

# Troubleshooting GitHub Codespaces clients

## In this article

Troubleshooting the Visual Studio Code web client

VS Code troubleshooting

Troubleshooting JetBrains IDEs

This article provides troubleshooting information for issues you may encounter with the client you use for GitHub Codespaces.

JetBrains IDEs (Beta)   Visual Studio Code   Web browser

**Note:** Using GitHub Codespaces with JetBrains IDEs is currently in public beta and is subject to change.

## Troubleshooting the Visual Studio Code web client [↗](#)

If you encounter issues using GitHub Codespaces in a browser that is not Chromium-based, try switching to a Chromium-based browser, such as Google Chrome or Microsoft Edge. Alternatively, check for known issues with your browser in the [microsoft/vscode](#) repository by searching for issues labeled with the name of your browser, such as [firefox](#) or [safari](#).

If you encounter issues using GitHub Codespaces in a Chromium-based browser, you can check if you're experiencing another known issue with VS Code in the [microsoft/vscode](#) repository.

## Differences from working in VS Code locally [↗](#)



When you open a codespace in your browser, using the VS Code web client, you will notice some differences from working in a local workspace in the VS Code desktop application. For example, some key bindings will be different or missing, and some extensions may behave differently. For a summary, see: "[Known limitations and adaptations](#)" in the VS Code docs.

You can check for known issues and log new issues with the VS Code experience in the [microsoft/vscode](#) repository.

## Visual Studio Code Insiders [↗](#)

Visual Studio Code Insiders is the most frequent release of VS Code. It has all the latest features and bug fixes, but may also occasionally contain new issues that result in a broken build.

If you are using an Insiders build and notice broken behavior, we recommend switching to Visual Studio Code Stable and trying again.

Click  in the bottom left of the editor and select **Switch to Stable Version....** If the VS Code web client doesn't load, or  isn't available, you can force switching to Visual Studio Code Stable by appending `?vscodeChannel=stable` to your codespace URL and loading the codespace at that URL.

If the problem isn't fixed in Visual Studio Code Stable, check for known issues and, if required, log a new issue with the VS Code experience, in the [microsoft/vscode](https://github.com/microsoft/vscode) repository.

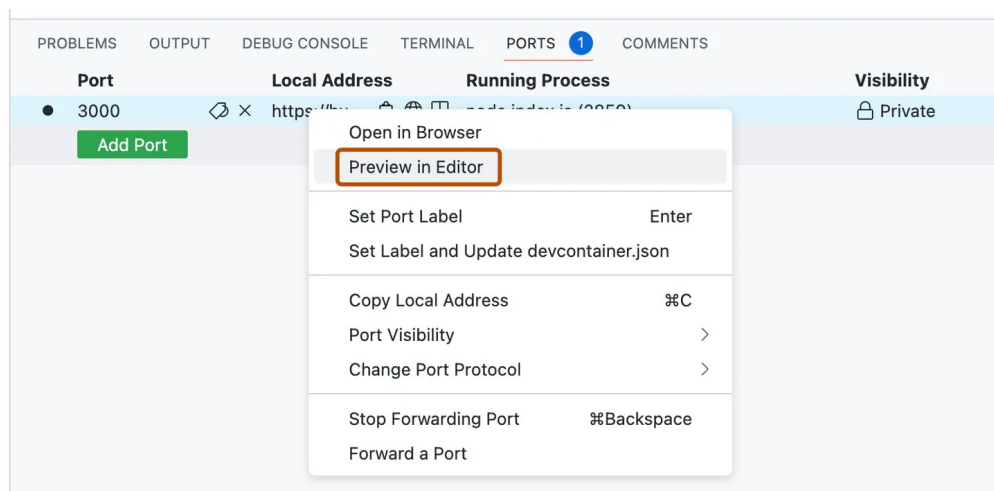
## Troubleshooting the Simple Browser

When you have started a web application in a codespace, you can preview the running application in the Simple Browser embedded in VS Code. In some projects, the application automatically opens in a Simple Browser tab in the editor when the application starts. This happens if, in the `devcontainer.json` configuration file for the codespace, the `onAutoForward` property of the port the application runs on is set to `openPreview`.

```
"portsAttributes": {
  "3000": {
    "label": "Application",
    "onAutoForward": "openPreview"
  }
}
```

If the Simple Browser tab does not open automatically, you can open the Simple Browser manually to view the application.

