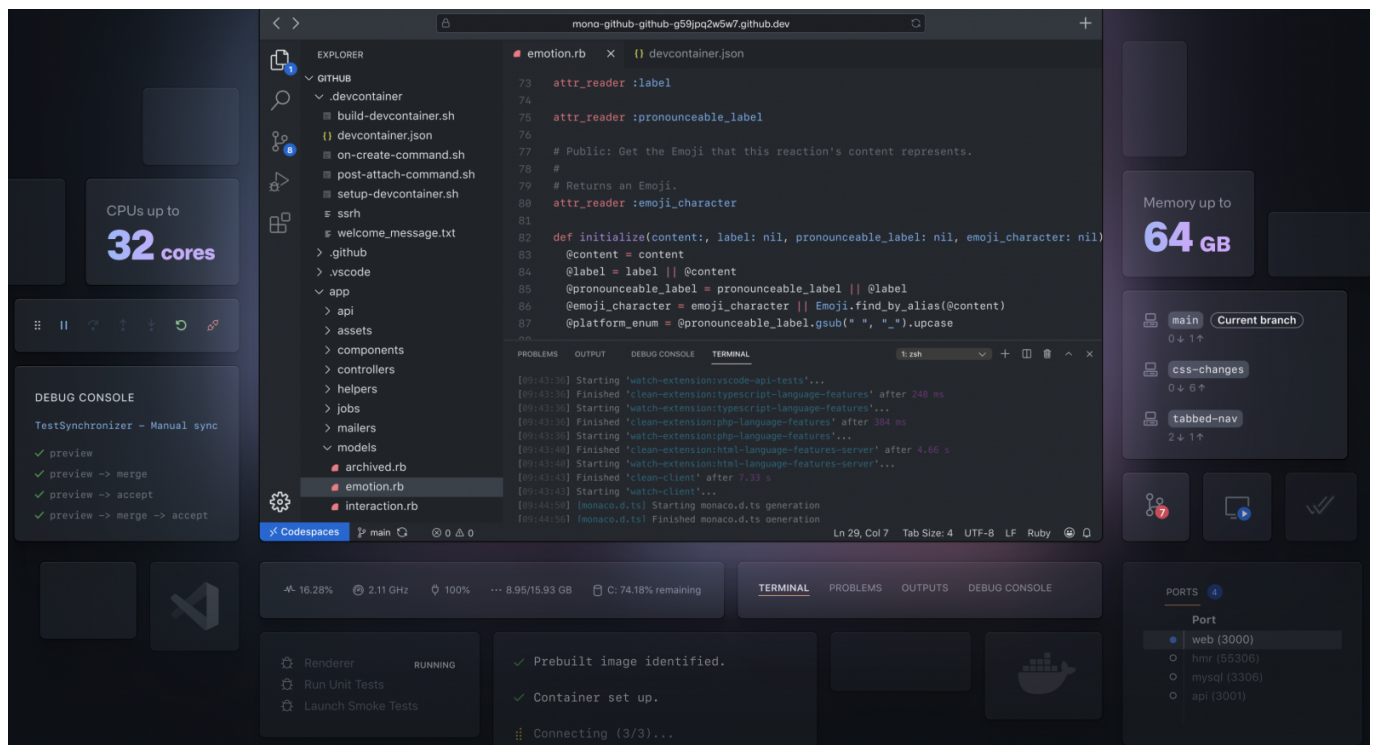


Article

[Dmitry Maslennikov](#) · Aug 20, 2021 6m read

GitHub Codespaces with IRIS

Some time ago GitHub, has announced the new feature, [GitHub Codespaces](#). It gives an ability to run VSCode in the browser, with almost the same power as it would run locally on your machine, but also with a power of clouds, so, you are able to choose the machine type with up to 32 CPU cores and 64 GB of RAM.



Looks impressive, is not it? But how it could help us, to work with projects driven by InterSystems IRIS? Let's have a look, how to configure it for us.

Simple start for any repo

With this feature, you'll be able to edit any repository in the cloud, by Code button. Please note, that this feature is still in beta, and may not be available for everyone, and after a beta period, will be available only for paid accounts.

