V-Spark 3.5.0 Application Development Guide

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V-Spark 3.5.0 Application Development Guide

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Table of Contents

List of Figures

List of Tables

Chapter 1. Overview

This manual is intended for customers using V-Spark Voice Analytics applications in their speech analytics strategy who want a deeper understanding of how applications work. This manual covers the definition of a V-Spark application, the creation and customization of applications, and the calculation of application scores. For information about how to set up a new application in V-Spark, please refer to the "*V-Spark 3.5.0 Management Guide*".

1.1. What is a V-Spark Application?

V-Spark applications are just one of the many ways that you can analyze your voice data for insights about agent performance, customer experience, and call center operations in V-Spark Voice Analytics. V-Spark applications help you automatically and reliably classify your voice data, allowing you to drill down to particular types of calls for more efficient evaluation of call content. Built using collections of both speaker phrases and metadata search queries, V-Spark applications are an easy and intuitive way for anyone—not just data scientists—to develop sophisticated tools for in-depth voice analytics.

These applications can be used for any kind of voice-based analysis, including agent performance evaluation, compliance monitoring, call driver analysis, and tracking call center performance metrics such as first call resolution. This document outlines everything you need to know about leveraging the power, flexibility, and efficiency of applications in V-Spark Voice Analytics.

1.2. What You’ll Need to Get Started

One or more of the following:

- **Create/Edit** access to the organization under which you are creating your V-Spark applications
- **Create/Edit** access to the company under which the organization in which you are creating your V-Spark applications is located

Chapter 2. Building Your Application

A V-Spark application is a set of categories, phrases, and filters that is used to match and score files based on a set of defined criteria. Unlike simple file searches, applications provide on-going analysis of incoming transcriptions.

Before you begin creating an application, you should have a well-defined and understood problem or use-case and an idea of how it can be measured.

For example, you may have a goal to improve Agent adherence to a script specifically designed for customer churn interactions. In this case, you may want to, first, identify calls where customers called to cancel their account and then, second, score how well the responding Agent followed the script. A well-structured application can readily surface both poor and well-performing Agents and measure their improvements after targeted-training.

You can use the following questions to help define your own application criteria:

- What problem am I trying to solve?
- Is this something I need constant analysis to understand?
- What types of calls do I need to identify?
- What speaker phrases or metadata can be used to surface this problem?
- What data can be used to measure meaningful differences in performance?
- Do I need to know *that* a call falls into a defined category or *how closely* it matches that category?

Once you have defined your criteria, you can begin thinking about how to structure your application. Identify any logical groupings that can be used for categorization and then begin to use the data gathered above to populate your categories.

The steps for setting up an application are covered in Chapter 3, *Creating Applications* and scoring is covered in Chapter 4, *Application Scoring*

Tip

Best Practices for Application Development

- Applications should be structured so that the same score type (high or low) in every category is considered "good" or "bad". This makes is easier to understand and visualize the data.

  For example, if you want to measure customer experience, we recommend separate applications for measuring negative experiences and positive experiences.

- While developing your application, it is best to use a well-understood sample data set. Your data set should contain both transcripts that you know expose the problem you are trying to solve, and some that do not.

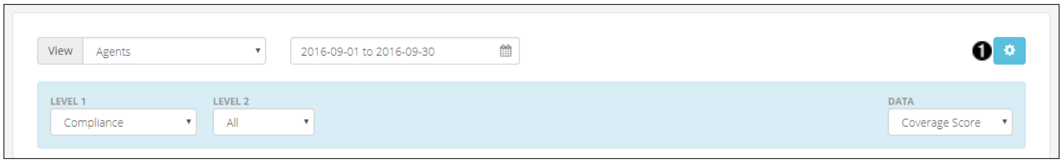
  A smaller data set will allow your to develop your application more efficiently, by cutting down on reprocess times.

Chapter 3. Creating Applications

The next few sections review everything you need to know about creating and customizing applications. The mechanics of the Application Editor are reviewed first, followed by a description of best practices for building an application.

3.1. The Application Editor

The V-Spark Application Editor enables users with Create/Edit permissions in the company or organization with which an application is associated to customize that application. Access the Application Editor from the Application Dashboard page by selecting the **Application Editor** icon shown in Figure 3.1, "The Application Dashboard", or from the Applications section of the Settings page by selecting the **Application Editor** icon from the application list shown in Figure 3.2, "The Applications List".



View: Agents ▾

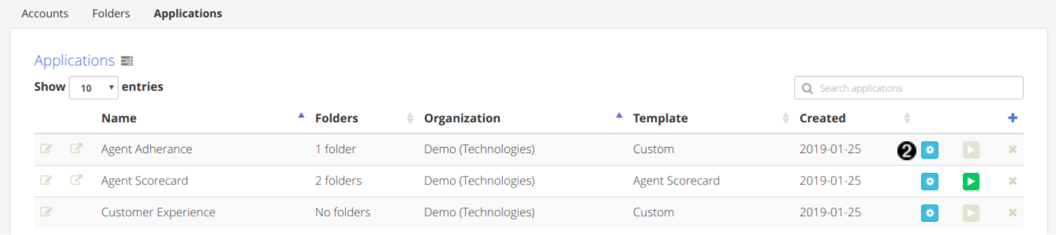
2016-09-01 to 2016-09-30

LEVEL 1: Compliance ▾

LEVEL 2: All ▾

DATA: Coverage Score ▾

Figure 3.1. The Application Dashboard



Applications

Show 10 ▾ entries

Search applications

		Name	Folders	Organization	Template	Created			+
✎	↗	Agent Adherance	1 folder	Demo (Technologies)	Custom	2019-01-25	⚙	▶	×
✎	↗	Agent Scorecard	2 folders	Demo (Technologies)	Agent Scorecard	2019-01-25	⚙	▶	×
✎		Customer Experience	No folders	Demo (Technologies)	Custom	2019-01-25	⚙	▶	×

Figure 3.2. The Applications List

1. The **Application Editor** icon on the Dashboard
2. An **Application Editor** icon on the Application List

The Application Editor is then viewed in a pop-up window which you can use to make changes to any of that scorecard's categories, phrases, and filters. Figure 3.3, "Parts of the Application Editor" and Figure 3.4, "Application Editor controls" outline the basic elements of and the actions that can be performed within the Application Editor.

Note

Any changes to the Application Config will affect the application scores for all users.

3.1.1. Parts of the Application Editor

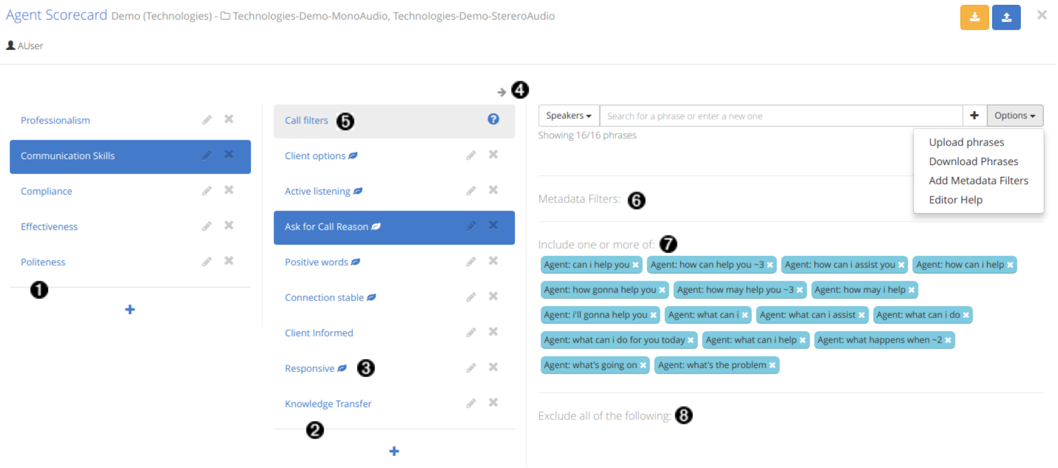


Figure 3.3. Parts of the Application Editor

1. **Upper-level Categories**: Categories that contain lower-level categories. All categories are made up of call filters and lower-level categories that contain include phrases, exclude phrases, and metadata filters. Each level of an application can contain up to 10 categories.

2. **Lower-level Categories**: any category that is contained within an upper-level category. Second-level categories can contain third-level categories (and so on) or be leaf-level categories.

3. **Leaf-level Categories**: application categories that have no lower-level categories of their own. Leaf-level categories are responsible for generating Leaf Scores.

4. **Category Navigation**: use the left and right arrows at the top of the Application Editor to navigate between different levels of the application hierarchy. Applications can have up to five levels by default.

5. **Call filters**: an intermediate step between each level of categories. Any calls that include at least 1 include category phrase, include no category exclude phrases, and meet the category metadata filter requirements will pass through to the next level for further filtering and, eventually, leaf-level scoring. Any calls that do not meet the previously-listed criteria will receive no score for that category. *For example, if you are evaluating call drivers for a particular set of products, you may want to specify those product names as category filters to ensure that you only view calls where customers are talking about those particular products.*

6. **Metadata filters**: metadata filters allow you to narrow down the results of your application scoring. Metadata filters can be assigned for any of the metadata filters available as part of ad-hoc Dashboard search. See Section 3.2.2, “Available Metadata Filters” for more information about metadata filters.

7. **Include phrase list**: the include phrase list contains phrases that you want to include in your analysis. If a call contains at least 1 include phrase, it will be counted as meeting the requirements for that category.

8. **Exclude phrase list**: the exclude phrase list contains phrases that you want to exclude from your analysis. Exclude phrases are particularly useful for eliminating false positives. *For example, if you want to view calls where the customer says "happy", you can add "not* happy" as an exclude phrases

to ensure that calls containing "not happy" are not counted for that category. Refer to Section 4.3.1, “Leaf Scoring with Exclude Phrases” to learn more about exclude phrase scoring.

Note

You can also exclude custom metadata filters but not default metadata.

3.1.2. Using the Application Editor

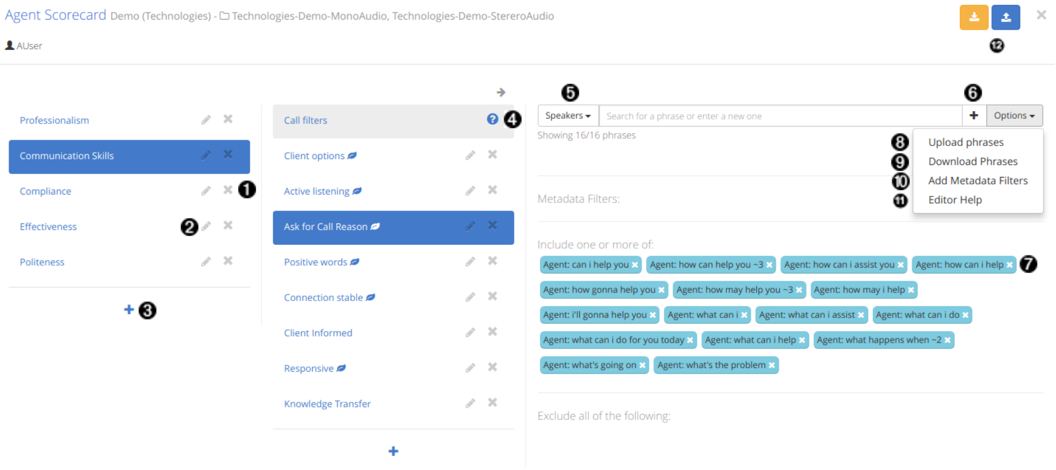


Figure 3.4. Application Editor controls

The following list shows the controls that are available to you in the Application Editor. All changes you make to an application are saved immediately.

1. **Remove category**: to remove a category, select the "X" next to that category then confirm your choice by selecting "OK" in the window that appears. **Each app must have at least one category.**

2. **Change category name**: to change the name of a category, select the Edit icon next to that category, type in the new name in the window that appears, and confirm your changes.

3. **Add new category**: to add a new category, select the blue "+" underneath the list of categories, type in the name in the window that appears, and confirm your change. Each level of an application can contain up to 10 categories.

4. **View Call Filter Help**: if you have questions about how to use Call Filters or about how call filters affect application scoring, select the (?) for more information.

5. **Select speaker(s)**: when adding a new phrase, you can select the side of the conversation to which the search phrase should apply. See Section 3.2.1, “Speaker Include and Exclude Phrases” for more information.

6. **Add new phrase**: to add a new search phrase, type it into the search bar at the top and select **+** to the right of the search box, or press the *Enter* or *Return* key on your keyboard. The new phrase will be added to the **Include phrase list**. To add a phrase to the **Exclude phrase list**, prefix it with a "-" (minus). See Section 3.2.1, “Speaker Include and Exclude Phrases” for more information.

7. **Remove phrase**: to remove a search phrase, simply locate the phrase you wish to remove from the list and select the **x** to the right of the search phrase tag.

8. **Upload phrases**: to import speaker phrases and metadata filters to the current category, choose **Upload phrases** from the **Options** dropdown menu. See Section 3.3.1, “Upload and Download Category Phrases and Filters” for more information about file format.

9. **Download Phrases**: to export speaker phrases and metadata filters from the current category, choose **Download Phrases** from the **Options** dropdown menu. See Section 3.3.1, “Upload and Download Category Phrases and Filters” for more information about file format.

10. **Add metadata filters**: to add metadata filters, select **Add filters** from the **Options** dropdown, select the type of filter you wish to add, configure the filter settings, and select **Add**. See Section 3.2.2, “Available Metadata Filters” for more information.

11. **View Application Editor Help**: if you have questions about how to use the Application Editor or about how application searches work, simply select the "Editor Help" option from the **Options** menu.

12. **Upload or Download application config**: import or export an application's entire set of categories, phrases, and filters. See Figure 3.12, “JSON Application Config Template” for more information about usage and file format.

3.2. Using Application Phrases and Filters

Application categories use a combination of metadata filters, include phrases, and exclude phrases to match and score calls. Include and exclude phrases will search a particular **speaker turn** to identify matching text in a given transcript. Metadata filters, both built-in or custom, will match a particular metadata value or range of values, depending on the type. See Section 3.2.2, “Available Metadata Filters”.

3.2.1. Speaker Include and Exclude Phrases

Guidelines for application speaker phrases:

- Phrases may apply to **Agent**, **Client**, or both **Speakers** turns.

