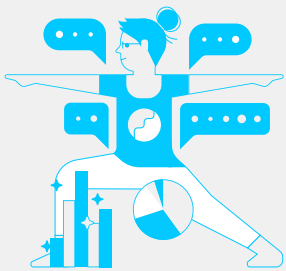


# Using Tools and Data to Build, Test and Optimize Your Skills



# Introduction



When creating Alexa skills, developers seek to create conversational experiences that are dynamic, engaging, and easy for customers to use again and again. However, the only way to know if you successfully achieve this is if you measure it.

Creating a successful skill doesn't stop once you publish, rather this is just the beginning. Testing and measuring your skill(s) helps identify what's happening in your customer interactions so that you can fix issues and improve the overall experience. With Alexa Skills Kit (ASK) Measurement and Analytics Tools, available on the developer console, developers can analyze performance and refine their skills to keep their customers happy, engaged, and coming back for more.

Even before you publish, you can start measuring and optimizing your interaction model with features and tools in the developer console. You'll find options to simulate skill responses and set up beta testing so you can optimize and improve conversational interactions with your customers for better engagement.

In this Spotlight, you'll learn about the features and tools that Amazon offers to help you test, measure, and optimize your skill including:

- ✓ **Analytics Tools & Dashboard**
- ✓ **VUI Testing Tools**
- ✓ **VUI Optimization Features**

# Analytics Tools & Dashboard

Once skills are published, analyze skill performance metrics to improve the customer experience and optimize your content for long term engagement.

The Alexa developer console provides free analytics tools for you to track your skill usage, unique customers, peak times, and many other data points about your skill. You can find all of this information and customize how to view it using the skill analytics tools and metrics dashboard.



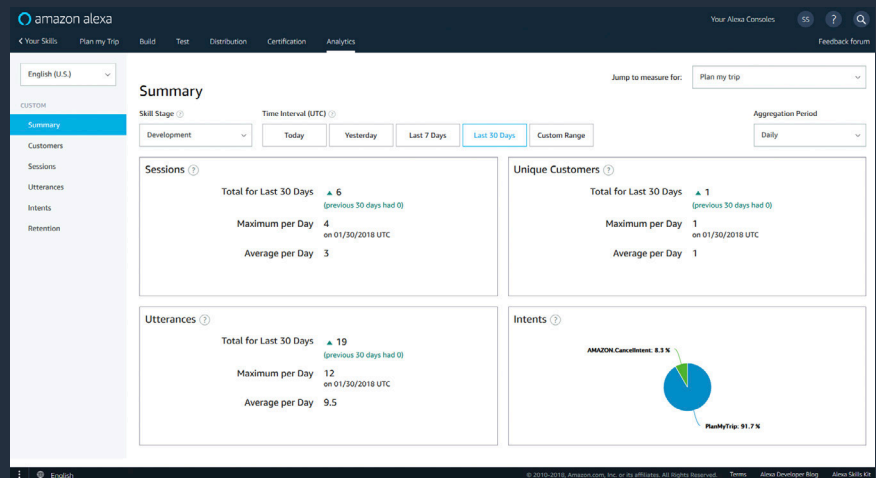
## ANALYTICS SUMMARY

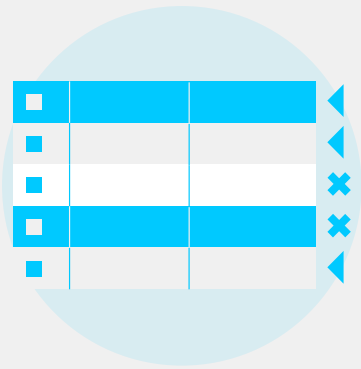
*Track & analyze your skill's performance*

You can find data about your skill such as users, intents, sessions, and utterances in the developer console under the Analytics tab. You can customize the time range to see charts on how each metric has performed. After you publish your skill, you should look at these numbers at least once a week to see if any user behaviors are trending since your last update.