The screenshot shows the GitHub interface for the repository 'intersystems / Samples-BI'. At the top, there are navigation tabs for Code, Issues (2), Pull requests (1), Actions, Projects, Wiki, Security, and Insights. Below these, there's a section for the 'master' branch with 1 branch and 0 tags. A pull request merge is shown, listing changes to files like .vscode, buildsample, src, .dockerignore, .gitattributes, .gitignore, Dockerfile, Installer.cls, and LICENSE. A 'New codespace' button is visible. A modal window titled 'Welcome to cloud editing' is open, showing the GitHub and VS Code logos and a 'New codespace' button.

So, this repository has not been specially prepared for Codespaces at all, just for VSCode. Press New codespace button, to create an environment just for you.

The screenshot shows the VS Code editor interface. The Explorer pane on the left shows the file structure of the repository, including 'BudgetCube.cls'. The main editor area displays the content of 'BudgetCube.cls', which is an ObjectScript file. The file contains comments and code for a budget cube. The 'ObjectScript' extension is installed and active, as indicated by the 'ObjectScript' tab in the bottom right corner. The status bar at the bottom shows 'Ln 7, Col 1', 'Spaces: 4', 'UTF-8', 'LF', 'ObjectScript Class', and 'Layout: U.S.'.

In my case, in the previous usage of codespaces, I've already installed the ObjectScript extension and enabled it globally by prompt from Codespaces. So, it installs it to me every time, and ObjectScript code already highlighted. But there IRIS there is not available, yet. Let's start it with docker-compose.

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
Welcome to Codespaces! You are on our default image.
- It includes runtimes and tools for Python, Node.js, Docker, and more. See the full list here: https://aka.ms/ghcs-default-image
- Want to use a custom image instead? Learn more here: https://aka.ms/configure-codespace

To explore VS Code to its fullest, search using the Command Palette (Cmd/Ctrl + Shift + P or F1).

Edit away, run your app as usual, and we'll automatically make it available for you to access.

codespace → /workspaces/Samples-BI (master) $ docker-compose up -d
Creating network "samples-bi_default" with the default driver
Building iris
Sending build context to Docker daemon  4.646MB
Step 1/17 : ARG IMAGE=intersystems/iris:2019.1.05.111.0
Step 2/17 : ARG IMAGE=store/intersystems/iris-community:2019.3.0.309.0
Step 3/17 : ARG IMAGE=store/intersystems/iris-community:2019.4.0.379.0
Step 4/17 : ARG IMAGE=intersystemsdc/iris-community:2020.2.0.204.0-zpm
Step 5/17 : FROM $IMAGE
2020.2.0.204.0-zpm: Pulling from intersystemsdc/iris-community
5bed26d33875: Pull complete
f11b29a9c730: Pull complete
930bda195c84: Pull complete
78bf9a5ad49e: Pull complete
482fe954ff7e: Extracting [=====] 15.37MB/15.37MB
1cf7bd529fd9: Downloading [==>] 16.09MB/346.2MB
f9b0a7544c44: Download complete
9f660399dc71: Waiting
e85212a92496: Waiting
74c059f7d840: Waiting
c07a7d2f10f8: Waiting
b6824f0691fb: Waiting
47f8fb1b0d75: Waiting
a0744db77a4d: Waiting
  
```

After that, now we are able to connect to IRIS Terminal, and compile the code

```

29  <dimension name="DateOfSale" sharesFrom="HoleFoods"/>
30  <dimension name="Product" sharesFrom="HoleFoods"/>
31  <dimension name="Outlet" sharesFrom="HoleFoods"/>

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  3
Node: 8f37cad3a7fc, Instance: IRIS

IRISAPP>w $zv
IRIS for UNIX (Ubuntu Server LTS for x86-64 Containers) 2020.2 (Build 204U) Mon May 11 2020 12:03:25 EDT
IRISAPP>
  
```

Live Share docker:iris:49154[IRISAPP] Ln 15, Col 25 Spaces: 4 U

Ports from docker-compose are automatically recognized and can be opened in the browser, so, it's also possible to open System Management Portal

Port	Local Address	Running Process	Privacy	Origin
49153	https://daimor-intersystems-sample...	/usr/bin/docker-proxy -proto tcp -host-ip 0.0.0.0 -host...	Private	GitHub Codespaces
49154	https://daimor-intersystems-s...	/usr/bin/docker-proxy -proto tcp -host-ip 0.0.0.0 -host...	Private	GitHub Codespaces
49155	https://daimor-intersystems-sample	er-proxy -proto tcp -host-ip 0.0.0.0 -host...	Private	GitHub Codespaces

Usage with prepared repository

We managed, to run VSCode and IRIS in the cloud, but we had to do some things manually, to get get it ready. But, it's also possible to make your repository ready for development right after the start.

It is possible, with [devcontainer.json](#). I will do an example based on one of my recent projects [Realworld](#). This

project is quite complex, it has a backend and frontend and uses docker-compose to start all it together.

devcontainer may use docker-compose as well, so, my config appeared to be like this.

