amazon Connect CTI Package URL](#), then choose **Install for Admins Only**.



3. Choose **Done**. The **Installed Packages** page opens.

**SETUP**

## Installed Packages

Installed Packages

On AppExchange you can browse, test drive, download, and install pre-built apps and components right into your salesforce.com environment. [Learn More about Installing Packages](#).

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.

Depending on the links next to an installed package, you can take different actions from this page.

To remove a package, click Uninstall. To manage your package licenses, click Manage Licenses.

[Help for this Page](#)

[Visit AppExchange »](#)

Action	Package Name	Publisher	Version Number	Namespace Prefix	Install Date	Limits	Apps	Tabs	Objects	AppExchange Ready
Uninstall	Amazon Connect - Universal Package	Amazon AWS	2.3	amazonconnect	20/09/2018 14:47		0	0	2	Passed
Description Amazon Connect Integration to support Lightning, Console and Classic.										

4. In the **Quick Find** box, type *Call Center*, then choose **Call Centers**.

The Call Centers page opens. You should see 3 Call Center configurations: Classic, Console and Lightning.

### All Call Centers

A call center corresponds to a single computer-telephony integration (CTI) system already in place at your organization. Salesforce.com users must be assigned to a call center before they can use any Call Center features.

Action	Name	Version	Created Date	Last Modified Date
Edit   Del	Amazon Connect CCP Adapter Classic	23/05/2018 13:27	23/05/2018 13:27	
Edit   Del	Amazon Connect CCP Adapter Console	23/05/2018 13:27	23/05/2018 13:27	
Edit   Del	Amazon Connect CCP Adapter Lightning	23/05/2018 13:27	23/05/2018 13:27	

## Create the Softphone Layout

Next, we need to create a softphone layout for the solution.

**SETUP**

## Softphone Layouts

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 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.						

Didn't find what you were looking for? [Search all of Setup instead.](#)

6. In the **Quick Find** box, type *Softphone Layouts*, then choose **Softphone Layouts**.

7. Choose **New**.

### Softphone Layout Edit

Help for this Page

Each softphone layout allows you to customize the appearance of a softphone for inbound, outbound, and internal calls. Assign softphone layouts to user profiles by clicking Layout Assignment in the Softphone Layouts page.

The screenshot shows the 'Softphone Layout Edit' page. At the top, there are 'Save' and 'Cancel' buttons. Below them is a 'Name' field containing 'AmazonConnectDefault' and an 'Is Default Layout' checkbox which is checked. A 'Select Call Type' dropdown is set to 'Inbound'. The main area is titled 'Softphone Layout' and contains a 'Display these call-related fields:' section with 'Caller ID, Dialed Number' listed. Below it is a 'Display these salesforce.com objects:' section. Under this, there is a list of objects: 'Account, Contact, Lead'. Each object has an 'Edit' link next to it. The 'Lead' object has three detailed options: 'If single Account found, display: Account Name', 'If single Contact found, display: Name', and 'If single Lead found, display: Name'. Each of these also has an 'Edit' link next to it.

8. 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, outbo

The screenshot shows the 'Softphone Layout Edit' page. At the top, there are 'Save' and 'Cancel' buttons. Below them is a 'Name' field containing 'AmazonConnectDefault' and an 'Is Default Layout' checkbox which is checked.

9. 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, besides default selection, I'm adding "Case", as I want to search and screen-pop by CaseID.

The screenshot shows the 'Display these salesforce.com objects' configuration. It has a 'Available' list on the left containing 'Campaign', 'Event', 'Opportunity', 'Task', 'User', 'Account', 'Contact', 'Lead', and 'Case'. An 'Add' button with a right-pointing arrow is between the lists. On the right, there is a 'Selections' list containing 'Account', 'Contact', 'Lead', and 'Case'. An 'Up' button with an upward arrow is above the 'Selections' list, and a 'Down' button with a downward arrow is below it. There is also a 'Remove' button with a left-pointing arrow between the two lists.

10. If necessary, configure the search behavior in the case that one or multiple records are found upon CTI search.

▶ 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.	<a href="#">Edit</a>
▶ 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.	<a href="#">Edit</a>
▶ 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.	<a href="#">Edit</a>
▶ 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.	<a href="#">Edit</a>

11. In this example, keep the default configuration, then choose **Save**.

## Softphone Layout Edit

Each softphone layout allows you to customize the appearance of a softphone for inbound, outbound, a

The screenshot shows a software interface for editing a softphone layout. At the top right are 'Save' and 'Cancel' buttons. Below them is a 'Name' field containing 'AmazonConnectDefault'. To the right of the name is a checked checkbox labeled 'Is Default Layout'.

### 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 create custom softphone layouts and assign them to call center users based on their user profile.

Action	Name	Default	Created By Alias	Created Date	Last Modified By Alias	Last Modified Date
<a href="#">Edit</a>	AmazonConnectDefault	<input checked="" type="checkbox"/>	ASFDC	23/05/2018 13:48	ASFDC	23/05/2018 13:48

## Set Access Permissions

All users must be assigned the required permission set to access the Salesforce metadata included in this package. The Amazon Connect CTI integration package comes with two Permission Sets, one for agents and one for managers, that grant the users all necessary access to use the softphone.

1. Log in into your Salesforce Org.
2. Navigate to **Setup > Manage Users > Permission Sets**.

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: <a href="#">iOS</a>   <a href="#">Android</a>		
<a href="#">All Permission Sets</a>	<a href="#">Edit</a>   <a href="#">Delete</a>   <a href="#">Create New View</a>	
<a href="#">New</a>		
Action	Permission Set Label	Description
<input type="checkbox"/>	Clone Toolkit for Amazon Connect - Agent	Permissions to all components that an agent would need to use the toolkit.
<input type="checkbox"/>	Clone Toolkit for Amazon Connect - Manager	Permissions required to access the toolkit reports.

2. Choose **AC\_Manager**.

Assign Users  
All Users

View: All Users Edit | Create New View

### 3. Choose Manage Assignments.

### 4. Choose Add Assignments.

5. Select the users to assign the permissions, then choose **Assign**. More information on assigning user permissions can be found at: [https://help.salesforce.com/articleView?id=perm\\_sets\\_mass\\_assign.htm&type=5](https://help.salesforce.com/articleView?id=perm_sets_mass_assign.htm&type=5)

## AC\_Administrator

Org Level Object Sharing Model	Object Access	Read	Create	Edit	Delete	View All	Modify All
Public	AC Agent Performance	<input checked="" type="checkbox"/>					
Public	AC Contact Channel Analytics	<input checked="" type="checkbox"/>					
Public	AC Contact Channels	<input checked="" type="checkbox"/>					
Public	AC Contact Trace Records	<input checked="" type="checkbox"/>					
Public	AC CTI Adapters	<input checked="" type="checkbox"/>					
Public	AC CTI Attributes	<input checked="" type="checkbox"/>					
Public	AC CTI Scripts	<input checked="" type="checkbox"/>					
Public	AC Events	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC Historical Queue Metrics	<input checked="" type="checkbox"/>					
Public	AC Presence Sync Rules	<input checked="" type="checkbox"/>					
Public	AC Queue Metric Events	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC Real Time Queue Metrics	<input checked="" type="checkbox"/>					
Private	AC Voicemail Drops	<input checked="" type="checkbox"/>					
Public	Amazon Connect Call Campaigns	<input checked="" type="checkbox"/>					

## AC\_Manager

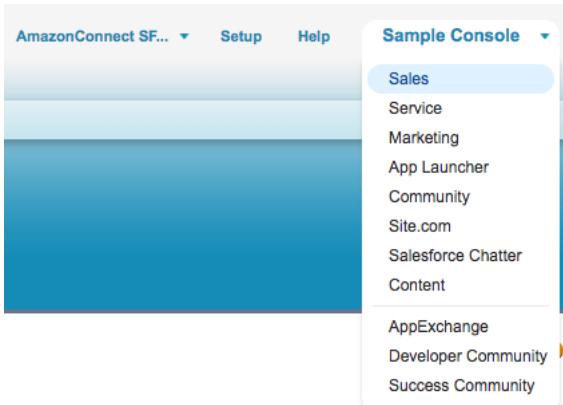
Org Level Object Sharing Model	Object Access	Read	Create	Edit	Delete	View All	Modify All
Public	AC Agent Performance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Contact Channel Analytics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Contact Channels	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Contact Trace Records	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC CTI Adapters	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC CTI Attributes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC CTI Scripts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC Events	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC Historical Queue Metrics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Presence Sync Rules	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Queue Metric Events	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC Real Time Queue Metrics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Private	AC Voicemail Drops	<input checked="" type="checkbox"/>					
Public	Amazon Connect Call Campaigns	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## AC\_Agent

Org Level Object Sharing Model	Object Access	Read	Create	Edit	Delete	View All	Modify All
Public	AC Agent Performance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Contact Channel Analytics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Contact Channels	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Contact Trace Records	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC CTI Adapters	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC CTI Attributes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC CTI Scripts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC Events	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC Historical Queue Metrics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Presence Sync Rules	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public	AC Queue Metric Events	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public	AC Real Time Queue Metrics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Private	AC Voicemail Drops	<input checked="" type="checkbox"/>					
Public	Amazon Connect Call Campaigns	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Configure Console Experience

For the Console experience, we are going to use Sample Console application, but the procedure is the same for other applications.



In the top navigation bar, select the "+" icon.



## All Tabs

Use the links below to quickly navigate to a tab. Alternatively, you can [add a tab](#) to your display to better suit the way you work.

The screenshot shows a grid of tabs. On the left, tabs include AC Contact Channel Analytics, AC Contact Trace Records, Accounts, AC CTI Adapters (which is highlighted with a red border), AC Real Time Queue Metrics, AC Voicemail Drops, Analytics, and App Launcher. On the right, tabs include Documents, Duplicate Record Sets, Engagement Channel Types, External Managed Accounts, Files, Forecasts, Groups, and Home.

Select "AC CTI Adapters"

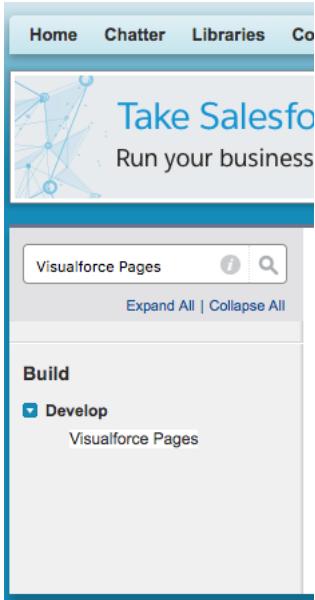
Create a new adapter. Fill in the CTI Adapter Name. For the Call Center Definition Name, type in ACCConsoleAdapter. For the Amazon Connect Instance, type in the login url to the instance (this can be found in the Amazon Connect Instance details page), removing everything after ".com".

The screenshot shows the 'Overview' section of the AC CTI Adapters configuration. It includes fields for Instance ARN (redacted), Directory (redacted), Service-linked role (AWSServiceRoleForAmazonConnect\_x8e0tNYvgBDc9FjXHHQc), and Login URL ([https://\[REDACTED\].awsapps.com/connect/login](https://[REDACTED].awsapps.com/connect/login)).

Select Save.

The screenshot shows a navigation bar with tabs for Setup, Help, Sales, and a dropdown menu. The 'Setup' tab is highlighted with a red border.

In the Quick Find field, type Visualforce Pages and select Visual Force Pages:



Security     <a href="#">AC_RecordingViewer</a>	<a href="#">AC_RecordingViewer</a>	amazonconnect
Security     <a href="#">AC_CtiScriptEditor</a>	<a href="#">AC_CtiScriptEditor</a>	amazonconnect
Security     <a href="#">AC_LightningAdapter</a>	<a href="#">AC_LightningAdapter</a>	amazonconnect
Security     <a href="#">AC_LightningScriptIncludes</a>	<a href="#">AC_LightningScriptIncludes</a>	amazonconnect
Security     <a href="#">AC_RealTimeQueueMetrics</a>	<a href="#">AC_RealTimeQueueMetrics</a>	amazonconnect
Security     <a href="#">AC_ClassicScriptIncludes</a>	<a href="#">AC_ClassicScriptIncludes</a>	amazonconnect
Security     <a href="#">AC_ConsoleAdapter</a>	<a href="#">AC_ConsoleAdapter</a>	amazonconnect
Security     <a href="#">AC_ConsoleScriptIncludes</a>	<a href="#">AC_ConsoleScriptIncludes</a>	amazonconnect
Security     <a href="#">ACSFCCP_CallTask</a>	<a href="#">ACSFCCP_CallTask</a>	amazonconnect
Security     <a href="#">ACSFCCP_ObjectType</a>	<a href="#">ACSFCCP_ObjectType</a>	amazonconnect
Security     <a href="#">ACSFCCP_PostCallUpdateTask</a>	<a href="#">ACSFCCP_PostCallUpdateTask</a>	amazonconnect
Security     <a href="#">AC_ClassicAdapter</a>	<a href="#">AC_ClassicAdapter</a>	amazonconnect
Security     <a href="#">ACSFCCP_CallRecordingTask</a>	<a href="#">ACSFCCP_CallRecordingTask</a>	amazonconnect
Security     <a href="#">ACSFCCP_CallLogging_View</a>	<a href="#">ACSFCCP_CallLogging_View</a>	amazonconnect
Security     <a href="#">ACSFCCP_CallRecordingCase</a>	<a href="#">ACSFCCP_CallRecordingCase</a>	amazonconnect
Security     <a href="#">AC_HelperIncludes</a>	<a href="#">AC_HelperIncludes</a>	amazonconnect
Security     <a href="#">AC_HelperIncludesCcpV1</a>	<a href="#">AC_HelperIncludesCcpV1</a>	amazonconnect

As we are currently setting up the Console experience, click on AC\_ConsoleAdapter page.

#### Visualforce Page amazonconnect\_\_AC\_ConsoleAdapter

Page Detail		<a href="#">Where is this used?</a>	<a href="#">Preview</a>
Label	AC_ConsoleAdapter	Name	AC_ConsoleAdapter
Namespace Prefix	amazonconnect	Available for Lightning Experience, Lightning Communities, and the mobile app	
Require CSRF protection on GET requests	<input type="checkbox"/>	Description	

Click on the **Preview** button. A new browser tab will open with the URL of this page. It's going to be in this format:

`https://sfdcInstance--amazonconnect.visualforce.com/apex/AC_ConsoleAd`

This is what we are going to use as "Origin URL" in our Amazon Connect configuration. From AWS Console, select Amazon Connect service and then select your Amazon Connect instance:

The screenshot shows the 'Overview' section of an Amazon Connect instance named 'test10'. The Instance ARN is listed as 'arn:aws:connect:us-east-1:...:instance/193a3ba0-...'. The Directory is listed as '...-test10'. The Login URL is listed as 'https://...-test10.awsapps.com/connect/login'. There is also a 'Login as administrator' button.

Select "Application Integration" on the left-hand side:

The screenshot shows the 'Application integration' section of the same Amazon Connect instance. It includes a note about integrating with CRM and WFM products, a link to learn more, and a 'Approved origins' section. Below it, there is a note about adding origins and a '+ Add origin' link.

Click on "Add origin" link and enter the origin URL

The screenshot shows a modal dialog titled 'Add origin'. It has a text input field labeled 'Enter origin URL' containing the value 'https://...-test10.awsapps.com'. At the bottom right are 'Cancel' and 'Add' buttons.

Click "Add" button

## Application integration

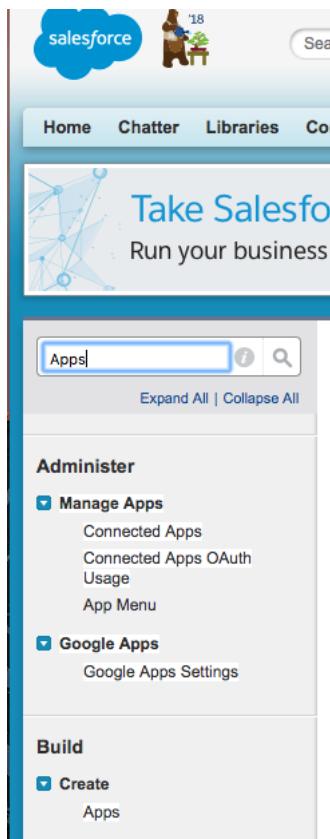
Amazon Connect can integrate with other products including Customer Relationship Management (CRM) and Workforce Management (WFM) products. Click on the link for details on how to set up integrations with Amazon Connect. [Learn more](#)

### 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://\[REDACTED\].visual.force.com](https://[REDACTED].visual.force.com) [remove](#)  
[+ Add origin](#)

From the Setup screen, type Apps in Quick Find field and select Build>Create>Apps:



The screenshot shows the Salesforce Setup interface. The left sidebar has sections for 'Administer' (Manage Apps, Google Apps) and 'Build' (Create). Under 'Create', the 'Apps' option is selected. The main area shows a search bar with 'Apps' typed in, and below it, a list of connected apps: App Launcher, Community, Content, Marketing, Platform, Sales, Salesforce Chatter, Sample Console, Service, and Site.com. Each item has an 'Edit' link and a checkbox column.

You will be able to see all applications that are available in your account.

Apps					<a href="#">Quick Start</a>	<a href="#">New</a>	<a href="#">Reorder</a>
Action	App Label	Console	Custom	Description			
Edit	<a href="#">App Launcher</a>	<input type="checkbox"/>	<input type="checkbox"/>	App Launcher tabs			
Edit	<a href="#">Community</a>	<input type="checkbox"/>	<input type="checkbox"/>	Salesforce CRM Communities			
Edit	<a href="#">Content</a>	<input type="checkbox"/>	<input type="checkbox"/>	Salesforce CRM Content			
Edit	<a href="#">Marketing</a>	<input type="checkbox"/>	<input type="checkbox"/>	Best-in-class on-demand marketing automation			
Edit	<a href="#">Platform</a>	<input type="checkbox"/>	<input type="checkbox"/>	The fundamental Lightning Platform			
Edit	<a href="#">Sales</a>	<input type="checkbox"/>	<input type="checkbox"/>	The world's most popular sales force automation (SFA) solution			
Edit	<a href="#">Salesforce Chatter</a>	<input type="checkbox"/>	<input type="checkbox"/>	The Salesforce Chatter social network, including profiles and feeds			
Edit	<a href="#">Sample Console</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(Salesforce Classic) Lets agents work with multiple records on one screen			
Edit	<a href="#">Service</a>	<input type="checkbox"/>	<input type="checkbox"/>	Manage customer service with accounts, contacts, cases, and more			
Edit	<a href="#">Site.com</a>	<input type="checkbox"/>	<input type="checkbox"/>	Build pixel-perfect, data-rich websites using the drag-and-drop Site.com application, and manage content and published sites.			

Click "Edit" next to the Sample Console application.

Scroll to the bottom of the page and "Assign to Profiles"

Profile	<input type="checkbox"/> Visible	<input type="checkbox"/> Default
Analytics Cloud Integration User	<input type="checkbox"/>	<input type="checkbox"/>
Analytics Cloud Security User	<input type="checkbox"/>	<input type="checkbox"/>
Contract Manager	<input type="checkbox"/>	<input type="checkbox"/>
Cross Org Data Proxy User	<input type="checkbox"/>	<input type="checkbox"/>
Custom: Marketing Profile	<input type="checkbox"/>	<input type="checkbox"/>
Custom: Sales Profile	<input type="checkbox"/>	<input type="checkbox"/>
Custom: Support Profile	<input type="checkbox"/>	<input type="checkbox"/>
Force.com - App Subscription User	<input type="checkbox"/>	<input type="checkbox"/>
Identity User	<input type="checkbox"/>	<input type="checkbox"/>
Marketing User	<input type="checkbox"/>	<input type="checkbox"/>
Partner App Subscription User	<input type="checkbox"/>	<input type="checkbox"/>
Read Only	<input type="checkbox"/>	<input type="checkbox"/>
Solution Manager	<input type="checkbox"/>	<input type="checkbox"/>
Standard Platform User	<input type="checkbox"/>	<input type="checkbox"/>
Standard User	<input type="checkbox"/>	<input type="checkbox"/>
System Administrator	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Buttons:** Save | Save & New | Cancel

In this example, I'm assigning Sample console as Visible to System Administrator.

Choose **Save**.

From Setup, type Call Centers in the Quick Find field and select Call Centers.

The screenshot shows the Salesforce Setup interface. At the top, there's a navigation bar with links for Home, Chatter, Libraries, Content, and Subscriptions. Below this is a banner with the text "Take Salesforce with you" and "Run your business from any mobile device". On the left, there's a sidebar titled "Build" with checkboxes for "Customize" and "Call Center", and a link for "Call Centers". The main content area has a search bar at the top with the text "Call Centers". Below the search bar, there's a "Getting Started" section featuring a pencil icon and some descriptive text. At the bottom of the main content area, there's a "Recent Items" section with the text "beta".

## All Call Centers

A call center corresponds to a single computer-telephony integration (CTI) system already in place at your organization. Salesforce.com users must map their existing CTI system to a call center.

Action	Name ↑	Import	Version
Edit   Del	Amazon Connect CCP Adapter Classic		
Edit   Del	Amazon Connect CCP Adapter Console		
Edit   Del	Amazon Connect CCP Adapter Lightning		

Select "Amazon Connect CCP Adapter Console 3.9"

## Call Center AC Console Adapter

All Call Centers » AC Console Adapter

### Call Center Detail

[Edit](#) [Delete](#) [Clone](#)

#### General Information

InternalName	ACConsoleAdapter
Display Name	AC Console Adapter
CTI Adapter URL	/apex/amazonconnect__AC_ConsoleAdapter?ccpVersion=2
Softphone Height	544
Softphone Width	325
Use CTI API	true
Salesforce Compatibility Mode	Classic
Default CallCenter	true
Package Namespace	amazonconnect

Replace the **CTI Adapter URL** with the AC Lightning Adapter visualforce page url you copied in the previous section. If you wish to specify your version of the ccp user interface, add "?ccpVersion=x", where x is the version of the ccp (either 1 or 2). Click on the Save button.

Click on the "Manage Call Center Users" button at the bottom of the page.

Call Center Users	Manage Call Center Users
Call Center Users by Profile	
Total	0

## Call Center Amazon Connect CCP Adapter Console: Manage Users

All Call Centers » Amazon Connect CCP Adapter Console » Manage Users

View: [All](#) [Create New View](#)

Full Name ↑	Alias	Username	Add More Users	Remove Users
No records to display.				

Call Center

## Amazon Connect CCP Adapter Console: Search for New Users

All Call Centers » Amazon Connect CCP Adapter Console » Manage Users » Search for New Users

Set the search criteria below and then click Search to find salesforce.com users who should be enabled as :

--None--	↑	--None--	↑		AND
--None--	↓	--None--	↓		AND
--None--	↓	--None--	↓		AND
--None--	↓	--None--	↓		AND
--None--	↓	--None--	↓		

Filter By Additional Fields (Optional):

- You can use "or" filters by entering multiple items in the third column, separated by commas.
- For date fields, enter the value in following format: 23/05/2018
- For date/time fields, enter the value in following format: 23/05/2018 15:07

Set filters and click on the Find button. Select the checkbox next to the user and click "Add to Call Center" button.

Add to Call Center					
	Full Name	Alias	Username	Role	Profile
<input checked="" type="checkbox"/>	SFDCDryRun_AmazonConnect	ASFDC	acsfdcdryrun	System Administrator	
<input type="checkbox"/>	User_Integration	integ	integration@00d0n000001bsn5uua.com	Analytics Cloud Integration User	
<input type="checkbox"/>	User_Security	sec	insightssecurity@00d0n000001bsn5uua.com	Analytics Cloud Security User	

Repeat the steps to add more users.

Call Center

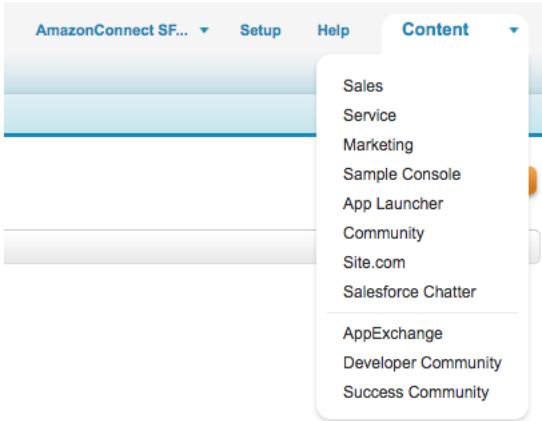
## Amazon Connect CCP Adapter Console: Manage Users

All Call Centers » Amazon Connect CCP Adapter Console » Manage Users

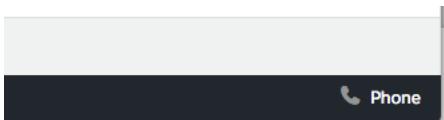
View:

Add More Users			
Action	Full Name	Alias	Username
<input type="checkbox"/>   Remove	SFDCDryRun_AmazonConnect	ASFDC	acsfdcdryrun

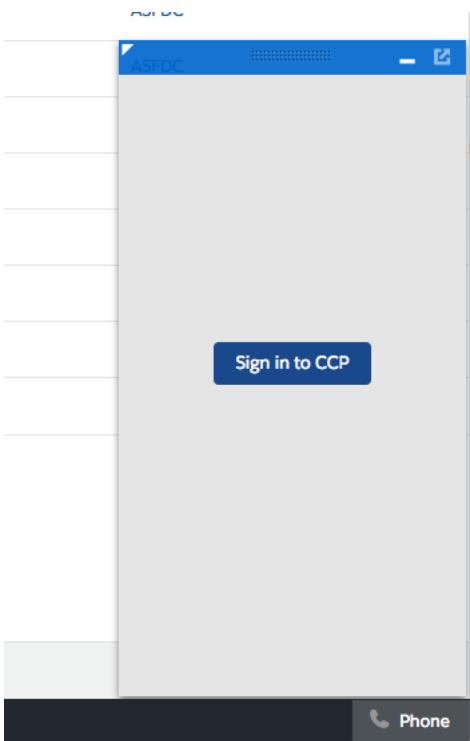
From the top-right corner, select Sample Console application.



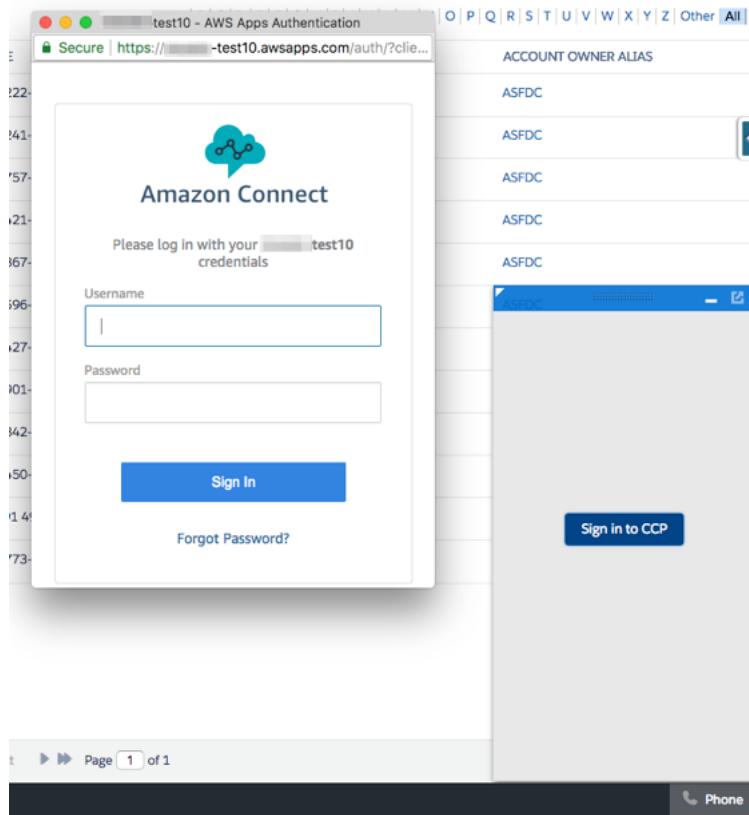
In the bottom-right corner, you will be able to see the Phone button.



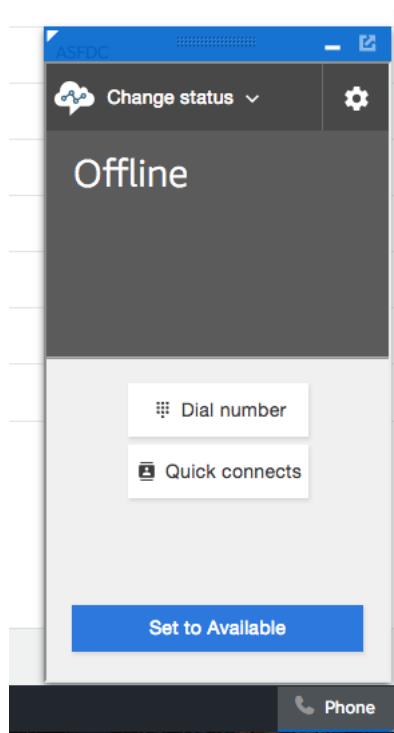
Click on the Phone button to open the softphone pop-up.



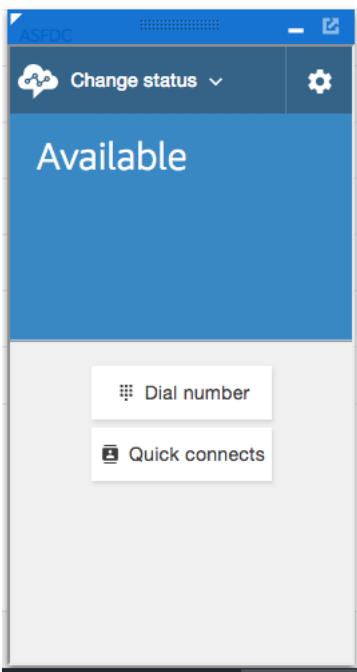
You will need to Sign in into your Amazon Connect CCP. Click on the Sign in to CCP button. A new modal pop-up will show, asking you to enter your credentials.



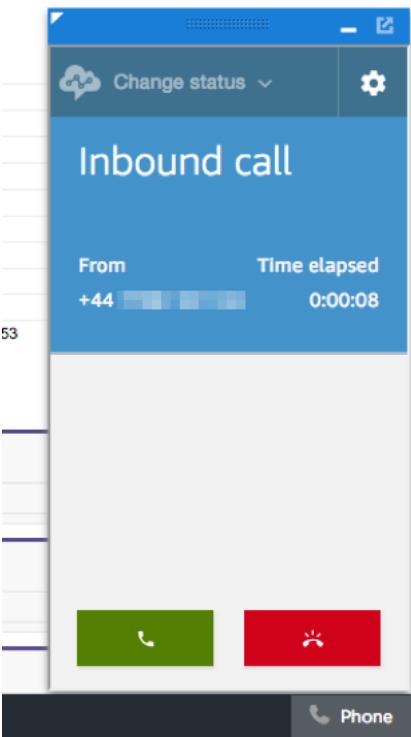
Enter your credentials and click Sign in. Allow Microphone access (if asked by browser). Once login is successful, the pop-up window will automatically close.

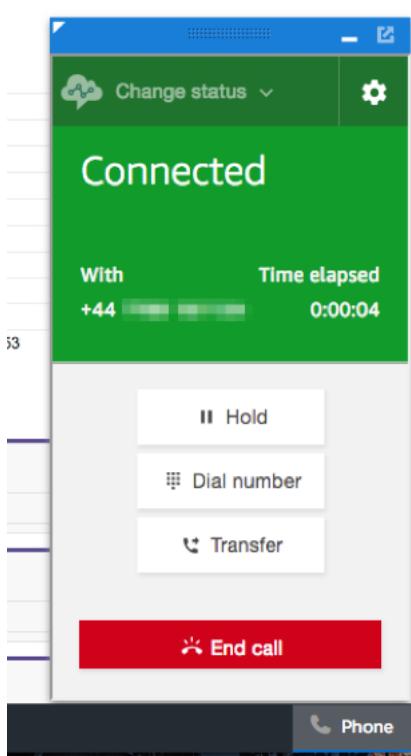


Select "Change status" and select "Available".



Make an inbound phone call to your Amazon Connect instance. The CCP is going to "ring" and you can answer the call.

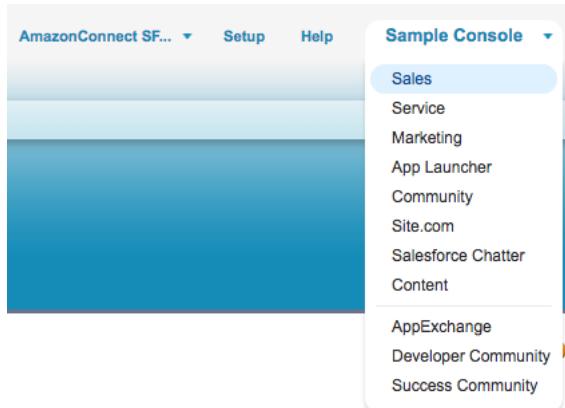




## Configure Classic Experience

The Salesforce Classic is the easiest to configure, but it has some limitations. Most important limitation is that, with Classic layout, there are no tabs and modal containers, so each time new object is selected, a full page reload occurs. This full reload causes softphone to be reloaded too, which could cause an issue in the voice call audio stream. Because of that, in the Classic environment, we have to run a separate instance of softphone (CPP) which will carry the audio, while embedded instance of CCP can be used for call control and screen-pop functionality.

First, we have to configure Amazon Connect integration.



From the top right corner, select the Sales application.

In the top navigation bar, select the "+" icon.



## All Tabs

Use the links below to quickly navigate to a tab. Alternatively, you can add a tab to your display to better suit the way you work.

View: All Tabs ▾

<a href="#">AC Contact Channel Analytics</a>	<a href="#">Documents</a>
<a href="#">AC Contact Trace Records</a>	<a href="#">Duplicate Record Sets</a>
<a href="#">Accounts</a>	<a href="#">Engagement Channel Types</a>
<a href="#">AC CTI Adapters</a>	<a href="#">External Managed Accounts</a>
<a href="#">AC Real Time Queue Metrics</a>	<a href="#">Files</a>
<a href="#">AC Voicemail Drops</a>	<a href="#">Forecasts</a>
<a href="#">Analytics</a>	<a href="#">Groups</a>
<a href="#">App Launcher</a>	<a href="#">Home</a>

Select "AC CTI Adapters"

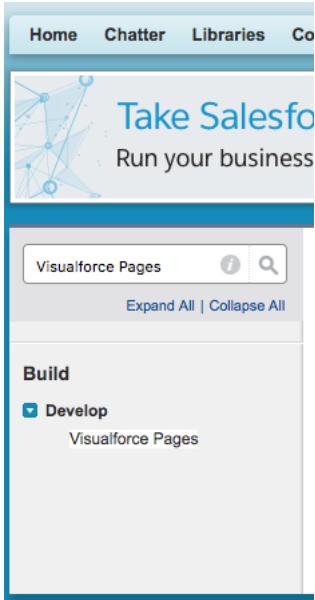
Create a new adapter. Fill in the CTI Adapter Name. For the Call Center Definition Name, type in ACCConsoleAdapter. For the Amazon Connect Instance, type in the login url to the instance (this can be found in the Amazon Connect Instance details page), removing everything after ".com".

Amazon Connect >

<p><b>Overview</b></p> <p>Telephony</p> <p>Data storage</p> <p>Data streaming</p> <p>Application integration</p> <p>Contact flows</p>	<p><b>Overview</b></p> <p>Instance ARN: </p> <p>Directory: </p> <p>Service-linked role  AWSServiceRoleForAmazonConnect_x8e0tNYvgBDc9FIHHQc <a href="#">Learn more</a></p> <p>Login URL: <a href="https://&lt;img alt=" redacted"="">.awsapps.com/connect/login"&gt;https://.awsapps.com/connect/login</a></p>
---	---

Select Save.

