

Oracle Virtual Assistant



Using Virtual Assistant

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Preface

This preface introduces information sources that can help you use the application and this guide.

Using Oracle Applications

To find guides for Oracle Applications, go to the [Oracle Help Center](#).

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the [Oracle Accessibility Program website](#).

Videos included in this guide are provided as a media alternative for text-based topics also available in this guide.

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we're working to remove insensitive terms from our products and documentation. We're also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

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1 Overview

Welcome to Oracle Virtual Assistant

This guide is intended for anyone who is involved in managing Oracle Virtual Assistant. Use this guide to learn how to create, test and publish content; how to improve the content in response to user queries and responses; and how to configure the virtual assistant.

Oracle Virtual Assistant is a natural-language-based conversational interface that can be used with existing Oracle applications. Oracle Virtual Assistant supports real-time, natural interactions through its powerful natural language processing functionality and provides these features:

- Question and answer matching
- Escalation to a live agent while maintaining the history and context of the conversation
- Creation of incidents

The virtual assistant is provided with language assets that are domain-relevant. Initially, customer service assets are provided.

Support and Account Management

You can integrate Oracle Virtual Assistant with Oracle Service Cloud using the Oracle Chat interaction channel. Integration set-up tasks and account management are performed in Oracle Service Cloud. If others in your company will be involved in creating content or managing the virtual assistant, they can request the necessary privileges by contacting your Oracle Service Cloud administrator.

 **Video Tutorial.** A video tutorial introducing Oracle Virtual Assistant is available. Watch the video on the [Oracle Virtual Assistant Channel](#).

Product Accessibility

The Oracle Virtual Assistant is built using Oracle JavaScript Extensions Toolkit (JET) components. JET components have built-in accessibility support that conforms with the Web Content Accessibility Guidelines version 2.0 at the AA level (WCAG 2.0 AA), developed by the World Wide Web Consortium (W3C).

Oracle JET components support the accessibility features shown in this table.

Feature	Description
Keyboard and touch navigation	Oracle JET components follow the WAI-ARIA Authoring Practices 1.1 . The JET Keyboard and Touch Reference lists the user keyboard and touch information for JET components, including any deviations from the WAI-ARIA guidelines.

Feature	Description
Zoom	Oracle JET supports browser zooming up to 200%. Zooming is a browser feature and isn't available within the application.
Screen Reader	You can use screen readers. No special mode is required to enable screen readers.
Oracle JET component roles and names	Each Oracle JET component has an appropriate role, such as button, link, and so on, and each component supports an associated name (label), if applicable.
Color Contrast	Oracle JET provides the Alta theme which provides a luminosity contrast ratio of at least 4.5:1.

For additional information about JET accessibility features, see the relevant section of the guide *JavaScript Extension Toolkit (JET) Developing Applications with Oracle JET*.

Navigate with the Keyboard

Use the following procedures to perform specific tasks in Oracle Virtual Assistant using keyboard navigation.

Select Multiple Intents

Perform these steps to select multiple intents on the Intents page.

1. On the Intents page, press the Tab key to navigate to the first item in the list of intents.
2. Navigate to the row containing the intent you want to select using standard keyboard shortcuts for tables.
3. To select the intent, press Enter.
To deselect the intent, press Enter again.
4. Press the Esc key to exit from the row.
5. Repeat steps 2-4 for all intents that you want to select.

For information about standard keyboard navigation in a JET list component, see the *ojListView* section in the *JET Keyboard and Touch Reference*.

Perform an Action on an Entity

The Entities page uses standard navigation for JET list components. Use the Up and Down Arrow keys to navigate to a record in the list, then press F2 to enable keyboard action on the record.

Close an Intent or Entity

To close an open intent or entity that's in focus, press the Delete key.

Navigate to the Fix-it Region

Perform these steps to navigate to the fix-it region on the Analysis page.

1. On the Analysis page, press Tab to navigate to the list of items (Conversations, Intents, or Exchanges).
2. Use the Down Arrow key to navigate to an item in the list.
3. Press Enter to select a record within the list of items.

Details relating to the item are displayed in the two columns to the right of the list.

4. Press Tab to navigate to the next column, which displays details of exchanges for the list item you selected.
5. Use the Up and Down Arrow keys to navigate to a record.
6. Press Enter to select a record.

Matching details relating to the record are displayed in the fix-it column to the right.

7. Press Tab to navigate to the fix-it column.
8. Press Tab to navigate within the records in the fix-it column.

Note: The Other Results region in the fix-it column is a list. Use the Up and Down Arrows to navigate to a record in the list. Press F2 to enable keyboard action on a record.

9. Press the Shift and Tab keys to move backwards through each region of the page.

2 Getting Started

Oracle Virtual Assistant Terminology and User Interface

Use the information in this topic to learn about some of the important terms used in Oracle Virtual Assistant, and to become familiar with the main areas of the user interface.

Terminology

Before you start to create content, it's helpful to understand some of the terminology and concepts used in the virtual assistant user interface. Key terms are described in this table.

Term	Description
Session	A session is initiated when a user enters information into the chat interface and ends when inactivity causes the session to time out.
Conversation	All the exchanges between a user and the virtual assistant in an individual session.
Exchange	A single interaction between a user and the virtual assistant. An exchange consists of an individual user expression and the virtual assistant's response.
User expression	The question or statement a user enters into the chat interface.
Response	The answer the virtual assistant displays to the user in the chat interface to address the user expression.
Intent	<p>An intent provides a mapping between a user expression and the response displayed by the virtual assistant. An intent consists of:</p> <ul style="list-style-type: none">• One or more questions which represent the intention or meaning underlying a possible user statement or query. The match engine maps a user expression to an intent using the questions defined in the intent.• A response. The virtual agent's answer to a user expression. <p>Your virtual assistant's response to user expressions is based on the intents you create.</p>
Entity	An entity represents an important category of object (for example, APPLIANCE) that occurs in user expressions. The specific values defined for the entity represent possible values of objects in the category (for example, Cooker or Fridge). Entities are referenced in intents and make it possible for a single intent to represent multiple user expressions.
Issue	The virtual assistant generates an issue when there's a problem with a response to a user expression or when there's no response.
No Match issue	<p>There was no appropriate response for the user expression. No Match issues can be divided into the following:</p> <ul style="list-style-type: none">• No Match issues. No intent matched the user expression.

Term	Description
	<ul style="list-style-type: none"> • Not Published issues. A user expression matched an intent that isn't published.
Repeated Response issue	The same response was provided more than once in a conversation.
Escalation to Agent issue	The virtual assistant escalated the user to a live agent in accordance with the rules defined in your escalation policy.
Intent status	Once you create an intent it has a status of either Draft, Pending Publication, or Published.
Draft	The initial status of an intent. A draft intent can be edited and deleted but isn't available for matching with user expressions in the production environment.
Pending Publication	The intent is published but isn't yet available in the production environment. A pending publication intent can't be edited or deleted.
Published	The intent is available in the production environment for matching with user expressions. A published intent can be deleted or retracted.
Retract	To remove a published intent from the production environment. You can edit retracted intents and republish them.
90-day average	On the Dashboard, this is a reference line in graphs and bar charts that represents the average value of data for the previous 90 days.
Match engine	The natural language processing match engine used by Oracle Virtual Assistant provides the functionality that matches user expressions to intents.

User Interface

The global header area of the user interface provides a navigation menu which consists of five tabs. Select one of these tabs to access each of the main areas of functionality provided by the virtual assistant.

- **Dashboard**
Displays regions where you can monitor live conversations and view summary historical data for conversations.
- **Analysis**
Displays conversations, exchanges and user expressions for a specified time period. You can view details relating to intent matching and any issues that occurred during a conversation.
- **Intents**
Use the intents page to create, edit, delete and publish intents.
- **Entities**
View the predefined entities and create, edit, or delete custom entities using the Entities page.
- **Administration**
You can personalize the virtual assistant by editing the predefined social intents or standard messages or by creating your own standard messages. If you have enabled escalation support, you can also configure the escalation policy for your virtual assistant by specifying rules that determine when users are transferred to live agents.

The global header area of the user interface also includes these items:

- A **Test** button, which opens a test chat panel where you can test that your intents are working as intended.
- A language selector (optional)
If your implementation includes multilingual support, a language selector is displayed allowing you to choose the language you want to use for creating and maintaining intents and entities.

Create Your First Intent

This quick start topic guides you through the main steps in the process of creating content and making it available to users. It describes these tasks:

- Creating an intent.
- Editing a response.
- Testing that the intent questions are answered correctly.
- Publishing the intent to make it available to your users.

Step 1: Create an Intent

Create an intent to address a typical user query or statement.

1. Navigate to the Intent list by selecting the Intents tab from the navigation menu.
2. In the **Search or add intent** field, enter the title of the intent that you want to create, for example, **How can I open an account?**
3. Click **Add Intent** to create the intent.
The new intent is opened in a new tab.
4. In the response editor in the Virtual Assistant Responds region, enter the response **It is very easy to create an account. Follow our 3 quick steps...**
The response is saved when you move the focus out of the response editor.

Now that you've created your first intent, it's time to test it by using the Test Panel. It's recommended that you do this before publishing the intent so that you can catch any questions that might still be missing and add them straight away.

Step 2: Test the Intent

Make sure that your new question is matching as required using the Test Panel. The Test Panel is available on any page of the Oracle Virtual Assistant user interface.

1. To open the Test Panel, click the **Test** button.
The Test Panel is opened and contains three regions:
 - The transcript region where you can see the conversation.
 - The user input area where you type and send the questions you want Oracle Virtual Assistant to answer.
 - The fix-it region where details about the matching are displayed.
2. In the user input **Enter your question** field, type a variant of the question that you created before, for example, **Open account.**

3. Click **Send** to send your question to the match engine.
4. View the results in the fix-it region.

The fix-it region displays information about the matching results and indicates if an issue has been detected.

If the new intent *How can I open an account?* is listed first in the matching results, the following response is displayed to the user:

```
It is very easy to create an account. Follow our 3 quick steps...
```

5. Once you've finished testing, close the Test Panel.

Step 3: Publish the Intent

If the test was successful, you can publish the intent to make it available to your users.

1. On the tab displaying the new intent, click **Publish**.
2. Confirm your action.

You see this confirmation message:

```
The intent is Pending Publication. This change will be reflected in production within 5 minutes.
```

You can also publish intents from the Intents list.

3 Creating Content


Overview of Working with Intents

You can perform all of the content creation tasks for the virtual assistant using options on the Intents list.

Here are some of the things you can do.

- View all the intents in your environment.
- Search for an existing intent (described in this topic).
- Filter and sort the list of intents (described in this topic).
- Create a new intent.
For additional information, see [Create an Intent](#).
- Edit intents.
For additional information, see [Edit Intents](#).
- Delete, publish or retract one or more selected intents (described in this topic).

Access the Intents list by selecting the Intents tab from the application navigation menu.

 **Video Tutorial.** A video tutorial is available for this feature. Watch the video on the [Oracle Virtual Assistant Channel](#).

How to Search for Intents

You can use the **Search or add intent** field to locate a specific intent quickly or to check whether or not an intent you want to create already exists.

The search functionality doesn't support natural language searching so when entering a search term in the **Search or add intent** field, enter a keyword or phrase exactly as it appears in the title of the intent you're trying to locate. If you enter more than one keyword, the keywords must be in the same order as they occur in the title of the intent. The search term you enter is compared with the titles of all existing intents, and with the titles of any additional questions defined for an intent. Any intents that contain questions matching your search term are displayed.

Tip: To refine the results of your search operation even further, use the filtering and sort options described in the following section.

You can also use the **Search or add intent** field to create an intent.

1. Enter a title for the intent you want to create in the **Search or add intent** field.
2. Click **Add Intent**.

A new intent is displayed in a separate tab where you can continue to edit it. The title you entered in the **Search or add intent** field is added as the first question in the intent.

To avoid creating duplicate intents, always search for an intent before creating a new one.

How to Filter and Sort Intents

You can filter the intents displayed on the Intents list according to their status by selecting one or more values from the **Status** drop-down list. For example, to view only the intents you're currently working on, select the **Draft** status option. To view all unpublished intents, select both the **Draft** and **Pending Publication** options. The number of filtered intents displayed on the Intents list is shown in relation to the overall number of intents in your environment.