- 1 In VS Code, click the **Ports** tab.
- 2 Right-click the port, then click **Preview in Editor**.



## The simple browser tab does not open automatically

If the `devcontainer.json` configuration file specifies `"onAutoForward": "openPreview"` for a port, but the Simple Browser does not open automatically when an application starts, check that the application has started on the port specified in the configuration. The application might start on a different port if the intended port is busy.

To implement the port configuration specified in `devcontainer.json`, GitHub Codespaces writes the configuration to VS Code's `settings.json` file when a codespace is created. You can check that the configuration has been correctly written to `settings.json` in your codespace.

- 1 In the terminal in your codespace, enter the following command.

Bash



```
cat ~/.vscode-remote/data/Machine/settings.json
```

- 2 Verify that the `settings.json` file contains lines like the following.

```
"remote.portsAttributes": {  
  "3000": {  
    "label": "Application",  
    "onAutoForward": "openPreview"  
  }  
}
```

If the `settings.json` file doesn't contain these settings, check whether you have dotfiles enabled, and whether any configuration in your dotfiles is overwriting the `settings.json` file. For more information, see "[Personalizing GitHub Codespaces for your account](#)."

### The application does not load

Occasionally, you may find that the Simple Browser tab opens, but displays an error page icon or a blank page instead of your running application. This can happen if the web application you are loading includes a content security policy (CSP) that restricts the domains in which the site's pages may be embedded. For more information, see [CSP: frame-ancestors](#) on the mdn website.

You may be able to change your application's `frame-ancestors` security policy locally to make the application display in the Simple Browser. Alternatively, if a `frame-ancestors` policy is causing the problem, you should be able to view the application by opening it in a regular browser tab rather than the simple browser. To do this, click the **Ports** tab in VS Code, right-click the port, and click **Open in Browser**.

## VS Code troubleshooting

When you open a codespace in the VS Code desktop application, you may notice a few differences compared with working in a local workspace, but the experience should be similar.

If you encounter problems, you can check for known issues and log new issues with the VS Code experience in the [microsoft/vscode](#) repository.

### Visual Studio Code Insiders

Visual Studio Code Insiders is the most frequent release of VS Code. It has all the latest features and bug fixes, but may also occasionally contain new issues that result in a broken build.

If you are using an Insiders build and notice broken behavior, we recommend switching to Visual Studio Code Stable and trying again.

To switch to Visual Studio Code Stable, close the Visual Studio Code Insiders application, open the Visual Studio Code Stable application, and re-open your codespace.

If the problem isn't fixed in Visual Studio Code Stable, check for known issues and, if required, log a new issue with the VS Code experience, in the [microsoft/vscode](#)

repository.

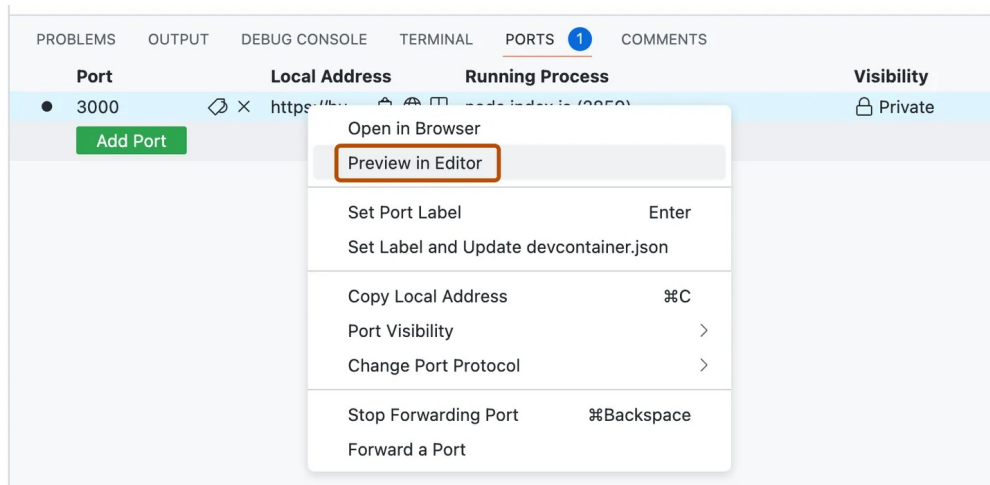
## Troubleshooting the Simple Browser [↗](#)