In the Quick Find field, type Visualforce Pages and select Visual Force Pages:



Security     <a href="#">AC_RecordingViewer</a>	<a href="#">AC_RecordingViewer</a>	amazonconnect
Security     <a href="#">AC_CtiScriptEditor</a>	<a href="#">AC_CtiScriptEditor</a>	amazonconnect
Security     <a href="#">AC_LightningAdapter</a>	<a href="#">AC_LightningAdapter</a>	amazonconnect
Security     <a href="#">AC_LightningScriptIncludes</a>	<a href="#">AC_LightningScriptIncludes</a>	amazonconnect
Security     <a href="#">AC_RealTimeQueueMetrics</a>	<a href="#">AC_RealTimeQueueMetrics</a>	amazonconnect
Security     <a href="#">AC_ClassicScriptIncludes</a>	<a href="#">AC_ClassicScriptIncludes</a>	amazonconnect
Security     <a href="#">AC_ConsoleAdapter</a>	<a href="#">AC_ConsoleAdapter</a>	amazonconnect
Security     <a href="#">AC_ConsoleScriptIncludes</a>	<a href="#">AC_ConsoleScriptIncludes</a>	amazonconnect
Security     <a href="#">ACSFCCP_CallTask</a>	<a href="#">ACSFCCP_CallTask</a>	amazonconnect
Security     <a href="#">ACSFCCP_ObjectType</a>	<a href="#">ACSFCCP_ObjectType</a>	amazonconnect
Security     <a href="#">ACSFCCP_PostCallUpdateTask</a>	<a href="#">ACSFCCP_PostCallUpdateTask</a>	amazonconnect
Security     <a href="#">AC_ClassicAdapter</a>	<a href="#">AC_ClassicAdapter</a>	amazonconnect
Security     <a href="#">ACSFCCP_CallRecordingTask</a>	<a href="#">ACSFCCP_CallRecordingTask</a>	amazonconnect
Security     <a href="#">ACSFCCP_CallLogging_View</a>	<a href="#">ACSFCCP_CallLogging_View</a>	amazonconnect
Security     <a href="#">ACSFCCP_CallRecordingCase</a>	<a href="#">ACSFCCP_CallRecordingCase</a>	amazonconnect
Security     <a href="#">AC_HelperIncludes</a>	<a href="#">AC_HelperIncludes</a>	amazonconnect
Security     <a href="#">AC_HelperIncludesCcpV1</a>	<a href="#">AC_HelperIncludesCcpV1</a>	amazonconnect

As we are currently setting up the Classic experience, click on AC\_ClassicAdapter page

#### Visualforce Page amazonconnect\_\_AC\_ClassicAdapter

Page Detail		Where is this used?	Preview
Label	AC_ClassicAdapter	Name	AC_ClassicAdapter
Namespace Prefix	amazonconnect	Available for Lightning Experience, Lightning Communities, and the mobile app	<input type="checkbox"/>
Require CSRF protection on GET requests	<input type="checkbox"/>	Description	

Click on the Preview button. New browser tab will open with the URL of this page. It's going to be in this format:

`https://sfdcInstance--amazonconnect.visualforce.com/apex/AC_ClassicAd`

This is what we are going to use as "Origin URL" in our Amazon Connect configuration. From AWS Console, select Amazon Connect service and then select your Amazon Connect instance:

The screenshot shows the 'Overview' section of an Amazon Connect instance named 'test10'. The Instance ARN is listed as 'arn:aws:connect:us-east-1:...:instance/193a3ba0-...'. The Directory is listed as 'test10'. The Login URL is listed as 'https://...-test10.awsapps.com/connect/login'. A 'Login as administrator' button is also visible.

Select "Application Integration" on the left-hand side:

The screenshot shows the 'Application integration' page. It includes a note about integrating with CRM and WFM products, a link to learn more, and a section for 'Approved origins'. It says 'Once you integrated with a CRM product, add the origins (scheme + host + port) that Amazon Connect will need to have access to.' A '+ Add origin' link is present.

Click on "Add origin" link and enter the origin URL

The screenshot shows a modal dialog titled 'Add origin'. It has a text input field labeled 'Enter origin URL' containing the value 'https://...-test10.visual.force.com'. At the bottom are 'Cancel' and 'Add' buttons.

Click "Add" button

## Application integration

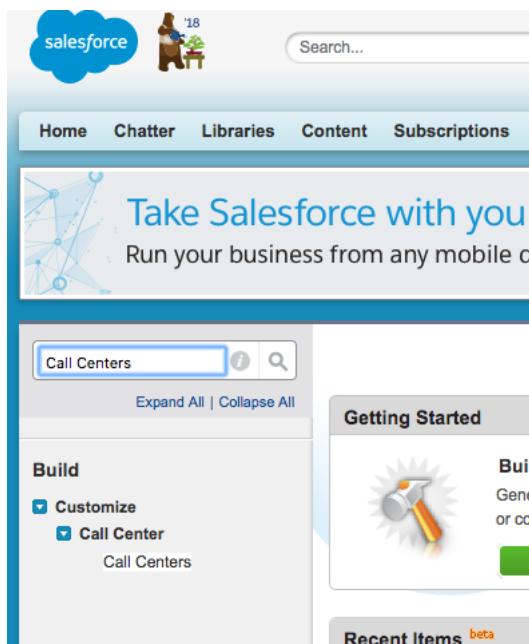
Amazon Connect can integrate with other products including Customer Relationship Management (CRM) and Workforce Management (WFM) products. Click on the link for details on how to set up integrations with Amazon Connect. [Learn more](#)

### 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://\[REDACTED\].visual.force.com](https://[REDACTED].visual.force.com) [remove](#)  
[+ Add origin](#)

From the Salesforce Classic layout, select Setup then type Call Centers in the Quick Find field and select Call Centers.



The screenshot shows the classic Salesforce interface. At the top, there's a navigation bar with links for Home, Chatter, Libraries, Content, and Subscriptions. Below the navigation bar, a banner reads "Take Salesforce with you" and "Run your business from any mobile device". In the main content area, there's a search bar with "Call Centers" typed into it, followed by a magnifying glass icon and a "Recent Items" link. To the left of the search bar is a sidebar titled "Build" with checkboxes for "Customize" and "Call Center", and a link for "Call Centers". On the right, there's a "Getting Started" section with a gear icon and some descriptive text. The overall layout is clean and organized, typical of the classic Salesforce design.

## All Call Centers

A call center corresponds to a single computer-telephony integration (CTI) system already in place at your organization. Salesforce.com users must have the appropriate permissions to view and manage call centers.

Action	Name	Import	Version
<a href="#">Edit</a>   <a href="#">Del</a>	<a href="#">Amazon Connect CCP Adapter Classic</a>		
<a href="#">Edit</a>   <a href="#">Del</a>	<a href="#">Amazon Connect CCP Adapter Console</a>		
<a href="#">Edit</a>   <a href="#">Del</a>	<a href="#">Amazon Connect CCP Adapter Lightning</a>		

Select "Amazon Connect CCP Adapter Classic 3.9"

## Call Center Detail

[Edit](#) [Delete](#) [Clone](#)

### General Information

InternalName	ACClassicAdapter
Display Name	AC Classic Adapter
CTI Adapter URL	/apex/amazonconnect__AC_ClassicAdapter?ccpVersion=2
Softphone Height	460
Softphone Width	200
Use CTI API	true
Salesforce Compatibility Mode	Classic
Default CallCenter	true
Package Namespace	amazonconnect

Replace the **CTI Adapter URL** with the AC Lightning Adapter visualforce page url you copied in the previous section. If you wish to specify your version of the ccp user interface, add "?ccpVersion=x", where x is the version of the ccp (either 1 or 2). Click on the Save button.

Click on the "Manage Call Center Users" button at the bottom of the page.

The screenshot shows a simple interface for managing call center users. At the top left is the title 'Call Center Users'. To its right is a large, prominent button labeled 'Manage Call Center Users'. Below this button is a sub-section titled 'Call Center Users by Profile' with a small note indicating 'Total 0'.

### Call Center Amazon Connect CCP Adapter Classic: Manage Users

All Call Centers » Amazon Connect CCP Adapter Classic » Manage Users

View: [All](#) [Create New View](#)

This screenshot shows the 'Manage Users' page. At the top right are two buttons: 'Add More Users' and 'Remove Users'. Below this is a table with three columns: 'Full Name' (with a sorting arrow), 'Alias', and 'Username'. A message at the bottom states 'No records to display.'

Click on the "Add More Users" button.

Call Center

## Amazon Connect CCP Adapter Classic: Search for New Users

All Call Centers » Amazon Connect CCP Adapter Classic » Manage Users » Search for New Users

Set the search criteria below and then click Search to find salesforce.com users who should be enabled as

--None--	^	--None--	^		AND
--None--	^	--None--	^		AND
--None--	^	--None--	^		AND
--None--	^	--None--	^		AND
--None--	^	--None--	^		AND
Filter By Additional Fields (Optional):					
<ul style="list-style-type: none"><li>You can use "or" filters by entering multiple items in the third column, separated by commas.</li><li>For date fields, enter the value in following format: 23/05/2018</li><li>For date/time fields, enter the value in following format: 23/05/2018 15:42</li></ul>					
<input type="button" value="Find"/>					

Set filters and click on the Find button. Select the checkbox next to the user and click "Add to Call Center" button.

						Add to Call Center	Cancel
<input type="checkbox"/> Full Name		Alias	Username	Role	Profile		
<input checked="" type="checkbox"/> SFCDryRun_AmazonConnect		ASFDC	acsfdcdryrun			System Administrator	
<input type="checkbox"/> User_Integration		integ	integration@00d0n000001bsn5uaa.com			Analytics Cloud Integration User	
<input type="checkbox"/> User_Security		sec	insightssecurity@00d0n000001bsn5uaa.com			Analytics Cloud Security User	

Repeat the steps to add more users.

Call Center

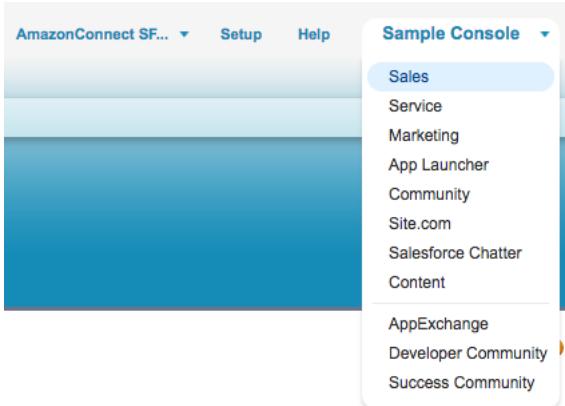
## Amazon Connect CCP Adapter Classic: Manage Users

All Call Centers » Amazon Connect CCP Adapter Classic » Manage Users

View:

				Add More Users	Remove Users
<input type="checkbox"/> Action	Full Name	Alias	Username		
<input type="checkbox"/> Remove	SFCDryRun_AmazonConnect	ASFDC	acsfdcdryrun		

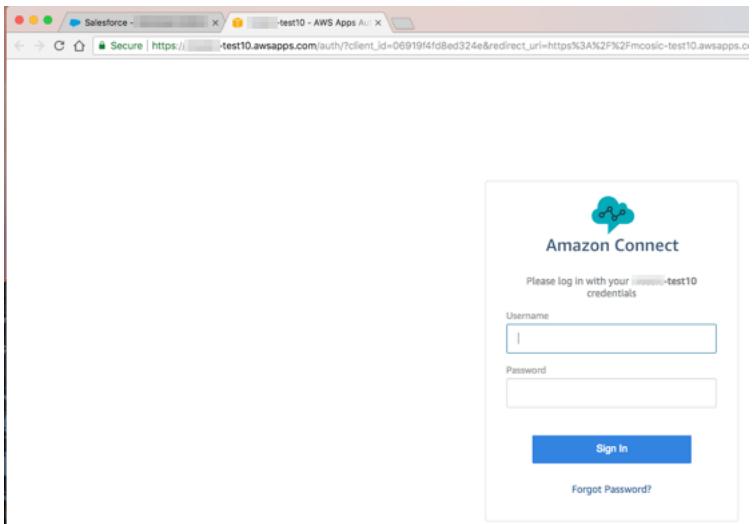
From the top-right corner, select Sales application.



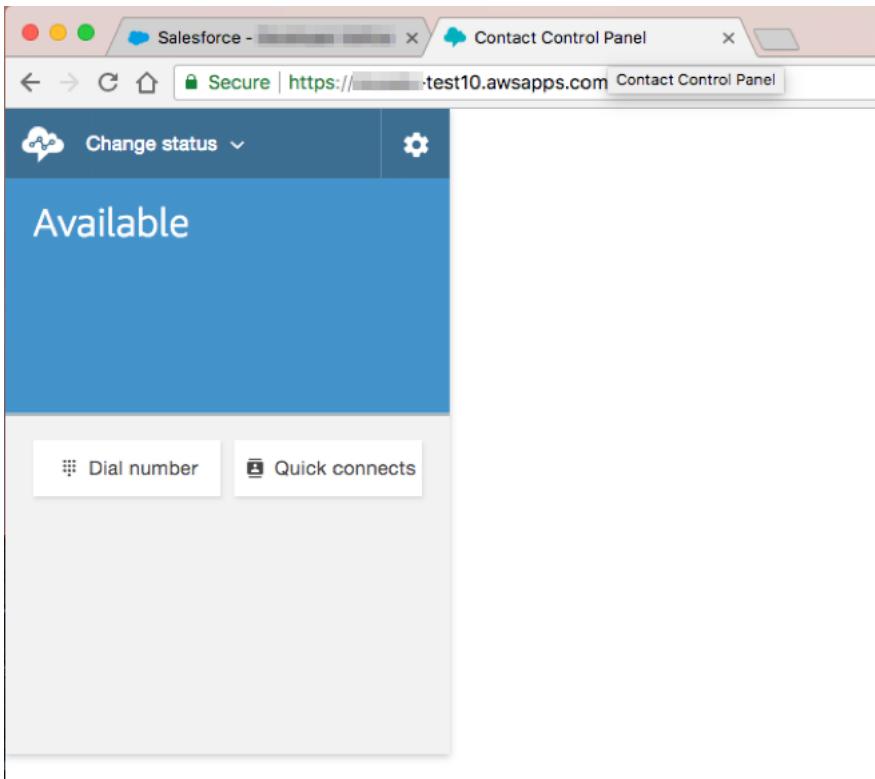
On the left-hand side, you will be able to see the Phone container.

A screenshot of the Salesforce Home page. At the top, there is the Salesforce logo, a user icon with '18', a search bar, and a 'Search' button. Below the header, there is a navigation bar with links: Home, Chatter, Campaigns, Leads, Accounts, Contacts, Opportunities, Forecasts, Contracts, Orders, Cases. On the left side, there is a sidebar with a 'Sign in to CCP' button and a 'Create New...' button. The main content area shows a feed for 'AmazonConnect SFDCDryRun' from 'Wednesday 23 May 2018'. It includes a 'Post' button, a 'File' button, a 'New Event' button, and a 'Share' button. Below the feed, there is a search bar and a 'Sort By Latest Posts' dropdown. A message states 'There are no updates.' In the bottom right corner of the main content area, there is a 'Calendar' section with a 'New Event' button, showing 'Today 23/05/2018' and the message 'You have no events scheduled for the next 7 days.'

You will need to Sign in into your Amazon Connect CCP. Click on the Sign in to CCP button. A new browser tab will open, asking you to enter your credentials.



Enter your credentials and click Sign in. Allow Microphone access (if asked by browser). Once Login is successful, the new tab with CCP will stay open, as this tab is going to carry the audio for voice calls.



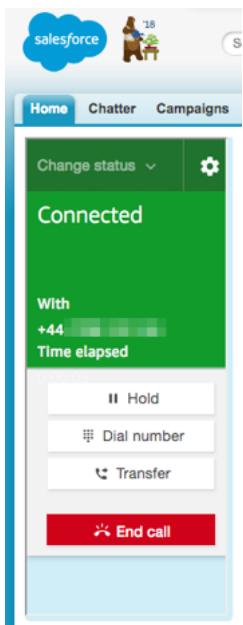
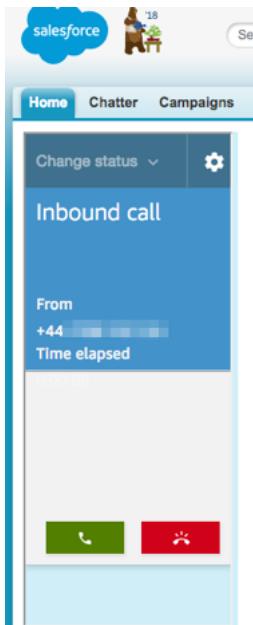
Switch back to Salesforce tab in your browser.

The screenshot shows the Salesforce Contact Control Panel. On the left, there's a sidebar with a "Change status" dropdown set to "Offline", a "Dial number" button, and a "Quick connects" button. Below these are "Set to Available" and "Available" buttons. The main area has a "Chatter" feed titled "AmazonConnect SFDCDryRun" from Wednesday 23 May 2018. It includes a "Post" button, a "File" button, a "New Event" button, and a "Share" button. A text input field says "Share an update, @mention someone...". Below the feed, it says "There are no updates." To the right is a "Calendar" section for "Today 23/05/2018" which states "You have no events scheduled for the next 7 days." The top navigation bar includes Home, Chatter, Campaigns, Leads, Accounts, Contacts, Opportunities, Forecasts, Contracts, Orders, Cases, and a gear icon.

Select "Change status" and select "Available".

This screenshot is identical to the one above, but the "Change status" dropdown now shows "Available" instead of "Offline". The rest of the interface remains the same, including the Chatter feed and the empty calendar.

Make an inbound phone call to your Amazon Connect instance. The CCP is going to "ring" and you can answer the call.



Some CTI Flow features will reload the page the agent is currently on. The page is fully reloaded, but the softphone preserved the audio stream, as another instance of CCP was running in the 2<sup>nd</sup> tab. If the 2<sup>nd</sup> tab is closed, the audio will be lost. The 2<sup>nd</sup> CCP instance can also run in a separate browser window, if preferred.

Go to Salesforce Setup page and type Call Centers in Quick Find, then select Call Centers.

## All Call Centers

A call center corresponds to a single computer-telephony integration (CTI) system already in place at your organization. Salesforce.com users must have access to the CTI system to use it.

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

Select "Amazon Connect CCP Classic"

Call Center

### Amazon Connect CCP Adapter Classic

All Call Centers » Amazon Connect CCP Adapter Classic

**Call Center Detail**

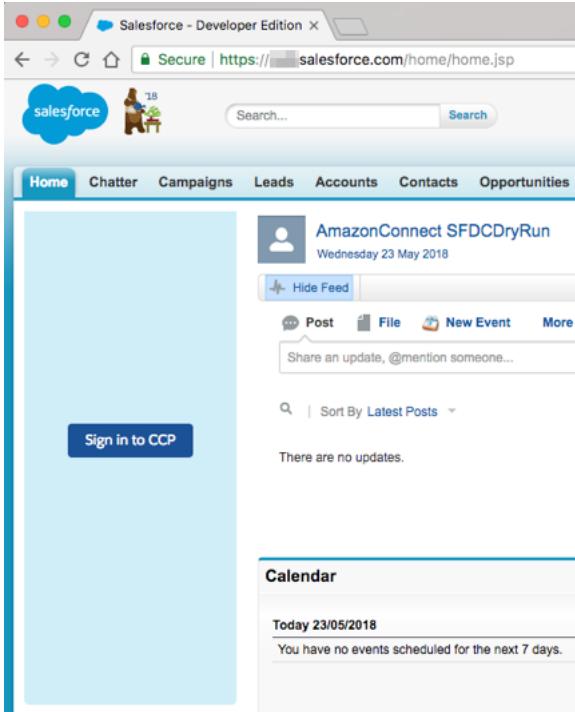
[Edit](#) [Delete](#) [Clone](#)

**Amazon Connect Salesforce CCP Adapter**

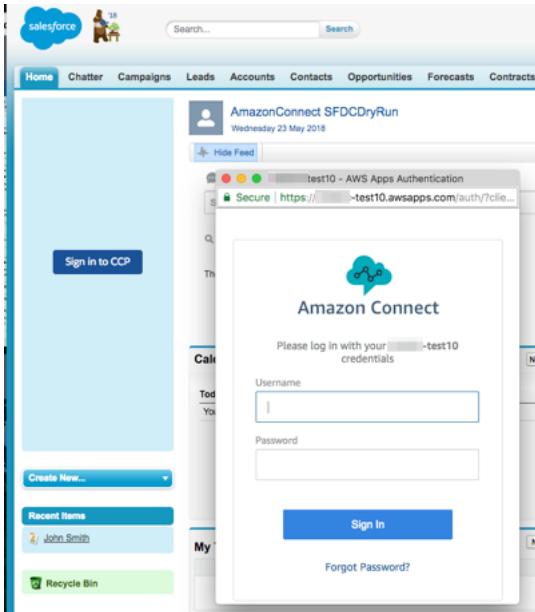
Internal Name	AmazonConnectSFCCPAdapterClassic
Display Name	Amazon Connect CCP Adapter Classic
Description	Amazon Connect Call Center
CTI Adapter URL	/apex/ACSFCCP_Classic
Use CTI API	true
Softphone Height	400
Softphone Width	250
Salesforce Compatibility Mode	Classic

Click on the Edit button and find the "Amazon Connect CCP Login Popup" field. By default, this field is set to "false", which means that Login Popup will be opened in a 2nd tab. If we change this value to "true", then Login Popup will be opened in a new browser window.

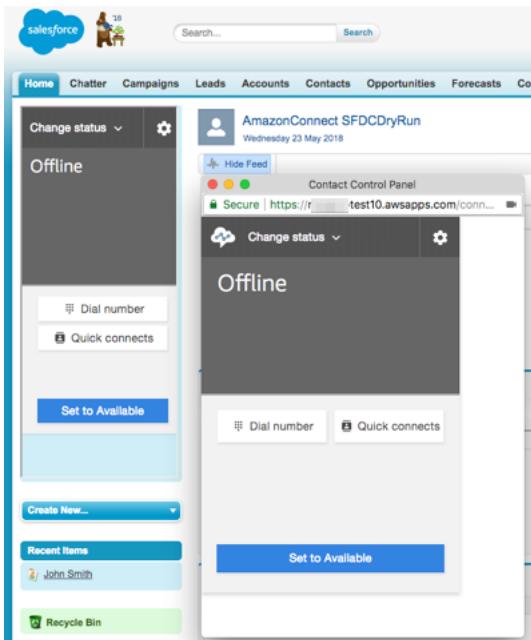
You may also notice that "Amazon Connect CCP Medialess" field is set to "true". This basically means that embedded CCP instance will not carry any media. Set the value to "true" and click on the Save button. Go back to Sales application. If CCP is already logged in, please log out.



Click on the "Sign in to CCP" button and new browser window will open, asking you for credentials.



Enter your credentials and click Sign In. The CCP application will login, but popup window will stay open and it will host the 2<sup>nd</sup> CCP which will carry the audio stream. This window can be minimized or moved to 2<sup>nd</sup> screen.

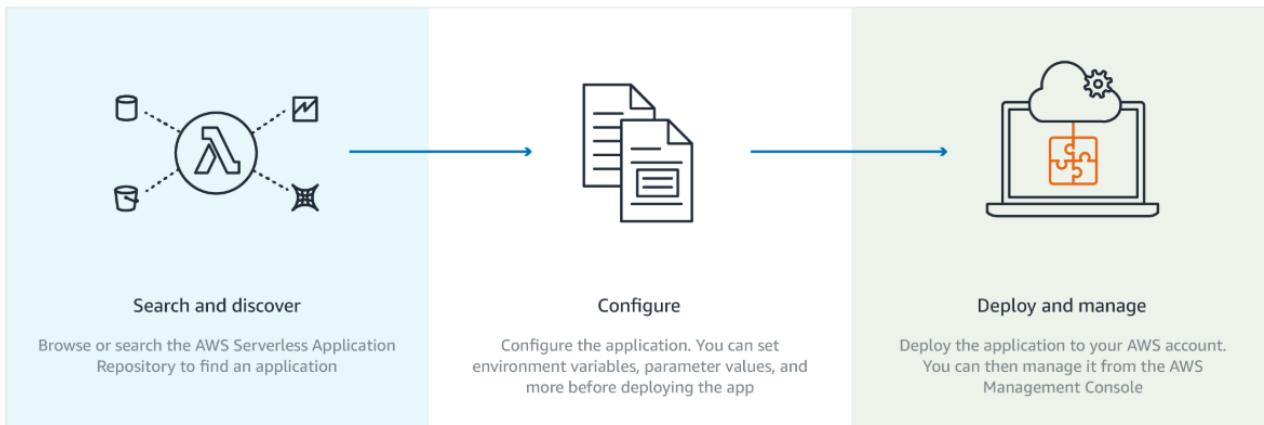


# Installing the Amazon Connect Salesforce Lambda Package

This section will guide you through the installation process of Amazon Connect Salesforce Lambda package, which is hosted in 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.

## How it works: Deploying applications



# Salesforce Lambda Prerequisites

Consider the following prerequisites before you install the Lambda package.

## Determine your production Environment

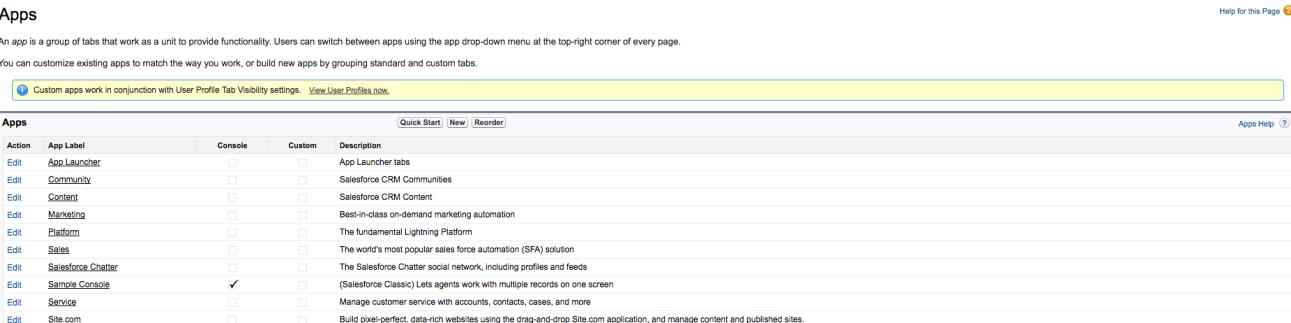
In your installation notes, enter the value for "Production Environment" as "true" or "false", depending on whether the Salesforce environment that you are deploying the package into is a production or a sandbox. For Production, enter "true". For Sandbox enter "false".

## Determine your Consumer Key and Secret

To leverage the full potential of the integration, Salesforce data needs to be accessed from AWS environment. The AWS Serverless package comes with a set of pre-built queries to lookup, update and create Salesforce objects within Amazon Connect Contact Flows, in form of AWS Lambda functions.

The 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 to Salesforce
2. Navigate to Setup > Create > Apps



The screenshot shows the Salesforce Setup interface under the 'Apps' section. It lists various built-in and custom apps with their descriptions. The 'Actions' column includes links to edit each app. A note at the top states: 'Custom apps work in conjunction with User Profile Tab Visibility settings. View User Profiles now.' Below the main table, there's a section for 'Subtab Apps' and a 'Connected Apps' table at the bottom.

Action	App Label	Console	Custom	Description
Edit	App Launcher	<input type="checkbox"/>	<input type="checkbox"/>	App Launcher tabs
Edit	Community	<input type="checkbox"/>	<input type="checkbox"/>	Salesforce CRM Communities
Edit	Content	<input type="checkbox"/>	<input type="checkbox"/>	Salesforce CRM Content
Edit	Marketing	<input type="checkbox"/>	<input type="checkbox"/>	Best-in-class on-demand marketing automation
Edit	Platform	<input type="checkbox"/>	<input type="checkbox"/>	The fundamental Lightning Platform
Edit	Sales	<input type="checkbox"/>	<input type="checkbox"/>	The world's most popular sales force automation (SFA) solution
Edit	Salesforce Chatter	<input type="checkbox"/>	<input type="checkbox"/>	The Salesforce Chatter social network, including profiles and feeds
Edit	Sample Console	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(Salesforce Classic) Lets agents work with multiple records on one screen
Edit	Service	<input type="checkbox"/>	<input type="checkbox"/>	Manage customer service with accounts, contacts, cases, and more
Edit	Site.com	<input type="checkbox"/>	<input type="checkbox"/>	Build pixel-perfect, data-rich websites using the drag-and-drop Site.com application, and manage content and published sites.

Action	App Label	Description	Subtab Apps Help
Edit	Profile (Others)	The tabs displayed when users view someone else's profile	<a href="#">Subtab Apps Help</a>
Edit	Profile (Self)	The tabs displayed when users view their own profile	<a href="#">Subtab Apps Help</a>

Action	Connected App Name	New	Description	Version	Connected Apps Help
					<a href="#">Connected Apps Help</a>

3. Click on the "New" button for the Connected Apps at the bottom of the page
4. In the following form, fill out the Connected App Name, API Name and Contact Email with values of your choice. We recommend "Amazon Connect Integration" as the Connected App Name and the default value for the API name.

## New Connected App

[Save](#) [Cancel](#)

### Basic Information

Connected App Name	Amazon Connect Integration
API Name	Amazon_Connect_Integration
Contact Email	

5. Select the checkbox next to "Enable OAuth Settings" as shown below.

▼ API (Enable OAuth Settings)

Enable OAuth Settings

6. Ensure the Callback URL is set to <https://www.salesforce.com>

API (Enable OAuth Settings)

Enable OAuth Settings

Enable for Device Flow

Callback URL <https://www.salesforce.com>

7. Ensure Selected OAuth Scopes has the following values selected:

- a. Access and manage your data (api)
- b. Access your basic information (id, profile, email, address, phone)

Selected OAuth Scopes	Available OAuth Scopes	Selected OAuth Scopes
	<input type="checkbox"/> Access and manage your Chatter data (chatter_api) <input type="checkbox"/> Access and manage your Eclair data (eclair_api) <input type="checkbox"/> Access and manage your Wave data (wave_api) <input type="checkbox"/> Access custom permissions (custom_permissions) <input type="checkbox"/> Allow access to your unique identifier (openid) <input type="checkbox"/> Full access (full) <input type="checkbox"/> Perform requests on your behalf at any time (refresh_token, offline_access) <input type="checkbox"/> Provide access to custom applications (visualforce) <input type="checkbox"/> Provide access to your data via the Web (web)	<input type="checkbox"/> Access and manage your data (api) <input checked="" type="checkbox"/> Access your basic information (id, profile, email, address, phone)
	<a href="#">Add</a> <a href="#">Remove</a>	

8. Select the checkbox "Require Secret for Web Server Flow"

Require Secret for Web Server Flow

9. Click "Save" at the bottom of the screen.

10. Click "Continue" on the next screen

## New Connected App

Allow from 2-10 minutes for your changes to take effect on the server before using the connected app.

[Continue](#) [Cancel](#)

- Once the app has been created, on the app's detail screen, please copy the "Consumer Key" value to your installation notes



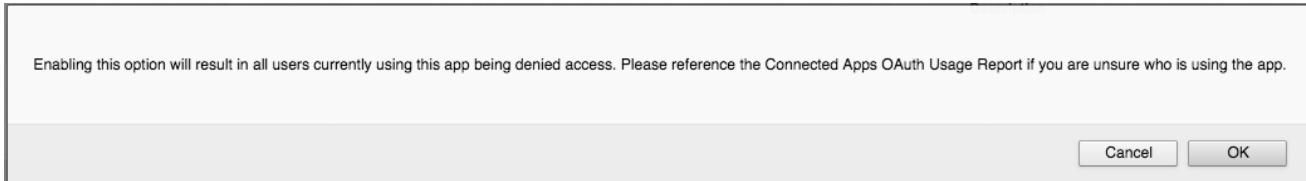
- Select "Click to reveal" next to Consumer Secret and record this value to "Consumer Secret" in your installation notes.
- Click "Manage" at the top of the page



- On the page that appears, click "Edit Policies"
- Set "Permitted Users" to "Admin approved users are pre-authorized"



- Click "OK" on the pop-up dialog:



- Set "IP Relaxation" to "Relax IP restrictions"



- Click "Save"

## Determine your Username, Password and Security Token

The authentication of the Lambda Functions requires valid user credentials. It is a common practice to create an API user account for this purpose.

- Log in to Salesforce
- Navigate to Setup > Manage Users > Profiles
- Click "New Profile"
- Enter the Profile Name (i.e. "API Only")

- Select the existing profile to clone (The integration user's access to just those objects required for the integration)

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

**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.

- Click "Save". A New Profile is created:

Profile  
API Only  
[Back to List: Profiles](#)

Users with this profile have the permissions and page layouts listed below. Administrators can change a user's profile by editing that user's personal information.

If your organization uses Record Types, use the Edit links in the Record Type Settings section below to make one or more record types available to users with this profile.

Login IP Ranges | Enabled Apex Class Access | Enabled Visualforce Page Access | Enabled External Data Source Access | Enabled Named Credential Access | Enabled Service Presence Status Access | Enabled Custom Permissions

**Profile Detail**

Name	API Only	<a href="#">Edit</a> <a href="#">Clone</a> <a href="#">Delete</a> <a href="#">View Users</a>
User License	Salesforce	Custom Profile <input checked="" type="checkbox"/>
Description		

- Once the new profile page opens, select the **System Permissions** button

- If the Lightning Experience User checkbox is selected, clear it

Lightning Experience User

- Save the system permissions, then go back to Profile Overview

- Select the *Password Policies* link, click edit

**Password Policies**

User passwords expire in	90 days
Enforce password history	3 passwords remembered
Minimum password length	8
Password complexity requirement	Must mix alpha and numeric characters
Password question requirement	Cannot contain password
Maximum invalid login attempts	10
Lockout effective period	15 minutes
Obscure secret answer for password resets	<input type="checkbox"/>
Require a minimum 1 day password lifetime	<input type="checkbox"/>
Don't immediately expire links in forgot password emails	<input type="checkbox"/>

Edit Clone Delete View Users

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

**Password Policies**

User passwords expire in	Never expires
Enforce password history	No passwords remembered
Minimum password length	8
Password complexity requirement	Must mix alpha and numeric characters
Password question requirement	Cannot contain password
Maximum invalid login attempts	10
Lockout effective period	15 minutes
Obscure secret answer for password resets	<input type="checkbox"/>
Require a minimum 1 day password lifetime	<input type="checkbox"/>
Don't immediately expire links in forgot password emails	<input type="checkbox"/> <a href="#">i</a>

12. Select **Save**

13. Navigate to Setup > Manage Apps > Connected Apps

14. Select the app you have created in the previous step (i.e. Amazon Connect Integration)

## Connected Apps

Manage access to apps that connect to this Salesforce organization.

**App Access Settings**

<input checked="" type="checkbox"/> Allow users to install canvas personal apps	<a href="#">Edit</a>
---	----------------------

View: [All](#) [Create New View](#)

Action	Master Label
<a href="#">Edit</a>	<a href="#">Amazon Connect Integration</a>

15. Click "Manage Profiles"

**Profiles**

<a href="#">Manage Profiles</a>
---------------------------------

No profiles associated with this app.

16. Ensure the "API Only" profile is selected:

## Application Profile Assignment

[« Back to Connected App Detail](#)

Select the appropriate profiles to choose which users have access to this application.

Select	Profiles
<input type="checkbox"/>	<a href="#">Analytics Cloud Integration User</a>
<input type="checkbox"/>	<a href="#">Analytics Cloud Security User</a>
<input checked="" type="checkbox"/>	<a href="#">API Only</a>

17. Click "Save" at the bottom of the page

18. Navigate to Setup > Manage Users > Users

19. Click "New User"

## All Users

On this page you can create, view, and manage users.

In addition, download SalesforceA to view and edit user details, reset passwords, and perform other administrative tasks from your mobile devices: [iOS](#) | [Android](#)

View: [All Users](#) [Edit](#) | [Create New View](#)

The screenshot shows the 'All Users' page. At the top right are three buttons: 'New User', 'Reset Password(s)', and 'Add Multiple Users'. Below the buttons is a search bar with fields for 'Action', 'Full Name', 'Alias', and 'Username'. There is also a small checkbox labeled 'Action'.

20. Set necessary fields: Last Name, Alias, Email, Username, Nickname

## New User

The screenshot shows the 'User Edit' form for a new user. The 'General Information' section contains the following fields:

Field	Value
First Name	(empty)
Last Name	APIUser
Alias	apiuser
Email	(empty)
Username	apiuser
Nickname	apiuser
Title	(empty)
Company	(empty)
Department	(empty)
Division	(empty)

21. On the right-hand side, set the User License and Profile

The screenshot shows the right-hand sidebar of the 'User Edit' form with three dropdown menus:

- Role: <None Specified>
- User License: Salesforce
- Profile: API Only

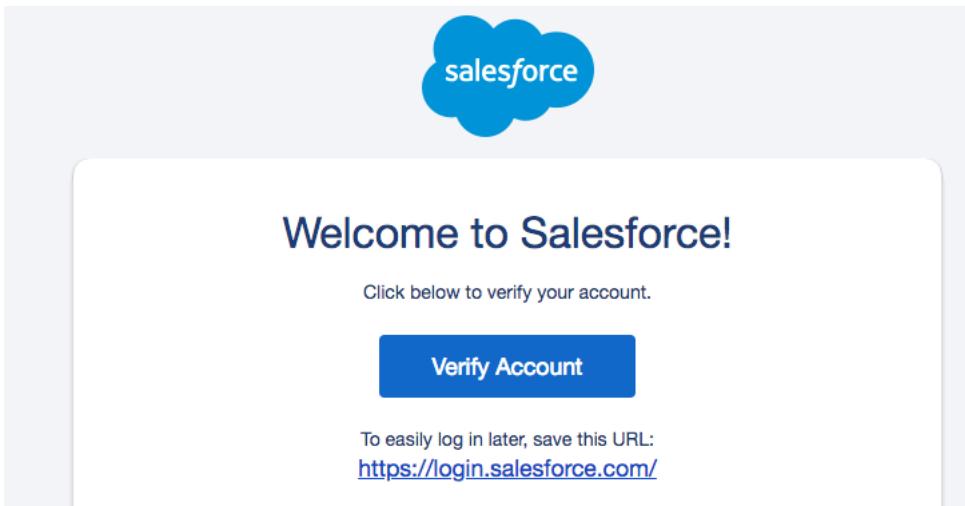
22. Click "Save"

23. 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 icons for Home and Object Manager, and a search bar labeled "Search Setup". On the left, a sidebar menu is open under the "Perm" search term, showing categories like Users, Permission Set Groups, and Permission Sets. The "Permission Sets" option is selected. The main content area is titled "Permission Sets" and contains a sub-header "Permission Sets". It says, "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". Below this is a toolbar with "All" dropdown, "Edit", "Delete", and "Create New View" buttons. A "New" button is also present. A table lists permission sets, with the first row, "AC Administrator", highlighted by a red box. The table columns are Action, Permission Set Label, Description, and Licenses.