The filters you select during a session remain active across subsequent sessions until you clear them by selecting the **Clear Filters** option. The active filters are displayed in the **Status** field by default but you can hide the **Status** field by clicking the Filters button. The Filters button always shows the number of active filters, even if the **Status** field is hidden.

You can sort intents in the Intents list by either date or by name by selecting the relevant option in the **Sort** drop-down list.

How to Delete, Publish, or Retract Multiple Intents

You can delete, publish or retract one or more selected intents on the Intents list. Select the intent or intents for which you want to perform an action, then select one of the options available from the **Actions** menu, either **Delete**, **Publish**, or **Retract**. If an action isn't valid for all of the selected intents, a warning message is displayed. You can either cancel the action, or choose to continue and the action is only performed for intents for which it's valid.

Note: Before confirming a delete action, make sure you want to delete all of the intents selected. Once an intent is deleted, the intent is no longer available for matching and the delete operation can't be undone.

When you make changes to intents that affect the production environment, such as publishing a draft intent, or deleting or retracting a published intent, it takes up to five minutes before the change is available in the production environment.

For additional information about publishing and retracting intents, see [Publish and Retract Intents](#).

Status of Intents

Before you start to create and update content, it's important to understand the different status values an intent can have and how these change.

Once you create an intent, it's assigned one of these status values:

- Draft

New intents are created with a status of Draft. You can edit and delete draft intents and, when you have finished making changes, you can publish them. Draft intents aren't available for matching with user expressions in the production environment.

- Pending Publication

When you publish an intent, it has a status of Pending Publication until the publication process completes. You can't update or delete an intent that's Pending Publication, but you can withdraw the intent from publication and then make changes to it.

- Published

When an intent is published, it's available in your production environment and is used by the match engine to provide responses to user statements and queries.

Staging Environment and Production Environment

The content you create is stored in two separate environments: the staging environment, and the production environment.

- **Staging Environment**
The staging environment includes every intent in your environment. It includes content that you're currently updating (intents with a status of Draft) as well as published content (intents with a status of Published).
- **Production Environment**
The production environment includes only those intents that you want to make available to users, that is, only intents that have a status of Published.

You can publish an intent in the production environment (it has a status of Published) and also update a new version of the same intent in the staging environment (it has a status of Draft). When you publish the Draft version of the intent, it overwrites the Published version in the production environment.

For information about publishing and retracting intents, see [Publish and Retract Intents](#).

Create an Intent

An intent consists of one or more questions that represent the intention underlying a user query, and a single response to those questions. To avoid duplicating content, check your existing intents to make sure a new intent is really required before creating a new intent.

1. Navigate to the Intents list by selecting the Intents tab from the navigation menu.
2. To avoid creating duplicate intents, enter the title of the intent that you want to create in the **Search or add intent** field.

For example, enter the search string **How can I open an account?**

Create title questions that are concise and clear. A question can be up to 256 characters long but it's recommended that you create short questions to improve intent matching. For information on recommended authoring practices, see [Guidelines for Creating Good Questions](#).

3. If there are no existing intents that match your search term, click **Add Intent** to create the new intent or click **Create a new intent** from the Suggestions list.

The new intent is opened in a tab labelled with the title question you entered in the **Search or add intent** field.

- The intent is assigned a status of Draft.
- In the User Asks region, the title of the intent is added as the first question in the **Add a question** field.
The intent title is linked to the first question in the intent so modifying the first question also modifies the title of the intent. If you delete the first question, the title of the intent is changed to match the next question in sequence.
- Provided the question added to the intent is a valid question, the intent is automatically saved when you move the focus out of the **Add a question** field. Valid questions must be:

- Unique. The match engine flags questions as duplicates if they're the exact same as existing questions or have the same semantic representation.
- Understood by the match engine. If the match engine can't interpret a question because it contains syntax, grammatical or spelling errors, or contains words such as product names that the search engine doesn't recognize, the question can't be saved.

Note: You can't save an intent unless it contains at least one valid question.

4. Add additional questions.

To improve the process of matching user expressions to intent questions, and so increase the likelihood that users will receive correct responses, you can optionally enter one or more additional questions for the intent in the **Add a question** field.

The virtual assistant's natural language processing functionality assesses the semantic and syntactic meaning of user queries during the matching process. So it's not necessary to create additional questions for all possible ways that a user might phrase a question. For example:

- o If you enter the question **How can I open accounts?** a message is displayed to indicate that the question duplicates the question **How can I open an account?**
- o If you enter the question **What is the procedure to create an account?** the question is validated successfully.

You can also reference entities in the questions you define for intents. For information, see *Reference an Entity in an Intent*.

5. Add a response to the user's question in the Virtual Assistant Responds region.

A response can be up to 2000 characters in length but because it's difficult to read long responses in a conversational interface, if the answer requires a lengthy response, consider linking to information in an external source. For additional information, see *Guidelines for Creating Good Responses*.

Tip: On the Intents list, a snippet of the response for an intent is displayed on the intent card allowing you to quickly see the type of answer the intent provides.

6. When you finish making changes to the new intent, you have a number of options:

- o Close the tab for the new intent if you want to do further work on it at a later time.
- o If you decide that you don't want to save the intent, click **Delete Intent**. The intent is deleted from the staging environment.
- o To make the intent available to users, click **Publish**.

Provided that the intent contains at least one question and one response and doesn't generate validation errors, the **Publish** option becomes available. But before publishing the intent so that it's available to users, first test the intent to make sure it works as intended. For additional information, see *Test an Intent*.

Test an Intent

You can access a test chat panel from anywhere within the virtual assistant to verify that the intents you create are correctly matching user expressions. You can enter a question or statement into the panel and view the response that

the virtual assistant displays, either when agents are available or when they aren't available, which allows you to verify that the conversation flow works as you expect before you make the intent available in production.

1. Click the **Test** button which is available on every page of the Oracle Virtual Assistant user interface.
2. In the **Enter your question** field on the Test Panel, enter the question or expression that you want to test, for example **How do I open a new account?**

If you have implemented escalation to a live agent functionality, you can test that the functionality works as planned by selecting the **Simulate agents available** check box. The responses displayed in the test panel for the test question will then be those a user receives if an agent is available to talk to the user when required by your escalation policy.

3. Click **Send** to send your question to the match engine.

The question you enter is displayed in the transcript region, along with the response provided by the virtual assistant for the question. Intent matching information about each individual exchange is displayed in the fix-it region.

4. Review the matching information to see how well the virtual assistant responds to the test question. An exchange generates one of these matching responses in the fix-it region:

Response	Description
No Match	<p>None of the intents in the staging environment includes a question that matches the test question. If an existing intent provides an answer to the test question, add the test question to the intent. Otherwise, create a new intent.</p> <p>Depending on how you configure your escalation policy, No Match issues can initiate an escalation to an agent. For information about escalations, see <i>Define the Standard Escalation Policy</i>.</p>
Current Match in Staging Environment.	<p>Shows the intent that's currently matched to the test question. If the test question is also matched to other intents, these are listed as Other Results (Not Shown to User). Each intent that's matched to the test question is assigned a confidence score, where 100 represents a perfect match; the higher the score the better the match. If the test question or statement is matched to the intent with the best score (100), and is published, you don't have to take further action.</p>
Not Published	<p>The test question is matched to an intent that isn't published. Unpublished intents aren't displayed to users in the production environment so review the intent and, if it's the most appropriate match, publish it to make it available to users.</p>
Repeated Response	<p>A repeated response suggests that the response displayed to the user didn't address the user's question or statement. Review the intent to determine whether or not you need to revise the intent.</p> <p>Depending on how you configure your escalation policy, Repeated Response issues can initiate an escalation to an agent. For information on escalations, see <i>Define the Standard Escalation Policy</i>.</p>

Response	Description
Escalation – Asked by the user	A user has asked to speak to an agent, probably because the user hasn't received a satisfactory response from the virtual assistant. Review the conversation to see if you need to revise the intents that were matched to the user questions during the conversation. Depending on how you've configured your escalation policy, you can choose whether a user is escalated to an agent or is presented with a response by the virtual assistant when they ask to speak to an agent. For information on escalations, see <i>Define the Standard Escalation Policy</i> .
Escalation – Custom Automatic	The user question or statement is matched to an intent that's assigned escalation support. You can optionally assign escalation support to individual intents when you define your custom escalation policy. For information on configuring the custom escalation policy, see <i>Define the Custom Escalation Policy</i> .

- If you select the **Simulate agents available** check box before entering the test question, when an escalation issue is generated the transcript area shows the response displayed to the user when an agent is available. Verify that users are given the option of being transferred to agents appropriately. Depending on how you've configured your escalation policy, the user might be asked if they want to talk to an agent in these scenarios:
 - When a repeated response or no match issue occurs
 - When the test statement or question matches an intent that you configured to immediately trigger the escalation process
 - When the user asks to speak to an agent
- Check that all variations of the question you're testing match with the same intent. For example, you might test that all of the following questions generate the same response as the question **How do I open a new account?**
 - I want to open an account**
 - Where do I open an account?**

You can copy the original question by selecting the question in the transcript region, then selecting the Copy this expression icon. You can then paste the question anywhere you want: for example, as an extra question in an intent to improve matching, or into the **Enter your question** field to edit and then test again.

- At any point, click **Clear** to restart the session.

All the chat information you entered in the current session is available when you next open the Test Panel unless you clear the session.

Note: Data in the Test Panel isn't logged and isn't included in the information displayed on the Dashboard or on the Analysis page; these two areas of the virtual assistant show user data from the production environment only.

For additional information about troubleshooting issues in intents, see *How to Resolve Issues for Intents*.

Edit Intents

You can edit an intent at any time to add or remove questions or change the response displayed to users. For example, you might want to update a published intent if the intent is generating issues, either by not matching well to user

questions or not providing appropriate responses. You can also change the status of a published or unpublished intent while editing an intent.

For information about making bulk changes to intents, such as deleting intents, or changing the publication status of intents, see *Overview of Working with Intents*.

1. On the Intent list, search for the published or unpublished intent you want to update, then click the title of the intent to edit it.

A new tab is opened for the intent.

You have two options when editing a published intent:

- o You can select **Retract** to remove the published intent from the production environment and set the status of the intent back to Draft. You can then update the intent and republish it, if appropriate.

Retracting an intent is a good idea if the published intent is incorrect in some way and you don't want it to be visible to users until it's been changed. Typically, though, you want to have the published version of the intent available while you edit a new version to replace it.

- o You can keep the existing published version of the intent in the production environment, and create a new version which you can change. A new version of the intent is automatically created as soon as you make a change to a published intent, for example, by adding or deleting questions. The new version is assigned a status of Draft.

If an intent has more than one version, you can toggle between the different versions by clicking the **Draft View** or **Published View** buttons. You can edit the draft version. When viewing the published version, the only options available are to retract or delete the intent from the production environment.

2. You can update the questions defined for the intent in the User Asks region:

- o To change a question defined in the intent, edit the question directly in the relevant field.
- o To add an additional question for the intent, enter the question in the **Add a question** field.

All questions are used to match the intent to a user expression and can be helpful for finding matches in cases where a user's choice of words differs from those used in the initial question. But Oracle Virtual Assistant's natural language matching functionality means that it's not necessary to add all possible variations of what a user might ask. For additional information on creating good questions, see *Guidelines for Creating Good Questions*.

- o To remove an existing question from the intent, select the question and click the Delete Question icon.

You can't delete a question if it's the only question defined for the intent. Instead, modify the question or delete the intent. If more than one question is defined for the intent, then the question you selected is deleted and, once you publish the intent, the virtual assistant will no longer use the question in matching user expressions to the intent.

Note: The title of an intent is the same as the first question defined for an intent. If the question you've deleted is the first question defined for the intent, then the next question in the list becomes the title of the intent.

3. You can add or update a response for the intent in the Virtual Assistant Responds region. Simply edit the information as required in the editor.
4. When you finish making changes, then provided the intent contains at least one question and a response, you can publish the intent by clicking **Publish**.

Alternatively, you can delete the draft version of the intent you've been working on by clicking **Delete Draft** or, if a published version of the intent exists, you can delete everything in the intent by clicking **Delete Intent**.

Publish and Retract Intents

Intents are initially created as draft intents and are only available in the staging environment. To make an intent available to users, you must publish it. If you later discover that a published intent contains an incorrect response, then you might want to retract the intent from the production environment to correct it before republishing.

