



Kovair Integration with Git, GitHub, and Gerrit

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Kovair Software is a Silicon Valley based software Product Company specializing in the domain of Integrated Application Lifecycle Management - ALM solutions. Our objective is to make the software development process better, faster and collaborative – anytime, anywhere, using any tool, platform and technology. Kovair’s focus on integrating third party best-of-breed tools enables creation of applications in a synchronized tools environment.

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Git, GitHub and Gerrit

Git is an open source distributed version control system designed to handle everything from small to very large software applications development projects with speed and efficiency.

GitHub is a web-service on which one can publish his or her Git repositories and collaborate with other people. Git runs local if one doesn't use GitHub. GitHub is a more streamlined service as it was specifically made for Git. Gerrit is a web-based code review system that facilitates online code reviews for projects using the Git version control system. Gerrit simplifies Git based project maintenance by permitting any authorized user to submit changes to the master Git repository, rather than requiring all approved changes to be merged manually by the project manager.

Kovair Solution

Kovair Omnibus has a complete integration with the Git Suite. So, users using only Git as an Enterprise SCM tool can use the integration to track and get the complete traceability. When a user pushes a change to GitHub site via Git command line, desktop apps, or GitHub.com, the Kovair adapter tracks all the changes and pushes the data to the bus in order to publish it to the other tools. It can also initiate automatic build using the integration bus. This provides the manager a complete view of the changes happening without requiring him/her to log into the SCM system.

Kovair also has integration with GitHub and Gerrit. So, software development organizations can also enjoy the benefits of using this integration by tracking changes, comment on lines of code, report issues, and then plan the future of their projects with other connected tools.

Kovair Integration with Git

Kovair has integration with Git through the Adapter named '**Kovair Git Adapter**'. Kovair integration with Git is a one- way integration, where data flows from Git to Omnibus. With the Git integration enabled, you can get all the basic information about Git operations. All information about File, File version and Comments can be pushed through the Omnibus framework to any other connected tools. Omnibus integration allows one to expose the

Federated link for each file version to any other supported tool. This facilitates direct viewing of the actual code file from a different tool such as HP ALM. With this integration in place, one can also create automatic builds in

Jenkins or in other continuous integration tools.

Using Kovair Omnibus Integration framework users can have a complete traceability from Requirement to Build to Defect and the related file changes for each Defect. By integrating Git with Defect Management and Requirement Management tools through Omnibus, software development teams can easily collaborate on projects regardless of their geographical locations.

Entities Exposed	Relations Exposed
Change	Change to File
File	Change to File Version
File version	File to File Version