[> Learn more about how to measure skill data here](#)

## View your skill's Analytics Summary on the Alexa developer console



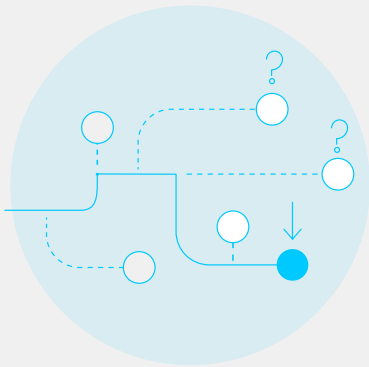


### INTENT HISTORY

*Understand how customers are engaging with your skill*

See how customers are interacting with your skill and detect anomalies where customer requests are mapped to the wrong intent. Each interaction has a confidence rating, to see whether or not that utterance was mapped properly and which ones need to be updated. Low confidence utterances result in Alexa re-prompting the customer for a response. With this data, you'll know where to fix errors in your voice model and identify missing use cases that you may want to include in your skill.

› [Learn more about Intent History here](#)



### INTERACTION PATH ANALYSIS

*Understand how your customers are using your skill & experiencing friction*

Follow where your customers are interacting with your skill and ending the skill session with the interaction path data visualization. This waterfall style chart shows aggregate skill usage patterns showing the intents triggered by users during a session. From this data, you can verify if customers are using the skill as expected. You'll see how many drop offs have occurred for each scenario, which could indicate a point of friction. You can use insights gained from the interaction path analysis to make your flow more natural, fix errors, and address unmet customer needs.

› [Learn more about interaction path data here](#)



### GET METRICS API

*Access skill analytics from your preferred tools*

The GetMetrics API (Beta) is a new way for you to access relevant data about your skills without needing to log in to the developer console for each skill. This saves time and visibility for key insights about your skill in order to optimize customer engagement.

› [Learn more about the Get Metrics API here](#)



### CUSTOMER REVIEWS

*Get first-hand feedback on what your customers like and don't like*

An easy first step you can take in understanding how your customers are responding to your skill is by looking at your skill's customer reviews in the Alexa Skills Store. Get first-hand qualitative feedback on what customers like best about your skill, where they experience friction, and general feedback to know your customers and identify trends.

# VUI Testing Tools

Test and analyze your skill while you create it.

You'll have access to the same robust set of tools that the certification team for Alexa uses. These tools can help you avoid overtraining your interaction model and improve accuracy. From utterance testing to conflict identification and resolution; you'll be able to test, detect, and optimize your skill to get ahead of issues before publication, thereby reducing the amount of time it takes to get your skill certified.



## UTTERANCE CONFLICT DETECTION TOOL

*Identify conflicts in your utterances*

When you build your model, you may unintentionally create utterances that map to more than one intent which reduces the accuracy of your skill's Natural Language Understanding (NLU) model. In the developer console, you'll find a section in the left-hand menu that will highlight any utterance conflicts after each build, so you can decide how you want to handle them.

› [Learn more about resolving utterance conflicts here](#)



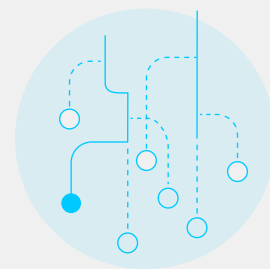
## UTTERANCE PROFILER

*Test if your utterances invoke the right intent*

Once you've defined and built your interaction model, you can test utterances to see how they resolve to your intents and slots. When an utterance does not invoke the right intent, you can update your sample utterances and retest, all without writing any extra code for your skill.

This feature is already in the Build tab, just click the Evaluate Model button and select Utterance Profile to start testing.