- Phrases may contain multiple words, but are restricted to 250 characters in length

- Phrases may only contain **one special character**. Special characters may not be combined in a single search phrase.

- Phrases prefixed with "-" (minus) are considered **exclude phrases**. The "-" in exclude phrases is not considered to be a special search character, and exclude phrases may still contain one special character. Exclude phrases are treated differently during scoring, depending on the category level. See Section 4.3.1, “Leaf Scoring with Exclude Phrases” for more information.

Permitted search characters and their functions are listed in Table 3.1, “Special Characters Permitted in Application Speaker Phrases”, along with example use cases.

Table 3.1. Special Characters Permitted in Application Speaker Phrases

Character	Function	Example	Meaning
&	AND	phone & tablet	Match transcripts containing both "phone" and "tablet"

Character	Function	Example	Meaning
|	OR	phone | tablet	Match transcripts containing either "phone" or "tablet"
*	Wildcard for 0+ characters	help*	Match transcripts containing phrases like help, helping, helpful, and so on
?	Single character wildcard	th???	Match transcripts containing phrases like "there", "thank", "those", and so on
~*n*	Search for phrases appearing up to *n* words apart within the same speaker turn	cancel account ~4	Match transcripts containing "cancel" and "account" no more than 4 words apart in the same speaker turn, like "cancel your, the account" or "cancel my daughter’s membership account"
~t	Search for phrases appearing within the same speaker turn	cancel account ~t	Match transcripts containing "cancel" and "account" in the same speaker turn
^	Search for phrases found at the beginning of a speaker turn	^ helpful	Match transcripts containing "helpful" at the beginning of a speaker turn
$	Search for phrases found at the end of a speaker turn	upset $	Match transcripts containing "upset" at the end of a speaker turn
~s>*n*	Search for phrases found after the first n seconds of the transcript	can I have your account number ~s>30	Match transcripts containing "can I have your account number" after the first 30 seconds of the call
~s<*n*	Search for phrases found within the first n seconds of the transcript	can I have your name please ~s<30	Match transcripts containing "can I have your name please" within the first 30 seconds of the call
~e>*n*	Search for phrases found before the last n seconds of the transcript	cancel account ~e>30	Match transcripts containing "cancel account" before the last 30 seconds of the call
~e<*n*	Search for phrases found within the last n seconds of the transcript	have a good one ~e<30	Match transcripts containing "have a good one" within the last 30 seconds of the call

Note

Limitations of time-based searches

- Time-based searches use the speaker turn **start** times when looking for matches. For example, if the search phrase is "Client: phone ~s<30" and the Client’s turn begins at 28 seconds, but the phrase "phone" doesn’t occur until 40 seconds in, that will still be marked as a match since the start of the speaker turn was within the correct time frame.

- Time-based searches will not work on files that were uploaded to a system running Version 2 of V-Spark. Phrase will match any location in file, not limited to time.

3.2.2. Available Metadata Filters

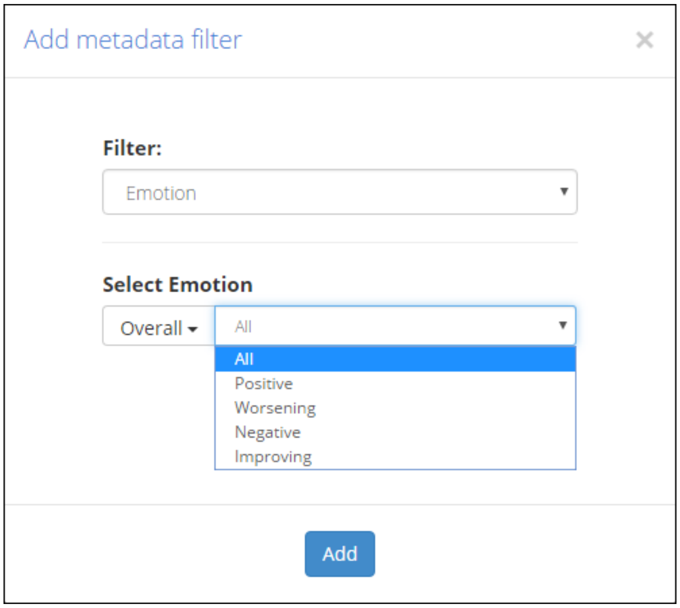
V-Spark applications can be configured to use both built-in and custom metadata filters. Find all available metadata filters on the **Filter** dropdown menu. Built-in metadata filters are listed at the top of the menu. Custom metadata filters are listed below the built-in metadata filters.

3.2.2.1. Built-in Metadata Filters

Add built-in metadata filters to define which files should be included for analysis. V-Spark includes the following built-in metadata for each file:

- **Gender**: filters results based on Agent or Client gender: All, Male, Female.

- **Emotion**: filters results based on Agent, Client, or Overall emotion: Positive, Negative, Improving, or Worsening. Positive calls remain positive or neutral throughout the call. Negative calls remain neutral or negative throughout the call. Improving calls begin negative and progress to positive by the end of the call. Worsening calls begin positive but decline to negative by the end of the call.



Filter: Emotion

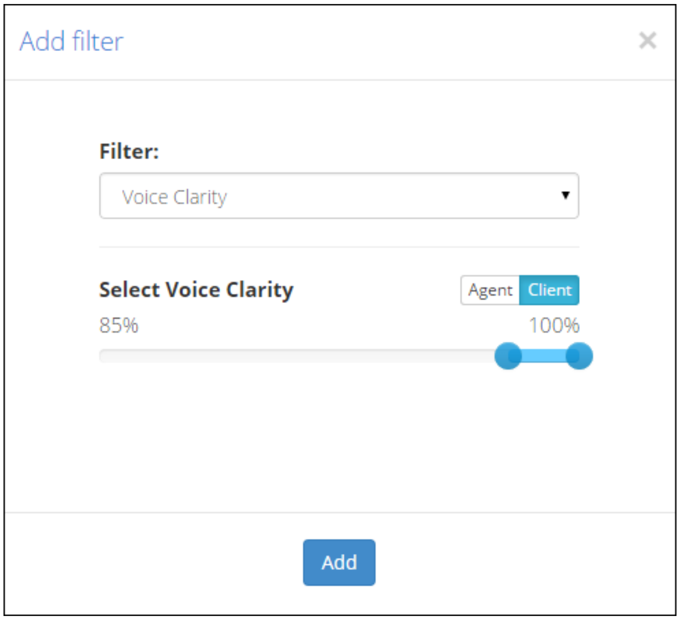
Select Emotion: Overall, All

Figure 3.5. Emotion Filter Options

- **Call Duration**: filters results to include only calls within a call duration range.

- **Call Silence Time**: filters results based on the percentage of non-speech duration. Calls with 100% silence contain the most silence. A percentage range may be defined using a slider.

- **Voice Clarity**: filters results based on how clear the Agent or Client sounds on the recording. Speakers with 100% clarity would be the clearest. Low clarity indicates hard to understand speech, possibly due to poor phone signal, background noise, or speaker accent or enunciation. A percentage range may be defined using a slider.



Filter: Voice Clarity

Select Voice Clarity

85% 100%

Figure 3.6. Voice Clarity Filter Options

- **Overtalk**: filters results based on the percentage of turns that an Agent talks over the Client. Overtalk of 100% indicates that the Agent spoke over the Client throughout the entire call. A percentage range may be defined using a slider.

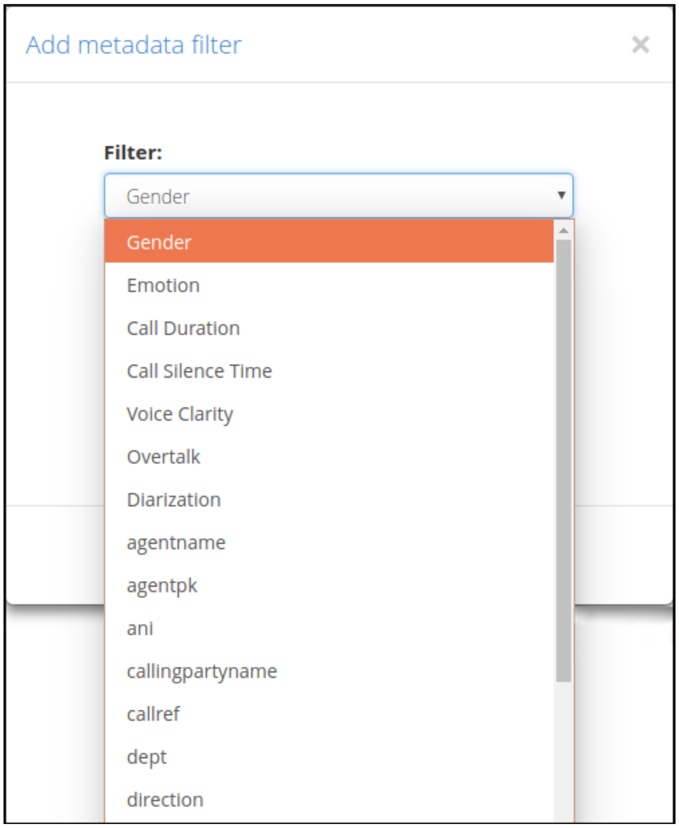
- **Diarization**: filters results based on how well Mono (one channel) audio was separated into multiple speakers for analysis using a process called "diarization". Diarization of 100% indicates the highest quality speaker separation.

Important

Only **one** filter may be added for each metadata type. Agent and Client filters are considered to be different metadata types.

3.2.2.2. Custom Metadata Filters

Custom metadata filters can only be added to an application category if custom metadata field names have been configured for at least one of the folders linked to the given application. Refer to the "*V-Spark 3.5.0 Management Guide*" for more information regarding configuring custom metadata field names.

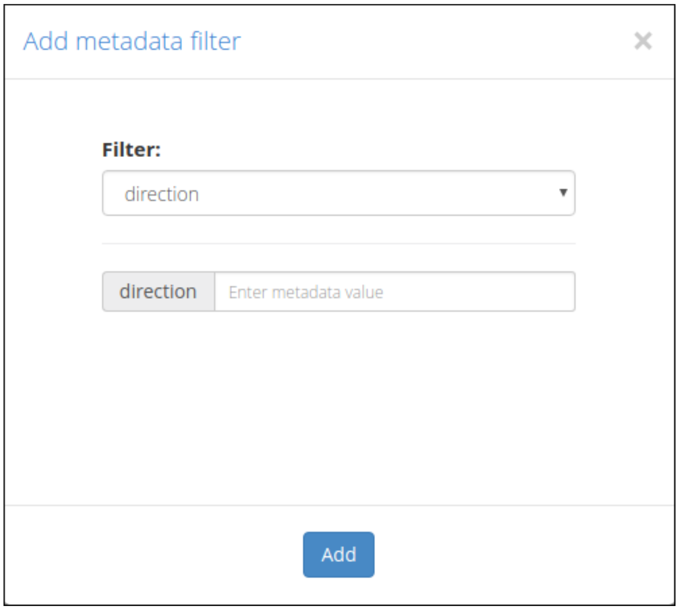


Filter: Gender

Figure 3.7. Available Metadata Filter Options

Available custom metadata fields can be found in the **Filter** dropdown menu, beneath the built-in filters, as shown in Figure 3.7, “Available Metadata Filter Options”.

To add a custom metadata filter, select a custom metadata field from the **Filter** dropdown menu. The dialog shown in Figure 3.8, “Custom Metadata Filter Options” displays. Enter the value for the custom metadata field by which to filter, and select **Add**. Custom metadata filters display in the **Metadata filters** section, similarly to built-in metadata filters, as shown in Figure 3.3, “Parts of the Application Editor”.



Filter: direction

Figure 3.8. Custom Metadata Filter Options

Unlike built-in metadata filters, custom metadata filters may be used to *exclude* files that match a designated value. To add an exclude custom metadata filter, prefix the entered value with a dash (-) before adding. Exclude filters display as a yellow tag in the **Metadata filters** section.

Important

Only **one filter** may be added to a category for each custom metadata type. However, in order to filter by multiple criteria, custom metadata values may use a special character (|) to represent OR.

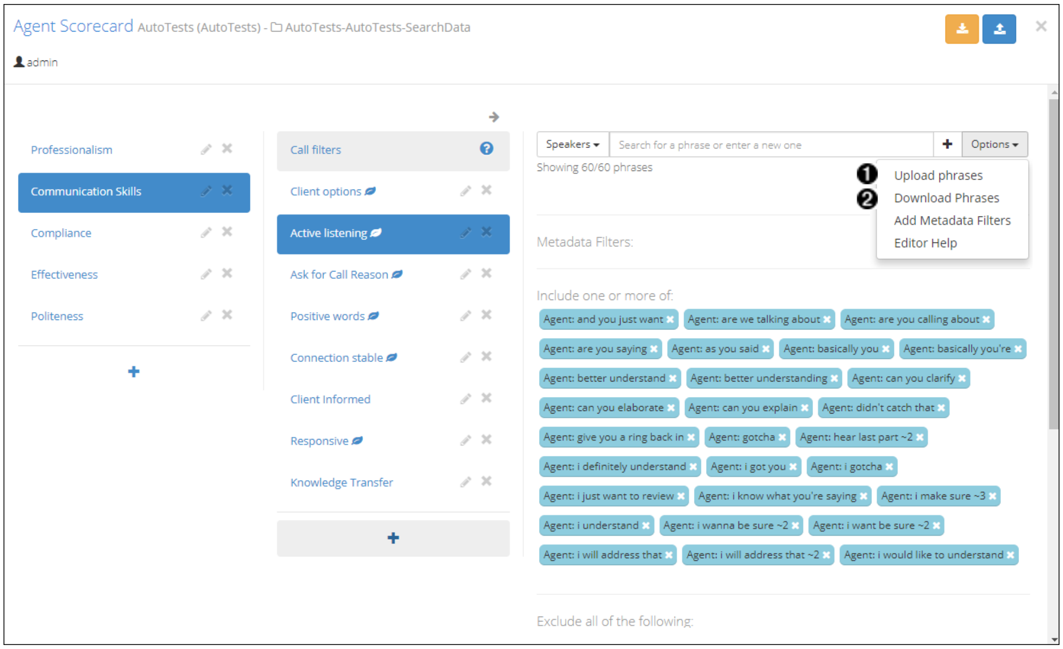
For example, for a custom field "direction", a value of "inbound | outbound" could be used to match files that have *either* of those metadata values.