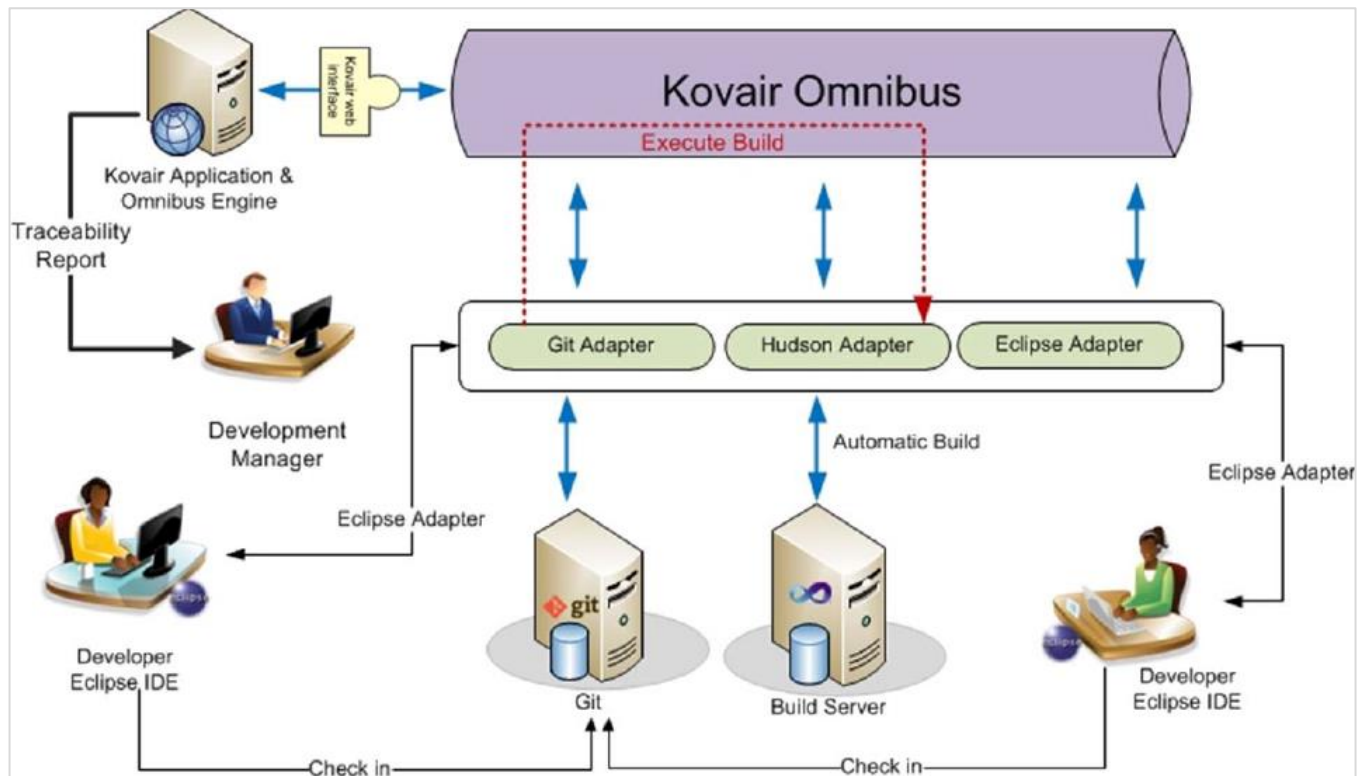


Figure - Kovair Integration Scenario with Git

Using Kovair Omnibus integration users can have continuous build automation and consolidated reporting facility. Once a developer checks-in the code to Git, the framework fires the Build. It is not necessary to have the SCM server and Build server at a common location. The Build sever can be located remotely in a different network. The Developer can also view the Build results from within popular IDEs using the Omnibus Plug-ins for Eclipse or RAD.

Kovair Integration with GitHub

GitHub.com is a cloud web-service on which one can publish Git repositories and collaborate with other people in distributed locations. Kovair has an adapter for GitHub.com named **'Kovair GitHub Adapter'**. This supports one-way integration. Kovair Omnibus integration with GitHub.com allows the user to track changes, comment on lines of code, report issues, and plan the future of projects with other connected discussion tools. Through Omnibus integration one can expose the Federated link for each file version and file version history from GitHub.com to any other supported tool. This facilitates direct viewing of the actual code file from a different tool such as Kovair. With this integration in place, Kovair GitHub Adapter enables one to view the difference among various file versions in the split comparative window. Issues from GitHub can be pushed to any tool hooked into the Omnibus ecosystem, allowing the user to track Defects in a separate Defect management tool and get a complete traceability between files, Defects and comments on each check-in. The integration goes a step ahead facilitating the developer team to view file directly from GitHub in any supported tools e.g. Kovair. Through the integration one can also get a descriptive, human-readable error message for any failed build, so that one can easily troubleshoot what went wrong. This allows the manager to get the view from Kovair Dashboard and act upon it.

Entities Exposed	Relations Exposed
Repository	
Branch	Branch to Repository
Commit	Commit to Repository Commit to Branch Commit to File
File	File to Repository File to Branch
File Version	File Version to File
Issue	Issue to Repository Issue to Branch

