



INTERNAL
2019-09-24

Continuous Integration and Delivery by SAP

Content

- 1 What Are Continuous Integration and Continuous Delivery?..... 3**
- 2 SAP Solutions for Continuous Integration and Delivery. 7**
- 2.1 Which SAP Solution for CI/CD Meets Your Needs?.....7

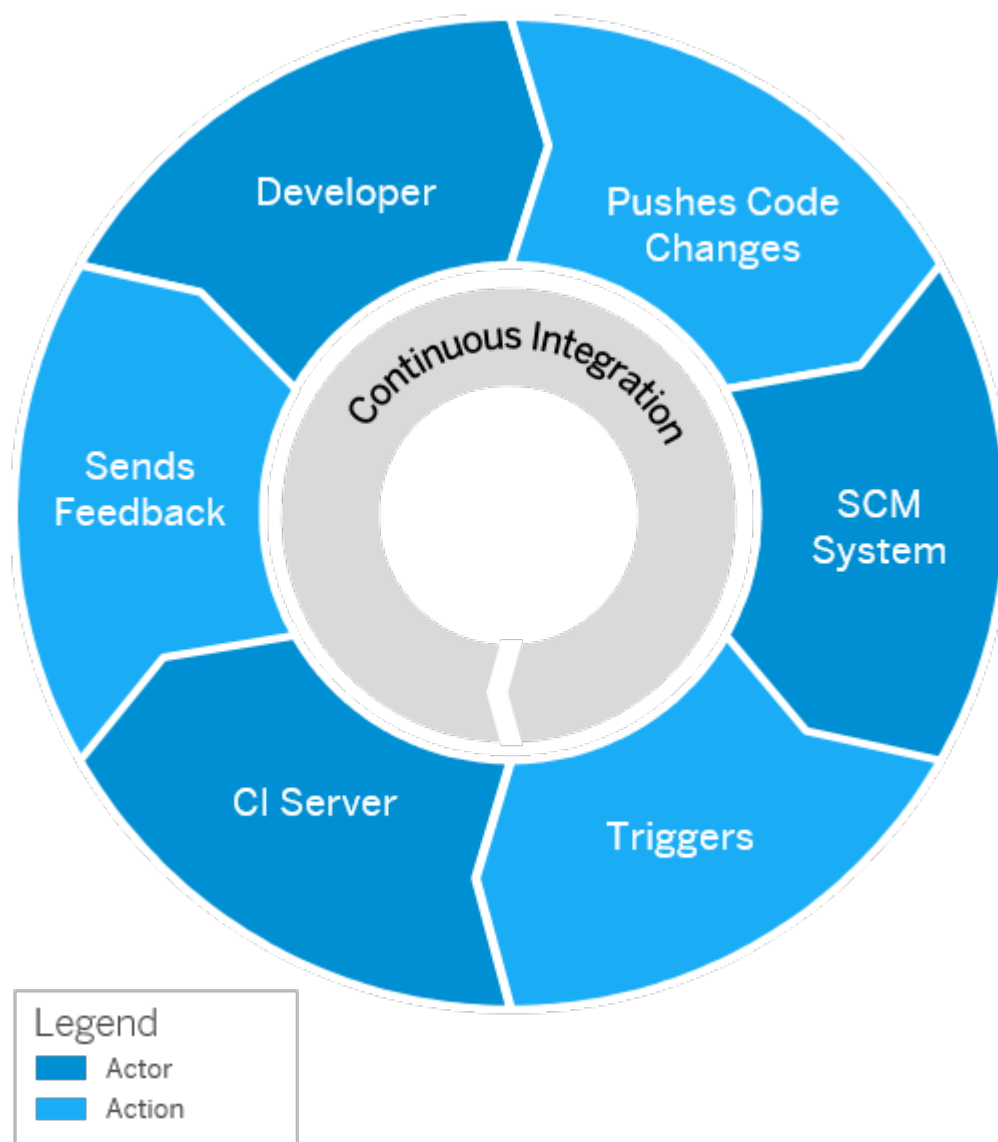
1 What Are Continuous Integration and Continuous Delivery?

Get an overview of the continuous integration and delivery concepts.

Continuous Integration

The term **continuous integration (CI)** describes a software development process, in which various team members integrate their contributions frequently into a single main line. Before each integration, the changes are verified through builds and automated testing. Thereby, you can detect errors as quickly as possible and prevent integration problems before completing the whole development.

This interactive graphic shows the basic flow for continuous integration:



- [#unique_1/unique_1_Connect_42_subsection-im1 \[page 4\]](#)
- [#unique_1/unique_1_Connect_42_subsection-im2 \[page 5\]](#)
- [#unique_1/unique_1_Connect_42_subsection-im3 \[page 5\]](#)

→ Tip

Hover over each actor-action combination for a short description and click on them for more detailed information.