```
{
  "name": "IRIS RealWorld example",
  "dockerComposeFile": "docker-compose.yml",
  "service": "server",
  "extensions": [
    "intersystems-community.vscode-objectscript"
  ],
  "forwardPorts": [
    80,
    52773
  ],
  "workspaceFolder": "/home/irisowner/conduit",
  "remoteUser": "irisowner",
  "postCreateCommand": "iris start iris",
  "settings": {
    "terminal.integrated.defaultProfile.linux": "bash",
    "terminal.integrated.profiles.linux": {
      "bash": {
        "path": "bash",
        "icon": "terminal-bash"
      },
      "iris": {
        "path": "iris",
        "args": ["session", "iris"]
      }
    },
    "intersystems.servers": {
      "/ignore": true
    },
    "objectscript.ignoreInstallServerManager": true,
    "objectscript.ignoreInstallLanguageServer": true,
    "objectscript.conn": {
      "active": true,
      "host": "localhost",
      "port": 52773,
      "ns": "CONDUIT",
      "username": "demo",
      "password": "demo",
      "links": {
        "Conduit APP": "http://localhost:80/",
        "Conduit API": "http://${host}:${port}/conduit/"
      }
    }
  },
  "portsAttributes": {
    "80": {
      "label": "Web Server"
    },
    "52773": {
      "label": "IRIS"
    }
  }
}
```

There are many things configured

- path to custom docker-compose.yml, especially for Codespaces
- name for the main service, where the development
- list of extensions installed by default in VSCode
- ports which have to be published, in this case, web server port for IRIS and for frontend

- path to working directory
- user inside the container, as we are entering IRIS container, we need user irisowner
- in docker-compose our IRIS container configured to not use default entrypoint iris-main, but just sleep with infinity, and after start the environment we have to start our IRIS
- and finally, the settings for VSCode, also can be configured here, it's a machine level of settings. Which for sure can be overridden or appended with .vscode/settings.json

Starting Codespaces for such repository, will take a bit more time, as it will need to build all the necessary containers and start them. GitHub says, that it will be possible to prebake such images after any push to the repo, so, such start will be faster.

Setting up your codespace

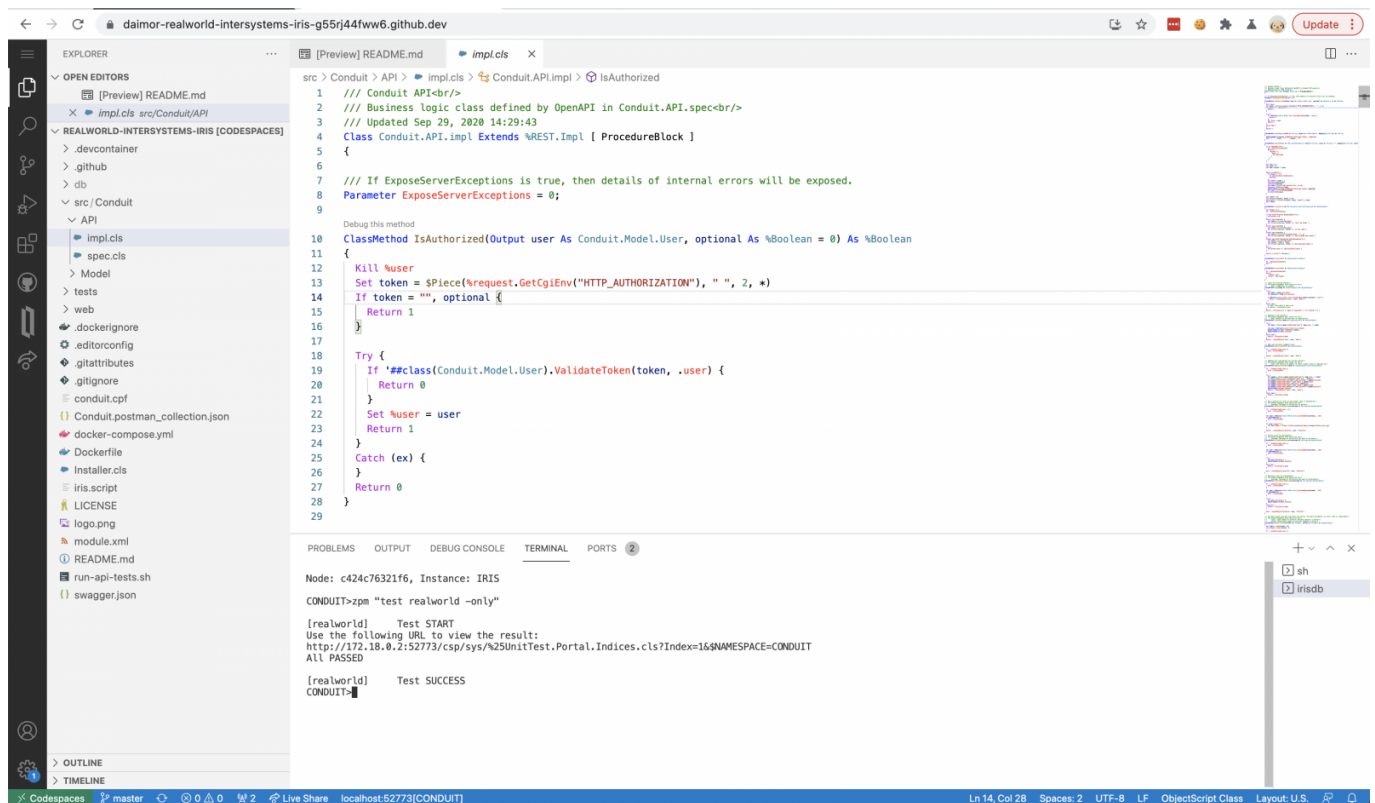
```
✓ Image found.
:: Building container...
Hide logs