3.3. Using External Files for Efficient Application Building

The following sections provide information on building applications more efficiently by uploading and downloading compatible files with application config information.

3.3.1. Upload and Download Category Phrases and Filters

The Application Editor provides the option to upload and download a list of speaker phrases and metadata filters to or from a selected category. Phrase and filter lists that are downloaded from one category may be uploaded to another category, or even another application.



Agent: and you just want
Agent: are we talking about
Agent: are you calling about
Agent: are you saying
Agent: as you said
Agent: basically you
Agent: basically you're
Agent: better understand
Agent: better understanding
Agent: can you clarify
Agent: can you elaborate
Agent: can you explain
Agent: didn't catch that
Agent: give you a ring back in
Agent: gotcha
Agent: hear last part ~2
Agent: i definitely understand
Agent: i got you
Agent: i gotcha
Agent: i just want to review
Agent: i know what you're saying
Agent: i make sure ~3
Agent: i understand
Agent: i wanna be sure ~2
Agent: i want be sure ~2
Agent: i will address that
Agent: i will address that ~2
Agent: i would like to understand

Figure 3.9. Upload and Download a list of phrases and filters to a category

1. Select to upload a phrase and filter list to the current category

2. Select to download the current category's phrase and filter list

Upload lists must be a plain `.txt` file. An example of a properly formatted text file is shown in Figure 3.10, “Category Phrase and Filter Text File”. The file is separated into labelled sections, according to phrase or filter type. Phrases in the `CLIENT` and `AGENT` sections are Client and Agent phrases, respectively. Phrases in the `SPEAKERS` section are phrases for both Client and Agent. Phrases in the `METADATA` section are filters using **custom metadata**. Phrases in other sections are values for the built-in metadata filter that is identified by the section's label. See Section 3.2.2, “Available Metadata Filters” for more information about available metadata filters and Section 3.2.1, “Speaker Include and Exclude Phrases” for more information about speaker phrases. Blank lines between sections are not required, but are included here for clarity.

```
SPEAKERS:
cancel
having problem ~n

CLIENT:
hello
my account
expensive

AGENT:
your account
downgrade
-purchase

METADATA:
color = blue

AGENT VOICE CLARITY:
18.2% - 69.3%

CLIENT GENDER:
female

CALL DURATION:
0:00:00 - 0:17:23
```

Figure 3.10. Category Phrase and Filter Text File

3.3.2. Upload and Download an Application Config

In addition to using the application editor to modify applications, an application's config - the entire set of categories, phrases, and filters - may be downloaded or uploaded to support application backups or offline editing. Figure 3.11, “Upload and Download a config using the Application Editor”, indicates the location of the upload and download controls.

Note

Uploading a config will overwrite the entire set of categories, phrases, and filters.

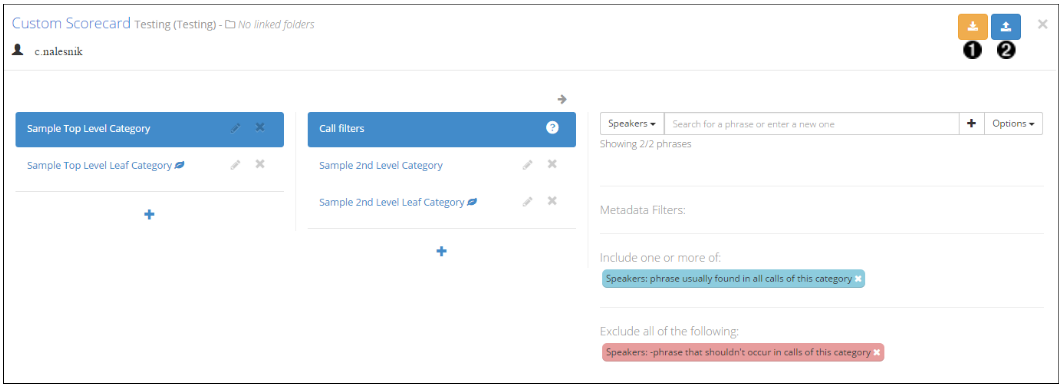

Custom Scorecard Testing (Testing) - No linked folders
c.nalesnik
1
2
Sample Top Level Category
Sample Top Level Leaf Category
Call filters
Sample 2nd Level Category
Sample 2nd Level Leaf Category
Speakers
Search for a phrase or enter a new one
Options
Showing 2/2 phrases
Metadata Filters:
Include one or more of:
Speakers: phrase usually found in all calls of this category
Exclude all of the following:
Speakers: -phrase that shouldn't occur in calls of this category

Figure 3.11. Upload and Download a config using the Application Editor

1. Select to download the application config

2. Select to upload an application config

Application config files are in JSON format, and each category must contain "phrases" and "subcategories" properties. Figure 3.12, “JSON Application Config Template” shows an example application config that may be used as a template.

Important

Uploading config files from Version 2 and older of V-Spark is not supported in Version 3 and subsequent releases.

```
{
    "Sample Top Level Category": {
        "phrases": {
            "+": {
                "all": [
                    "phrase usually found in all calls of this category"
                ]
            },
            "-": {
                "all": [
                    "phrase that shouldn't occur in calls of this category"
                ]
            }
        },
        "subcategories": {
            "Sample 2nd Level Category": {
                "phrases": {
                    "+": {
                        "all": [
                            "call must have one of these phrases to be scored 2",
                            "call must have one of these phrases to be scored"
                        ]
                    },
                    "-": {
                        "all": [
                            "call must not include this phrase to be scored"
                        ]
                    }
                },
                "subcategories": {}
            },
            "Sample 2nd Level Leaf Category": {
                "phrases": {
                    "+": {},
                    "-": {}
                },
                "subcategories": {}
            }
        }
    }
}
```

Figure 3.12. JSON Application Config Template

3.4. Revising Applications

The following sections provide information about testing and revising your applications to resolve problems detected during testing or simply to expand their capabilities.

3.4.1. Testing Your Applications

Building an application is an iterative process. You may already have ideas about which phrases to search for, but these may not be all-inclusive, and may not always match the category you expect them to. For this reason, it is necessary to test your applications by reviewing the search results generated by your app, revising search phrases, and re-processing the changes. The recommended way to test your application is to look for both false negatives and false positives.

False negatives are calls that should have matched a particular category, but don’t contain any of the phrases currently used in the application. Looking at these calls will help you find phrases that you need to add to your application.

False positives are calls that matched a particular application phrase, but the context of the phrase didn't actually match the intended category. Looking at these calls will help you identify application phrases that might be too general. You may want to add exclude phrases to eliminate incorrect matches, or make your current phrases more specific.

The easiest way to test for false positives and false negatives is to use the application metrics filters on the Dashboard, shown in Figure 3.13, "Dashboard Application Metrics Filters". These filters allow you to search matches for each category as well as search for calls that do not match a category at all.

You can also test application search phrases before adding them to your application by using the ad-hoc search capabilities. This allows you to experiment with different variations of special search characters, different metadata filter settings, and get a general idea of the kinds of calls that are linked to a particular search phrase.

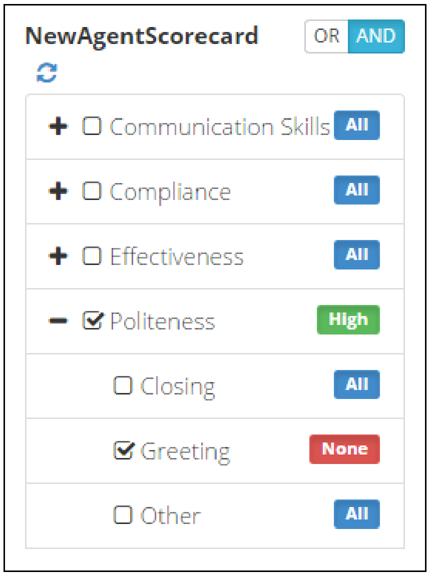
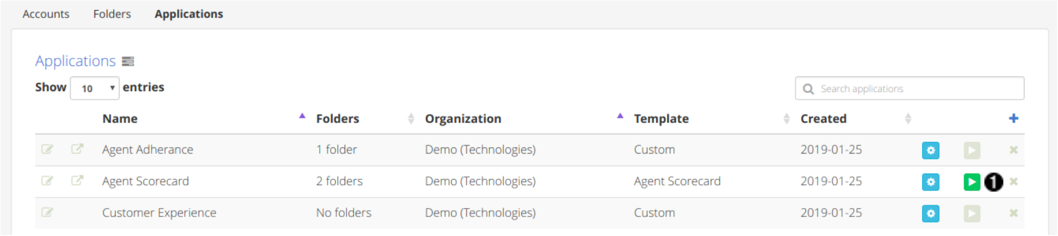


Figure 3.13. Dashboard Application Metrics Filters

3.4.2. Reprocessing an Application

Reprocessing an application is the process of scoring a folder's *existing transcripts* against an application configuration. Reprocessing an application is necessary when a folder that already contains transcribed audio is linked to a new application, or the application's configuration is modified.

Applications can be reprocessed from the **Applications** page found in the **Settings** menu. A reprocess button, shown in Figure 3.14, "Active application reprocessing button", is available for every application listed in the **Applications** table. The reprocess button will appear **active** (green) when the application has been modified, even if that change would not result in new scores.



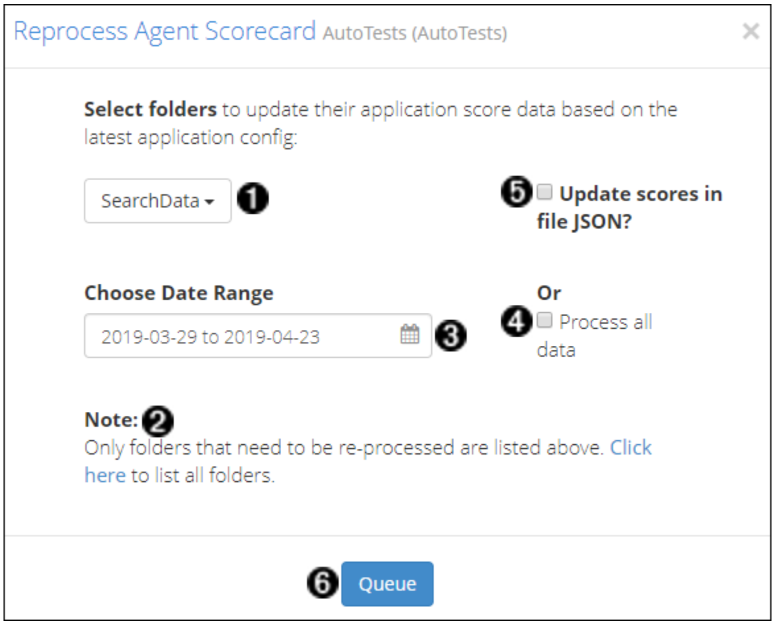
Applications

Show 10 entries

Name	Folders	Organization	Template	Created
Agent Adherance	1 folder	Demo (Technologies)	Custom	2019-01-25
Agent Scorecard	2 folders	Demo (Technologies)	Agent Scorecard	2019-01-25
Customer Experience	No folders	Demo (Technologies)	Custom	2019-01-25

Figure 3.14. Active application reprocessing button

1. Locate the application in the **Applications** table and select the green **Reprocess Application** button on the right-hand side of the table to view the Application Reprocessing Dialog, shown in Figure 3.15, “Application Reprocessing Dialog”,



Reprocess Agent Scorecard AutoTests (AutoTests)

Select folders to update their application score data based on the latest application config:

□ **Update scores in file JSON?**

Choose Date Range

2019-03-29 to 2019-04-23

Or

□ Process all data

Note:

Only folders that need to be re-processed are listed above. Click here to list all folders.

Figure 3.15. Application Reprocessing Dialog

Use the dialog to choose which folder and transcripts should be rescored using the current application configuration.

1. **Select folders** for reprocessing. By default, this dropdown will only list folders with transcripts that have not been scored against the application's current configuration.

2. **List all folders** linked to the selected application in the folder selection dropdown.

3. **Choose Date Range** for transcripts to be reprocessed. This will rescore all transcripts starting from the chosen start date through the chosen end date.

4. Select to **process all data** in the selected folders

Important

Reprocessing all available data can be time-consuming. Until an application configuration has been finalized, try reprocessing only a small data set to test application changes.

5. Select to **update scores** in JSON transcript files. This option will slow reprocessing and should only be used if you use the bulk download feature or APIs to extract JSON transcripts for analysis.

6. **Queue** application reprocessing for selected date range

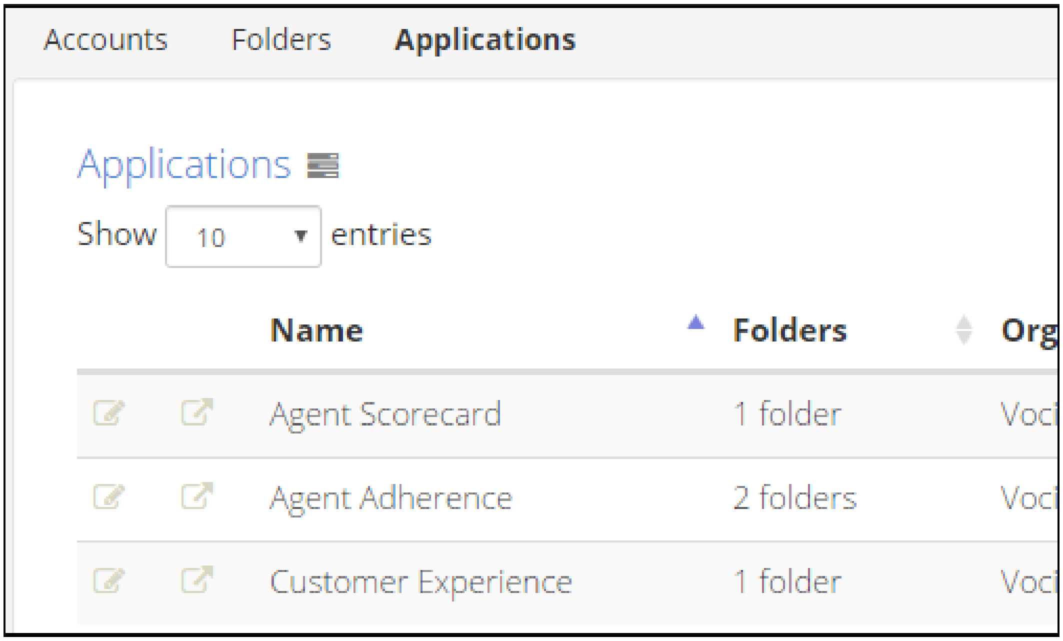
Once application reprocessing jobs have been queued, the progress of scoring can be monitored by viewing the Application Jobs queue, discussed in Section 3.4.3, "Application Jobs Queue".

