Instrument Microsoft Azure Application Insights in a Web Application

IMPLEMENTING AZURE APPLICATION INSIGHTS SDK IN CODE

Jeff Hopper
www.hoppertech.net

Overview

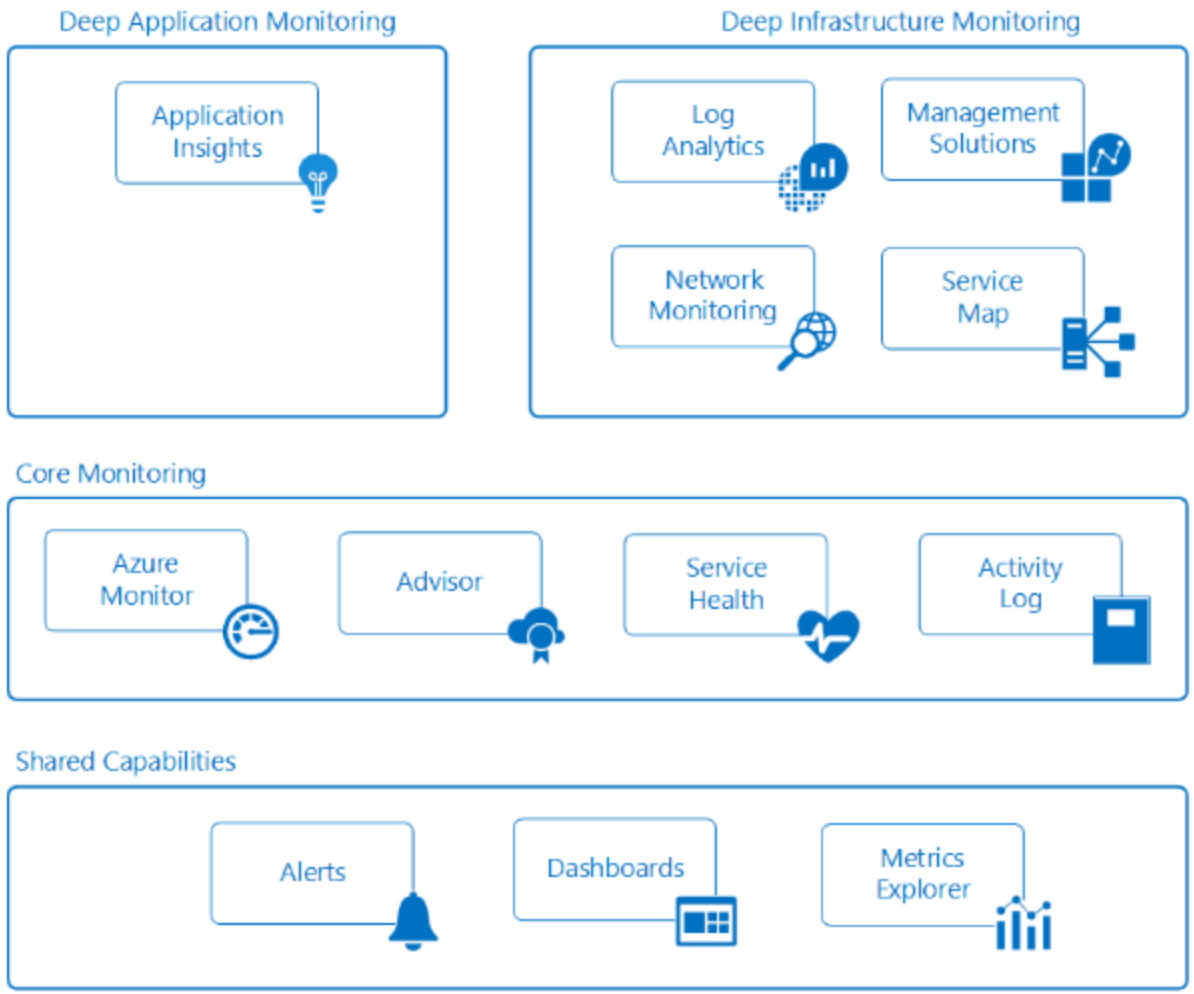
- Benefits of Application Insights
- Create the resource
- Add and configure the SDK
- Add custom telemetry
- Review the Portal

Download Exercise Files

Source Code

Resources.md

Benefits of Application Insights



Shared Capabilities

The core and deep monitoring service share functionality which provides the following