Continuous Integration Basic Flow

The continuous integration basic flow comprises the following steps:

1. **The developer writes code and pushes the code changes into a central source code management system (SCM).**
2. The SCM triggers the continuous integration (CI) server.
3. The CI server runs automated builds and tests and sends feedback about their outcome to the developer.

Continuous Integration Basic Flow

The continuous integration basic flow comprises the following steps:

1. The developer writes code and pushes the code changes into a central source code management system (SCM).
2. **The SCM triggers the continuous integration (CI) server.**
3. The CI server runs automated builds and tests and sends feedback about their outcome to the developer.

Continuous Integration Basic Flow

The continuous integration basic flow comprises the following steps:

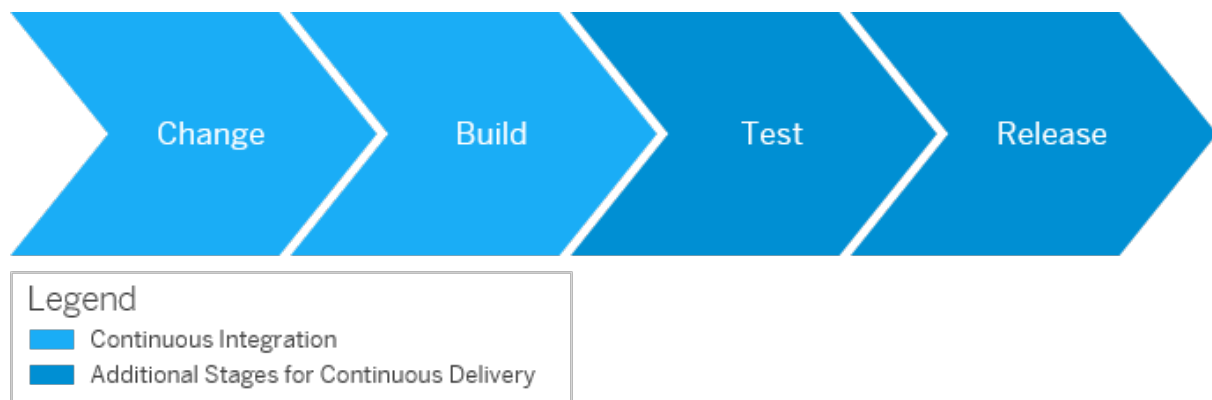
1. The developer writes code and pushes the code changes into a central source code management system (SCM).
2. The SCM triggers the continuous integration (CI) server.
3. **The CI server runs automated builds and tests and sends feedback about their outcome to the developer.**

As you can see from the graphic, the basic flow for continuous integration is a cycle: As soon as the CI server has sent its feedback to the developer, the flow starts over again. The developer either corrects his or her previous code change, which must then be built and tested again, or starts to create an entirely new one.

Continuous Delivery

The **continuous delivery (CD)** concept expands on the one of continuous integration. It adds the aspect that any change that has successfully passed the tests is immediately ready to be deployed to production, both from a technical and a qualitative point of view.

The following graphic shows the relation between continuous integration and continuous delivery:



Relation Between CI and CD

The continuous delivery process makes sure that the most current version of the software product is successfully built, tested, and provided in a shippable format. Based on the release decision by the development team or delivery manager, it can be shipped to customers or deployed to production at any time.

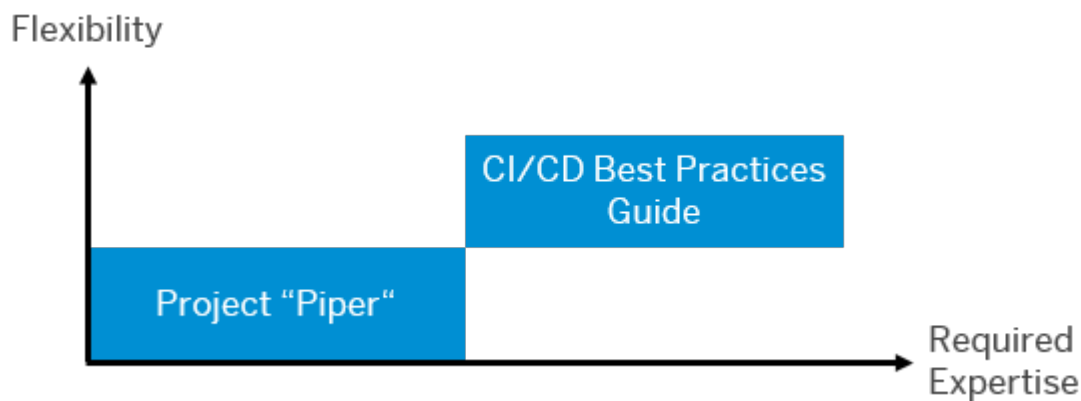
2 SAP Solutions for Continuous Integration and Delivery

Get an overview of the solutions SAP provides for continuous integration and delivery.

At the moment, SAP offers two different solutions that help you apply CI/CD in your software development.

