

**ORACLE®**

# Oracle Digital Assistant

## The Complete Training

### Custom Component Development



Image courtesy of pixabay.com

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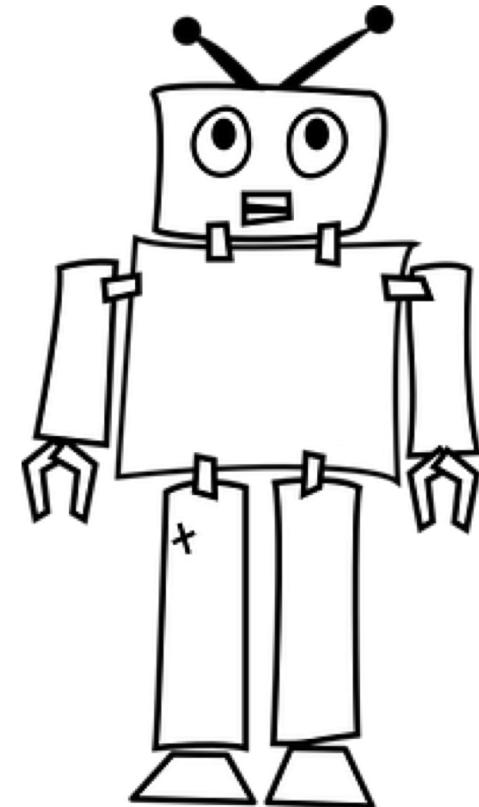
# Topic agenda

- 1 → Oracle Bots Node.js SDK
- 2 → Getting started
- 3 → Local container deployment

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**The Oracle Bots Node.js SDK is all the tooling you need for building custom component services and components**



# Development environment

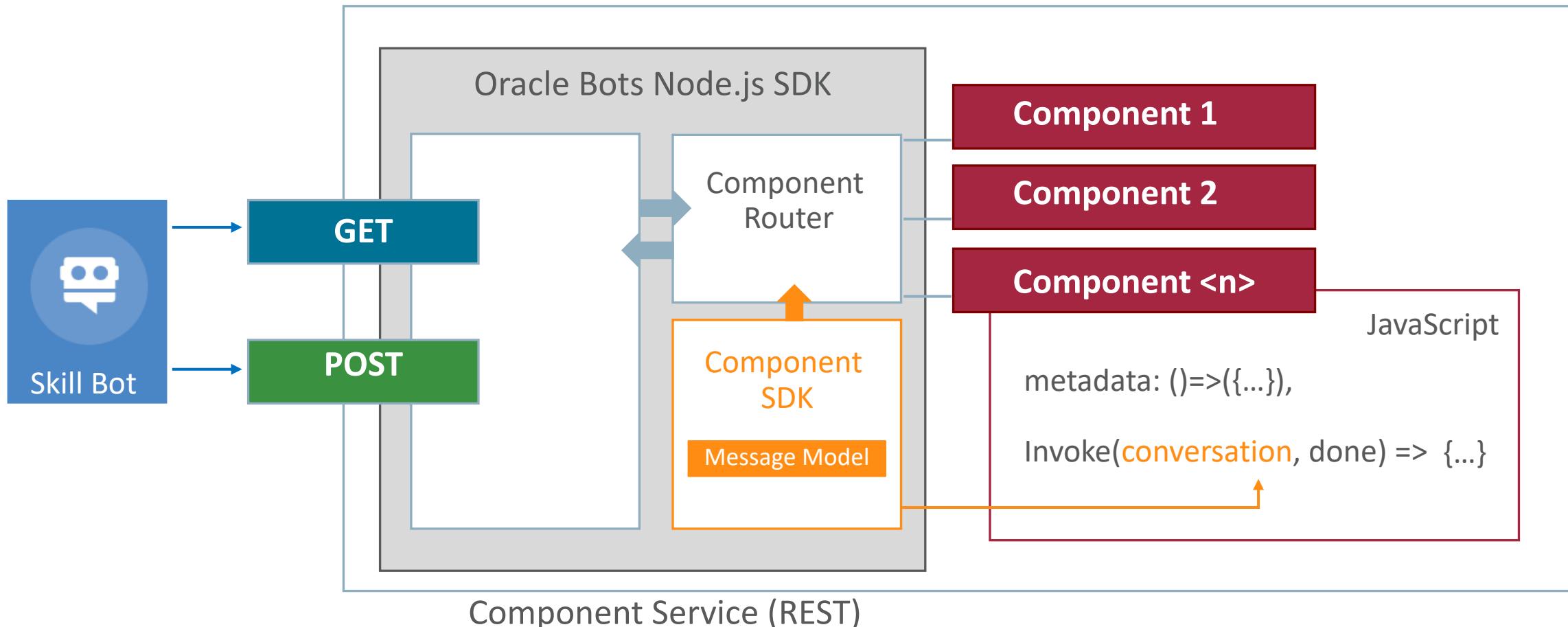
- Node Package Manager, Node version 8.11.4 or lower
  - <https://nodejs.org/en/download/>
- Install JavaScript IDE with support for Node.js debugging
  - Microsoft Visual Studio Code, IntelliJ WebStorm, etc.
- Access to Internet
  - If behind a proxy call
    - `npm config set proxy http://company-proxy:port`
    - `npm config set https-proxy http://company-proxy:port`

