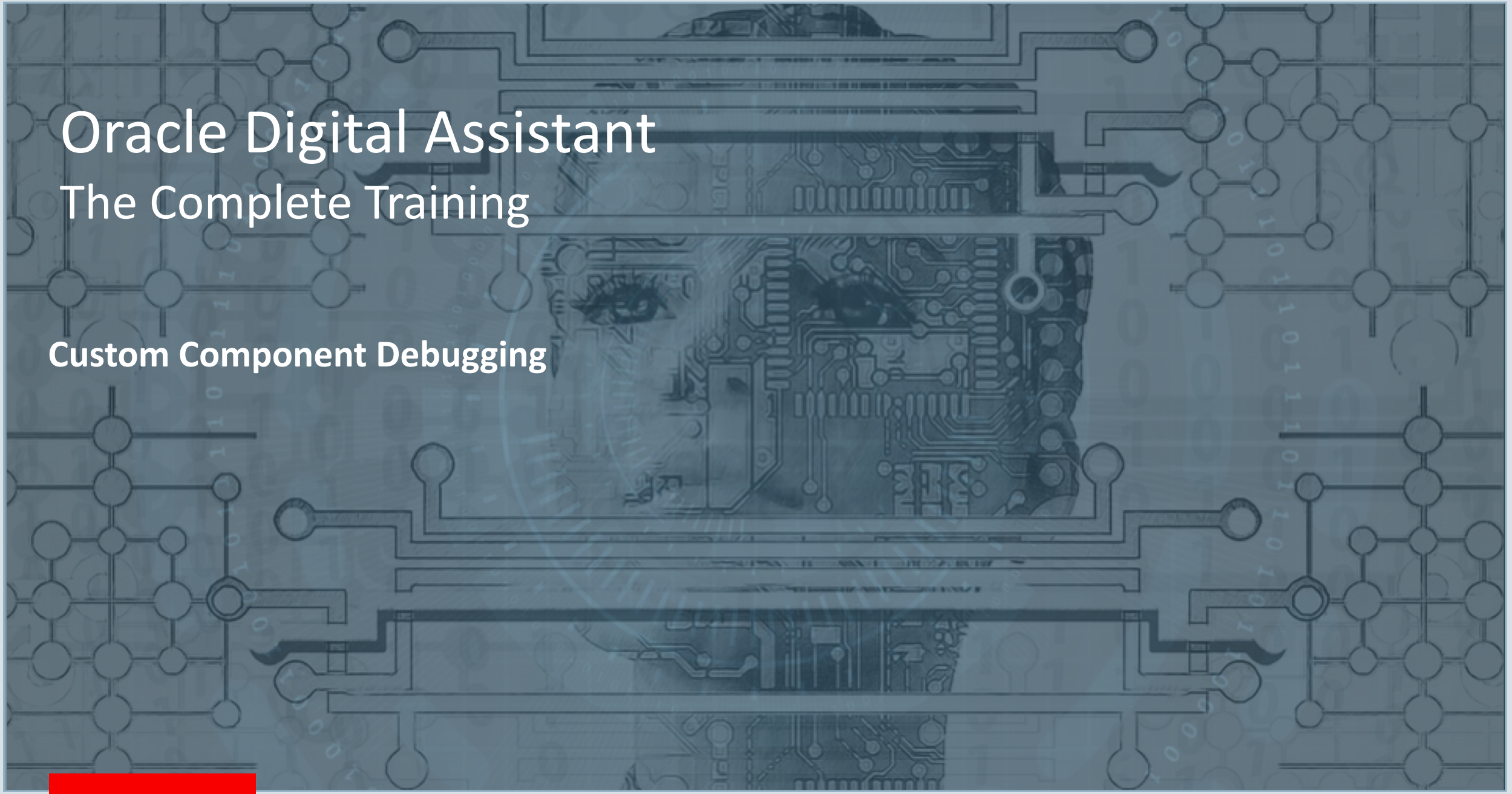

ORACLE®

Oracle Digital Assistant

The Complete Training

Custom Component Debugging



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Topic agenda

1. Debugging vs. logging
2. Debugging architecture
3. Debugging practices
4. Debugging with MS Visual Studio Code

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Logging

- Logging is good to find problems that occur at runtime
  - Digital Assistant version 19.1.3 and later provide a diagnostic panel for displaying logs for locally deployed custom components
  - Mobile Hub and 3rd party Node containers have their own consoles for displaying logs
- Logging is not efficient enough for finding problems at design time
  - Not all problems are exceptions
    - Custom component doesn't render a response
    - Values returned by a custom component don't show in skill
    - Code logic is not getting executed
    - Broken dialog flow navigation after custom component was added

Debugging

- Monitors bot-component interactions
  - Access to bot message payload
  - Insights to variable states
  - Steps through code execution
- Use your JavaScript IDE of choice
  - E.g. MS Visual Studio Code, JetBrains Webstorm
- Run custom component service from your local computer
  - Connect from Oracle Digital Assistant skill
- If it works, then it continues working after deployment

Before you can debug custom component services

- Create local environment
  - Local runtime for custom component REST service
  - Install Oracle Bots Node.js
    - Command line to create custom component services
    - Includes local runtime
- Make local machine accessible from the Internet
  - Oracle Digital Assistant needs to access local component service runtime URL
- Have JavaScript IDE installed that supports Node debugging