The ability to retract and republish intents is also useful if you have content that's only relevant during specific time periods, for example, during an event, before a big sale, or during a holiday period. Once you have retracted intents, you can retain them until they're required again, or you can delete them. You can publish and retract intents from either the Intents list or from the intent Edit view.

Publish an Intent

When you create a new intent, or edit a published intent and so create a new version, the intent exists as a draft intent and can be edited. When you have finished updating a draft intent, publish it so it becomes available in the production environment. When you publish a version of an intent that already exists in the production environment, the new version overwrites the existing version.

You can publish an intent using either of these methods:

- Select one or more intents on the Intents list, then select the **Publish** option from the **Actions** menu.
- When you're updating an intent on the intents Edit page, click **Publish**.

When you publish an intent, it has a status of Pending Publication until the publication process completes, which can take up to five minutes. Your users then have access to your new or revised intent.

Retract an Intent That's Pending Publication

When an intent is Pending Publication, you can stop the publication process by retracting the intent. Retracting an intent sets its status back to Draft so you can edit the intent and publish it again.

Note: While an intent is pending publication, you can't create a new version of the intent or edit the version pending publication until the status of the intent changes to Published.

You can retract an intent that has a status of Pending Publication using either of these methods:

- Select one or more intents on the Intents list, then select the **Retract** option from the **Actions** menu.
- When you're updating an intent on the intents Edit page, click **Retract**.

Retract a Published Intent

You can retract a published intent from the production environment using either of these methods:

- Select one or more intents on the Intents list, then select the **Retract** option from the **Actions** menu.

- When you're updating an intent in the intents Edit page, click the **Published** link to view the published version of the intent, then click **Retract**.

The version of the intent in production is retracted and the status of the intent is returned to Draft.

If you selected several intents to retract from the Intents list, and if the retract action isn't valid for one or more of the intents, you're given the option of canceling the action for all the intents, or retracting only those intents for which the action is applicable.

4 Using Entities

Overview of Entities

Use entities to create and manage categories of data that are relevant to your company or product. Using entities can improve the virtual assistant's understanding of user expressions, which in turn improves the responses users receive.

An entity represents an important category of object that's likely to occur in user input. By allowing you to categorize important parts of user expressions, entities provide the virtual assistant with the context in which to understand the elements and attributes the user is referring to. The virtual assistant can then respond appropriately to the user request or action.

An entity is a noun that defines a class of objects or data, with specific values representing possible values in that class. For example, the APPLIANCE entity might have values of washing machine, cooker, fridge, and so on. Entities are referenced in intents and the item values you define for the entity (washing machine, cooker, fridge) are used for matching the user input to the intent.

You can create your own custom entities and Oracle Virtual Assistant also provides the following predefined entities:

- YESNO
- DATEEXPRESSION
- TIMEEXPRESSION

Entities make it possible for a single intent to represent multiple specific user requests. For example, if you work for an airline company you might create a custom entity, LOCATION, and define specific values for the entity for each of the cities your company services, for example, London, Amsterdam, New York. If you then create an intent that references the custom LOCATION entity and the predefined DATEEXPRESSION entity as follows:

When is the next flight to {LOCATION} on {DATEEXPRESSION}?

Then you don't have to create separate intents for the following possible user queries:

- When is the next flight to London on 6th June?
- When is the next flight to Amsterdam today?
- When is the next flight to New York?

All of these user queries generate the response defined in the intent: When is the next flight to {LOCATION} on {DATEEXPRESSION}?

The Entities page displays all the entities available in your environment, including the predefined entities provided by Oracle and any custom entities you create. You can't edit or delete the predefined entities but you can create and edit your own entities on the Entities page. For information, see [Create an Entity](#) and [Edit Entities or Entity Items](#).

Create an Entity

An entity consists of an entity name, entity items, and item synonyms. Follow these steps to create an entity.

1. Navigate to the Entities page by selecting the Entities tab on the navigation menu.
2. Click **Add Entity**. A new entity tab is opened.

3. In the **Entity Name** field, enter a name that describes the new entity.

For example, you might want to create an entity to represent currencies (CURRENCY), languages (LANGUAGE), cities (LOCATION), or other categories of data important to your customers. If there are no existing entities with the same name, the entity is automatically saved.

Entity names can contain only numbers, letters and underscores; they can't contain spaces, and they're always uppercase. If you enter an entity name in lowercase text, it's converted.

Entity names must be unique but you can create entities with the same or similar meanings, for example, LOCATION and PLACE. So before creating a new entity, scroll through the Entities page to see if an existing entity meets your requirements.

4. In the **Entity Items** field, enter an item name.

An item is one possible value for the entity. For example, if you create an entity, CURRENCY, then a possible value for the entity might be British Pound. You can add the same item to more than one entity, but an item must be unique within the entity.

5. Click **Add Item**.

The new item is displayed in the first row of the item list.

Note: If you don't define at least one item for an entity, the entity can't be used in matching user expressions to intents.

6. For each item, you can optionally specify synonyms in the **Synonyms** field to ensure that the item represents all ways that users might refer to the item.

For example, if you create an item value of British Pound for the CURRENCY entity, then you might want to add GBP, pound sterling, or quid, as synonyms for the item.

Listing multiple ways that users might refer to the same value helps improve the virtual assistant's accuracy. If you want to enter a number of synonyms for an item, enter each word followed by a comma.

Like item names, synonyms must be unique within the entity.

7. In the **Reference Value** field, you can optionally enter a reference value. If you don't assign a value, the item name is automatically assigned.

8. Add additional items to the entity as required by specifying the item name in the **Entity Items** field.

For example, for the CURRENCY entity you might want to add items for euro, US dollar, Qatari riyal, and so on.

You can define as many entity items as you want. The total number of items created for the entity is listed at the top of the item list.

The entity is available for you to use in intents in the production environment within minutes. For information on using entities in intents, see [Reference an Entity in an Intent](#).

Edit Entities or Entity Items

You can review and update an entity or entity item at any time to rename or delete entities, or to add or remove entity items, synonyms, or reference values. For example, you might want to add additional synonyms to an entity item to reflect the terminology customers use to refer to the item.

1. On the Entities page, locate the entity you want to update and click it to open it for editing. A new tab is opened for the entity.
2. You can now edit the entity in these ways:
 - o Change the name of the entity in the **Entity Name** field.

Note: To avoid generating matching issues, you can't change the name of any entity that's referenced in an intent. You must first delete the relevant intent or remove the reference to the entity in the intent.

- o Add a new item by entering a valid item name in the **Entity Items** field.
 - o Edit the name, synonyms, or reference value defined for a new or an existing item.
3. You can delete the entity by clicking the **Delete Entity** link.

Be aware that when you delete an entity you're also deleting all its associated items and synonyms, and you can't retrieve these items later.

You can't delete an entity that's referenced in an existing intent. If you try to do so, a message is displayed showing the number of intents that reference the entity. Before you can delete the entity, you must first do the following:

- a. Navigate to the Intents list and search for the entity name to identify the intents that are causing the delete entity action to fail. For example, to find all intents that reference the CURRENCY entity, search for the following: **{CURRENCY}**.
- b. Edit each of the intents in turn to remove the entity reference, or delete each of the intents.
- c. You can now delete the entity.

Reference an Entity in an Intent

Referencing an entity in an intent makes it possible for a single intent to represent multiple, specific user requests. This topic describes how to create an intent that references both an existing custom entity you created, and an entity defined by Oracle.

1. Navigate to the Intents list by selecting the Intents tab on the application navigation menu.
2. Enter the title of the intent that you want to create in the **Search or add intent** field.

For example, to create an intent that references an existing custom entity named LOCATION, enter **When is the next flight to {LOCATION}?**

Tip: To reference an entity in a question, you must enclose the entity name in braces {}.

3. If there are no existing intents that match your search term, click **Add Intent**.

The new intent is opened in a new tab with the title you entered in the **Search or add intent** field. The title of the intent is added as the first question in the **Add a question** field and, provided the question is valid, the intent is automatically saved when you move the focus out of the **Add a question** field.

4. If necessary, edit the question.

In this example, edit the question so that it also references the DATEEXPRESSION predefined entity as follows:

When is the next flight to {LOCATION} on {DATEEXPRESSION}?

Here are a few things to keep in mind:

- You can't save an intent if it includes a question that references an undefined entity, that is, an entity you haven't yet created. Always define an entity before referencing it in an intent.
- You can't save an intent if it contains both a question that references an entity, for example, LOCATION, and a question that references an item defined for the same entity, for example, London.

The second question you add to the intent is identified as a duplicate question and won't save. In these cases, it's a good idea to remove the question with the item reference and retain the question with the entity reference as it provides broader scope for matching.

5. Enter an appropriate response for the intent in the Virtual Assistant Responds region.

For example, you might want to add a link to a flight timetable or other relevant schedule information. When any of the items or synonyms defined in the entity occur in user input, the virtual assistant matches the specific term to the LOCATION entity specified in the intent, and displays the intent response.

6. When you finish making changes to the new intent, test the intent to make sure it works as intended before publishing it.

For additional information, see [Test an Intent](#).

5 Configuring Oracle Virtual Assistant

Overview of Standard Messages

Oracle Virtual Assistant includes predefined messages that are displayed to users in specific situations. You can use the standard messages as they are, edit the messages, or add or delete messages for a situation.

Note: You can't delete all the standard messages for a situation without providing an alternative message; at least one message must exist for each situation.

Standard messages are provided for these situations.

I Don't Understand

An I Don't Understand message is displayed as a response to the user if there's no intent to match the user expression. For example, if the user enters a question that contains spelling errors, a nonsense question, or a question that the virtual assistant hasn't yet addressed in an intent, a message similar to this is displayed:

`I don't understand. Try simplifying or rephrasing the question.`

The I Don't Understand messages prompt the user to rephrase or simplify the question so that the virtual assistant can try to find an appropriate response. Depending on the escalation policy you've defined, if the virtual assistant provides one of the I Don't Understand responses consecutively, or more than a specified number of times in a conversation, the user is escalated to an agent.

The virtual assistant logs exchanges where there was no matching intent and tracks these as No Match issues on the Dashboard. You can analyze the exchanges where No Match issues occurred and take steps to resolve the problem.

Offer More Help

An Offer More Help message is added to the end of completed responses to ask the user if any further help is required. For example, if the user asks:

`How can I open an account?`

A response similar to the following might be displayed. The Offer More Help message is added at the end of the response defined in the matching intent.

`Click on New account and follow our 5 quick steps to create an account. Ask me another question if there is anything else I can do for you.`

To make the virtual assistant responses seem more natural, you might not want to include an Offer More Help message with every response. Choose whether an Offer More Help message is displayed after every completed response, or only 50% of the time, by selecting an option for the **Frequency** radio button.

Repeated Question

If a user asks a question that generates the same response from the virtual assistant more than once in a conversation, a Repeated Question message is displayed to the user. A Repeated Question message is displayed even if the user rephrases the initial question. For example, the user might enter both of the following questions in a conversation:

`Can I open an account for my child?`

`Can I open an account for my son?`

If both questions match to the same intent, the second question generates a Repeated Question message from the virtual agent, for example:

`I think you asked this before. Try asking a different question.`

The message prompts the user to rephrase the question or to enter a different question so that the virtual assistant can attempt to find an appropriate response. Depending on the escalation policy you've defined, if more than one Repeated Question message is generated during a conversation, the escalation process is triggered and the user is escalated to an agent.

You can edit the standard messages for each situation or create your own messages if you prefer. For information on how to do this, see [Configure the Standard Messages](#).

Customize the Standard Messages

You can easily configure the standard messages so they're more appropriate for your users. But before you get started, keep these guidelines in mind:

- Use the same tone and style that you use when creating intents. If your intents are written in a casual, informal style, the messages should be too.
- Don't use rhetorical questions because users might interpret them literally. For example, a user might enter `yes` in response to the following message:

`I don't understand. Do you want to simplify the question?`

If you want to ask the user to enter the question in a different way, prompt them to do so. For example:

`I don't understand. Try simplifying or rephrasing the question.`

To configure the standard messages:

1. Navigate to the Standard Messages page by selecting the Administration tab on the application navigation menu.
2. Do one of the following:
 - To edit an existing message, enter your changes directly into the message field.
 - To add a message for a situation, click the Add icon (+), then enter the new message.

The maximum length of a message is 255 characters but it's a good idea to keep the message as short as possible.
 - To delete a message for a situation, click the Delete icon (x).

You can't delete the last message for a situation. At least one message must be defined for each situation.