# Oracle Bots Node.js SDK

<https://github.com/oracle/bots-node-sdk>

- Bots Node.js SDK functionality
  - Request Routing
  - Custom component SDK
  - Helper functions for conversational message model
  - Logging
- Webhook development support
  - Assists in building webhook clients that dispatch between messengers and bots
    - E.g. Alexa integration

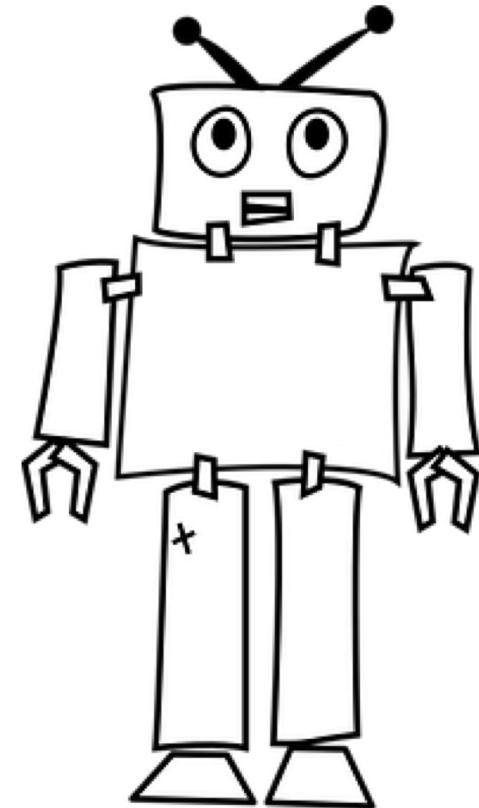
# Custom component service architecture

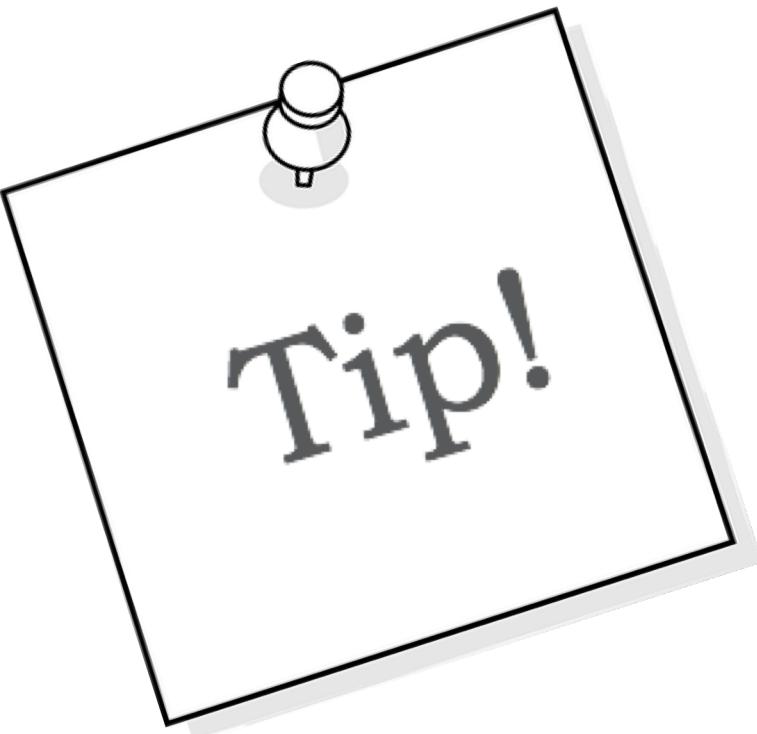


# Oracle Bots Node.js SDK installation

- Global installation
  - Install once, use anywhere
- For global installation, open a command line window and type
  - Mac
    - sudo npm install –g @oracle/bots-node-sdk
  - Windows
    - npm install –g @oracle/bots-node-sdk