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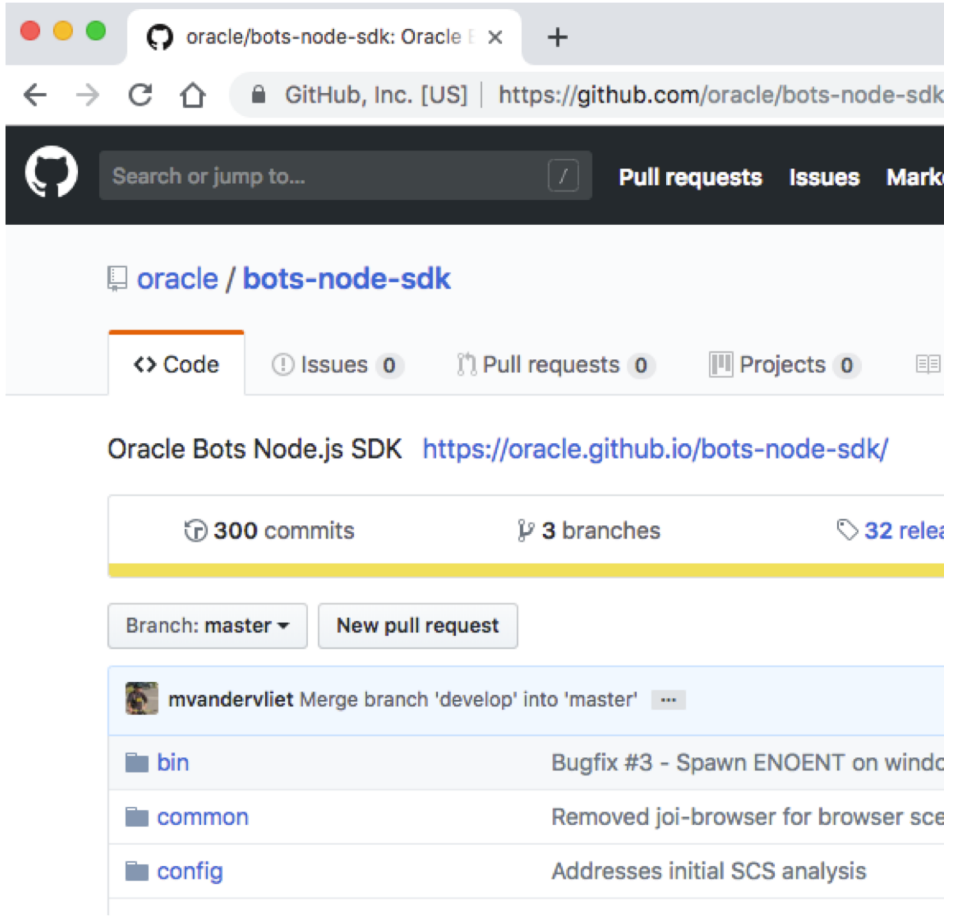
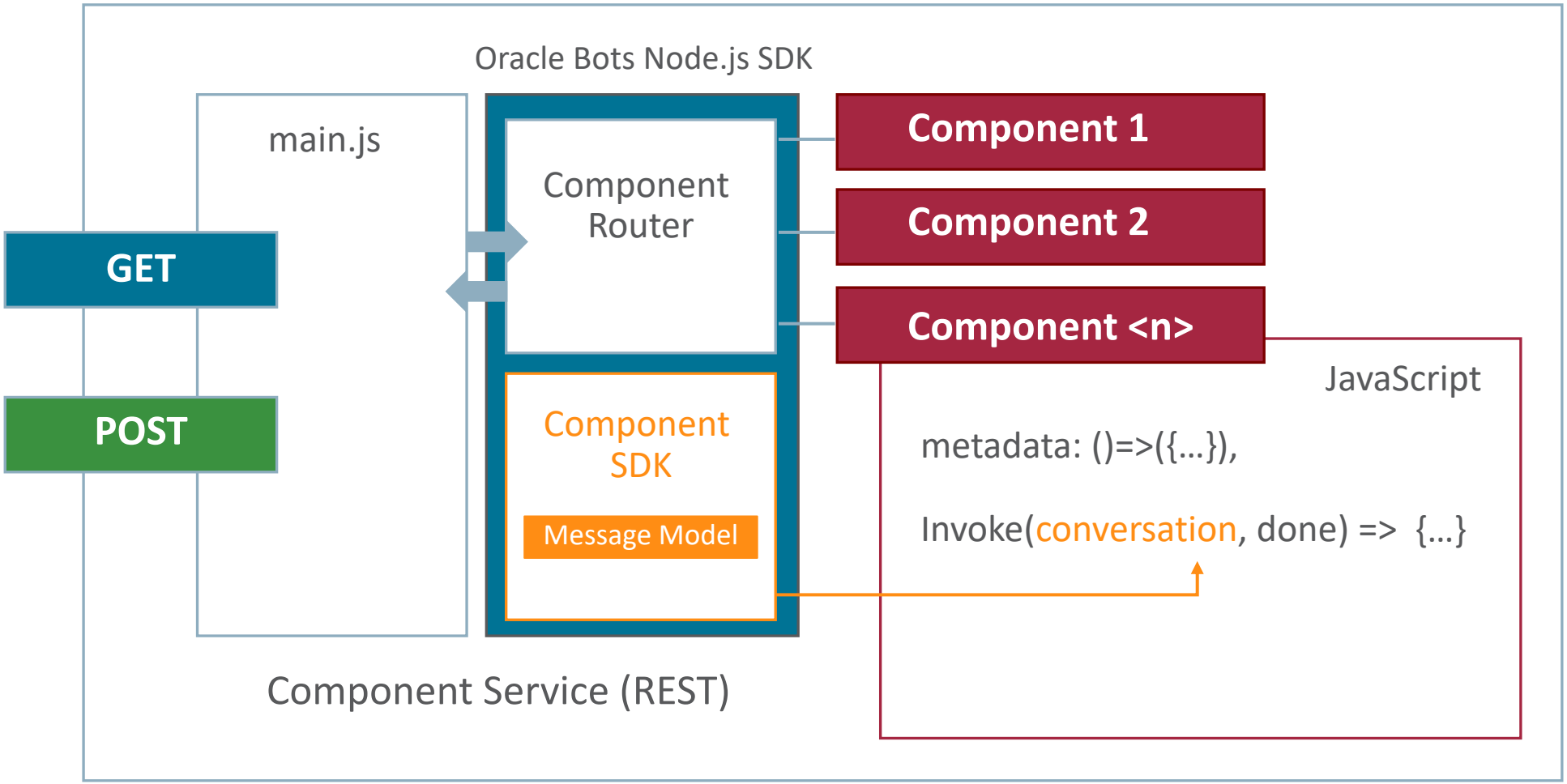
About Oracle Bots Node.js SDK