3. To change how often the Offer More Help messages are added to completed responses in a conversation, in the Optional Messages region of the page, select the appropriate value for the **Frequency** radio button; either select **Always** or **50%**.
4. Click **Save** when you have finished editing the standard messages.

The changes you have made are available in the production environment within five minutes.

How to Personalize Oracle Virtual Assistant Using Social Intents

Oracle Virtual Assistant includes more than 150 predefined social intents which help to provide users with a conversational experience when they interact with the virtual assistant. The social intents provide responses to informal small talk, for example, they're used to respond to questions such as *What's your name?* or *Are you a person?*

You can configure the social intents to personalize the virtual assistant. For example, you can edit the intents so that the tone of the responses matches the style of your intents, whether that's serious, informal, flippant or cheerful.

The social intents can be divided into these categories:

- Intents that provide responses for questions or statements about the virtual assistant, for example, *Are you real?*
- Intents that provide responses to basic interactions, such as, *Have a great day!*
- Intents that provide responses for questions or statements about the user, for example, *It's my birthday.*
- Intents that provide responses to general questions about the world, for example, *What's the meaning of life?*

Additional questions are defined for some of the social intents to improve matching with user questions and statements. For example, these are some of the additional questions defined for the social intent *Are you real?*:

- *Are you human?*
- *Are you a machine?*
- *Are you a chatbot?*

You can edit any of the predefined social intents in the same way that you edit intents you created yourself. You can add or delete questions, or update the responses to reflect the persona you want to assign to the virtual assistant. You can also delete the social intents. For information about editing intents, see [Edit Intents](#).

Note: The social intents can help the user become comfortable using the virtual assistant but monitor how they're being used. As you add your own content to the virtual assistant, you will want your intents to match user expressions. If the social intents are matching user expressions instead, consider adding more questions to your intents to improve how they match, or delete the competing social intents.

Configure Escalation to Agents

Escalations Overview

You can use the escalation to a live agent functionality to help your users when the virtual agent is unable to assist or when you want to give additional support to users in specific situations. Provided that your chat implementation supports escalation functionality, escalation to an agent from the virtual assistant can be enabled or disabled in your chat administration tool.

If escalation functionality is enabled, specify the conditions when escalations are triggered using the options on the Escalation Policy page. Your escalation policy can specify both a standard escalation process and a custom process:

- Standard escalation process
 - You can select whether or not the escalation process is triggered when the virtual assistant detects an issue with the responses displayed to a user during a conversation, such as repeated responses.
 - You can specify what process to implement when a user asks to speak to an agent.
- Custom escalation process

You can select specific intents that will immediately trigger the escalation process. The standard escalation policy rules don't apply in this case.

How you configure your escalation policy will depend on factors such as the resources you have available, and whether or not you want to prioritize some types of user queries over others. For example, if you have a limited number of chat agents available, you might want to enable escalation to an agent when specific intents are triggered for user questions, or if a user asks to speak to an agent, but not when response issues are detected.

Note: When users are transferred to an agent, they're placed in a queue if an agent isn't immediately available to chat. The virtual assistant doesn't inform users of their estimated wait time.

How Escalations are Processed

When the escalation functionality is triggered, escalation dialogs provided with the virtual assistant display responses to the user. The escalation process consists of these steps:

1. A user is asked if he or she wants to be transferred to an agent.

If agents aren't available or if your implementation doesn't support escalations to agents, then one of the following occurs:

- The user is asked to try entering a different question.
 - If the escalation is a custom escalation or a user-requested escalation, the intent associated with the custom or user-request policy is triggered and the relevant response is displayed.
2. If the user accepts the offer to speak to an agent, the user is transferred to an agent and the agent's transcript is updated with comments indicating why the transfer occurred.

For example, a comment similar to the following might be displayed to the agent:

```
The virtual assistant did not understand the user input (consecutively): two times
```


3. If the user declines the offer to talk to an agent, then depending on how the escalation was triggered, one or other of these events occur:
 - o The user is asked if the virtual assistant can provide any further help.
 - o For custom escalations, the intent associated with the custom escalation policy is triggered and the relevant response is displayed.

Define the Standard Escalation Policy

Use the standard escalation options to configure the escalation policy for these circumstances:

- When certain patterns of responses provided by the virtual assistant indicate that a user isn't receiving satisfactory answers:
 - o If the virtual assistant fails to provide an answer (indicated by responses which include the words **I don't understand**) either consecutively or more than once in a conversation
 - o If the virtual assistant provides the same response a number of times in a conversation or in succession

It can be very frustrating for users if they repeatedly receive the same answer or no answer in response to their questions. When these situations occur, these types of responses are noted as issues and tracked on the Dashboard. You can analyze where these issues occurred and create new intents or edit intents to make sure these issues don't occur for other users. You can also configure escalations for these types of responses so that current users can get immediate help from live agents in resolving their queries.

- When a user asks to speak to an agent.

You can choose whether or not a user is escalated to an agent or is presented with a response by the virtual assistant when they ask to speak to an agent.

Procedure

To edit the standard escalation policy:

1. Select the Administration tab on the application navigation menu, then the Escalation Policy tab.
2. In the Standard Escalations region, enable or disable escalation for repeated or consecutive occurrences of each response listed in the **Response** column:
 - o To enable an escalation option for a response, select a valid value in the **Consecutive Times** field and the **Total Times (In Conversation)** field.
 - o To disable an escalation option for a response, select the value **Never** in the **Consecutive Times** field and the **Total Times (In Conversation)** field.

You can enable each of the escalation options independently for a response. For example, you can configure the **When "I don't understand" occurs** response so that the escalation process is disabled for consecutive responses but enabled if the response occurs five times in a conversation.

The table shows the default values recommended for the response escalation process. Change these values as required.

Response	Consecutive Times	Total Times (In Conversation)
When "I don't understand" occurs	2	3

Response	Consecutive Times	Total Times (In Conversation)
When the same response is given	2	3

- Specify the escalation process to implement when a user asks to speak to an agent. This involves selecting the intent that initiates the escalation to an agent, and the circumstances in which the intent is triggered. This table lists the options available for the **Talk to an Agent** radio button. To choose when the Talk to an Agent intent is triggered, select one of these options.

Note: The **Talk to an Agent** radio buttons are only enabled if a Talk to an Agent intent is associated with the Standard Escalations.

Option	Description
Disabled	Disables the talk to an agent functionality. Users aren't transferred to agents when they ask to talk to an agent. Instead, the response in the Talk to an Agent intent is displayed to users.
Every time user asks	The Talk to an Agent intent is triggered and a user is escalated to an agent whenever the user asks to speak to an agent (default).
The first time in a conversation	The Talk to an Agent intent is triggered and a user is escalated to an agent the first time the user asks to speak to an agent in a single conversation.

By default, if a live agent is available, users are connected to an agent each time they ask. If an agent isn't available, or if escalation functionality isn't available in your environment, then the response provided in the predefined Talk to an Agent intent is displayed to the user.

- Associate an intent with the Talk to an Agent functionality. It's best practice to always associate a valid intent with the Talk to an Agent functionality so that when users ask to talk to an agent, they receive an appropriate response. The predefined intent *Can I talk to an agent?* is associated with the Standard Escalation policy by default. But if you want to use a different intent, follow these steps:

- Delete the default Talk to an Agent intent by navigating to the intent card and then clicking the Delete icon.
- In the **Select Intent** field, search for the intent you want to add, then click **Add**.

If you edit the *Can I talk to an agent?* intent, or use a different intent, make sure the intent includes questions relevant to your industry.

Define the Custom Escalation Policy

You can configure a custom escalation policy for your virtual assistant by assigning escalation support to individual intents. When the intent is triggered, the standard interaction between the user and virtual assistant is interrupted and

the user is immediately asked if they want to escalate to a live agent, even if the conditions defined in the standard escalation policy don't apply.

For example, you might want to escalate a user to an agent for user expressions that indicate the user is a high-value customer, or wants to make a complaint, even though the user hasn't asked to speak to an agent.

Procedure

These are the steps to configure the custom escalation policy:

1. Select the Administration tab on the application navigation menu, then the Escalation Policy tab.
2. In the Custom Escalations region, in the **Select Intent** field, search for the intent that you want to associate with the ability to escalate to a live agent.
3. Select the intent and click **Add** to add the intent.

If the intent already has escalation support, an error message is displayed.

4. Add any additional intents you want to associate with escalation support.

When an intent you select for escalation support matches a user question or expression, the default escalation process is initiated and the user is asked if they want to speak to an agent.


If the escalation is successful and the user is connected to an agent, the response in the intent isn't displayed to the user.

5. To remove escalation support from an intent, navigate to the intent card in the Custom Escalations list and click the Delete icon. The intent no longer triggers the escalation process.

6 Improving Oracle Virtual Assistant

Performance Monitoring

Once you've created intents and made them available to users, use the Dashboard page to monitor how well the virtual assistant is responding to user queries and statements, and to measure the effectiveness of your intents.

 **Video Tutorial.** A video tutorial is available for this feature. Watch the video on the [Oracle Virtual Assistant Channel](#).

The Dashboard provides information about key measures, such as the number of exchanges per conversation, the number of conversations that occurred in a specified time period, how many conversations generated issues, and what were the most frequently occurring user queries and statements. Use this data to:

- Assess the quality of existing intents
- Identify areas where user concerns aren't currently being addressed
- Identify which intents you can adjust to improve the quality of the exchanges with users

The Dashboard displays summary data. You can drill down from the summary information on the Dashboard to view more detailed information on the Analysis page. For example, if you click **Issues** anywhere on the Dashboard, the Analysis page is displayed showing all conversations sorted by issues. From here, you can view details relating to specific issues in a conversation.

Note: The Dashboard and Analysis page report on user activity in production. Activities carried out using the Test Panel aren't logged and aren't reported on the Dashboard or Analysis pages.

Regions of the Dashboard

The dashboard consists of two main areas which display different types of data:

- View information about the current usage of the virtual assistant and how it's performing in the upper part of the Dashboard.

The information in this region is refreshed every 30 seconds so you can monitor conversations to address issues as they occur, and to identify intents that are awaiting publication. For information about each panel in this region, see the following:

- [Now Panel \(Dashboard\)](#)
- [Intents Panel \(Dashboard\)](#)

- View summaries of current or historical data for a selected time period on the lower part of the Dashboard.

You can choose the time period that you want to view summary data for which allows you to see how effective you have been in improving the quality of the virtual assistant by reducing your average number of issues over time.

For information about each panel in the summary data region, see these topics:

- [Date Filter \(Dashboard\)](#)

- *Most Popular Expressions Panel (Dashboard)*
- *Most Popular Intents Panel (Dashboard)*
- *Issues Panel (Dashboard)*
- *Conversations Panel (Dashboard)*
- *Exchanges Panel (Dashboard)*

Now Panel (Dashboard)

Use the information on the Now panel to review how the virtual assistant is currently being used. The information in this region is refreshed every 30 seconds so you can monitor conversations to address issues as they occur.

The Now panel includes this information:

- **Conversations.** The number of active conversations.

Any conversation with an activity in the previous 15 minutes is considered active. To monitor current conversations, click **Analysis** to drill down to the Analysis page where you can view all current conversations, sorted by time. This functionality is particularly useful, if, for example, you have made a product announcement or launched a marketing campaign and want to monitor the impact to the virtual assistant by viewing current conversations.

- **Issues.** The total number of issues generated for the active conversations.

The percentage indicator shows whether the number of issues is up or down when compared with the average number of issues reported for the previous 90 days. Click **Issues** to drill down to the Analysis page to view a list of all conversations, sorted by issues.

- **Average Exchanges.** The average number of exchanges per conversation.

A large number of exchanges for a conversation could indicate that a user's expressions are imprecise or complicated. Alternatively, it could indicate that the virtual assistant isn't providing the user with satisfactory responses early in the conversation. Click **Average Exchanges** to drill down to the Analysis page to view a list of all conversations, sorted by number of exchanges.

Intents Panel (Dashboard)

You can view information about the current status of intents in the Intents panel. This information allows you to easily identify intents that are awaiting publication.

These values are shown for intents:

- **Total.** The total number of intents in your virtual assistant.

Click **Total** to drill down to the Analysis page to view a list of all intents, sorted by popularity.

- **Published** and **Not Published.** The total number of published intents and the number of existing intents which aren't published.

