

# TrueVoice PoV Registration

## Quick Start Reference Deployment

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Visit our [GitHub repository](#) for source files and to post feedback, report bugs, or submit feature ideas for this Quick Start.

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This Quick Start was created by Deloitte in collaboration with Amazon Web Services (AWS).

[Quick Starts](#) are automated reference deployments that use AWS CloudFormation templates to deploy key technologies on AWS, following AWS best practices.

## Overview

This deployment guide provides step-by-step instructions for deploying the TrueVoice Proof of Value (PoV) registration artifacts on the AWS Cloud.

### TrueVoice on AWS

TrueVoice is an artificial intelligence (AI)-driven voice analytics solution that analyzes behavior and emotion on every call, which helps call centers to quickly understand how customers feel. It monitors all customer interactions to highlight areas of risk and opportunities to improve outcomes.

TrueVoice analyzes both language and behaviors—“what is said” and “how it is said.” This is unique in that it harnesses the power of machine learning to predict outcomes instead of relying on standard keywords.

TrueVoice provides deep analytics and insights, which can be tailored to your specific requirements. Outcomes are based on a customer’s complete experience, rather than on isolated incidents. This provides outlier detection that enables appropriate action on higher-risk segments or interactions.

For more information about TrueVoice, see the [TrueVoice website](#).

As part of this Quick Start, complete the online form that asks questions about your business and the TrueVoice services that you want to use. You can select from a range of level 1 and level 2 services.

### LEVEL 1 SERVICES

- **Transcription:** Converts audio into text for insight and analysis
- **Reasons for call:** Understand caller intent to see the real drivers of customer interactions
- **Behavioral sentiment:** Identifies and categorizes emotions and sentiments on a call, using language and behavioral features, such as pitch
- **Complaints:** Identifies dissatisfied customers and those with a propensity to complain, which enables proactive interventions
- **Agent quality:** Uses a combination of features, including customer engagement, the emotional journey of a call, and compliance, to provide agent scores and benchmarking

### LEVEL 2 SERVICES

- **Vulnerability:** Identifies customers that show vulnerability traits from your call population
- **Customer churn:** Identifies characteristics of dissatisfied and unhappy customers with a higher propensity to leave
- **Agent churn:** Highlights agents who are under undue pressure and those at risk from churn factors
- **Additional use cases:** As part of the kickoff workshop, Deloitte will happily discuss other use cases that may be relevant to your business or industry. Examples include using voice recordings for Net Promoter Score (NPS) prediction and support for supply-chain management

**Note** After you complete the form and launch the Quick Start, the information you provide will undergo due diligence to ensure Deloitte can engage with you and that you satisfy the terms of the TrueVoice PoV. If this process is successful, the TrueVoice PoV engagement team will contact you to initiate the next steps of the process.

- Deloitte will share an [AWS Service Catalog](#) Product with you for launching TrueVoice PoV integration resources.

- Deloitte will then run a 2-hour workshop to review target use cases and outcomes in order to establish success metrics.
- Deloitte will engage with you in PoV testing. We will ingest sample data, provide initial outcomes based on the services you are interested in, and then tailor these outcomes to your specific business needs (e.g., tailoring baseline models to your business' particular reasons for a call or definition of a complaint).

### DURING THE PoV PROCESS

- In week 1, Deloitte will provide you with baseline results from call recordings, which are accessible through the TrueVoice web application.
- Throughout the PoV process, Deloitte will provide updates on the progress of tailoring services to your business needs. For level 1 services, these typically take 2–4 weeks to refine, whereas level 2 services can take 4–8 weeks. At the end of the PoV, Deloitte will walk you through the updated insights and demonstrate the value of TrueVoice and its capabilities.

### AFTER THE PoV PROCESS

- Deloitte will initiate a one-time deployment, or an established cadence of ongoing advanced analytics against aligned key metrics, with reporting and continuous feedback mechanisms in place.
- The timelines for this will depend on the scope, volume of call recordings, and any contractual discussions.

**Note** The TrueVoice service will process the audio files that you provide during the TrueVoice PoV. The audio files will be processed exclusively in the EU (London) Region, and all processing outputs will be stored in this Region for up to 90 days after the completion of the PoV. The service may be expanded to other AWS Regions based on customer demand, localization, data sovereignty requirements, and other relevant criteria.