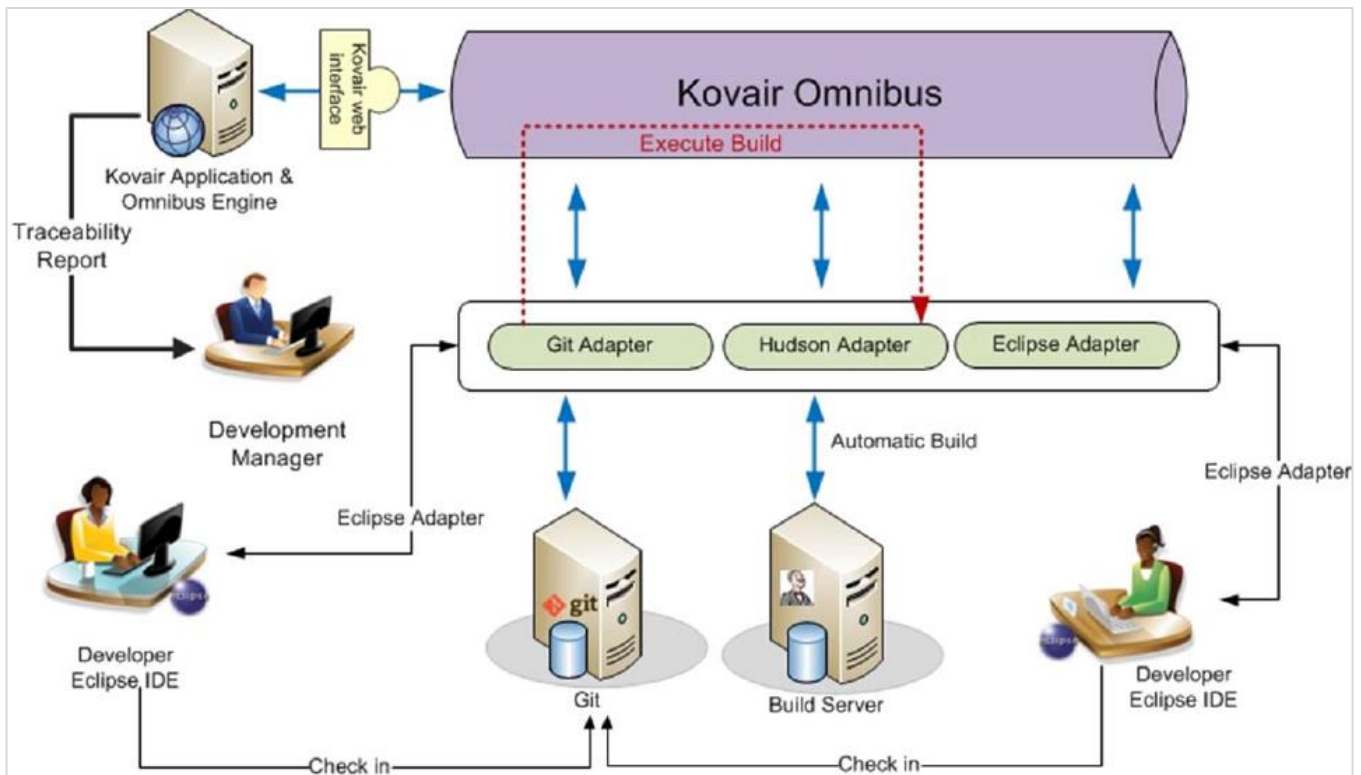


Figure - Kovair Integration Scenario with GitHub

Through Kovair Omnibus integration with GitHub one can have continuous build automation, Defect tracking and consolidated reporting. All Build related issues can be tracked in any Defect management tool and can further be tracked from Kovair traceability view and reports.

With Kovair Omnibus ecosystem, the developers working on eclipse IDE are able to see the Defects, Requirements from the IDE itself and accordingly fix the bug and check in the code. Also, they can change the status of the Defects from the IDE itself. Once a developer checks in the code to Git, the Omnibus framework executes the build and gets the build results back to the Omnibus ecosystem. It can also log automatic Defects in the preferred Defect management system for any failed Build. Thus, the developers get to see the Build Defects immediately and fix them accordingly.

The Development manager can view the complete traceability of Issue to File to File Versions. Thus, a complete traceability of Requirements and Issues is possible through the Kovair's Report and Dashboard capability. The manager located at a remote place can have the complete visibility of the Build stability.

Moreover, he/she can now have the detail view of the files checked-in, their versions and the Patch sets.

The Manager can also identify the changes in the files by viewing different files from the Kovair platform. He or she can view the latest source code files that are using the federated links.