When you have started a web application in a codespace, you can preview the running application in the Simple Browser embedded in VS Code. In some projects, the application automatically opens in a Simple Browser tab in the editor when the application starts. This happens if, in the `devcontainer.json` configuration file for the codespace, the `onAutoForward` property of the port the application runs on is set to `openPreview`.

```
"portsAttributes": {  
  "3000": {  
    "label": "Application",  
    "onAutoForward": "openPreview"  
  }  
}
```

If the Simple Browser tab does not open automatically, you can open the Simple Browser manually to view the application.

- 1 In VS Code, click the **Ports** tab.
- 2 Right-click the port, then click **Preview in Editor**.



## The simple browser tab does not open automatically [↗](#)

If the `devcontainer.json` configuration file specifies `"onAutoForward": "openPreview"` for a port, but the Simple Browser does not open automatically when an application starts, check that the application has started on the port specified in the configuration. The application might start on a different port if the intended port is busy.

To implement the port configuration specified in `devcontainer.json`, GitHub Codespaces writes the configuration to VS Code's `settings.json` file when a codespace is created. You can check that the configuration has been correctly written to `settings.json` in your codespace.

- 1 In the terminal in your codespace, enter the following command.

Bash

```
cat ~/.vscode-remote/data/Machine/settings.json
```

- 2 Verify that the `settings.json` file contains lines like the following.

```
"remote.portsAttributes": {
  "3000": {
    "label": "Application",
    "onAutoForward": "openPreview"
  }
}
```

If the `settings.json` file doesn't contain these settings, check whether you have dotfiles enabled, and whether any configuration in your dotfiles is overwriting the `settings.json` file. For more information, see "[Personalizing GitHub Codespaces for your account](#)."

## The application does not load

Occasionally, you may find that the Simple Browser tab opens, but displays an error page icon or a blank page instead of your running application. This can happen if the web application you are loading includes a content security policy (CSP) that restricts the domains in which the site's pages may be embedded. For more information, see [CSP: frame-ancestors](#) on the mdn website.

You may be able to change your application's `frame-ancestors` security policy locally to make the application display in the Simple Browser. Alternatively, if a `frame-ancestors` policy is causing the problem, you should be able to view the application by opening it in a regular browser tab rather than the simple browser. To do this, click the **Ports** tab in VS Code, right-click the port, and click **Open in Browser**.

## Troubleshooting JetBrains IDEs

### Performance issues

A GitHub Codespaces machine type with at least 4 cores is recommended for running any of the JetBrains IDEs. For more information, see "[Changing the machine type for your codespace](#)."

If you are using a machine with 4 or more cores and the performance you are experiencing in JetBrains feels a little sluggish, you may need to increase the maximum Java heap size.

The recommended heap size varies according to the machine type of your codespace.

Machine type	Maximum heap size
4 core, 16 GB RAM	2048 MiB
8 core, 32 GB RAM	4096 MiB
16 cores, 64 GB RAM	8192 MiB
32 cores, 128 GB RAM	16,384 MiB

If the heap size is below the recommended value, a message is displayed when your codespace starts, suggesting that you increase the heap size. You can click the link in the message to increase the heap size automatically.