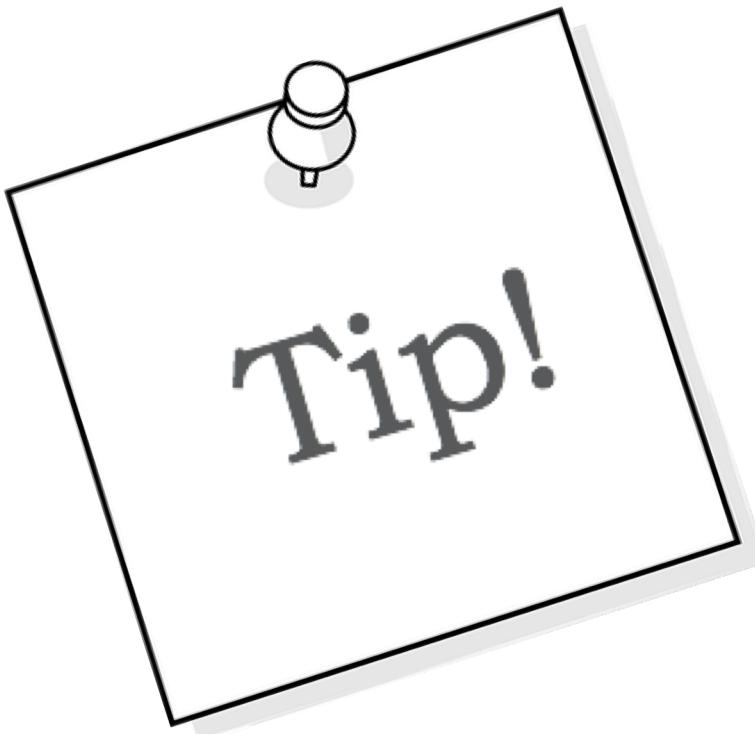
Basically there are **three classes to know about**: sdk.js, shell.js, messageModel.js.





The sdk.js and shell.js classes  
are physically located in

```
<custom component service>
|-- node_modules
  |-- @oracle
    |-- bots-node-sdk
      |-- lib
        |-- component
```



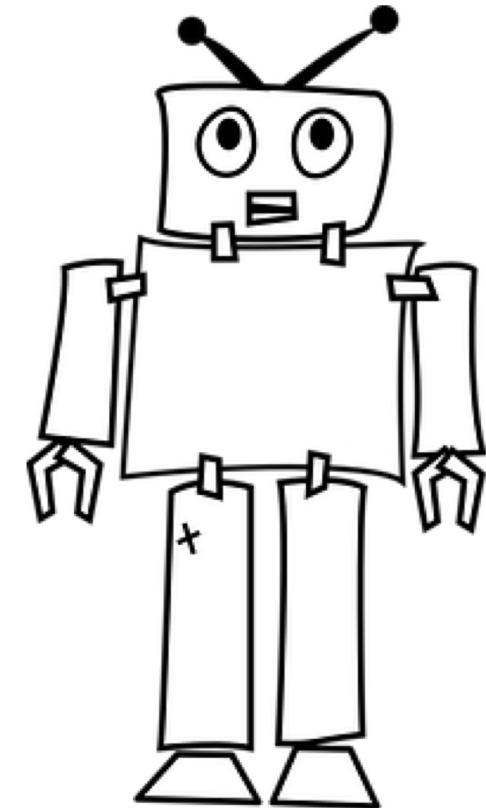
The MessageModel implementation  
Is defined in

```
<custom component service>
|-- node_modules
|-- @oracle
|-- bots-node-sdk
|-- lib
|-- component
|-- message
|-- messageModel.js
```

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Generations of **software developers**  
learned with '**hello world**'.