If a high number of intents aren't published, users might not be receiving the best possible responses to their queries and statements. It's a good idea to review unpublished intents regularly to see which can be published and which are no longer required and can be deleted.

Date Filter (Dashboard)

The Dashboard shows summary information for a defined time period which you can use to assess how the virtual assistant is performing over time, or during specific time periods. For example, you can assess whether the volume of users increases at specific times, such as following a marketing campaign, and whether or not the volume of issues is decreasing.

To define the time period that you want to view summary information for, select a value from the date filter, for example, you can select **Today** or **Last 3 Months**. Filter by different date ranges according to the type of information you want to monitor. For example:

- If you want to manage and monitor what's currently happening, filter for **Today**. This allows you to identify issues as they occur. It's a good idea to correct issues as they arise to prevent other users having the same issue. The sooner you correct issues and add content, the more useful that content is in avoiding poor matches and escalations to live agents.
- Use recent filters (**This Week, Last Month**) to monitor how effective your content changes have been and to identify new issues that you can resolve by adding new content or editing existing content.
- Select filters for longer time periods to understand the intents that have the most impact for your company.
- Select specific date ranges if you want to understand how events such as product announcements, or news about your company, have affected the questions users asked of the virtual assistant.

Most Popular Expressions Panel (Dashboard)

View the most popular expressions for the selected time period on this panel. The expressions are normalized to the extent that extra spaces and punctuation are removed, and all expressions are changed to use lowercase letters. Color-coding is used to show expressions that were matched with no issues (grey) and expressions for which issues were logged (red). Hover on an expression to view information about how often the expression occurred in the time period, and whether or not it generated issues.

User expressions that occur often and that often generate issues are a likely source of customer dissatisfaction so it's a good idea to address these promptly. Use the information on the Most Popular Expressions panel to identify these expressions and create or modify intents to provide better matches.

Click anywhere in the Most Popular Expressions panel to drill down to the Analysis page to view a list of all expressions, sorted by popularity.

Most Popular Intents Panel (Dashboard)

View the most popular intents for the time period selected on this panel. You can sort the intents by clicking one of these:

- **Total**. Sort the intents by the frequency with which the intent was displayed to users.
- **Without Issues**. Sort the intents by the frequency with which the intent matched a user expression.

A match indicates that a user received a response to a question and that the exchange didn't generate an issue. But you might want to review the exchange to assess the quality of the match and, if necessary, associate the

expression with a different or a new intent. As you add content to cover most user questions, match quality improves.

- **With Issues.** Sort the intents by the number of issues they generated.

The virtual assistant logs an issue for an exchange when there's no intent to match a user question, or when the matching intent doesn't provide the user with the information they want. But not all content issues are detected or reported by the virtual assistant, such as missing data or poor matches.

For each intent listed, a bar chart shows the number of times the intent was matched to user expressions, and how often the match did or didn't generate an issue. You can use this information to determine whether or not an intent should be revised to address issues. For example, if an intent was matched to user expressions 20 times, and generated issues three times, it's likely the intent is addressing user requirements. But if an intent was matched to user expressions eight times, and generated issues five times, then it's likely the intent isn't satisfactory and should be reviewed.

Click anywhere in the Most Popular Intents panel to drill down to the Analysis page to view a list of all intents sorted by popularity.

Issues Panel (Dashboard)

Using the status meter on the Issues panel, you can view the number of exchanges for the selected time period, and the percentage of the total exchanges that had issues. Click anywhere on the status meter to drill down to the Analysis page to view a list of expressions with issues, sorted by issues.

Review the bar chart for each type of issue detected (No Match, Repeated Response, Escalations to Agent) to view the number of times the issue occurred and when it occurred. Depending on the time period selected, the x axis will show hours, days, weeks or months.

The average number of occurrences of that type of issue for the previous 90 days (from the current date) is represented by a broken line on the bar chart to provide a benchmark which allows you to evaluate upward or downward trends in the occurrence of the issue. Click anywhere within a bar chart to drill down to the Analysis page to view a list of conversations with issues of that type, sorted by issues. Review the conversations to understand the issues that occurred, then create or edit intents as required to resolve the issues and so improve the user experience.

Ideally, over time you want to reduce the number of reported issues to as close to zero as possible. In a highly volatile business, where products change constantly or user questions vary widely, this might be a difficult goal to achieve. But if you can reduce your current number of issues to be lower than your 90-day moving average on an on-going basis, this indicates you're constantly improving the virtual assistant.

For information about issues and suggested solutions, see [How to Resolve Issues for Intents](#).

Conversations Panel (Dashboard)

The chart and graph on the Conversations panel show details about the total number of conversations that occurred during the selected time period, and the average number of exchanges in each conversation. You can view this information:

- **Total.** The total number of conversations that occurred.

The associated bar chart on the upper part of the panel shows the total number of conversations and when the conversations occurred. The color fill of each bar indicates the number of conversations with and without

issues. Depending on the time period selected, the x axis shows hours, days, weeks or months. The average number of conversations for the previous 90 days is also represented by a broken line on the bar chart. Click anywhere on the upper part of the panel to drill down to the Analysis page to view a list of conversations, sorted by issues.

- **Average Exchanges.** The average number of exchanges per conversation. The associated graph on the lower part of the panel represents the average number of exchanges per conversation over the selected time period. Click anywhere on the lower part of the panel to drill down to the Analysis page to view a list of conversations, sorted by exchanges. Reviewing average exchanges information for longer periods of time can help you identify how many users quickly received responses from the virtual assistant and how many required longer conversations. Monitoring this data over time can help you identify where your knowledge base might require improvement.

Exchanges Panel (Dashboard)

View information about the total number of exchanges for the selected time period on the Exchanges panel. The graph illustrates the association between the number of exchanges for each conversation and the number of conversations over the selected time period. For example, if the graph indicates that a high number of exchanges is associated with a low number of conversations, this could indicate that users engage in detailed exchanges with the virtual agent rather than using it for simpler queries or statements that require one response answers.

Click anywhere on the panel to drill down to the Analysis page to view a list of conversations, sorted by exchanges.

How to Analyze Conversations

Once you have published intents, it's a good idea to regularly review how well they're addressing the questions and statements users enter. To help you with this task, use the Analysis page. You can access the Analysis page directly by selecting the Analysis tab on the application navigation menu or by drilling down from the Dashboard.

The Analysis page displays detailed information about individual conversations, exchanges and intents for a selected time period so you can track which conversations didn't do well and then correct any issues. Reviewing information on the Analysis page can help provide answers to these questions:

- Are conversations with specific users or conversations for specific time periods associated with issues?
- If a user expression is associated with issues, is this because no intent exists that matches the expression, or because the response in the matching intent isn't providing useful answers?
- If there are an unusual number of escalations for a specific time period, what is the cause?

Regions of the Analysis Page

The Analysis page is divided into these regions:

- **Drilldown selection region.** In the drilldown selection region at the top of the page, select the type of items you want to view by clicking either the **Conversations**, the **Intents**, or the **Expressions** button. If you drill down from the Dashboard, the item you drilled down from is automatically selected.

- **Date Filter.** Use the date filter to select the time period you want to view conversation information for.
- **Item list.** The panel on the left of the page lists all items of the selected type for the relevant time period.
You can filter the list to display only items with issues, or only items without issues, by selecting the appropriate filter menu option. Different options for sorting the list are available depending on the item selected.
- **Transcript region.** Use the transcript region in the center of the page to select the exchange you want to review. Depending on the item selected from the dashboard drill-down region, the transcript area lists:
 - **Conversations.** All the exchanges for a selected conversation. Exchanges with issues are indicated by the relevant issues icon.
 - **Intents.** All the conversations in which a selected intent matched a user expression.
Expressions. All the conversations in which a selected user expression occurred.
- **Fix-it region.** The fix-it region of the page displays matching or issues information for a selected exchange. The information in this region allows you to view intents that generated issues at the time they were presented to users and to see whether the issues have since been resolved by the publication of new intents, or whether unpublished intents exist in the staging environment that could resolve the issues.

Use the fix-it region to analyze why issues occurred. For example, If there are an unusual number of escalations, you can see whether these are caused by No Match issues, or Repeated Response issues. Depending on the cause, you can either create a new intent for the user expression, or update an existing intent with additional questions or a revised response.

When to Select Conversations, Intents, or Expressions for Analysis

You can review how the virtual assistant is performing by analyzing user interactions at different levels: you can review entire conversations, interaction information for selected intents, or information for individual user expressions. Here are some suggestions for when it might be useful to select each review level.

- **Conversations.** Review conversations when you're interested in seeing how an entire user interaction progressed. You can see all the exchanges for the conversation in the transcript region and identify issues that occurred.

For example repeated responses (identified on the UI by the repeated circle icon) can indicate that a user didn't receive a useful answer and rephrased the question in an attempt to achieve a different response from the virtual assistant. When you see the no match icon (an overlapping circle and square) it means the assistant didn't find a matching intent for the expression, suggesting you either don't have content for the expression or the content needs to be published.

- **Intents.** Review intents when you want to see how important intents are matching with user expressions. If the intent is generating a lot of issues, this suggests that while the match engine is matching the intent to user expressions, it's not capturing the real intention behind all of the users questions.

Read through each conversation where the intent was used to see if the context of the conversations is always the same or differs in a significant number of cases. If the context in which the intent is displayed to users does differ, you might want to create additional intents to deflect some of the expressions to a more specific intent that better reflects their context.

- **Expressions.** Reviewing expressions is useful when specific words in user expressions aren't matching an intent. Creating an intent that matches these words can be a quick way to address a lot of issues.

Review the conversations associated with a user expression to get a sense of what the user expected to see in the response. If you think that different users who were using the same words anticipated different answers, you might want to create an intent that includes a response that addresses the expectations of all users.

For information about how to analyze an expression, see [Analyze an Expression](#).

Analyze an Expression

Review information on the Analysis page to discover why a particular issue is occurring. The steps involved in reviewing information are similar whether you want to analyze information about conversations, intents or expressions. For example, data on the dashboard might indicate that one of the most popular expressions for a selected time period is generating a high number of issues. To determine the reason for this, perform these steps.

1. On the Dashboard, click the expression you want to review.

The Analysis page is displayed. The date filter for the page is automatically set to be the same as the date you selected when viewing Dashboard data. In the dashboard drill down region, all expressions for the time period are displayed sorted by popularity.

2. Filter the list of expressions to view only expressions with issues by selecting **With issues** from the Filter menu.
3. Sort the list of expressions by selecting **Sort By Issues** from the **Sort By** menu.
4. Locate and select the expression that you want to review in more detail.

All conversations that include the user expression are displayed in the transcript region.

5. Scroll through the conversations in the transcript region to locate exchanges containing the user expression that also generated an issue.
6. Select an exchange.

Information relating to the exchange is displayed in the fix-it region.

Note: To test how an expression matches intents currently in the staging environment, select an exchange, then select the Test this expression icon beside the user expression. The Test Panel opens showing matching information for the expression.

7. Review the information in the fix-it region to see how the expression was matched and the issue that occurred.
 - o **Issue Detected**

In this example, the expression being reviewed generated an issue so information about the issue is displayed. This includes the type of issue generated (No Match, Repeated Response, Escalation) and a brief description of the issue.

- o **Matching Information**

The matching information you see in the fix-it region depends on whether or not the intent that currently matches the selected exchange is the same as the intent that was shown to the user.

- If the current match for the exchange is different to the intent shown to the user, you see this information:
 - o **Current Match In Staging Environment.** This is the intent that contains the virtual assistant's response to the expression now.
 - o **Match Shown to User.** This is the intent that was shown to the user.

The match shown to the user can differ to the current match if you have published a new intent that matches the expression or have an unpublished intent in the staging environment that provides a better match.

If the exchange generated an issue of type No Match, then there's no **Match Shown to User** intent so only the current match is shown.

- If the current match for the exchange and the intent shown to the user are the same, then only one intent is displayed **Match Shown to User (Same As In Staging Environment)**.

If you're satisfied with the current match, you don't have to do anything. The virtual assistant will continue to answer the expression the same way.

- o **Other Matches**

If any other intents match the exchange, they're displayed as **Other Results (Not Shown To User)**. Review any other matching intent to check if one of these is a better match for the expression. If you see an intent in the list that seems to be a better match, open the intent and add a new question to match the expression. You can then test and publish the intent.

8. Take the appropriate action to resolve the issue. Here are some possible solutions:

- o For exchanges that generated Repeated Response issues, click the title of the matching intent to open the intent so you can review or update the contents.