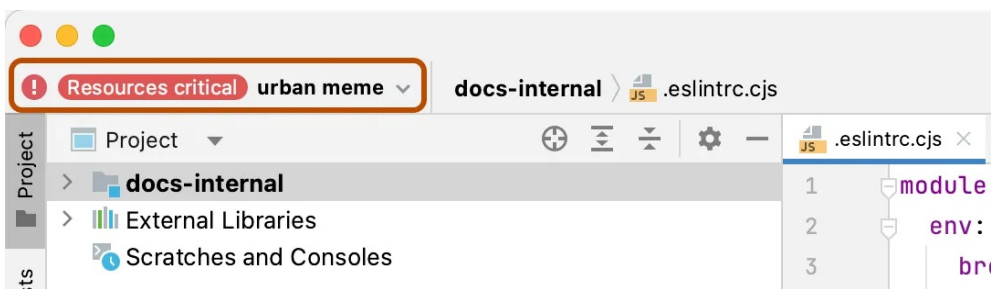
⚠ The recommended heap size for a machine this size is 16384 MiB but the current setting is 2048 MiB. Performance may be degraded. It is...

↶ Update heap size and restart IDE

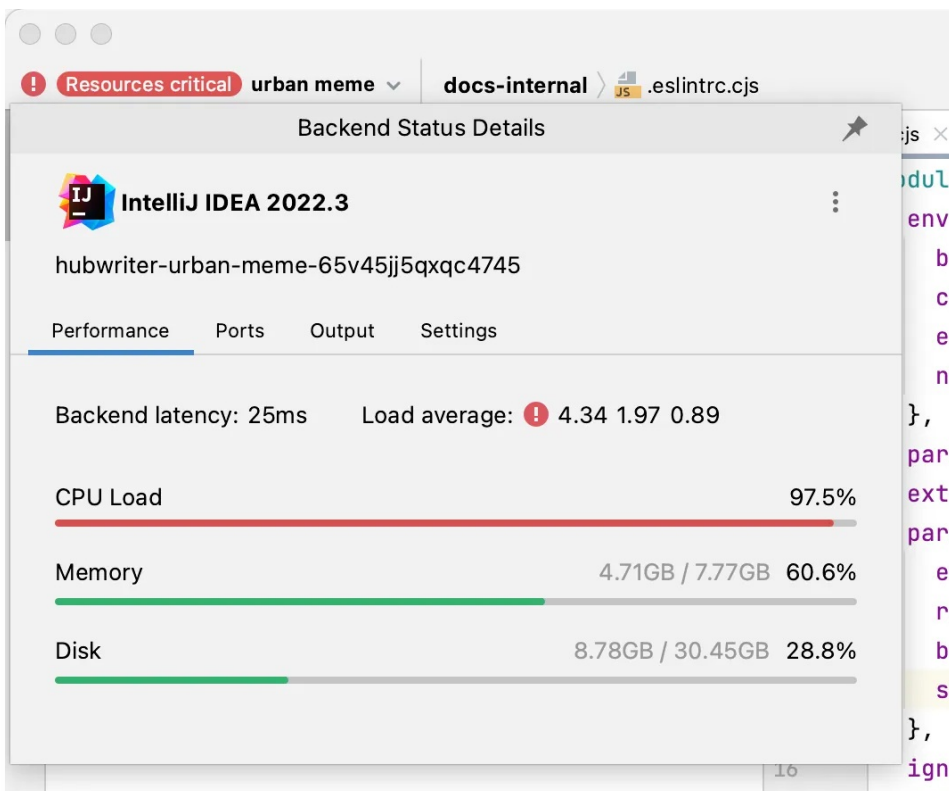
(D) ↑352 B/s / ↓8.79 kB/s LF UTF-8 2 spaces\* main

Depending on the size of your codebase, and the memory needed to run your application, you may need to increase the heap size further. You should set the heap size to somewhere between the size shown in the table above and 60% of the remote host's RAM. If you have a large application, you should not set too large a heap size, so that you allow the application adequate memory.