# Creating a "hello world" Node.js project

- Open a terminal window
  - Display Bots Oracle Node.js SDK version to ensure it is available
    - bots-node-sdk -v
- Create directory
  - mkdir helloworld101
  - cd helloworld101
- Initialize node project
  - npm init –y
  - Creates package.json file



```
[fnimphiu-orcl:Desktop fnimphiu$ mkdir helloworld101
[fnimphiu-orcl:Desktop fnimphiu$ cd helloworld101
[fnimphiu-orcl:helloworld101 fnimphiu$ npm init -y
Wrote to /Users/fnimphiu/Desktop/helloworld101/package.json:

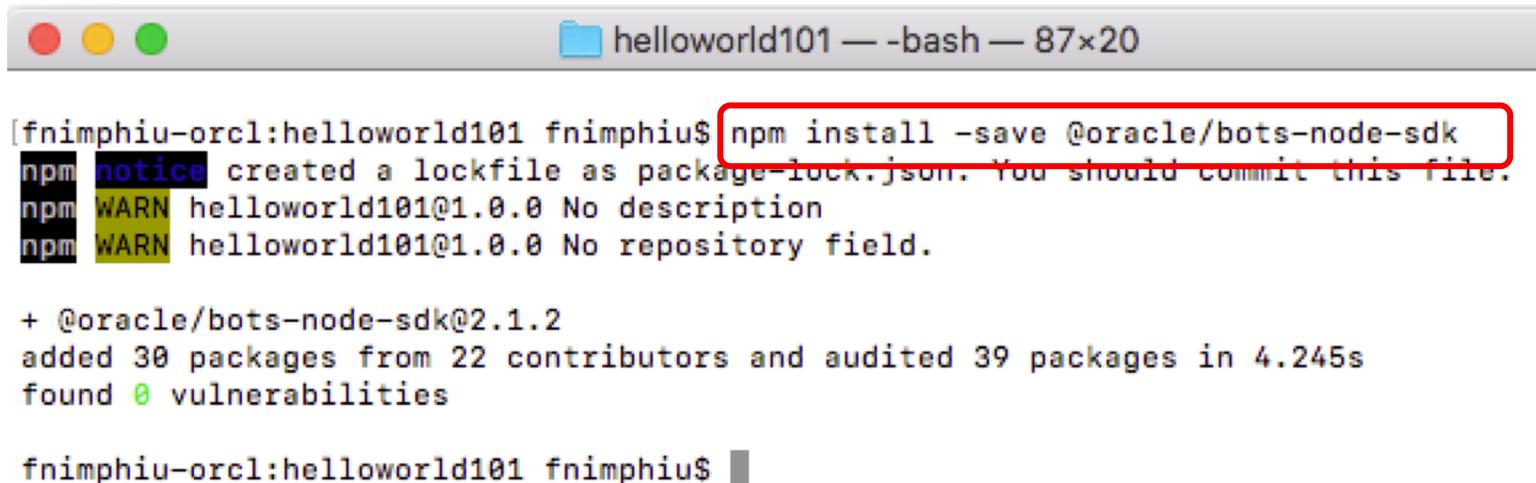
{
  "name": "helloworld101",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \\\"Error: no test specified\\\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}

fnimphiu-orcl:helloworld101 fnimphiu$ ]
```

# Install Oracle Bots Node.js SDK to the project

```
npm install -save @oracle/bots-node-sdk
```

- Installs Bots Node.js SDK for deployment
- Adds the bot custom component SDK files to project



A screenshot of a macOS terminal window titled "helloworld101 — bash — 87x20". The window shows the command "npm install -save @oracle/bots-node-sdk" being run. The output includes npm notices about creating a lockfile and audit results, and npm warnings about missing descriptions and repository fields. The entire command line is highlighted with a red rectangle.

```
[fnimphiu-orcl:helloworld101 fnimphiu$ npm install -save @oracle/bots-node-sdk
npm notice created a lockfile as package-lock.json. You should commit this file.
npm WARN helloworld101@1.0.0 No description
npm WARN helloworld101@1.0.0 No repository field.

+ @oracle/bots-node-sdk@2.1.2
added 30 packages from 22 contributors and audited 39 packages in 4.245s
found 0 vulnerabilities

fnimphiu-orcl:helloworld101 fnimphiu$ ]
```