Note

While an application is reprocessing, the old scores are removed from the dashboard. New scores will be visible on the dashboard once reprocessing has completed.

3.4.3. Application Jobs Queue

The Application Jobs Queue enables you to monitor the progress of various jobs including application reprocessing and folder application score deletion. It will display automatically after submitting a reprocessing or delete request, or can be displayed using the queue button found at the top of the Application Settings page, shown in Figure 3.16, "Viewing the Application Jobs Queue"



Applications

Show 10 entries

		Name	Folders	Org
		Agent Scorecard	1 folder	Voci
		Agent Adherence	2 folders	Voci
		Customer Experience	1 folder	Voci

Figure 3.16. Viewing the Application Jobs Queue

The queue displays **Application**, **Folder**, and **Organization** names as well as what **Type** of job it is (Reprocess, Summarize, or Delete), the **Date range** that was selected for reprocessing, **Queue Start**, and the **Status** of each job. **Queue Start** is a timestamp of when a job starts reprocessing after it has been added to the queue.

All reprocessing jobs remain in the application queue for 30 minutes. The **Status** column indicates the status of the job.

- **Waiting...** - in the queue to be reprocessed

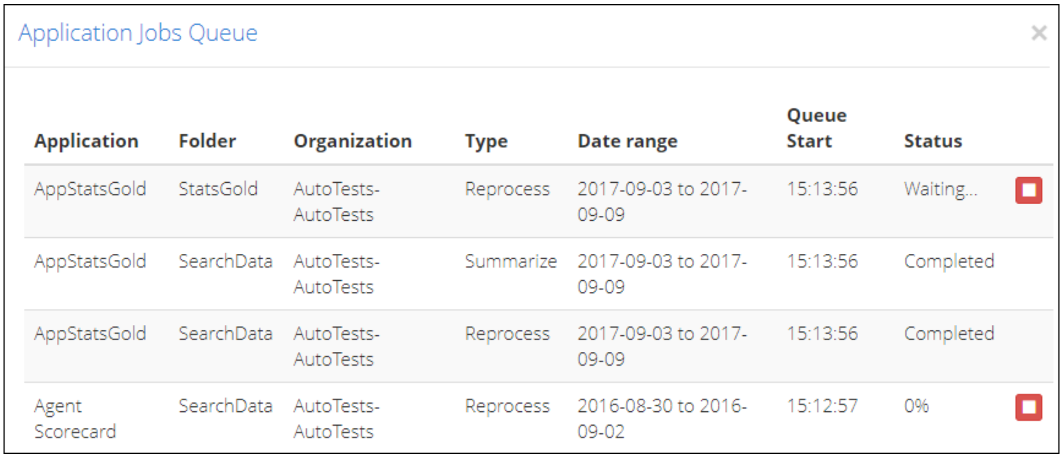
Waiting jobs will also have a **stop** button visible, as shown in Figure 3.17, "Application Jobs Queue". Use the stop reprocessing function to remove this waiting job from the queue.

- **Percent Completed** - reprocessing has started, and is partially complete

  Reprocessing jobs will also have a **stop** button visible, as shown in Figure 3.17, "Application Jobs Queue". Applications that are reprocessing cannot be edited in the application editor. Use the stop reprocessing function if you need to make an application configuration change for improved scoring. A reprocessing job that is stopped early may have incomplete or inaccurate file scores which may or may not be shown on the dashboard.

- **Completed** - processed successfully
- **WARNING** - processed, but difficulties were encountered
- **ERROR** - not processed successfully

If there is a warning or error, contact your System Administrator for more information.



Application Jobs Queue ×

Application	Folder	Organization	Type	Date range	Queue Start	Status	
AppStatsGold	StatsGold	AutoTests-AutoTests	Reprocess	2017-09-03 to 2017-09-09	15:13:56	Waiting...	■
AppStatsGold	SearchData	AutoTests-AutoTests	Summarize	2017-09-03 to 2017-09-09	15:13:56	Completed	
AppStatsGold	SearchData	AutoTests-AutoTests	Reprocess	2017-09-03 to 2017-09-09	15:13:56	Completed	
Agent Scorecard	SearchData	AutoTests-AutoTests	Reprocess	2016-08-30 to 2016-09-02	15:12:57	0%	■

Figure 3.17. Application Jobs Queue

Chapter 4. Application Scoring

You will find V-Spark application scores several places, including in the Dashboard Application Overview and Daily Chart graphs, the Summary and Agents Views (and their CSV Exports), the File Details page, and the JSON transcript.

4.1. Types of Application Scores

There are three kinds of scores:

- **Leaf Scores** only apply to leaf-level categories, and indicate how many phrase matches were found for that category. Every leaf-level category receives a leaf score. A leaf score of zero corresponds to a coverage and hit/miss score of 0% for that category. A leaf score greater than zero corresponds to a coverage and hit/miss score of 100% for that category.

- **Hit/Miss Scores** apply to all categories at every category level, and are either 0% or 100%. These scores indicate whether or not at least one lower-level category contained at least one match. Use hit/miss scores for your analysis when you want to find calls that hit particular categories, but it does not matter to what extent they hit those categories.

  For instance, if you want to find negative calls but it does not matter how many negative-indicator categories were hit by the call, then hit scores are more appropriate. Hit/Miss scores can be used for "bucketing" calls, where just one piece of information from sub-categories can be used to identify a group of calls, for instance, calls where the caller requests a cancellation of service.

- **Coverage Scores** apply to all categories at every category level, and are the average of the scores of the categories beneath them. Use coverage scores for your analysis when it is important how many lower-level categories were hit by the call. Coverage scores do the best job of analyzing how well an individual file hits multiple sub-categories.

  For instance, if you want to find calls where a call center agent mentions the widest variety of new product offerings and uses the most positive service descriptions, then coverage scores will be most useful.

4.2. Call Filtering

Call filtering is the primary method V-Spark uses to calculate application scores. In upper-level categories, call filters determine which calls are selected for further analysis, and which calls are excluded from further analysis within that category. Figure 4.1, “Call Filtering and Scoring” diagrams the process that calls follow through an application's filters and categories to receive scores.

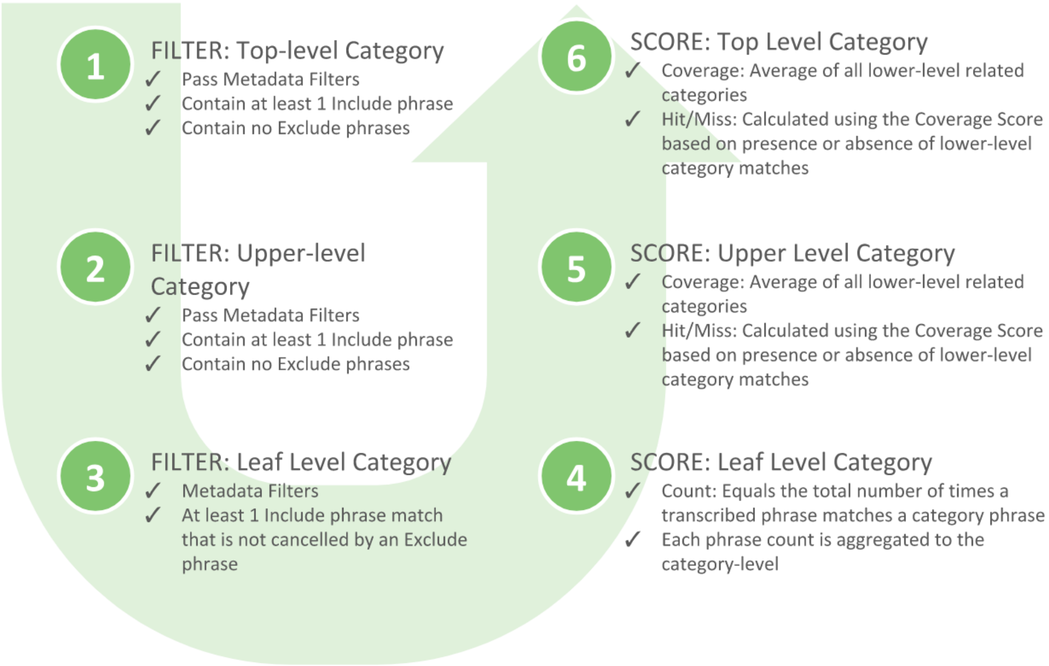

1
FILTER: Top-level Category
✓ Pass Metadata Filters
✓ Contain at least 1 Include phrase
✓ Contain no Exclude phrases
2
FILTER: Upper-level Category
✓ Pass Metadata Filters
✓ Contain at least 1 Include phrase
✓ Contain no Exclude phrases
3
FILTER: Leaf Level Category
✓ Metadata Filters
✓ At least 1 Include phrase match that is not cancelled by an Exclude phrase
4
SCORE: Leaf Level Category
✓ Count: Equals the total number of times a transcribed phrase matches a category phrase
✓ Each phrase count is aggregated to the category-level
5
SCORE: Upper Level Category
✓ Coverage: Average of all lower-level related categories
✓ Hit/Miss: Calculated using the Coverage Score based on presence or absence of lower-level category matches
6
SCORE: Top Level Category
✓ Coverage: Average of all lower-level related categories
✓ Hit/Miss: Calculated using the Coverage Score based on presence or absence of lower-level category matches

Figure 4.1. Call Filtering and Scoring

First, calls are filtered in the top-level categories. Calls that pass all the metadata filters in a category, contain at least one of the include phrases of that category, and contain none of the exclude phrases of that category are passed to the upper-level categories of that top-level category. Calls that do not satisfy any requirements of the top-level categories of the application are discarded from further analysis, and will not receive scores from the application.

Then, calls are filtered in those upper-level categories. Calls that pass all the metadata filters in a category, contain at least one of the include phrases of that category, and contain none of the exclude phrases of that category are passed to the next level categories of that category, or to the leaf-level categories of that category. Calls that do not satisfy any requirements of the category are discarded from further analysis within that category, and will not receive scores within that category, though they may receive scores from other categories within the application.

When calls reach a leaf-level category, they are filtered one more time. Calls that hit on a metadata filter in the category and hit on at least one of the include phrases of that leaf category that is not cancelled by an exclude phrase of that leaf category receive scores for that category. Unlike calls that match exclude phrases in upper-level categories, calls that contain exclude phrases at the leaf category level are not immediately excluded from the analysis. Leaf-level category exclude phrases are used to rule out false positives, and only cancel out individual phrases, rather than entire calls. See Section 4.3.1, “Leaf Scoring with Exclude Phrases” for more information. Only calls that meet all filtering requirements at every upper level will be matched against include and exclude phrases at the leaf level to receive scores.

After a call has been filtered into one or more leaf level categories, leaf scores are calculated for that call. See Section 4.3, “Leaf-level Category Scoring” for more information.

In the Application Editor, all upper-level categories have a first-level Call Filters section, located at the top of the list of the category's lower-level categories. The phrases and metadata filters in the Call Filters section determine which calls will pass on to the next level for further filtering or for leaf-level scoring.

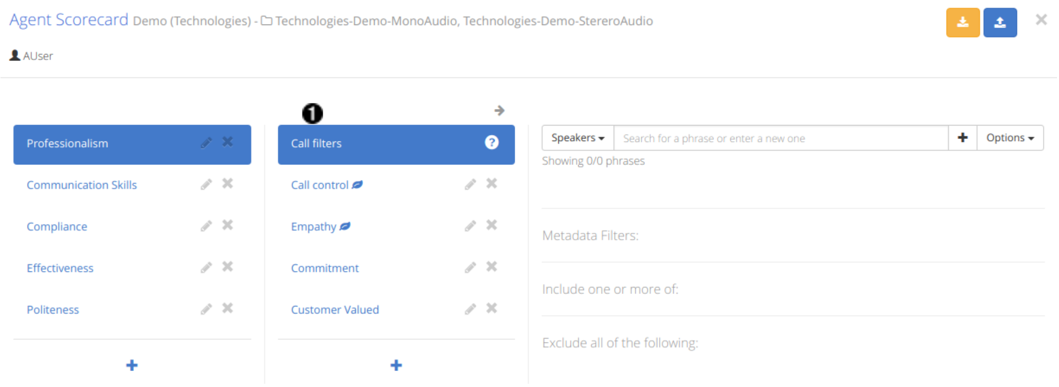


Figure 4.2. The Application Editor

1. Select **Call Filters** to view call filters

4.3. Leaf-level Category Scoring

Leaf-level categories are categories at the lowest level of an application. Leaf-level category scores are called **Leaf Scores**. For leaf-level categories that contain include phrases, the leaf score will be equal to the total number of matched phrases in the transcript minus the number of exclude phrases that matched. Leaf-level categories with no include phrases will be given a leaf score of 1.

Once calculated, Leaf Scores are stored in the V-Spark database and are converted into binary Match/No Match values each time Coverage scores need to be calculated for upper-level categories:

- Leaf-level categories that contain no matches (and therefore have Leaf Scores of 0) maintain a Match/No Match value of 0 when calculating upper-level category scores.
- Leaf-level categories that contain at least one match (and therefore have Leaf Scores greater than 0) are given a Match/No Match value of 1 when calculating upper-level category scores.

Note

These Match/No Match values are temporary and are only used in score calculations for upper-level categories.

4.3.1. Leaf Scoring with Exclude Phrases

Exclude phrases in leaf-level categories work differently than exclude phrases in Category Filters sections. Exclude phrases added to Call Filters sections act as filters for entire calls, but exclude phrases in leaf-level categories simply cancel out matches for include phrases.

When searching for application matches in leaf-level categories, V-Spark searches first for all include phrases, and takes note of which speaker turns contained the match, and how many matches were contained in each of those turns. V-Spark then searches those saved speaker turns for the exclude phrases and subtracts the number of exclude phrases from the number of include phrases. This result is then entered as the Leaf Score.

Because any exclude phrase can cancel out an include phrase, regardless of whether the words they use are related, it’s important to use exclude phrases with care. We recommend that you design your exclude phrases to eliminate very specific false positive that might be generated by a more general include phrase (e.g. “-thank you for calling” vs. “+thank you”).

