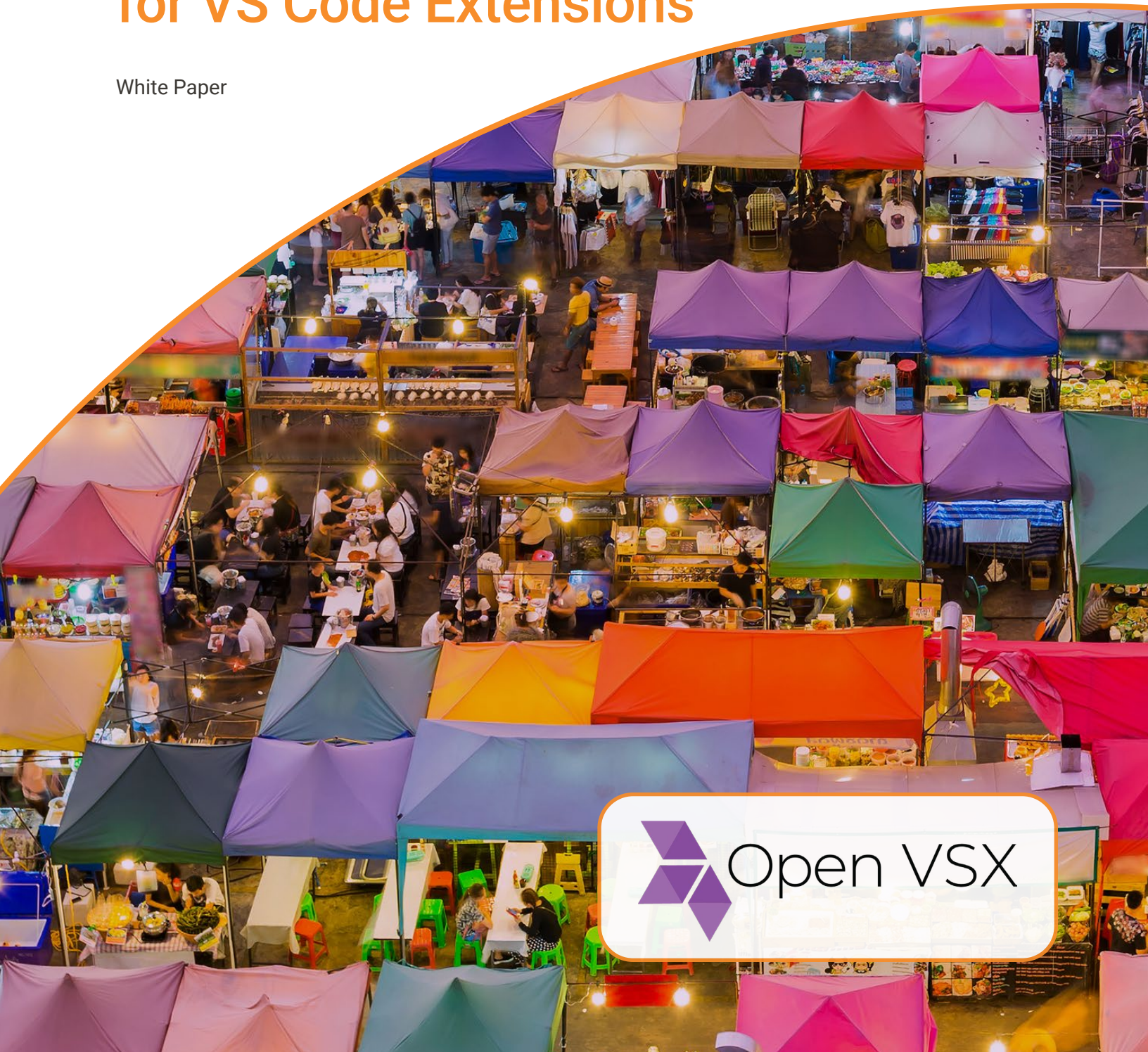




Open VSX Registry: A Vendor-Neutral, Open Source Marketplace for VS Code Extensions

White Paper



Open VSX



The [Open VSX Registry](#) is a vendor-neutral and publicly hosted open source alternative to the Microsoft Visual Studio Marketplace for VS Code extensions. Powered by the Eclipse Open VSX project, it addresses the industry's need for a more flexible and open approach to VS Code extensions and marketplace technologies.

Why the Microsoft Visual Studio World Needs Eclipse Open VSX



Today, there's growing momentum around open source tools and technologies to support VS Code extensions. Leading global organizations are adopting these tools and technologies for internal use and also as the basis for commercial offerings. This surge in momentum has created a need for a marketplace resembling Microsoft Visual Studio Marketplace in look and function, but without its limitations.