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		

24. Select **Manage Assignments**. Add the apiuser you just created to the permission set.
25. A confirmation email will be sent, with an activation link. Click the link to activate your user.



Change (set) a password for apiuser (Considered a strong that contains at least 20 random characters):



## Change Your Password

Enter a new password for apiuser@acsfdcdrvrun.com.  
Your password must have at least:

8 characters  
 1 letter  
 1 number

\* New Password

\* Confirm New Password

Security Question

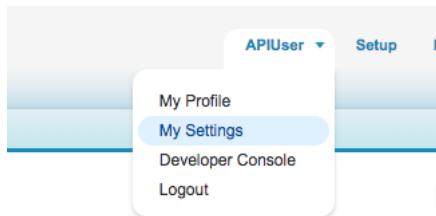
\* Answer

**Change Password**

Password was last changed on 18/09/2018 17:29.

26. Click "Change Password"

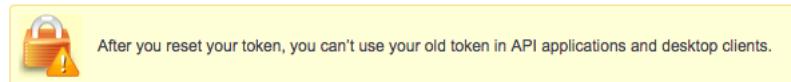
27. Access the apiuser personal settings by selecting the username in the top right corner, then "My Settings".



28. Type "Security Token" in the Quick Find box and click "Reset My Security Token".

## Reset My Security Token

When you access Salesforce from an IP address that isn't trusted for your company, and you use a desktop client.



**Reset Security Token**

29. Your security token will be emailed to you

## Reset My Security Token Check Your Email

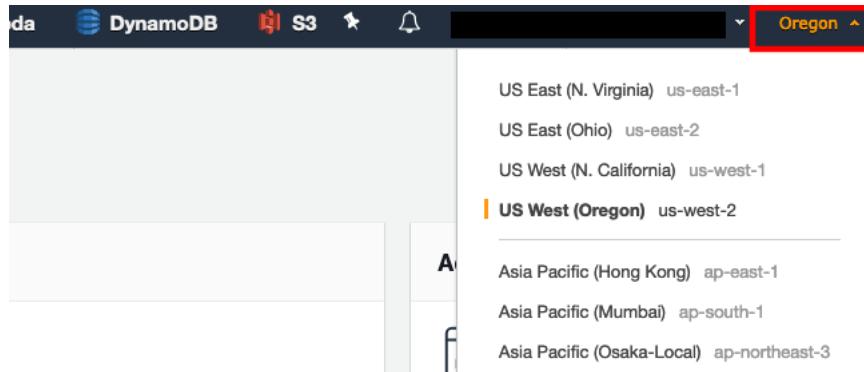


30. Copy the security token from the email in to your installation notes for the "Access Token" value.

## 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. Navigate back to the Secrets Manager setup tab
20. 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

21. Click Next

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

23. Click Next

24. Make sure **Disable automatic rotation** is disabled

25. Click Next

26. Click Store

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

## SalesforceCredentials

Secret details

Actions ▾

Encryption key  
SalesforceCredentialsSecretsManagerKey

Secret name  
SalesforceCredentials

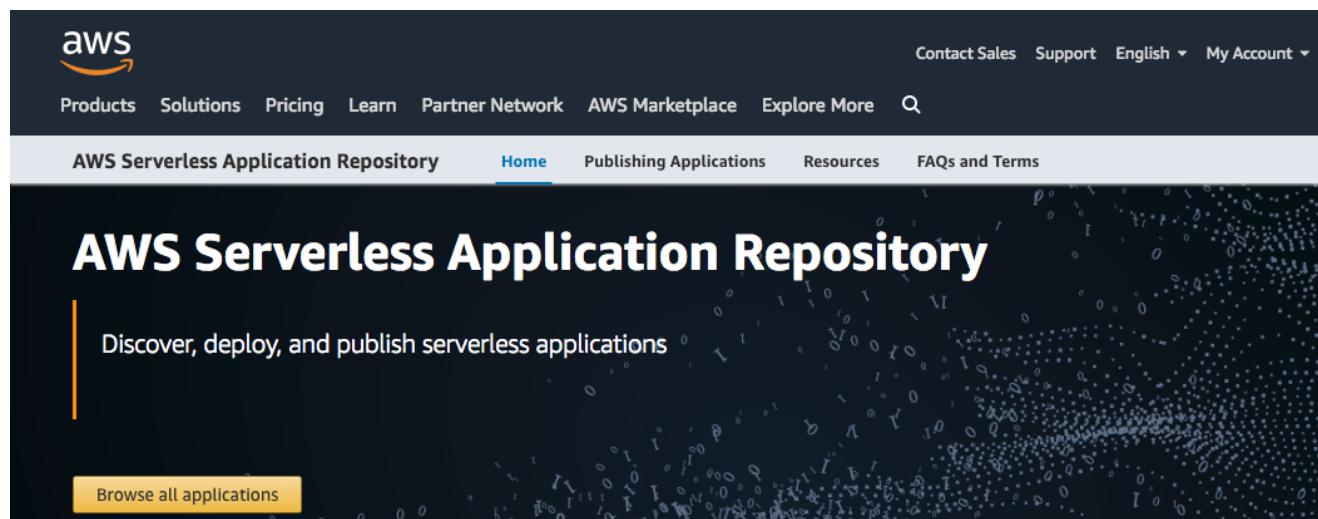
Secret ARN

Secret description  
-

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

## Install the Amazon Connect Salesforce Lambda package

1. Login into your AWS Account
2. Navigate AWS Serverless Application Repository (<https://aws.amazon.com/serverless/serverlessrepo/>)



3. Click on the Search (magnifying glass) and type in Amazon Connect Salesforce.



4. Select AmazonConnectSalesForceLambdas and click "Deploy"

The screenshot shows the AWS Lambda Functions interface. The top navigation bar includes 'Lambda > Functions > Create function > Review, configure and deploy'. On the left, there's a sidebar with 'AWS Lambda' and 'Dashboard' buttons, and 'Functions' is highlighted in orange. The main content area is titled 'AmazonConnectSalesForceLambdas — Version' and contains the sub-instruction 'Review details and configure parameters below to deploy the application'.

5. Fill in all Salesforce related fields in "Configure application parameters".  
All values should be available in your installation notes:

The 'Configure application parameters' form contains the following fields:

- Application name**: The stack name of this application created via AWS CloudFormation. Value: AmazonConnectSalesForceLambdas
- SalesforceAccessToken**: The security token of the Salesforce API user account used above. Value: (redacted)
- SalesforceConsumerKey**: Your Salesforce consumer key. Value: (redacted)
- SalesforceConsumerSecret**: Your Salesforce consumer secret is available in Salesforce immediately to the right of your Salesforce Consumer Key. Value: (redacted)
- SalesforceHost**: Your Salesforce Host. Value: (redacted)
- SalesforcePassword**: The password of a valid Salesforce API account for your environment. This account must be the same one as entered in the "Salesforce API Configuration Username" parameter above. Value: (redacted)
- SalesforceProduction**: True for Production Environment, False for Sandbox. Value: true

SalesforceUsername  
The username of a valid Salesforce API account for your environment. For example, user@domain.com

Salesforce API Username

SalesforceVersion  
To find the Salesforce Edition and API Version please visit <https://help.salesforce.com/articleView?id=000199268&type=1>

v42.0

Cancel Previous Deploy

6. The Lambda package includes additional features which can be enabled or disabled, based on particular use-case:
  - a. *PostcallCTRImportEnabled* -- if set to true, the package will include a feature to import Amazon Connect CTRs into your Salesforce Org. Once enabled, you can decide which CTR records should be imported, by setting a custom attribute (*postcallCTRImportEnabled*) in your Contact Flow. This feature requires you to provide *CTRKinesisARN*.
  - b. *PostcallRecordingImportEnabled* -- if set to true, the package will include a feature to import Amazon Connect Call Recording (wav) files into your Salesforce Org. This feature is not required if you only need a call recording link in your Salesforce Org. Once enabled, you can decide which Call Recordings should be imported, by setting a custom attribute (*postcallRecordingImportEnabled*) in your Contact Flow. This feature requires you to provide: *CTRKinesisARN*, *ConnectRecordingS3BucketName* and *TranscribeOutputS3BucketName*
  - c. *PostcallTranscribeEnabled* -- if set to true, the package will include a feature to transcribe Amazon Connect Call Recordings, using Amazon Transcribe, and provide Speech Analytics, using Amazon Comprehend, then import results into your Salesforce Org. Once enabled, you can decide which Call Recordings should be transcribed and analyzed, by setting custom attributes (*postcallTranscribeEnabled*, *postcallTranscribeLanguage* and *postcallTranscribeComprehendAnalysis*) in your Contact Flow. This feature requires you to provide: *CTRKinesisARN*, *ConnectRecordingS3BucketName* and *TranscribeOutputS3BucketName*
  - d. *RealtimeReportImportEnabled* -- 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*
  - e. *HistoricalReportingImportEnabled* -- 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. *CTRKinesisARN* -- please set Amazon Kinesis Stream ARN that is attached to your Amazon Connect instance as Contact Trace Records destination. Amazon Kinesis Firehose is not supported. This parameter is mandatory for certain features, please see above.

g. *ConnectRecordingS3BucketName* -- this is the S3 bucket where Amazon Connect stores call recordings. This parameter is mandatory for certain features, please see above.

h. *ConnectReportingS3BucketName* -- this is the S3 bucket name where Amazon Connect stores schedule reports. This parameter is mandatory for Historical Reporting Import.

i. *AmazonConnectInstanceId* -- this parameter is mandatory for Realtime Reporting Import

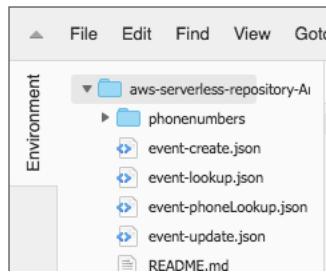
j. *TranscribeOutputS3BucketName* -- this is the S3 bucket where Amazon Transcribe stores the output. You can use an existing bucket, or create a new one, as the installation process doesn't create one for you. This parameter is mandatory for certain features, please see above.

k. *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.

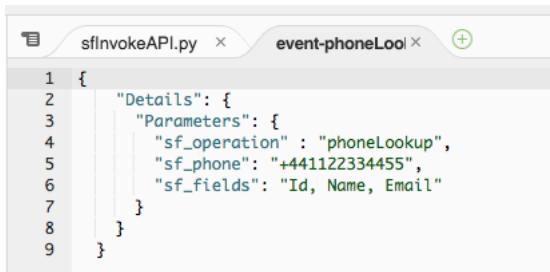
7. Once completed, click "Deploy" function:

The screenshot shows the AWS Lambda console interface. In the top navigation bar, 'Lambda' is selected under 'Functions'. Below the navigation, there's a search bar with the placeholder 'Add filter' and a search term 'keyword : aws-serv'. A button with a close icon is next to the search term. To the right of the search bar is a 'Actions' dropdown menu. The main area displays a table titled 'Functions (31)'. The columns are 'Function name', 'Description', and 'Runtime'. One row is visible, showing a function named 'aws-serverless-repository-AmazonConne-sfInvokeAPI-2R3T34AMGSWS' with a Python 3.6 runtime. The 'Description' column is empty for this row.

8. The package provides a single Lambda function (*sfInvokeAPI*) that supports multiple operations, like lookup, create and update. For the initial validation, sample events are provided within the function. Click on the function name and check the list of files in the editor.

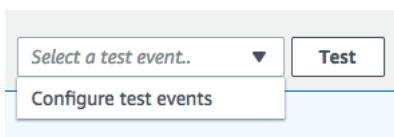


9. To validate a phone number lookup, double-click on event-phoneLookup.json file and copy the text in your clipboard.



```
1 {
2     "Details": {
3         "Parameters": {
4             "sf_operation" : "phoneLookup",
5             "sf_phone": "+441122334455",
6             "sf_fields": "Id, Name, Email"
7         }
8     }
9 }
```

10. In the top-right corner, click the drop-down arrow next to the "Test" button and select "Configure test events"



11. Select "Create new test event", set Event name (i.e. phoneLookup) and paste the JSON payload you've copied in the previous step.

**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  
eventLookup

```
1 [
2     "Details": {
3         "Parameters": {
4             "sf_operation": "phoneLookup",
5             "sf_phone": "+441122334455",
6             "sf_fields": "Id, Name, Email"
7         }
8     }
9 ]
```

12. Click "Create" button

13. From the drop-down list, select your "eventLookup" and click "Test" button



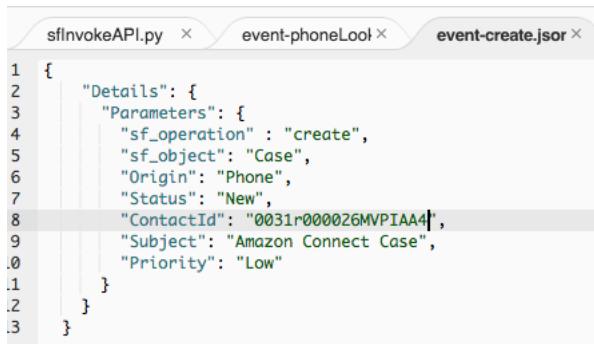
14. If successful, the result will contain fields defined in "sf\_fields" parameter in the invocation event

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

The area below shows the result returned by your function execution.

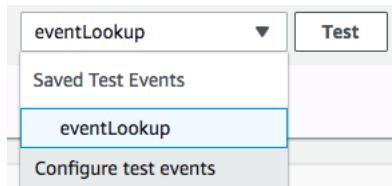
```
{  
  "Id": "0031r000026MVPAA4",  
  "Name": "Milos Cosic",  
  "Email": "mcosic@amazon.com",  
  "sf_count": 1  
}
```

15. As a next step, we are going to use the ContactId provided and create a Case in Salesforce. Double-click on "event-create.json" file and set the ContactId value from the previous step. Copy the JSON text into your clipboard.



```
1 {  
2   "Details": {  
3     "Parameters": {  
4       "sf_operation" : "create",  
5       "sf_object": "Case",  
6       "Origin": "Phone",  
7       "Status": "New",  
8       "ContactId": "0031r000026MVPAA4",  
9       "Subject": "Amazon Connect Case",  
0       "Priority": "Low"  
.1     }  
.2   }  
.3 }
```

16. In the top-right corner, click the drop-down arrow next to the "Test" button and select "Configure test events"



17. Select "Create new test event", set Event name (i.e. createCase) and paste the JSON payload you've copied in the previous step.

**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

Saved Test Event

createCase

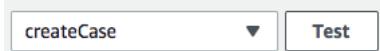
```

1 [
2   "Details": {
3     "Parameters": {
4       "sf_operation": "create",
5       "sf_object": "Case",
6       "Origin": "Phone",
7       "Status": "New",
8       "ContactId": "0031r000026MVPIAA4",
9       "Subject": "Amazon Connect Case",
10      "Priority": "Low"
11    }
12  }
13 ]

```

18. Click "Create" button

19. From the drop-down list, select your "createCase" and click "Test" button



20. If successful, the result will contain a Case Id for newly created case:

**Execution result: succeeded (logs)**

**▼ Details**

The area below shows the result returned by your function execution.

```
{
  "Id": "5001r000023QcAcAAK"
}
```

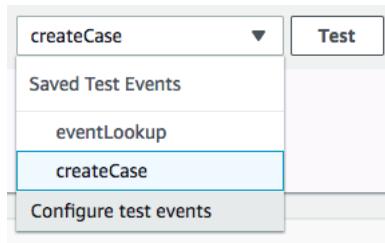
21. As defined in the event payload, Status is "New" and Priority is "Low". We are going to use the update operation to close the case. Copy the Case Id provided in the previous step, then double-click on "event-update.json" file and paste the Case Id in "sf\_id" parameter:

```

1 {
2   "Details": {
3     "Parameters": {
4       "sf_operation": "update",
5       "sf_object": "Case",
6       "sf_id": "5001r000023QcAcAAK",
7       "Status": "Closed"
8     }
9   }
10 }

```

22. In the top-right corner, click the drop-down arrow next to the "Test" button and select "Configure test events"



23. Select "Create new test event", set Event name (i.e. closeCase) and paste the JSON payload you've copied in the previous step.

**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

Saved Test Event

closeCase

```
1 - [  
2 -   "Details": {  
3 -     "Parameters": {  
4 -       "sf_operation": "update",  
5 -       "sf_object": "Case",  
6 -       "sf_id": "5001r000023QcAcAAK",  
7 -       "Status": "Closed"  
8 -     }  
9 -   }  
10 ]
```

24. Click "Create" button

25. From the drop-down list, select your "closeCase" and click "Test" button



26. If successful, the result will be HTTP code 204 ("No Content" success code):

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

The area below shows the result returned by your function execution.

204

27. Login in to Salesforce and search for Case and it's details. The Case status should be "Closed".

# 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 Salesforce Object Manager interface. At the top left is the 'SETUP' icon. Next to it is the 'Object Manager' title. A search bar at the top right contains the text 'ac ct|'. Below the title, it says '3 Items, Sorted by Label'. The main area is a table with columns: LABEL, API NAME, DESCRIPTION, LAST MODIFIED, and DEP. The items listed are:

LABEL	API NAME	DESCRIPTION	LAST MODIFIED	DEP
AC CTI Adapter	amazonconnect__AC_CtiAdapter__c		8/6/2020	✓
AC CTI Attribute	amazonconnect__AC_CtiAttribute__c		8/6/2020	✓
AC CTI Flow	amazonconnect__AC_CtiScript__c		8/6/2020	✓

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.

The screenshot shows the 'Edit Page Layout Assignment' page for the 'AC CTI Adapter' object. The top navigation bar includes 'SETUP > OBJECT MANAGER' and the object name 'AC CTI Adapter'. The left sidebar has sections like Details, Fields & Relationships, Page Layouts (which is selected), 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, and Triggers. The main content area has a heading 'Edit Page Layout Assignment AC CTI Adapter'. It includes a note: '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.' Below this is a table with two columns: 'Profiles' and 'Page Layout'. The 'Profiles' column lists various user profiles, and the 'Page Layout' column lists 'AC CTI Adapter Layout' repeated multiple times. A red arrow points to the top row of the 'Page Layout' column.

SETUP > OBJECT MANAGER  
AC CTI Adapter

Details	Edit Page Layout Assignment <b>AC CTI Adapter</b>	Help for this Page 																										
Fields & Relationships	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.																											
<b>Page Layouts</b>	<div style="text-align: right;"> <input type="button" value="Save"/> <input type="button" value="Cancel"/> </div> <p>Page Layout To Use: -- Select Page Layout -- <span style="float: right;">26 Selected   0 Changed</span></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Profiles</th> <th>Page Layout</th> </tr> </thead> <tbody> <tr><td>Analytics Cloud Integration User</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Analytics Cloud Security User</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Chatter External User</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Chatter Free User</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Chatter Moderator User</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Contract Manager</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Cross Org Data Proxy User</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Custom: Marketing Profile</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Custom: Sales Profile</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Custom: Support Profile</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Force.com - App Subscription User</td><td>AC CTI Adapter Layout</td></tr> <tr><td>Force.com - Free User</td><td>AC CTI Adapter Layout</td></tr> </tbody> </table>		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
Profiles	Page Layout																											
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Compact Layouts																												
Field Sets																												
Object Limits																												
Record Types																												
Related Lookup Filters																												
Search Layouts																												

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**.

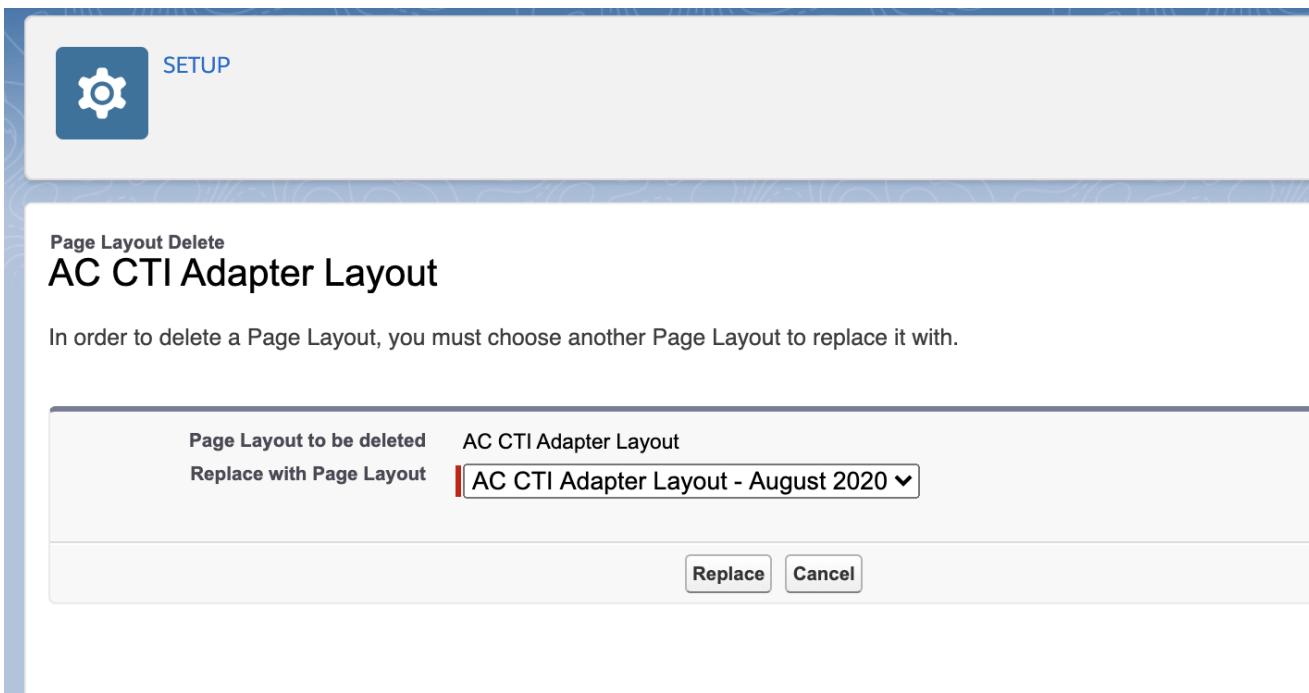
 Deletion problems

[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**.



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.

The screenshot shows the 'Edit Page Layout Assignment' page for the 'AC CTI Flow' object. The left sidebar has a 'Page Layouts' section selected. The main area shows a table titled 'Edit Page Layout Assignment AC CTI Flow'. The table has two columns: 'Profiles' and 'Page Layout'. The 'Profiles' column lists user profiles, and the 'Page Layout' column lists the assigned page layouts. A red arrow points to the grey header bar of the table, indicating that all rows are selected. The table also shows '0 Selected' and '0 Changed' status.

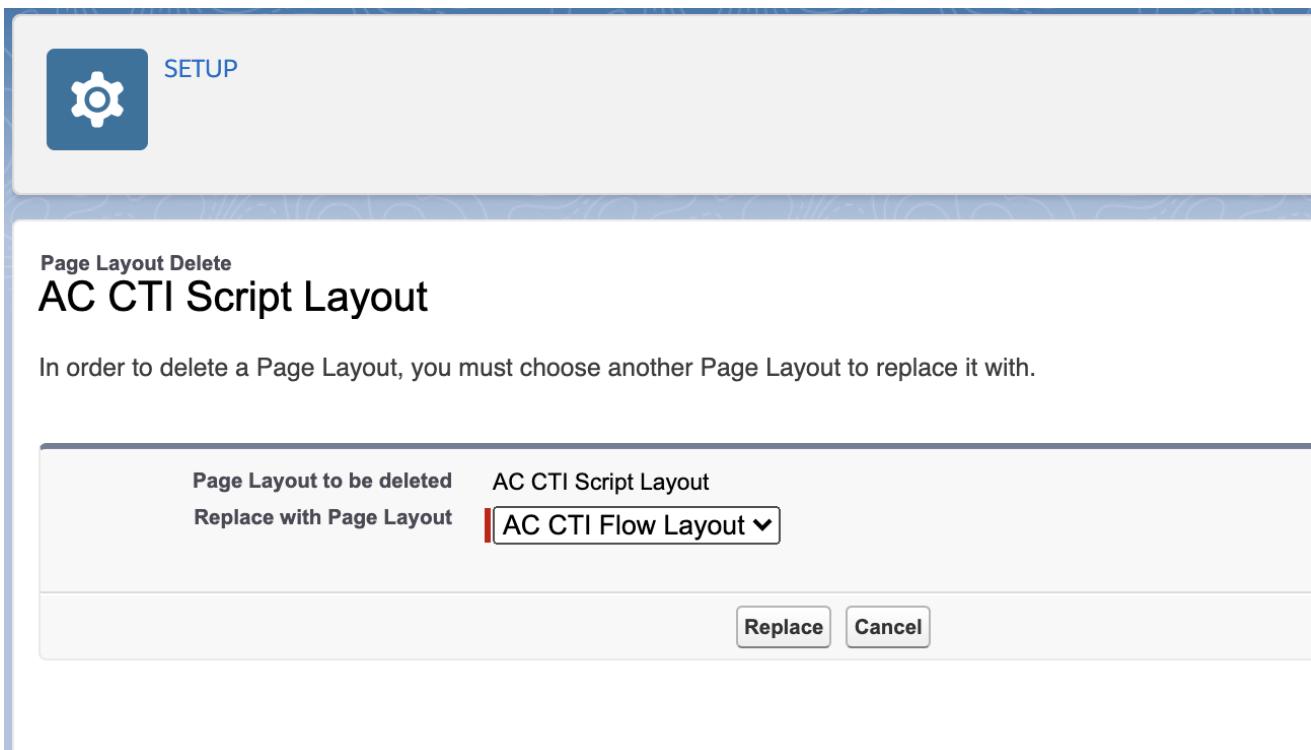
SETUP > OBJECT MANAGER  
AC CTI Flow

Details	Edit Page Layout Assignment <b>AC CTI Flow</b>	Help for this Page 																		
Fields & Relationships	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.																			
<b>Page Layouts</b>	<div style="text-align: right;"> <input type="button" value="Save"/> <input type="button" value="Cancel"/> </div> <p>Page Layout To Use: -- Select Page Layout -- <b>26 Selected 0 Changed</b></p> <table border="1"> <thead> <tr> <th>Profiles</th> <th>Page Layout</th> </tr> </thead> <tbody> <tr><td>Analytics Cloud Integration User</td><td>AC CTI Script Layout</td></tr> <tr><td>Analytics Cloud Security User</td><td>AC CTI Script Layout</td></tr> <tr><td>Chatter External User</td><td>AC CTI Script Layout</td></tr> <tr><td>Chatter Free User</td><td>AC CTI Script Layout</td></tr> <tr><td>Chatter Moderator User</td><td>AC CTI Script Layout</td></tr> <tr><td>Contract Manager</td><td>AC CTI Script Layout</td></tr> <tr><td>Cross Org Data Proxy User</td><td>AC CTI Script Layout</td></tr> <tr><td>Custom: Marketing Profile</td><td>AC CTI Script Layout</td></tr> </tbody> </table>		Profiles	Page Layout	Analytics Cloud Integration User	AC CTI Script Layout	Analytics Cloud Security User	AC CTI Script Layout	Chatter External User	AC CTI Script Layout	Chatter Free User	AC CTI Script Layout	Chatter Moderator User	AC CTI Script Layout	Contract Manager	AC CTI Script Layout	Cross Org Data Proxy User	AC CTI Script Layout	Custom: Marketing Profile	AC CTI Script Layout
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Lightning Record Pages																				
Buttons, Links, and Actions																				
Compact Layouts																				
Field Sets																				
Object Limits																				
Record Types																				

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**.



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



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.

[Continue →](#)

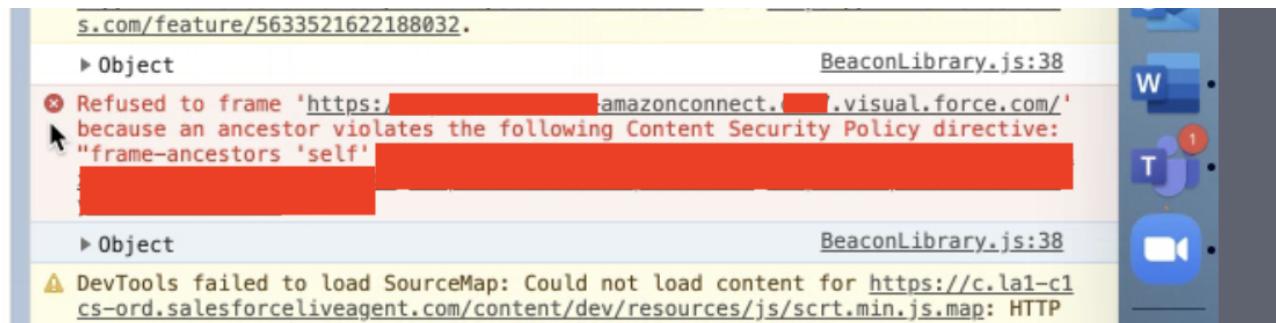
14. Click **Download** and save your script before clicking **Continue**.
15. Use the CTI Block primitives in the editor to re-create your script as a CTI Flow.
16. Refer to the Sample Flows in the Appendix of this manual.

# CTI Adapter Installation Troubleshooting and Common Issues

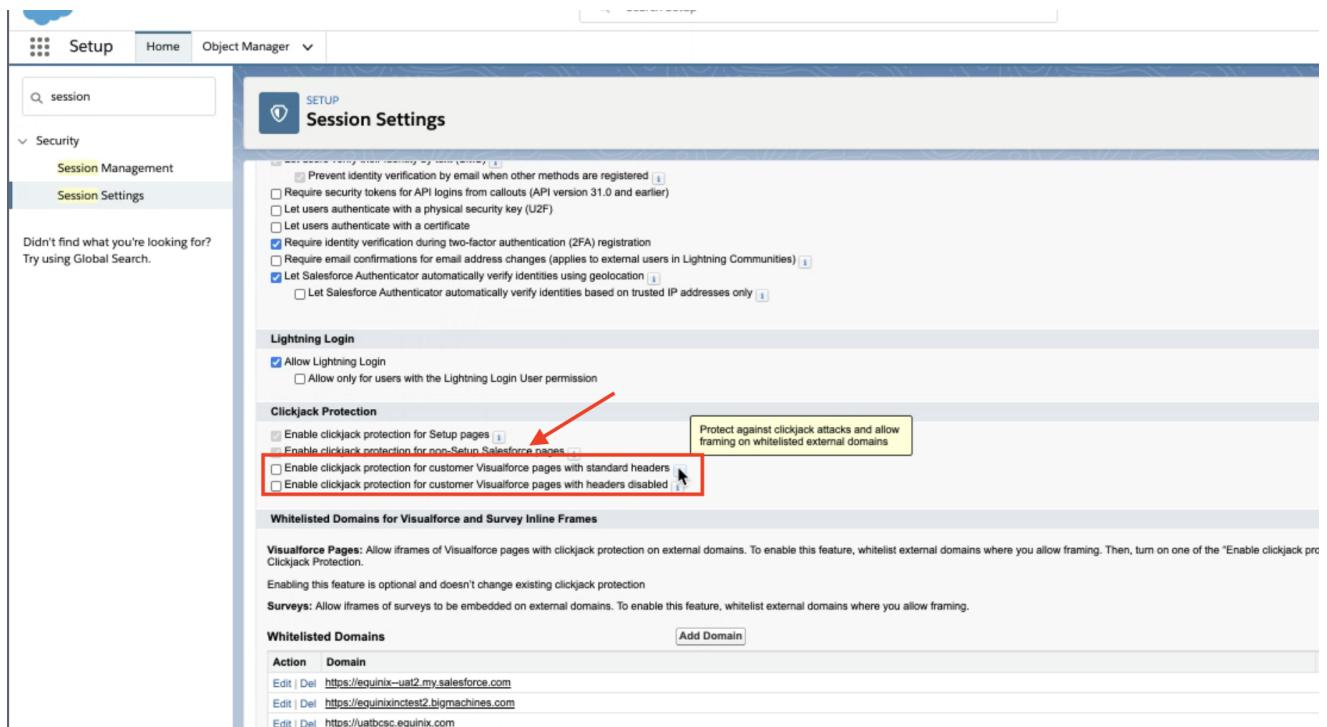
Error “refused to run the JavaScript URL because it violates the following Content Security Policy directive...”

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

Error “refused to frame” Visualforce page



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



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 [Appendix C - CTI Flow Examples](#) for more details, all screenpop functionality from v3 has been recreated.

### 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](#).

## CTI Adapter Configuration

The CTI Adapter installed by the managed package provides a number of features that change or enhance the functionality of the integration. By default, many of these features have been configured during install with a default setting. This section will detail the options available.

AC CTI Adapter Detail		<a href="#">Edit</a>	<a href="#">Delete</a>	<a href="#">Clone</a>
CTI Adapter Name	ACLightningAdapter			
Amazon Connect Instance	<a href="https://sfadAPTERtest.awsapps.com/">https://sfadAPTERtest.awsapps.com/</a>			
Custom Ringtone				
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"/>			

## 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.
11. **Phone Type Settings** Turning this setting on allows the Agent to change their Phone Type in the CCP.