ServeFilesTimeout: 3600
SuperClass:
Timeout: 900
TwoFactorEnabled: 0
Type: 2
UseCookies: 2
iKnowEnabled: 0
Done.
[realworld]    Configure SUCCESS
[realworld]    MakeDeployed START
No classes to mark as deployed.
No routines to deploy.
[realworld]    MakeDeployed SUCCESS
[realworld]    Activate SUCCESS
```

Open this codespace in VS Code Desktop

💡 **Tip** See your application running with port forwarding. [Learn more](#)

And when it started, no more actions needed, it's ready for development



This project has an option to test REST API with prepared Postman tests, so, I've installed npm and newman inside the backend container with IRIS. And it's possible to run this tests there. All passed, well done.

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS 2

- ✓ Response contains "profile" property
- ✓ Profile has "username" property
- ✓ Profile has "bio" property
- ✓ Profile has "image" property
- ✓ Profile has "following" property
- ✓ Profile's "following" property is false

❑ Tags

↳ All Tags

GET http://localhost:52773/conduit/tags [200 OK, 282B, 6ms]

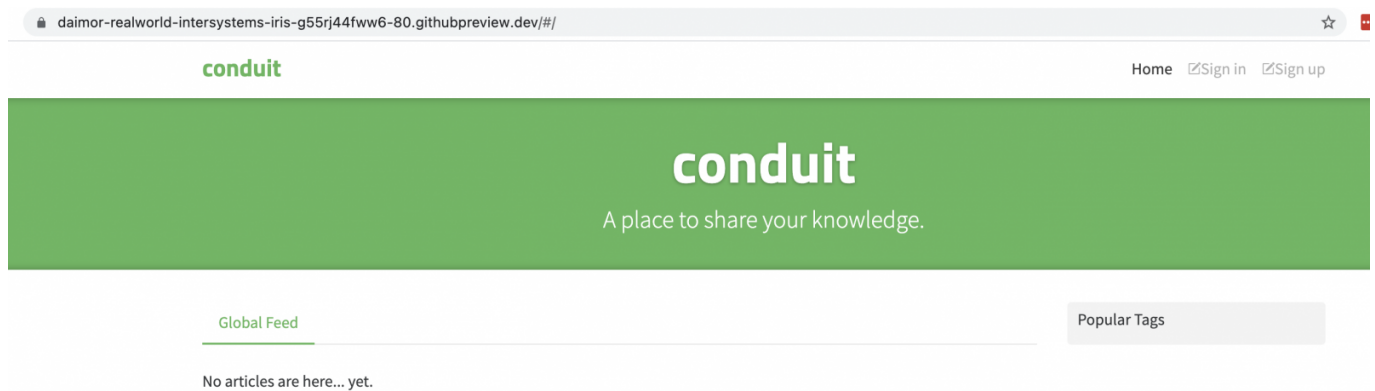
- ✓ Response code is 200 OK
- ✓ Response contains "tags" property
- ✓ "tags" property returned as array

	executed	failed
iterations	1	0
requests	31	0
test-scripts	46	0
prerequest-scripts	17	0
assertions	280	0
total run duration: 16.8s		
total data received: 7.8KB (approx)		
average response time: 18ms [min: 5ms, max: 110ms, s.d.: 26ms]		

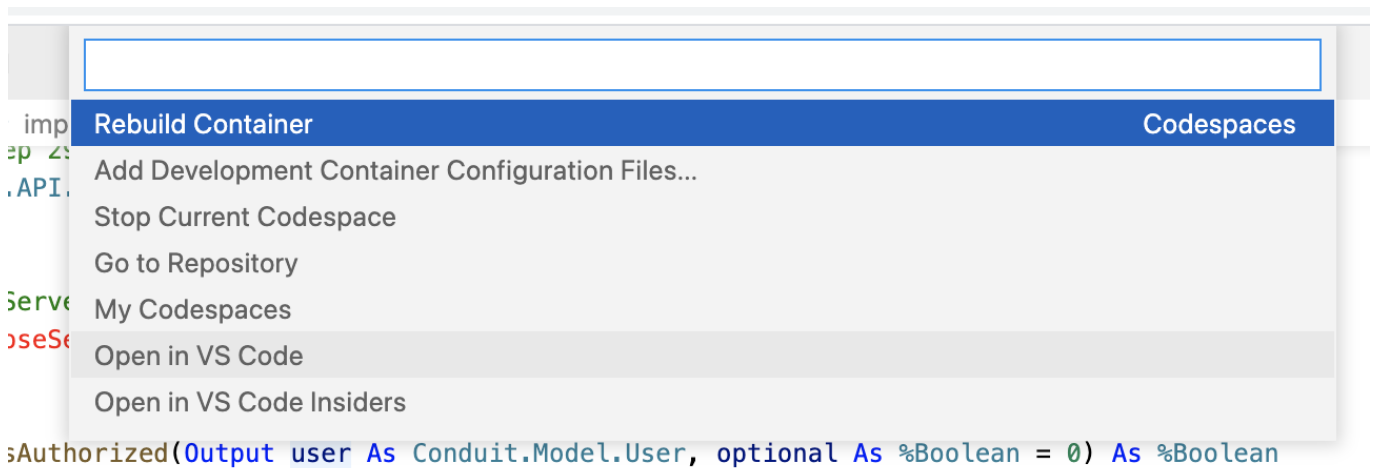
irisowner@c424c76321f6: /workspaces/realworld-intersystems-iris\$

Live Share localhost:52773[CONDUIT]