Kovair Integration with Gerrit

Gerrit is a web-based code review tool built on top of the Git version control system. Kovair has integration with Gerrit through the adapter '**Kovair Gerrit Adapter**'. This integration is a one-way integration. Kovair Gerrit adapter tracks all the changes that are submitted to Gerrit and provides a consolidated view to the Project Manager using Kovair reports. This functionality enables a more centralized usage of Gerrit to provide all information related to changes, and PatchSet, file and file version. This integration makes reviews easier by showing changes in a side-by-side display, and allowing inline comments to be added by any reviewer.

This integration is intended to provide the managers a complete view of the operations in Gerrit from distributed locations. Managers can make quick decisions in accepting the changes from the Kovair Dashboard. Kovair Gerrit Adapter also fetches the code level comment information so that managers, if required, can view them. A complete traceability of File, File Version and Patchset between Releases, Requirements, Defects, Change Requests and Builds can be established from the Omnibus platform.

Entities Exposed	Relations Exposed
Change	Change to PatchSet
File	File to File Version
File version	
PatchSet	PatchSet to File PatchSet to File Version

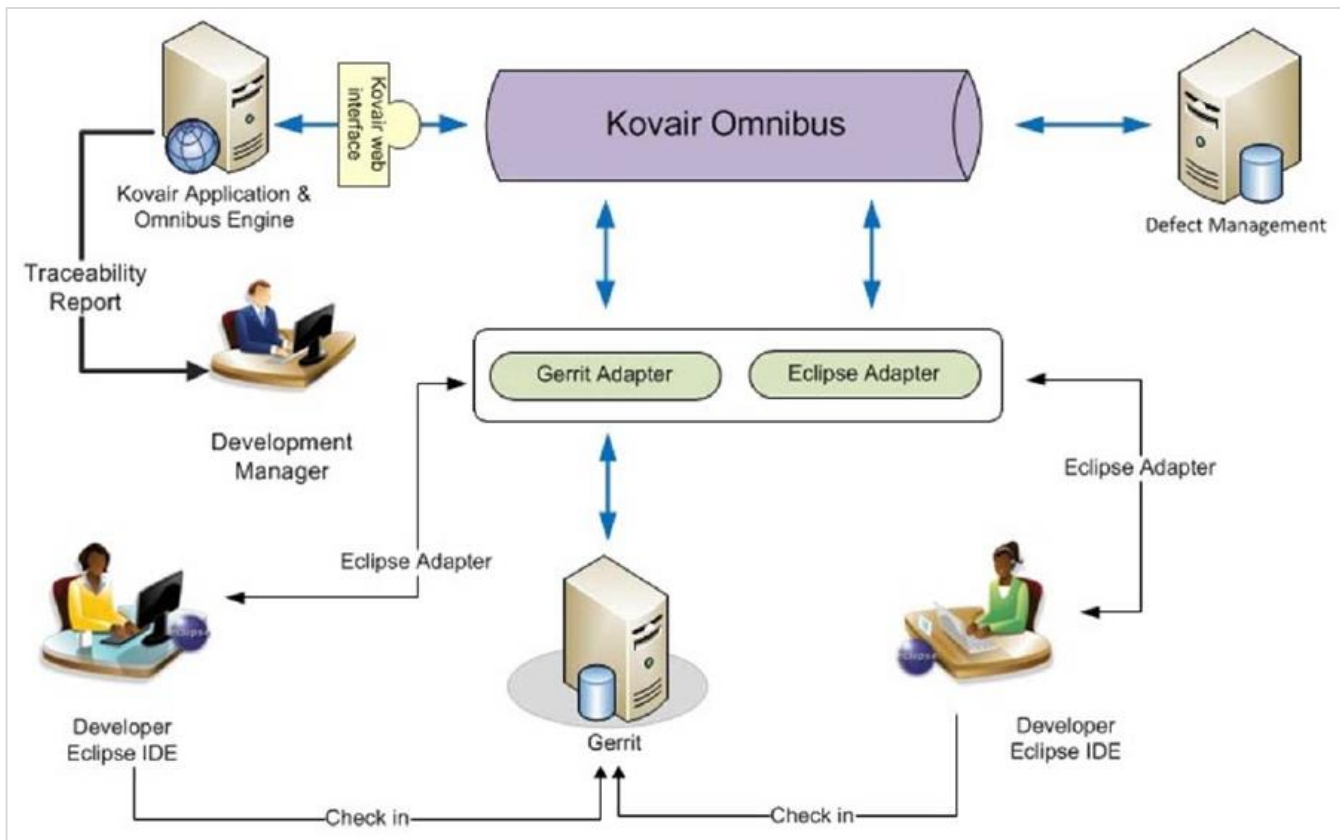


Figure - Kovair Integration Scenario with Gerrit

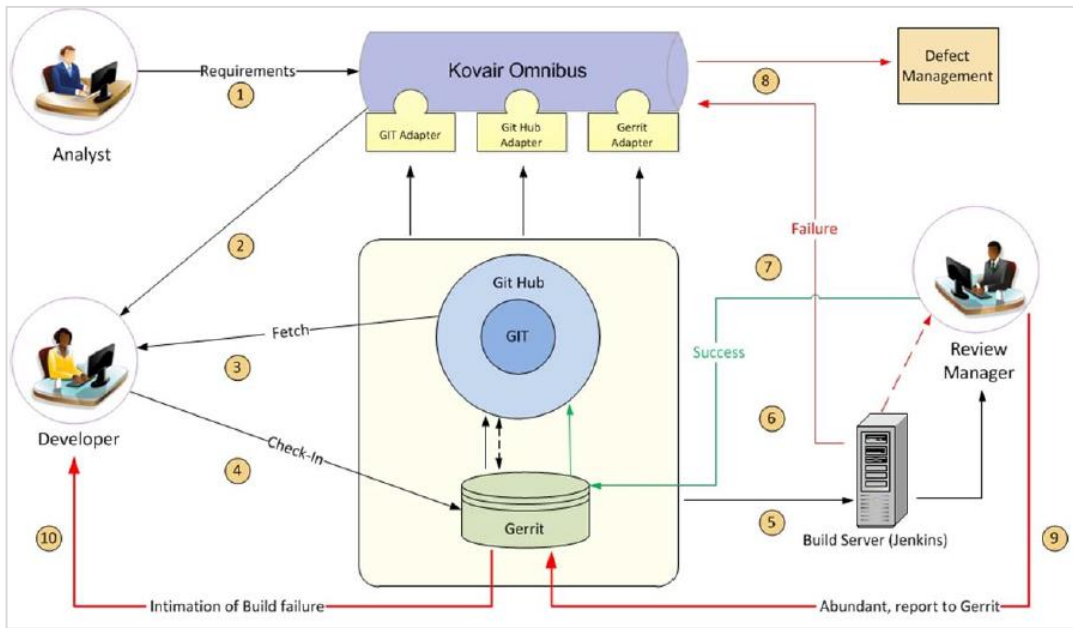
Through Kovair Omnibus integration with Gerrit one can have Defect tracking and consolidated reporting. All the review details, comments and Defects are tracked through Omnibus.

The remotely located Development manager can have a detail view of the files checked-in into Gerrit, their versions and the Patch sets. Accordingly, the manager approves the files to be updated into the SCM like Git.