## 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.

### 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://mXXXXXXrun-dev-ed.my.salesforce.com/idp/login?app=0sp0N000000>

The 'RelayState' will be in the following format:

<https://console.aws.amazon.com/connect/federate/{InstanceId}?destination>

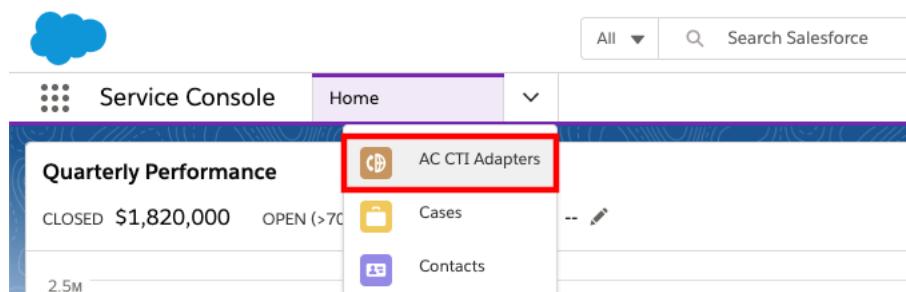
Please note that "console.aws.amazon.com" refers to US-East-1 region (N. Virginia). If your Amazon Connect instance is in a different region, please use the region Console URL. For example:

<https://us-west-2.console.aws.amazon.com/connect/federate/{InstanceId}?destination>

## 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



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://mXXXXXXrun-dev-ed.my.salesforce.com/idp/login?app=0sp0N000>

Microsoft ADFS:

<https://sts.yourcorp.com/adfs/ls/idpinitiatedsignon.aspx>

6. Paste this portion of the URL into the **SSO Url** field</p>

▼ Single SignOn (SSO)

SSO Url

7. For the SSO Relay State:</p>

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:</p>

app=0sp0N000000Caid&RelayState=https://console.aws.amazon.com/conn

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

For example:

&RelayState=https://console.aws.amazon.com/connect/federate/instan

8. Example of a completed SSO section (Salesforce is shown)</p>

▼ Single SignOn (SSO)

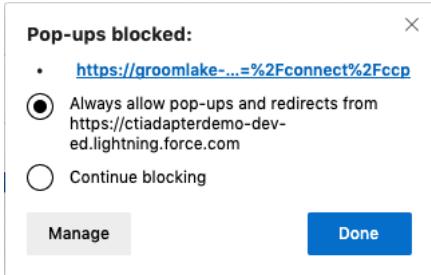
SSO Url

SSO Relay State

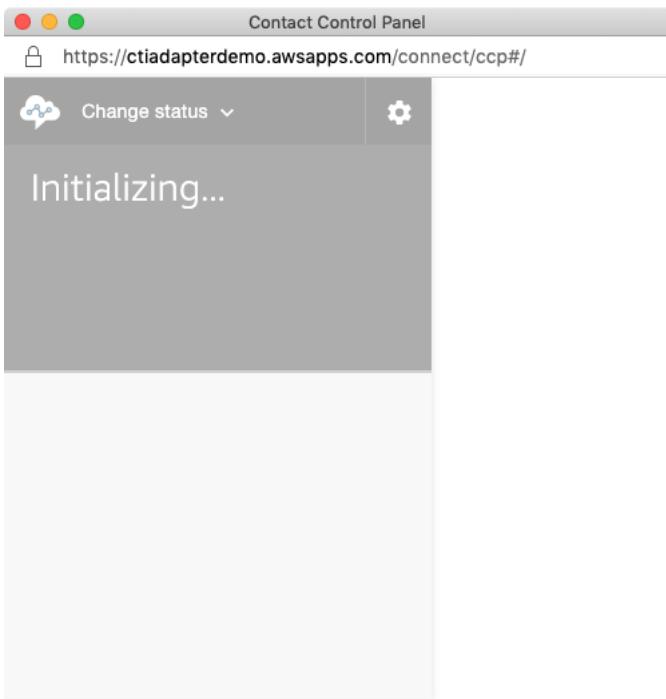
9. Choose **Save**

10. Refresh your browser to make the changes take effect

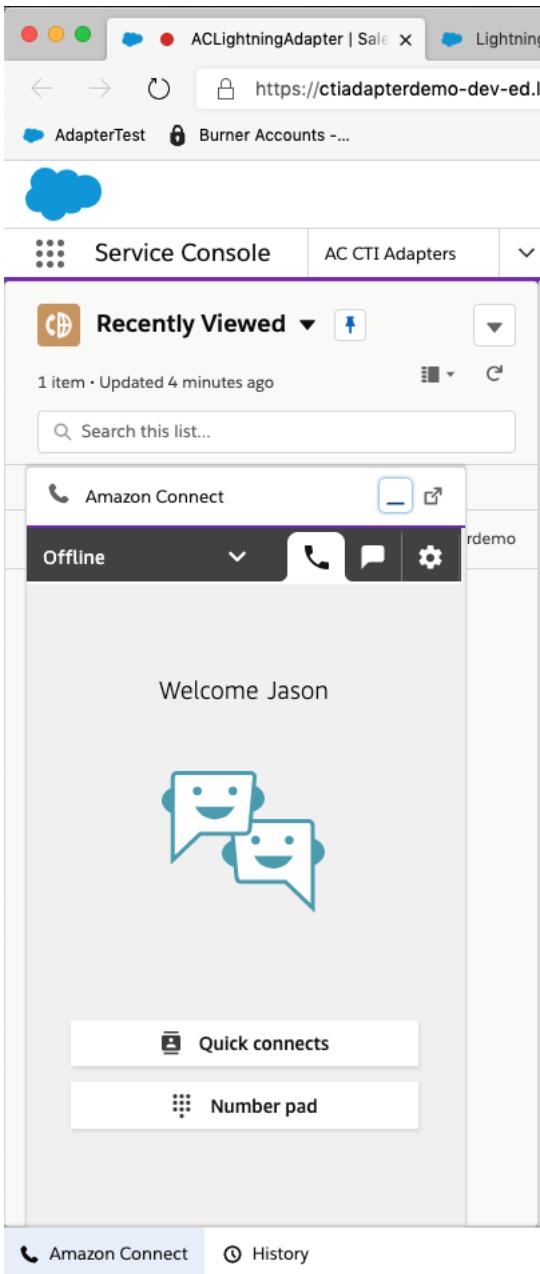
a. **NOTE:** If you receive a blocked popup warning, select the warning and change the setting to always allow popups from your Salesforce org, then refresh the browser again</p>



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.



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



SSO Configuration is complete

## Omnipresence Agent State Sync

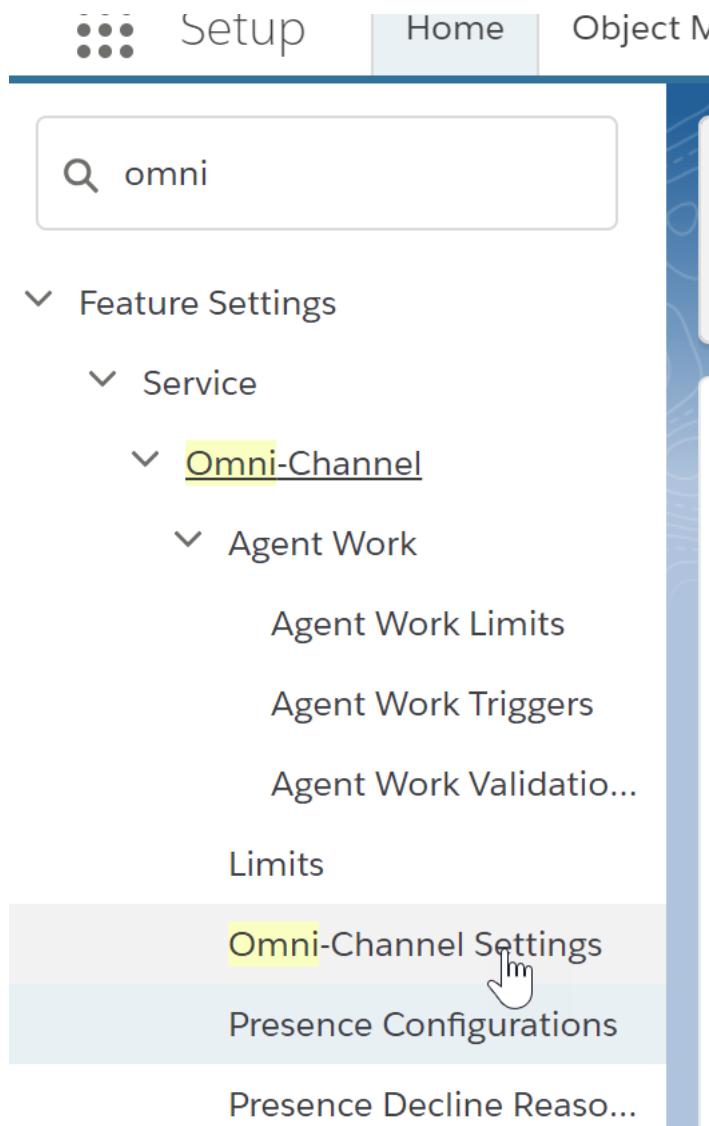
Amazon Connect CTI Connector supports the bidirectional synchronization of Amazon Connect agent states with Salesforce omnichannel presence states.

Omnipresence Agent State Sync Enabled true

## Enable Omnichannel

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.

First, we must enable omni-channel. To do this, navigate to "Setup" and type "omni" into the Quick Find box, then select "Omni-Channel Settings" from the menu.



Place a check in the checkbox for "Enable Omni-Channel".

The screenshot shows the 'Omni-Channel Settings' page under the 'SETUP' tab. On the left, there's a sidebar with various navigation items. The main content area has a heading 'Omni-Channel Settings' and a sub-section 'Welcome to Omni-Channel!'. It describes Omni-Channel as a customer service solution that lets contact centers push work to agents. Below this, there's a 'Show diagram' button. A note says to enable Omni-Channel and create Service Channels. The configuration form includes an 'Enable Omni-Channel' checkbox, which is checked and highlighted with a red arrow and the text 'This must be checked'. Other options include 'Use Skills-Based Routing' (unchecked) and buttons for 'Save' and 'Cancel'.

Work Limits

Work Triggers

Work Validation...

Omni-Channel Settings

Configurations

Decline Reasons

Statuses

Configurations

Channels

Services

Presence Limits

Presence Triggers

Presence Validation...

looking for?

SETUP

## Omni-Channel Settings

Welcome to Omni-Channel!

Omni-Channel is a comprehensive customer service solution that lets contact centers push work to agents. Omni-Channel lets you create work items from your Salesforce records—including cases, chats, leads, and objects—and route them to the most qualified, available agents in your organization, all in real time. It integrates seamlessly into the Salesforce console, so it's easy for your support agents to use.

With Omni-Channel, you can manage the priority of work items to make sure that critical assignments are handled quickly. You can manage your agents' capacity and availability for work to ensure that they're given assignments that they can handle. You can also define which agents can work on different types of work items. Omni-Channel routes all of these assignments to the correct agents automatically. Agents no longer have to work items manually from a queue, and managers no longer have to triage or dispatch work to the most qualified available agent in real time!

Show diagram ▾

First, you need to enable Omni-Channel. Then, [create Service Channels](#).

Enable Omni-Channel  This must be checked

Use Skills-Based Routing

**Save** **Cancel**

## Create Presence Statuses

In this step, we need to add and map Presence Statuses to what is defined in Amazon Connect under Users -> Agent Status.



## Manage agent status



Create new agent status, and drag table  
To maintain integrity of historical metri

Status name	Description
Available	Avai
Wrap Up	Upd
Day Dreaming	Don
Break	Taki
Lunch	Gon
Offline	Offli

Open the Setup in your Salesforce Org and type "presence", then select "Presence Statuses" from the menu. Click the "New" button and add statuses to match what is defined in Amazon Connect.

## Presence Statuses

Let agents indicate when they're online and available to receive work items from a

View: All ▾ Create New View

Action	Status Name	New
Edit	<u>Available</u>	
Edit	<u>Break</u>	
Edit	<u>Day_Dreaming</u>	
Edit	<u>Lunch</u>	
Edit	<u>Offline</u>	
Edit	<u>Wrap Up</u>	

Each status is flagged as either Online or Busy. For each status that is marked as Online, you will need to specify a service channel to associate the presence status.

## Presence Statuses

Let agents indicate when they're online and available to receive work items from a specific serv

The screenshot shows the 'Basic Information' section with 'Status Name' set to 'Available' and 'Developer Name' also set to 'Available'. In the 'Status Options' section, 'Online' is selected. Under 'Service Channels', the 'Available Channels' list is empty, while the 'Selected Channels' list contains 'Live Agent' and 'Outbound Campaign Chan'. The interface includes 'Save' and 'Cancel' buttons at the top and bottom.

Basic Information

Status Name: Available

Developer Name: Available

▼ Status Options

Choose whether agents are online or busy when they use this status. Online statuses let items.

Online

Busy

▼ Service Channels

Select one or more service channels to assign to this presence status. Agents logged into

Available Channels	Selected Channels
[Empty list]	Live Agent Outbound Campaign Chan

Add Remove

Save Cancel

## Configure Enabled Service Presences Status Access

Next, we need to assign access to these statuses by going to Profiles in Salesforce Setup, and ensure that the agent will be able to access the statuses that map to their Amazon Connect statuses.

In the Salesforce Setup, under Manage Users, select Profiles, then select the user profile to edit. Scroll down the page until you find the section labeled "Enabled Service Presence Status Access".

The screenshot shows the 'Profiles' setup page in the AWS Lambda console. It displays four sections: 'Enabled External Data Source Access' (disabled), 'Enabled Named Credential Access' (disabled), 'Enabled Service Presence Status Access' (enabled), and 'Enabled Custom Permissions' (disabled). The 'Enabled Service Presence Status Access' section has an orange arrow pointing to its 'Edit' button. A red box highlights the list of available presence statuses: 'Available', 'Day Dreaming', 'Offline', and 'On Break'. Below this list, the text 'Matches Connect Statuses' is displayed in orange.

Click the "Edit" button and on the next page, "Add" presence statuses you want to have enabled for the user.

## Enable Service Presence Status Access

This screenshot shows the 'Edit Service Presence Status Access' dialog. It contains two lists: 'Available Service Presence Statuses' and 'Enabled Service Presence Statuses'. The 'Available' list contains the status '--None--'. The 'Enabled' list contains the statuses: Available, Break, Day Dreaming, Lunch, Offline, and Wrap Up. There are 'Add' and 'Remove' buttons between the two lists. At the top right are 'Save' and 'Cancel' buttons.

## 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

## Configure Presence Status Synchronization Rules

The Amazon Connect Salesforce CTI Adapter provides a rules-based presence status synchronization system allowing for flexibility in mapping agent states between Amazon Connect and Salesforce Omnichannel.

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.

### Presence Status Configuration Rules

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



« Back to List: Call Centers

Attributes [0] | CTI Flows [0]

#### AC CTI Adapter Detail

[Edit](#) [Delete](#) [Clone](#)

CTI Adapter Name	ACClassicAdapter
Amazon Connect Instance Alias	testinglogin123
Custom Ringtone	
Softphone Popout Enabled	<input checked="" type="checkbox"/>
Medialess	<input type="checkbox"/>

#### ▼ Single SignOn (SSO)

SSO Uri  
SSO Relay State

#### ▼ Customizations

User Defined  
Created By [Bomi Lee](#), 8/3/2020, 1:19 PM

[Edit](#) [Delete](#) [Clone](#)

#### Attributes

[New AC CTI Attribute](#)

No records to display

#### CTI Flows

[New AC CTI Flow](#)

No records to display

#### Presence Sync Rules

[New AC Presence Sync Rule](#)

No records to display

The configuration setting illustrated in the previous example, are described below:

- source -- The triggered event. In this case, an Amazon Connect agent state change is the triggering event
- destination -- The target system on which to execute the action
- criteria -- The values and comparator that will be evaluated to determine whether or not to trigger the action
  - operandA -- The left side of the criteria statement
  - operandB -- The right side of the criteria statement
  - comparator -- The comparison operator used to evaluate the criteria statement
- state -- The target agent state of the destination system

Example rule:

AC Presence Sync Rule Edit  
Connect agent switches to Lunch

AC Presence Sync Rule Edit

Information	
Presence Sync Rule Name	Connect agent switches
CTI Adapter	ACClassicAdapter
Source	Connect Agent State Change
Operand A	Connect Agent New State
Operand A Value	
Comparator	Equal to
Active <input checked="" type="checkbox"/>	
<input type="button" value="Save"/> <input type="button" value="Save &amp; New"/> <input type="button" value="Cancel"/>	

Destination	
Operand B	Salesforce Agent State
Operand B Value	Static Value
Value	Lunch
Value	
<input type="button" value="Save"/> <input type="button" value="Save &amp; New"/> <input type="button" value="Cancel"/>	

**Summary:** This rule is triggered when the Connect agent's state is changed (Source). If their state is changed to the static value (Operand B) "Lunch" (Operand B Value), then the Salesforce Agent's state (Destination) is set to Lunch (Value).

## Contact Attributes Display

Amazon Connect allows for user defined Contact Attributes to be attached to a phone call within Contact Flows. This can be used to track caller inputs, IVR selections, outcomes of an interaction with Amazon Lex, or data lookup from backend systems through Lambda. Some of those values can be useful to be displayed to the agent to speed up data input or skip processes such as authenticating the customer.

Amazon Connect allows data classifications for contact's attributes. The classification engines scans configured metadata and identifies text and links attributes to display in Attributes and Links sections respectively.

To configure a contact attribute for display within embedded CCP:

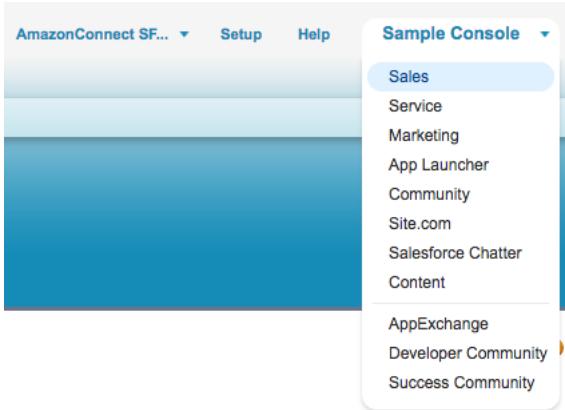
In the top navigation bar, select the "+" icon.



Select "AC CTI Adapters"

Create a new adapter. Fill in the CTI Adapter Name, and Amazon Connect Instance Alias. For the Call Center Definition Name, type in ACConsoleAdapter. Select Save.

1. Log in to your Salesforce Org.
2. From the top right corner, select the **Sales** application.



## All Tabs

Use the links below to quickly navigate to a tab. Alternatively, you can [add a tab](#) to your display to better suit the way you work.

View: <a href="#">All Tabs</a>	
 <a href="#">AC Contact Channel Analytics</a>	 <a href="#">Documents</a>
 <a href="#">AC Contact Trace Records</a>	 <a href="#">Duplicate Record Sets</a>
 <a href="#">Accounts</a>	 <a href="#">Engagement Channel Types</a>
 <a href="#">AC CTI Adapters</a>	 <a href="#">External Managed Accounts</a>
 <a href="#">AC Real Time Queue Metrics</a>	 <a href="#">Files</a>
 <a href="#">AC Voicemail Drops</a>	 <a href="#">Forecasts</a>
 <a href="#">Analytics</a>	 <a href="#">Groups</a>
 <a href="#">App Launcher</a>	 <a href="#">Home</a>

3. Select **AC CTI Adapters** and select your adapter
4. Scroll down to the attributes section and select **New AC CTI Attribute**

Attributes	<a href="#">New AC CTI Attribute</a>
No records to display	

5. Provide a **CTI Attribute Name**, for example: authenticated
6. Provide the **Label** name, for example:
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**

AC CTI Attribute Edit

Information

CTI Adapter: ACClassicAdapter

CTI Attribute Name: Authenticated

Label: Is Authenticated?

Type: Text

Format: {{authenticated}}

Default Value: unk

Display: Key-Value

Style: color:red

Active:

Save Save & New Cancel

13. Open the Amazon Connect Contact Flow Designer and drop *Set > Set Contact Attributes* block to your Contact Flow. Set the attribute based on your business logic. For example:

**Set contact attributes**

Stores key / value pairs as contact attributes.

Contact attributes are accessible by other areas of Amazon Connect, such as the Contact Control Panel (CCP) and Contact Trace Records (CTRs).

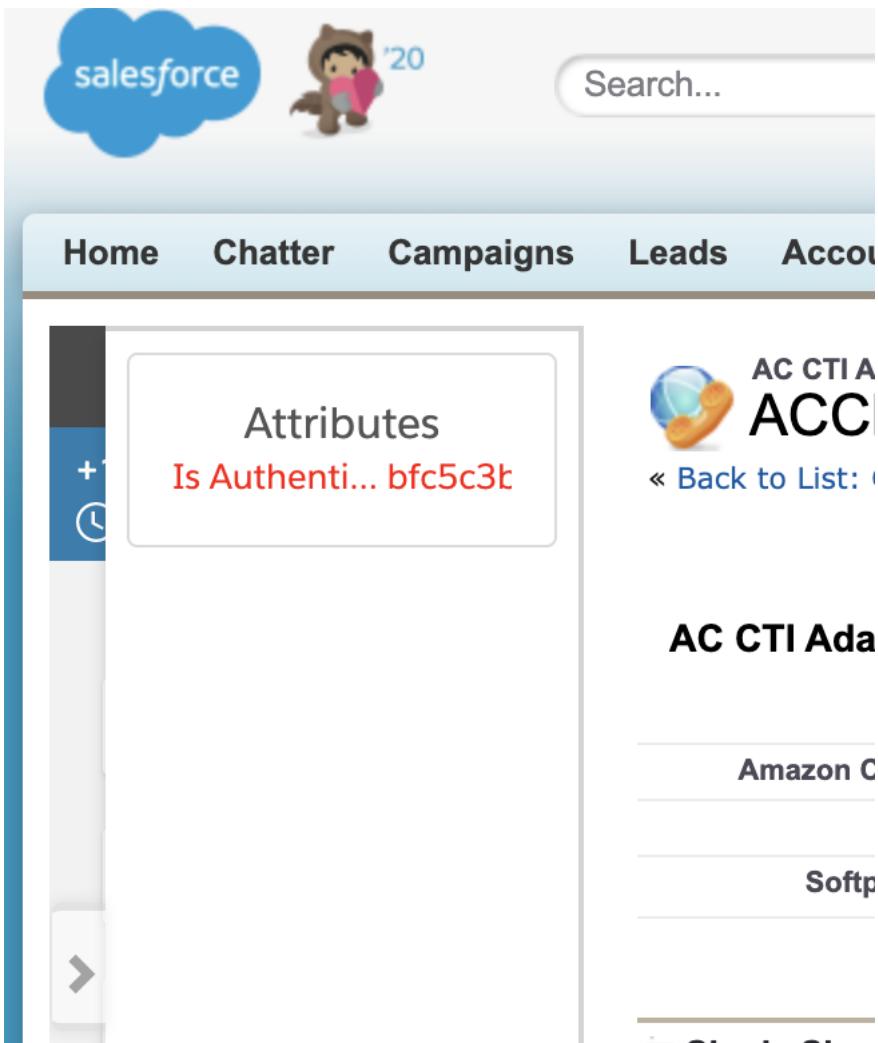
Attribute to save

Use text

Destination key  
authenticated

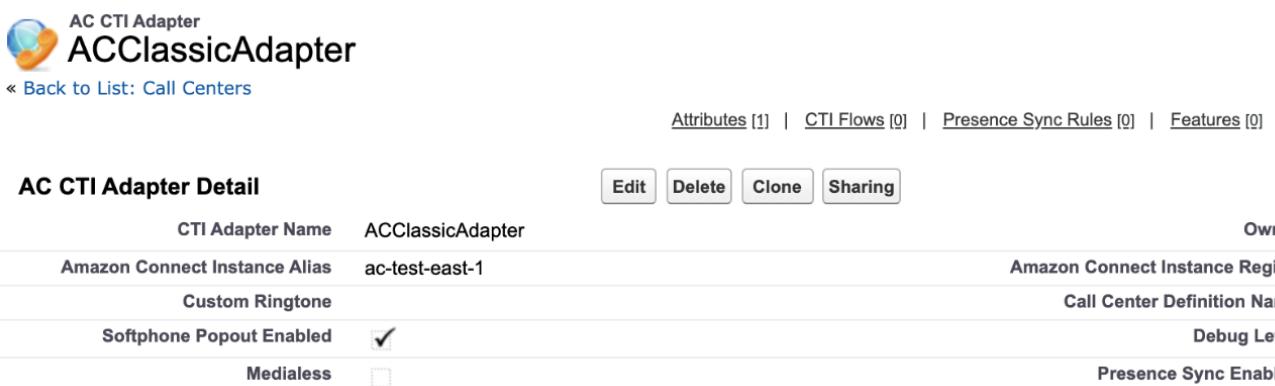
Value  
true

14. Place and inbound call and ask to speak with an agent. Accept the incoming call and check if Contact Attribute is displayed in the embedded CCP.



The screenshot shows the Salesforce home page. At the top left is the blue cloud logo with "salesforce" written on it. To its right is a cartoon character holding a heart, with the number "20" next to it. A search bar with the placeholder "Search..." is located at the top right. Below the header, a navigation bar has tabs for "Home", "Chatter", "Campaigns", "Leads", and "Accounts". The main content area on the left shows a sidebar with icons for "+", a clock, and a right-pointing arrow. In the center, there's a box titled "Attributes" containing the text "Is Authenti... bfc5c3t". On the right, there's a card for "AC CTI Adapter" with the identifier "ACC", a phone icon, and a link to "Back to List: Call Centers". Below this, a section titled "AC CTI Adapter" lists "Amazon Connect", "Softphone", and "Medialess".

There are additional features that can be used to further customize CTI attributes.



The screenshot shows the "AC CTI Adapter Detail" page for the "ACClassicAdapter". At the top left is a phone icon and the text "AC CTI Adapter ACClassicAdapter". Below that is a link to "Back to List: Call Centers". At the top right are buttons for "Edit", "Delete", "Clone", and "Sharing". Below the buttons, there are several configuration fields:

CTI Adapter Name	ACClassicAdapter	Owner
Amazon Connect Instance Alias	ac-test-east-1	Amazon Connect Instance Region
Custom Ringtone		Call Center Definition Name
Softphone Popout Enabled	<input checked="" type="checkbox"/>	Debug Level
Medialess	<input type="checkbox"/>	Presence Sync Enabled

1. In the Sales application, navigate to your CTI Adapter your CTI Adapter



The screenshot shows a "Features" page. At the top left is a "Features" button. To its right is a red-bordered button labeled "New AC Feature". Below these buttons, a message says "No records to display".

2. Scroll down to the Features section. Select **New AC Feature**.
3. Set the AC Feature Name to **FEATURE\_CTI\_ATTRIBUTES**
4. Fill the value text box to contain the following settings:
  - a. **ShowAttributesIfEmpty** (Boolean, default true): show attributes text box when contact has no attributes
  - b. **ShowAllAttributes** (Boolean, default false): show all attributes, including attributes with no value

**AC Feature Edit**

**Information**

AC Feature Name	<input type="text" value="FEATURE_CTI_ATTRIB"/>	<b>Save</b>	<b>Save &amp; New</b>	<b>Cancel</b>
Value	<pre>ShowAttributesIfEmpty: true ShowAllAttributes: true</pre>			
Active	<input checked="" type="checkbox"/>			
CTI Adapter	<input type="text" value="ACClassicAdapter"/> 			
	<b>Save</b>	<b>Save &amp; New</b>	<b>Cancel</b>	

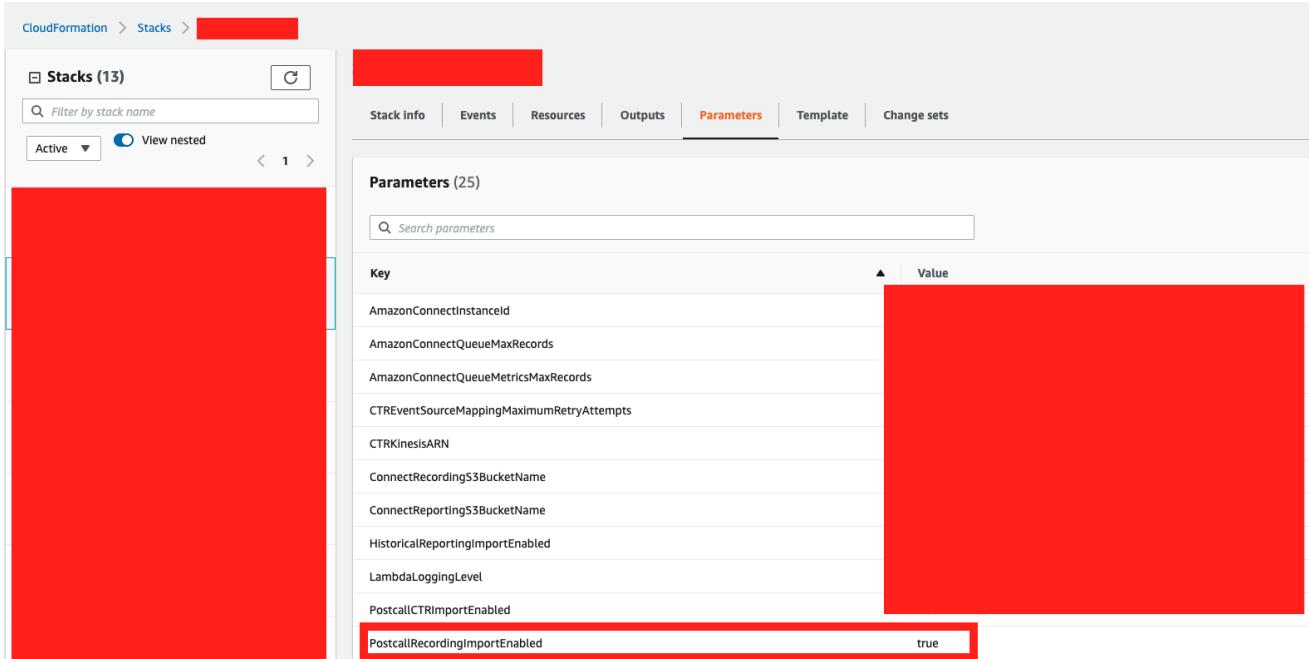
5. Select **Save**

## Call Recording Link for Task

The Adapter comes with a Visualforce component that provides users with the ability to download a call recording created within Amazon Connect from a Salesforce page.

### 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:



## 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
```

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:

AWS Secrets Manager > Secrets > SalesforceCredentials

### SalesforceCredentials

**Secret details**

Encryption key  
aws/secretsmanager

Secret name  
SalesforceCredentials

Secret ARN  
[REDACTED]

Secret description  
-

**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]"
}
```

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."

The screenshot shows the Salesforce Setup interface. In the top left, there's a search bar with 'visualfor' typed in. Below it, a sidebar has 'Custom Code' expanded, with 'Visualforce Components' and 'Visualforce Pages' listed under it. A message says 'Didn't find what you're looking for? Try using Global Search.' The main content area is titled 'Visualforce Pages' and shows a list of pages. One page, 'AC\_RecordingViewer', is selected and shown in detail. The 'Page Detail' section includes fields for 'Label' (set to 'AC\_RecordingViewer') and 'Namespace Prefix'. There are also buttons for 'Edit', 'Delete', 'Clone', 'Where is this used?', 'Show Dependencies', and 'Preview'.

7. Select the **ACSFCCP\_CallRecordingTask** visualforce page, and select "preview." Copy the url of the opened page up until ".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.

```
[  
{
```

```

        "AllowedHeaders": ["Access-Control-Allow-Origin"],  

        "AllowedMethods": ["GET"],  

        "AllowedOrigins": ["{url copied in step 9}"],  

        "ExposeHeaders": []  

    }  

]

```

The screenshot shows the AWS S3 CORS configuration editor for a bucket named 'connect-'. The 'CORS configuration' tab is selected. A modal window displays the XML code for a new CORS rule:

```

<?xml version="1.0" encoding="UTF-8"?>  

<CORSConfiguration>  

<AllowedOrigin>*</AllowedOrigin>  

<AllowedMethod>GET</AllowedMethod>  

<AllowedHeader>*</AllowedHeader>  

</CORSRule>

```

Below the XML code, there are 'Delete', 'Cancel', and 'Save' buttons.

## 10. Select Save

## 11. Navigate to the "IAM" aws service. Select Add User.

The screenshot shows the AWS IAM 'Add user' page. The 'User name' field contains 'sfInvokeGenerateAudioRecordingStreamingURLIAMUser', which is highlighted with a red box. The 'Add user' button is visible at the top left.

## 12. Give your IAM user a name, like **sfInvokeGenerateAudioRecordingStreamingURLIAMUser**. For the "AWS Access Type", select **Programmatic access**.

## Summary

User ARN [REDACTED]  
Path /  
Creation time 2020-08-21 16:37 EDT

**Permissions** **Groups** **Tags** **Security credentials** **Access Advisor**

**Sign-in credentials**

<b>Summary</b> <b>Console password</b> <b>Assigned MFA device</b> <b>Signing certificates</b>	<ul style="list-style-type: none"> <li>User does not have console management access</li> </ul>
Disabled   <a href="#">Manage</a> Not assigned   <a href="#">Manage</a> None	

**Access keys**

Use access keys to make secure REST or HTTP Query protocol requests to AWS service APIs. For your protection, you should never share your secret keys with anyone. As a best practice, rotate your access keys regularly.

[Create access key](#)

Access key ID	Created	Last used
[REDACTED]	[REDACTED]	[REDACTED]

13. Select Next, then select "Attach existing policies directly." Search for **invokeSfGenerateAudioRecordingStreamingURLPolicy** and select it.
14. Create the user, then copy down the **Access key ID** and the **Secret access key**. These keys will be used in the next section.

## Add user

1 2 3 4 5

**Success**

You successfully created the users shown below. You can view and download user security credentials. You can also email users instructions for signing in to the AWS Management Console. This is the last time these credentials will be available to download. However, you can create new credentials at any time.

Users with AWS Management Console access can sign-in at: <https://bomilee.sigin.aws.amazon.com/console>

[Download .csv](#)

	User	Access key ID	Secret access key
▶	sfInvokeGenerateAudioRecordingStreamingURLIAMUser	[REDACTED]	***** Show

15. 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 with a search bar at the top containing the keyword "sfgenerate". Below the search bar, there is a button labeled "Clear filters". The main list area shows one result: a function named "sfGenerateAudioRecordingStreaming-".

16. 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 with a sidebar on the left. The sidebar includes a "Updated console (preview)" message and a "Dashboard" link. The main content area shows a list of functions with a total count of 30. A prominent orange "Create function" button is located in the top right corner of the main content area.

17. Enter a function name, like **sfSig4RequestToS3**.

18. Select **change default execution role**, and **use an existing role**. Search for and select **sfSig4RequestToS3Role**.

The screenshot shows the "Create New Function" wizard. In the "Function name" section, the name "sflambda-sfSig4RequestToS3" is entered. In the "Runtime" section, "Node.js 12.x" is selected. Under "Permissions", it says "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." In the "Change default execution role" section, the "Use an existing role" option is selected. The "Existing role" dropdown contains the role "sfSig4RequestToS3Role-".

19. Select **create function**. On the next screen, copy and paste the contents from [this file](#) into the function body, and then select **Deploy**.
20. Select the actions dropdown, and then select **Deploy to Lambda@Edge**.
21. Select the Cloudfront Distribution that was created by the Salesfore Lambdas serverless application, then check off the "I acknowledge..." check box, then select deploy.

**Deploy to Lambda@Edge**

**Configure CloudFront trigger**

**Distribution**  
The CloudFront distribution that will send events to your Lambda function.

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

### Salesforce Side Setup

1. In Salesforce Setup, search for "Named Credentials." Select **New Named Credential**.
2. For the **Name** and **Label**, enter AwsGenerateAudioRecordingURL.
3. In the **URL** section, enter `https://lambda.{awsRegion}.amazonaws.com/2015-03-31/functions/{lambdaFunctionName}/invocations/`-- replace `{awsRegion}` with the awsRegion your serverless application resides in (for example, us-

east-1), and replace {lambdaFunctionName} with the full name of the sfGenerateAudioRecordingStreaming lambda you recorded in the previous section.

4. For **Identity Type** select **Named Principal**. For the **Authentication Protocol**, select **AWS Signature Version 4**. Fill in the **Access key ID** you recorded in the previous section as "AWS Access Key ID", the **Secret access key** as the "AWS Secret Access Key", the AWS Region, and "lambda" as the "AWS Service."

The screenshot shows the Amazon Connect Setup interface. The top navigation bar includes 'Setup' (selected), 'Home', 'Object Manager', and a search bar. On the left, there's a sidebar with 'Security' and 'Named Credentials' selected. A message says 'Didn't find what you're looking for? Try using Global Search.' The main content area is titled 'SETUP Named Credentials' and contains a sub-section 'Named Credentials'. It explains that a named credential specifies a callout endpoint and its required authentication parameters. Below this is a table with one row highlighted by a red box. The row contains 'Edit | Del' and the URL 'AwsGenerateAudioRecordingURL'. The URL is also displayed in the status bar at the bottom right of the table.

5. Select **save**.

## 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**

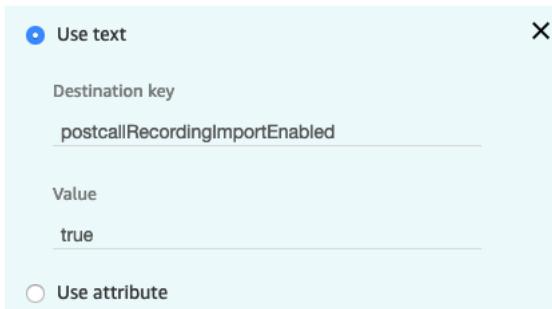
The screenshot shows the 'Routing' navigation menu. It includes sections for 'Phone numbers', 'Contact flows' (which is highlighted with a red box), 'Prompts', and 'Queues'.

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



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.

To edit the sample Task Page Layout, please follow the steps:

1. Log in to your Salesforce Org
2. Navigate to **Setup** then in type *Object Manager* in Quick Find

## 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](#)

1 item added to your list. Save your updates.

NAVIGATION ITEMS (11)

[Add More Items](#)

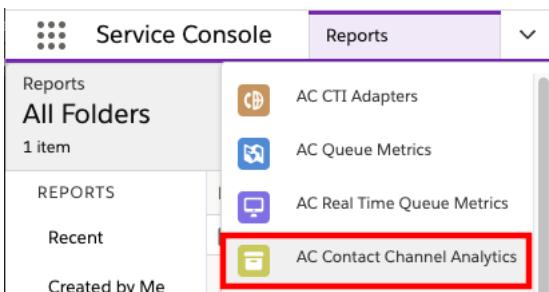
- ≡  AC CTI Adapters X
- ≡  AC Queue Metrics X
- ≡  AC Real Time Queue Metrics X
- ≡  Cases
- ≡  Contacts
- ≡  Accounts
- ≡  Reports
- ≡  Dashboards
- ≡  Chatter
- ≡  Home
- ≡  AC Contact Channel Analytics X

[Reset Navigation to Default](#)

[Cancel](#)

[Save](#)

### 3. Click on the "Task" object



Service Console Reports

All Folders 1 item

REPORTS Recent

Created by Me

AC CTI Adapters

AC Queue Metrics

AC Real Time Queue Metrics

AC Contact Channel Analytics

### 4. Click on the "Page Layouts"



AC Contact Channel Analytics Recently Viewed

0 items LIST VIEWS

All

Recently Viewed (Pinned list)

### 5. Click on the "Task Layout" and the layout designer will open

The screenshot shows a Salesforce page titled "AC Contact Channel Analytics". At the top, there are filter options: "All" and a search bar. Below the header, it says "1 item · Sorted by Contact Channel Analytics Name · Filtered by all ac contact channel analytics · Updated a few seconds ago". A table lists one item: "Contact Channel Analytics Name ↑" followed by "1" and "CCA 000001".