Download PDF

Is this page helpful?
Yes
No

Application Insights

An extensible Application Performance Management (APM) service for web developers on multiple platforms.

https://docs.microsoft.com/en-us/azure/application-insights/app-insights-overview

Performance Management

Page Views	Exceptions	Trace Logs
Usage Tracking	Service Calls	. . . More

Official Multiple Platform Support

.NET / .NET Core

Java

Node.js

Javascript / UI

Demo

Introduction to Residence Portal

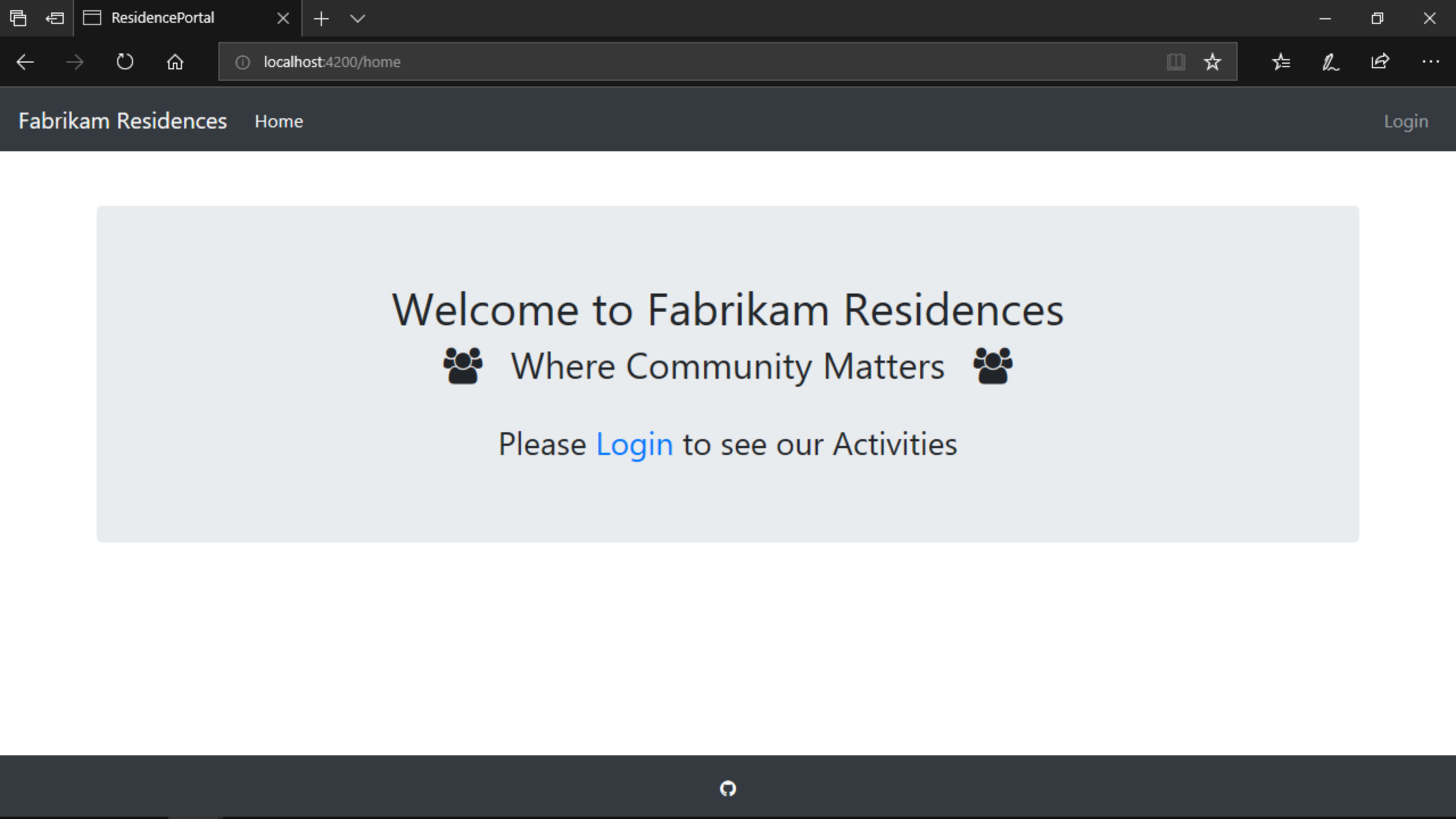
Creating Application Insights Resource in the Azure Portal