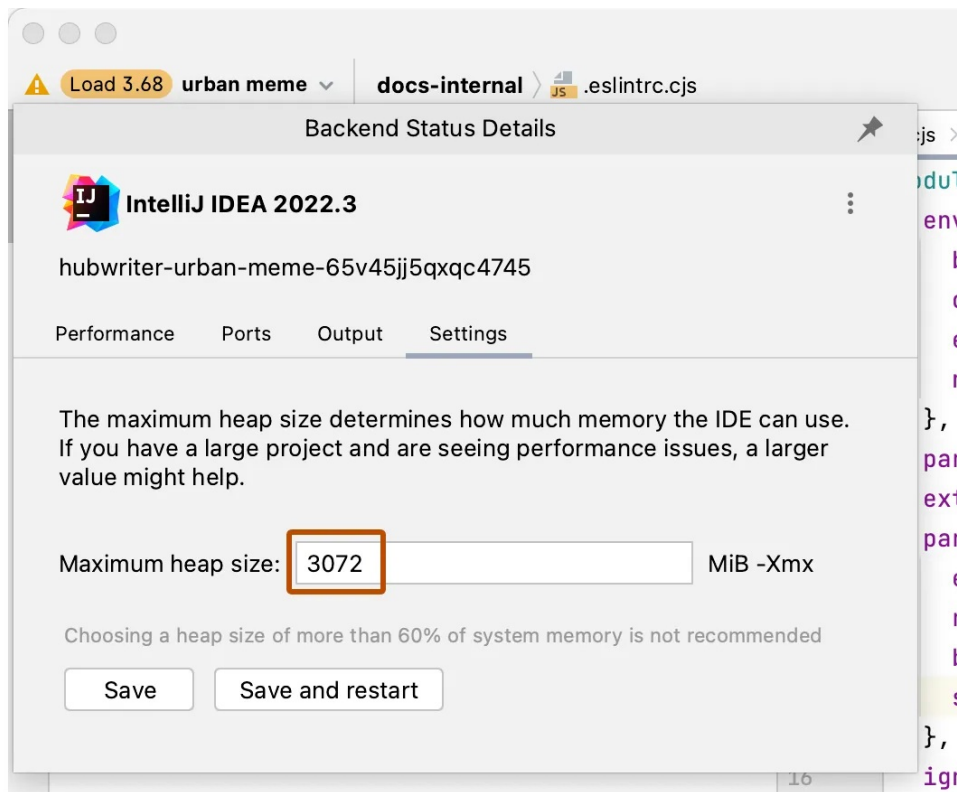
- 1 On the left of the navigation bar, at the top of the application window, click the name of the codespace.



- 2 In the Performance tab, note the CPU Load and Memory details. These will indicate whether the machine is overloaded.



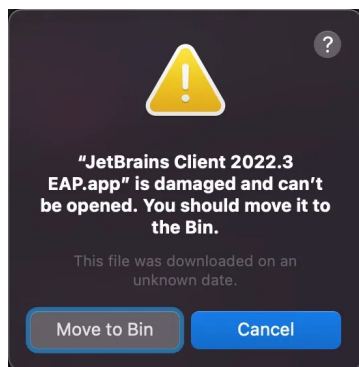
- 3 Click the Settings tab and edit the heap size, increasing it to no more than 60% of the available memory for your codespace.



- 4 Click **Save and restart**.

## Client can't be opened in MacOS Ventura [🔗](#)

In MacOS Ventura, using versions of the JetBrains Gateway prior to version 2022.3, the first time you try to connect to a codespace from the JetBrains Gateway a message was displayed telling you that the JetBrains client application "is damaged and can't be opened."