6. Drag the "ACSFCCP\_CallRecording" item to the desired area of the layout to have that information appear on the agent's screen. The following screenshot shows how the Call Details section could appear when placing the "ACSFCCP\_CallRecording" item on the required Task layout.

The screenshot shows a "Notes & Attachments" section with one item. It displays the file name "CallRecording.wav", the upload date "Feb 27, 2020", and the type "Attachment". There is also a "View All" link at the bottom.

7. To have access to the recording, the user must have an active session with Amazon Connect. This can be achieved by either logging in to the CCP softphone, or by logging in to Amazon Connect outside of Salesforce. After the session is established, a page refresh should make the player appear.

## Call Display on the Account Page

The Adapter comes with a Visualforce Page that displays all phone calls made using Amazon Connect for an Account. It differs from the standard Activity Related List because it filters all other activities out and focuses on the phone calls only.

To show the recent calls on the Account details page, add the "ACSFCCP\_CallLogging\_View" Visualforce Page to the Account Page layout. It is recommended to create a dedicated section with a 1-Column layout for this purpose, and to make the Visualforce Page scrollable.

1. Log in to your Salesforce Org
2. Navigate to **Setup** then in type *Object Manager* in Quick Find

The screenshot shows the Salesforce Setup page. At the top, there are navigation tabs: "Setup", "Home", and "Objec". Below the tabs, there is a search bar with the text "object manager". Under the search bar, there is a list of items: "Objects and Fields" and "Object Manager", where "Object Manager" is highlighted with a yellow background.

3. Click on the "Account" object

The screenshot shows the Salesforce Object Manager interface. At the top left is the 'SETUP' icon. Below it is the title 'Object Manager'. Underneath the title, it says '34 Items, Sorted by Label'. A table follows with three columns: 'LABEL', 'API NAME', and 'DESCRIPTION'. There is one row visible: 'Account' under 'LABEL' and 'Account' under 'API NAME'.

LABEL	API NAME	DESCRIPTION
Account	Account	

4. Click on the "Page Layouts"

The screenshot shows the 'Page Layouts' section of the Account setup page. On the left is a sidebar with options: Details, Fields & Relationships, Page Layouts (which is selected and highlighted in blue), Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Object Limits, and Record Types. The main content area is titled 'Page Layouts' and shows '4 Items, Sorted by Page Layout Name'. It lists four layouts: 'Account (Marketing) Layout', 'Account (Sales) Layout', 'Account (Support) Layout', and 'Account Layout'.

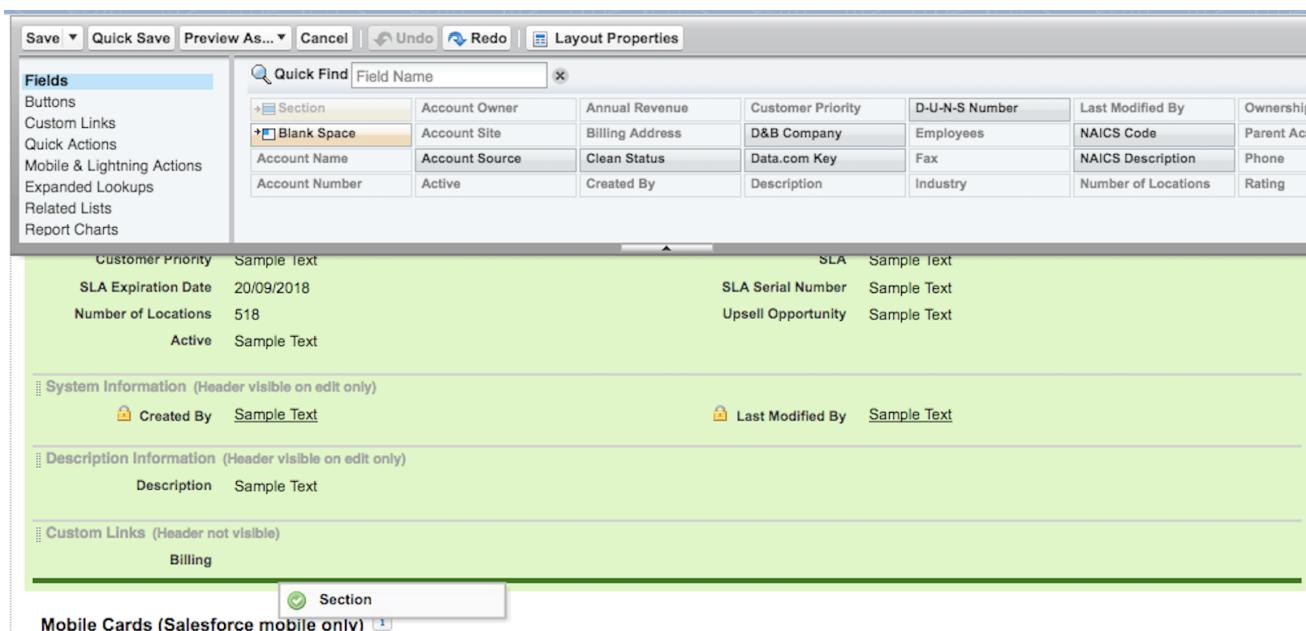
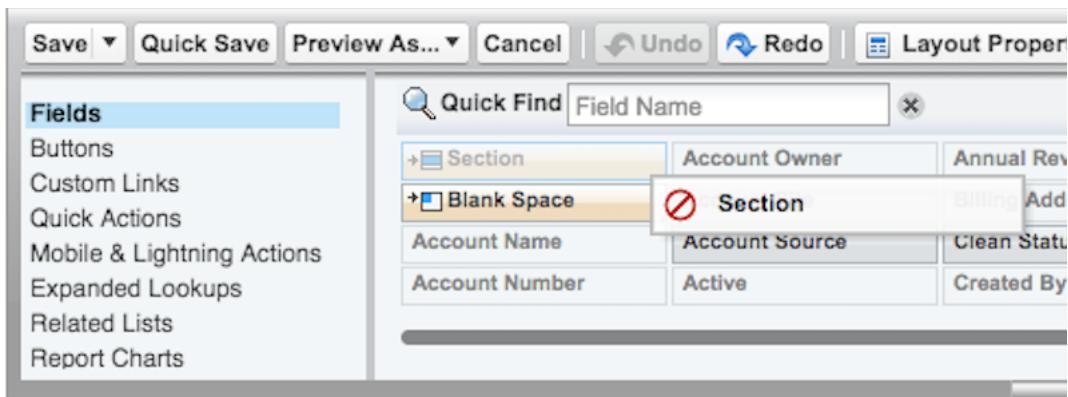
5. Click on the "Account layout" and the layout designer will open

The screenshot shows the 'Account Layout' editor. The left sidebar has options: Details, Fields & Relationships, Page Layouts (selected), Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, and Object Limits. The main area is titled 'Account Layout'. It includes a toolbar with 'Save', 'Quick Save', 'Preview As...', 'Cancel', 'Undo', 'Redo', and 'Layout Properties'. Below the toolbar is a 'Fields' section with a 'Quick Find' field name search bar. A table displays various account fields: Section, Account Owner, Annual Revenue, Customer Priority, D-U-N-S Number, Last Modified By, Ownership; Blank Space, Account Site, Billing Address, D&B Company, Employees, NAICS Code, Parent Acct; Account Name, Account Source, Clean Status, Data.com Key, Fax, NAICS Description, Phone; Account Number, Active, Created By, Description, Industry, Number of Locations, Rating. At the bottom is a preview area labeled 'Account Sample'.

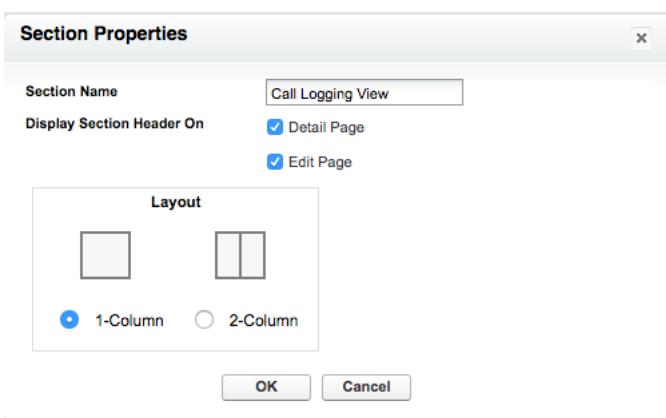
6. From the left-hand side menu, select "Fields"

This screenshot is identical to the previous one, showing the 'Account Layout' editor. The difference is that the 'Fields' option in the left sidebar is now selected and highlighted in blue, indicating it is the active section.

6. Drag and Drop "Section" item to add a new section on the layout



8. On the pop-up form, set Section Name ("Call Logging View") and 1-Column Layout



9. Click "OK"

The screenshot shows the Salesforce page editor interface. At the top, there are tabs for 'Description Information (Header visible on edit only)', 'Custom Links (Header not visible)', and 'Call Logging View'. Below these tabs, there is a 'Description' field containing 'Sample Text' and a 'Billing' link. The 'Call Logging View' section is currently active.

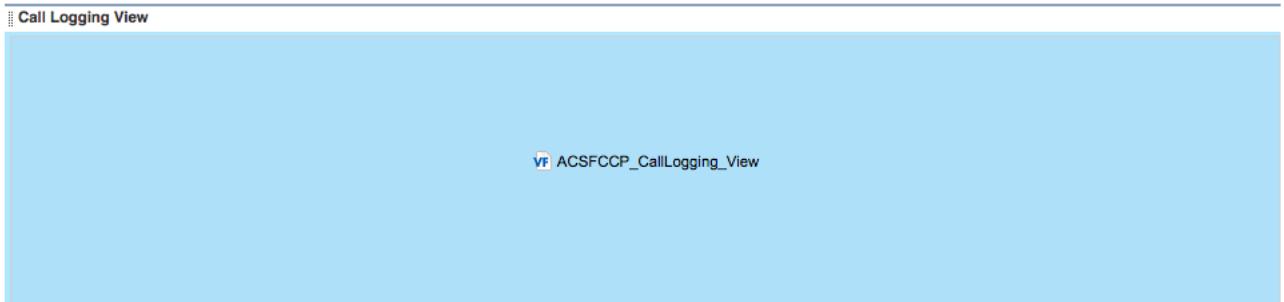
10. From the left-hand side menu, select Visualforce Pages:

The screenshot shows the Salesforce page editor interface with the 'Visualforce Pages' option selected in the left sidebar. The 'Quick Find' search bar is empty. The right panel shows a list of components: 'Section', 'Blank Space', and 'ACSFCCP\_CallLoggi...'. A scroll bar is visible on the right side of the editor.

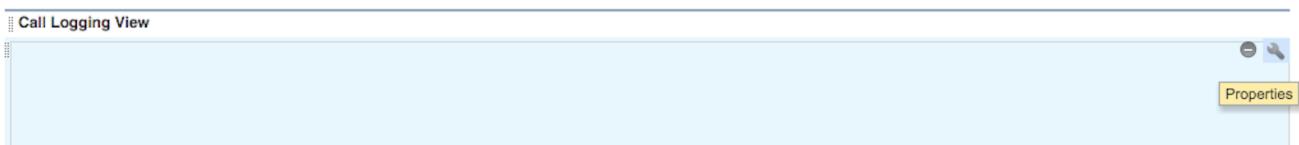
11. Drag and drop "ACSFCCP\_CallLogging\_View" item to the "Call Logging View" section

The screenshot shows the Salesforce page editor interface. The 'Visualforce Pages' option is still selected in the sidebar. In the center, a component labeled 'ACSFCCP\_CallLoggi...' is shown with a red 'X' icon and a warning message. The right panel shows the 'Call Logging View' section with its header and content area.

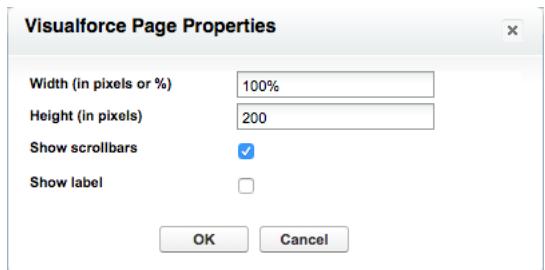
The screenshot shows the Salesforce page editor interface. The 'Visualforce Pages' option is still selected in the sidebar. The right panel shows the 'Call Logging View' section with the 'ACSFCCP\_CallLoggi...' component successfully placed within it, indicated by a green checkmark icon.



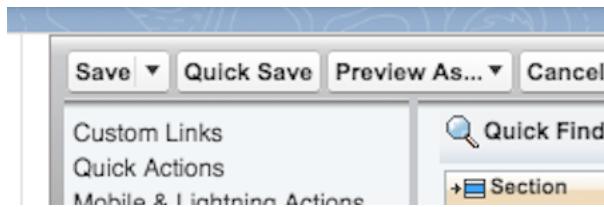
12. Hover the newly added component and click on the "Setting" icon



Check "Show scrollbars" and click "OK"



13. Click the "Save" button in the top-left corner



14. Make some phone calls, ask to speak with an agent. Open the Account, then select "Details" tab

Account  
**TestAccount1**

Type Phone Website

RELATED DETAILS NEWS

Call Logging View

CALL DATE	PHONE NUMBER	CALL TYPE	PHONE CALL DURATION	CALL IDENTIFIER
Thu Jun 07 16:59:54 GMT 2018	+44 [REDACTED]	Inbound	0 min 31 sec	805f8089-3646-4f9b-ae73-be9236aa26a1
Thu Jun 07 08:17:07 GMT 2018	+44 [REDACTED]	Inbound	0 min 23 sec	a0a42712-6d3d-4700-b650-d6b8aae189cc
Thu May 17 06:55:21 GMT 2018	+44 [REDACTED]	Inbound	0 min 10 sec	37491b40-85a7-4feb-a388-fd2c69ea8eb2
Tue May 08 18:26:50 GMT 2018	+44 [REDACTED]	Inbound	0 min 38 sec	994fbea6-94a6-4cf1-a118-a7c31cc39099
Tue May 08 18:00:11 GMT 2018	+44 [REDACTED]	Outbound	0 min 4 sec	40c6ad53-429a-42a2-b4c0-d46b20c109b6

15. Scroll down the Details page until you see the "Call Logging View" section

Call Logging View				
CALL DATE	PHONE NUMBER	CALL TYPE	PHONE CALL DURATION	CALL IDENTIFIER
Thu Jun 07 16:59:54 GMT 2018	+44 [REDACTED]	Inbound	0 min 31 sec	805f8089-3646-4f9b-ae73-be9236aa26a1
Thu Jun 07 08:17:07 GMT 2018	+44 [REDACTED]	Inbound	0 min 23 sec	a0a42712-6d3d-4700-b650-d6b8aae189cc
Thu May 17 06:55:21 GMT 2018	+44 [REDACTED]	Inbound	0 min 10 sec	37491b40-85a7-4feb-a388-fd2c69ea8eb2
Tue May 08 18:26:50 GMT 2018	+44 [REDACTED]	Inbound	0 min 38 sec	994fbea6-94a6-4cf1-a118-a7c31cc39099
Tue May 08 18:00:11 GMT 2018	+44 [REDACTED]	Outbound	0 min 4 sec	40c6ad53-429a-42a2-b4c0-d46b20c109b6

For more information on how to add a Visualforce Page to a Page layout, please visit:

[https://trailhead.salesforce.com/en/modules/visualforce\\_mobile\\_salesforce1/units/visualforce](https://trailhead.salesforce.com/en/modules/visualforce_mobile_salesforce1/units/visualforce)

## Outbound Campaign Calls

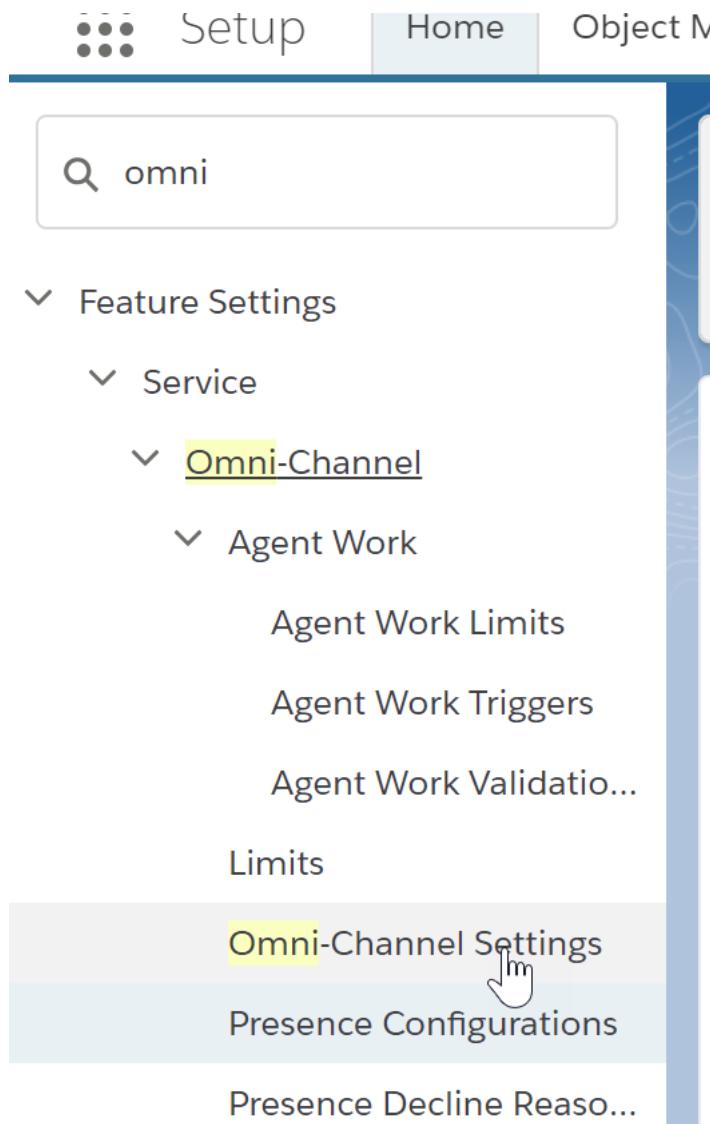
The package allows for running Outbound Call Campaigns using Salesforce Omni Channel routing and Amazon Connect. To enable outbound campaigns, the Custom Object called **Amazon Connect Call Campaign**, which comes bundled with the Adapter, must be configured to be routed by Salesforce Omni.

Outbound call campaigns are a feature of the package that utilizes Omni-Channel routing and Amazon Connect. To use the Call Campaigns, we must first configure the following items:

1. Create a Queue for users to manage a workload and configure it for the custom object.
2. Create a Service Channel and configure it for the custom object.

3. Create a Routing Configuration.
4. Associate the Routing Configuration with the Agents and the Queue.
5. Create a Presence Status and Configuration and assign it to the Users.

First, we must enable omni-channel. To do this, navigate to "Setup" and type "omni" into the Quick Find box, then select "Omni-Channel Settings" from the menu.



Place a check in the checkbox for "Enable Omni-Channel".

I

Work Limits

Work Triggers

Work Validation...

Omni-Channel Settings

Configurations

Decline Reasons

Entries

Configurations

Channels

Services

Service Limits

Service Triggers

Service Validation...

looking for?

 SETUP

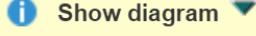
## Omni-Channel Settings

### Omni-Channel Settings

Welcome to Omni-Channel!

Omni-Channel is a comprehensive customer service solution that lets contact centers push work to agents. Omni-Channel lets you create work items from your Salesforce records—including cases, chats, leads, and objects—and route them to the most qualified, available agents in your organization, all in real time. It integrates seamlessly into the Salesforce console, so it's easy for your support agents to use.

With Omni-Channel, you can manage the priority of work items to make sure that critical assignments are handled quickly. You can manage your agents' capacity and availability for work to ensure that they're given assignments that they can handle. You can also define which agents can work on different types of work items. Omni-Channel routes all of these assignments to the correct agents automatically. Agents no longer have to work items manually from a queue, and managers no longer have to triage or dispatch work to the most qualified available agent in real time!



First, you need to enable Omni-Channel. Then, [create Service Channels](#).

Enable Omni-Channel | 

This must be checked

Use Skills-Based Routing | 

## Create a Queue

Navigate to "Setup" and type "queue" into the Quick Find box, then select "Queues" from the menu.

The screenshot shows the Salesforce Setup interface. At the top, there is a blue cloud icon, a search bar with the placeholder "Search Setup", and a navigation bar with tabs: "Setup" (selected), "Home", and "Object Manager". Below the navigation bar, there is a search bar containing the text "queues". A sidebar on the left has a "Users" section and a "Queues" section, with "Queues" being highlighted and a mouse cursor icon pointing at it. The main content area is titled "Queues" and contains the following text: "Queues allow groups of users to manage a shared workload more effectively. A queue is a location where records can be routed to await processing by a group member. The records remain in the queue until a user accepts them for processing or they are transferred to another queue. You can specify the set of objects that are supported by each queue, as well as the set of users that are allowed to retrieve records from the queue." Below this text are buttons for "View: All ▾ Edit | Create New View".

You may see some entries if you are already using Omni-Channel for other things in your instance. We want to create a new queue for the purpose of handling these outbound call campaigns.

The screenshot shows the "Queues" screen in the Salesforce Setup interface. At the top, there is a blue header bar with a person icon, the word "SETUP", and the word "Queues". Below the header, the title "Queues" is displayed. To the right of the title, there is a "Help for this Page" link. The main content area is titled "Queues" and contains the following text: "Queues allow groups of users to manage a shared workload more effectively. A queue is a location where records can be routed to await processing by a group member. The records remain in the queue until a user accepts them for processing or they are transferred to another queue. You can specify the set of objects that are supported by each queue, as well as the set of users that are allowed to retrieve records from the queue." Below this text are buttons for "View: All ▾ Edit | Create New View". At the bottom of the screen, there is a table with columns: "Action", "Label ↑", "Queue Name", "Queue Email", "Supported Objects", "Modified By", and "Last Modified". The "Supported Objects" column contains a "New" button with a mouse cursor icon pointing at it. An orange arrow points from the text "Select the Amazon Connect Call Campaign object and click the 'Add' button." to this "New" button. The table also lists several supported objects: "Amazon Connect Historical Report Data; Amazon Connect Call Campaign; Agent Work; Case; Goal; Knowledge Article Version; Lead; Live Agent Session; Live Chat Transcript; Macro; Metric; Order; Quick Text; Scorecard; User Provisioning Request; User Presence; Coaching; Feedback; Feedback Question; Feedback Question Set; Feedback Request; Feedback Template; Performance Cycle". At the bottom of the table, there are buttons for "Edit | Del" and a timestamp "15/09/2018".

On the Queues screen, click the "New" button. Fill-in the required fields and then scroll down the screen until you see "Supported Objects". Select the Amazon Connect Call Campaign object and click the "Add" button.

The screenshot shows the 'Queues' section of the AWS Lambda setup interface. At the top, there's a 'SETUP' button and a 'Queues' icon. Below this, a 'Supported Objects' section allows selecting objects to assign to the queue. The 'Available Objects' list includes: Amazon Connect Historical Report Data, Agent Work, Amazon Connect Call Campaign, Case, Goal, Knowledge Article Version, Lead, Live Agent Session, Live Chat Transcript, Macro, Metric, Order, Quick Text, and Scorecard. An orange arrow points from the 'Amazon Connect Call Campaign' item to the 'Add' button, which is circled in red with the number '2'. The 'Selected Objects' list currently shows '--None--' with a red '1' next to it. In the 'Queue Members' section, there's a search bar for 'Users' with a dropdown menu, a 'Find' button, and a 'Selected Members' list showing '--None--'. The 'Available Members' list shows four user entries, each starting with 'User:' followed by a redacted name.

## Supported Objects

Select the objects you want to assign to this queue. Individual records for those objects can then be owned by this queue.

Available Objects	Selected Objects
Amazon Connect Historical Report Data	--None--
Agent Work	
Amazon Connect Call Campaign	
Case	
Goal	
Knowledge Article Version	
Lead	
Live Agent Session	
Live Chat Transcript	
Macro	
Metric	
Order	
Quick Text	
Scorecard	

## Queue Members

To add members to this queue, select a type of member, then choose the group, role, or user from the "Available Members". If the Queue is Public Read/Write/Transfer, you do not need to assign users to the queue, as all users already have access.

Search:  for:

Available Members	Selected Members
User: [REDACTED]	--None--
User: [REDACTED]	
User: [REDACTED]	
User: [REDACTED]	

Scroll down to the Queue members to select the members of the queue. You can assign the queue by Public Groups, Roles, Roles and Subordinates, or Users. If you need to wade through many users, groups, or roles, feel free to use the "Find" feature.

Once you have found the entity you'd like to add, select it and click Add, just like we did with the object in the previous step.

**SETUP**

## Queues

- User Presence
- Coaching
- Feedback
- Feedback Question
- Feedback Question Set
- Feedback Request
- Feedback Template
- Performance Cycle

Remove

### Queue Members

To add members to this queue, select a type of member, then choose the group, role, or user from the "Available Members" list. If the Queue is Public Read/Write/Transfer, you do not need to assign users to the queue, as all users already have access.

Search:  for:

Available Members	Selected Members
User: User: User: User:	--None--

Add  Remove

1

2

3

Now, our queue has been created and assigned to users.

Queues allow groups of users to manage a shared workload more effectively. A queue is a location where records can be routed to await processing by a group member. The records remain in the queue until a user accepts them for processing or they are transferred to another queue. You can specify the set of objects that are supported by each queue, as well as the set of users that are allowed to retrieve records from the queue.

Action	Label ↑	Queue Name	Queue Email	Supported Objects	Modified By	Last Modified Date
<a href="#">Edit</a>   <a href="#">Del</a>	Call Campaign	Call Campaign		Amazon Connect Call Campaign Amazon Connect Historical Report Data; Amazon Connect Call Campaign; Agent Work; Case; Goal;	[REDACTED]	21/09/2018 04:07

## Create a Service Channel

Click into the Setup search box in the left navigation panel and type "Service Channel". Then click "Service Channels".

Didnt find what you're looking for?  
Try using Global Search.

Action	Label ↑
<a href="#">Edit</a>   <a href="#">Del</a>	<a href="#">Call Campai</a>

Click "New" to create our new Service Channel.

**SETUP**

## Service Channels

### Service Channels

Service Channels let you turn any Salesforce object—such as a case, lead, SOS session, or even a custom object—into a work record. Omni-Channel then plucks these work items from their queues—like flowers from the garden of agent productivity—and routes them to your agents in real time.

Does your organization use Live Agent for chats or SOS for video calls? If so, you'll notice that Salesforce creates those Service Channels for you automatically, so you can get up and running using Live Agent and SOS with Omni-Channel right away.

**Show diagram ▾**

Let's get this party started and create a new Service Channel. After you create a Service Channel, [create a Routing Configuration](#) to determine how work items are pushed to your agents.

View: **All** **Create New View**

A | B | C | D | E | F | G | H | I | J | K | L | M | N | C

New



Action	Service Channel Name	Developer Name
Edit	Live Agent	[REDACTED]

We have resources that will help you get up and running with Omni-Channel for your organization.

**Create Service Channel**  
Need help creating your first Service Channel? Check out this Salesforce help.

**Set Up Omni-Channel - Implementation**  
Snuggle up with a cup of cocoa and follow this end-to-end process of setting up Omni-Channel.

**SETUP**

## Service Channels

### Service Channels

Service Channels let you turn any Salesforce object—such as a case, lead, SOS session, or even a custom object—into a work record. Omni-Channel then plucks these work items from their queues—like flowers from the garden of agent productivity—and routes them to your agents in real time.

**Show me an example ▾**

After you create a Service Channel, [create a Routing Configuration](#) to determine how work items are pushed to your agents.

We have resources that will help you get up and running with Omni-Channel for your organization.

**Create Service Channels**  
Need help creating your first Service Channel? Check out this Salesforce help.

**Service Channel Settings**  
Learn more about what individual service channels can do.

**Set Up Omni-Channel - Implementation**  
Snuggle up with a cup of cocoa and follow this end-to-end process of setting up Omni-Channel.

**Save** **Cancel**

#### Basic Information

Service Channel Name	Call Campaign Channel <input type="text"/>	1
Developer Name	Call Campaign Channel <input type="text"/>	
Salesforce Object	Amazon Connect Call Campaign <input type="text"/>	2
Custom Console Footer Component	<input type="text"/>	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>		

3

**Save** **Cancel**

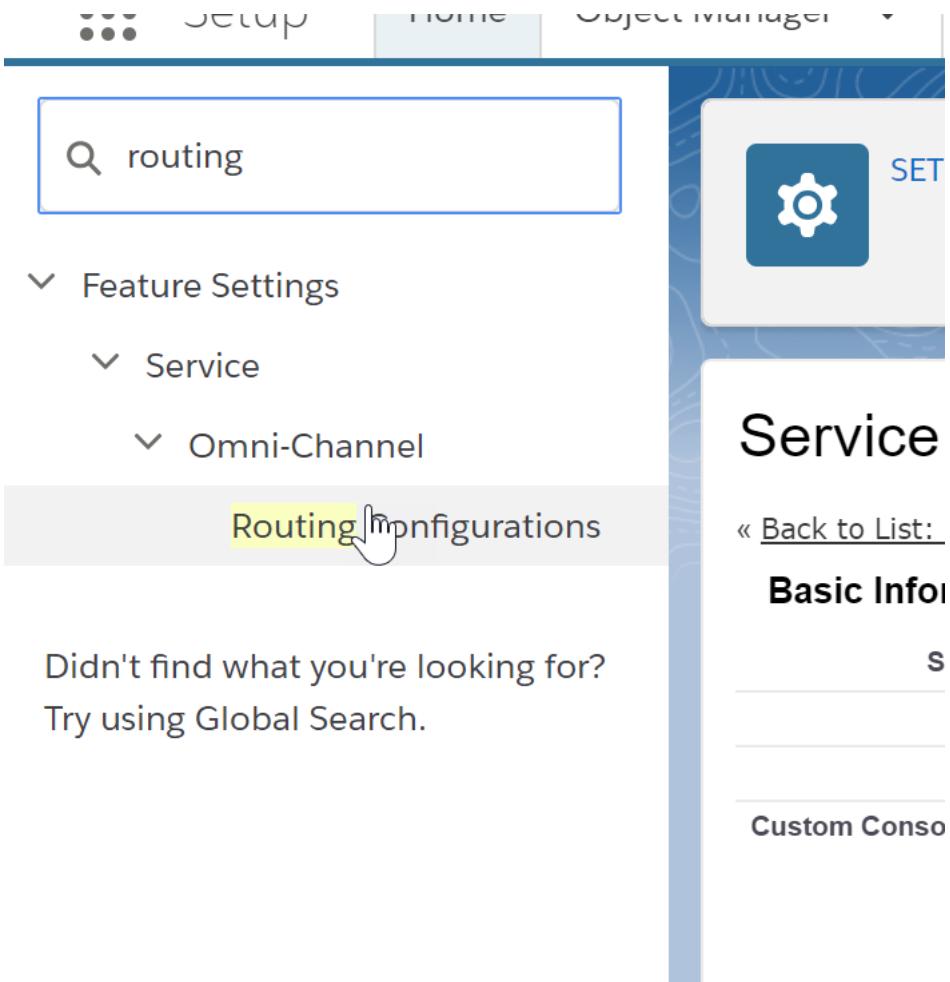
In the new Service Channel form, enter your desired Service Channel Name (step 1). The Developer Name field will auto-populate based on the Service Channel Name content. Then, select the [Amazon Connect Call Campaign]{.ul} object (step 2). Finally, save the new Service Channel (step 3).

The screenshot shows a user interface for creating a new Service Channel. At the top left is a blue button with a gear icon labeled "SETUP". To its right is a "Service Channels" header. Below the header is a navigation link "« Back to List: Service Channels". Underneath the header, there's a section titled "Basic Information" with two buttons: "Edit" and "Delete". A table displays three fields: "Service Channel Name" (Call Campaign Channel), "Developer Name" (Call\_Campaign\_Channel), and "Salesforce Object" (Amazon Connect Call Campaign). At the bottom of this section is a "Custom Console Footer Component".

Service Channel Name	Call Campaign Channel
Developer Name	Call_Campaign_Channel
Salesforce Object	Amazon Connect Call Campaign

## Create a Routing Configuration

Now, we need to create a routing configuration. Enter "routing" into the search box in the left navigation and click "Routing Configurations".



1. On the Routing Configurations landing page, click "**New**".

**SETUP**



## Routing Configurations

## Routing Configurations

tions  
for?

Routing Configurations determine how work items are routed to agents. They let you prioritize the relative importance and size of work items across your Omni-Channel Queues. Since not all work items take the same amount of effort, Routing Configurations let you control the relative size of items in your Queues so agents can focus the right amount of attention on their work. That way, the most important work items are handled accordingly, and work is evenly distributed to your agents. After all, we want to make sure every agent gets to have an equal amount of fun, right?

**Show diagram**

After you create your Routing Configuration, you need to associate Routing Configurations with **Queues**. The items in that Queue are pushed to your agents based on the settings in your Routing Configuration. For routing to work correctly, make sure all of your agents are assigned to your Omni-Channel Queues.

View: All ▾ Create New View

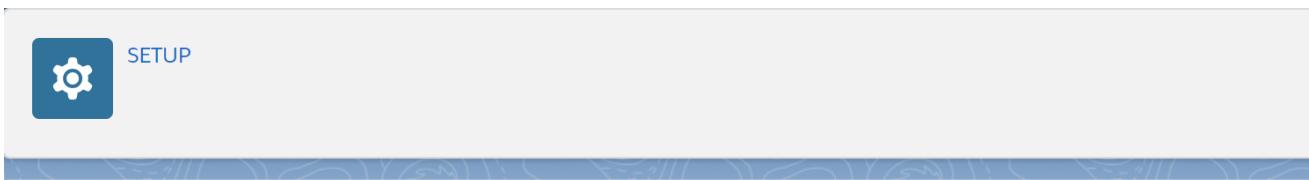
Action	Routing Configuration Name ↑	Developer Name	Routing Priority	Routing Model
Edit   Del	<a href="#">TestRouting</a>	<a href="#">TestRouting</a>	1	Most Available

A | B | C | D | E | F | G | H | I | J

We have  
up Omni

**Create F**  
Need he  
Salesfor

**Set Up C**  
Snuggle  
end-to-e



## Routing Configurations

Routing Configurations determine how work items are routed to agents. They let you prioritize the relative importance and size of work items across your Omni-Channel Queues. Since not all work items take the same amount of effort, Routing Configurations let you control the relative size of items in your Queues so agents can focus the right amount of attention on their work. That way, the most important work items are handled accordingly, and work is evenly distributed to your agents. After all, we want to make sure every agent gets to have an equal amount of fun, right?

Show diagram ▾

After you create your Routing Configuration, you need to associate Routing Configurations with [Queues](#). The items in that Queue are pushed to your agents based on the settings in your Routing Configuration. For routing to work correctly, make sure all of your agents are assigned to your Omni-Channel Queues.

We have resou  
up Omni-Chan

[Create Routin](#)  
Need help crea  
Salesforce hel

[Routing Conf](#)  
Learn more ab

[Set Up Omni-](#)  
Snuggle up wit  
end-to-end pro

Save Cancel

**Basic Information**

Routing Configuration Name  1

Developer Name

Overflow Assignee If you don't give the overflow assignee access to the object types in your queues and set an overfl assignments won't work.

User

Optional

**Routing Settings**

The routing priority determines the order in which work items across your Omni-Channel queues get pushed to your agents. Lower-priority iter

The routing model determines how to evenly distribute work items to your agents. It acts as a tiebreaker if two or more agents qualify to take c the fewest number of open work items. Most Available routes to the agent with the most open capacity in proportion to their set capacity.

Enter the Routing Configuration Name (step 1), and the Developer Name will auto-populate. If you'd like to set an Overflow Assignee, you can optionally do that at this point. The overflow assignee will receive work if your organization reaches its Omni-Channel limits. This setting has no effect until the limits are reached.

User ▾

**Routing Settings**

The routing priority determines the order in which work items across your Omni-Channel queues get pushed to your agents. Lower-priority items are pushed first.

