

ORACLE®

# Oracle Digital Assistant

## The Complete Training

### Custom Component SDK

# Safe Harbor Statement

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# Topic agenda

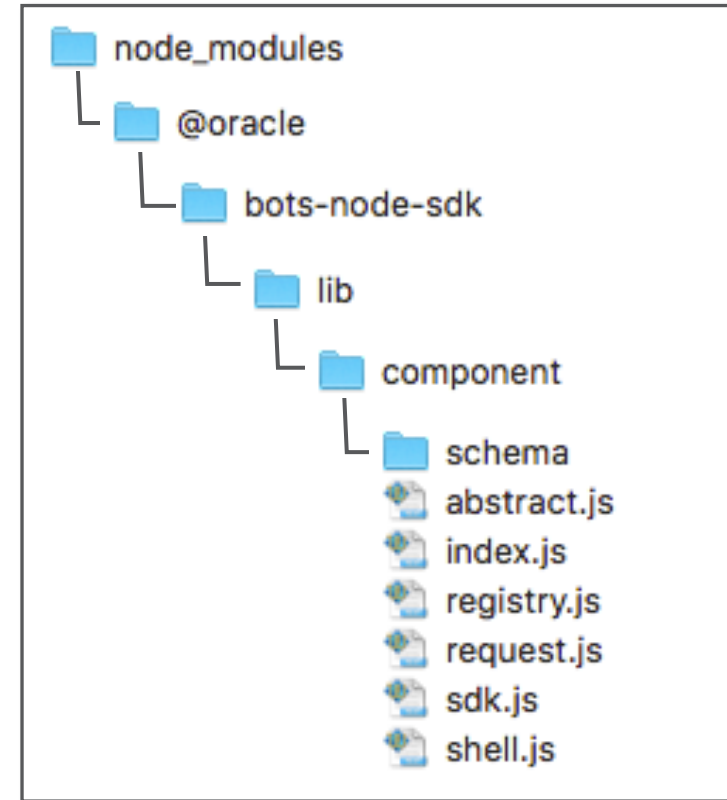
- 1 ➤ SDK, the complete tour for developers
- 2 ➤ Conversation Message Model (CMM)
- 3 ➤ CMM writing bot responses
- 4 ➤ CMM reading user messages

# Topic agenda

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# Role of the custom component SDK

- Contained in Oracle Bots Node.js SDK
- Abstracts the bot payload
- Expose functions to
  - Read from the bot payload
  - Write to the component response payload
- Grant access to Message Model
  - Simplifies creation of rich responses
    - Text, Cards, Attachment, Actions
- Helps to determine type of bot request
  - Action, Text, Attachment, Location etc.



# Accessing bot messages

`conversation.rawPayload()`

```
{"messagePayload":{"text":"hello  
world","type":"text"},  
"profile":{"firstName":"john",  
"lastName":"doe",  
"timezoneOffset":-3600000,  
"locale":"en-US"},  
"userId":"8547335"}
```

`conversation.messagePayload()`

```
{"type":"text","text":"hello world"}
```

# Accessing messages – text, postback, location, attachment

`conversation.text()`

- Returns text message or null if message type is not text

`conversation.postback()`

- Postback messages are sent from action items (e.g. button)
- Returns a JSON object with key value pairs
- Returns null if message is not a postback

`conversation.location()`

- Returns JSON object with longitude and latitude information
- Returns null if message is not a location message

`conversation.attachment()`

- Users may use the CR component to upload image, video, files and audio content. The url of the attachment content is sent to the component.
- Returns JSON object with the url of a user provided attachment
- Returns null if message is not an attachment message



# Sending response messages to the bot

`conversation.reply( ... )`

- Returns message directly to user
- Arguments can be of string, object and MessageModel type
- Can be called multiple times for a single response
- Sets keepTurn to false

`conversation.reply(String)`

- Sends a simple text message in a bubble
- No formatting. Just plain text.