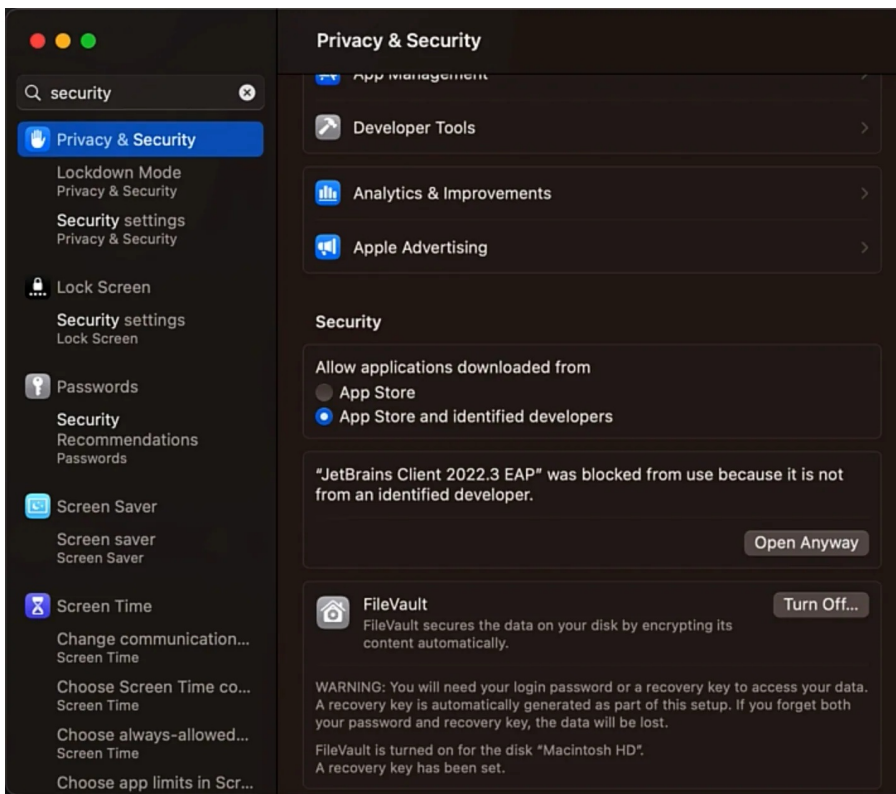
This issue is fixed in the JetBrains Gateway, version 2022.3 and later.

To avoid this issue, update the JetBrains Gateway.

To work around this problem with older versions of the Gateway:

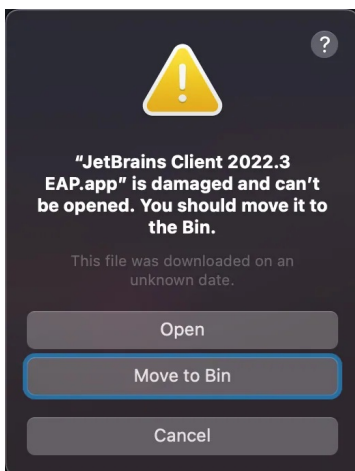
- 1 Click **Cancel** to dismiss this message.
- 2 Click the Apple icon, top left of the screen, and click **System Settings**.
- 3 Click **Privacy & Security** and scroll down to the "Security" section.





You will see a message telling you that the JetBrains Client was blocked from use.

- 4 Click **Open Anyway** to add the JetBrains client to your recognized applications. The message is displayed again but this time with an **Open** button.



- 5 Click **Cancel** again.
- 6 Go back to the JetBrains Gateway application and connect to the required codespace again. The JetBrains client will now open successfully. Having authorized the client application to run on your Mac, you will not see the message when you connect to your codespaces in future.

## SSH connection issues [🔗](#)

To connect via the SSH server running in your codespace, you must have an SSH key in your `~/.ssh` directory (MacOS and Linux) or `%HOMEPATH%\ .ssh` directory (Windows) that has already been added to your GitHub account. If you do not have any keys in this directory, GitHub CLI will generate keys for you. For more information, see "[Adding a new SSH key to your GitHub account](#)."



If you encounter problems with key validation, try upgrading your version of GitHub CLI.  
For information, see the [upgrade instructions](#) in the README for GitHub CLI.

## JetBrains IDE issues

For help with issues specific to the JetBrains IDE you are using, or the JetBrains Gateway application, see "[Product Support](#)" on the JetBrains website.

## Legal

© 2023 GitHub, Inc. [Terms](#) [Privacy](#) [Status](#) [Pricing](#) [Expert services](#) [Blog](#)