The routing model determines how to evenly distribute work items to your agents. It acts as a tiebreaker if two or more agents qualify to take on the same work item. Least Active routes to the agent with the fewest number of open work items. Most Available routes to the agent with the most open capacity in proportion to their set capacity.

Routing Priority  1  
 Routing Model  2  
 Push Time-Out (seconds)

**Work Item Size**

Specify the size of the work items in the queues associated with this configuration. You can size items by number of units or percentage of the agent's capacity, but not both.

Units of Capacity  3  
 Percentage of Capacity

4 → Save Cancel

Next, you must configure the Routing Settings.

First, (step 1) enter the priority of the work across the Omni-Channel queues. Second (step 2), select the model to use to act as the tie-breaker between agents. Third, (step 3) specify the units of capacity or percentage of capacity of the work items in the queue. Finally, (step 4), click "Save".



SETUP

# Routing Configurations

[« Back to List: Routing Configurations](#)

## Basic Information

[Edit](#)[Delete](#)**Routing Configuration Name** Call Campaign Routing Config**Developer Name** Call\_Campaign\_Routing\_Config**Overflow Assignee**

## ▼ Routing Settings

**Routing Priority** 2**Routing Model** Most Available**Push Time-Out (seconds)****Units of Capacity** 5.00**Percentage of Capacity**

## ▼ Related Queues

Label	Queue Name

You have created your Routing Configuration.

Now, we need to assign the Routing Configuration to our queue. From the Quick Find in Setup, enter "queues" and then select "Queues" (step 1).

Queues

Queues allow groups of users to manage a shared workload more effectively. A queue is a location where records can be routed to await processing until a user accepts them for processing or they are transferred to another queue. You can specify the set of objects that are supported by the queue to retrieve records from the queue.

Action Label ↑ Queue Name Queue Email Supported Objects

<a href="#">Edit</a>	<a href="#">Del</a>	<a href="#">Call Campaign</a>	<a href="#">Call Campaign</a>	Amazon Connect Call Campaign
<a href="#">Edit</a>	<a href="#">Del</a>	<a href="#">TestChatQueue</a>	<a href="#">TestChatQueue</a>	Amazon Connect Historical Report Data; Amazon Connect Call Campaign; Agent Work Log; Knowledge Article Version; Lead; Live Agent Session; Live Chat Transcript; Macro; Message; M-Push; M-Text; Scorecard; User Provisioning Request; User Presence; Coaching; Feedback; Feedback Question Set; Feedback Request; Feedback Template; Performance Cycle

Click on the "Edit" link next in the row of the queue that was created earlier (step 2).

Enter the name of the queue and the email address to use when sending notifications (for example). When an object is assigned to a queue, only the queue members will be notified.

Label	<input type="text" value="Call Campaign"/>
Queue Name	<input type="text" value="Call_Campaign"/>
Queue Email	<input type="text"/>
Send Email to Members	<input type="checkbox"/>

## Configuration with Omni-Channel Routing

If your organization uses Omni-Channel, you can link queues to a routing configuration. This section shows how to do that.

Routing Configuration



## Supported Objects

Use the magnifying glass button to search for our new Routing Configuration created earlier.

# Lookup

You can use "\*" as a wildcard next to other characters to improve your search results.

## Search Results

Routing Configuration Name	Developer Name	Routing Priority	Routing Model	Units of Capacity	Percentag
TestRouting	<a href="#">TestRouting</a>	1	Most Available	5.00	
Call Campaign Routing Config	<a href="#">Call_Campaign_Routing_Config</a>	2	Most Available	5.00	

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Select our Routing Configuration from the Lookup window.

 Queues

Edit Queue  
Call Campaign

**Queue Edit**

**Queue Name and Email Address**

Enter the name of the queue and the email address to use when sending notifications (for example, when a contact is assigned to a queue). When an object is assigned to a queue, only the queue members will be notified.

Label: Call Campaign 

Queue Name: Call\_Campaign 

Queue Email:

Send Email to Members

**Configuration with Omni-Channel Routing**

If your organization uses Omni-Channel, you can link queues to a routing configuration. This will push work from supported objects to queue members.

Routing Configuration: [Campaign\\_Routing\\_Config](#) 

**Supported Objects**

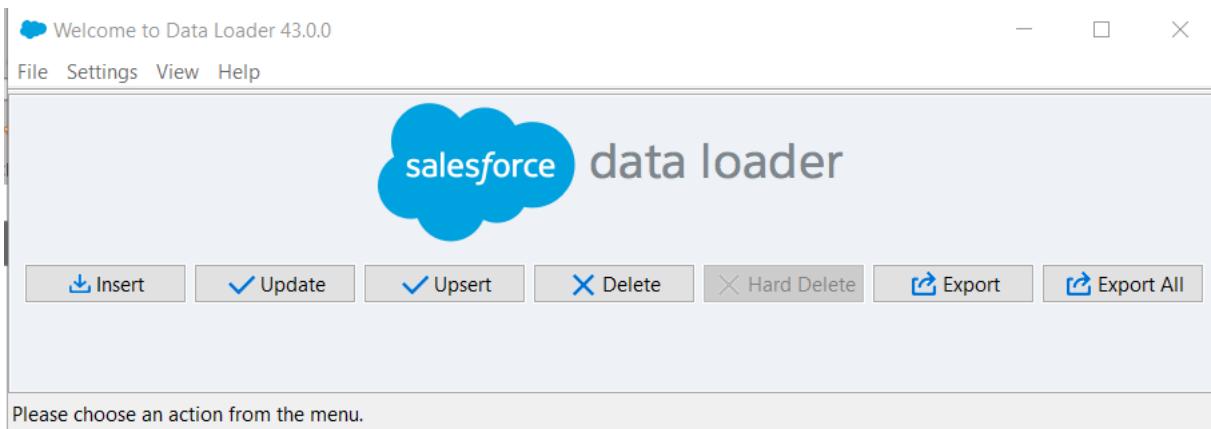


Click "Save" to store our changes.

The next steps are to create and configure the Presence Statuses.

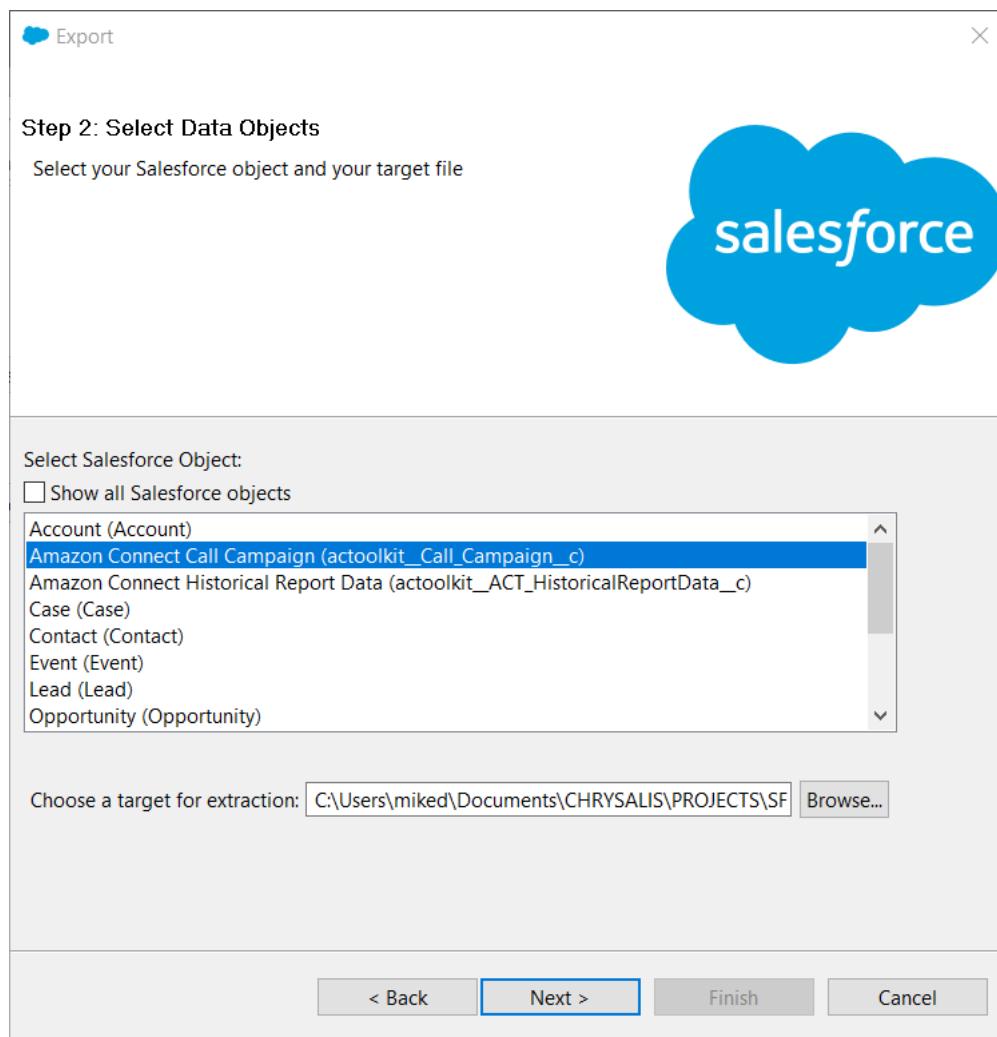
## Outbound Campaign Custom Object Using Salesforce Data Loader

The following is a description of the steps using the Salesforce Data Loader to insert outbound call campaign records. The Data Loader can be obtained from <https://data.loader.io/>



Start by exporting the call campaign custom object. From the Data Loader UI, click the "Export" button. You will be prompted to Login. Select OAuth as the method and then provide your Salesforce login credentials.

From the list of Salesforce objects select the **Amazon Connect Call Campaign** and export it to CSV file.



Next, we need the Object ID of the Queue that was created earlier. To obtain that, use the Data Loader to extract a listing of Queues. You will want to query for the QueueId.

The screenshot shows the 'Choose the query fields below' section with 'Id' and 'QueueId' selected. The 'Create the where clauses to your query below' section is empty. Below these are 'Select all fields' and 'Clear all fields' buttons. A note says 'The generated query will appear below. You may edit it before finishing.' followed by the generated query: 'Select Id, QueueId FROM QueueObject'.

In this example, we want to pop Contact records when the outbound call is presented to the agent, so let's export a list of Contact to be called.

The screenshot shows the 'Select Salesforce Object' section with 'Contact (Contact)' selected. Other options include Account, Amazon Connect Call Campaign, Amazon Connect Historical Report Data, Case, Event, Lead, Opportunity, and Price Book. Below this is a 'Choose a target for extraction' field containing 'C:\Users\miked\Documents\CHRYSLIS\PROJECTS\SFI' with a 'Browse...' button. At the bottom are 'Next >', 'Finish', and 'Cancel' buttons.

Query for all or specific Contacts, based on pre-defined criteria. At a minimum, you will need to extract a list of the Id and Phone number of the Contact.

Choose the query fields below.

<input checked="" type="checkbox"/> Id	<	>
<input type="checkbox"/> IsDeleted		
<input type="checkbox"/> MasterRecordId		
<input type="checkbox"/> ...		

Create the where clauses to your query below.

Fields	Operation	Value

**Add condition**    **Clear all conditions**

**Select all fields**    **Clear all fields**

The generated query will appear below. You may edit it before finishing.

```
Select Id, Phone FROM Contact
```

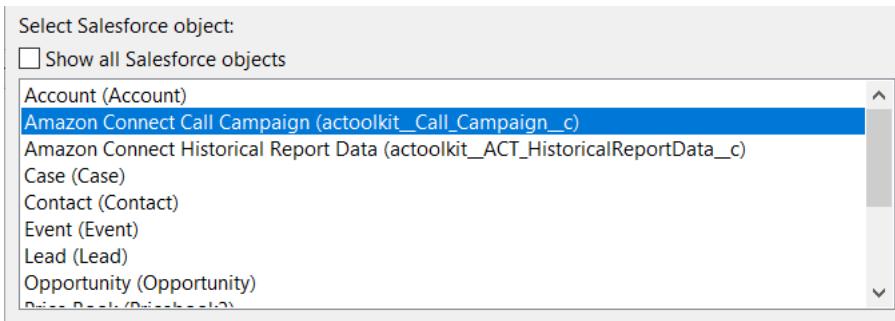
**< Back**    **Next >**    **Finish**    **Cancel**

Using the data extracted in the Queue listing and the Contact listing files, construct the outbound campaign, by using the first file what was exported as a template. Open the exported "**Amazon Connect Call Campaign**" in a spreadsheet application, such as Microsoft Excel, and build a list of Contacts to be called.

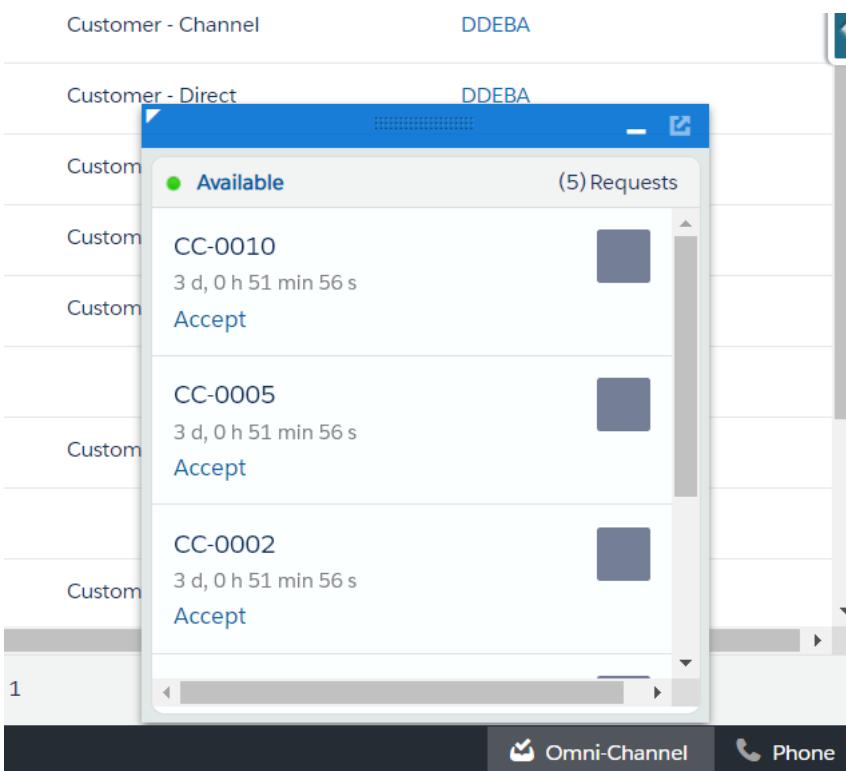
A	B	C	D	E	F	G
1 OWNERID	ACCOUNT__C	CASE__C	CONTACT__C	LEAD__C	OPPORTUNITY__C	PHONE_NUMBER__C
2 00G1U000000EIDcUAK			0031U000004WGR5QAO			(702) 555-0111
3 00G1U000000EIDcUAK			0031U000004WGR6QAO			(702) 555-0112
4 00G1U000000EIDcUAK			0031U000004WGR7QAO			(702) 555-0113
5 00G1U000000EIDcUAK			0031U000004WGR8QAO			(702) 555-0114
6 00G1U000000EIDcUAK			0031U000004WGR9QAO			(702) 555-0115
7 00G1U000000EIDcUAK			0031U000004WGRQAQ4			(702) 555-0116
8 00G1U000000EIDcUAK			0031U000004WGRBQAQ4			(702) 555-0117
9 00G1U000000EIDcUAK			0031U000004WGRCAQ4			(702) 555-0118

In the example above, the **OWNERID** column contains the QueueId obtained from the export of Queues. The **CONTACT\_\_C** column contains the Id of the Contact we want presented to the agent, when the outbound call is initiated, and the **PHONE\_NUMBER\_\_C** field contains the phone number to be automatically dialed by Amazon Connect CCP.

Once you have built the campaign file, save it as a CSV file and then import it into Salesforce, using the Data Loader. Select "**Amazon Connect Call Campaign**" as the target of the upload.



Once the campaign has been uploaded, the campaign records will be added to the queue and the agents who are assigned to that queue should start receiving the outbound requests in their Omni-Channel widget.



## Amazon Connect Reports in Salesforce

Out of the box, within Amazon Connect, you can generate a number of real-time and historical metric reports to monitor efficiency and utilization, agent performance, and other information about your contact center.

Real-time metrics reports show real-time or near-real time metrics information about activity in your contact center. Historical metrics reports include data about past, completed activity and performance in your contact center. You can customize the default report settings to get the view of the data that is most meaningful to you and your organization. You can change the time frame for the report, which metrics are included in the report, and how the data is grouped within the report.

Amazon Connect provides you the ability to export reports to the S3 bucket of your choice, in comma separated value (CSV) format. This enables broad compatibility across many analytics and WFM tools. Encryption is enabled by default for all saved reports, using S3 server-side encryption with KMS. Disabling encryption is not recommended. You can schedule reports run hourly, daily, and monthly. The output will be stored in the S3 bucket. Each report can have different name and prefix.

For the particular integration, at 30-minute intervals, Amazon Connect generates CSV reports which contain statistics for the last (30 minute) period. Two different reports are available to transport Agent and Queue interval data from Amazon Connect to Salesforce.

Each time a new report is exported, S3 is going to trigger a Lambda function from Amazon Connect Salesforce Lambda package (AWS Serverless Application Repository), which is going to import the date into your Salesforce instance.

Amazon Connect scheduled, Agent and Queue reports, are not automatically configured by the Amazon Connect Salesforce Lambda package, therefore the first step would be to create and schedule these reports.

In your Amazon Connect instance, navigate to Metrics and Quality > Historical metrics. By default, you will be able to see the two reports needed for this integration: "Contact metrics" and "Agent Performance".

The screenshot shows the 'Metrics and quality' section of the Amazon Connect console. Under 'Historical metrics', there are two items: 'Queues' and 'Agents'. Each item has a dropdown menu next to it. The 'Queues' dropdown contains 'Contact metrics'. The 'Agents' dropdown contains 'Agent performance'.

Click on the "Contact metrics" to open the report and then click on the grey gear icon on the right-hand side to configure it.

The screenshot shows the 'Contact metrics' report configuration screen. At the top, it says 'Historical metrics: Queues'. On the right, there are 'Save' and a dropdown menu buttons. Below this, there are three sections: 'Interval' (Total), 'Time range' (Nov 16, 2018, 12:00 AM - Nov 23, 2018, 12:00 AM), and 'Time Zone' (UTC). A gear icon is located in the top right corner of the configuration area.

Set the report configuration by following the screenshots below:

2

## Table Settings

x

### Interval & Time range

### Groupings

### Filters

### Metrics

0

Interval

Time Zone

30 Minutes

UTC

07

Time range

Last 24 hours

## Table Settings



Interval & Time range

Groupings

Filters

Metrics

Select the values you'd like to group your metrics by, and add them to the right in the order you prefer.

Grouping options

Selected groupings(Maximum 5)

Agent



Agent Hierarchy Level One



2

Agent Hierarchy Level Two



3

Agent Hierarchy Level Three



4

Agent Hierarchy Level Four



5

Agent Hierarchy Level Five



Routing Profile



Phone Number



Optionally set the filters:

Table Settings X

Interval & Time range    Groupings    **Filters**    Metrics

Queues that match these filters will be displayed on the table

0

Queue	Queue
Routing profile	Show metrics only for contacts handled in these queues:
Agent hierarchy	<input type="text"/> Search <span style="float: right;">▼</span>
Phone number	

And most importantly, select the correct metrics in the last tab:

## Table Settings

X

Interval & Time range

Groupings

Filters

Metrics

Metrics are displayed to the right of grouping columns.

Contact metrics

Agent metrics

 Search

Metrics definitions 

Agent Name 

Agent First Name 

Agent Last Name 

After contact work time

Agent on contact time

Agent idle time

Non-Productive Time 

Average queue abandon time

Average after contact work time

Average queue answer time

Average handle time

Average customer hold time

Average agent interaction and customer hold time

Average agent interaction time

Contacts abandoned

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Contacts abandoned in 15 seconds  | <input checked="" type="checkbox"/> Contacts abandoned in 20 seconds  |
| <input checked="" type="checkbox"/> Contacts abandoned in 25 seconds  | <input checked="" type="checkbox"/> Contacts abandoned in 30 seconds  |
| <input checked="" type="checkbox"/> Contacts abandoned in 45 seconds  | <input checked="" type="checkbox"/> Contacts abandoned in 60 seconds  |
| <input checked="" type="checkbox"/> Contacts abandoned in 90 seconds  | <input checked="" type="checkbox"/> Contacts abandoned in 120 seconds |
| <input checked="" type="checkbox"/> Contacts abandoned in 180 seconds | <input checked="" type="checkbox"/> Contacts abandoned in 240 seconds |
| <input checked="" type="checkbox"/> Contacts abandoned in 300 seconds | <input checked="" type="checkbox"/> Contacts abandoned in 600 seconds |
| <input checked="" type="checkbox"/> Contacts agent hung up first      | <input checked="" type="checkbox"/> Contacts consulted                |
| <input checked="" type="checkbox"/> Contacts handled                  | <input checked="" type="checkbox"/> Contacts handled incoming         |
| <input checked="" type="checkbox"/> Contacts handled outbound         | <input type="checkbox"/> Callback contacts handled                    |
| <input type="checkbox"/> API contacts handled                         | <input checked="" type="checkbox"/> Contacts put on hold              |
| <input checked="" type="checkbox"/> Contacts hold disconnect          | <input checked="" type="checkbox"/> Contacts hold agent disconnect    |

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Contacts hold customer disconnect   | <input checked="" type="checkbox"/> Contacts incoming  |
| <input type="checkbox"/> Callback Contacts                              | <input type="checkbox"/> API Contacts  |
| <input checked="" type="checkbox"/> Contacts answered in 15 seconds     | <input checked="" type="checkbox"/> Contacts answered in 20 seconds  |
| <input type="checkbox"/> Contacts answered in 25 seconds                | <input checked="" type="checkbox"/> Contacts answered in 30 seconds  |
| <input checked="" type="checkbox"/> Contacts answered in 45 seconds     | <input checked="" type="checkbox"/> Contacts answered in 60 seconds  |
| <input checked="" type="checkbox"/> Contacts answered in 90 seconds     | <input checked="" type="checkbox"/> Contacts answered in 120 seconds   |
| <input checked="" type="checkbox"/> Contacts answered in 180 seconds    | <input checked="" type="checkbox"/> Contacts answered in 240 seconds   |
| <input checked="" type="checkbox"/> Contacts answered in 300 seconds    | <input checked="" type="checkbox"/> Contacts answered in 600 seconds   |
| <input checked="" type="checkbox"/> Contacts queued                     | <input checked="" type="checkbox"/> Contacts transferred in  |
| <input checked="" type="checkbox"/> Contacts transferred out            | <input type="checkbox"/> Contacts transferred out internal   |
| <input type="checkbox"/> Contacts transferred out external              | <input checked="" type="checkbox"/> Contacts transferred in from queue   |
| <input checked="" type="checkbox"/> Contacts transferred out from queue | <input type="checkbox"/> Error status time  |

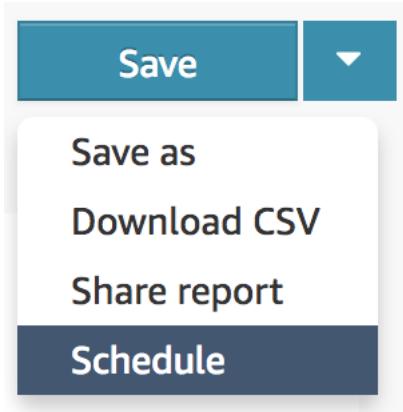
- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Customer hold time                     | <input checked="" type="checkbox"/> Agent answer rate                       |
| <input checked="" type="checkbox"/> Maximum queued time                    | <input checked="" type="checkbox"/> Contacts missed                         |
| <input checked="" type="checkbox"/> Contact handle time                    | <input checked="" type="checkbox"/> Contact flow time                       |
| <input checked="" type="checkbox"/> Occupancy                              | <input checked="" type="checkbox"/> Service level 15 seconds                |
| <input checked="" type="checkbox"/> Service level 20 seconds               | <input checked="" type="checkbox"/> Service level 25 seconds                |
| <input checked="" type="checkbox"/> Service level 30 seconds               | <input checked="" type="checkbox"/> Service level 45 seconds                |
| <input checked="" type="checkbox"/> Service level 60 seconds               | <input checked="" type="checkbox"/> Service level 90 seconds                |
| <input checked="" type="checkbox"/> Service level 120 seconds              | <input checked="" type="checkbox"/> Service level 180 seconds               |
| <input checked="" type="checkbox"/> Service level 240 seconds              | <input checked="" type="checkbox"/> Service level 300 seconds               |
| <input checked="" type="checkbox"/> Service level 600 seconds              | <input type="checkbox"/> Online time <span style="color: #f08080;">!</span> |
| <input checked="" type="checkbox"/> Agent interaction and hold time        | <input checked="" type="checkbox"/> Agent interaction time                  |
| <input checked="" type="checkbox"/> Agent interaction and hold time        | <input checked="" type="checkbox"/> Average outbound agent interaction time |
| <input type="checkbox"/> Lunch time <span style="color: #f08080;">!</span> | <input type="checkbox"/> Break time <span style="color: #f08080;">!</span>  |

---

[Cancel](#)

[Apply](#)

Once metrics are selected, click the Apply button. Next, click the drop-down arrow on the right-hand side and select Schedule.



Set the report name, for instance `sflIntervalQueue` and click Continue

## Schedule report X

---

First, name your report.

Name `sflIntervalQueue`

---

Cancel

Continue

## Schedule report

X

### Note

Once you schedule a report, it will be published to your organization, and all individuals who have proper permissions will be able to access it.

Cancel

Continue

On the next screen, set Recurrence as:

### Recurrence

### Delivery Options

Generate this report

Hourly ▼ every 0.5 ▼ hour(s)

Starting at

Time zone

1 am ▼ UTC

For the previous

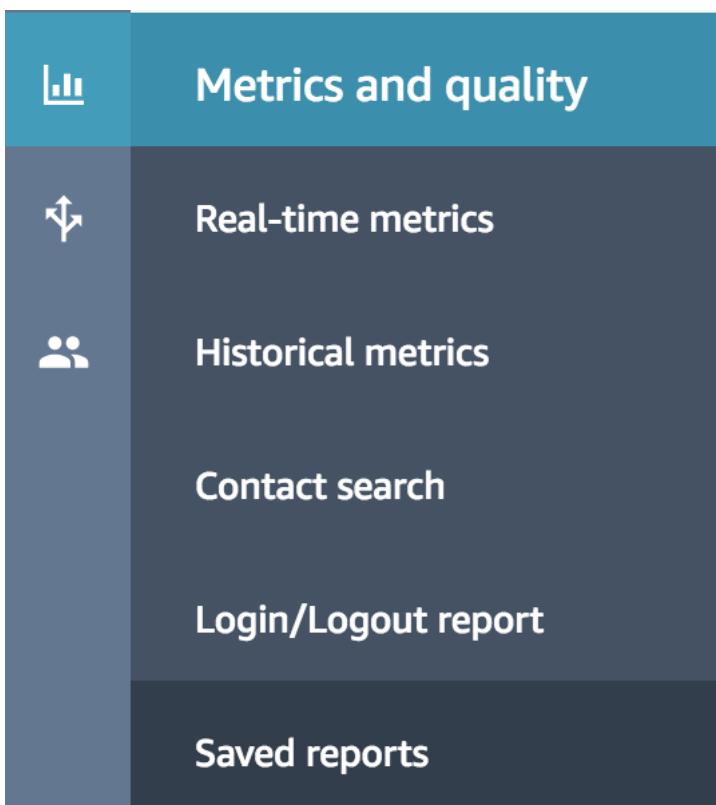
0.5 ▼ hour(s)

Switch to Delivery Options tab and set the Prefix as *SFDC/Queue*

Recurrence	<b>Delivery Options</b>
Default location connect-62 [REDACTED] d2/connect/[REDACTED]-test8/Reports	
Prefix	<input type="text" value="SFDC/Queue"/> <span>i</span>

\*

\*Click the Create button to create the Schedule for the report. The report can be found in Metrics and quality > Saved Reports > Historical metrics



[Dashboard](#)[Real-time metrics](#)[Historical metrics](#)[Login/Logout report](#)

Search by report name

Name

Schedule report

sfIntervalQueue



Click on the Clock (Schedule Report) icon to see the configuration. Please note the File name and the Path for the CSV file to be created.

### Schedule 1

Repeats: HOURLY - runs every 0.5 hour(s), starting at 01:00 (UTC), for the previous 0.5 hour(s).

File name: connect-62[REDACTED]I2/connect/[REDACTED]-test8/Reports/SFDC/Queue/sfIntervalQueue-YYYY-MM-DDThh:mm:ssZ.csv

Next run: Friday, November 23, 2018 6:00:00 PM UTC

Last run: Friday, November 23, 2018 5:15:26 PM UTC

The Queue Interval report has been created and scheduled to export the data. After a while, you will be able to see CSV files in the S3 bucket.

Viewing 1 to 60			
Name	Last modified	Size	Storage class
sfIntervalQueue-2018-11-22T12:00:00Z.csv	Nov 22, 2018 12:15:27 PM GMT+0000	625.0 B	Standard
sfIntervalQueue-2018-11-22T12:30:00Z.csv	Nov 22, 2018 12:45:27 PM GMT+0000	512.0 B	Standard
sfIntervalQueue-2018-11-22T13:00:00Z.csv	Nov 22, 2018 1:15:27 PM GMT+0000	512.0 B	Standard

Repeat the steps for the Agent Interval report:

In your Amazon Connect instance, navigate to Metrics and Quality > Historical metrics.



The screenshot shows the 'Historical metrics' section of the Amazon Connect console. It includes two main sections: 'Queues' (selected) and 'Agents'. Each section has a dropdown arrow icon to its right, indicating more options are available.

Choose the "Agent Performance" metrics to open the report and then click on the grey gear icon on the right-hand side to configure it.

Historical metrics: Agents

Save | ▾

Interval: Total Time range: Nov 16, 2018, 12:00 AM - Nov 23, 2018, 12:00 AM Time Zone: UTC

Set the report configuration by following the screenshots below:

Table Settings

Interval & Time range Groupings Filters Metrics

Interval: 30 Minutes Time Zone: UTC

Time range: Last 24 hours

## Table Settings



Interval & Time range

Groupings

Filters

Metrics

Select the values you'd like to group your metrics by, and add them to the right in the order you prefer.

Grouping options

Grouping options	Selected groupings (Maximum 5)
Agent Hierarchy Level One	<span style="color: #ccc;">i</span> Agent
Agent Hierarchy Level Two	<span style="color: #ccc;">i</span> 2
Agent Hierarchy Level Three	<span style="color: #ccc;">i</span> 3
Agent Hierarchy Level Four	<span style="color: #ccc;">i</span> 4
Agent Hierarchy Level Five	<span style="color: #ccc;">i</span> 5
Queue	
Routing Profile	
Phone Number	

Optionally set the filters:

Table Settings X

Interval & Time range    Groupings    **Filters**    Metrics

Queues that match these filters will be displayed on the table

0

Queue	Queue
Routing profile	Show metrics only for contacts handled in these queues:
Agent hierarchy	<input type="text"/> Search <span style="float: right;">▼</span>
Phone number	

And most importantly, select the correct metrics in the last tab:

## Table Settings

X

Interval & Time range

Groupings

Filters

Metrics

Metrics are displayed to the right of grouping columns.

Contact metrics

Agent metrics

 Search

Metrics definitions 

Agent Name

Agent First Name

Agent Last Name

After contact work time

Agent on contact time

Agent idle time

Non-Productive Time

Average queue abandon time

Average after contact work time

Average queue answer time

Average handle time

Average customer hold time

Average agent interaction and customer hold time

Average agent interaction time

Contacts abandoned

- |   |  |
|---|--|
| <input type="checkbox"/> Contacts abandoned in 15 seconds             | <input type="checkbox"/> Contacts abandoned in 20 seconds          |
| <input type="checkbox"/> Contacts abandoned in 25 seconds             | <input type="checkbox"/> Contacts abandoned in 30 seconds          |
| <input type="checkbox"/> Contacts abandoned in 45 seconds             | <input type="checkbox"/> Contacts abandoned in 60 seconds          |
| <input type="checkbox"/> Contacts abandoned in 90 seconds             | <input type="checkbox"/> Contacts abandoned in 120 seconds         |
| <input type="checkbox"/> Contacts abandoned in 180 seconds            | <input type="checkbox"/> Contacts abandoned in 240 seconds         |
| <input type="checkbox"/> Contacts abandoned in 300 seconds            | <input type="checkbox"/> Contacts abandoned in 600 seconds         |
| <input checked="" type="checkbox"/> Contacts agent hung up first      | <input checked="" type="checkbox"/> Contacts consulted             |
| <input checked="" type="checkbox"/> Contacts handled                  | <input checked="" type="checkbox"/> Contacts handled incoming      |
| <input checked="" type="checkbox"/> Contacts handled outbound         | <input type="checkbox"/> Callback contacts handled                 |
| <input type="checkbox"/> API contacts handled                         | <input checked="" type="checkbox"/> Contacts put on hold           |
| <input checked="" type="checkbox"/> Contacts hold disconnect          | <input checked="" type="checkbox"/> Contacts hold agent disconnect |
| <input checked="" type="checkbox"/> Contacts hold customer disconnect | <input type="checkbox"/> Contacts incoming                         |

- 
- |   |   |
|---|---|
| <input type="checkbox"/> Callback Contacts                            | <input type="checkbox"/> API Contacts                                 |
| <input type="checkbox"/> Contacts answered in 15 seconds              | <input type="checkbox"/> Contacts answered in 20 seconds              |
| <input type="checkbox"/> Contacts answered in 25 seconds              | <input type="checkbox"/> Contacts answered in 30 seconds              |
| <input type="checkbox"/> Contacts answered in 45 seconds              | <input type="checkbox"/> Contacts answered in 60 seconds              |
| <input type="checkbox"/> Contacts answered in 90 seconds              | <input type="checkbox"/> Contacts answered in 120 seconds             |
| <input type="checkbox"/> Contacts answered in 180 seconds             | <input type="checkbox"/> Contacts answered in 240 seconds             |
| <input type="checkbox"/> Contacts answered in 300 seconds             | <input type="checkbox"/> Contacts answered in 600 seconds             |
| <input type="checkbox"/> Contacts queued                              | <input type="checkbox"/> Contacts transferred in                      |
| <input checked="" type="checkbox"/> Contacts transferred out          | <input checked="" type="checkbox"/> Contacts transferred out internal |
| <input checked="" type="checkbox"/> Contacts transferred out external | <input type="checkbox"/> Contacts transferred in from queue           |
| <input type="checkbox"/> Contacts transferred out from queue          | <input checked="" type="checkbox"/> Error status time                 |

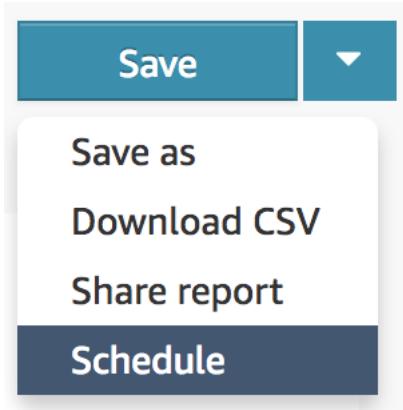
- |   |  |
|---|--|
| <input type="checkbox"/> Customer hold time                                 | <input checked="" type="checkbox"/> Agent answer rate                        |
| <input type="checkbox"/> Maximum queued time                                | <input checked="" type="checkbox"/> Contacts missed                          |
| <input type="checkbox"/> Contact handle time                                | <input type="checkbox"/> Contact flow time                                   |
| <input checked="" type="checkbox"/> Occupancy                               | <input type="checkbox"/> Service level 15 seconds                            |
| <input type="checkbox"/> Service level 20 seconds                           | <input type="checkbox"/> Service level 25 seconds                            |
| <input type="checkbox"/> Service level 30 seconds                           | <input type="checkbox"/> Service level 45 seconds                            |
| <input type="checkbox"/> Service level 60 seconds                           | <input type="checkbox"/> Service level 90 seconds                            |
| <input type="checkbox"/> Service level 120 seconds                          | <input type="checkbox"/> Service level 180 seconds                           |
| <input type="checkbox"/> Service level 240 seconds                          | <input type="checkbox"/> Service level 300 seconds                           |
| <input type="checkbox"/> Service level 600 seconds                          | <input checked="" type="checkbox"/> Online time                              |
| <input checked="" type="checkbox"/> Agent interaction and hold time         | <input checked="" type="checkbox"/> Agent interaction time                   |
| <input checked="" type="checkbox"/> Average outbound agent interaction time | <input checked="" type="checkbox"/> Average outbound after contact work time |

---

[Cancel](#)

[Apply](#)

Once metrics are selected, click the Apply button. Next, click the drop-down arrow on the right-hand side and select Schedule.