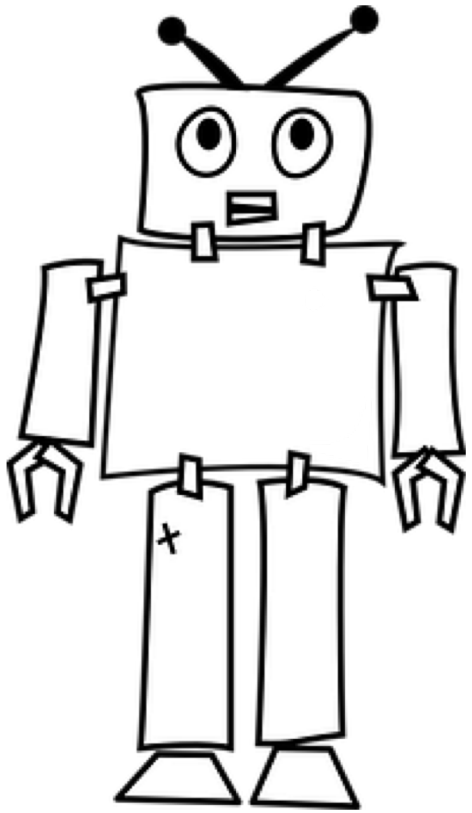
- Provides local environment for
  - Component development
  - Component debugging
  - Packaging for deployment
- NPM installable
- Command line to
  - Create custom component service project
  - Create custom components
- Adds bots custom component SDK



Oracle Bots Node.js SDK component service architecture



For debugging, you **local machine must be accessible from** Oracle Digital Assistant running on **the Internet**



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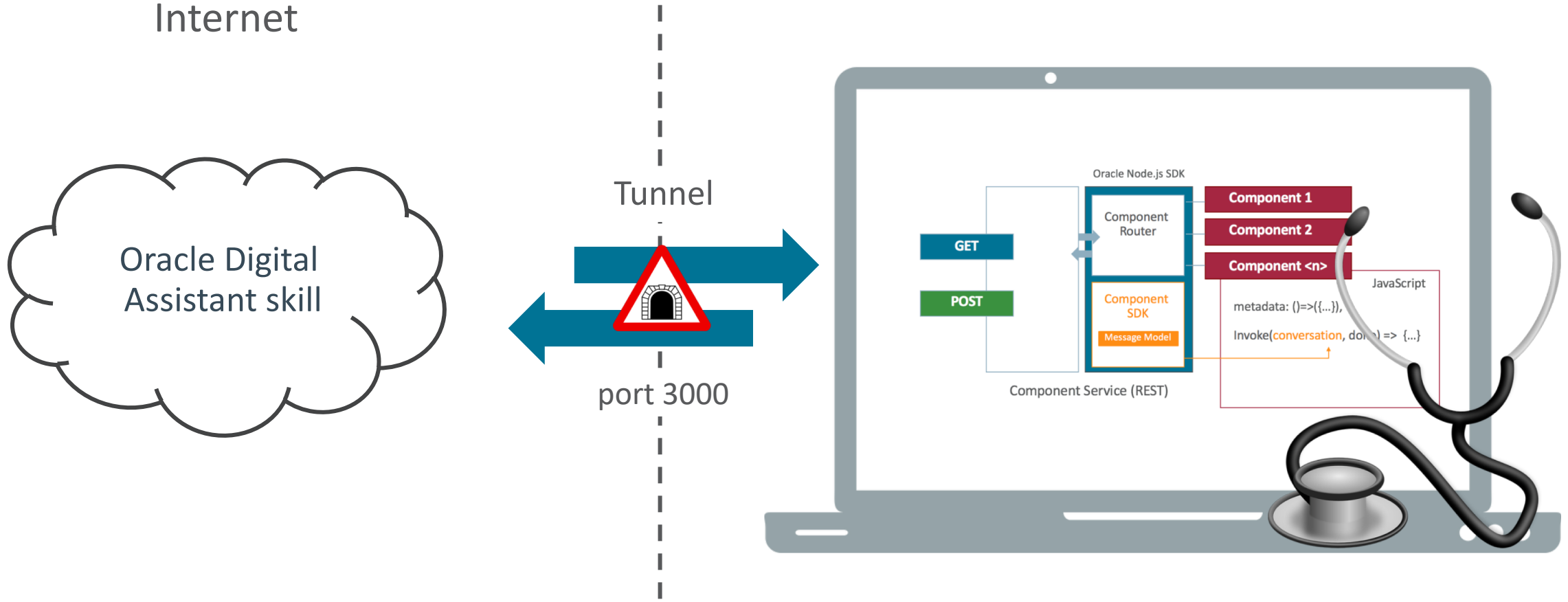
Debugging Architecture



Popular tunneling options

- ngrok
  - Well known
  - Doesn't require account
  - https://ngrok.com/download
- localtunnel
  - GitHub
  - Doesn't require account
  - https://github.com/localtunnel/localtunnel

Hints and tips

- Generally speaking, ngrok works on Windows and Mac
  - Oracle Windows images (OBI) don't allow the use of ngrok
  - When ngrok doesn't work, use "localtunnel" instead instead
- Ensure you have direct Internet access
  - Public or home network
  - Mobile hotspot
- If you are behind a proxy
  - Get the external IP address of your proxy (http://www.whatismyproxy.com/).
  - In the terminal window where you'll be using ngrok enter
    - export https_proxy=http://<external ip>:80
    - export http_proxy=http://<external ip>:80