Undoubtedly, Microsoft Visual Studio Marketplace stands as a vital developer resource. Boasting over 40,000 Visual Studio (VS) Code extensions, it ranks among the world's most popular cloud developer resources. The extensions are freely accessible through a user-friendly, searchable website. However, the Visual Studio Marketplace does come with certain limitations:

- License restrictions. The terms of use for the Visual Studio Marketplace state that only Microsoft VS products can access and use extensions. This confines developers to Microsoft VS products, leaving no room for leveraging extensions with other tools or technologies. In short, developers are locked in to Microsoft VS products.
- Proprietary marketplace source code. Microsoft does not provide access to the source code for the marketplace itself. Consequently, the source code can't be repurposed to establish an internal extension registry for developers or to contribute enhancements to the marketplace.

These limitations severely restrict the capabilities of organizations embracing open source developer tools and technologies.

In contrast to the Visual Studio Marketplace, the Open VSX Registry offers free access to extensions that can be used with any technology or tool that supports them — from VS Code and forks of VS Code like VSCodium, to open source solutions like Eclipse Che and Eclipse Theia, as well as commercial offerings like Salesforce Code Builder, Google Cloud Workstations, Gitpod, and SAP Business Application Studio. They can even create an internal, private extension repository that's connected to the upstream public Open VSX Registry.



Eclipse Open VSX source code is openly available, allowing anyone to reuse and enhance the marketplace technology to meet their specific needs.

Industry Leaders Embrace Open Source Solutions

With the industry increasingly leaning on and commercializing open source tools and technologies for VS Code extensions, the demand for an open source marketplace continues to grow. Here are five examples that highlight the industry's enthusiasm for open source tools and technologies that support VS Code extensions.

[Eclipse Theia](#) is an extensible platform that allows organizations to develop their own multi-language cloud and desktop IDEs using a single, open source technology stack. Combining many of the VS-Code user interface traits with a modular architecture, Eclipse Theia permits extensive customizations beyond what VS Code offers. Notably, Eclipse Theia is the basis for well-known industry offerings, including:

- Arm Mbed Studio
- Arduino Pro IDE
- Red Hat CodeReady Workspaces
- Google Cloud Shell
- Killercoda
- IBM Merlin

Eclipse Che is the world's first Kubernetes-native IDE designed to enable developers to build cloud native applications. By streamlining workspace configuration complexities and challenges inherent to Kubernetes-native development, it accelerates and simplifies the process for developer teams to create cloud native applications. Eclipse Che also integrates the Eclipse Theia software to deliver an in-browser VS Code experience. Notably, Eclipse Che forms the basis for renowned industry offerings, including:

- IBM Cloud Pak for Applications
- IBM Wazi
- Red Hat OpenShift Dev Spaces
- SAP Hana Cloud

VSCodeium is a fully open source alternative to VS Code, distinguishing itself by its non-collection of telemetry data concerning usage patterns. Unlike VS Code, which gathers and transmits usage data to Microsoft as a default behavior, VSCodeium offers a privacy-focused approach. With an impressive 21,000+ stars on GitHub, it's enjoying a surge of popularity.



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Gitpod is an open source Kubernetes application that optimizes developer workflows through prebuilt, collaborative development environments accessible via a browser. This empowers developers to conduct code reviews, mentor peers, exchange reproducible workspaces, and engage in various collaborative tasks seamlessly.

Gitpod is used by leading global players, including:

- Amazon
- Facebook/Meta
- Google
- Intel
- Uber

The **Coder code-server software** enables developers to run VS Code on any machine, anywhere, and conveniently access it through a web browser. With over 50 million pulls on Docker Hub and amassing more than 62,000 stars on GitHub, its popularity speaks volumes.

Open VSX Opens New Windows of Opportunity



According to Sven Efftinge, co-lead for the Eclipse Theia and Eclipse Open VSX projects, platforms such as Eclipse Theia simply don't make sense without the ability to add extensions. "It makes no difference that the software is open source if it can't be used by downstream adopters and inventors simply because they can't install extensions," he says. "Besides, it would be a very boring landscape if no one tries to innovate on top of what Microsoft does."

The Open VSX Registry increases transparency and flexibility for extension users, extension publishers, and tool developers. Now, let's take a closer look at the differences between the two and explore the unique advantages that the Open VSX Registry brings to the table.

Vendor-Neutral Hosting and Governance Create a Level Playing Field for All

The Open VSX Registry is hosted at the Eclipse Foundation, a vendor-neutral, not-for-profit organization

that provides a proven governance framework and processes for entrepreneurial collaboration.