4.3.2. Scoring Best Practices

When designing an application and defining the categories and filters within it, define them so that high scores indicate *either* positive or negative aspects of the transcript, and not both. This will make it easier to understand the resulting scores quickly. For example, if you assign scores that indicate *both* positive and negative aspects of a call, then it takes more attention to determine if "high scoring" agents are doing their jobs well or poorly.

If leaf-level categories are not resulting in the scores you expect, review the filters of the "parent" category on level above the leaf-level. It is most likely that one or more filters are preventing the transcript from being passed down to the leaf level.

4.4. Coverage and Hit/Miss scores

Two different types of scores are given to an application’s upper-level categories: Coverage and Hit/Miss. Each type of score is explained in more detail below, and detailed examples are provided in Appendix A, *Scoring Examples* .

4.4.1. Coverage Scores

The Coverage Score is based on the average score of all lower-level categories contained within the upper-level category. For example, if an upper-level category contains four leaf-level categories and three of them contain at least one match, but the fourth contains no matches, the Coverage Score is equal to the average of these scores, i.e. (1+1+1+0) / 4, or 75%. This Coverage score is then stored in the V-Spark database and is used to calculate Hit/Miss scores.

Coverage Scores are useful for analyses where every lower-level category matters and ought to be matched, such as agent compliance evaluation. For example, if you have a category for Gathering Customer Data that contains lower-level categories for Account Number, Phone Number, and Birthdate and your agents need to collect all of this information, you’d want to know how many of these three categories were met. Examples for how this scoring works for individual calls versus daily or monthly collections of calls are available in Appendix A, *Scoring Examples* .

4.4.2. Hit/Miss scores

The Hit/Miss score is based on whether any matches were found in a category’s lower-level categories and is calculated using the Coverage Score. If at least one phrase matches for one lower-level category, the Coverage Score will be greater than 0%, and the Hit/Miss score is therefore 100%. If none of the lower-level categories match, the Coverage Score will be 0%, and the Hit/Miss score will therefore also be 0%. This is very similar to the binary Match/No Match values that are assigned to leaf- level categories during the calculation of Coverage Scores. Hit/Miss scores are not stored in the V-Spark database.

Hit/Miss scores are useful for analyses where a call only needs to match one leaf-level category, such as call driver analysis. If you have a category for Billing calls that contains one leaf-level category for Payments and one for Questions, you don’t need to know *how many* leaf-level categories a call matched, just that it *did* match, because customers don’t always call with multiple issues.

4.5. Viewing Application Scores

V-Spark enables you to view application scoring information from a number of different locations. Once you understand how applications are designed and how applications are created you will understand what the application is measuring, how the application is measuring, and what those metrics mean.

Keep in mind that in some cases, a "low" score may indicate a positive outcome, and a "high" score may indicate a negative outcome. For example, if an application measures the use of impolite language by Agents, a "high" score could indicate that some Agents may be speaking rudely to callers.

4.5.1. Using the Application Dashboard

After you've selected a company and organization from the breadcrumb menu, select an application from the submenu to view its dashboard. The primary way that the application dashboard enables you to view and analyze application scores is with the dashboard graphs, as seen in Figure 4.3, “Application Dashboard Graphs”. These graphs enable you to quickly visualize your application results and compare category results across a month view.

The Application Overview graph displays Coverage and Hit/Miss scores for top-level categories by day, while the Application Daily Chart enables you to drill down into lower-level categories.

Clicking on a data point on the Overview graph updates the Daily Chart on the right to provide a closer look at scores for lower-level categories. Likewise, selecting a data point on the Daily Chart updates the Files, Agents, or Summary View below and, if that category contains its own lower-level categories, also updates the chart to show the scores for those categories.

Note

Leaf-level category names are prefixed with an asterisk (*).

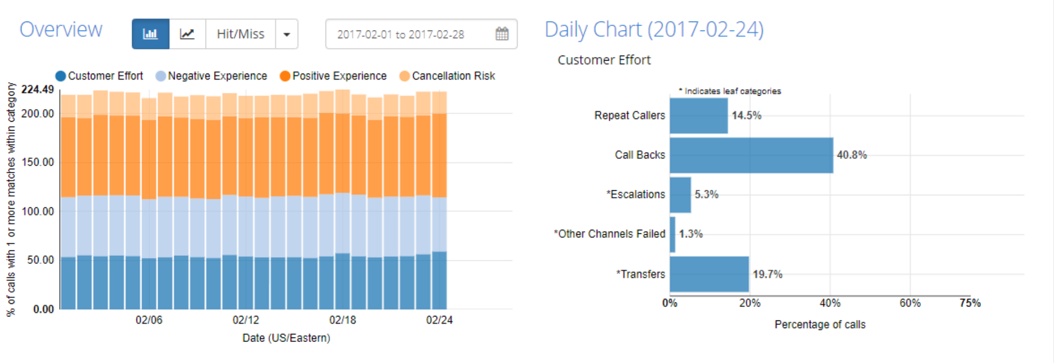


Figure 4.3. Application Dashboard Graphs

4.5.1.1. Using the Application Overview Graph

The bar chart version of the Overview graph shows you how many calls each day received scores from the application's categories.

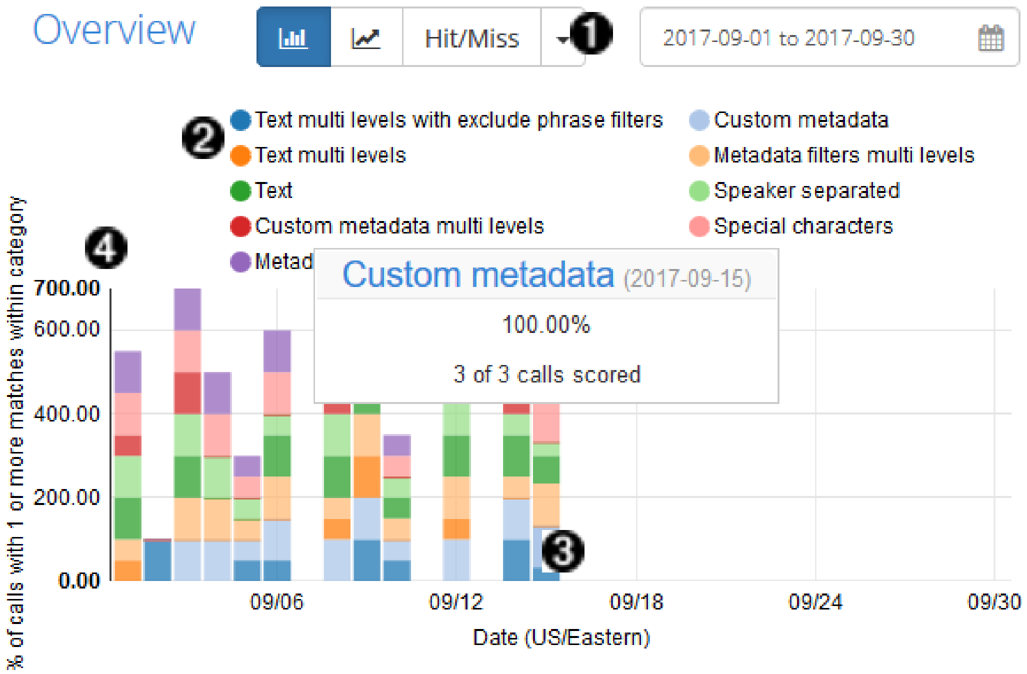


Figure 4.4. Bar Chart Version of the Application Overview Graph

1. Choose "Hit/Miss" from the drop-down menu to display only hit/miss score data on the graph, or choose "Coverage" from the drop-down menu to display more-nuanced coverage data.

2. The key above the Overview graph assigns a color to each top-level category. Each day's vertical bar is divided into categories using these colors. Select a color in the key to hide that category's data so that it is not displayed in the graph.

3. Hover the pointer over a division to see a tool tip that displays the name of the category, the date represented by the bar, the percentage of files that received scores from that category on that day, the number of files that received scores from that category on that day, and the total number of files recorded that day.

4. The total height of each bar is measured against the vertical axis, and is the total of all the percentages that day. The relative heights of the bars over time enable you to compare the effectiveness of the application on each day.

The line graph version shows you the effectiveness of each category over time.

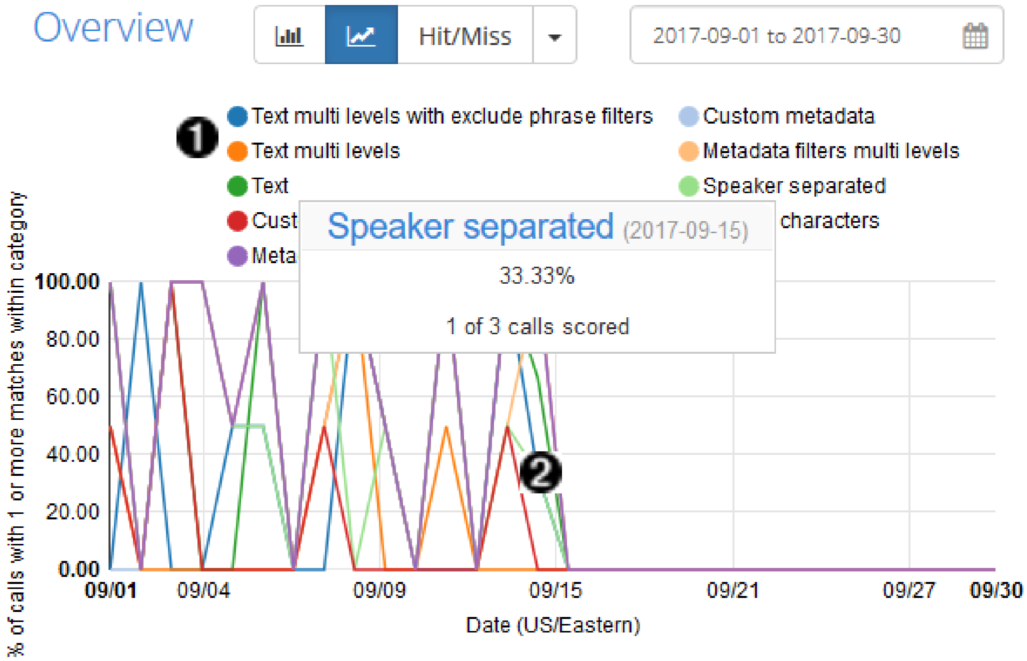


Figure 4.5. Line Graph Version of the Application Overview Graph

1. The key above the Overview graph assigns a color to each top-level category. Each category is represented as a line that follows the percentage of files each day that received scores from that category. Select a color in the key to hide that category's data so that it is not displayed in the graph.

2. Hover the pointer over a day's point in the graph to see a tool tip similar to the one described for the bar chart.

Selecting a graph division in the bar chart (or a day's point in the line graph) also filters the view below to only those files that match that date and that received scores in the selected category.

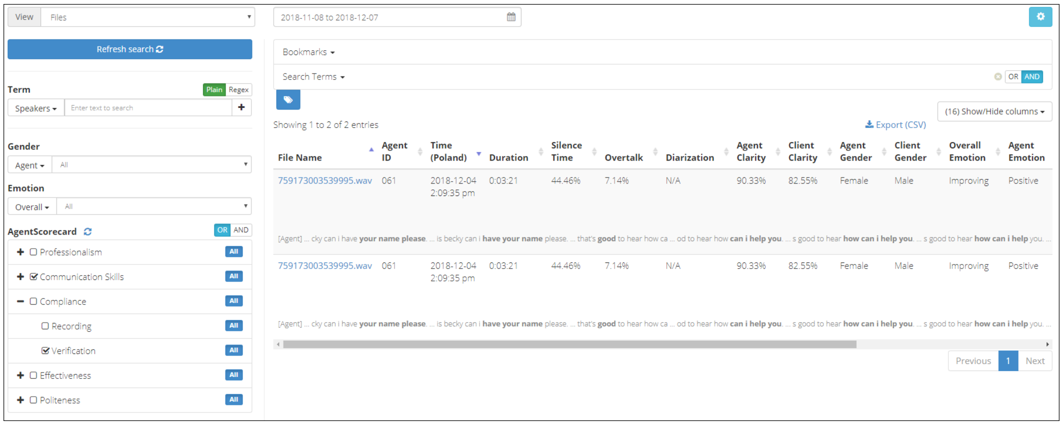
4.5.1.2. Using the Application Daily Chart

Select a graph division in the bar chart (or a day's point in the line graph) to break that category's scores out into lower-level category scores in the Daily Chart. This bar chart shows you the percentage of files that day that received scores from each lower-level category within the category you selected. Tool tips on each bar show how many files received scores from that lower-level category. You will be able to compare the effectiveness of the different lower-level categories within the category, since every lower-level category is shown even if it did not score any files that day. If a lower-level category is not a leaf category, select it in the chart to drill down further into the data. The category hierarchy that leads to the data you are displaying is shown above the Daily Chart. Select higher levels in the hierarchy to navigate back up the hierarchy.

Selecting a lower-level category in the Daily Chart also filters the view below to only those files that match that date and that received scores in the selected category.

4.5.2. Using the Files View

In addition to narrowing your search results using the Dashboard graphs, you can also conduct searches using the Dashboard application metrics filters and the other Files View search functions. Additionally, you can use Boolean OR/AND searches to find calls that meet more than one category or that meet at least one of a subset of categories. These combined search capabilities give you the power to breakdown and analyze your data any way you want for deeper insights into your customer interactions. Figure 4.6, “Application Files View” shows the results of an OR search performed for "Communication Skills" or "Verification".



Showing 1 to 2 of 2 entries

File Name	Agent ID	Time (Poland)	Duration	Silence Time	Overtalk	Diarization	Agent Clarity	Client Clarity	Agent Gender	Client Gender	Overall Emotion	Agent Emotion
759173003539995.wav	061	2018-12-04 2:09:35 pm	0:03:21	44.46%	7.14%	N/A	90.33%	82.55%	Female	Male	Improving	Positive
759173003539995.wav	061	2018-12-04 2:09:35 pm	0:03:21	44.46%	7.14%	N/A	90.33%	82.55%	Female	Male	Improving	Positive

[Agent] ... cky can i have **your name please**. ... is becky can i **have your name** please. ... that's **good** to hear how ca ... od to hear how **can i help you**. ... s good to hear **how can i help you**. ... s good to hear **how can i help** you. ...