`conversation.reply(ConversationMessage)`

- Conversation Message Model message
- Supports card -, attachment -, location -, postBack -, raw responses

# Working with variables and properties

`conversation.variable(variable_name)`

- Reads the value from a named context variable

`conversation.variable(variable_name, value)`

- Updates a named context variable
- If the variable doesn't exist, it will be created

`conversation.properties().property_name`

- Reads value from an input parameter

# Accessing intents and entities from NLP processing

```
var nlpresult = conversation.nlpResult(string)
```

- Accesses the nlpresult instance for the nlpresult variable referenced in the argument (e.g. iResult)
- Argument can be empty if only a single nlpresult variable is used in a dialog flow.

```
nlpresult.entityMatches(string)
```

- Returns an array of entities extracted from the user string that match the provided entity name
- If no value is provided then all entities found in the user string are returned

```
nlpresult.intentMatches()
```

- Returns array of intents resolved for the processed user string
- Intent is a JSON object with an "intent" and a "score" property

```
nlpresult.topIntentMatch()
```

- Returns the top resolved intent as a JSON object with an "intent" and "score" property

# Trigger dialog flow navigation

`conversation.transition(string)`

- Custom components may define supported action strings in their metadata that dialog flow designers use to determine the next state to navigate to
- Custom component developers use the `transition( ... )` function to return an action string
- Its up to the dialog flow designer to use the action string for navigation or to ignore it

# Request user input

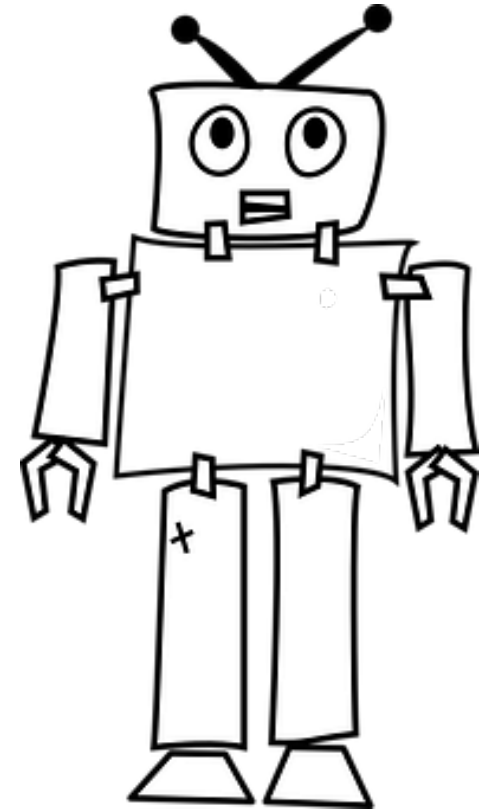
`conversation.keepTurn(true)`

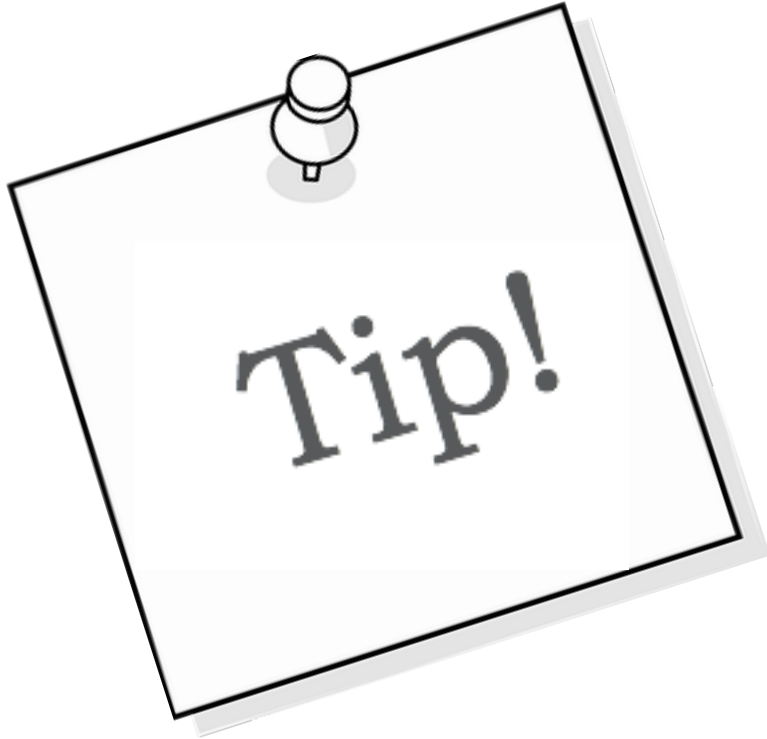
- Used by components that need to print a message to the user but don't require the user to provide an input in response
- Use case would be to print a statement