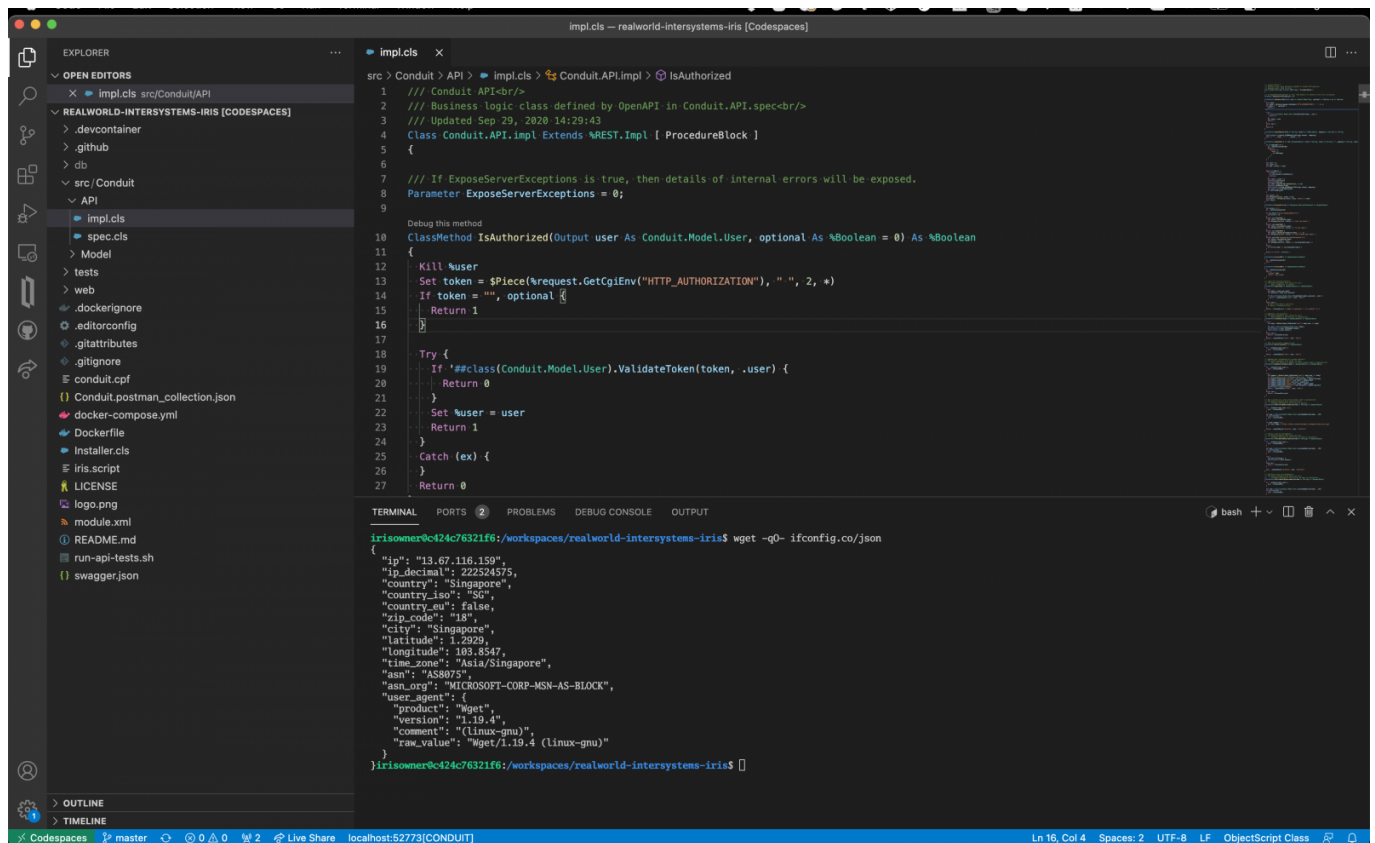
And frontend part is available



GitHub allows to connect to Codespaces, from the local VSCode as well. When you press by green Codespaces in the corner, you may choose to open in VC Code (GitHub Codespaces extension have to be installed)



And here it is, it's the same project, opened with your local VSCode, but running in the cloud, as you may see the result of ifconfig, I'm definitely not in Singapore, right now.



In browser but without GitHub Codespaces

What about if you don't have access to Codespaces feature, or don't want to use it by this way, but still would like to try VSCode in the browser.

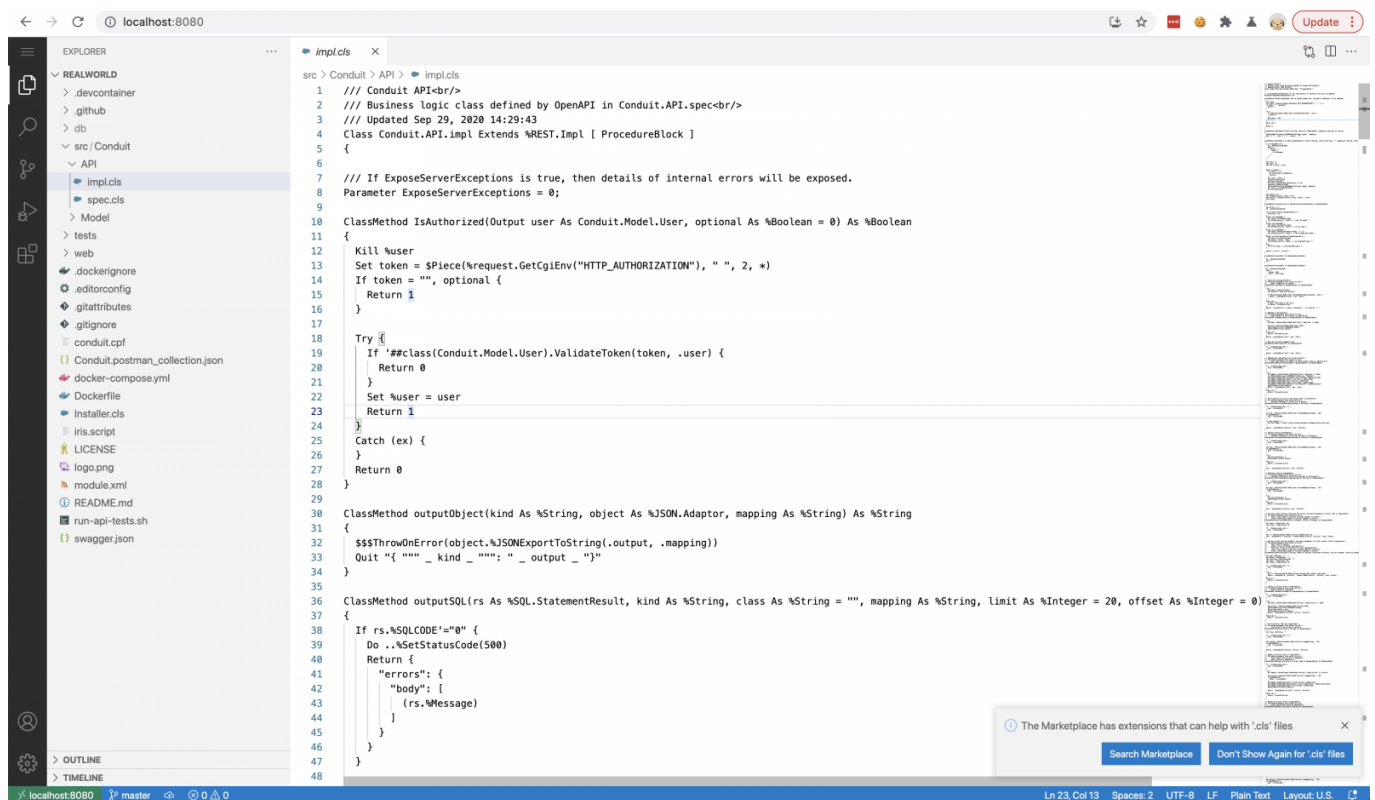
Well, it's possible with another project [code-server](#)

You can simply run this VSCode with this command