Alternatively, if any of the intents listed for **Other Results (Not Shown To User)** seem likely to provide a better match for the expression, open the relevant intent and add a new question to match the expression. It's a good idea to rephrase the expression into a question rather than entering it directly to make sure it's most effective. For information about writing good questions, see [Guidelines for Creating Good Questions](#). Test the intent and then publish it.

- o If an exchange generated a No Match issue, you can click the **Create a new intent** link to create an intent for the expression.

If a new matching intent has been created for the user expression since the exchange occurred, it's shown as **Current Match in Staging Environment**. If the intent is published, then this is the intent the user expression would match with now. If the intent is still a draft version, the user expression will continue to generate No Match responses until you publish the intent. You can click the title of the intent, review it and then publish it if you're ready.

For additional information about resolving issues, see [How to Resolve Issues for Intents](#).

How to Resolve Issues for Intents

Analyze intents regularly to resolve issues, adapt content to business changes, and to remove unused intents. The Analysis page and the Test Panel both include a fix-it region where you can see information about intent matching and issues for published and draft intents. Use the fix-it region to understand and resolve issues so as to improve the quality of the virtual assistant.

Here's when to use the Analysis page and when to use the Test Panel:

- Analysis Page

Use the Analysis page when analyzing issues that occurred in production for your users, or when you want to track and improve specific intents or user expressions. The fix-it region of the Analysis page shows the

response that was presented to the user in production, as well as the response that would currently be generated for the expression.

- Test Panel

The Test Panel is primarily useful for testing individual expressions and intents that you're authoring and for resolving issues before you publish intents.

Matching Issues Reported by the Virtual Assistant

The virtual assistant logs an issue for an exchange when an intent isn't available or is a poor match for the user question or statement.

This table lists the matching issues reported by the virtual assistant and suggests possible solutions. In some cases, the virtual assistant might report an issue that you might determine isn't an issue, for example, repeated responses. You can ignore these issues.

Issue	Description	Suggested Solutions
No Match	<p>The match engine couldn't match the user's question to an intent.</p> <p>On the Analysis page, No Match means that there's no intent matching the expression in production.</p> <p>On the Test Panel, No Match means that there's no intent matching the expression in either the production or staging environments. A No Match issue isn't noted if there's a matching intent in the staging environment.</p>	<ul style="list-style-type: none"> • If the information the user entered was profane or nonsense, you probably won't want to create an intent for the expression so you can ignore this issue. • Create an intent if there's no current intent that has a correct response for the user expression. • Add the expression to an existing intent if there's an intent that provides a response to the user statement. It's a good idea to rephrase the expression into a statement or question to make sure it's most effective. • If a draft intent in the staging environment matches the expression, it's displayed under the heading Current Match In Staging Environment. Open the intent to review it and, when you're ready, publish it.
Repeated Response	<p>The response given to the user was repeated in the conversation. Repeated responses typically indicate that the user wasn't satisfied with the first response and attempted to rephrase the question to get a different response. But because the virtual assistant presented the same response again, it's likely that there isn't an existing intent that addresses the user question.</p>	<ul style="list-style-type: none"> • Ignore this issue if you determine that the response was presented more than once for a valid reason and is a good match. • Create an intent if no existing intent has an appropriate response for the user question. • Add the user expression to an existing intent if there's an intent that can give a better response to the expression. Rephrase the expression if necessary to make sure the question is effective. Remember to publish the intent so it's available to the next user who has this question.
Escalation	<p>Escalations are triggered in different ways:</p> <ul style="list-style-type: none"> • A user asks to speak to an agent. • You defined escalation rules that trigger the escalation process when the virtual assistant recognizes specific patterns of responses. • The user enters a question or statement that triggers the custom escalation process. 	<p>Only escalations triggered by the standard escalation rules are logged as issues.</p> <ul style="list-style-type: none"> • If the escalation was triggered because there was no appropriate intent available to match the user expression, see the solutions listed for No Match issues. • If the escalation was triggered as a result of repeated responses, see the solutions listed for Repeated Response issues.

Issue	Description	Suggested Solutions
	User-requested escalations and escalations associated with the custom escalation process aren't logged as issues.	
<p>Not Published</p> <p>(This issue is specific to content only found in the staging environment.)</p>	<p>The intent that matches the expression isn't published. This issue is flagged in these cases:</p> <ul style="list-style-type: none"> • There's only one version of the matching intent and it has a status of Draft. • There's a published version of the intent and a new draft version of the intent in the staging environment. 	<p>If the best match for an expression isn't published, open the intent to review the contents and then take one of these actions:</p> <ul style="list-style-type: none"> • When only one draft version of the intent exists, if you decide that the draft intent is ready to be published and is the best match for the user expression, then publish the intent. • When there's a published and a draft version of the intent, if you decide that the draft version of the intent is better than the published version and is the best match for the expression, then publish the intent. <p>If you decide that the draft intent isn't the best match for the expression, you can ignore the issue, create a new intent for the expression, or add the expression to an existing intent.</p>

Unreported Issues

Not all content issues are automatically detected or reported by the virtual assistant. There are two main types of problems that can exist that are unreported:

- **Poor Matches**

The match engine attempts to find a match based on the content it has. If you haven't created content that provides a perfect match for an expression, the match engine might return another intent that matches but that has a low confidence score (each intent matched is assigned a confidence score between 0 and 100, where 100 represents a perfect match).

- **Poor Information**

An expression might match an intent but the quality of the response might be poor. For example, the information in the response might be inaccurate, out-of-date, or incomplete.

Review matching information on the Analysis page to detect these types of quality issues and use the Test Panel to select individual user expressions and verify that the intent matching is correct. By allowing you to view matching information from both the production and staging environments, the fix-it region allows you to determine if better matches exist in your environment, or whether new intents are required. As you associate each user expression with an intent, you eventually cover most user requests and the match quality improves.

7 Multilingual Support

Overview of Multilingual Support

Many businesses that are deployed globally provide user interaction channels, such as Chat, in a number of languages so that users can interact with the business in their native language. Oracle Virtual Assistant helps you support multilingual interaction channels by allowing you to create, test, and update content for a number of languages using the same instance of Oracle Virtual Assistant.

For example, if you've implemented Oracle Service Cloud with Chat interfaces in French, Spanish and English, then you can create and maintain the content for all three languages in Oracle Virtual Assistant. Each time a user enters information in the Chat interaction channel, Chat conveys the language of the user input to the virtual assistant, which returns answers in the same language.

Supported Languages

You can use Oracle Virtual Assistant to create and manage content in all of the following languages, provided that these languages are implemented in your environment:

- English
- Chinese
- Dutch
- French
- German
- Italian
- Portuguese
- Spanish

Language Selection

If your implementation includes multilingual support, then the global header area of the user interface includes a language selector, which lists all the supported languages. Use the selector to choose the language you want to use for developing, displaying, and analyzing content, such as intents and entities. The user interface itself is displayed in the browser language, or in English if the browser language isn't supported, regardless of the language you've selected for developing content.

For example, if French is your browser language, then the names of fields, labels and regions on the user interface are displayed in French. But you can display the content you create, and the content Oracle predefines for you, such as the standard messages and predefined social intents, in any of the other languages supported in your environment, such as Dutch or English.

Note: If you can't see the language selector on your UI navigation menu, that means that multilingual support isn't provisioned for your virtual assistant. If you want to add a language to your virtual assistant, contact your Oracle representative.

Considerations for Creating Content in a Multilingual Environment

You can perform these tasks for each of the languages supported by your virtual assistant:

- Create and test intents and entities
- Search your content
- Monitor and view analytics data for your content

When you select a language from the language selector, any content created or displayed in that language UI is only available in that language environment. This means you can't search for content across languages, or view comparison data for how the virtual assistant is performing in different language environments. Here are some other things to consider when managing content for more than one language.

Content Management

If you want to use the same intent or entity in each language environment you support, you have to create and manage the intent or entity separately in each language UI.

For example, let's say that French is your browser language and you have selected English from the language selector. If you create and publish an intent, Has my order been shipped?, that intent is displayed on the Intents list of the English UI only, and is only available for matching user queries in English. If you want to use the same intent in your French language environment, you have to select French from the language selector, then create a French version of the intent.

In the same way, if you want to create and use an entity in more than one of your supported language environments you have to create the entity separately in each language. You can use the same name for the entity in all environments. For example, you can create an entity named LOCATION in all your language UIs.

Content Testing

When you're using the Test Panel to verify intent matching, make sure the test question or expression is in the same language as the language you've chosen in the language selector. A separate match engine is provisioned for each language supported in your environment. If the test question is in a different language to the selected language, the test results are misleading.

For example, if you select English from the language selector and enter a question in French in the Test Panel, the question is tested with the English match engine. So the results of the test indicate only whether or not an English intent matches the French question. The results don't indicate whether or not a French intent exists which provides an appropriate response to a user who enters the same question in French in the Chat interaction channel.

Intents for Escalations

When defining your escalation policy, you can only select intents for custom and standard escalations that you created for the selected language.

8 Guidelines for Creating Content

How to Write Great Content

Avoid common mistakes when creating and maintaining content by reviewing the best practices described in this section. A common theme among the strategies described here is to always plan ahead -- think carefully before adding a new intent to the virtual assistant. Although you can easily edit and improve existing content, it's more efficient to create good content in the first place.

People can express the same idea or question in many different ways. The language processing technology the virtual assistant uses works by recognizing the intention underlying a user's question or statement, however it's expressed, and then displaying a relevant answer. This process of matching user expressions to relevant responses is achieved using intents.

An intent consists of natural language questions that aim to represent the meaning or intention of a possible user expression, and a response. User expressions are compared with the questions in existing intents and when there's a match between them (they both represent the same intention as determined by the match engine), the response in the matching intent is displayed to the user. Questions aren't displayed to users; they're used only for matching.

To provide good quality information to users then, you must create both good quality questions and good responses. For additional information about creating good questions, see [Guidelines for Creating Good Questions](#). For additional information about creating good responses, see [Guidelines for Creating Good Responses](#).

Guidelines for Creating Good Questions

Follow the guidelines and recommendations in this topic to create questions for intents that result in good quality matches with user expressions.

Should You Create More than One Question for an Intent?

Creating additional questions is a good way of increasing the chances of an intent matching an expression, but add the minimum number of questions necessary to avoid unnecessary proliferation.

Additional questions in an intent act as helpers to the natural language processing match engine. The match engine technology enables a broad matching between a user expression and the question in an intent, which can be expressed in many different ways using day-to-day language. This is why sometimes when you try to add a question to an intent you will be told that it already matches. In order to catch exceptions though, adding additional questions is a good way of bridging specific language use to a specific virtual assistant response.

Note: If you create more than one question for an intent, make sure that all the questions have the same underlying intent or meaning, even if they're phrased differently.

Characteristics of Good Questions

A well-written intent question has these characteristics:

- It consists of a complete grammatical sentence whenever possible.

For example: *How can I order a new phone?* instead of *Order phone.*

- It's as simple as possible.

Complexity increases the risk of poor matching.

- It's as short as possible.

Try to limit the length of a question to around ten words. Longer questions are more likely to result in poor matches and are more difficult for the match engine to interpret and understand.

Specific Guidelines for Creating Questions

Here are some specific guidelines with examples for creating good questions.

- **Use the Language of Your Users**

Although the intent title should reflect the language used on your site, you might find from your analysis of users' conversations that their communication level and style is different. Add additional questions to your intent that reflect the phrases and terminology of your users.

- **Avoid Subordinate Constructions**

Subordinate constructions differ by language but, in general, they can increase the complexity of sentences so are best avoided. For example, in the sentence *Will I be protected on my business account if there were fraudulent transactions?* the IF construction can have a negative effect because subordinate constructions are often analyzed as separate sentences. The sentence in the example can be regarded as two sentences:

- *Am I protected on my business account?*
- *There were fraudulent transactions.*

Consider rephrasing the question to *Am I protected from fraudulent transactions on my business account?* or *Is my business account protected from fraudulent transactions?* Alternatively, replace the question with two simpler questions: *Is my business account protected?* and *Am I protected from fraud?*

Here are some examples of how you can rephrase questions that include subordinate clauses.

Poor Question	Good Question
What do I do if the trial deposit fails?	Did the trial deposit fail?
How do I know if my phone is web-enabled?	Is my phone web-enabled?
Where can I go to find information about international ATM withdrawals that I made?	Where do I check the international ATM withdrawals on my account?