`conversation.keepTurn(false)`

- Most commonly used
- User is required to provide an input in response to a component response
- Use case would be a list of value printed by the component that the user should select a value from

The combination of **keepTurn(boolean)** and **transition(string)** determines when and how the dialog flow navigates to a next state





Always. Call

```
conversation.keepTurn (boolean) ;
```

before

```
done ( ) ;
```

# Invalid user input

`conversation.invalidUserInput(string)`

- Allows non-sequitur handling of user messages that a custom component considers invalid
- String argument is the message printed to the user
- Custom component does not call `conversation.transition(...)` but calls `done()` immediately
- Digital Assistant responds to `invalidUserInput(string)` call and tries to find a skill matching the user messages.
  - If found, non-sequitur routing happens.
  - If not found then the custom component is called again. Thus the string argument so the user knows what went wrong.
- Hint: set `keepTurn` to false (`conversation.keepTurn(false)`)



# Logging

`conversation.logger().logLevel(...)`

- Writes log messages using the logger configured in the SDK
- Default logger is *console*
- `log(...)`, `error(...)`, `warn(...)`, `info(...)`

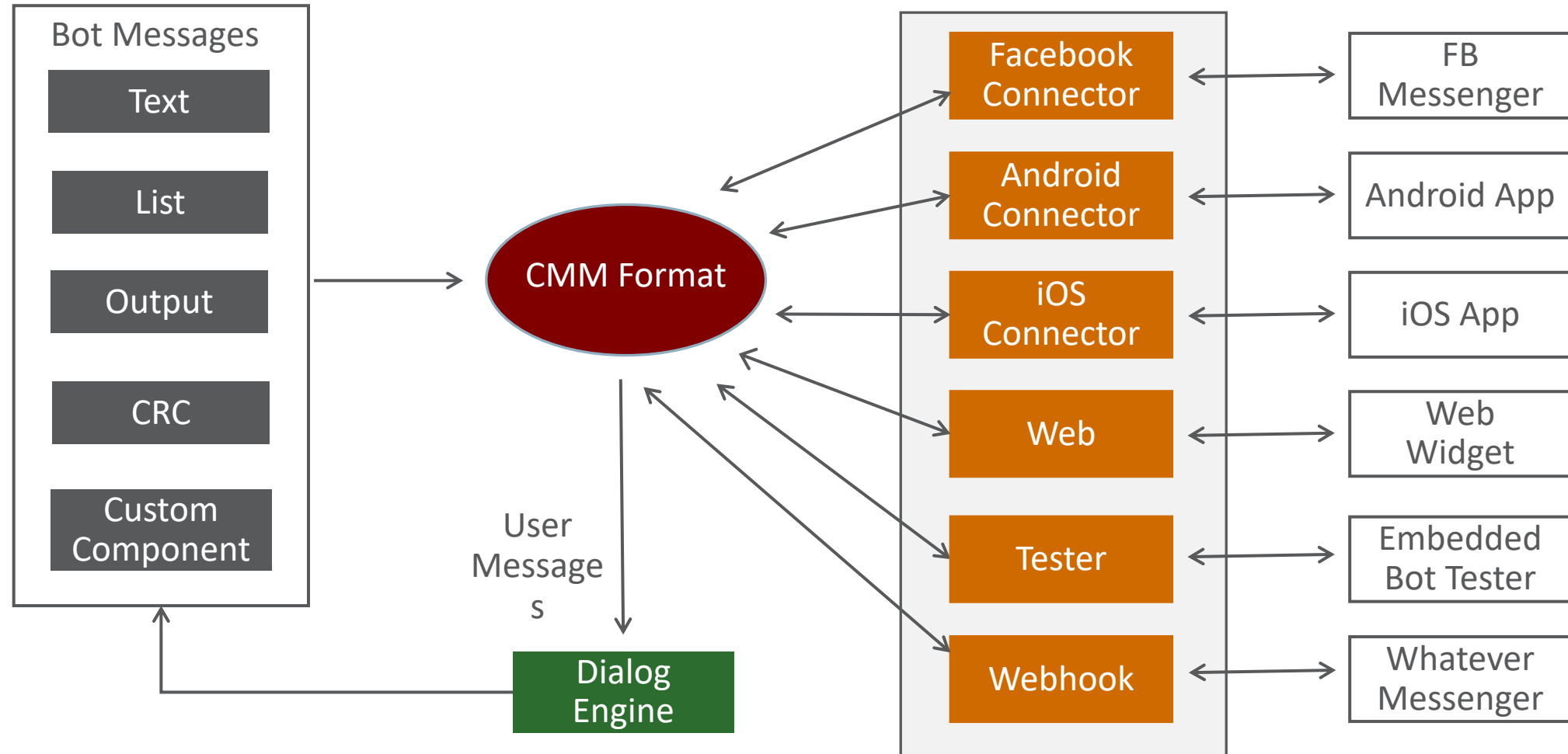
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# Conversation Message Model (CMM)