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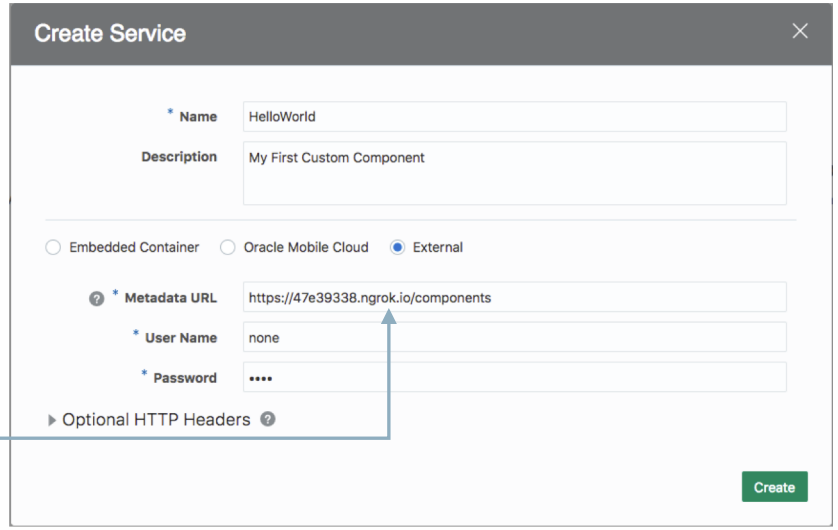
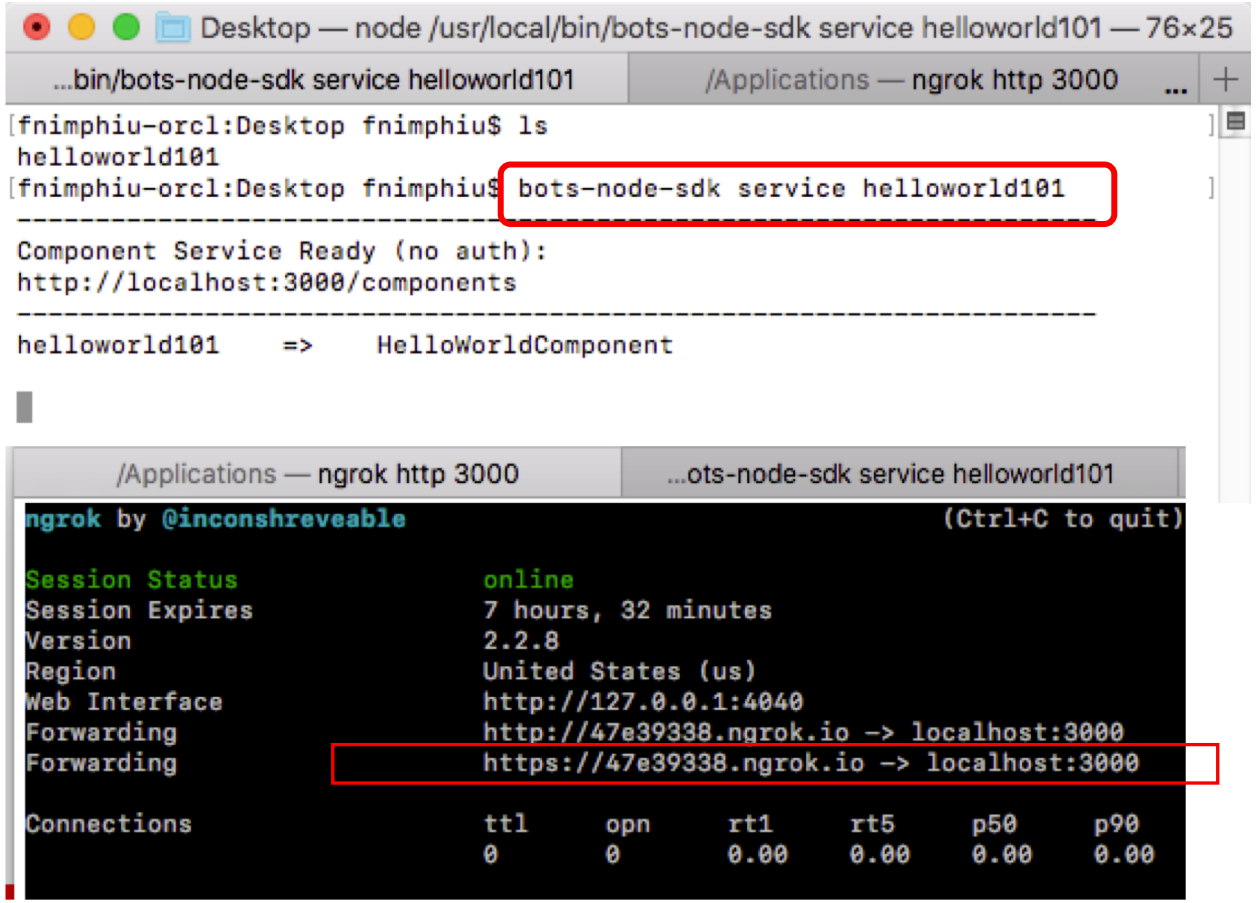
How-to debug custom component services

- Run Node server in Oracle Bots Node.js SDK
- Configure tunnel to expose port 3000
- Register component service 'External' service
  - Local runtime is an 'External' deployment
  - https://tunnel-url/components
- Connect JavaScript IDE debugger to local node server process
- Set breakpoints and use conversation tester in skill to start the debug session



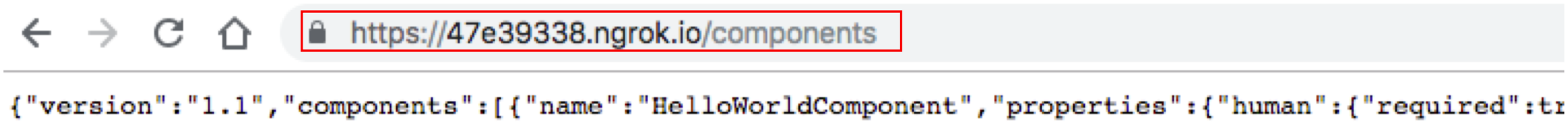
Starting the Node server on the local machine

- On local machine, start component service from parent folder
  - E.g. bots-node-sdk service helloworld101
- Open tunnel for port 3000
  - E.g. ngrok