# Create a custom component

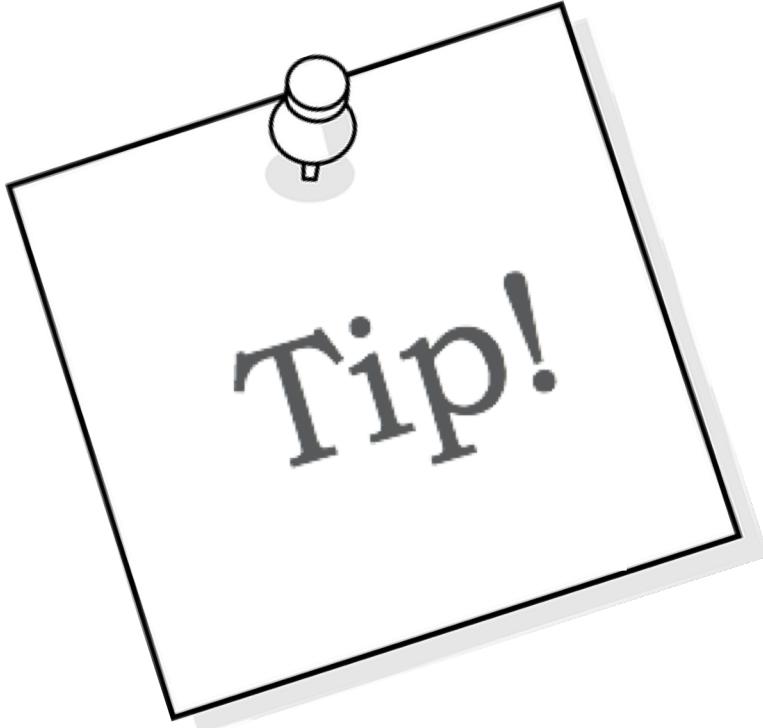
```
bots-node-sdk init --component-name HelloWorldComponent
```



```
fnimphiu-orcl:helloworld101 fnimphiu$ bots-node-sdk init --component-name HelloWorldComponent
-----
Will update contents in directory 'helloworld101'
Create component package in directory 'helloworld101'...
-----
Writing files...
Writing file: /Users/fnimphiu/Desktop/helloworld101/components/HelloWorldComponent.js
```

The screenshot shows a terminal window titled "helloworld101 — bash — 96x28" with the command "bots-node-sdk init --component-name HelloWorldComponent" being run. The output indicates that the component will be created in the "helloworld101" directory. Below the terminal, a file explorer window shows the directory structure. An arrow points from the terminal's output to the "HelloWorldComponent.js" file in the "components" folder, which is highlighted with a red box.

- All components are created in components folder
  - Can be changed with additional command line argument
- Default component content read from template
  - Hello world type of content

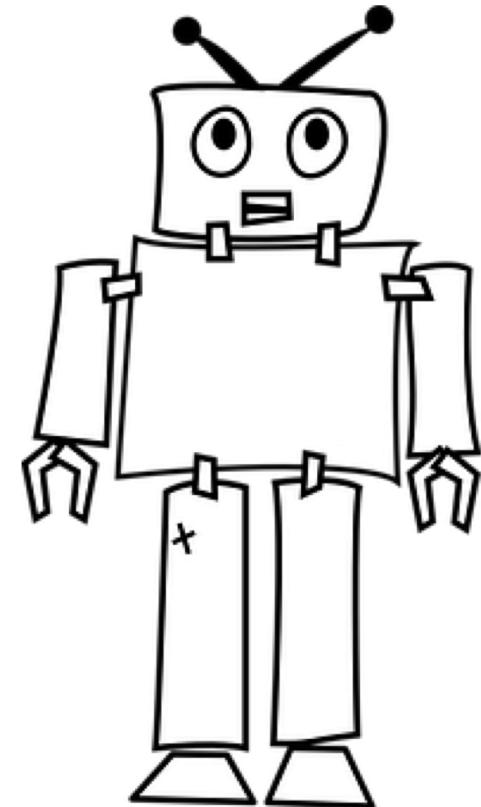


You can use

```
bots-node-sdk init component --name <comp_name>  
components/<sub_dir_name>
```

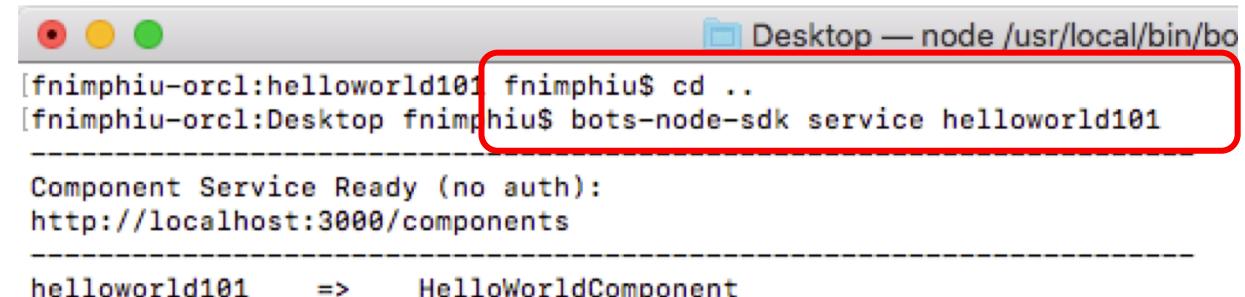
to create additional components  
directly in a sub-folder