[Agent] ... cky can i have **your name please**. ... is becky can i **have your name** please. ... that's **good** to hear how ca ... od to hear how **can i help you**. ... s good to hear **how can i help you**. ... s good to hear **how can i help** you. ...

Figure 4.6. Application Files View

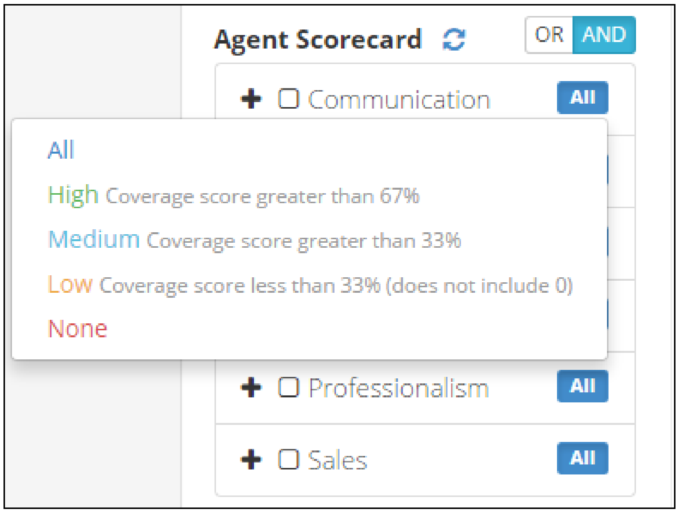

Agent Scorecard
OR AND
+ ☐ Communication All
All
High Coverage score greater than 67%
Medium Coverage score greater than 33%
Low Coverage score less than 33% (does not include 0)
None
+ ☐ Professionalism All
+ ☐ Sales All

Figure 4.7. Application Category Score Filters

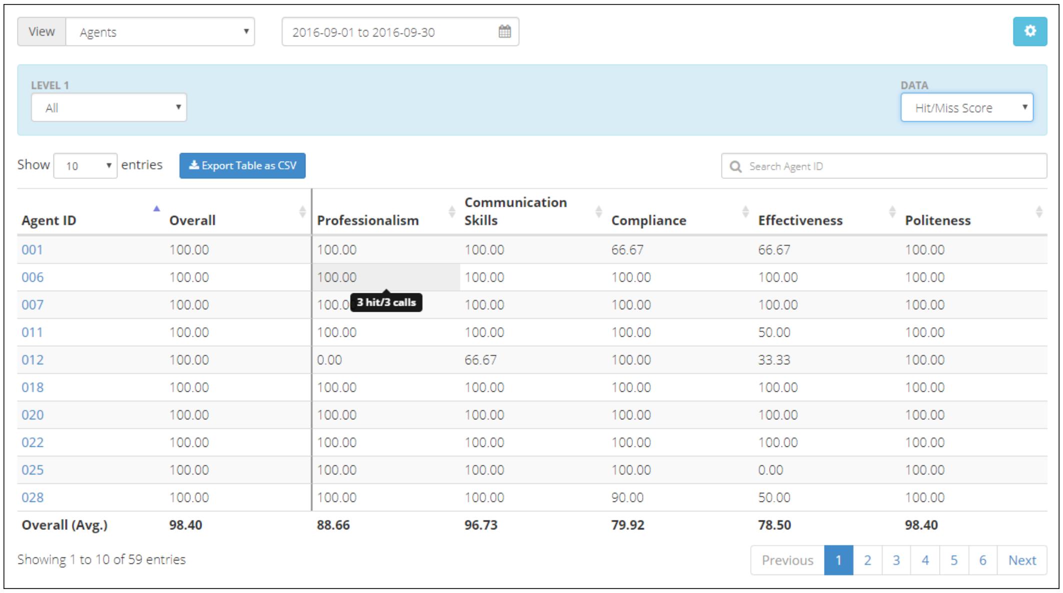
The Files View is similar to the Files View of the Dashboard Overview. Perform simple searches by entering search terms in the **Term** field and selecting the + button to add those terms to the **Search Terms** list. Choose built-in or custom metadata fields from the **Term** drop-down menu to search for a specific value/field pair. Remove active search terms from the list by selecting the **x** on the term's tag. Switch between plain text and regular expression searches by using the **Plain/Regex** toggle.

There is an additional search filter section for category scores (Figure 4.7, “Application Category Score Filters”). If there is a + button next to a category, select that button to display the lower-level categories beneath that category. Check the checkbox next to a category to filter the list so that it only shows files that received scores from that category. When multiple check boxes are selected, use the search query Boolean function to find the intersection of the metrics. Select which type of Boolean search is performed by using the **OR/AND** toggle shown at the top of (Figure 4.7, “Application Category Score Filters”). Boolean "AND" searches only include files that received scores from *all* of the selected categories. Boolean "OR" searches include files that received scores from *any* of the selected categories. For each category, you can choose to filter by all or some of its lower-level categories or by certain ranges of scores.

- **All**: Display all calls with coverage scores greater than 0%.
- **High**: Displays all calls with coverage scores greater than 67%.
- **Medium**: Displays all calls with coverage scores greater than 33%.
- **Low**: Displays all calls with coverage scores less than 33% and does not include scores of 0.
- **None**: Display all calls with coverage scores of 0%, or unscored.

4.5.3. Using the Agents View

The Agents View, shown in Figure 4.8, “Application Agents View”, enables you to compare application results by date range on an agent-by-agent basis.



Agent ID	Overall	Professionalism	Communication Skills	Compliance	Effectiveness	Politeness
001	100.00	100.00	100.00	66.67	66.67	100.00
006	100.00	100.00	100.00	100.00	100.00	100.00
007	100.00	100.0	100.00	100.00	100.00	100.00
011	100.00	100.00	100.00	100.00	50.00	100.00
012	100.00	0.00	66.67	100.00	33.33	100.00
018	100.00	100.00	100.00	100.00	100.00	100.00
020	100.00	100.00	100.00	100.00	100.00	100.00
022	100.00	100.00	100.00	100.00	100.00	100.00
025	100.00	100.00	100.00	100.00	0.00	100.00
028	100.00	100.00	100.00	90.00	50.00	100.00
Overall (Avg.)	**98.40**	**88.66**	**96.73**	**79.92**	**78.50**	**98.40**

Showing 1 to 10 of 59 entries

Figure 4.8. Application Agents View

By default, the Agents View is sorted by Agent ID, but can also be sorted by any column by clicking on the header for the column by which you want to sort. This makes it easy to examine agent performance in various ways. For example, in an application that scores agent performance, you can click twice on the header for the **Overall** column to sort the view from lowest overall score to highest. You can then select the **Agent ID** entry of the poorest-performing agent to explore audio or transcripts of the individual calls of that agent.

The Agents View also provides ways to refine the data that you are displaying. The Agents View's Search box enables you to search for a particular agent to specifically evaluate their progress. To see the calls for a specific agent by date range, users can either:

- Click the Agent ID to display all of the calls for that agent. You can then drill down to do an individual examination of agent performance on specific dates.
- Use the date picker at the center of the screen shown in Figure 4.8 to refine the calls that are displayed on the Agents View screen. Clicking the Agent ID then displays all of the calls for that agent during the selected time period.

As you move the cursor over any cell in the table, a pop-up displays that identifies the number of calls from which the displayed percentage is derived. This can help you determine the significance of that percentage. For example, 50% derived from 1 out of 2 calls has a different meaning than 50% derived from 50 out of 100 calls. The first can be an aberration; the second seems to indicate a pattern. Clicking on any of the values in the table displays a Files View that is populated with the files used to compile that value.

The Blue toolbar shown in the Agents view provides multiple ways of refining the data that is displayed in the Agents view. From left to right:

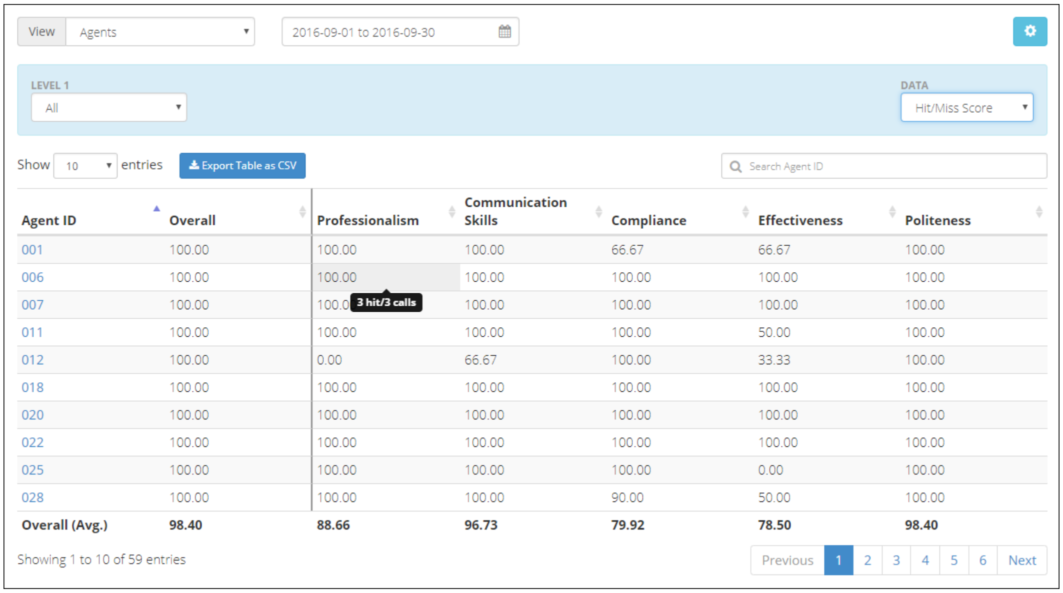
- **LEVEL 1** - this drop-down enables you to select a complete (**All**) selection of top-level entries to display, or choose a top-level (Level 1) category that identifies a specific aspect of a call. Top-level/ Level 1 categories are the same as the columns displayed in the Application Overview graph when you first explore the Application Overview Dashboard

  Once you have selected a specific top-level (**LEVEL 1**) category, you can also select a **LEVEL 2** category. A leading asterisk (*) next to a category name in the select list indicates a leaf-level category, meaning that you cannot drill down any further into associated data for the item.

  Clicking a **LEVEL 2** item that is not a leaf-level category (and is therefore not preceded by an asterisk) displays a **LEVEL 3** drop-down category. A leading asterisk (*) next to a category name in the select list indicates a leaf-level category, meaning that you cannot drill down any further into associated data for the item.

- **DATA** - enables you to specify the primary way by which the data shown in the table is calculated and organized. Possible values are:
  - **Hit/Miss Score** - indicates whether or not matches were found in a category's lower-level categories. Matches are based on the categories and category hierarchies that were defined in the application that produced this agents view.
  - **Avg. call duration** - indicates the average call duration, which is the time period between answering and terminating the call
  - **Avg. call silence** - indicates the average amount of silence that occurred during a call
  - **Coverage Score** - indicates the average score of all lower-level categories within the current highest level category. Matches are based on the categories and category hierarchies that were defined in the application that produced this agents view.

Finally, the Agents View enables you to export scores for all agents as a CSV file that includes all the categories that are currently shown in the table so that you can conduct more in-depth analysis of agent performance. Controls are shown in Figure 4.9, “Agents View: Export and Score Display Controls”. All pages of the table will be exported.



Agent ID	Overall	Professionalism	Communication Skills	Compliance	Effectiveness	Politeness
001	100.00	100.00	100.00	66.67	66.67	100.00
006	100.00	100.00	100.00	100.00	100.00	100.00
007	100.00	100.0	100.00	100.00	100.00	100.00
011	100.00	100.00	100.00	100.00	50.00	100.00
012	100.00	0.00	66.67	100.00	33.33	100.00
018	100.00	100.00	100.00	100.00	100.00	100.00
020	100.00	100.00	100.00	100.00	100.00	100.00
022	100.00	100.00	100.00	100.00	100.00	100.00
025	100.00	100.00	100.00	100.00	0.00	100.00
028	100.00	100.00	100.00	90.00	50.00	100.00
Overall (Avg.)	**98.40**	**88.66**	**96.73**	**79.92**	**78.50**	**98.40**

Showing 1 to 10 of 59 entries

Figure 4.9. Agents View: Export and Score Display Controls

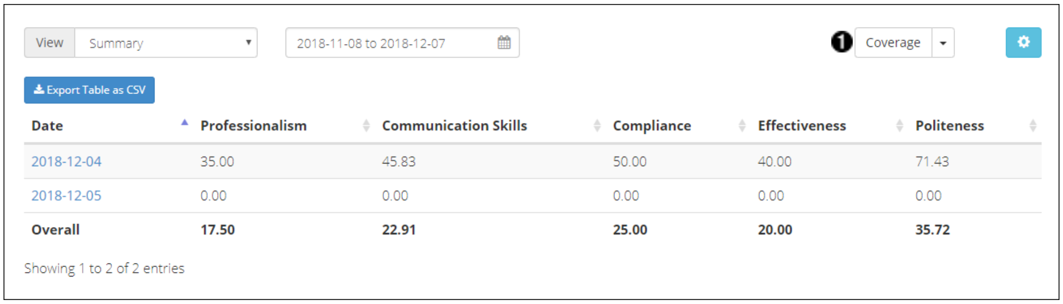
After reviewing or refining the agents, time period, categories, and levels for which you want to see results, select **Export Table as CSV** to export current data in *Comma-Separated Values* format, so that you can conduct more in-depth analysis of agent performance in other tools where CSV is a supported input format.

4.5.4. Using the Summary View

The application Summary View enables you to compare application scores day by day. If you have defined categories to measure common call attributes, you will be able to identify changes in call distribution relating to those attributes such as an increase in calls about Billing, a decrease in callback rates, or improvements in Agent Performance.

The Summary View table contains a column for each top-level category in the application. Overall averages for each scored date in the selected date range are at the bottom of each column. Sort the table according to a particular category's scores by selecting the column heading of that category. Select a date in the **Date** column to switch the view below to the Files view and filter it to only show files from that date.

The Summary View also gives you the option to switch between viewing Coverage or Hit/Miss Scores for top-level categories.