### Cost and licenses

If you successfully register for the TrueVoice PoV, you will be responsible for the costs of running the TrueVoice integration AWS resources defined in the AWS Service Catalog Product.

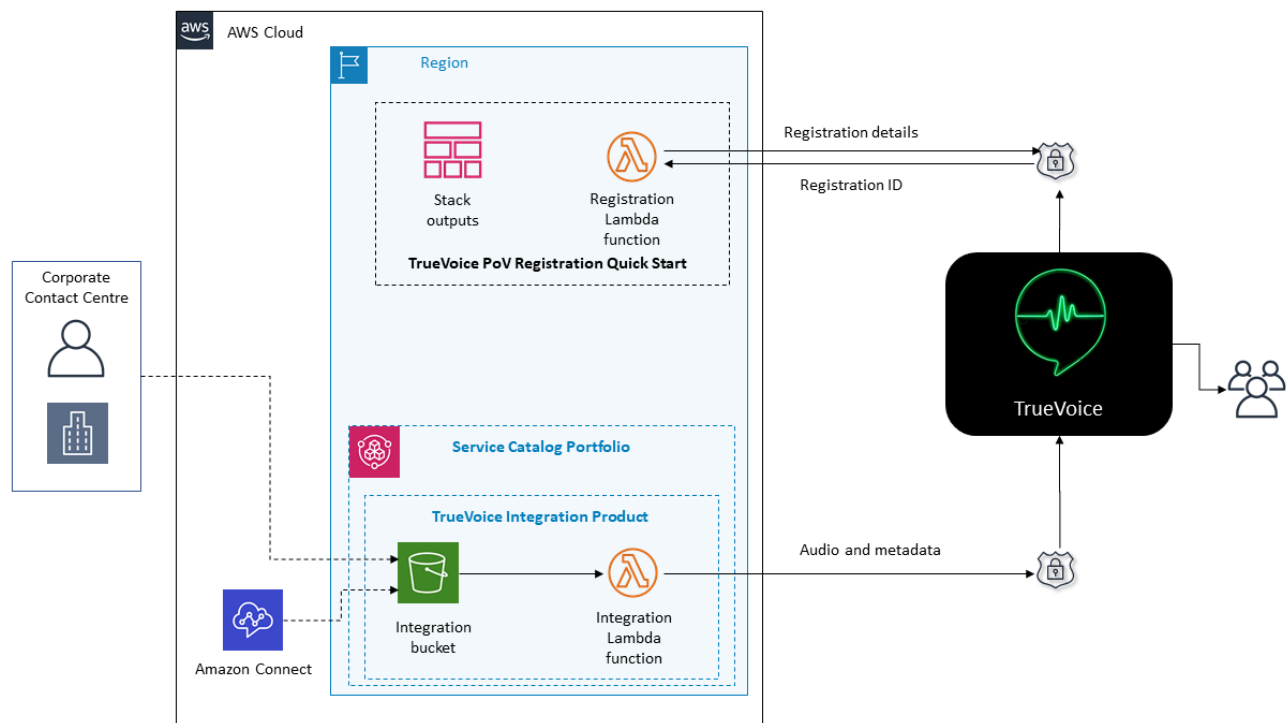
For cost estimates, see the pricing pages for each AWS service you will be using. Prices are subject to change.

**Tip** After you deploy the Quick Start, we recommend that you enable the [AWS Cost and Usage Report](#) to track costs associated with the Quick Start. This report delivers billing metrics to an Amazon Simple Storage Service (Amazon S3) bucket in your account. It provides cost estimates based on usage throughout each month and finalizes the data at the end of the month. For more information about the report, see the [AWS documentation](#).

There is no cost to you for any services provided as part of TrueVoice PoV.

## Architecture

Deploying this Quick Start provides registration and proposed onboarding information for validation by the TrueVoice customer engagement team. After successful registration and due-diligence procedures are completed by TrueVoice, an AWS Service Catalog Product will be made available to users, which provides a multipurpose TrueVoice PoV integration layer for use with AWS Connect, Corporate Data Center, or AWS Management Console uploads to S3:



**Figure 1: Architecture for the TrueVoice PoV integration on AWS**

This Quick Start sets up the following:

- A registration stack consisting of a Custom Resource AWS Lambda function that will invoke the TrueVoice PoV registration API and return a registration ID as a CloudFormation output.