Poor Question	Good Question
How do I find out what limits apply to my payments?	What limits apply on my payments? or What is my maximum payment limit?
How can I withdraw cash when I am overseas?	How can I withdraw cash overseas?

• **Minimize the Use of Lists**

Divide a question that contains lists or enumerations of terms or items (and, or) into separate questions. Lists are often an indicator that you also require a separate response in a different intent for each list item. Here are some examples of how to rephrase questions that include lists or enumerations by breaking the initial question into separate questions.

Poor Question	Good Question
How can I spend my Award Miles and Level Miles?	How can I spend my Award Miles? How can I spend my Level Miles?
Where do I find the drivers for Windows 7 and Windows 10?	Where do I find the drivers for Windows 7? Where do I find the drivers for Windows 10? Where do I find drivers?
Does the bank own and sell real estate?	Does the bank own real estate? Does the bank sell real estate?
How do I select and confirm the seats for the flight?	How do I select the seats for the flight? How do I confirm the seats for the flight?
Where do I find information about travelling to the US (visa, ESTA, API, secure flight)?	Where do I find information about travelling to the US? What are visa requirements for travelling to the US? What is ESTA? What is advanced passenger information? How do I know I am on a secure flight?

Exceptions to the rule against using lists are:

- **Comparisons:** For example: *What is the difference between Award Miles and Level Miles?*

This combination is allowed because *between* is a special preposition that holds a relation between two terms; in this example, Award Miles and Level Miles.

- o **Meaningful phrases:** For example: *terms and conditions, bed and breakfast.*

These lists constitute a meaning unit and are entered as such in the dictionary so they don't have to be split up into two questions.

- **Avoid Using Passive Constructions**

Use the active voice unless there's a good reason to use the passive voice. Questions written in the active voice are clearer and simpler. Here are some examples of how to rephrase questions that include passive constructions.

Poor Question	Good Question
What identification documents are accepted by <i>bank_name</i> ?	What identification documents does <i>bank_name</i> accept?
Can my ADSL be installed by a technician at home?	Can a technician install my ADSL at home? Does a technician install ADSL at home?
What items am I not allowed to bring in my hand luggage?	What items do you allow in the hand luggage? What items can I bring in the hand luggage?

- **Minimize Superfluous Modifiers for Time and Place**

Don't use modifiers for time and place if possible. Generally, modifiers are unnecessary. Here are some examples of how to rephrase questions that include superfluous modifiers.

Poor Question	Good Question
How do I request my account balance from my hotel in Barcelona tomorrow?	How do I request my account balance? How do I request my account balance from abroad?
What printer settings are required to print my boarding documents through Easy Check-in Online?	What printer settings do I use with Easy Check-in Online? With which printer settings can I print my boarding documents? How do I print my boarding documents using Easy Check-in Online? How do I use Easy Check-in Online?

- **Use Concise and Careful Phrasing**

Check the relevance of every word for a given intent both in terms of the choice of word and its meaning. How do most users ask about this issue? Is this question relevant for the intent and its response?

Don't use unnecessary fillers in a sentence, for example: conjunctions (such as, because); adverbs (actually, probably); adjectives (appropriate, good, bad). These are mostly unnecessary and could prevent a good match. Here are some examples of how to rephrase questions that contain unnecessary words.

Poor Question	Good Question
Where do I find the current theatre program?	Where can I find the theatre program?
Where can I find useful tips for business travelers?	Where do I find tips for travelers?
How do I open a new account?	How do I open an account?
Can I also earn Miles at non-airline partners?	Can I earn Miles at non-airline partners?
Where can I find information about flying with my pet?	Can I fly with my pet?

Guidelines for Creating Good Responses

An intent consists of a question and a response. The response is the information that's displayed to users as the answer to the question or statement they entered in the chat interface. You have to define a response for an intent before you can publish the intent. Here are some general guidelines that can help you to create effective responses for your intents.

Using CKEditor

Oracle Virtual Assistant uses a version of the CKEditor program to provide simplified and complex HTML editing functionality for creating responses. Using CKEditor, you can create richer responses than is possible using a text editor, for example, you can apply styles to text, create lists and tables, and add links to web pages and images.

Enter the response text directly into the editor in the Virtual Assistant Responds region. Use the toolbar options to format your text and to add links, special characters, and anchors. Click the help icon on the toolbar to view help about using CKEditor. If you have a large response that includes HTML formatting, use the resize handle of the editor window to view the rich content more effectively.

Guidelines for Creating Responses

Here are some general recommendations to keep in mind when creating responses:

- Don't copy images into the response; instead point to a URL where the image is hosted and accessible by the user.

A response is limited to 2000 characters so you can't include images or large, complex HTML directly in the response.

- Create short responses when possible.

Long responses are difficult to read in the chat interfaces where the response is displayed so try to limit your response to information that you can see within the editor without scrolling. It's a good idea to link to external sources for lengthy content or complex knowledge articles.

- Test that the HTML in a response displays effectively in the chat interfaces where users see the response.
For example, you might want to add a link to an image from a response, but if the image is large, it might not display correctly in a chat client.
- Use the spell checker on the CKEditor toolbar to make sure the text doesn't contain spelling errors before saving the response.
- When composing responses, use general terms and non-technical language to make the response easy to read and understand.
- An intent can contain only one response. If there are several possible responses to a user expression, use formatting to highlight the different possible answers or consider creating additional intents.

9 Natural Language Processing

How Natural Language Matching Works

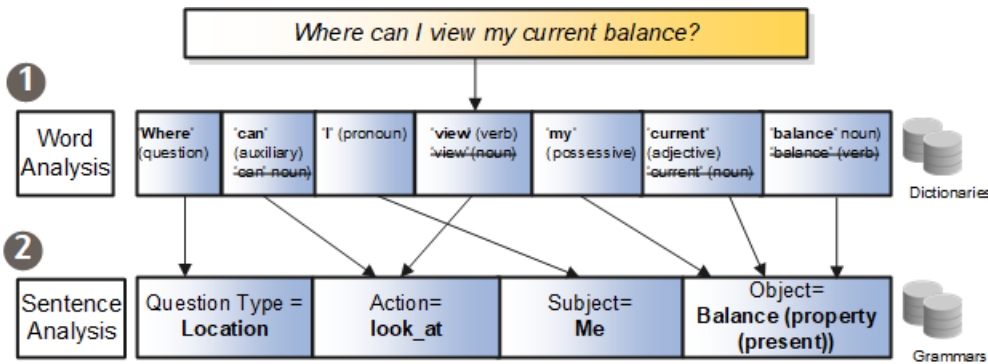
Learn how the natural language processing match engine used by Oracle Virtual Assistant generates a response to users queries by reviewing the information in this section. Understanding the matching process can help you to create more effective content.

The match engine works by recognizing the meaning behind a user's expression, and then displaying a response. User expressions are matched to relevant responses using intents. You create an intent by defining a set of sentences, usually in the form of questions, which the system can interpret as a representation of the intent or meaning underlying a user's expression.

The questions defined for an intent should all have the same underlying meaning, even if the expressions themselves don't seem similar. For example, all the following questions could be said to be related by the intent of the user wishing to know their bank balance:

- *Where can I view my current balance?*
- *How much money is in my account?*
- *How much cash do I have?*

To see how the match engine determines the meaning of an expression, let's take the question *Where can I view my current balance?* as an example. This figure shows how the match engine analyzes the question in the English language.



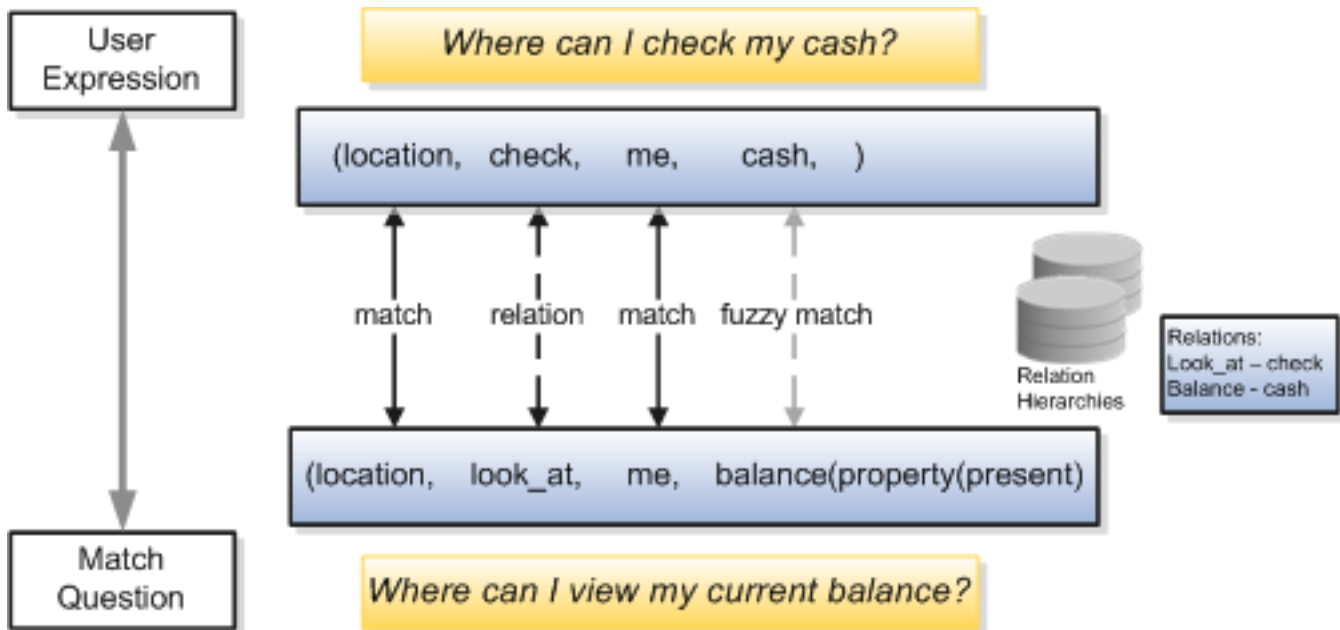
The match engine uses language-specific dictionaries and grammars to analyze the question:

1. Each word is first analyzed individually, for example, the word is classified as a noun, verb, adjective, and so on (callout 1).
2. Next, the question is analyzed at the sentence level to determine the word's role within the sentence, for example, is the word the subject or object of the sentence (callout 2).

From these analyses, the match engine derives a meaning representation for the question which it stores.

The system creates the same sort of meaning representations for every question that you associate with an intent, and stores them for use in the matching process. When the user enters a question in the chat interface, the match engine performs the same type of analysis to create a meaning representation for the user question, and then tries to match the generated meaning representation to those stored for each intent.

For example, this figure shows how the user question *Where can I check my cash?* is matched to the intent *Where can I view my current balance?* in the English language. The application generates a semantic representation of the most meaningful words and phrases in the question. The resulting meaning representation is then compared to the meaning representations of existing intents, using semantic relations and hierarchies to find the best match.



When the match engine finds the stored question or expression that matches best, then the response defined in the related intent is retrieved and shown to the user. Each match is assigned a score between 0 and 100, where 100 represents a perfect score. You can use the scores to assess the quality of matches.

For detailed information about the way in which the virtual assistant analyzes words and sentences, see [How Natural Language is Analyzed](#).

Why Meaning Representations Are Better for Identifying Intention than Keywords

It's difficult to make a computer understand that many expressions that have the same meaning can be phrased in many different ways. It's equally difficult to make a computer understand that expressions that contain many of the same words actually mean something entirely different.

For example, *check* and *cash* can be used in ways which would result in very different answers:

- *Where can I check my cash?* (retrieving my bank balance)
- *Has my check been cashed?* (state of a transaction)
- *Will the bank cash my check?* (rules for cashing checks)

Many approaches use different variations of keyword matching to recognize intent. Keyword matching involves finding the important content bearing words and discarding all other information in order to match a user's expression to content. The example questions above show why recognizing keywords, without recognizing the roles they play in a sentence, isn't enough to understand the underlying intent. In the three example sentences, the expressions contain the same content words but mean entirely different things and require entirely different responses from the virtual assistant.

With Oracle Virtual Assistant's natural language processing, user expressions are analyzed both grammatically and semantically and a context related response is returned to the user.