› [Learn more about Utterance Profiler here](#)



## NLU EVALUATION TOOL

*Prevent overtraining NLU models*

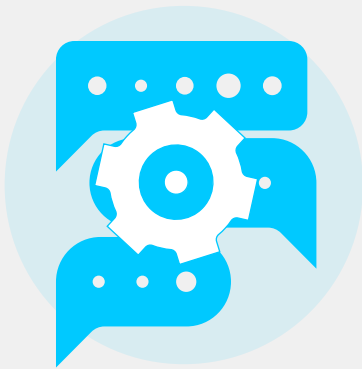
Overtraining your NLU model with too many sample utterances and slot values can reduce accuracy. Instead of trying to exhaustively add all possible iterations of sample utterances, you can run a set of annotations, which contain an utterance and the expected intents and slots. Running your annotations sets as a batch test lets you try out multiple utterances to make sure they trigger the correct intents and slots. If any utterance resolves to the wrong intent or slot, you can modify those utterances and enter them as new annotations to your training data.

› [Learn more about NLU batch testing here](#)

# VUI Optimization Features

Tap into features that help you create the best conversational experience.

Conversations between people are naturally dynamic, changing the context of the conversation by moving between topics and ideas fluidly. Therefore, your skills need to be flexible and responsive to be able to switch context mid-conversation. Skills should be able to handle language, topic, and grammatical variations within the conversation as well as be able to remember conditional information collected from the customer. The Alexa Skills Kit offers a number of features that help you build more natural conversations in your skill that match how your customers talk with (and not at) Alexa.

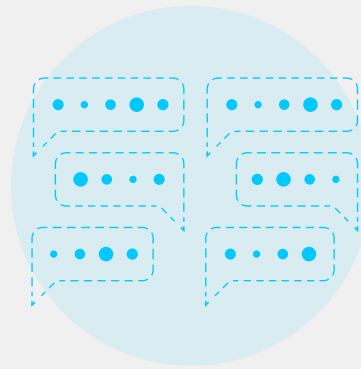


## AUTO DELEGATE

*Build dialogs easier*

Your dialog model identifies the prompts and utterances to collect and validate to match the correct slot values and intents. Auto delegation completes all slots and confirmations for you, before sending an intent request. This makes building dialogs easier, so you can focus on capabilities like custom logic and a better user experience. However, if you want more control over the order of information collected, you'll need to use Dialog Management instead.

› [Learn more about Auto Delegation here](#)

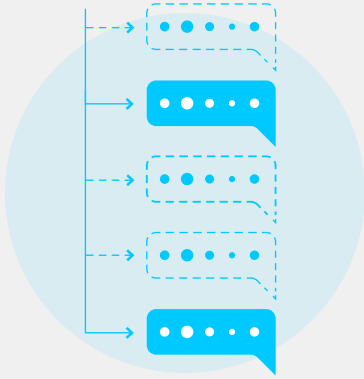


## DIALOG MANAGEMENT

*Reduce effort to improve automatic speech recognition*

Dialog management provides a set of directives for managing a conversation between your Alexa skill and the customer. It offers a way to fill out required information you need, in the order that you specify, to perform a task. For example, if a customer over-answers with most of the required information, those slots are filled so you can skip ahead to the slots that still need data. Dialog management gives Alexa a list of what slot values to expect, which provides context for what to resolve and improves the accuracy of your skill.

› [Learn more about Dialog Management here](#)



### INTENT CHAINING

*Enter dialog management from any intent*

With intent chaining, you can trigger another intent using dialog directives in your skill's response. Instead of having to keep prompting your customer to explicitly choose the next step in a list, you can activate dialog management to automatically prompt the customer only for the required data it still needs. Using intent changing with dialog management in this way produces a more natural and engaging conversational flow.

› [Learn more about intent chaining here](#)



### DYNAMIC ENTITIES

*Create more personalized & dynamic experiences*

Upload new slot values at any point within a skill session using dynamic entities. This gives the ability to personalize your skill, providing new context and responses as the conversation progresses. Alexa uses these newly-loaded slot values to boost speech recognition, natural language understanding, and entity resolution accuracy.

› [Learn more about Dynamic Entities here](#)

# Let's Get Started!

So, whether you're in the process of creating a skill, or your skill has already launched, you have many features and tools at your fingertips to help you better understand your customer and ultimately design a better experience.

Let's build something great together!