After successful registration, an AWS Service Catalog Product will be made available to the account from where the Quick Start was launched, providing a template that sets up the following:

- An S3 bucket intended for integration with customer-dedicated resources in the TrueVoice AWS account and used as a staging area for audio files sourced from on-premises telephony systems or Amazon Connect.
- A Lambda function tasked with transferring files from the customer's integration bucket to the TrueVoice AWS account.
- The required Lambda AWS Identity and Access Management (IAM) Execution Role to carry out the transfer from the integration bucket to the customer-dedicated resources in the TrueVoice AWS account.

## Planning the deployment

### Specialized knowledge

This Quick Start assumes familiarity with [AWS CloudFormation](#), [AWS Lambda](#), [Amazon S3](#), and [AWS Service Catalog](#).

This deployment guide also requires a moderate level of familiarity with AWS services. If you're new to AWS, visit the [Getting Started Resource Center](#) and the [AWS Training and Certification website](#) for materials and programs that can help you develop the skills to design, deploy, and operate your infrastructure and applications on the AWS cloud.

### AWS account

If you don't already have an AWS account, create one at <https://aws.amazon.com> by following the on-screen instructions. Part of the sign-up process involves receiving a phone call and entering a PIN using your phone keypad.

Your AWS account is automatically signed up for all AWS services. You are charged only for the services you use.

## Deployment steps

### Step 1. Sign in to your AWS account

1. Sign in to your AWS account at <https://aws.amazon.com> with an IAM user role that has the necessary permissions. For details, see [Planning the deployment](#) earlier in this guide.

### Step 2. Launch the Quick Start

**Notes** You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using this Quick Start. For full details, see the pricing pages for each AWS service you will be using in this Quick Start. Prices are subject to change. Sign in to your AWS account, and choose one of the following options to launch the AWS CloudFormation template. For help choosing an option, see [deployment options](#) earlier in this guide.

1. Launch the AWS CloudFormation template into your AWS account.



[Deploy TrueVoice PoV registration integration](#)

2. Check the AWS Region that's displayed in the upper-right corner of the navigation bar, and change it if necessary. The template is launched in the US East (N. Virginia) Region by default.
3. On the **Select Template** page, keep the default setting for the template URL, and then choose **Next**.
4. On the **Specify Details** page, change the stack name if necessary. Review the parameters for the template. Provide values for the parameters that require input. For all other parameters, review the default settings and customize them as necessary. When you finish reviewing and customizing the parameters, choose **Next**.

## PARAMETERS FOR DEPLOYING TRUEVOICE POV REGISTRATION AND INTEGRATION

[View template](#)

*Minimum requirements:*

Parameter label (name)	Default	Description
<b>Terms and conditions</b> (TermsAndConditions)	<i>Requires input</i>	<p>By submitting this form, you agree that Deloitte may process any personal data supplied by you (e.g., name, email address) as necessary in connection with the Deloitte TrueVoice service. For more details on how Deloitte handles and shares your information, your rights, and how to contact us, see the <a href="#">Privacy Statement</a>.</p> <p>Please note that any agreement to provide the TrueVoice service is subject to both the information we receive from you as well as the contract agreed upon between you and Deloitte for the services selected.</p> <p>By clicking <b>Yes</b>, you confirm that you have read and agree to Deloitte's <a href="#">Terms and Conditions</a>. You also certify that you are lawfully able to enter into contracts, and if you are entering into these Terms and Conditions on behalf of another entity, such as the company you work for, you certify that you have legal authority to bind that entity.</p> <p>We reserve the right, at our sole discretion, to change, modify, or update the Terms and Conditions at any time.</p> <p>Please select <b>Yes</b> to confirm this.</p>
<b>Volume of data</b> (VolumeOfData)	<i>Requires input</i>	<p>Confirmation that you are able to provide at least 1,000 hours of audio, which is a requirement for this engagement (maximum of 3,000 hours).</p> <p>Choose <b>Yes</b> to confirm this.</p>
<b>Permission to transfer</b> (PermissionToTransfer)	<i>Requires input</i>	<p>Confirmation that it is appropriate for you to transfer this data to TrueVoice for processing and use in this engagement. For the PoV, Deloitte will hold your data for 90 days post PoV completion, after which data will be deleted.</p> <p>Choose <b>Yes</b> to confirm this.</p>
<b>Permission to process</b> (PermissionToProcess)	<i>Requires input</i>	<p>Permission to process your data on the TrueVoice platform. By submitting this application, you permit Deloitte to process your data on the TrueVoice platform for the Deloitte-provisioned AWS Cloud in the EU (London) Region. The service may be expanded to other Regions based on customer demand, localization, data sovereignty requirements, or other relevant criteria.</p> <p>Choose <b>Yes</b> to confirm this.</p>
<b>Multi-factor authentication</b> (MFA)	<i>Requires input</i>	<p>MFA user name and password. Users of the Deloitte Hosted Web Application will be provisioned with the MFA user name and password.</p>