```
docker run -it -p 8080:8080 codercom/code-server --auth=none
```

It will run, the default version of VSCode, with no folders mapped inside, just mount any folder, and set it as the workdir, and you will see it inside.

```
docker run -it -p 8080:8080 -v pwd:/opt/realworld -w /opt/realworld codercom/code-server --auth=none
```



It's default VSCode, with no ObjectScript Extension installed. It has a limitation with extensions, it does not have access to original VSCode marketplace, instead it uses another place, open-vsx.org, and the main ObjectScript extension is [available](#) there as well.

With Dockerfile like this, we can bake our own Code Server, with anything installed there, as well as some extensions already installed

```
FROM codercom/code-server
```

```
USER root
```

```
RUN curl -fsSL https://deb.nodesource.com/setup_15.x | bash - && \
    apt-get install -y jq nodejs python3-pip python3-dev unixodbc-dev && \
    rm -rf /var/lib/apt/lists/* && \
    pip3 install pyodbc && \
    npm install -g yarn && \
    sudo chown -R 1000:1000 /home/coder
```

```
COPY extensions extensions
```

```
COPY settings.json /root/.local/share/code-server/User/settings.json
```

```
ENV SERVICE_URL=https://open-vsx.org/vscode/gallery
```

```
ENV ITEM_URL=https://open-vsx.org/vscode/item
```

```
RUN \
    code-server --install-extension ms-python.python && \
    code-server --install-extension intersystems-community.vscode-objectscript && \
    find extensions -type f -exec code-server --install-extension {} \;
```