Set the report name, for instance *sflIntervalAgent* and click Continue

## Schedule report X

---

First, name your report.

Name sflIntervalAgent

---

Cancel

Continue

## Schedule report

X

### Note

Once you schedule a report, it will be published to your organization, and all individuals who have proper permissions will be able to access it.

Cancel

Continue

On the next screen, set Recurrence as:

### 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)

Switch to Delivery Options tab and set the Prefix as SFDC/Agent

The screenshot shows a configuration interface for delivery options. At the top, there are two tabs: "Recurrence" and "Delivery Options". The "Delivery Options" tab is active, indicated by a blue underline. Below the tabs, there is a section labeled "Default location" with a URL field containing "connect-627...d2/connect/reports-test8/Reports". Underneath this, there is a "Prefix" field containing "SFDC/Agent", which is highlighted with a blue rounded rectangle. To the right of the prefix field is a small circular icon with an information symbol (i).

Click the Create button to create the Schedule for the report. The report can be found in Metrics and quality > Saved Reports > Historical metrics

The screenshot shows a sidebar menu titled "Metrics and quality". The menu items listed are: "Real-time metrics", "Historical metrics", "Contact search", "Login/Logout report", and "Saved reports". The "Historical metrics" item is currently selected, as indicated by its white background and bold text.

[Dashboard](#)[Real-time metrics](#)[Historical metrics](#)[Login/Logout report](#)

Search by report name

Name

sfIntervalQueue

Schedule report

SfIntervalAgent



Click on the Clock (Schedule Report) icon to see the configuration. Please note the File name and the Path for the CSV file to be created.

### Schedule 1

Repeats: HOURLY - runs every 0.5 hour(s), starting at 01:00 (UTC), for the previous 0.5 hour(s).

File name: connect-62[REDACTED]d2/connect/[REDACTED]-test8/Reports/SFDC/Agent/SfIntervalAgent-YYYY-MM-DDThh:mm:ssZ.csv

Next run: Friday, November 23, 2018 6:30:00 PM UTC

Last run: Friday, November 23, 2018 5:45:07 PM UTC

The Agent Interval report has been created and scheduled to export the data. After a while, you will be able to see CSV files in the S3 bucket.

Viewing 1 to 98			
Name	Last modified	Size	Storage class
sfIntervalAgent-2018-11-21T17:00:00Z.csv	Nov 21, 2018 5:15:08 PM GMT+0000	413.0 B	Standard
sfIntervalAgent-2018-11-21T17:30:00Z.csv	Nov 21, 2018 5:45:07 PM GMT+0000	413.0 B	Standard
sfIntervalAgent-2018-11-21T18:00:00Z.csv	Nov 21, 2018 6:15:11 PM GMT+0000	413.0 B	Standard

Amazon Connect Salesforce Lambda package (AWS Serverless Application Repository) deploys two Lambda functions to handle the reporting integration: *sfIntervalQueue* and *sfIntervalAgent*. In the next step, we are going to set Triggers for these functions.

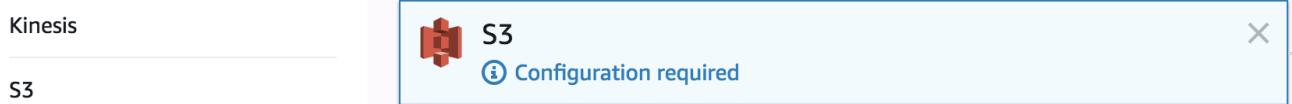
From the AWS Console, select Lambda service and choose *sfIntervalQueue* Lambda function. On the left-hand side, select S3 as a trigger.

Kinesis

S3

Add triggers from the list on the left

After the trigger is selected:



We need to set the trigger configuration. Select the Bucket where the CSV files are stored (from the Filename in previous steps). Set Event type to PUT and set Prefix to the Queue path (from the Filename in previous steps). Click the Add button and Save the function.

**Configure triggers**

**Bucket**  
Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.  
connect-62 [redacted] d2

**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**  
Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.  
connect/[redacted]-testB/Reports/SFDC/Queue/

**Suffix**  
Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters.  
e.g. .jpg

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).

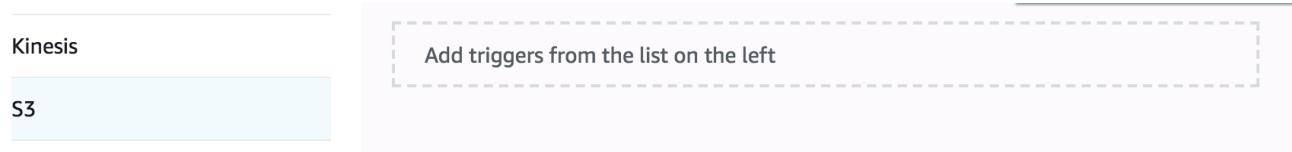
**Add**

The final configuration should look like this:

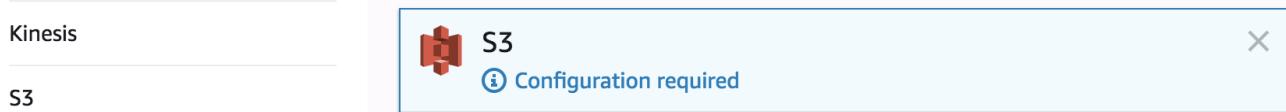


This Lambda function transfers the Queue reporting data to your SFDC instance. Next, we have to repeat steps for Agent reporting Lambda function.

From the AWS Console, select Lambda service and choose *sflIntervalAgent* Lambda function. On the left-hand side, select S3 as a trigger.



After the trigger is selected:



We need to set the trigger configuration. Select the Bucket where the CSV files are stored (from the Filename in previous steps). Set Event type to PUT and set Prefix to the Agent path (from the Filename in previous steps). Click the Add button and Save the function.

Configure triggers

Bucket  
Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.  
connect-62... d2

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  
Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.  
connect/...-test8/Reports/SFDC/Agent/

Suffix  
Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters.  
e.g.: .jpg

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

The final configuration should look like this:



This Lambda function transfers the Agent reporting data to your SFDC instance.

The Amazon Connect CTI Adapter comes with a predefined set of reports, which can be customized or additional reports can be created by leveraging the imported data. To see the list of built-in reports, login into your SFDC instance and open the App Launcher, then choose Reports.

App Launcher

Search apps or items...

Visit AppExchange

 Service Manage customer service with accounts, contacts, cases, and more	 Marketing Best-in-class on-demand marketing automation	 Sample Console (Salesforce Classic) Lets agents work with multiple records ... ⓘ	 Community Salesforce CRM Communities
 Salesforce Chatter The Salesforce Chatter social network, including profiles and feeds	 Content Salesforce CRM Content	 Sales Console (Lightning Experience) Lets sales reps work with multiple rec... ⓘ	 Service Console (Lightning Experience) Lets support agents work with multiple... ⓘ
 Sales Manage your sales process with accounts, leads, opportunities, and more	 Lightning Usage App View Adoption and Usage Metrics for Lightning Experience	 Amazon Connect Toolkit Console Sample Salesforce Console application for the Amazon Connect ... ⓘ	

All Items

Accounts	App Launcher	Approval Requests	Assets	Calendar
Campaigns	Cases	Chatter	Contacts	Contracts
Dashboards	Duplicate Record Sets	Email Templates	Files	Forecasts
Groups	Home	Leads	Lightning Bolt Solutions	Lightning Usage
List Emails	Live Agent Sessions	Live Chat Transcripts	Live Chat Visitors	Macros
Omni Supervisor	Opportunities	Orders	People	Price Books
Products	Quick Text	Reports	Scorecards	Streaming Channels
Tasks	User Provisioning Requests			

All Amazon Connect built-in reports are deployed in Amazon Connect Reports folder:

Reports				
Recent				
14 items				
REPORTS	REPORT NAME	DESCRIPTION	FOLDER	
Recent	Agent All Interval 30 Today		Amazon Connect Reports	
Created by Me	Queue All Interval 30 Today		Amazon Connect Reports	
Private Reports	Contacts Agent Hung Up First This ...		Amazon Connect Reports	
Public Reports	Contacts Handled This Week		Amazon Connect Reports	
All Reports	Contacts Queued This Week		Amazon Connect Reports	
FOLDERS	Trend of Calls Abandoned This Week		Amazon Connect Reports	
All Folders	Agent Service Level 60 Today		Amazon Connect Reports	
Created by Me	Contacts Transferred In This Week		Amazon Connect Reports	
Shared with Me	Contacts Transferred Out This Week		Amazon Connect Reports	
Created by Me	Contacts Handled Outbound This W...		Amazon Connect Reports	
Shared with Me	Contacts Handled Incoming/Outgoi...		Amazon Connect Reports	
FAVORITES	Average Occupancy Today		Amazon Connect Reports	
All Favorites	Average Handle Time Today		Amazon Connect Reports	
	Agent Answer Rate This Week		Amazon Connect Reports	

To see the exact layout of imported data for Queue, select the Queue All Interval 30 Today report:

REPORT Queue All Interval 30 Today

Total Records 1

STARTINTERVAL ↑	AC OBJECT NAME	AFTER CONTACT WORK TIME	AGENT ON CONTACT TIME	AGENT IDLE TIME	AVERAGE QUEUE ANSWER TIME	AVERAGE AFTER CONTACT WORK TIME	AVERAGE HANDLE TIME	AVERAGE CUSTOMER HOLD TIME	AVG AGENT INTERACTION AND CUST HOLD TIME	AVERAGE AGENT INTERACTION TIME	CONTACTS ABANDONED	CONTACTS ABANDONED IN 15 SECONDS	CONTACTS ABANDONED IN 20 SECONDS	CONTACTS ABANDONED IN 25 SECONDS	CONTACTS ABANDONED IN 30 SECONDS	CONTACTS ABANDONED IN 45 SECONDS	CONTACTS ABANDONED IN 60 SECONDS	CONTACTS ABANDONED IN 90 SECONDS	CONTACTS ABANDONED IN 120 SECONDS
23/11/2018 16:00	BasicQueue	461	991	18	19	461	992	-	531	531	0	-	-	-	-	-	-	-	
Grand Total (1 record)																			

To see the exact layout of imported data for Agent, select the Agent All Interval 30 Today report:

REPORT Agent All Interval 30 Today

Total Records 1

STARTINTERVAL ↑	USER	AC OBJECT NAME	AFTER CONTACT WORK TIME	AGENT ON CONTACT TIME	AGENT IDLE TIME	NONPRODUCTIVE TIME	AVERAGE AFTER CONTACT WORK TIME	Average Handle Time	Average Customer Hold Time	Avg Agent Interaction And Cust Hold Time	Average Agent Interaction Time	Contacts Agent Hung Up First	Contacts Consulted	Contacts Handled	Contacts Handled Incoming	Contacts Handled Outbound	Contacts Hold On Hold	Contacts Hold Disconnect	Contacts Hold Agent Disconnect	Contacts Hold Customer Disconnect
23/11/2018 16:00	-	mcosic	461	991	18	-	461	992	-	531	531	1	-	1	1	0	0	0	0	
Grand Total (1 record)																				

## CTI Flows

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.

### CTI Flows

New AC CTI Flow

No records to display

CTI Flow, go to your Adapter page and find a section called "CTI Flows."

AC CTI Flow Edit

Save Save & New Cancel

Information

CTI Flow Name	Create Screenpop	CTI Adapter	ACLightningAdapter
Source	Amazon Connect Voice Contact	Event	onConnecting
Description			
		Active	<input checked="" type="checkbox"/>
		Debug	<input type="checkbox"/>

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."

CTI Flow Name	--None--
Source	✓ Initialization
Description	Amazon Connect Agent Amazon Connect Voice Contact Amazon Connect Queue Callback Contact Amazon Connect Chat Contact Salesforce Agent Salesforce UI

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 A.)

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.



AC CTI Flow

## Create Screenpop

### AC CTI Flow Detail

[Edit](#) [Delete](#) [Clone](#)

#### ▼ Information

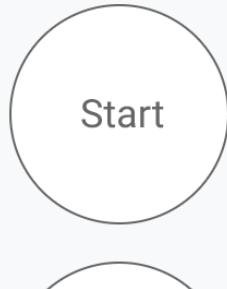
**CTI Flow Name** Create Screenpop**Source** Amazon Connect Voice Contact**Description****Created By** Amazon Connect, 7/23/2020 9:10 AM

#### ▼ CTI Flow

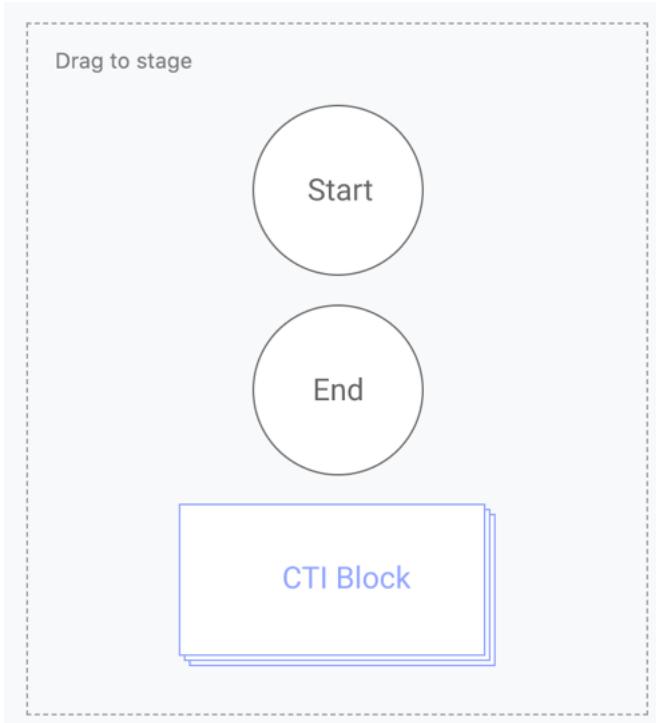
Main Menu

[Save](#)[Download](#) [Upload](#)

Drag to stage



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**

Search	Format Phone Number	Format Phone Number (E164)
phone	Formats a phone number for a country code.	Formats a phone number for a country code in E164 format.
Categories	Parameters >	Parameters >
Tags	What it calls: ac.Utils.Common.formatPhoneNumber(...)	What it calls: ac.Utils.Common.formatPhoneNumberE164(...)
Showing 13 actions	Select	Select
Save search		
Searches (Clear)	Get Softphone Layout	Show Softphone Panel
phone	The query to get softphone layout.	The command to show softphone panel.
date	What it calls: ac.Utils.Salesforce.getSoftphoneLayout()	What it calls: ac.Utils.Salesforce.showSoftphonePanel()

In the "Search" field, search for "Phone" and Select the action called "Get Customer Phone Number" from the results on the right.

Change type ▾

## Get Customer Phone Number

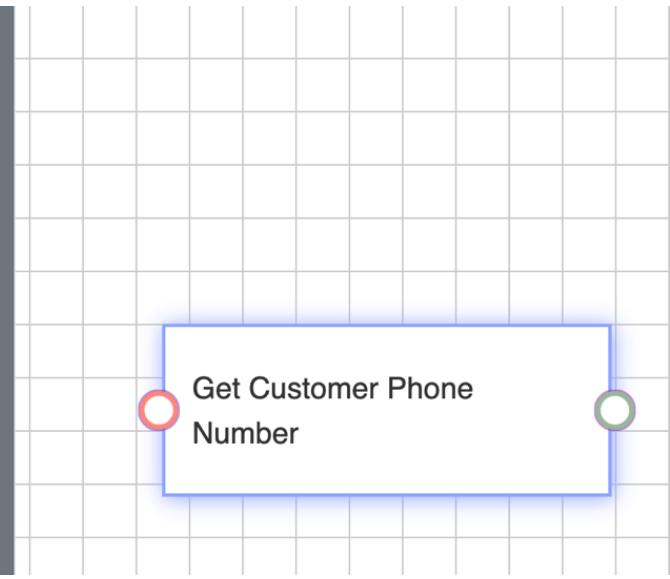
ID: uid-0

Remove About this action

### Return Values

This action has a return value. It returns the following fields. You may use these fields in the input fields of connected actions.

phone	Phone number of the caller.
country	Country of the phone number.



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.

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

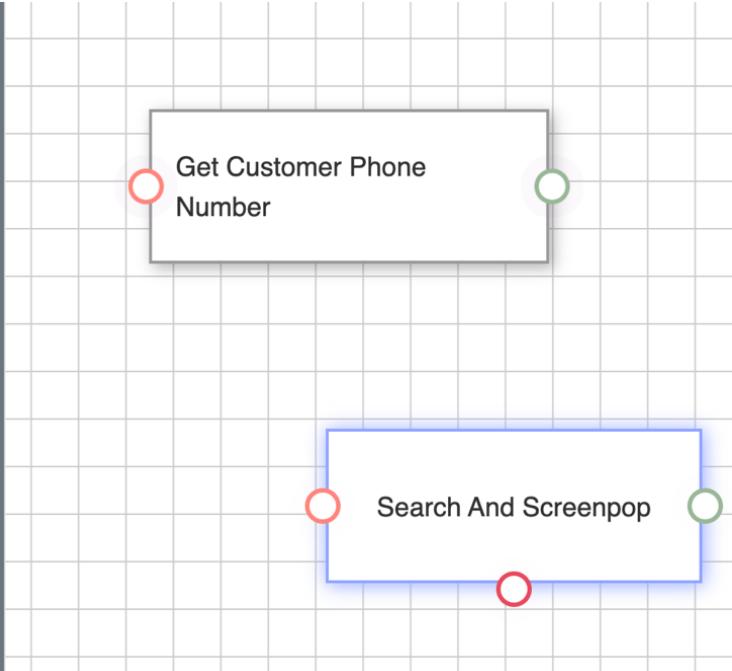
queryParams ⓘ

Enter a value

defaultFieldValues ⓘ

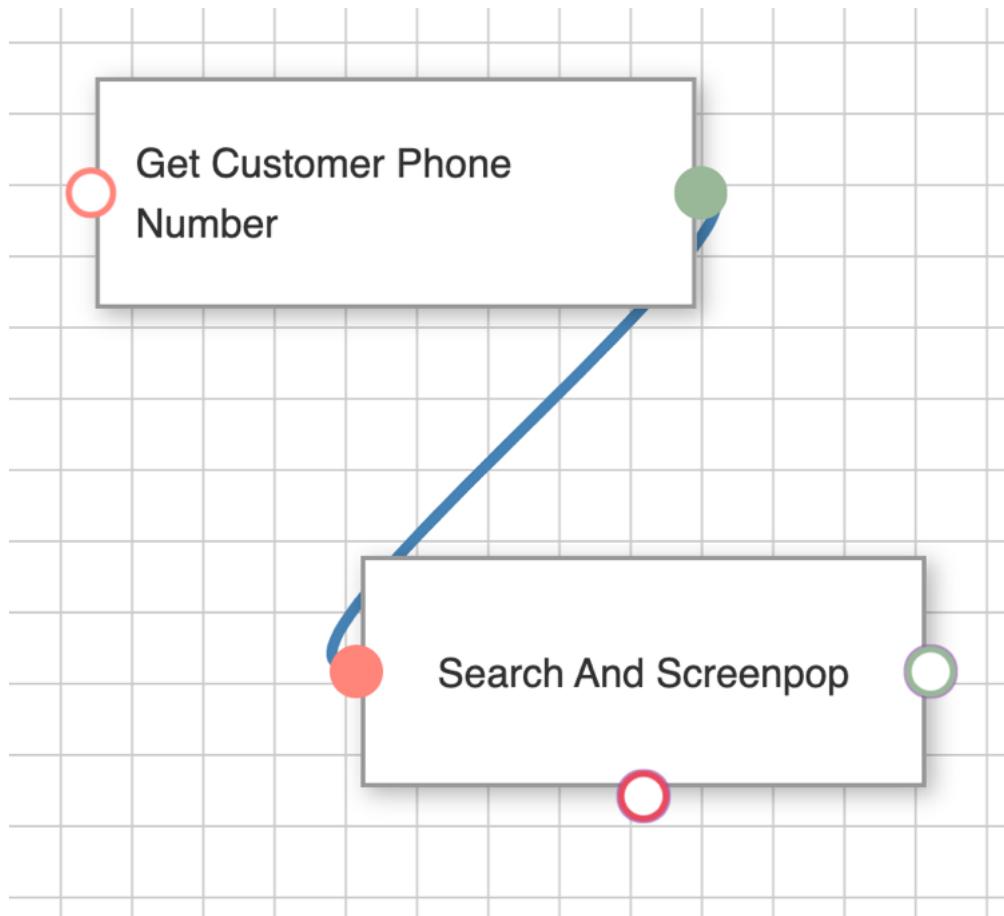
Add a field

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 i

Enter a value

GET CUSTOMER PHONE NUMBER (UID-0)

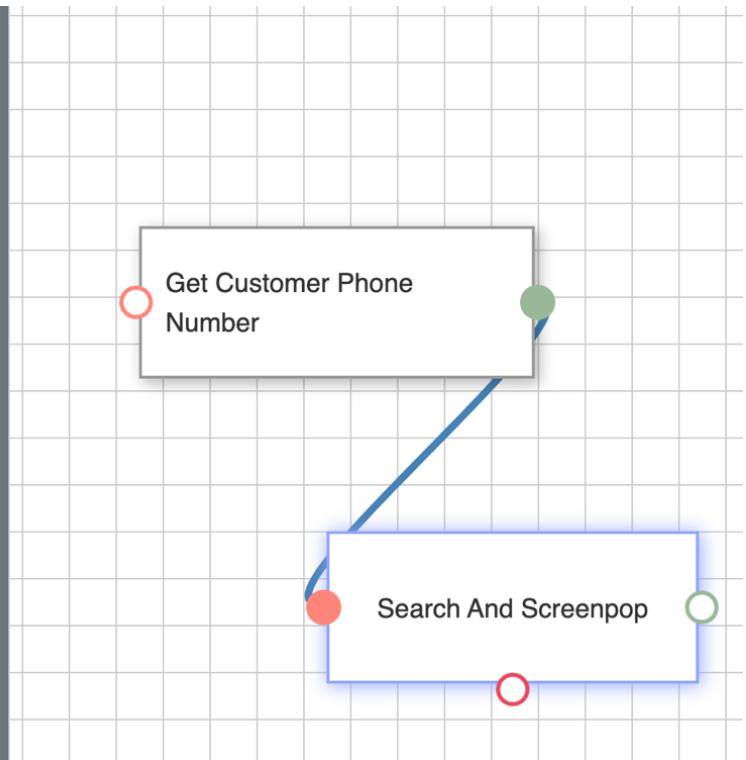
phone

country

Add a field

deferred i

callType i



## Search And Screenpop

ID: uid-9

Remove About this action

**Arguments**

searchParams i

ValueOf Get Customer Phone Num... x | v

queryParams i

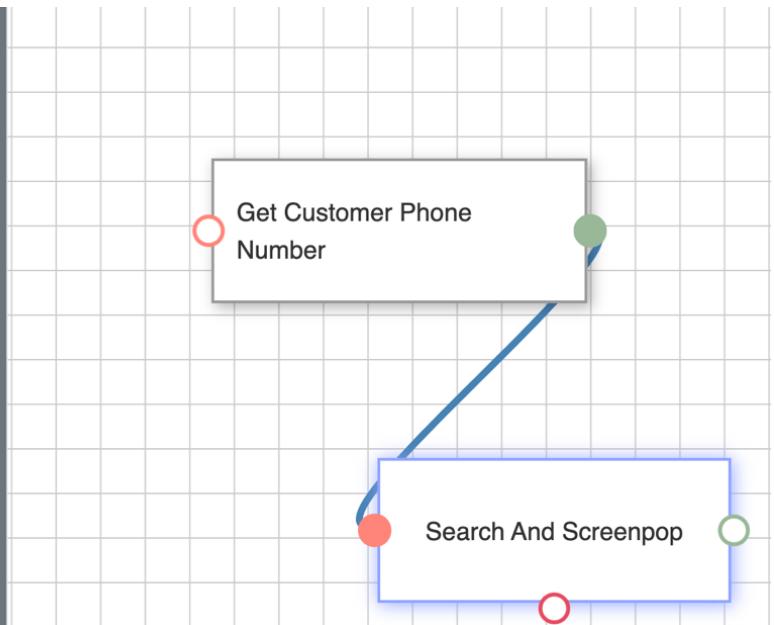
test|

✓ Add New Value

Add a field

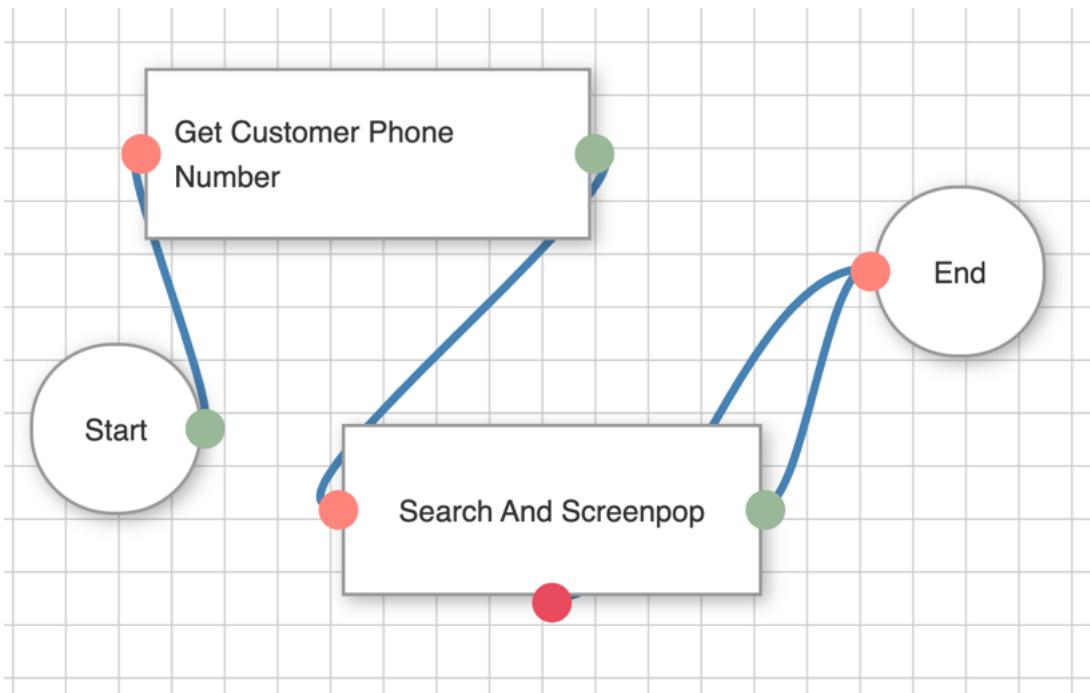
deferred i

callType i



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.

## Localization

### Prerequisites

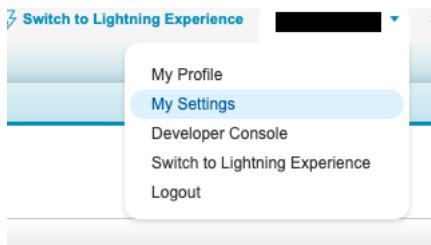
CTI Adapter will use Translation Workbench to maintain translated values for metadata and data labels in your Salesforce org. In order for that to work, you need to enable Translation Workbench in your org.

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".

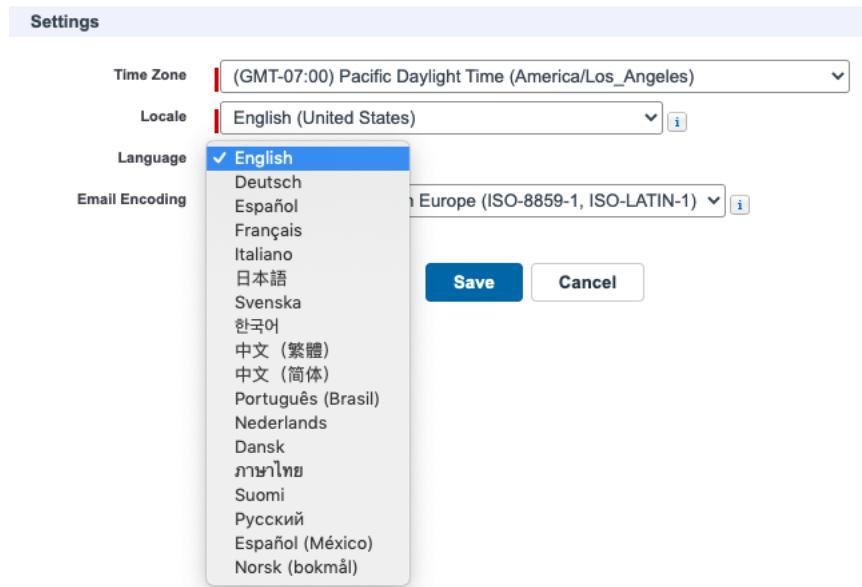


On the setting page on the left panel go to "Personal" and then select "Language & Time Zone".

A screenshot of the 'My Settings' page in the Salesforce interface. On the left, there is a sidebar with a 'Quick Find' search bar at the top. Below it, the 'My Settings' section is expanded, showing the 'Personal' category. Under 'Personal', there are several options: 'Personal Information', 'Change My Password', 'Language &amp; Time Zone' (which is highlighted in blue), 'Grant Account Login Access', 'My Groups', 'Reset My Security Token', 'Connections', 'Login History', 'Approver Settings', 'Advanced User Details', and 'Authentication Settings for External Systems'. The background of the main content area is white.

You can then select your preferred language. Note that CTI adapter only have nine languages built within the package.

## Language & Time Zone



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.

Menú Detalle

Guardar

**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.

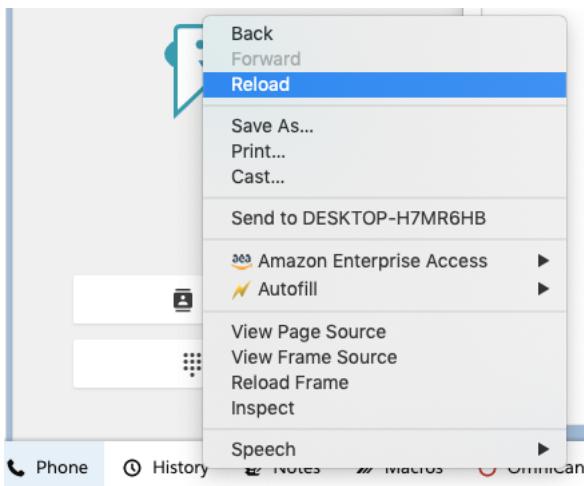
[Parámetros >](#)

[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 four tabs: 'Attributes' (which is highlighted in blue), 'CTI Flows', 'Presence Sync Rules', and 'Features'. Below the tabs, there is a section with a small icon and the text 'Attributes (0)'. The background of the main area is light grey.

- Reports. This is a missing functionality in Salesforce.

## CTI Actions

CTI Actions allow your agents to trigger CTI Flows with the push of a button. You can configure a CTI Action the CCP Element Editor page.

The screenshot shows the CCP Element Editor interface. At the top, there's a navigation bar with 'Service Console' and 'CCP Element Editor'. Below that is a toolbar with a pencil icon and the text 'CCP Element Editor'. The main content area has a title 'Actions'. It contains three steps: 'Step 1: Name and Flow', 'Step 2: Payload', and 'Step 3: Additional Data'. In 'Step 1', there are fields for 'Action Name' (containing 'Leave Voicemail'), 'CTI Flow' (containing 'Leave a Voicemail'), and 'Order' (containing '0'). There are also buttons for 'Save', 'Quick Save', 'Delete', and 'Cancel'.

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 payload can be used in your CTI Flow. Another option is to allow your agents to enter additional data about the

customer or the nature of the call. The CCP Element Editor gives you the ability to add form fields into your form as well.

**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)	<a href="#">Overview</a> <a href="#">Form fields</a> <a href="#">New field +</a>

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)	<a href="#">Overview</a> <a href="#">Form fields</a> <a href="#">New field +</a>

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.

[Overview](#) [Form fields](#) [New field +](#)

**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.

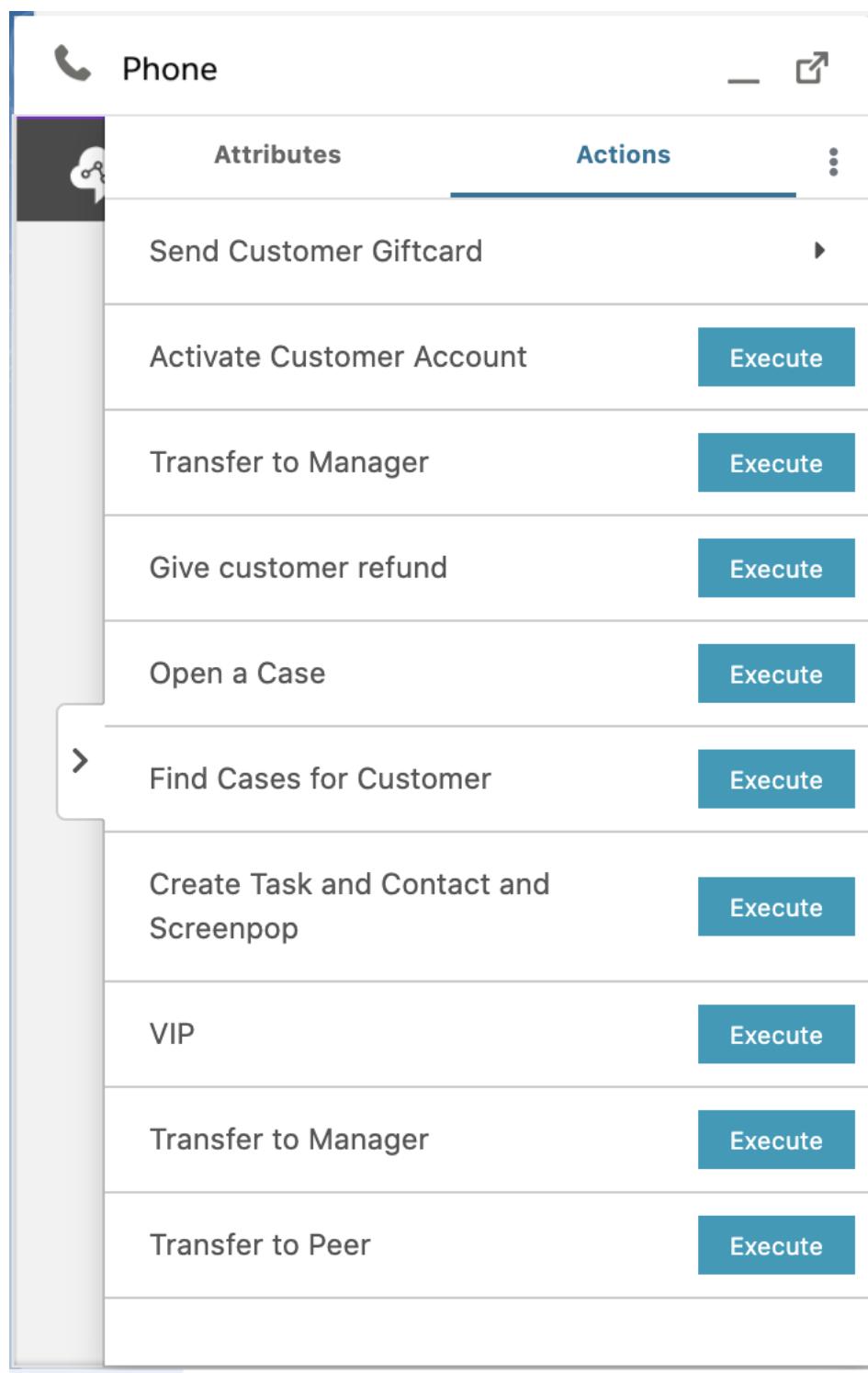
Field Required

[Cancel](#) **Finish**

[◀ Overview](#)

## CCP Overlay

The Actions panel in the CCP Overlay drawer displays the CTI Actions, where your agents can have easy access to them as they are talking to customers.



If an action requires additional input by the agent, its name will be followed by an arrow and when the agent clicks on this item, it will open a form you have configured.

 Phone

 Attributes Actions 

 Go back

## Customer Gift Card

Please fill in these details about the user.