No single company or vendor owns the registry servers, operates the service, or has more control over the service than any other participant:

- A governance framework, including Bylaws, a Membership Agreement, Intellectual Property Policy, Antitrust Compliance Policy, and additional policies ensure equality among all participants.

- Processes for project development, specifications, and working group operation ensure all stakeholder companies, organizations, and individuals can work together for their mutual benefit.

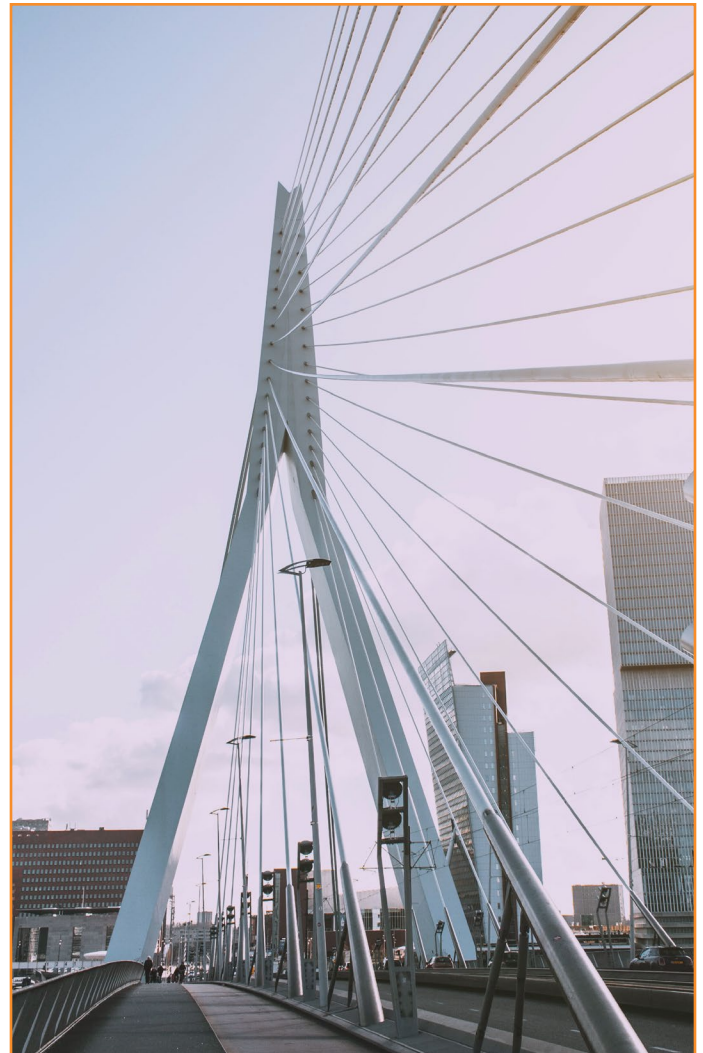
In contrast, Microsoft alone has complete control over the Visual Studio Marketplace and the code therein. While there is no indication it will happen, Microsoft could, at their sole discretion and at any time, decide to start charging fees for access to extensions, stop developing the marketplace software, or completely shut down the marketplace.

Truly Open Source Software Allows Anyone to Participate

All software projects hosted at the Eclipse Foundation, including Eclipse Open VSX, are available as open source. That means any individual or organization can:

- Participate in feature, functionality, and design discussions to influence how the registry evolves. This helps to ensure the registry continues to align with participants' top priorities. Final decisions are made by the community, following established and proven processes so no single ecosystem participant can dominate the strategic direction. Each participant has one vote, no matter how big or small the organization they represent.
- Contribute code to the registry to add features and functionality, fix bugs, or enhance existing functionality. Committers, who are chosen by community members based on merit, work

with contributors to validate the code before committing it to the source code repository.



Increased Publisher Transparency Avoids Conflicts

Within the Open VSX Registry, namespaces serve as markers to identify extension publishers. Upon creating a namespace, the publisher automatically becomes a contributor, granting them the capability to publish extensions to that specific namespace.

Initially, the namespace has no owner, and is marked as unverified. Ownership is claimed by initiating a GitHub issue. Upon confirmation, the namespace's status shifts to verified, giving the owner authority over publishing rights within that namespace. Each extension's webpage on open-vsx.org clearly displays its verification status, along with the associated GitHub account used for publishing.

These measures establish a public record of ownership, while allowing anyone to report concerns with an ownership claim. The transparency of extension publishers and ownership claims reinforces confidence in the offerings of the Open VSX Registry.

In contrast, the Microsoft Visual Studio Marketplace grants immediate ownership to extension publishers, without room for objections or challenges from other publishers.