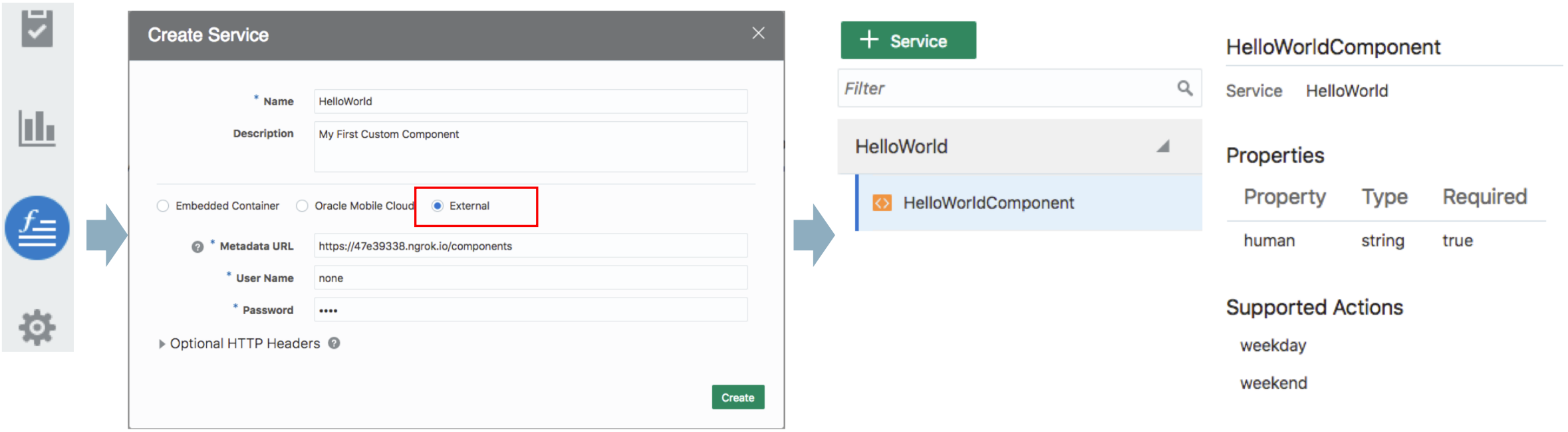


Testing the custom component service access in browser

- Type https://<tunnel URL>/components
  - Displays list of components hosted by component service
- Be aware
  - Tunnel URL changes with each re-start of the tunnel



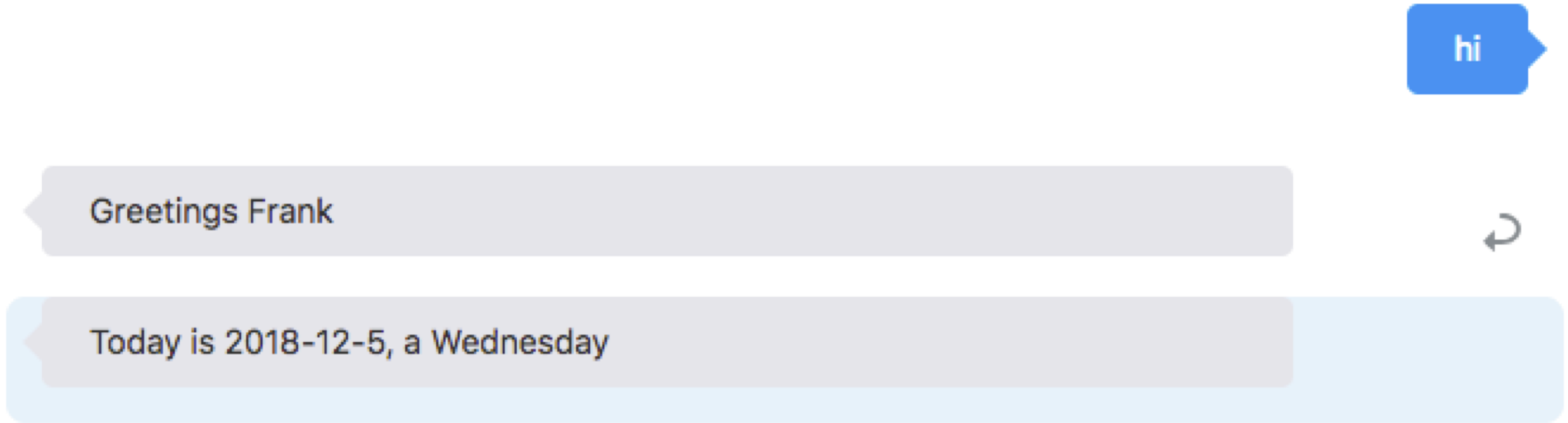
Register custom component service in skill



- Configure custom component service using ngrok or local tunnel URL
  - https://47e39338.ngrok.io/components
- No authentication required (just put something into the username and password field)

Dialog Flow configuration & runtime output

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



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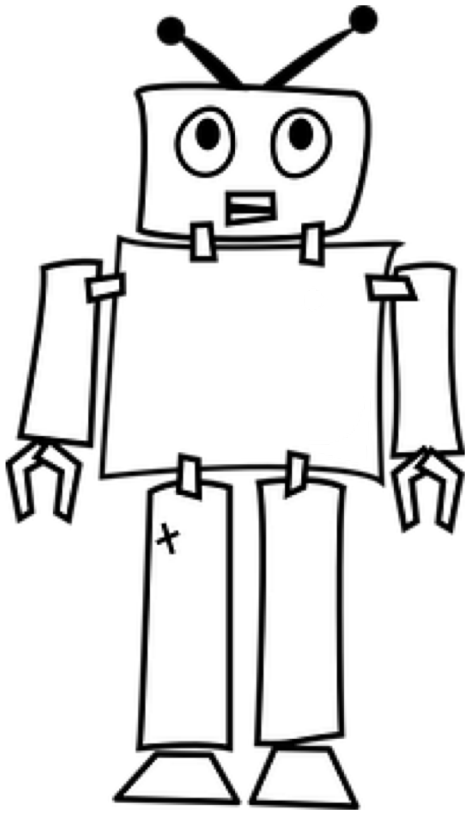
There is **no dependency to a specific JavaScript IDE**. The IDE must be able to debug local Node process.