Date	Professionalism	Communication Skills	Compliance	Effectiveness	Politeness
2018-12-04	35.00	45.83	50.00	40.00	71.43
2018-12-05	0.00	0.00	0.00	0.00	0.00
Overall	**17.50**	**22.91**	**25.00**	**20.00**	**35.72**

Showing 1 to 2 of 2 entries

Figure 4.10. Summary View: Export and Score Display Controls

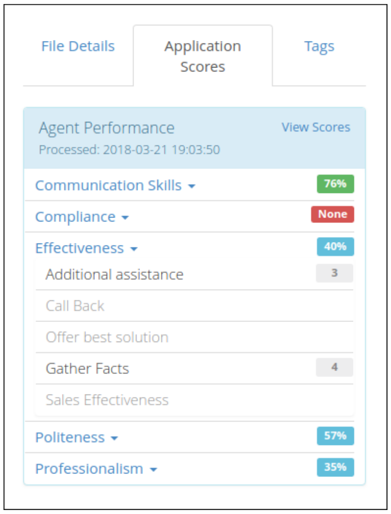
1. The dropdown to switch between score types.

Choosing **Hit/Miss** scores displays the percentage of calls on that date that received scores in that category.

Choosing **Coverage** scores displays the average coverage score of calls on that date that received scores in that category.

4.5.5. Viewing Transcript Scores

You can also view the application scores of individual transcripts. To view the scores for a particular application from the File Details page, first select the **Application Scores** tab, then select **View Scores** next to the application name, as shown in Figure 4.11, "Application Scores on the File Details Page". The File Details Page displays Coverage Scores for all upper-level categories and Count Scores for leaf-level categories. Hit/Miss scores for a category can be inferred from the presence (Hit) or absence (Miss) of scores.

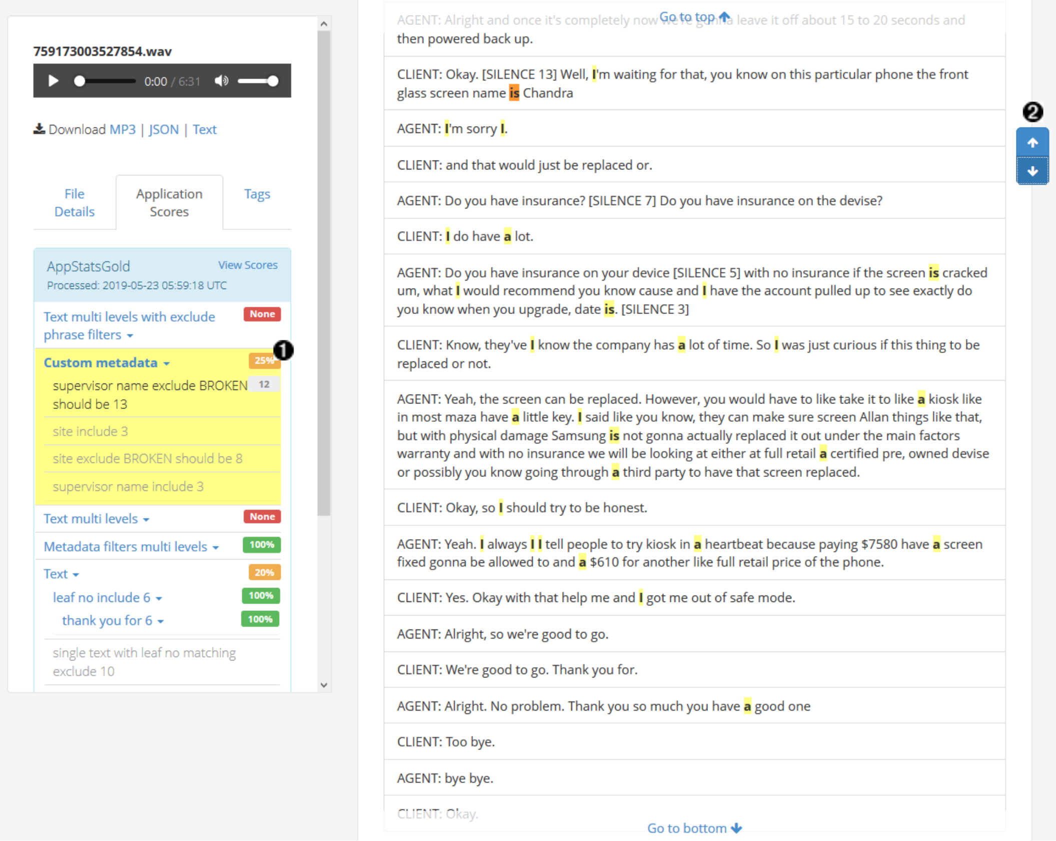


Agent Performance
Processed: 2018-03-21 19:03:50

Communication Skills ▾	76%
Compliance ▾	None
Effectiveness ▾	40%
Additional assistance	3
Call Back	
Offer best solution	
Gather Facts	4
Sales Effectiveness	
Politeness ▾	57%
Professionalism ▾	35%

Figure 4.11. Application Scores on the File Details Page

Expand a top-level category to see the breakdown of lower-level category scores. These scores are updated each time the application is reprocessed.



AppStatsGold
Processed: 2019-05-23 05:59:18 UTC

Text multi levels with exclude phrase filters	None
Custom metadata	25%
supervisor name exclude BROKEN should be 13	12
site include 3	
site exclude BROKEN should be 8	
supervisor name include 3	
Text multi levels	None
Metadata filters multi levels	100%
Text	20%
leaf no include 6	100%
thank you for 6	100%
single text with leaf no matching exclude 10	

AGENT: Alright and once it's completely now we're gonna leave it off about 15 to 20 seconds and then powered back up.

CLIENT: Okay. [SILENCE 13] Well, I'm waiting for that, you know on this particular phone the front glass screen name is Chandra

AGENT: I'm sorry I.

CLIENT: and that would just be replaced or.

AGENT: Do you have insurance? [SILENCE 7] Do you have insurance on the devise?

CLIENT: I do have a lot.

AGENT: Do you have insurance on your device [SILENCE 5] with no insurance if the screen is cracked um, what I would recommend you know cause and I have the account pulled up to see exactly do you know when you upgrade, date is. [SILENCE 3]

CLIENT: Know, they've I know the company has a lot of time. So I was just curious if this thing to be replaced or not.

AGENT: Yeah, the screen can be replaced. However, you would have to like take it to like a kiosk like in most maza have a little key. I said like you know, they can make sure screen Allan things like that, but with physical damage Samsung is not gonna actually replaced it out under the main factors warranty and with no insurance we will be looking at either at full retail a certified pre, owned devise or possibly you know going through a third party to have that screen replaced.

CLIENT: Okay, so I should try to be honest.

AGENT: Yeah. I always I I tell people to try kiosk in a heartbeat because paying $7580 have a screen fixed gonna be allowed to and a $610 for another like full retail price of the phone.

CLIENT: Yes. Okay with that help me and I got me out of safe mode.

AGENT: Alright, so we're good to go.

CLIENT: We're good to go. Thank you for.

AGENT: Alright. No problem. Thank you so much you have a good one

CLIENT: Too bye.

AGENT: bye bye.

CLIENT: Okay.

Figure 4.12. Transcript with Application Scores and Highlighting

1. Select a score to highlight (in the transcript) the category phrase that the application scored on. You may need to scroll the transcript view up or down before the highlighted part of the transcript is visible. This highlighting enables you to see the part of the transcript that contains the phrase that the application scored on.

2. If more than one phrase in the transcript is highlighted, V-Spark will also display blue up and down arrows in the right margin of the transcript. Use these arrows to step from highlighted phrase to highlighted phrase within the transcript.

Select the score again to turn off highlighting for that score.

Application scores are also included in the JSON transcript for each call under `app_data` within the `scorecard` object as shown in Figure 4.13, “JSON Scorecard Object”. JSON transcripts contain Coverage and Count Scores for the entire application. [1]

To download the JSON file of a transcript while viewing a file's File Details page, select **JSON** from the file download choices listed beneath the audio control. Your web browser will save the JSON file to your local computer.

[1] Figure 4.13 and the other sample JSON files in this document use *ellipses* (`...`) to indicate where more than one of a certain type of section can be present in a JSON file of that type.

```
"scorecard": {
  "AppStatsGold": {
    "Text multi levels with exclude phrase filters": {
      "subcategories": {
        "lvl 1 Communication Skills": {
          "subcategories": {},
          "score": 1
        },
        "lvl 2 Client Informed": {
          "subcategories": {
            "lvl 2 Share Info": {
              "subcategories": {},
              "score": 1
            },
            "lvl 2 Warm Hold": {
              "subcategories": {},
              "score": 1
            },
            "lvl 3 Agent Actions": {
              "subcategories": {},
              "score": 0
            }
          },
          "score": 0.666667
        },
        "lvl 1 Compliance": {
          "subcategories": {},
          "score": 0
        }
      },
      "score": 0.555556
    },...
  },...
}
```

Figure 4.13. JSON Scorecard Object

Categories and lower-level categories are contained within fields for each application. The score for the category is contained in the `score` field at each level. Higher-level categories show the average of all the scores of their lower-level categories, and leaf-level categories display their count scores.

JSON files that are exported from the File Details page always contain the most recent scores. JSON files that are exported in bulk from the Folders page or via the API may only contain the application scores from the first time that the file was transcribed unless the **update JSON** option was selected during application reprocessing.

4.6. Summary of Application Scores

Table 4.1, “Application Score Types” summarizes score types and their locations in V-Spark.

Table 4.1. Application Score Types

Score Type	Description	Location(s)
Leaf Score	For leaf-level categories of single calls only. Equal to the number of phrase matches that occurred in a leaf-level category.	File Details page JSON transcript file

Score Type	Description	Location(s)
	Converted into a temporary Match/ No Match value before being used to calculate Coverage Scores.	
Match/No Match Value	This value is not a formal application score, but is simply a binary version of the Leaf Score. It is therefore not stored in the V-Spark database or displayed anywhere.	N/A
Coverage Score	For upper-level categories only. Equal to the average of leaf-level Match/No Match values or of lower-level coverage scores.	Application Overview Graph Application Daily Charts (percent of calls with Hit/Miss Scores greater than 0) Summary View (top-level categories only) & CSV Export Agents View & CSV Export File Details page JSON transcript file
Hit/Miss score	For upper-level categories only. If at least one lower-level category contains a match (in other words, if the Coverage Score is greater than 0), the upper-level category receives a score of 100%. If none of the lower-level categories contain a match, the upper-level category receives a score of 0%.	Application Overview Graph Application Daily Charts (percent of calls with Hit/Miss Scores greater than 0) Summary View (top-level categories only) & CSV Export Agents View & CSV Export File Details page JSON transcript file

Chapter 5. Templated Applications

V-Spark comes with several ready-made application templates to jumpstart your call analysis. Each of these templated applications is designed to offer valuable insights as-is or be customized to address your company's unique needs for analysis of particular products, services, compliance scripts, or business processes. See Section 3.1, "The Application Editor" for more information about modifying applications.

5.1. Agent Scorecard

The V-Spark *Agent Scorecard* application increases the efficiency of agent evaluation process by automatically detecting the presence or absence of phrases that correspond to QA form requirements. Application results can be used to get an overall view of your agents' performance, pinpoint performance categories that require improved training, and compare scores for individual agents. The *Agent Scorecard* uses six top-level categories to evaluate agent performance: Communication Skills, Compliance, Effectiveness, Politeness, Professionalism, and Sales. Application scores are accessible for individual call transcripts as well, enabling supervisors to quickly check off objective requirements on agent evaluation forms.

5.2. Call Driver Analysis

The V-Spark *Call Drivers* application is the perfect springboard for developing industry-specific call driver analyses. The *Call Drivers* application automatically categorizes calls according to call type and the customer's ultimate objective. The *Call Drivers* application can be used to identify which types of calls your agents struggle with the most, cause the highest call volumes, and more.

5.3. Customer Experience

V-Spark comes equipped with a templated *Customer Experience* application that covers all aspects of both positive and negative call center experiences, including customer sentiment, customer effort, and churn detection.

5.3.1. Customer Sentiment

The V-Spark *Customer Experience* application enhances your analysis of positive and negative customer experiences by leveraging Voci's advanced emotional intelligence capabilities. This emotional intelligence combines both linguistic- and acoustic-based information about the speaker's emotional state (such as word choice and tone of voice) which is then used to assign each call a score of Positive, Negative, Worsening, or Improving emotion. All of these scores are searchable, and can be added to any V-Spark application as filters to help you drill down into your calls for deeper insights into your customers' state of mind.

5.3.2. Customer Effort

The *Customer Experience* application lets you see how well your agents resolve customer complaints by automatically detecting repeat calls, transfers, and escalations. This information can then be used to identify areas for improvement in agent training, business processes, and self-service systems that will reduce customer effort and prevent churn. This application can be used hand-in-hand with the *Call Drivers* application in order to identify the relationship between particular call drivers and unresolved calls.

5.3.3. Churn Detection

The *Customer Experience* application identifies negative customer experiences that could increase churn rate and detects calls where the customer is actively trying to cancel their account. Churn attempts are further categorized by the customer's reason for cancelling as well as the rebuttal strategies that the agent has employed in order to save the account. All of this enables you to identify common reasons for churning, reach out to unhappy customers before they churn, and identify which save strategies are most effective.

Appendix A. Scoring Examples

This section walks through the structure of an application that is used to do single-call and multi-call scoring.

A.1. Single-Call Scoring

Let’s say we have an Agent Scorecard application with one category for Politeness and three 2nd-level categories for Opening, Closing, and Other. The Opening 2nd-level category has two additional 3rd-level categories for Hello and Other Greeting, but the Closing and Other categories do not have any 3rd-level categories.

Table A.1, “Application Category Structure” illustrates the structure of the application and the phrases contained within each leaf-level category. While upper-level categories may also contain phrases, these phrases are treated as filters and are therefore not involved in call scoring.

Table A.1. Application Category Structure

Top-level Category	2nd-level Category	3rd-level Category (leaf-level)	Agent Phrase(s)
Politeness	Opening	Hello	Hello
			Hi there
		Other Greeting	How are you doing
			How can I help you
	Closing		Have a good day
			Bye
	Other		Please
			Thank you

Now let’s say we have a call transcript named Call 1 that contains the following number of matches for each phrase:

Table A.2. Call 1 Phrase Matches

2nd-level Category	3rd-level Category (leaf-level)	Phrases	Call 1 Phrase Matches
Opening	Hello	Hello	0
		Hi there	0
	Other Greeting	How are you doing	1
		How can I help you	1
Closing		Have a good day	0
		Bye	1
Other		Please	0
		Thank you	0

A.1.1. Leaf-level scoring

Since our Hello and Other Greeting 3rd-level categories and our Closing and Other 2nd-level categories don't have any lower- level categories of their own, they will be scored as leaf-level categories.