First name\*

John 

Last name\*

Doe

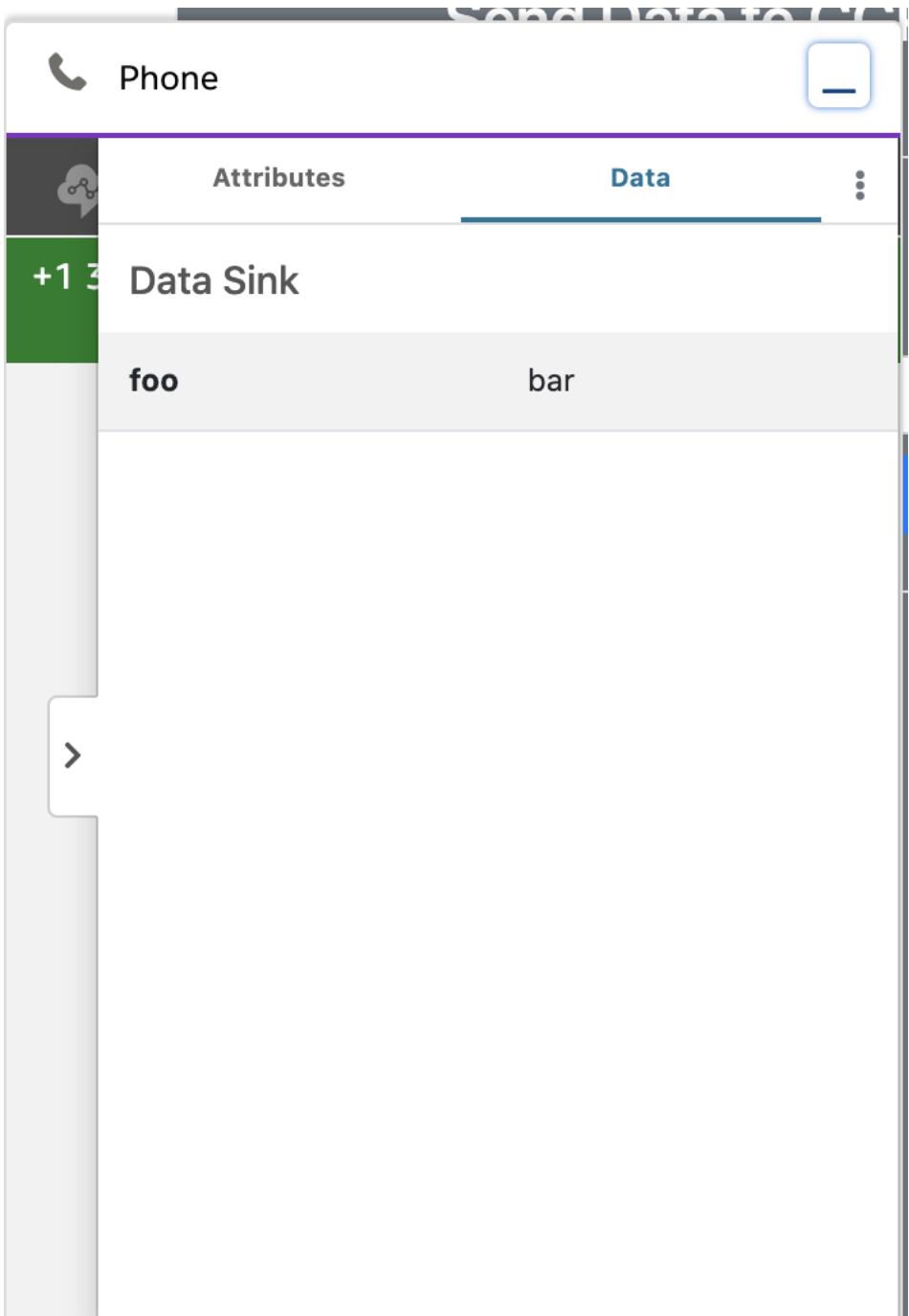
Telephone



If not, it will be shown with an "Execute" button next to its name.

## Receiving Data from CTI Flows

Just as your agents can send data to the CTI Flow, they can receive data as well. When a CTI Flow sends some information to the CCP overlay, it will be displayed in the Data panel.



This is what your block will look like in your CTI Flow.

**Send Data to CCP Overlay**

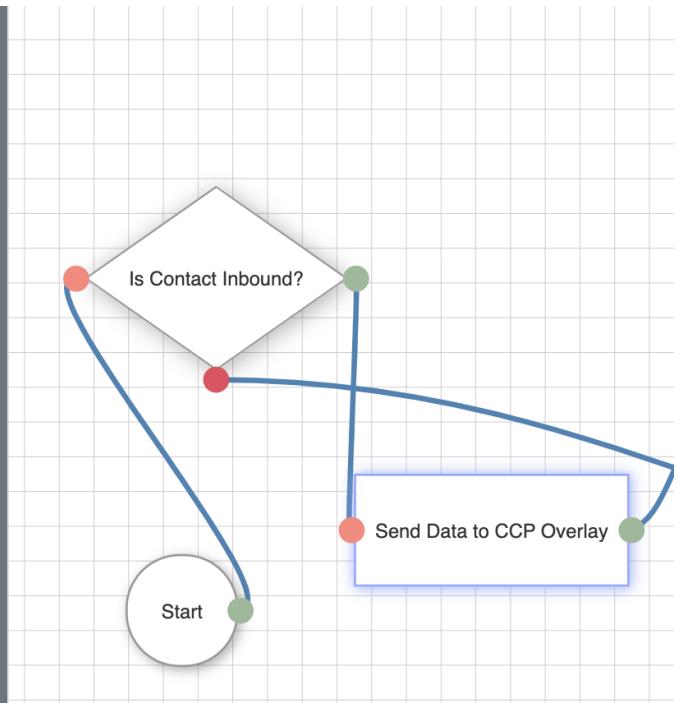
ID: uid-9 ⓘ

**Arguments**

value ⓘ optional

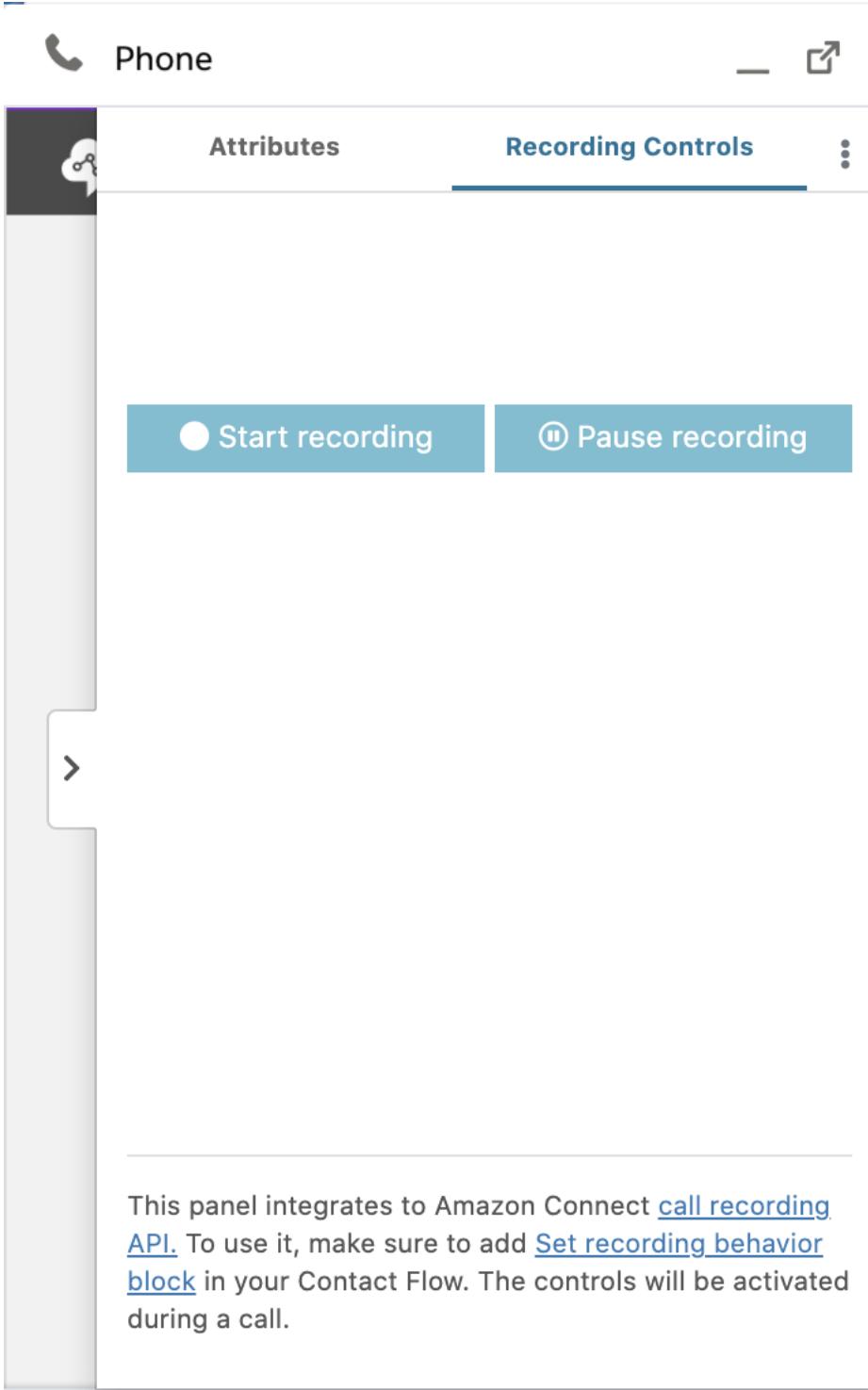
foo bar ⚡

Add a field



## Recording Controls

Recording Controls panel in the CCP Overlay allows your agents to control the recording behavior of the 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.

# Invoking the Amazon Connect Salesforce Lambda in a Contact Flow

The Amazon Connect Contact Flow defines the routing behaviour within Amazon Connect, allowing contact center administrators to customize call flow behaviour such as playing prompts, invoking Lambda functions for data lookup, and sending the call to different queues based on various conditions. As a result, Contact Flows are expected to be highly customized for each organization. While the Adapter package does not provide any Contact Flows, there are some best practices that are worth highlighting when utilizing the Adapter.

The key element that enables Contact Flow integration is the AWS Lambda function. A Lambda function is a serverless piece of code that is invoked by the Contact Flow. Typically, Lambda functions are used to update or retrieve information from databases or APIs, as well as integrating with other systems. Lambda function can return any data processed to the Contact Flow where it can be used for decision making.

Since Salesforce is highly customizable, the same Salesforce object in a different environment may have different fields associated with it. As a result, we can expect objects to have different requirements for how they are retrieved, updated and created. The CTI Adapter was built to be able to query Salesforce objects regardless of how they have been customized. The user of the Adapter must therefore ensure they are passing the appropriate parameters to the Lambda functions provided as part of the Adapter.

The Lambda function supports different operations, based on the mandatory input parameter "sf\_operation".

## 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.

- "**sf\_object**" parameter contains Salesforce Object, like Case, Contact etc.
- "**sf\_fields**" parameter contains a set of fields to be returned in a result. For example, if we are querying Case, we might specify "Id, IsClosed, Subject", or if we are querying Contact, we might specify "Id, Name, Email"
- Specify a conditional parameter, for example "CaseNumber" or "homephone". Multiple values may be sent and they will be applied with "AND" operator.

In the Amazon Connect Contact Flow Designer, add *Integrate > Invoke AWS Lambda function* block. Set 'sfInvokeAPI' Lambda ARN and make sure you have granted Amazon Connect to invoke the Lambda Function.

Example for phone number lookup:

## Invoke AWS Lambda function

X

Makes a call to AWS Lambda, and optionally returns key / value pairs.

The returned key value pairs can be used to set contact attributes.

Function ARN

arn:aws:lambda:us-east-1:680944752362:function:aws-ser

Function input parameters

Use text

X

Destination key

sf\_operation

Value

lookup

Use text

X

Destination key

sf\_object

Value

Contact

Use text

X

Destination key

sf\_fields

Value

Id, Name

Use attribute

Destination key

homephone

Type

System

Attribute

Customer Number

A result example:

```
"ExternalResults": {  
    "Id": "0031r000026MVPAA4",  
    "sf_count": "1",  
    "Name": "Milos Cosic"  
}
```

## Example for Case lookup:

Invoke AWS Lambda function X

---

Makes a call to AWS Lambda, and optionally returns key / value pairs.

The returned key value pairs can be used to set contact attributes.

Function ARN

2362:function:aws-serverless-repository-AmazonConnec-s X

Function input parameters

Use text X

Destination key  
sf\_operation

Value  
lookup

Use text X

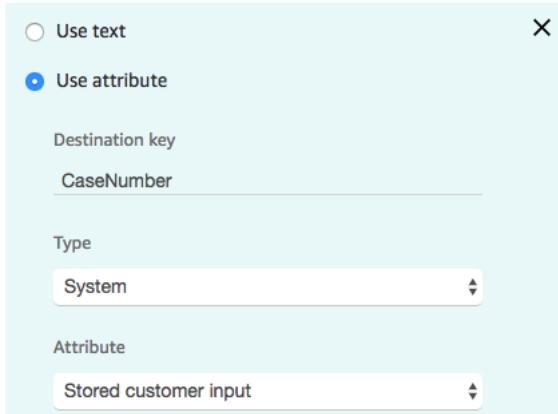
Destination key  
sf\_object

Value  
Case

Use text X

Destination key  
sf\_fields

Value  
Id, IsClosed, Subject



A result example:

```
"ExternalResults": {  
    "Id": "5001r000023QcAcAAK",  
    "IsClosed": "true",  
    "sf_count": "1",  
    "Subject": "Amazon Connect Case"  
}
```

## 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.

- "**sf\_object**" parameter contains Salesforce to be created, like Case.
- 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 Amazon Connect Contact Flow Designer, add *Integrate > Invoke AWS Lambda function* block. Set 'sfInvokeAPI' Lambda ARN and make sure you have granted Amazon Connect to invoke the Lambda Function.

An example for Case creation:

## Invoke AWS Lambda function

X

Makes a call to AWS Lambda, and optionally returns key / value pairs.

The returned key value pairs can be used to set contact attributes.

Function ARN

[serverless-repository-AmazonConhec-sfInvokeAPI-2R3T34AMC](#)

Function input parameters

Use text X

Destination key  
sf\_operation

Value  
create

Use text X

Destination key  
sf\_object

Value  
Case|

Use text X

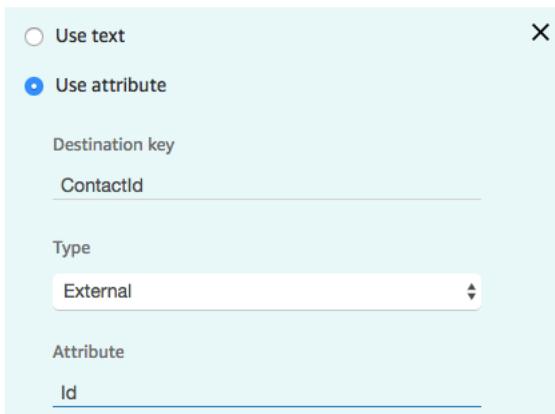
Destination key  
Origin

Value  
Phone

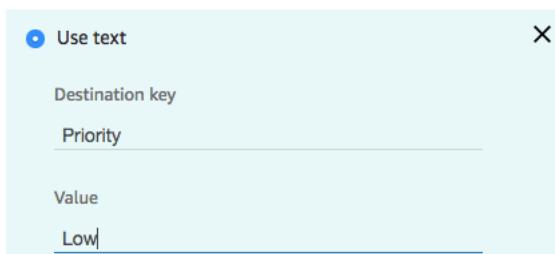
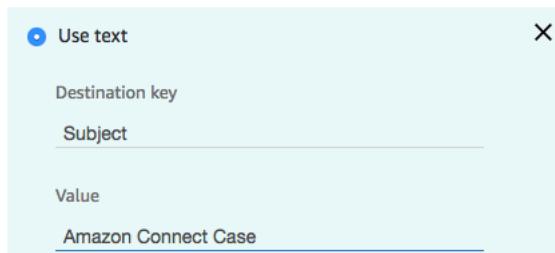
Use text X

Destination key  
Status

Value  
New



Contact Id is usually received as a result of a previous phone lookup, but it can be also stored as an Attribute (i.e. sf\_contact\_id)



A result example (providing the newly created Case Id):

```
"ExternalResults": [ { "Id": "5001r000023QfhPAAS" } ]
```

## 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.

- "sf\_object" parameter contains Salesforce to be updated, like Case.
- Specify additional parameters for the Salesforce object to be created. Parameters must include `sf\_object` and `sf\_id`.

In the Amazon Connect Contact Flow Designer, add *Integrate > Invoke AWS Lambda function* block. Set 'sfInvokeAPI' Lambda ARN and make sure you have granted Amazon

Connect to invoke the Lambda Function.

An example for Case update:

Invoke AWS Lambda function X

---

Makes a call to AWS Lambda, and optionally returns key / value pairs.

The returned key value pairs can be used to set contact attributes.

Function ARN

752362:function:aws-serverless-repository-AmazonConnec~~ected~~

---

Function input parameters

Use text X

Destination key  
sf\_operation

Value  
update

Use text X

Destination key  
sf\_object

Value  
Case|

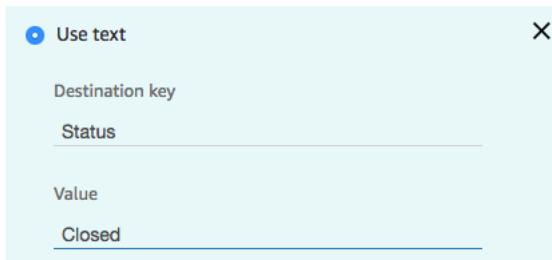
Use attribute

Destination key  
sf\_id

Type  
External

Attribute  
Id|

Case Id is usually received as a result of a previous case lookup, but it can be also stored as an Attribute (i.e. sf\_case\_id)



A result example (HTTP Status Code):

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

204 is "No Content" success code

## Salesforce Phone Lookup

This operation is invoked by setting "sf\_operation" to "phoneLookup". In this case, the Lambda function queries Salesforce for Contacts based on the parameter passed to it.

It uses the 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.

- "**sf\_phone**" parameter contains the phone number to search.
- "**sf\_fields**" parameter contains a set of fields to be returned in a result. As it searches for Contacts, we might specify "Id, Name, Email"

In the Amazon Connect Contact Flow Designer, add *Integrate > Invoke AWS Lambda function* block. Set 'sfInvokeAPI' Lambda ARN and make sure you have granted Amazon Connect to invoke the Lambda Function.

Example for phone number lookup:

## Invoke AWS Lambda function

Makes a call to AWS Lambda, and optionally returns key / value pairs.

The returned key value pairs can be used to set contact attributes.

Function ARN

[serverless-repository-AmazonConnec-sfInvokeAPI-2R3T34AMG](#)

Function input parameters

Use text

Destination key  
`sf_operation`

Value  
`phoneLookup`

Use text

Destination key  
`sf_fields`

Value  
`Id, Name`

Use attribute

Destination key  
`sf_phone`

Type  
`System`

Attribute  
`Customer Number`

A result example:

```
"ExternalResults": {  
    "Id": "0031r000026MVPiAA4",  
    "sf_count": "1",  
    "Name": "Milos Cosic"  
}
```

## 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.

- "query" parameter contains the 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".

#### Function input parameters

Use text X

Destination key  
sf\_operation

Value  
query

Use attribute

In the contact flow example below, we look for a customer by phone number.

Use text X

Use attribute X

Destination key

number

Type

System

Attribute

Customer Number

(full text of the value is "select Id from Contact where Phone LIKE '%number%'")

Use text X

Destination key

query

Value

select Id from Contact where Phone LIKE '%numl

Use attribute X

This operation returns a response of:

```
{  
  "sf_records": [  
    {
```

```
        "Id": "00303000001RZfIAAW"
    }
],
"sf_count": "1"
}
```

## 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" parameter contains the 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

(full text of the value is "select Id from Contact where Phone LIKE '%number%'")

Use text

X

Destination key

query

Value

select Id from Contact where Phone LIKE '%numl

Use attribute

Use text

X

Use attribute

Destination key

number

Type

System



Attribute

Customer Number



This operation returns a response of:

```
{  
    "sf_records": [  
        {  
            "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 {{caseld}}"
- caseld: 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

X

Destination key

sf\_operation

Value

createChatterPost

Use attribute

Use text

X

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 X

Use attribute X

Destination key

contactId

Type

System

Attribute

Contact id

Use text X

Destination key

sf\_message

Value

I had a problem during the call. My contact id is {{contactId}}

Use attribute X

(full text of the value is "I had a problem during the call. My contact id is {{contactId}}.")

The operation returns a response of:

```
{  
    "Id": "0D503000000ILY5CAO"  
}
```



apiuser



I had a problem during the call. My contact id is dda99fbf-6186-4125-ba59-c461d620fdbd.

[Comment](#) · [Like](#) · Today at 3:45 PM via Amazon Connect Integration

the Subject:

## 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 {{ caseld }}"
- caseld: 1234

In the contact flow example below, we leave a comment on a chatter post.

Use text

X

Destination key

sf\_operation

Value

createChatterComment

Use attribute

Use text

X

Destination key

sf\_feedElementId

Value

0D503000000ILY5CAO

Use attribute

Use text

X

Destination key

sf\_commentType

Value

Text

Use attribute

Use text

X

Destination key

sf\_message

Value

This concern has been addressed.

Use attribute

The operation returns a response of:

```
{  
    "Id": "0D703000000ChhNCAS"  
}
```

See the chatter post appear attached to the Subject:



apiuser

I had a problem during the call. My contact id is dda99fbf-6186-4125-ba59-c461d620fdbd.

[Comment](#) · [Like](#) · Today at 3:45 PM via Amazon Connect Integration



apiuser

This concern has been addressed.

[Like](#) · Today at 3:53 PM via Amazon Connect Integration

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

See the below example:

Use text X

Destination key

sf\_operation

Value

search

Use attribute

58

Use text X

Destination key

q

Value

test

Use attribute

59

Use text

X

Destination key

sf\_object

Value

Case

Use attribute

60

Use text

X

Destination key

sf\_fields

Value

Subject, Status

Use attribute

61

Use text

X

Destination key

overallLimit

Value

3

Use attribute

62

Use text

X

Destination key

where

Value

Status like 'New'

Use attribute

63

The operation returns a response of:

```
{  
    "sf_records": [  
        {  
            "Id": "50001000001B9e6AAG",  
            "Subject": "test subject",  
            "Status": "New"  
        },  
        {  
            "Id": "50001000001B9eWAAS",  
            "Subject": "test subject",  
        }  
    ]  
}
```

```
        "Status": "New"
    } ,
    {
        "Id": "50001000001BDgiAAG",
        "Subject": "test subject",
        "Status": "New"
    }
],
"sf_count": 3
}
```

## 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

See the below example:

Use text X

Destination key

sf\_operation

Value

searchOne

Use attribute

Use text

X

Destination key

q

Value

test subject unique

Use attribute

Use text

X

Destination key

sf\_object

Value

Case

Use attribute

Use text

X

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:

```
{  
    "Id": "50001000001BIn6AAG",  
    "Subject": "test subject unique",  
    "Status": "New",  
    "sf_count": 1  
}
```

## Appendix A - CTI Flow Sources and Events

The following sources are defined in the adapter for use with CTI Scripts:

- 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.
- 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 chat 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.
- Amazon Connect Task Contact
    - onIncoming -- The tasks contact is incoming.
    - onConnecting -- The tasks 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.
  - 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

## Appendix B - Configuring Salesforce as Your Identity Provider

Amazon Connect supports Security Assertion Markup Language (SAML 2.0) to enable single sign on(SSO). Salesforce can act as a single sign on identity provider to service providers, allowing end users to easily and securely access many web and mobile applications with one login. By establishing the SSO integration between Amazon Connect and Salesforce, you will be able to seamlessly login to Salesforce and the same credentials will be used to auto-login to Amazon Connect.

# Configuration

## 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...](#)

Identity Provider Setup	
<a href="#">Enable Identity Provider</a>	
Click Enable Identity Provider to enable your Salesforce.com organization as an identity provider.	
Service Providers	
Service Providers are now created via Connected Apps. <a href="#">Click here.</a>	
Name	Created Date
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. At the top, there are buttons for 'Edit', 'Disable', 'Download Certificate', and 'Download Metadata'. The 'Download Metadata' button is highlighted with a red box. Below this, 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, Key Size: 2048, Unique Name: SelfSignedCert\_17Feb2020\_221125, Expiration Date: 2/17/2021, 4:00 AM), and 'SAML Metadata Discovery Endpoints' (Salesforce Identity: https://ctiadapterdemo-dev-ed.my.salesforce.com/.well-known/samlidp.xml).

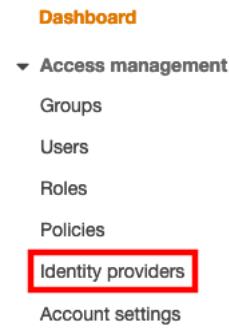
## Configure the Identity Provider, Policy, and Role in the AWS Console

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)

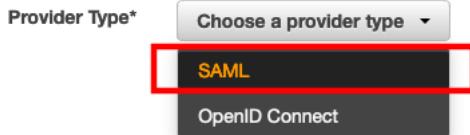


The screenshot shows the AWS IAM Dashboard. It includes a 'Dashboard' section and a sidebar with 'Access management' options: Groups, Users, Roles, Policies, and 'Identity providers' (which is highlighted with a red box). At the bottom of the sidebar are 'Account settings' and 'Create provider' buttons.

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

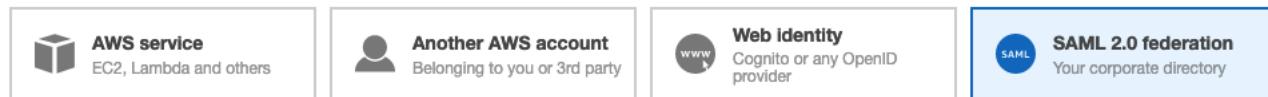
## Create the IAM Role and Policy

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: SalesforceConnect

[Create new provider](#) [Refresh](#)

Allow programmatic access only  
 Allow programmatic and AWS Management Console access

Attribute: SAML:aud

Value\*: <https://signin.aws.amazon.com/saml>

Condition: [Add condition \(optional\)](#)

### 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": [  
                "***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.

Create policy		↻				
<b>Filter policies</b> <span style="font-size: small;">▼</span> <input type="text" value="SalesforceConnectPolicy"/> Showing 1 result						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Policy name</th> <th style="width: 90%;">Used as</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"><input checked="" type="checkbox"/> ▶ <a href="#">SalesforceConnectPolicy</a></td> <td style="padding: 5px; text-align: center;">None</td> </tr> </tbody> </table>	Policy name	Used as	<input checked="" type="checkbox"/> ▶ <a href="#">SalesforceConnectPolicy</a>	None	
Policy name	Used as					
<input checked="" type="checkbox"/> ▶ <a href="#">SalesforceConnectPolicy</a>	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 **Apps** and select **Build->Create->Apps**
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

**Basic Information**

Connected App Name	AmazonConnectSAML
API Name	AmazonConnectSAML
Contact Email	douglas+ctiadapterdemo@amazon.com
Contact Phone	
Logo Image URL	
Upload logo image or <a href="#">Choose one of our sample logos</a>	
Icon URL	
<a href="#">Choose one of our sample logos</a>	
Info URL	
Description	

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	
Enable SAML	<input checked="" type="checkbox"/>
Entity Id	SalesforceConnect
ACS URL	https://signin.aws.amazon.com/saml
Enable Single Logout	<input type="checkbox"/>
Subject Type	Persistent ID
Name ID Format	urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified
Issuer	https://ctiadapterdemo-dev-ed.my.salesforce.com
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

The screenshot shows a 'Create Custom Attribute' dialog box. The 'Key' field is set to 'https://aws.amazon.com'. The 'Value' field contains the expression '\$User.Email1', which is highlighted with a blue rectangular border. Below the input fields are two buttons: 'Insert Field' and 'Insert Operator'. At the bottom of the dialog are 'Save' and 'Cancel' buttons.

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'
```

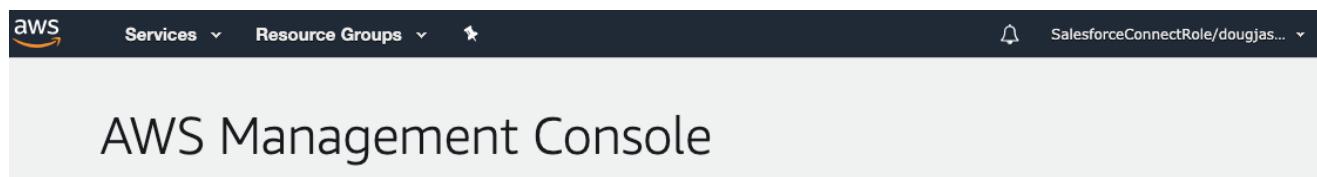
- i. Paste the formatted value into the Custom Attribute Value

19. Select **Save**

## Create Custom Attribute

Key https://aws.amazon.com  
Value  
Insert Field Insert Operator  
'arn:aws:iam::YOURACCOUNT:saml-provider/SalesforceConnect' & ',' &  
'arn:aws:iam::YOURACCOUNT:role/SalesforceConnectRole'  
Save Cancel

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.



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: #0070C0;">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. Click **Add New Users**
  7. Leave **Create and setup a new user** selected and choose **Next**
  8. Complete the First and Last name fields as appropriate
  9. Set the login name to match the **Email Address** of your Salesforce user
  10. Set the **Routing Profile**. In this example, the default Basic Routing Profile is shown
  11. Set the **Security Profile**. In this example, *Admin* is shown

## Add new user

1 Select source    2 Add user details    3 Verify user details

First name Jason	Last name Douglas	Login name j+ctiadapterdemo@amazon.com
---------------------	----------------------	---

**Routing Profile:**  
Basic Routing Profile

**Security Profiles:**

**Phone Type:**  
Soft phone   Auto-Accept Call

**After call work (ACW) timeout:**  
0

12. Select **Save**

13. Select **Create Users**

14. 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/{InstanceId}?destinat`

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/{InstanceId}`

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:  :instance/ 
Directory	
Login URL	<a data-bbox="339 1676 502 1704" href="https://&lt;img alt=" redacted"="">.awsapps.com/connect/login"&gt;https://.awsapps.com/connect/login</a>
	<a href="#">Login as administrator</a>



2. Concatenate the 'IdP-Initiated Login URL' and the 'RelayState', by combining the two with "&RelayState=" in between, for example:

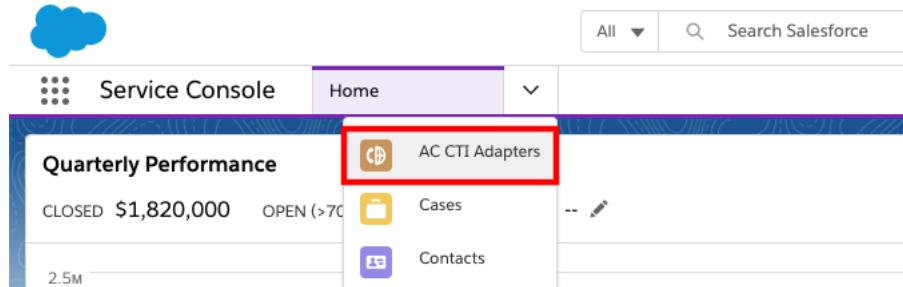
<https://mXXXXXXrun-dev-ed.my.salesforce.com/idp/login?app=0sp0N00000>

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

A screenshot of the AC Lightning Adapter configuration page. At the top, a section is expanded with the title 'Single SignOn (SSO)'. It contains two fields: 'SSO Url' and 'SSO Relay State', each with a red box around its corresponding pencil icon for editing.

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://mXXXXXXrun-dev-ed.my.salesforce.com/idp/login?app=0sp0N000`

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

The screenshot shows a configuration interface for Single SignOn (SSO). A dropdown menu is open, showing the option "Single SignOn (SSO)". Below it, there is a field labeled "SSO Url" containing the value "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://mXXXXXXrun-dev-ed.my.salesforce.com/idp/login?app=0sp0N000`

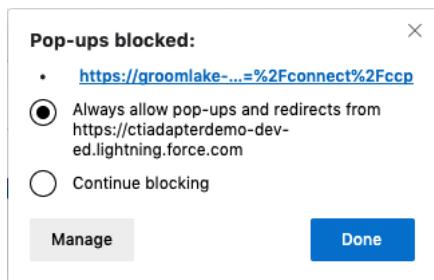
8. Paste this portion of the URL into the **SSO Relay State** field

The screenshot shows the same configuration interface for Single SignOn (SSO). The "SSO Url" field still contains "https://sample-dev-ed.my.salesforce.com/idp/login". Below it, the "SSO Relay State" field contains the value "app=0sp6g000000XZyd&RelayState=https://us-west-2.console.aws.amazon.com/connect/federate/YOUR-INSTANCE-ID?destination=%2Fconnect%2Fccp". The "RelayState" part of the URL is highlighted with a blue selection box.

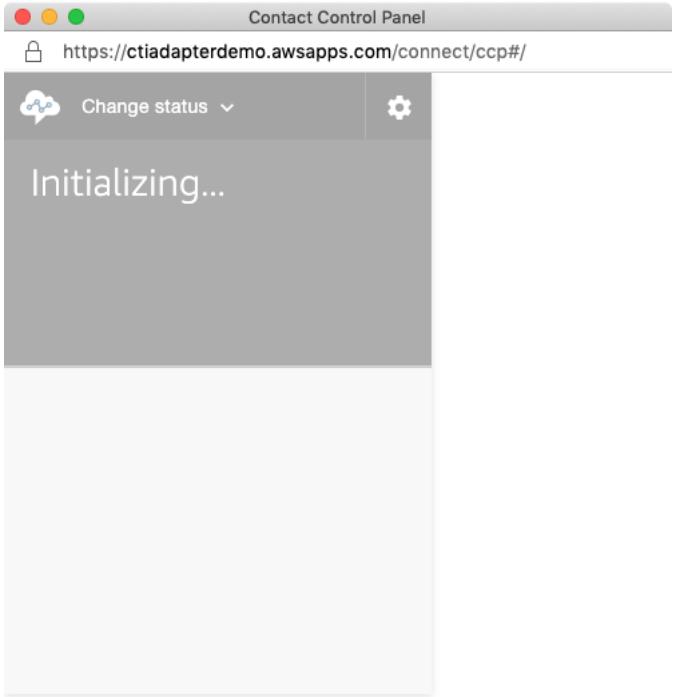
9. Choose **Save**

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

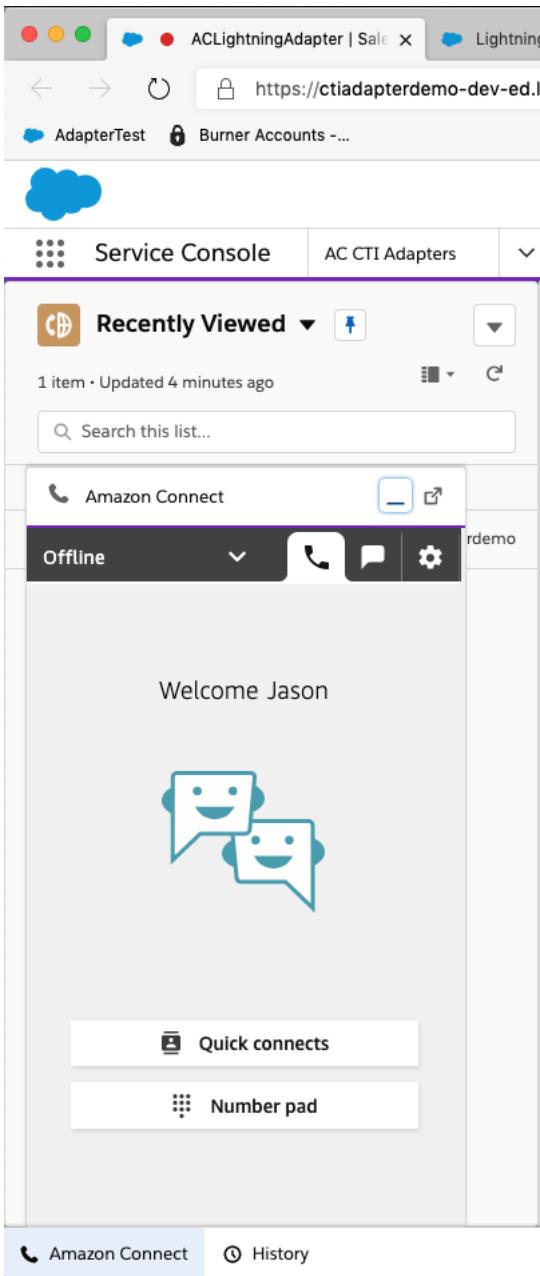
a. **NOTE:** If you receive a blocked popup warning, select the warning and change the setting to always allow popups from your Salesforce org, then refresh the browser again



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.



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



Configuration is complete

## Appendix C - CTI Flow Examples

This appendix includes samples scripts that provide different functionality depending on the event source.

### 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](#)

# Appendix D - 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 function.

## **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 60 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