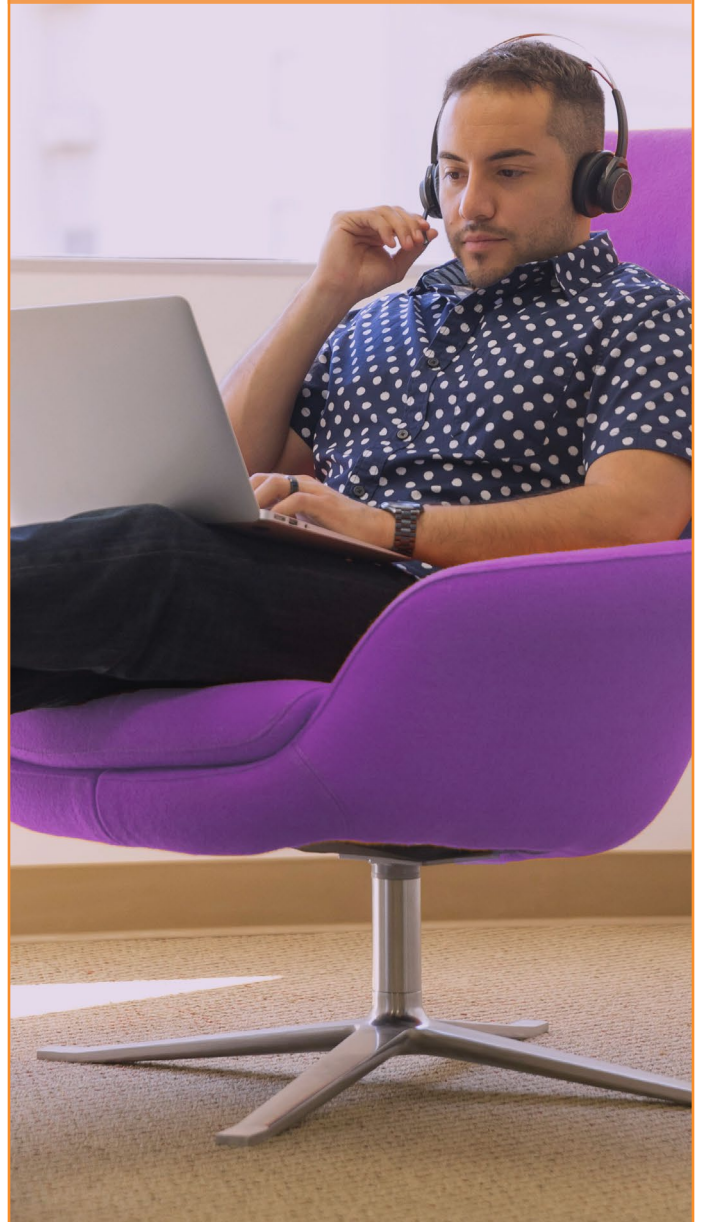
Even the Registry Is Open Source to Allow for In-House Hosting

Given that the Eclipse Open VSX code itself is open source, any organization can not only contribute to the registry code, but also reuse it to create an internally hosted extension registry for their in-house developers to publish VS Code extensions.