- **Project "Piper"** provides pre-configured Jenkins pipelines, which you can use in your own Jenkins master infrastructure and adapt according to your needs, if necessary. It consists of a [shared library](#) 📖, which contains the description of steps, scenarios, and utilities that are required to use Jenkins pipelines, and a [set of Docker images](#) 📦 that can be used to implement best practice processes.
- The [Continuous Integration and Delivery Best Practices Guide](#) provides simple recipes to implement continuous delivery pipelines on any CI/CD stack and demonstrates how to apply the principles of CI/CD to SAP-specific technologies.

Both CI/CD solutions differ in their level of flexibility and expertise required for setup and configuration:



Comparison of CI/CD Solutions by SAP

While the Continuous Integration and Delivery Best Practices Guide offers more flexibility than project "Piper", its usage also requires more expertise in CI/CD. Vice versa, project "Piper" Docker images can be used out-of-the-box, their flexibility, however, is limited.

2.1 Which SAP Solution for CI/CD Meets Your Needs?










Find your appropriate SAP solution for continuous integration and delivery.

The following table shows which development scenarios are covered by which SAP solutions for CI/CD. Look for your specific scenario to get a link to our appropriate solution.

→ Tip

In the table, use the search options to quickly find what you are looking for.

CI/CD Scenarios and Matching Offerings by SAP



Scenario	Environment	Project "Piper"	Continuous Integration and Delivery Best Practices Guide	
SAP Fiori applications on SAP Cloud Platform	Neo	See Build and Deploy SAPUI5 or SAP Fiori Applications on SAP Cloud Platform with Jenkins  .	See Apply CI/CD to SAP Fiori Development on SAP Cloud Platform .	
SAP Fiori applications on ABAP Front-End Server	ABAP	-	See SAPUI5/SAP Fiori on ABAP Front-End Server  .	
Hybrid SAP Fiori and Android/iOS applications with the SAP Mobile Platform SDK	-	-	See SAP Fiori Hybrid Apps with SAP Mobile Platform  .	
iOS applications with the SAP Cloud Platform SDK for iOS	Cloud Foundry Neo	-	See SAP Cloud Platform SDK for iOS  .	
SAP HANA XS Classic applications	SAP HANA	-	See SAP HANA Extended Application Services (XS), classic model  .	
SAP HANA XS Advanced applications	SAP HANA	-	See SAP HANA Extended Application Services, advanced model (XS advanced) on SAP HANA  .	
Applications following the SAP Cloud Application Programming Model	Cloud Foundry	See Build and Deploy Applications with Jenkins and the SAP Cloud Application Programming Model  .	-	
Hybrid applications with Jenkins and SAP Solution Manager	Neo	See Build and Deploy Hybrid Applications with Jenkins and SAP Solution Manager  .	-	
Development with SAP Cloud Platform Transport Management	Neo	See Integrate SAP Cloud Platform Transport Management Into Your CI/CD Pipeline  .	See Integrate SAP Cloud Platform Transport Management Into Your CI/CD Pipeline .	

Important Disclaimers and Legal Information

Hyperlinks

Some links are classified by an icon and/or a mouseover text. These links provide additional information.

About the icons:

- Links with the icon  : You are entering a Web site that is not hosted by SAP. By using such links, you agree (unless expressly stated otherwise in your agreements with SAP) to this:
 - The content of the linked-to site is not SAP documentation. You may not infer any product claims against SAP based on this information.
 - SAP does not agree or disagree with the content on the linked-to site, nor does SAP warrant the availability and correctness. SAP shall not be liable for any damages caused by the use of such content unless damages have been caused by SAP's gross negligence or willful misconduct.
- Links with the icon  : You are leaving the documentation for that particular SAP product or service and are entering a SAP-hosted Web site. By using such links, you agree that (unless expressly stated otherwise in your agreements with SAP) you may not infer any product claims against SAP based on this information.

Beta and Other Experimental Features

Experimental features are not part of the officially delivered scope that SAP guarantees for future releases. This means that experimental features may be changed by SAP at any time for any reason without notice. Experimental features are not for productive use. You may not demonstrate, test, examine, evaluate or otherwise use the experimental features in a live operating environment or with data that has not been sufficiently backed up.

The purpose of experimental features is to get feedback early on, allowing customers and partners to influence the future product accordingly. By providing your feedback (e.g. in the SAP Community), you accept that intellectual property rights of the contributions or derivative works shall remain the exclusive property of SAP.

Example Code

Any software coding and/or code snippets are examples. They are not for productive use. The example code is only intended to better explain and visualize the syntax and phrasing rules. SAP does not warrant the correctness and completeness of the example code. SAP shall not be liable for errors or damages caused by the use of example code unless damages have been caused by SAP's gross negligence or willful misconduct.

Gender-Related Language

We try not to use gender-specific word forms and formulations. As appropriate for context and readability, SAP may use masculine word forms to refer to all genders.

© 2019 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company. The information contained herein may be changed without prior notice.

Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies.

Please see <https://www.sap.com/about/legal/trademark.html> for additional trademark information and notices.