Meaning Representations and Intent Questions

The match engine uses systems of rules to match user queries with the questions stored in Oracle Virtual Assistant, which are grouped under an intent. Matching involves checking whether some meaning overlap exists between the user query and the questions that are stored in the virtual assistant. Unlike a search engine, the virtual assistant focuses only on comparing the expression to the match questions, it doesn't look at the intent response to provide an answer to the user.

The match engine uses the semantic relations between the meanings of words to match user expressions with intents. In addition, two other systems of rules are used: grammar rules and translation rules. The combination of these meaning relations and rules trigger matching between related questions whose form might seem to have no relation to each other. This is the reason why *Where can I check my cash?* might match *Where can I view my current balance?*

A translation rule might be *How much do I need to pay for X?* maps to *How much does X cost?* This rule means that both these sentence forms are treated equivalently by the match engine. When expressions generate the same semantic representation, you can't add the question to the intent. This is so that questions aren't created unnecessarily and your intent is easier to manage.

The match engine relies on general rules that are deliberately selected to cover the core of the language. But not all question variants can be covered by the existing rules so you can create additional questions for an intent to broaden the chances of user queries matching.

How Natural Language is Analyzed

The diverse richness of natural language means that people inevitably ask for what they want in hundreds of different ways. Review the information in this section to understand how Oracle Virtual Assistant's match engine analyses words and sentences in ways that take into account the endless variations of natural language in order to generate a meaning representation for a user query.

The match engine can process full, syntactically correct sentences, such as *How do I open a savings account?*, telegram-style input, for example, *apply for mortgage*, and basic keywords such as *loan* or *credit card*. User queries can even contain spelling errors or linguistic errors such as *How much I pay for mortgage?* So how does the match engine process natural language to derive the underlying meaning?

Oracle Virtual Assistant uses specialized vertical and customer-specific dictionaries and thesauri in addition to the standard language resources to derive meaning representations. The match engine analyzes each user expression or statement grammatically and semantically to understand the intention of the user. The user expression is analyzed at the word level initially, and is then analyzed at the sentence level.

Word Analysis

The engine always starts with various forms of word analysis when generating a meaning representation. In analyzing words, these are some of the key tools used.

- Spelling correction

User queries often contain spelling errors. The misspelled word won't automatically match with the correct word unless some form of spelling correction takes place which takes account of domain-specific usages.

For example, *ibjection* is likely to be a misspelling of injection in the medical domain, but more likely to be a misspelling of objection in the legal domain.

- Lemmatization

Plurals, past tenses, and diminutives won't match with the base word unless some form of lemmatization is done. Lemmatization means that all forms of a word are associated with one general or base form of the word known as a lemma. So for example, the word *organizing* is associated with the word *organize*, not *organ*.

- Stemming

Stemming is a relatively crude process in which the ends of words are removed in order to derive the base word, for example, *cats* becomes *cat*.

- Retrieval of synonyms

ATM and cash machine mean the same thing, and so does luggage and baggage. So if you query for one term, you want results concerning the other as well. The match engine provides this type of semantic matching.

- Hypernyms and hyponyms

These terms refer respectively to parent-child relationships or something which is a type of a class. For example, color is a hypernym of red, and a spoon is a hyponym (type-of) of cutlery. Matching based on what the words mean can be augmented by including matches on more or less specific terms.

- Detection of multi word units, such as capital asset or American Express Card.

Multi word units shouldn't match on their individual words, but only on the whole unit.

- Lexical ambiguity

Involves using knowledge of specific industry segments and users to resolve ambiguity. So in the financial domain, bank always refers to a financial institution, not to a riverside bank. Interest will always refer to the returns on your savings or what you pay for your loan, never to the emotion.

Syntactic Analysis of Sentences

In the next phase, the match engine performs syntactical analysis to resolve ambiguity when the same words have different meanings. For example, the following are all different ways of saying that you want to open a savings account:

- Can I open a savings account?
- I'd like to open a savings account
- Is it possible for me to open a savings account?

The following sentences, though similar, have entirely different meanings:

- Can I check how much cash I have in the bank?
- Will the bank cash my check?

The intermediate result of this process is stored in an abstract representation of the verb, subject and object involved. This is called a case frame. The case frame eliminates non-informative parts, uses information about semantic hierarchies (the parent-child, child-parent type relationships described earlier as hypernyms or hyponyms), and by using syntactic analysis to understand what's intended, removes ambiguity.

10 Implementing Oracle Virtual Assistant with Oracle Service Cloud

Overview of the Implementation Process

If you have implemented Oracle Service Cloud, you can reduce your customer service costs by directing customer interactions to Oracle Virtual Assistant and so resolve a percentage of your customer inquiries before they reach a live agent. But first, there are a number of implementation tasks you have to do.

Oracle Virtual Assistant provides a conversational interface that can be integrated to different interaction channels using Oracle Chat. So to use Oracle Virtual Assistant with Oracle Service Cloud, you must have these applications:

- Oracle Service Cloud
- Oracle RightNow Chat Cloud Service (Chat)
- Oracle Virtual Assistant

Implementation Tasks Completed for You by Oracle

Oracle completes these tasks for you when Oracle Virtual Assistant and Chat are provisioned in your Oracle Service Cloud environment:

- Activates Oracle Virtual Assistant and defines the server name and path.
- Enables Oracle Chat.
- Enables escalation to an agent functionality from Oracle Virtual Assistant.
- Implements Single Sign-On authentication from Oracle Service Cloud to Oracle Virtual Assistant.

Your Implementation Tasks

Once you're provisioned with Oracle Virtual Assistant and Chat, these are the tasks you have to do before you can start using the virtual assistant:

- *Sign In to Oracle Virtual Assistant*
- *Route Chats to Oracle Virtual Assistant*
- *Edit the Welcome Message*
- *Review the Escalation Policy*

Sign In to Oracle Virtual Assistant

When your Oracle Virtual Assistant Cloud service environment is ready, Oracle sends an email to the person designated as the administrator when you signed up for the service. This email includes the link to your service. Sign in to Oracle Virtual Assistant using your Service Cloud credentials.

You create and manage all user accounts for Oracle Virtual Assistant in Oracle Service Cloud. All users of a Service Cloud site can sign in to Oracle Virtual Assistant, and have full access to its functionality, including content authoring and message administration.

Route Chats to Oracle Virtual Assistant

There are a number of tasks you have to complete in Oracle Service Cloud to route incoming chats to Oracle Virtual Assistant. These tasks include:

- Granting an administrator the privileges required to configure the virtual assistant.
- Configuring the profile and queue for the virtual assistant.
- Creating rules to route chats to the virtual assistant and to configure escalation to agents.

Here are the steps to perform each of these tasks. For additional information about Chat configuration, see the Oracle Service Cloud User Guide available on docs.oracle.com.

Grant an Administrator Configuration Privileges

1. Sign in to Oracle Service Cloud.
2. Assign an administration user with the permissions required to create and configure the Oracle Virtual Assistant by editing the user's account profile:
 - a. On the navigator, select **Configuration**.
 - b. Expand **Staff Management**, then double-click **Profiles**.
 - c. Double-click the profile you want to edit. The Profiles editor opens.
 - d. Select **Permissions** in the ribbon.
 - e. On the Administration tab, select the **Virtual Assistant Edit** check box.
 - f. Click **Save** and close the profile.
3. Add the Virtual Assistant Editor to the navigation pane for this user account profile:
 - a. On the navigator, select **Configuration**.
 - b. Expand **Application Appearance**, then double-click **Navigation Sets**.
 - c. Right-click the navigation set you want to edit, and select **Open**.
 - d. On the right side of the content pane, click the menu containing the Components folder to clear the check box. For example, click **Configuration**.
 - e. On the left side of the content pane, select **Components** > **Common**.
 - f. Click **Find in List** to locate **Virtual Assistant Editor** in the list, then click **Add** to add it to the navigation pane.
 - g. Click **Save** to save the modified navigation set.

Configure the Virtual Assistant Account, Profile and Queue

You can configure only one virtual assistant account and queue.

1. Sign in to Oracle Service Cloud using the virtual assistant account user profile you defined in the previous procedure.
2. On the navigator, select **Configuration**, then double-click **Virtual Assistant Editor**.

3. Enter a name for the virtual assistant in the **Display Name** field. The name you enter is the name that’s displayed to chat users. You can specify any name you choose.
4. Enter the name of the virtual assistant queue in the **Virtual Assistant Queue** field. For example, enter **Virtual Assistant**. This is the name of the queue that will handle incoming chats to the virtual assistant.
5. Click **Save** to save the information and create the virtual assistant profile, account, and queue.

Create Routing and Escalation Rules

Create rules to route chats to the virtual assistant and to specify when chats are escalated to agents.

1. In the navigation pane, select **Configuration**.
2. Expand **Site Configuration**, then double-click **Rules**.
3. Select **Chat** in the ribbon to access chat routing rules.
4. Click **Edit** on the ribbon and create two states: an Initial State, if an initial state doesn’t already exist, and a VA_State.

To create a state, right-click **States**, select **New State**, then enter the name of the state in the **State Name** field. When you save the state it’s listed in the Rules tree.

5. Create a rule in the Initial State to route chats that meet specific conditions to the Virtual Assistant queue you created. Create a rule similar to the following.
 - a. Right-click **Initial State** then select **New Rule**. The Edit Chat Rule window opens.
 - b. Enter the name of the rule in the **Rule Name** field, for example, name the rule **VA_Rule**.
 - c. Specify the condition that will trigger the rule by clicking **Add IF Condition Based On**, then select the field, operator and value for the condition. For example, you might want to route all incidents of a specific type to the virtual assistant queue.
 - d. Click **Add Action–Then** to choose the action that’s executed if the values selected for the condition are met. In this example, create these two actions.

Action	Value
Assign Chat Queue	The name of the virtual assistant queue where chats are initially routed. In this example, assign chats to the Virtual Assistant queue.
Transition State and Stop	Select VA_State

- e. Click **Save** to save the rule.
6. Create a rule in the VA_state to route chats to the queue used for agent escalations.
 - a. Right-click **VA_state** then select **New Rule**. The Edit Chat Rule window opens.
 - b. Enter the name of the rule in the **Rule Name** field, for this example, name the rule **Escalation**.
 - c. Specify the rule condition by clicking **Add IF Condition Based On**, then select the exact same condition values that you specified for the VA_Rule.
 - d. Click **Add Action–Then** to choose the action that’s executed if the values selected for the condition are met. In this example, create two actions to assign incidents to a default chat queue and to stop processing.

Action	Value
Assign Chat Queue	Enter the name of the default chat queue used for escalations to live agents.

Action	Value
Stop Processing Rules	NA

- e. Click **Save** to save the rule.

Edit the Welcome Message

You can change or delete the initial welcome message displayed to users in Oracle Virtual Assistant. The initial message is the same as the welcome message defined for Oracle Chat.

1. Sign in to Oracle Service Cloud.
2. On the navigation pane, select **Configuration**.
3. Expand **Site Configuration**, and then double-click **Message Bases**.
4. In the Search window, enter these search criteria and then click **Search**:
 - o In the **Message Base** area, select the **(Select All)** check box.
 - o In the **Key** field, enter `CHAT_GREETING_MSG`.
5. In the Message Bases editor, double-click **CHAT_GREETING_MSG** to open the greeting message configuration setting.
6. In the Values section, in the entry for your Oracle Virtual Assistant instance, edit the **Custom Text** field to update the greeting message.

Note: The same message is used for Chat agents and Oracle Virtual Assistant so make sure that the message is appropriate for both.
7. Close the `CHAT_GREETING_MESSAGE` tab.
8. Click **Yes** when you're asked if you want to save your changes.

For more information, see the Service Cloud User Guide at docs.oracle.com.

Review the Escalation Policy

Escalation to a live agent helps your users when the virtual agent can't help or when you want to give users additional help in specific situations. Your implementation supports escalation functionality by default when you implement Oracle Virtual Assistant with Chat, but you can also configure the escalation policy in these ways:

- Define what happens when a user asks to speak to an agent. For example, is the user escalated to an agent or presented with a response by the virtual assistant.
- Choose whether or not the escalation process is triggered when the virtual assistant detects an issue with the responses displayed to a user during a conversation, for example, repeated response issues.
- Define specific user questions that immediately cause the user to be offered the opportunity to connect with a live agent, provided that agents are available.

Review the default escalation policies and make any changes necessary to best suit your users needs. For information on configuring your escalation policy, see [Overview of Escalations](#).