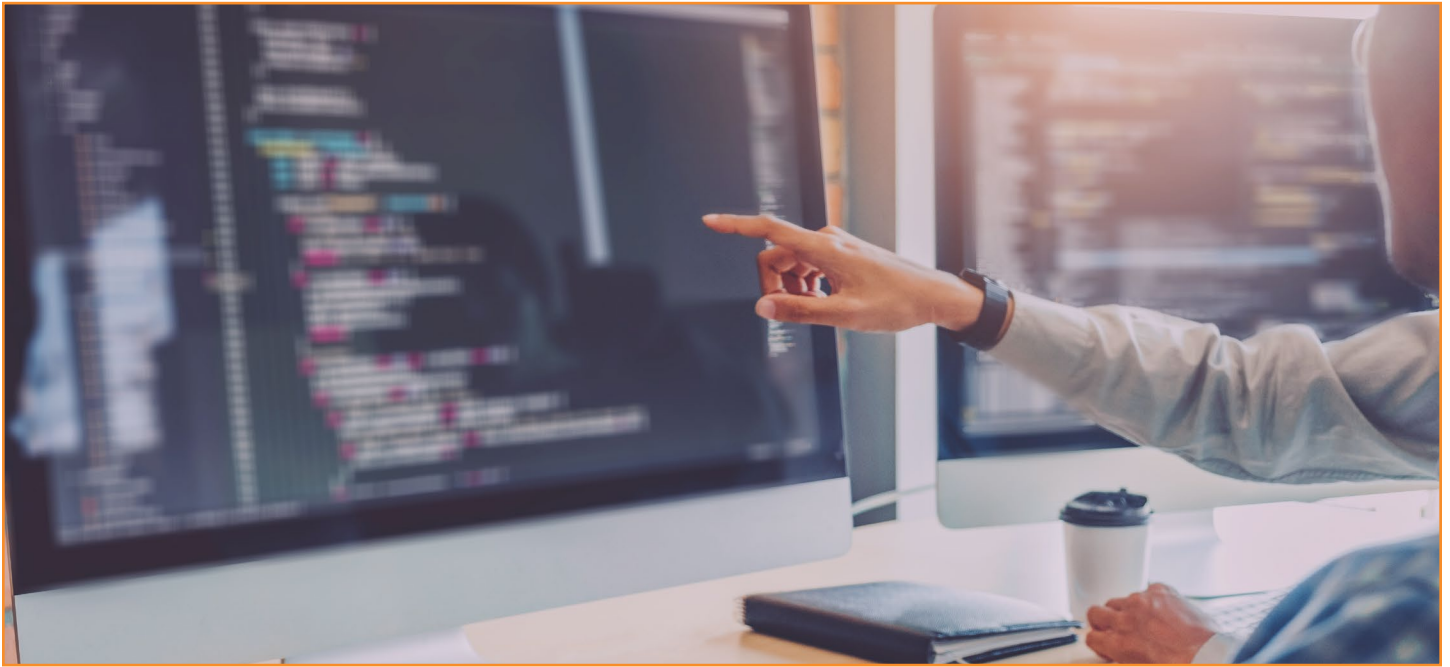
In contrast, Microsoft does not provide the source code for the Microsoft Visual Studio Marketplace, so there's no opportunity to leverage the technology to host an in-house extension registry or contribute to the improvement of the platform.

The next section provides more detail about deployment options for the Open VSX Registry.

The Eclipse Open VSX code itself is open source. Any organization can reuse it to create an internally hosted extension registry for their VS Code extensions.



The Open VSX Registry Benefits All Types of Users



The Open VSX Registry offers an array of functionalities that make life easier for extension users, publishers, tool developers and organizations implementing an internal extension registry. These collective features contribute to amplifying developer satisfaction, a vital concept for developers and the organizations they contribute to.

For Extension Users: An Intuitive User Interface for Effortless Extension Discovery

From a usability perspective, the Open VSX Registry closely mirrors the Visual Studio Marketplace. Icons identify extensions and publishers, while star ratings are provided for each extension. Extensions can be found by name, tag, or description, filtered by category, and sorted by various criteria (Figure 1).

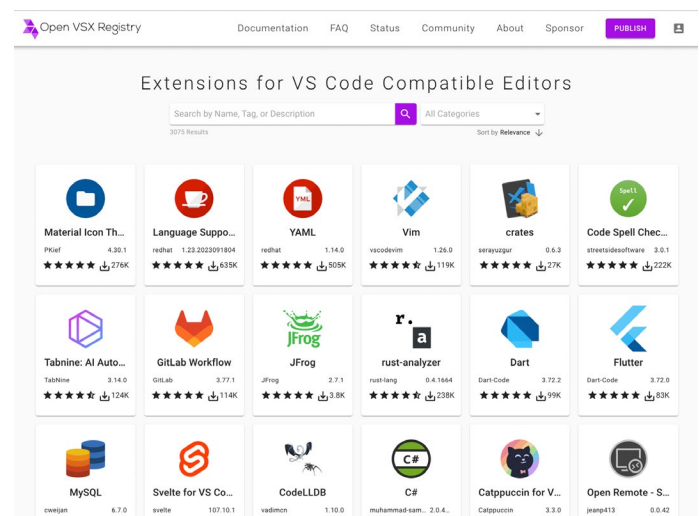


Figure 1: The Open VSX Registry User Interface

Accessing the Open VSX Registry from within development tools is a straightforward process. The registry already serves as the default extension repository for Eclipse Theia, Gitpod, and VSCode. It's equally simple to incorporate it as the default extension registry in VS Code derivatives.