**To create custom components in a subfolder of the components folder,  
you must first create the subfolder**

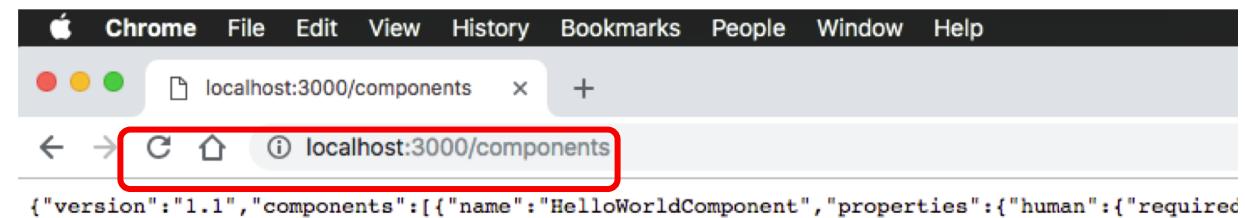


# Run component service locally for testing in browser

- Use bots-node-sdk service command to start
  - Start from outside the project folder
- Default port is 3000
  - Can be changed if required
- Browser displays JSON message with all project components



```
[fnimphiu-orcl:helloworld101 fnimphiu$ cd ..  
[fnimphiu-orcl:Desktop fnimphiu$ bots-node-sdk service helloworld101  
-----  
Component Service Ready (no auth):  
http://localhost:3000/components  
-----  
helloworld101 => HelloWorldComponent
```



# HelloWorldComponent.js

```
module.exports = {
  metadata: () => ({
    name: 'HelloWorldComp',           → Component invocation name
    properties: {
      human: { required: true, type: 'string' },
    },
    supportedActions: ['weekday', 'weekend'] → Action transitions
  }),
  invoke: (conversation, done) => {           → Function invoked at runtime
    // perform conversation tasks.
    const { human } = conversation.properties();
    // determine date
    const now = new Date();
    const dayOfWeek = now.toLocaleDateString('en-US', { weekday: 'long' });
    const isWeekend = [0, 6].indexOf(now.getDay()) > -1;
    // reply
    conversation
      .reply(`Greetings ${human}`)
      .reply(`Today is ${now.toLocaleDateString()}, a ${dayOfWeek}`)
      .transition(isWeekend ? 'weekend' : 'weekday');

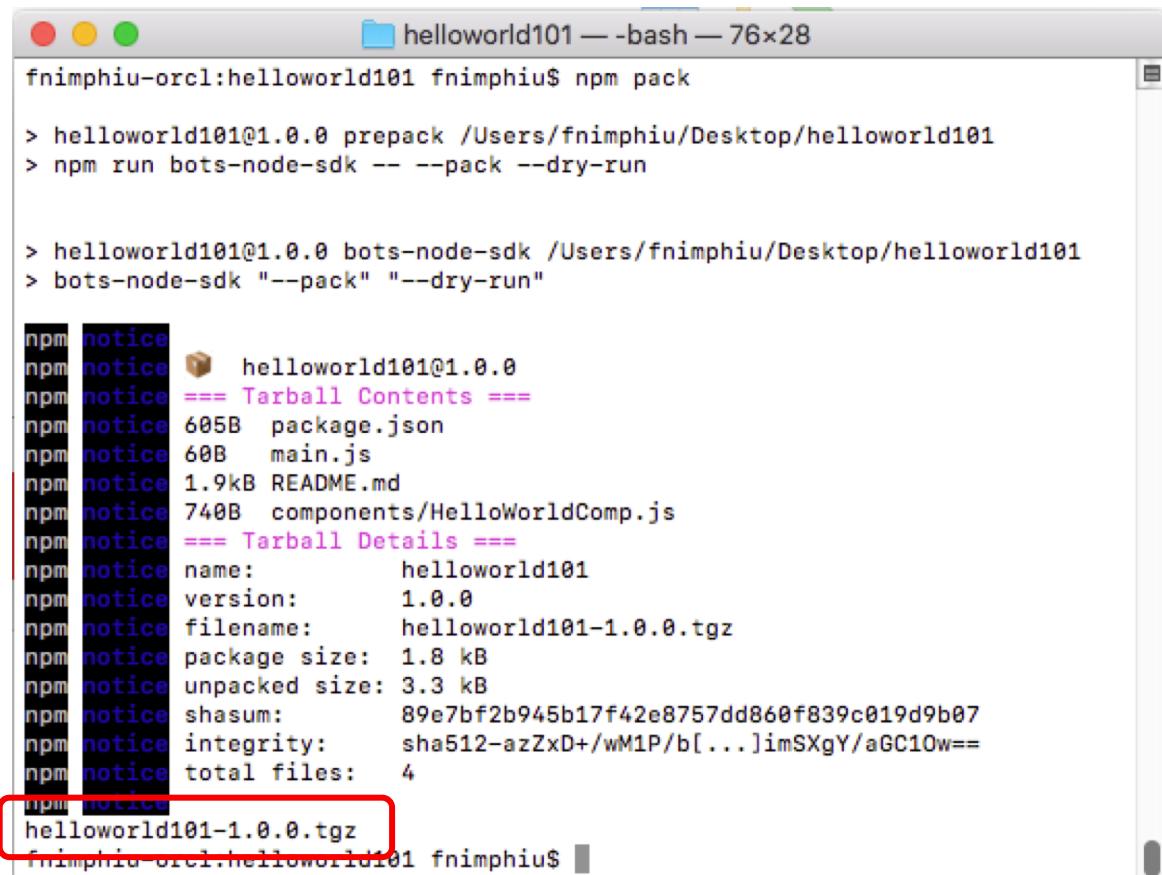
    done();                                     → Callback function that must be called at the end
  }
};
```