The Manager can also view the changes in the files checked-in by seeing the file differences from the Kovair platform. Also, the latest source code file can be viewed using the federated links. Direct viewing of source codes and the differences within them is also possible. Complete traceability between File, File Version, Patch set and Releases, Requirements, Defects, Change Requests and Builds is visible to the manager.

Kovair Omnibus Scenario

The diagram below shows a scenario where Kovair Omnibus Integration can enhance the productivity by automatically generating Build and tracking corresponding Defects.



1. An Analyst submits a Requirement in the Requirement Management Tool.
2. The Developer gets informed about the Requirement through Omnibus integration
3. Developer starts coding by checking-out the code from repository.
4. User checks-in the code once the development is done.
5. Through integration, automatic build gets executed in Jenkins.
6. Once the build is done, Reviewer gets intimation to approve the code checked-in. This code once approved, merges into the main repository. Build and Review information are then tracked and passed to Kovair Omnibus.
7. If the Build fails, automatically a Defect is raised and pushed to Omnibus to be replicated in the connected Defect Management tool. The Review Manager also gets a notification for this.
8. The Defect raised due to the Build failure is replicated to the connected Defect Management tool.
9. If the code checked-in causes the Build failure, the reviewer may decide to abandon the Build.
10. This information is passed onto to the Developer to rectify the code and make a fresh check-in.