Adding Application Insights SDK to:

- Node.js project
- Angular 6 UI project

Investigate what has been created

Introducing the Residence Portal


ResidencePortal
localhost:4200/home
Fabrikam Residences
Home
Login
Welcome to Fabrikam Residences
Where Community Matters
Please Login to see our Activities

Create the Application Insights Resource

Application Insights - M

https://portal.azure.com/#blade/Microsoft_Azure_Marketplace/GalleryFeaturedMenuItemBlade/selectedMenuItemId/home/searchQuery/

Microsoft Azure

Search resources, services, and docs

jeff@hoppertech.net
DEFAULT DIRECTORY

Home > New > Marketplace > Everything > Application Insights

Everything

Filter

application insights

Results

NAME	PUBLISHER	CATEGORY
Application Insights	Microsoft	Web
Application Insights Connector (Preview)	Microsoft	Management Tools
Azure Application Gateway Analytics	Microsoft	Management Tools

Related to your search

op5 Monitor Enterprise
op5 AB

Azure AD Connect Health
Microsoft

Application Insights

Microsoft

Application performance, availability and usage information a

Is my website available at all times?
Is the user experience responsive and usable?
How are customers using my app/website?

Application Insights answers these questions and many more, with

- Availability and performance monitoring
- Users and usage insights
- Diagnostic logs and crash analytics
- Seamless integration with Microsoft Azure and Visual Stud
- Supports ASP.NET websites (Azure or on-premises), Windo Windows Store apps

Save for later

Create

Adding SDK – Node.js project

Start Monitoring Your Node.js Web Application

07/11/2018 • 3 minutes to read • Contributors all

With Azure Application Insights, you can easily monitor your web application for availability, performance, and usage. You can also quickly identify and diagnose errors in your application without waiting for a user to report them. With the version 0.20 SDK release onward, you can monitor common third-party packages, including MongoDB, MySQL, and Redis.

This quickstart guides you through adding the version 0.22 Application Insights SDK for Node.js to an existing Node.js web application.

Prerequisites

To complete this quickstart:

- You need an Azure Subscription and an existing Node.js web application.

If you don't have a Node.js web application, you can create one by following the Create a Node.js web app quickstart.

ApplicationInsights-Home

Welcome to the central repository for Application Insights projects. We intend to include any content that applies to all our repositories here, while specific content to each project will be found with that project.

More information about Application Insights can be found here.

For SDK and service announcements - subscribe to ApplicationInsights-Announcements

SDK release schedule is here

Officially Supported SDKs

- Asp.Net Core (formerly Asp.Net 5)
- DotNet Base
- DotNet Logging Adaptors
- DotNet Server
- JavaScript
- Java
- Node.js

Community Supported SDKs. These SDKs are not recommended for production applications.

Getting Started

1. Create an Application Insights resource in Azure by following these instructions.
2. Grab the *Instrumentation Key* (aka "ikey") from the resource you created in step 1. Later, you'll either add it to your app's environment variables or use it directly in your scripts.
3. Add the Application Insights Node.js SDK to your app's dependencies and package.json:

```
npm install --save applicationinsights
```

> *Note:* If you're using TypeScript, do not install a separate "typings" package. This NPM package contains built-in typings.