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# Creating a deployment package

- npm pack
  - For deployment to local component container
  - Creates compressed deployment file
    - <folder name>-<version as in package.json>.tgz
    - E.g. helloworld101-1.0.0.tgz

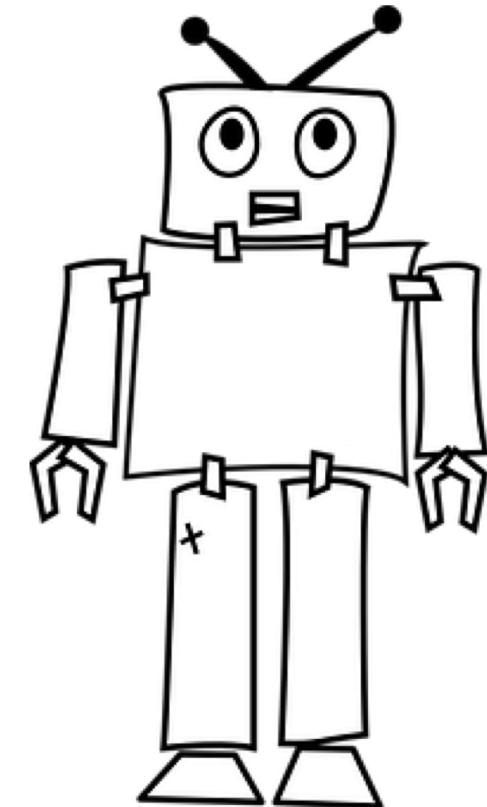


```
fnimphiu-orcl:helloworld101 fnimphiu$ npm pack
> helloworld101@1.0.0 prepack /Users/fnimphiu/Desktop/helloworld101
> npm run bots-node-sdk -- --pack --dry-run

> helloworld101@1.0.0 bots-node-sdk /Users/fnimphiu/Desktop/helloworld101
> bots-node-sdk "--pack" "--dry-run"

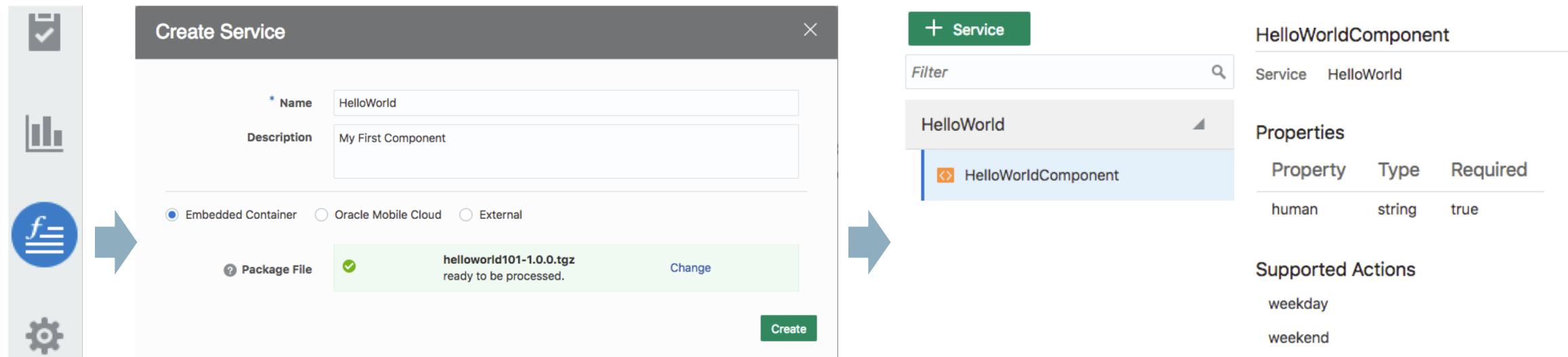
npm notice helloworld101@1.0.0
npm notice === Tarball Contents ===
npm notice 605B  package.json
npm notice 60B   main.js
npm notice 1.9kB README.md
npm notice 740B  components/HelloWorldComp.js
npm notice === Tarball Details ===
npm notice   name:      helloworld101
npm notice   version:   1.0.0
npm notice   filename:  helloworld101-1.0.0.tgz
npm notice   package size: 1.8 kB
npm notice   unpacked size: 3.3 kB
npm notice   shasum:    89e7bf2b945b17f42e8757dd860f839c019d9b07
npm notice   integrity: sha512-azZxD+/wM1P/b[...]imSXgY/aGC10w==
npm notice   total files: 4
npm notice
helloworld101-1.0.0.tgz
fnimphiu-orcl:helloworld101 fnimphiu$
```