Parameter label (name)	Default	Description
		Choose <b>Yes</b> to confirm this.

### *Customer information:*

Parameter label (name)	Default	Description
<b>Customer name</b> (CustomerName)	<i>Requires input</i>	The name of the company this service is for.
<b>Company registered address</b> (CustomerRegisteredAddress)	<i>Requires input</i>	The address of the company this service is for.
<b>Company industry</b> (CustomerIndustry)	<i>Requires input</i>	The industry the company serves.
<b>Brief description of company</b> (BriefDescriptionOfCustomer)	<i>Requires input</i>	A brief overview of the company's work.
<b>Previous company names</b> (PreviousCustomerNames)	<i>Requires input</i>	Company names. List any other company names from the last 3 years.
<b>Stock exchange listing</b> (ListedOrQuoted)	<i>Requires input</i>	Stock exchange listing. Choose <b>Yes</b> if the company is listed on a stock exchange.
<b>Name of person completing the form</b> (PersonCompletingForm)	<i>Requires input</i>	The name of the person completing this template.
<b>Email of person completing the form</b> (PersonCompletingEmailAddress)	<i>Requires input</i>	The email address of the person completing this template.
<b>Customer main contact name</b> (CustomerMainContactName)	<i>Requires input</i>	The name of the main customer contact for this service. Correspondence will be with this person.
<b>Customer main contact email</b> (CustomerMainContactEmail)	<i>Requires input</i>	The email of the main customer contact for this service. Correspondence will be with this person.

*Scope:*

Parameter label (name)	Default	Description
<b>Level 1 services</b> (Level1Services)	<i>Requires input</i>	Level 1 services for the PoV. To use TrueVoice, either <b>Level 1</b> or <b>Level 2</b> services must be selected.  Level 1 services will be discussed in more detail in the workshop session. Note that these services typically have a 1-4 week engagement window.
<b>Level 2 services</b> (Level2Services)	<i>Requires input</i>	Level 2 services for the PoV. To use TrueVoice, either Level 1 or Level 2 services must be selected.  Level 2 services will be discussed in more detail in the workshop session. Note that these services typically have a 4–8 week engagement window.

*TrueVoice front end:*

Parameter label (name)	Default	Description
<b>User profiles for PoV</b> (UsersPov)	<i>Requires input</i>	The number of Deloitte Hosted Web Application user profiles that you require. The maximum is 5 for a PoV. Deloitte will request these user details in the kickoff workshop.