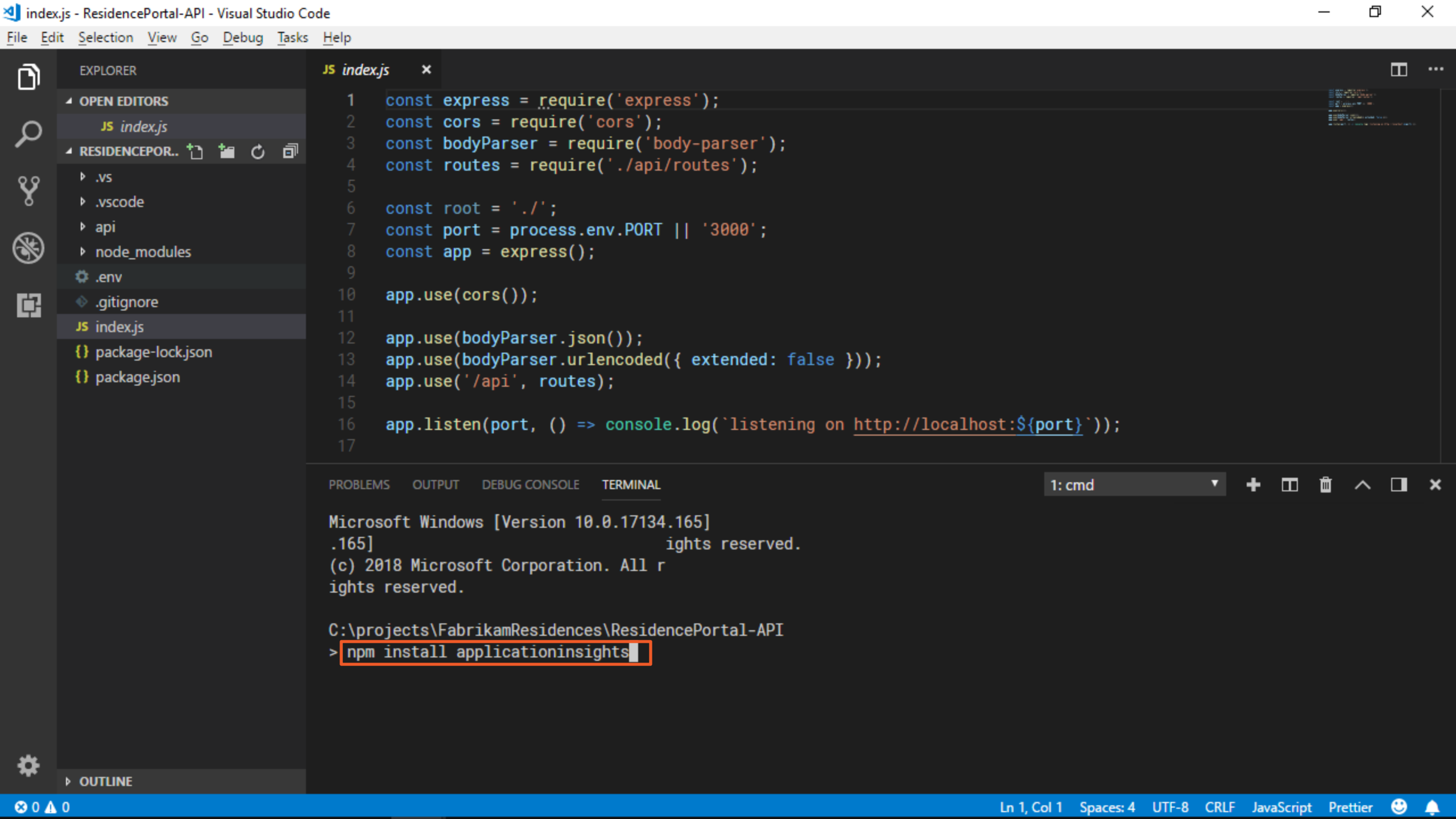
4. As early as possible in your app's code, load the Application Insights package:

```
let appInsights = require('applicationinsights');
```

5. Configure the local SDK by calling `appInsights.setup('_your_ikey_');`, using the ikey you grabbed in step 2. Or put this ikey in the `APPINSIGHTS_INSTRUMENTATIONKEY` environment variable and call `appInsights.setup()` without parameters.
   > For more configuration options see below.
6. Finally, start automatically collecting and sending data by calling `appInsights.start();`.

Basic Usage

For out-of-the-box collection of HTTP requests, popular third-party library events, unhandled exceptions, and system metrics:


index.js - ResidencePortal-API - Visual Studio Code
File Edit Selection View Go Debug Tasks Help
EXPLORER
OPEN EDITORS
index.js
RESIDENCEPOR..
.vs
.vscode
api
node_modules
.env
.gitignore
index.js
package-lock.json
package.json
OUTLINE
index.js
1 const express = require('express');
2 const cors = require('cors');
3 const bodyParser = require('body-parser');
4 const routes = require('./api/routes');
5
6 const root = './';
7 const port = process.env.PORT || '3000';
8 const app = express();
9
10 app.use(cors());
11
12 app.use(bodyParser.json());
13 app.use(bodyParser.urlencoded({ extended: false }));
14 app.use('/api', routes);
15
16 app.listen(port, () => console.log(`listening on http://localhost:${port}`));
17
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
1: cmd
Microsoft Windows [Version 10.0.17134.165]
.165] ights reserved.
(c) 2018 Microsoft Corporation. All r
ights reserved.
C:\projects\FabrikamResidences\ResidencePortal-API
> npm install applicationinsights
0 0
Ln 1, Col 1 Spaces: 4 UTF-8 CRLF JavaScript Prettier

Adding SDK – Angular 6 project

Get started

To use this SDK, you'll need a subscription to Microsoft Azure. Application Insights has a free subscription option. In the Azure Preview Portal, create new or open an existing Application Insights resource.