```
WORKDIR /opt/intersystems
```

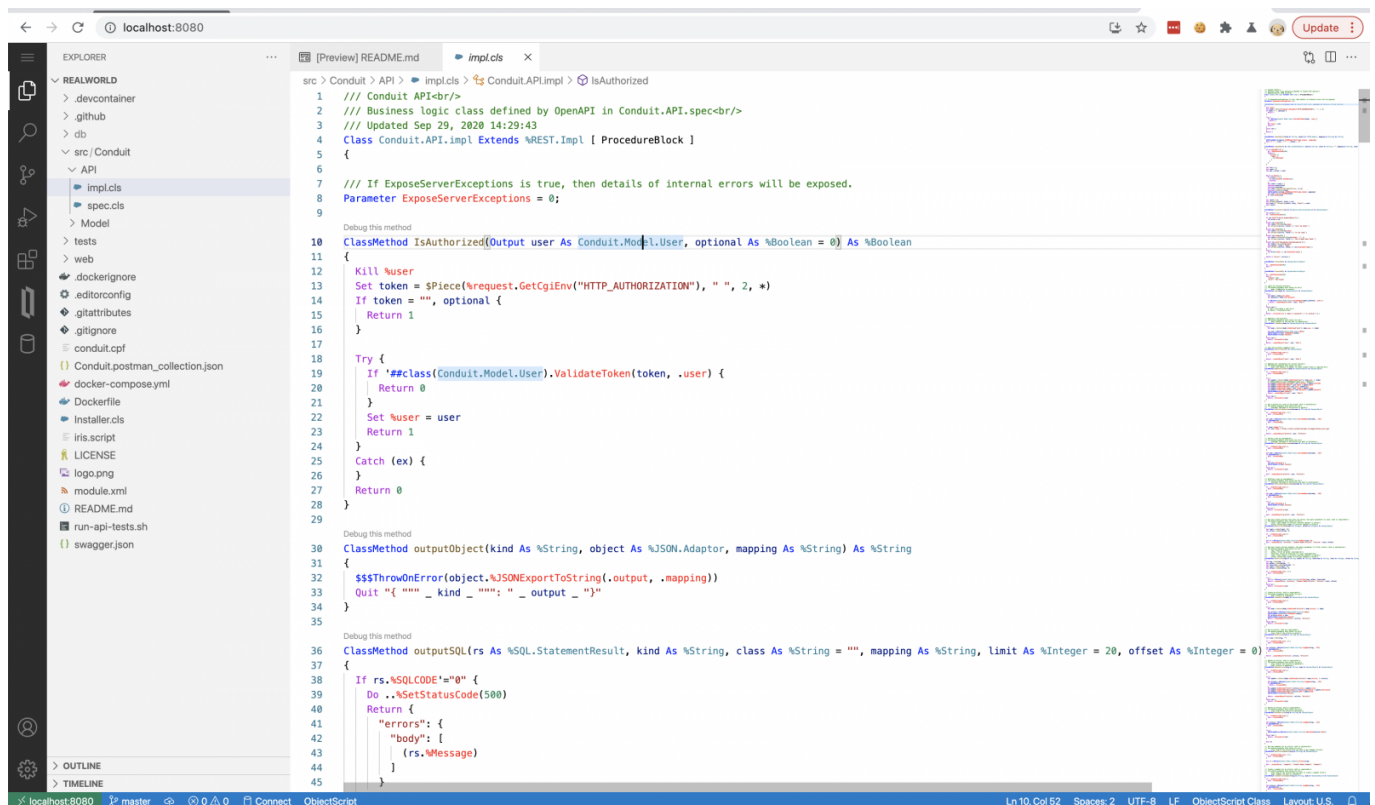
```
CMD [ "--auth=none", "--disable-telemetry" ]
```

You may define, some default settings.json for user-level and if some extensions you need not available on open-vsx, download them manually, place them to extensions folder next to Dockerfile, and you'll get them installed as well.

Now you are able to run new code-server with all extensions you need installed

```
docker run -it
-p 8080:8080 -v `pwd`: /opt/rea
lworld -w /opt/realworld caretdev/code-server --auth=none
```

And Syntax highlighting already there, the only thing is left, to run IRIS itself, and it can be done with extended docker-compose, where code-server will be just as another service next to IRIS



[#Best Practices](#) [#Development Environment](#) [#InterSystems IRIS](#) [#VSCode](#)

Source URL: <https://community.intersystems.com/post/github-codespaces-iris>