*TrueVoice audio recordings:*

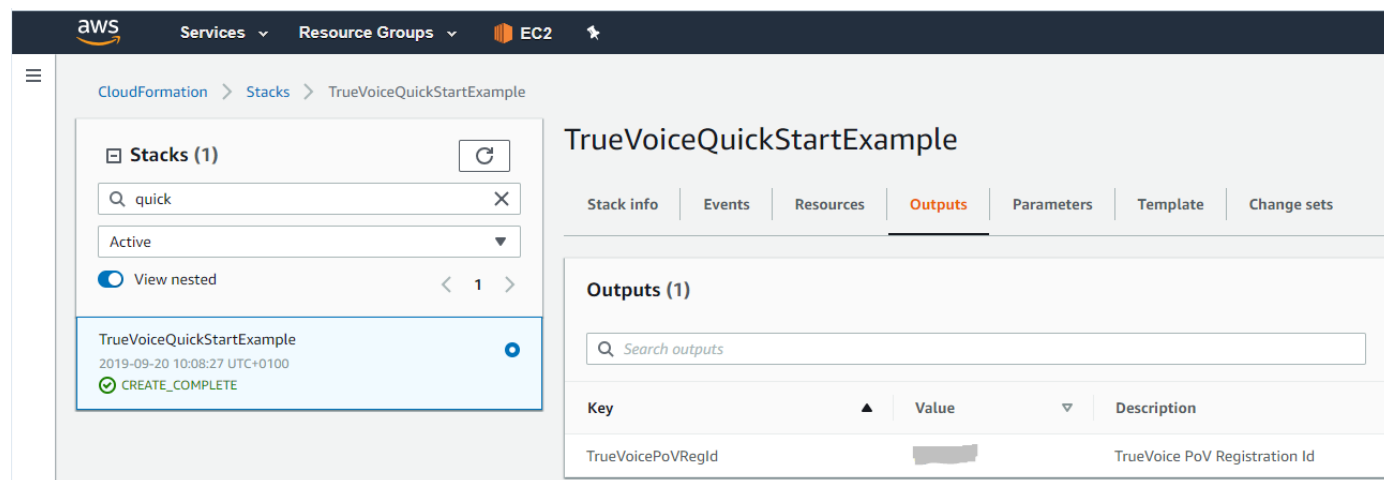
Parameter label (name)	Default	Description
<b>Audio file formats</b> (AudioFormatsFile)	<i>Requires input</i>	A comma-delimited list of audio file formats for TrueVoice to process. Available options: Unknown, .mp3, .wav, and .mov.
<b>Audio format codecs</b> (AudioFormatsCodecs)	<i>Requires input</i>	A comma-delimited list of audio format codecs for TrueVoice to use. Available options: Unknown, G729a, and G711.
<b>Multi-channel</b> (MultiChannel)	<i>Requires input</i>	Single-channel or multiple-channel. For each audio format listed, please list whether the audio will be single-channel or multi-channel, and whether caller audio and operator audio are separated by channel.
<b>Metadata</b> (Metadata)	<i>Requires input</i>	Minimum required metadata. Choose Yes to confirm that you are able to supply, alongside the media files, the minimum required metadata using the required format (refer to the <a href="#">File transfer to the TrueVoice AWS account</a> section in this deployment guide). Please also detail any other metadata, beyond the minimum amount, that you can provide.
<b>Sending files</b> (SendingFiles)	<i>Requires input</i>	Media upload. Choose Yes to confirm that you are able to push media into a dedicated pre-specified TrueVoice S3 bucket.

Parameter label (name)	Default	Description
<b>Data retention</b> (DataRetention)	<i>Requires input</i>	Confirmation of data retention. For the PoV, Deloitte will hold your data for 90 days post PoV completion, after which the data will be deleted.  Choose <b>Yes</b> to confirm this.

- On the **Options** page, you can [specify tags](#) (key-value pairs) for resources in your stack and [set advanced options](#). When you're done, choose **Next**.
- On the **Review** page, review and confirm the template settings. Under **Capabilities**, select the two check boxes to acknowledge that the template will create IAM resources and that it might require the capability to auto-expand macros.
- Choose **Create** to deploy the stack and monitor its status. When the status is **CREATE\_COMPLETE**, the TrueVoice PoV registration integration is ready.

### Step 3. Make note of your TrueVoice registration ID

Under the stack's outputs, note the TrueVoice registration ID. This is the number that will be quoted in all communications from the TrueVoice PoV engagement team. You can expect to be contacted by the TrueVoice PoV engagement team.



**Figure 2: TrueVoice PoV registration outputs after successful deployment**

### Step 4. Await confirmation from the TrueVoice PoV engagement team

The TrueVoice PoV engagement team will review all the information provided in the Quick Start template parameters and perform a set of due-diligence and conflict-check procedures

to ensure Deloitte can provide the PoV services. If these checks are successfully completed, you can expect to be contacted with:

- Details of the AWS Service Catalog Product that has been shared with the account used to launch the Quick Start
- Instructions on how to launch the AWS Service Catalog Product

**Note** The Service Catalog Product should be launched in the same region where the Quick Start was launched.

- An invitation to an onboarding workshop with the TrueVoice PoV delivery team

## File transfer to the TrueVoice AWS account

Audio and metadata files must be transferred for processing from your account to dedicated resources created for you in the TrueVoice AWS account in the EU (London) Region. The service may be expanded to other regions based on customer demand, localization, data-sovereignty requirements, or other relevant criteria.