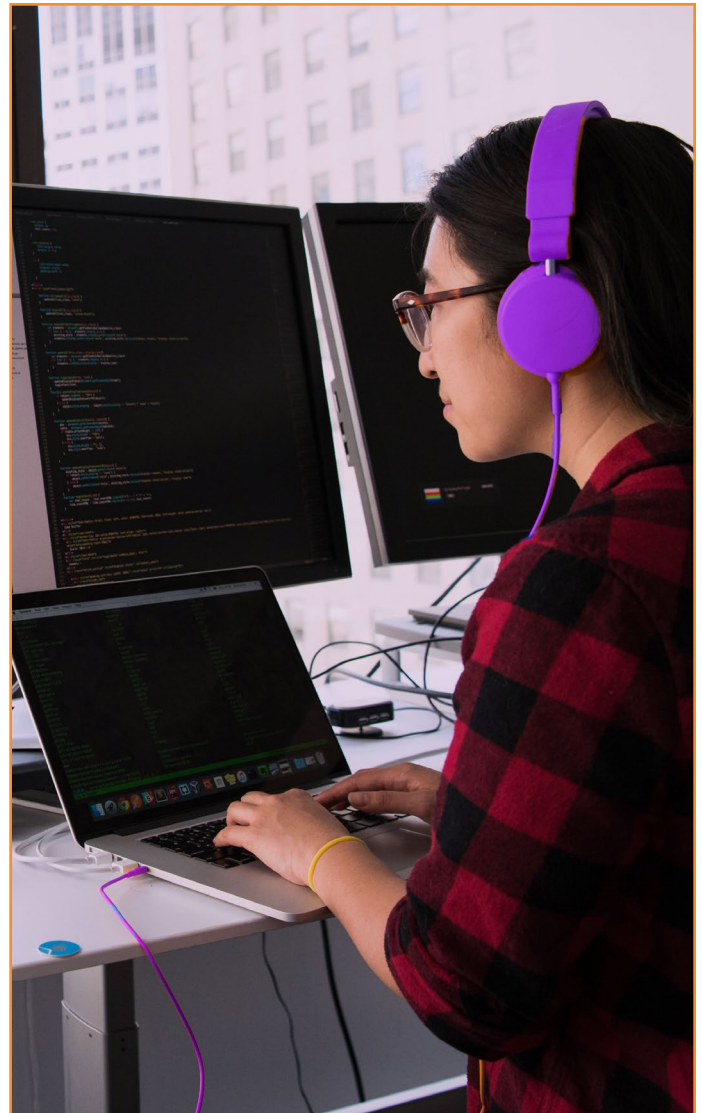
For Extension Publishers: Broadening Audience Reach with Minimal Effort

By adding their VS Code extensions into the Open VSX Registry, publishers can substantially expand their audience with minimal additional effort.

Publishing onto the Open VSX Registry involves just four easily manageable steps, well-documented for clarity:

- Create an Eclipse Foundation account and sign the Publisher Agreement. These are one-time tasks that do not need to be repeated.
- Create an access token.
- Create the namespace.
- Package and upload the extension.

Broadcom, a global leader in semiconductors and infrastructure software products, has published several extensions in the Open VSX Registry. Venkat Balabhadrapatruni, distinguished engineer and chief architect for Mainframe DevOps at Broadcom, emphasizes that publishing to the Open VSX Registry gives Broadcom's customers the flexibility to choose the optimal tools for their businesses. the optimal tools for their businesses.



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“We have customers using VS Code and customers using cloud-based IDEs, such as Eclipse Che and other tools,” he explains. “We want to keep development tooling as open as possible for these customers and do not want to prescribe a specific set of tools. Rather, our goal is to enable them with choices so they can pick and choose the development tools that meet their needs. Publishing extensions to the Open VSX Registry gives Broadcom’s customers maximum flexibility.”

Balabhadrapatruni also says the publishing experience has been positive. “I think it took less than an hour from the time of the initial request to the time we had an extension published in the registry,” he says. “The feedback I received was that publishing was really easy. There’s just no good reason not to publish extensions to the Open VSX Registry.”

For Tool Developers: Easy Integration With All Developer Tools

The Open VSX Registry provides a user-friendly REST API, enabling effortless integration of registry access into any IDE, desktop tool, or online tool. This comprehensive API comprises REST endpoints designed for namespace creation, publishing, metadata retrieval, and efficient search capabilities.

Miro Spönemann, co-lead of the Eclipse Open VSX project, points out this is the first time tool developers outside of Microsoft can integrate access to VS Code extensions into their solutions. “With this public API, any developer can provide their users with access to VS Code extensions,” he says. “This is a significant new capability that will help developers add value to their solutions.”

For Enterprises: Customizable Deployment Solutions for Internal Registries

Organizations adopting the open source registry software have full flexibility in designing their internal extension registry to align with operational needs and strategic goals. The following examples illustrate how this flexibility can be harnessed:

- An in-house repository for both proprietary and approved third-party extensions catering to developer requirements.
- An internal extension repository that's connected to the upstream public Open VSX Registry (as depicted in Figure 2). This approach allows organizations to keep their internal extensions private, while still granting access within the corporate network to the broader public registry.