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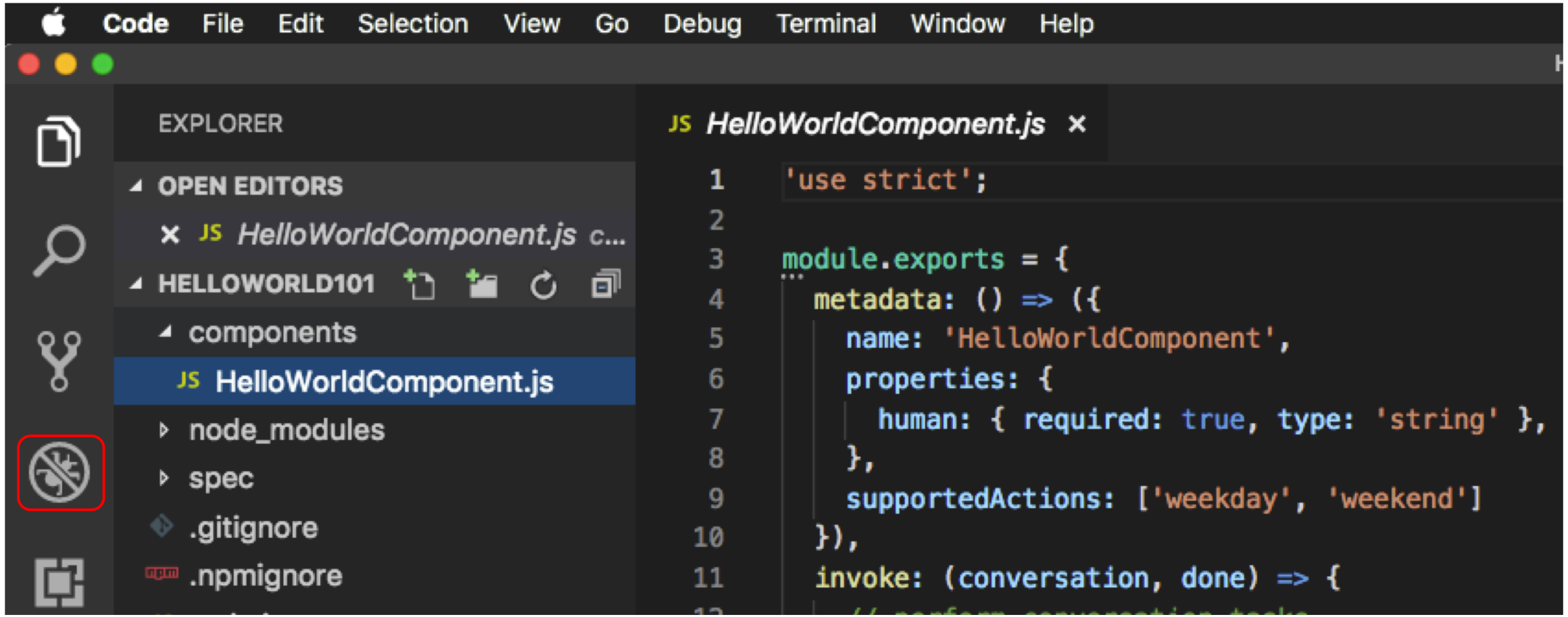
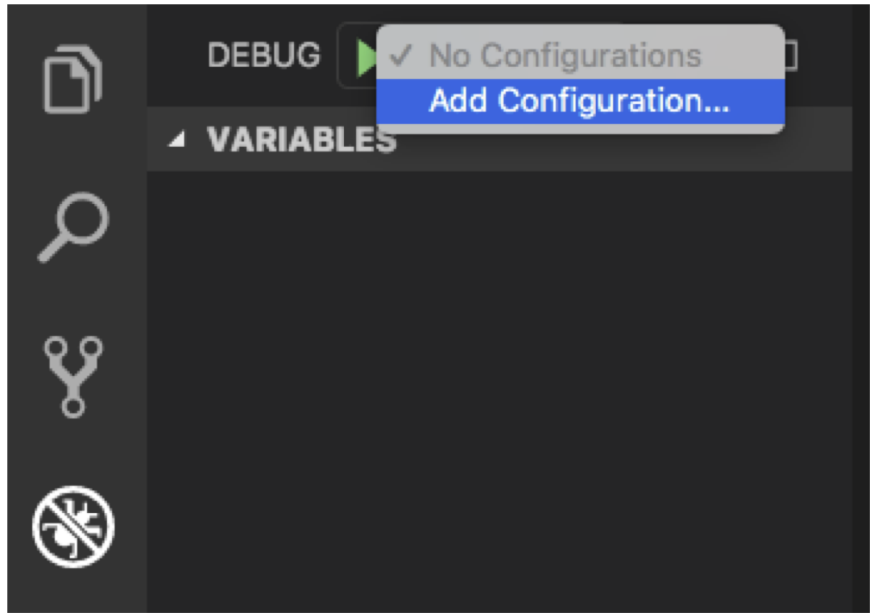
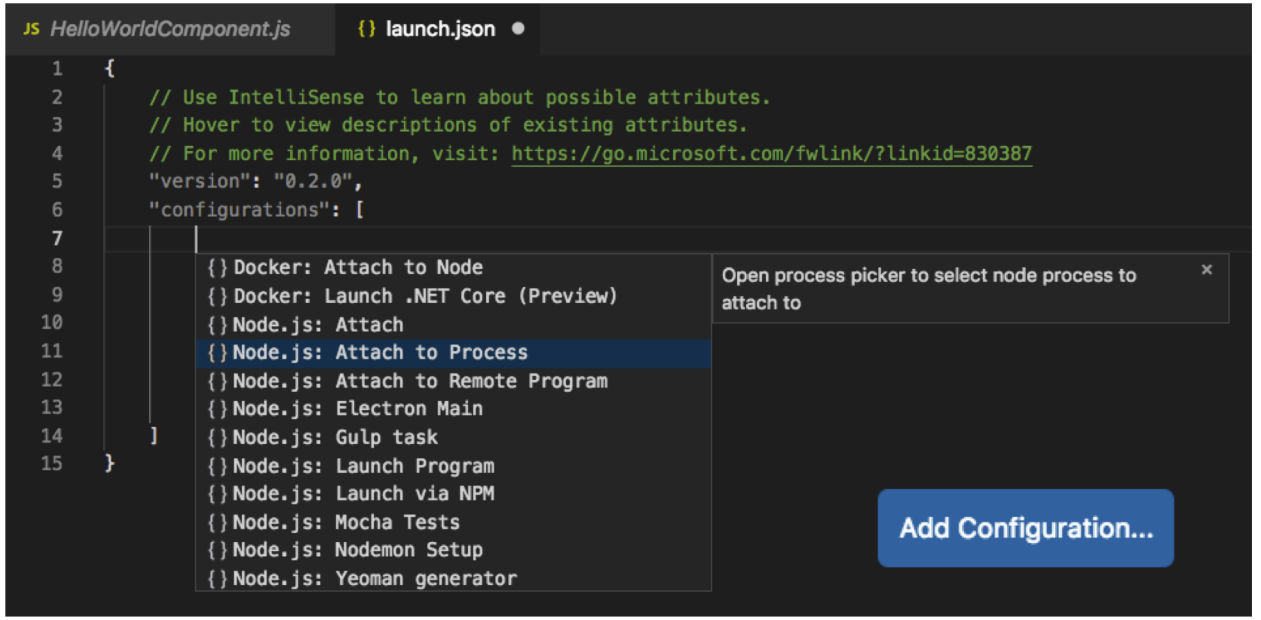
Open project in IDE and select debug option