After the TrueVoice PoV integration stack launches successfully, data processing will be controlled using the registration ID you received as part of the Quick Start launch. After the initial workshop has taken place, audio and metadata files must be uploaded to the Amazon S3 bucket. Use the following paths when uploading your files:

- <TrueVoice Integration bucket>/<registration\_id>/audio/
- <TrueVoice Integration bucket>/<registration\_id>/metadata/

## TrueVoice metadata definition

TrueVoice PoV customers should supply metadata together with media files for processing. Metadata is a core requirement for aggregation and presentation of results on the TrueVoice PoV front end. Metadata must be supplied in the following manner:

- Uploaded as a plain-text JavaScript Object Notation (JSON) file under the paths shown in the previous section.
- There are no strict naming conventions for JSON files, but filenames must contain the .json extension and be unique to prevent duplication or inadvertent overwriting.
- Each JSON file can have multiple media objects.

- If a single media object per file is supplied, it should still be wrapped in an array.
- Each media object can have multiple customers, agents, and tags.

A full set of metadata elements is provided in this table:

Object	Key	Data type	Description	Importance
<b>&lt;root&gt;</b>	media_id	String	ID for the file, which should match customer's internal media ID.	Required
	media_filename	String	Name of the media file this metadata record is for.	Required
	case_id	String	ID used to link multiple media files together into a single case.	Optional
	media_type	String	Valid values: audio.	Required
	brick	String	This is the <b>registration ID</b> you received during the Quick Start launch. All data is logically segregated at a brick level. Each media file is associated with a single brick.  Visibility and data segregation on the TrueVoice front end is controlled by associating data and users to bricks.	Required
	media_timestamp	String – UTC Time	Defines the time period that the media file is related to.	Required
<b>agent</b>	agent_id	String	Required for agent-related screens.	Required
	manager_id	String	Required for agent-related screens.	Optional
<b>tag</b>	tag_type	String	For use if call outcomes are already known (e.g., a call with a known complaint or reason associated with it). These can be used to validate the PoV results.	Optional
	tag_value	String		Optional
	time_from	String – UTC Time		Optional
	time_to	String – UTC Time		Optional

The following is an example of the minimum amount of metadata that must be provided.

```
[{
  "media_id": "MC123_19941105131530",
  "media_filename": "MC123_19941105131530.wav",
  "media_type": "audio",
  "brick": "registration_id",
  "media_timestamp": "1994-11-05T13:15:30Z",
  "agent" : [
    {
      "agent_id": "ef456"
    }
  ]
}]
```

## Troubleshooting

**Q.** I encountered a **CREATE\_FAILED** error when I launched the Quick Start.

**A.** If AWS CloudFormation fails to create the stack, we recommend that you relaunch the template with **Rollback on failure** set to **No**. (This setting is under **Advanced** in the **Options** page of the AWS CloudFormation console.) With this setting, the stack's state will be retained and the instance will be left running so you can troubleshoot the issue. (For Windows, look at the log files in `%ProgramFiles%\Amazon\EC2ConfigService` and `C:\cfn\log`.)

**Important** When you set **Rollback on failure** to **No**, you will continue to incur AWS charges for the stack. Please make sure to delete the stack when you finish troubleshooting.

For additional information, see [Troubleshooting AWS CloudFormation](#) on the AWS website.

**Q.** I encountered a size limitation error when I deployed the AWS CloudFormation templates.

**A.** We recommend that you launch the Quick Start templates from the links in this guide or from another S3 bucket. If you deploy the templates from a local copy on your computer or from a non-S3 location, you might encounter template size limitations when you create the stack. For more information about AWS CloudFormation limits, see the [AWS documentation](#).

## Send us feedback

To post feedback, submit feature ideas, or report bugs, use the **Issues** section of the [GitHub repository](#) for this Quick Start. If you'd like to submit code, please review the [Quick Start Contributor's Guide](#).

## Additional resources

### AWS resources

- [Getting Started Resource Center](#)
- [AWS General Reference](#)
- [AWS Glossary](#)

## AWS services

- [AWS CloudFormation](#)
- [AWS Lambda](#)
- [IAM](#)
- [Amazon S3](#)
- [AWS Service Catalog](#)

## Other Quick Start reference deployments

- [AWS Quick Start home page](#)

## Document revisions

Date	Change	In sections
November 2019	Initial publication	—

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### Notices

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