To simplify internal deployments, the three components that comprise Eclipse Open VSX are based on standard libraries and frameworks:

- The server app harnesses the Spring Java framework, the open source PostgreSQL database, and the Elasticsearch search engine.
- The web app is structured around the React JavaScript library and Material-UI.
- The command line tool relies on the NodeJS JavaScript runtime and Visual Studio Code Extensions (vsce), the command line tool provided by Microsoft for publishing to its marketplace.

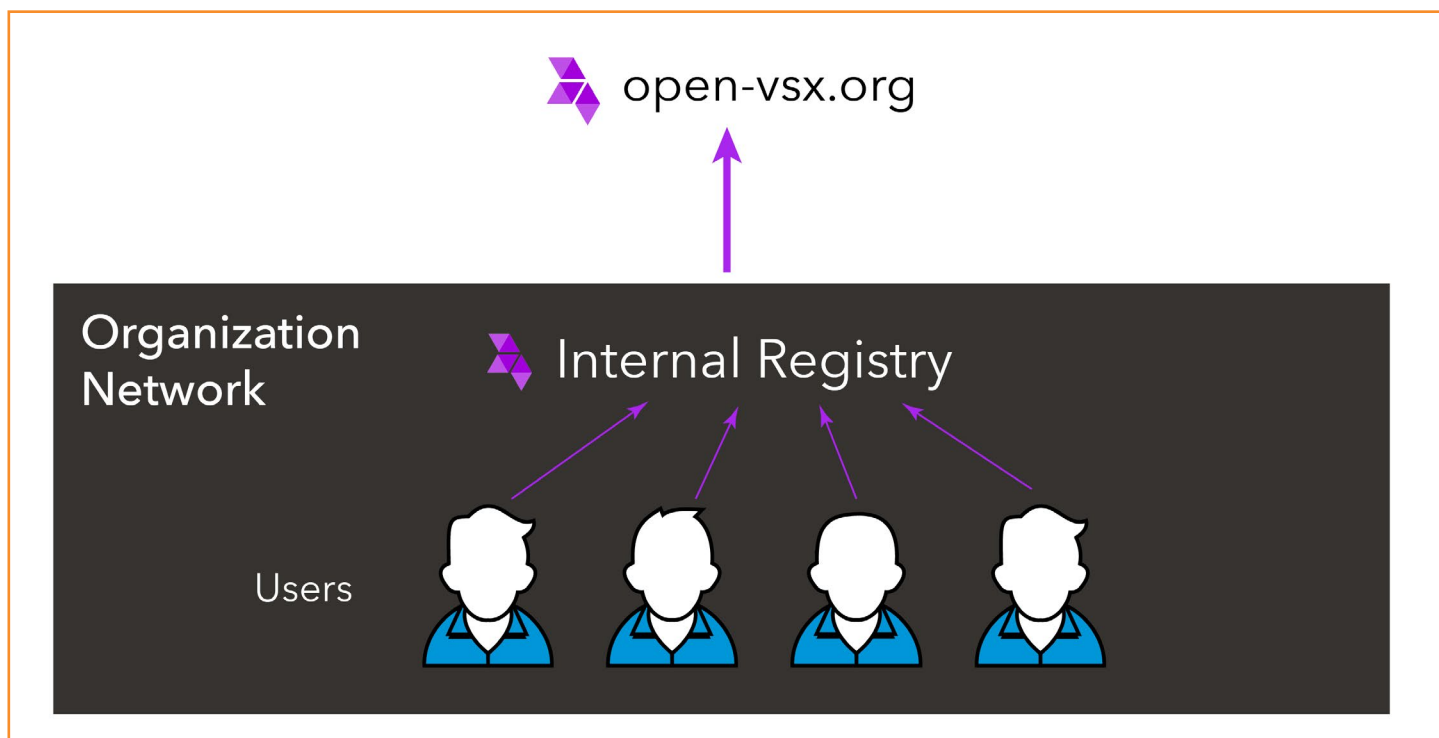


Figure 2: Providing Access to Internal and Public Extension Registries

The Eclipse Open VSX Working Group Shapes the Future of the Open VSX Registry

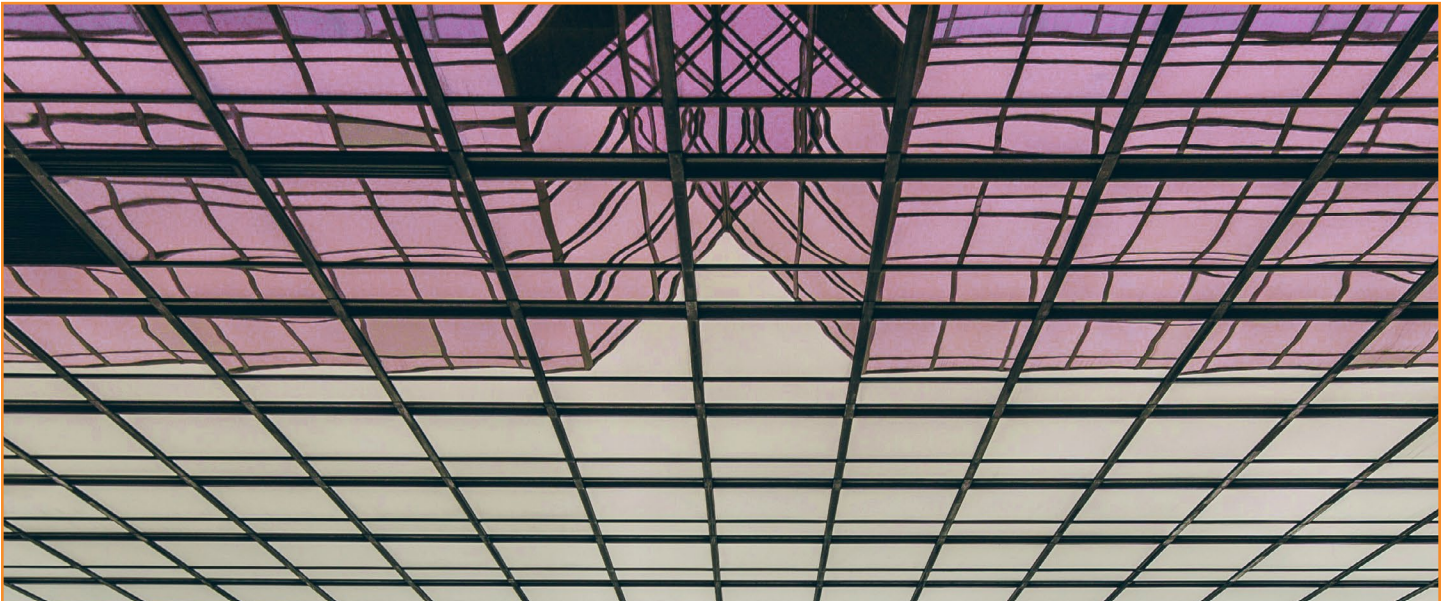


The Eclipse Open VSX Working Group oversees the management, evolution and adoption of the Open VSX Registry. It provides a vendor-neutral ecosystem, welcoming all stakeholders to engage in developing the Eclipse Open VSX project, alongside the deployment, management, and upkeep of the Open VSX Registry.

The mission of the Open VSX Working Group is to ensure the ongoing sustainability, integrity, evolution, and adoption of the Open VSX Registry. It achieves this by offering governance, guidance, and funding to the communities involved in implementing, deploying, maintaining, and embracing the Eclipse Foundation's Open VSX Registry at open-vsx.org.

Comprising prominent corporations like Google, Salesforce, Huawei, Posit, Siemens, and STMicroelectronics, the working group exemplifies extensive industry engagement. This widespread

participation underscores the industry's recognition of the benefits arising from a well-governed, vendor-neutral approach to open source collaboration.



Open VSX Members



Get Involved Today