The compressed project **does not contain the Oracle Bots Node.js SDK** files or other dependent Node modules. These are added in Oracle Digital Assistant as part of the **deployment process**.



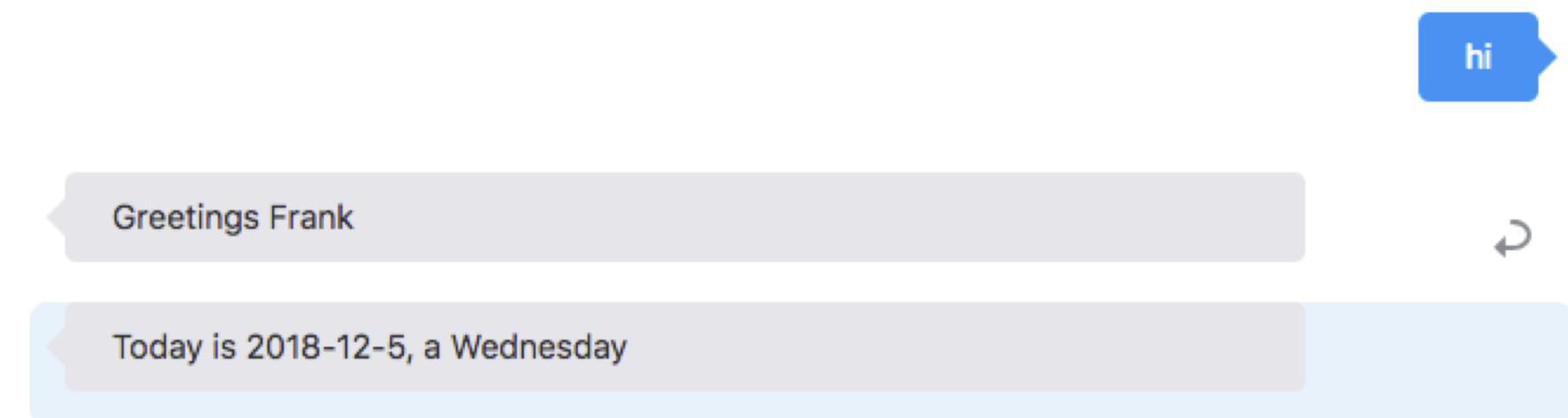
# Installing custom component service in local container

- Drag and Drop .tgz file into Create Service dialog
  - Ensure 'Embedded Container" is selected



# Dialog flow configuration & output at runtime

```
states:  
askGreeting:  
  component: "HelloWorldComponent"  
properties:  
  human: "Frank"  
transitions:  
  return: "done"
```



# Integrated Cloud Applications & Platform Services

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