- Consistent messages structure format
- Use of connectors to produce channel specific message responses
- Webhook returns CMM message structure as is
- Design-time support
  - Common Response Component
  - Custom Component (SDK)
    - Exposes MessageModel object to work with CMM messages

# Oracle Digital Assistant CMM Architecture



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# TextConversationMessage

- Writes a text message to the messenger client
  - Simple text, JSON object
- Optionally, takes an array of actions that are rendered below text
  - postbackActionObject, locationActionObject, urlActionObject, shareActionObject

```
var messageModel = conversation.MessageModel();  
  
var payload = 'hello world';  
var actions = [];  
...  
var textResponse = messageModel.textConversationMessage(payload, actions);  
conversation.reply(textResponse);
```

# CardConversationMessage

- Shows responses as an array of vertical or horizontal cards
- Optionally, takes an array of actions that are rendered on each card
  - postbackActionObject, locationActionObject, urlActionObject, shareActionObject

```
var messageModel = conversation.MessageModel();

var cardObject = messageModel.cardObject("title string", "description",
"imageUrl", "card Url", [array of actions]);

var cards = [];
cards.push(cardObject);

var cardsResponse = messageModel.cardConversationMessage('vertical', cards);
conversation.reply(cardsResponse );
```

# AttachmentConversationMessage

- Creates image, video, audio, file response
- Each attachment is rendered in its own bubble

```
var messageModel = conversation.MessageModel();

var type = "image" //video, audio, file
Var docUrl = "http://host:port/my_image.jpg";

var attachmentResponse = messageModel.attachmentConversationMessage(type, docUrl)

conversation.reply(attachmentResponse );

...
```



# CMM actions

- Rendered as actionable items in a bot response
  - List item, button, url
- Example: Postback action
  - Individual user payload (string or JSON object) when action is selected
  - ```
var action = messageModel.postbackActionObject(  
    label, imageUrl, payload)
```
- Call action
  - A phone number to dial on a mobile device
  - ```
var action = messageModel.callActionObject(  
    label, imageUrl, phoneNumber)
```

# CMM actions

- URL action

- A web address to open in a mobile browser

- ```
– var action = messageModel.urlActionObject(label, imageUrl, url);
```

- Share action

- Ability to share messages in a messenger

- ```
– var action = messageModel.shareActionObject(label, imageUrl);
```

- Location action

- Ability to request and receive user GPS location

- ```
– var action = messageModel.locationActionObject(label, imageUrl);
```

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# Determine the user input message type

- `conversation.text()` returns text string or null
  - `If(conversation.text()) { ... handle text response ..}`
- `conversation.attachment()` returns attachment string or null
  - `If(conversation.attachment()) { ... handle attachment response ..}`
- `conversation.location()` returns location JSON object or null
  - `If(conversation.location()) { ... handle location response ..}`
- `conversation.postback()` returns postback JSON object or null
  - `If(conversation.postback()) { ... handle potsback response ..}`

# Example: handling of a postback message

```
invoke: (conversation, done) => {  
  const pizzaType = conversation.properties().pizzaType;  
  //handle postback response  
  if (conversation.postback()) {  
    //postback contains a key-value object  
    let postbackpayload = conversation.postback();  
    //update 'pizzaType' context variable with 'pizza' key postback value  
    conversation.variable(pizzaType,  
                          postbackpayload["pizza"]);  
    conversation.transition();  
    done();  
  }  
}
```

# Integrated Cloud

## Applications & Platform Services

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# Oracle Digital Assistant Hands-On

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TBD