There are various ways individuals and organizations can benefit from and engage with Eclipse Open VSX or any of the 425+ projects hosted by the Eclipse Foundation. These options range from downloading and using the software anonymously to contributing enhancements and influencing strategic direction through Eclipse Foundation membership.

Benefits of membership in the Eclipse Foundation include:

- Proven processes and best practices for open source software development
- Intellectual property management and licensing services that enable entrepreneurial collaboration and commercialization of open source software
- Mentorship, guidance, and expertise in creating and managing open source projects and in community building and support
- Marketing services that increase project visibility

Learn More

Discover the benefits of getting involved with the Eclipse Open VSX Working Group.

To learn more about the Open VSX Registry, visit the [project website](#) and the [public marketplace](#).

For more information about the different ways to get involved in the Eclipse Foundation, follow the links on [this page](#).

To learn more about the benefits of becoming a member of the Eclipse Foundation, visit our [membership page](#).



About the Eclipse Foundation

The Eclipse Foundation provides its global community of individuals and organizations a mature, scalable, and business-friendly environment for open source software collaboration and innovation.

The Foundation is home to the Eclipse IDE, Jakarta EE, and more than 425 open source projects, including runtimes, tools, and frameworks for cloud and edge applications, IoT, AI, automotive, systems engineering, distributed ledger technologies, open processor designs, and many others.

The Eclipse Foundation is a not-for-profit organization supported by more than 350 members, including industry leaders who value open source as a key enabler for their business strategies. To learn more, follow us on social media [@EclipseFdn](#) [LinkedIn](#), or visit eclipse.org.