Initializing Application Insights JS SDK script

There are several ways to initialize Aplication Insights.

	Dynamic loading. JS script tag is inserted in the head of the page. This is the recommended approach as our CDN is getting frequent updates.	**Static loading. You are responsible for including JS script tag or bundling the script with your other scripts.**
Using initialization `snippet`	Dynamic loading with snippet This is default approach used in a new ASP.NET application created in Visual Studio. Use this for MVC applications.	Host AI JS SDK and initialize statically. Cordova applications where you would like to embed scripts into your application for faster loading is an example of when you would use this approach.
Using module import	Dynamic loading using module import. This is the recommended approach for modern modular applications.	TBD

Use JS `snippet` and initialize dynamically (download full Application Insights script from CDN)

Use this method for an MVC application. Get "code to monitor my web pages" from the Quick Start page, and insert it in the head of your web pages. Application Insights script will be downloaded from CDN or you can override the script hosting

ApplicationInsights-JS/F
GitHub, Inc. [US] https://github.com/Microsoft/ApplicationInsights-JS/blob/master/README.md#import-as-a-module-and-initialize-dyna
Find on page .config No results Options

Import as a module and initialize dynamically (download full Application Insights script from CDN)

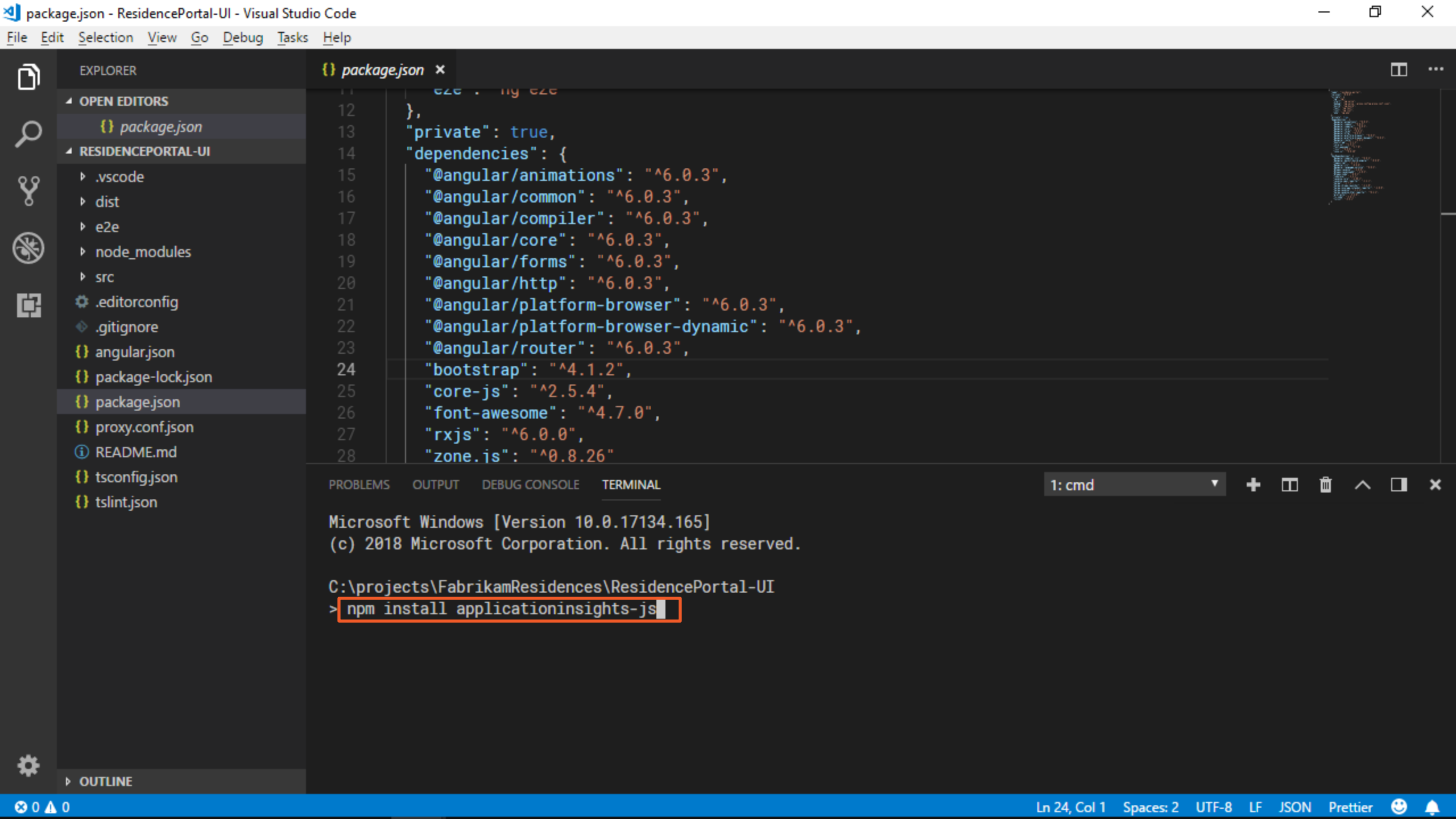
Use this method for a modern JS application that is using modules. Just like in `snippet` scenario the full script will be downloaded from CDN.