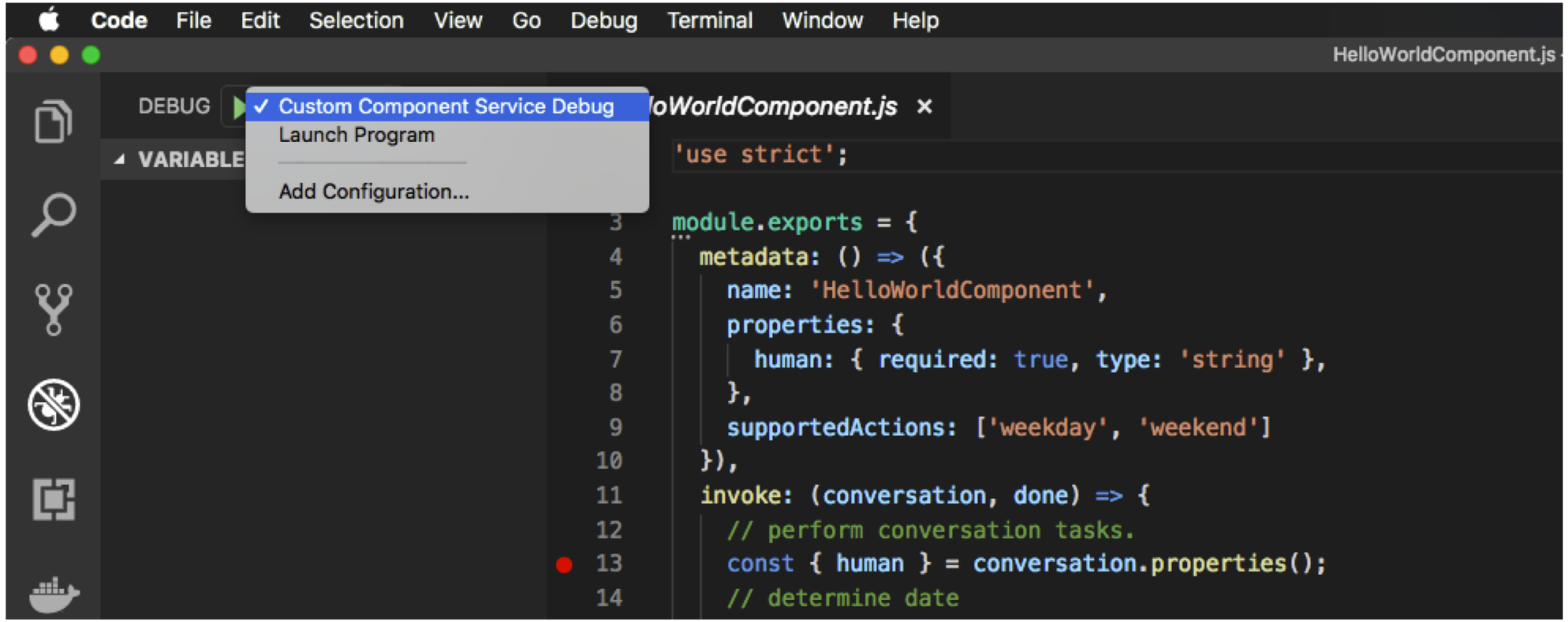
Create debugging configuration





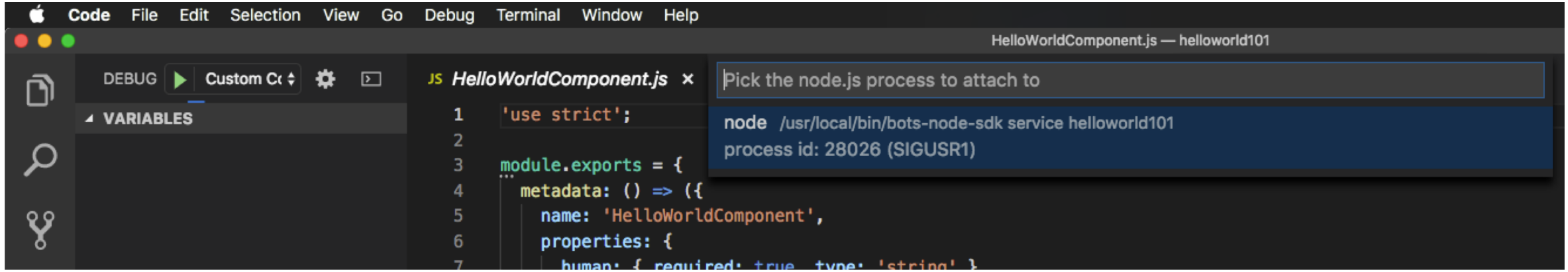
- Add a new debug configuration
  - Choose "Attach to Process" from "Add Configuration" button list
- Optionally, provide a custom name for the debug configuration