First, let's calculate the Leaf Scores for the 3rd-level categories. Remember that this score is equal to the total number of matches within the leaf-level category.

Table A.3. Call 1: 3rd-level Category Leaf Scores

2nd-level Category	3rd-level Category (leaf-level)	Matches per Phrase	Leaf Score
Opening	Hello	0	0
		0	
	Other Greeting	1	2
		1	

Next, let's calculate the leaf-level scores for our 2nd-level categories, Closing and Other. As before, the Leaf Scores are equal to the total number of matches within the leaf-level category.

Table A.4. Call 1: 2nd-level Category Leaf Scores

2nd-level Category (leaf- level)	Matches per Phrase	Leaf Score
Closing	0	1
	1	
Other	0	0

A.1.2. Upper-level Category Scoring

Using the Leaf Scores for the two 3rd-level categories, we can now calculate the Coverage and Hit/Miss scores for the 2nd- level Opening category, as explained in the net few sections.

A.1.2.1. The Opening Category

Coverage Score: As mentioned previously, the Coverage Score is based on the average score of all lower-level categories within the upper-level category. Since the Hello leaf-level category contains no matches, it gets a temporary Match/No Match value of 0, but the Other Greeting leaf-level category has 2 matches, so it gets a temporary Match/No Match value of 1. Call 1's Opening Coverage Score is an average of those two values, and is therefore equal to (0+1) / 2, or 50%.

Hit/Miss score: As mentioned previously, if the Coverage Score is greater than 0% (meaning that at least one phrase matches for one leaf-level category), the category receives a Hit/Miss score of 100%. Since our Opening Coverage Score is 50% and is therefore greater than 0%, Call 1's Opening Hit/Miss score is 100%.

A.1.2.2. The Closing and Other Categories

Next we need to calculate the Coverage and Hit/Miss scores for the 2nd-level Closing and Other categories. Since these categories are leaf-level categories, their Coverage Scores will be the same as their Hit/Miss scores. The Leaf Scores will again need to be converted into temporary Match/No Match values before being converted into a Coverage Score. A Match/No Match value of 1 is equal to a score of 100%, while a Match/No Match value of 0 is equal to 0%.

Since the Closing Leaf Score was 1, it receives a temporary Match/No Match value of 1, and therefore receives a score of 100% for both the Coverage and Hit/Miss score. Since the Other Leaf Score was 0, it receives a temporary Match/No Match value of 0 and receives a score of 0% for both scores. Table A.5, “Category Scores Summary” shows a summary of Call 1’s Coverage and Hit/Miss scores for all of the lower-level Politeness categories.

Table A.5. Category Scores Summary

Top-level Category	2nd-level Category	3rd-level Category Coverage Score	3rd-level Category Hit/Miss Score
Politeness	Opening	50%	100%
	Closing	100%	100%
	Other	0%	0%

A.1.3. Top-level Category Scoring

Now that we have all of the Coverage and Hit/Miss scores for the lower-level Politeness categories, we can calculate Call 1’s Coverage and Hit/Miss scores for the entire Politeness branch.

Coverage Score: The Coverage Score is based on the average score of all lower-level categories within the upper-level category. Since the Opening category has a score of 50, the Closing category has a score of 100 and the Other category has a score of 0, Call 1’s Politeness Coverage Score is (50+100+0) / 3, or 50%.

Hit/Miss score: As mentioned previously, if the Coverage Score is greater than 0%, this means that at least one phrase matches for one leaf-level category, and the category receives a Hit/Miss score of 100%. Since our Politeness Coverage Score is 50% and is therefore greater than 0, Call 1’s Politeness Hit/Miss score is 100%. Table A.6, “Top-level Category Scores” summarizes all of Call 1’s scores for the entire Politeness branch.

Table A.6. Top-level Category Scores

Top-level Category	2nd-level Category	3rd-level Category	Leaf Score	Coverage Score	Hit/Miss Score
Politeness				50%	100%
	Opening	Hello	1	50%	100%
		Other Greeting	0		
	Closing		1	100%	100%
	Other		0	0%	0%

A.2. Multi-Call Scoring

Using the same example Agent Scorecard application as in Section A.1.3, “Top-level Category Scoring”, we’ll calculate the Category Scores for multiple calls. As before, the Hello and Other Greeting 3rd-level categories and the Closing and Other 2nd-level categories will be treated as leaf-level categories.

Table A.7. Multi Category Scores

Top-level Category	2nd-level Category	3rd-level Category (leaf-level)	Phrase(s)
Politeness	Opening	Hello	Hello
			Hi there
		Other Greeting	How are you doing
			How can I help you

Table A.8. Score for Other Categories

Top-level Category	2nd-level Category (leaf-level)	3rd-level Category	Phrase(s)
Politeness	Closing	n/a	Have a good day
			Bye
	Other	n/a	Please
			Thank you

Let’s say our call center received three calls last Monday: Call 1 (which is the same as the call we scored in the previous section) Call 2, and Call 3. In multi-call scoring, the scores for individual calls are calculated first, then averaged together.

A.2.1. Call 1

Since we already calculated the scores for Call 1, Table A.9, “Initial Politeness Score for Call 1” shows copying these into the Multi-Call Politeness Category scores.

Table A.9. Initial Politeness Score for Call 1

Category	Category Coverage Score	Category Hit/Miss Score
Politeness	50%	100%

A.2.2. Call 2

Using the same process that we did for Call 1 in the Single-Call Scoring section, we’ll calculate the scores for Calls 2 and 3. Call 2 contained the following number of matches per phrase:

Table A.10. Call 2 Phrase Matches

2nd-level Category	3rd-level Category (leaf-level)	Agent Phrases	Call 2 Phrase Matches
Opening	Hello	Hello	1
		Hi there	0
	Other Greeting	How are you doing	0
		How can I help you	0
Closing		Have a good day	1
		Bye	0

2nd-level Category	3rd-level Category (leaf-level)	Agent Phrases	Call 2 Phrase Matches
Other		Please	0
		Thank you	0

A.2.3. Leaf-level category Scoring

As before, Call 2’s Leaf Scores for all leaf-level categories are equal to the total number of matches for each category.

Table A.11. Call 2 Leaf-Level Leaf Scores

2nd-level Category	3rd-level Category (leaf-level)	Call 2 Phrase Matches	Leaf Score
Opening	Hello	1	1
		0	
	Other Greeting	0	0
		0	
2nd-level category (leaf- level)		**Call 2 Phrase Matches**	**Leaf Score**
Closing		1	1
		0	
Other		0	0

A.2.4. Upper-level Category Scoring

A.2.4.1. The Opening Category

Using the Leaf Scores for the two 3rd-level Opening categories, we can now calculate temporary Match/No Match values and use them to calculate the Coverage and Hit/Miss scores for Call 2’s Opening category.

Coverage Score: The Coverage Score is based on the average score of all lower-level categories within the upper-level category. Since the Hello category has a Leaf Score of 1, its temporary Match/No Match value is 1. Since the Other Greeting category has a Leaf Score of 0, it receives a temporary Match/No Match value of 0. Call 2’s Opening Coverage Score is therefore (1+0) / 2, or 50%.

Hit/Miss score: If the Coverage Score is greater than 0%, this means that at least one phrase matches for one category, and the category receives a Hit/Miss score of 100%. Since our Opening Coverage Score is 50% and is therefore greater than 0, Call 2’s Opening Hit/Miss score is 100%. Table A.12, “Call 2 *Closing* and *Other* Category Scores” shows a summary of Call 2’s Coverage and Hit/Miss scores for the entire Politeness branch.

Table A.12. Call 2 *Closing* and *Other* Category Scores

Top-level Category	2nd-level Category	2nd-level Coverage Score	2nd-level Hit/ Miss Score
Politeness	Opening	50%	100%

Top-level Category	2nd-level Category	2nd-level Coverage Score	2nd-level Hit/ Miss Score
	Closing	100%	100%
	Other	0%	0%

A.2.5. Top-level Category Scoring

Now that we have Coverage and Hit/Miss scores for all of our lower-level categories, we can calculate Call 2's scores for the top-level Politeness category.

Coverage Score: The Coverage Score is based on the average of the Coverage Scores for all lower-level categories within the upper-level category. Since the Opening category has a Coverage Score of 50%, the Closing category has a score of 100%, and the Other category has a score of 0%, Call 2's Politeness Coverage Score is (50+100+0) / 3, or 50%.

Hit/Miss score: If the Coverage Score is greater than 0%, this means that at least one phrase matches for one category, and the category receives a Hit/Miss score of 100%. Since our Coverage Score is 50% and is therefore greater than 0, Call 2's Politeness Hit/Miss score is 100%. Table A.13, "Call 2 Top-Level Scores" shows Call 2's Coverage and Hit/Miss scores for the top-level Politeness category.

Table A.13. Call 2 Top-Level Scores

Category	Category Hit/Miss Score	Category Coverage Score
Politeness	100%	50%

A.2.6. Call 3

Table A.14, "Call 3 Phrase Matches" shows Call 3's phrase matches.

Table A.14. Call 3 Phrase Matches

2nd-level Category	3rd-level Category (leaf-level)	Phrases	Call 3 Phrase Matches
Opening	Hello	Hello	0
		Hi there	0
	Other Greeting	How are you doing	0
		How can I help you	1
Closing		Have a good day	0
		Bye	0
Other		Please	0
		Thank you	0

A.2.7. Leaf-level Category Scoring

As before, the leaf-level category Leaf Scores are equal to the total number of matches for each phrase.

Table A.15. Call 3 Leaf-level Leaf Scores

2nd-level Category	3rd-level Category (leaf-level)	Call 3 Phrase Matches	Leaf Score
Opening	Hello	0	0
		0	
	Other Greeting	0	1
		1	
2nd-level Category (leaf- level)		**Call 3 Phrase Matches**	**Leaf Score**
Closing		0	0
		0	
Other		0	0
		0	

A.2.8. Upper-level Category Scoring

The next few sections explain how to calculate scores for upper-level categories.

A.2.8.1. The Opening Category

Using the Leaf Scores for the two 3rd-level Opening categories, we can now calculate the Coverage and Hit/Miss scores for Call 3's 2nd-level Opening category.

Coverage Score: The Coverage Score is based on the average score of all lower-level categories within the upper-level category. Since the Hello category has a Leaf Score of 0, its temporary Match/No Match value is 0. Since the Other Greeting category has a Leaf Score of 1, it receives a temporary Match/No Match value of 1. Call 3's Opening Coverage Score is therefore (0+1) / 2, or 50%.

Hit/Miss score: If the Coverage Score is greater than 0%, the category receives a Hit/Miss score of 100%. Since our Opening Coverage Score is 50% and is therefore greater than 0, Call 3's Opening Hit/Miss score is 100%. Table A.16, "Call 3 Category Scores" summarizes Call 3's Opening Coverage and Hit/Miss scores.

Table A.16. Call 3 Category Scores

Category	2nd-level Category	2nd-level Coverage Score	2nd-level Hit/ Miss Score
Politeness	Opening	50%	100%

A.2.8.2. The Closing and Other Categories

Next we need to calculate the Coverage and Hit/Miss scores for the Closing and Other categories. Since these categories are leaf-level categories, their Coverage Scores will be the same as their Hit/Miss scores. The Leaf Scores will again need to be converted into temporary Match/No Match values before being converted into a Coverage Score.

Since the Closing Leaf Score was 0, it receives a temporary Match/No Match value of 0, and therefore receives a score of 0% for both the Coverage and Hit/Miss score. Since the Other Leaf Score was also 0, it too receives a temporary Match/No Match value of 0 and receives a score of 0% for both scores.

Table A.17, “Call 3 Closing and Other Category Scores” shows a summary of Call 3’s Coverage and Hit/Miss scores for the entire Politeness branch.

Table A.17. Call 3 Closing and Other Category Scores

Category	2nd-level Category	2nd-level Coverage Score	2nd-level Hit/Miss Score
Politeness	Opening	50%	100%
	Closing	0%	0%
	Other	0%	0%

A.2.9. Top-level Category Scoring

Now that we have Coverage and Hit/Miss scores for all of our lower-level categories, we can calculate Call 3’s scores for the top-level Politeness category.

Coverage Score: The Coverage Score is based on the average of the Coverage Scores for all lower-level categories within the upper-level category. Since the Opening category has a Coverage Score of 50%, the Closing category has a score of 0%, and the Other category has a score of 0%, Call 3’s Politeness Coverage Score is (50+0+0) / 3, or 16.67%.

Hit/Miss score: If the Coverage Score is greater than 0%, the category receives a Hit/Miss score of 100%. Since our Coverage Score is 16.67% and is therefore greater than 0, Call 3’s Politeness Hit/Miss score is 100%.

Table A.18, “Call 3 Top-Level Category Scores” shows Call 3’s Coverage and Hit/Miss scores for the top-level Politeness category.

Table A.18. Call 3 Top-Level Category Scores

Category	Category Coverage Score	Category Hit/Miss Score
Politeness	16.67%	100%

A.2.10. Multi-Call Category Scoring

Now that we know the Coverage and Hit/Miss scores for each of our calls, we can calculate the scores for all three calls. Let’s review the scores that we found. Table A.19, “Overall Politeness Category Scores” summarizes the individual and multi-call Coverage and Hit/Miss scores for the Politeness Category.

Table A.19. Overall Politeness Category Scores

File Names	Politeness Coverage Score	Politeness Hit/Miss Score
Call 1	50%	100%
Call 2	50%	100%
Call 3	16.67%	100%
ALL CALLS	**38.89%**	**100%**

Coverage Score: The Coverage Score for multiple calls is equal to the average of the individual calls’ Coverage Scores. Since our calls received scores of 50%, 50%, and 16.67% respectively, the Coverage Score for all calls received last Monday is (50+50+16.67) / 3, or 38.89%.

Hit/Miss score: The Hit/Miss Score is equal to the average of the individual calls’ Hit/Miss Scores. Since all three of our calls had Hit/Miss Scores of 100%, the Hit/Miss score for all calls received last Monday is equal to (100+100+100) / 3, or 100%.