- Obtain instrumentation key from your Application Insights resource
- Install applicationinsights-js with npm
  `npm install applicationinsights-js`
- Import and call `downloadAndSetup` to initialize it. You can override the script hosting location by specifying `url` parameter in the config

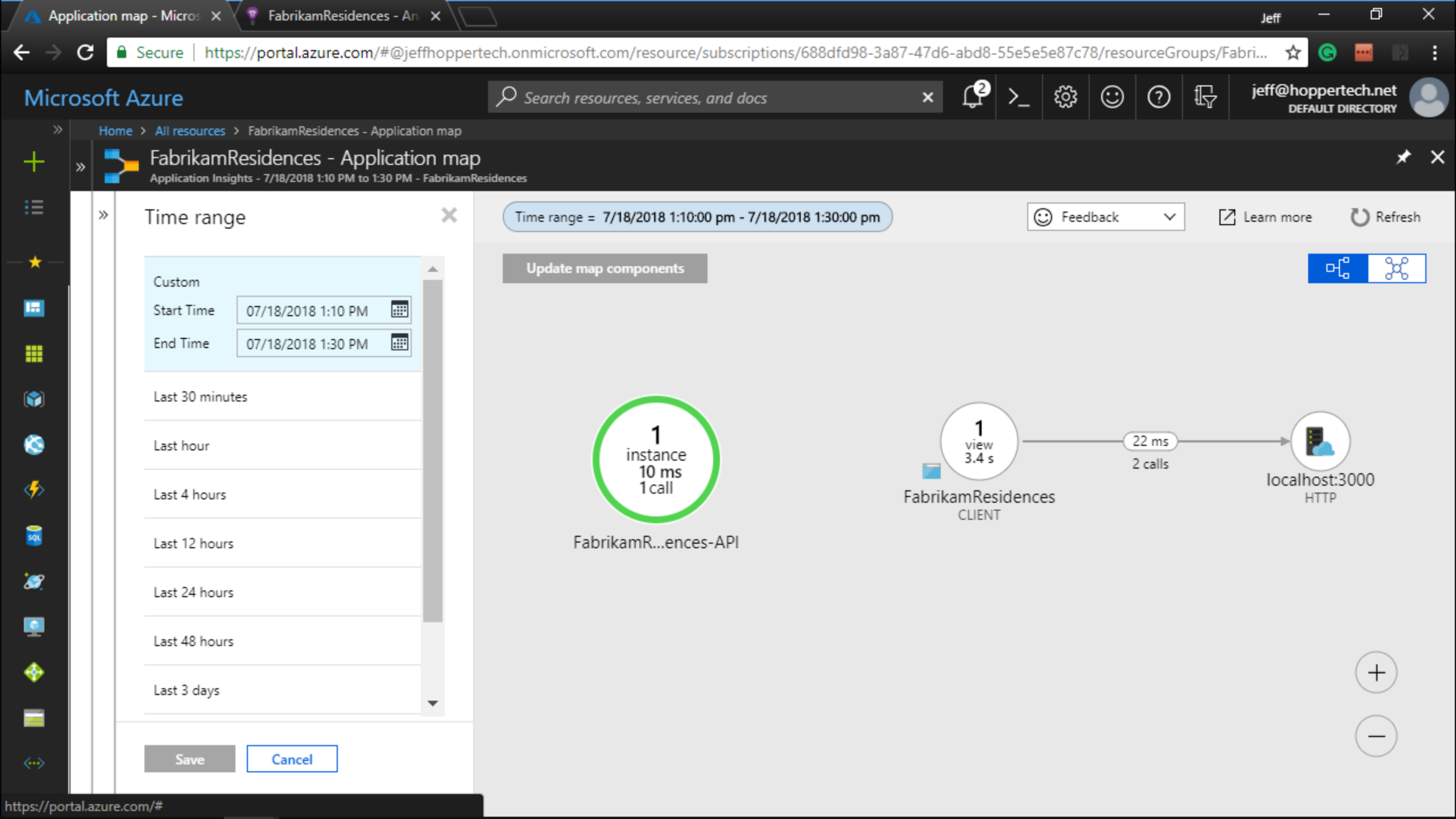
```
/* import AppInsights */
import {AppInsights} from "applicationinsights-js"

/* Call downloadAndSetup to download full ApplicationInsights script from CDN and initialize it with instrumentation
AppInsights.downloadAndSetup({ instrumentationKey: "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxx" });

/* example: track page view */
AppInsights.trackPageView(
    "FirstPage", /* (optional) page name */
    null, /* (optional) page url if available */
    { prop1: "prop1", prop2: "prop2" }, /* (optional) dimension dictionary */
    { measurement1: 1 }, /* (optional) metric dictionary */
    123 /* page view duration in milliseconds */
);
```