Set breakpoint and start debugging session



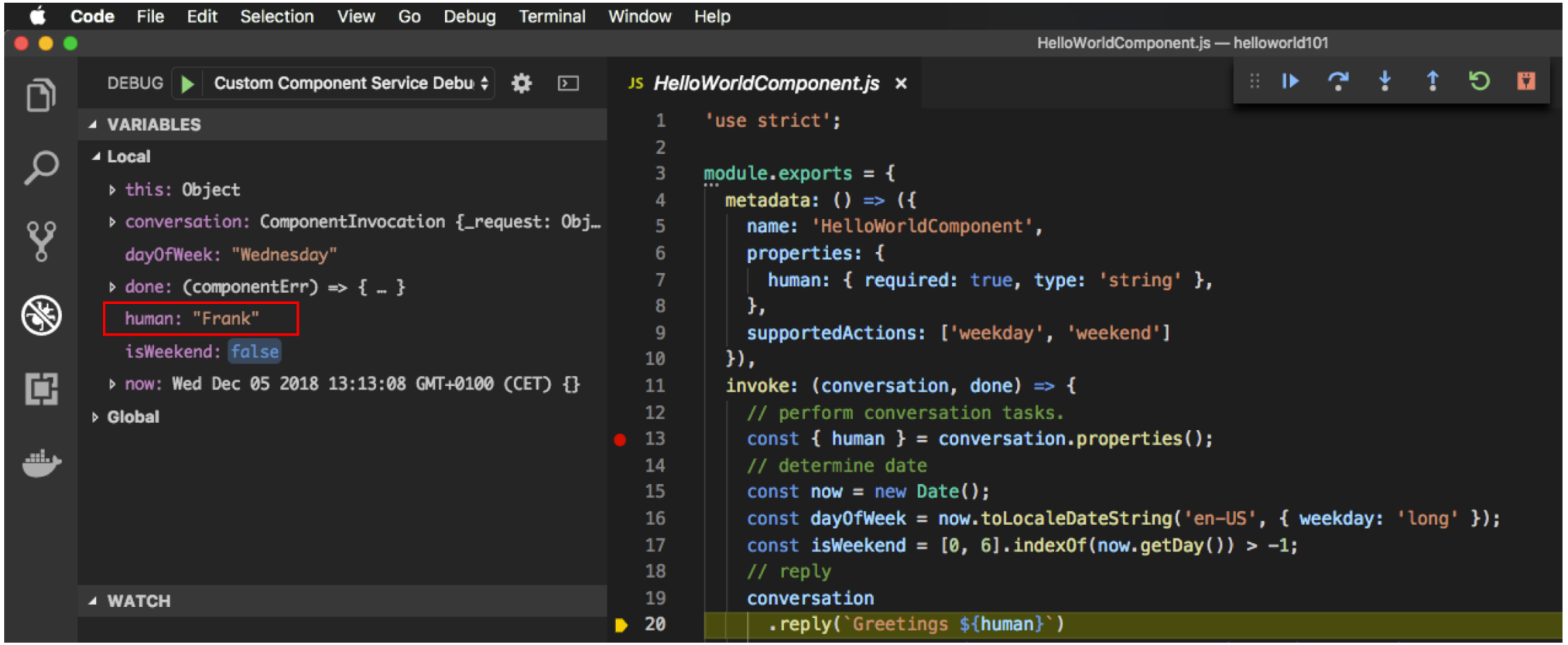
- Set break-points in the *invoke* function
- Select your custom debug configuration

Select process

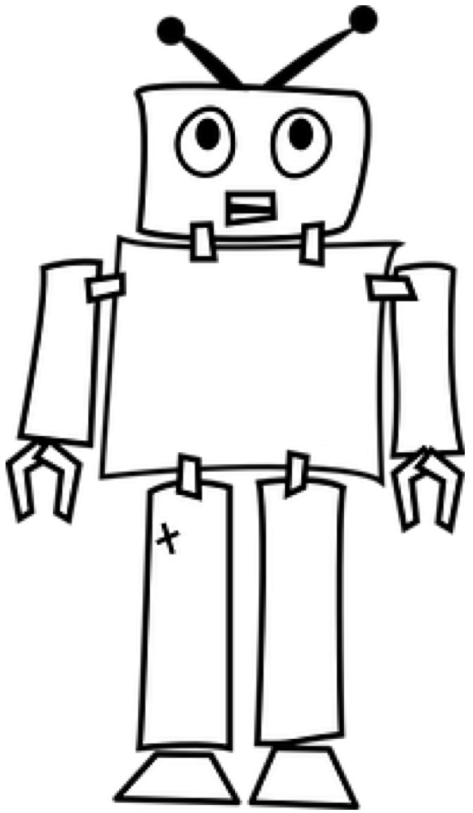


- Press the green run icon
- Select the Node process from the list

Debug component service by running skill bot tester



Rerun the '**bots-node-sdk service**' command each time you change the component source code in a debug session for changes to take affect.



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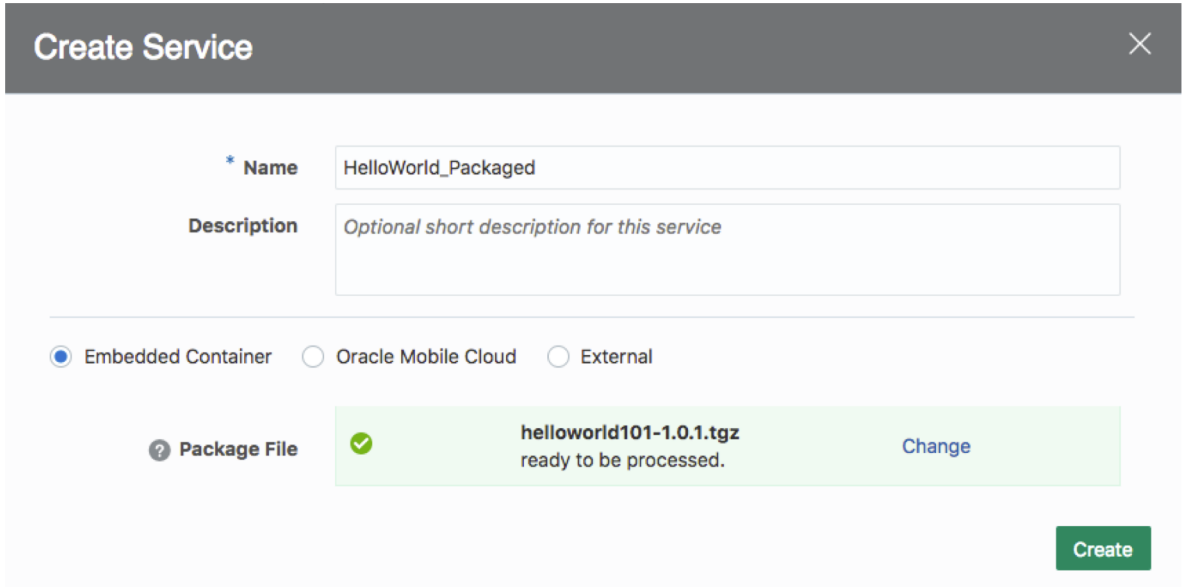
Custom component deployment to local container

- Create a .tgz file for local container deployment
  - Run *npm pack* in the component service project folder
- Delete or disable the current custom component service configuration
- Create new service configuration using packaged component service
  - Name different if you kept the debugging configuration



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