package.json - ResidencePortal-UI - Visual Studio Code
File Edit Selection View Go Debug Tasks Help
EXPLORER
OPEN EDITORS
package.json
RESIDENCEPORTAL-UI
.vscode
dist
e2e
node_modules
src
.editorconfig
.gitignore
angular.json
package-lock.json
package.json
proxy.conf.json
README.md
tsconfig.json
tslint.json
OUTLINE
package.json
"private": true,
"dependencies": {
"@angular/animations": "^6.0.3",
"@angular/common": "^6.0.3",
"@angular/compiler": "^6.0.3",
"@angular/core": "^6.0.3",
"@angular/forms": "^6.0.3",
"@angular/http": "^6.0.3",
"@angular/platform-browser": "^6.0.3",
"@angular/platform-browser-dynamic": "^6.0.3",
"@angular/router": "^6.0.3",
"bootstrap": "^4.1.2",
"core-js": "^2.5.4",
"font-awesome": "^4.7.0",
"rxjs": "^6.0.0",
"zone.js": "^0.8.26"
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
1: cmd
Microsoft Windows [Version 10.0.17134.165]
(c) 2018 Microsoft Corporation. All rights reserved.
C:\projects\FabrikamResidences\ResidencePortal-UI
> npm install applicationinsights-js
0 0
Ln 24, Col 1 Spaces: 2 UTF-8 LF JSON Prettier

Investigate what has been created


Application map - Micros
FabrikamResidences - An
Jeff
Secure
https://portal.azure.com/#@jeffhoppertech.onmicrosoft.com/resource/subscriptions/688dfd98-3a87-47d6-abd8-55e5e5e87c78/resourceGroups/Fabri...
Microsoft Azure
Search resources, services, and docs
jeff@hoppertech.net
DEFAULT DIRECTORY
Home > All resources > FabrikamResidences - Application map
FabrikamResidences - Application map
Application Insights - 7/18/2018 1:10 PM to 1:30 PM - FabrikamResidences
Time range
Custom
Start Time 07/18/2018 1:10 PM
End Time 07/18/2018 1:30 PM
Last 30 minutes
Last hour
Last 4 hours
Last 12 hours
Last 24 hours
Last 48 hours
Last 3 days
Save
Cancel
Time range = 7/18/2018 1:10:00 pm - 7/18/2018 1:30:00 pm
Feedback
Learn more
Refresh
Update map components
1
instance
10 ms
1 call
FabrikamR...ences-API
1
view
3.4 s
FabrikamResidences
CLIENT
22 ms
2 calls
localhost:3000
HTTP
https://portal.azure.com/#

Summary

- Reviewed some benefits
- Created the resource
- Added and configured the SDK
- Reviewed what comes “out of the box”