DevOps Essentials with SAP

DevOps in an ABAP-Based Environment

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Why
The software landscape

Git is an open source distributed version control system

Separated development in branches

Readable files in repositories

Source code can easily be accessed and shared
Source code can easily be accessed and shared

CI processes can be set up for most development environments

Integrated for most modern programming language

But what about ABAP?
Our idea…

CTS* + git = gCTS

* Change and Transport System
New ABAP software lifecycle process

**DEVELOPERS**
using ADT or SE80, SPRO, SE09

- CREATE CUSTOMER TRANSPORT
- CHANGE CODE / CUSTOMIZING AND TRACK IT
- RELEASE TRANSPORT REQUEST

**CONTINUOUS INTEGRATION**
e.g. GitHub and Jenkins

- CHANGES WILL BE PUSHED TO REPOSITORY
- CI SERVER TESTS CHANGES IN QA SYSTEM
- FEEDBACK TO DEVELOPER

**CONTINUOUS DEPLOYMENT**
using gCTS

- CHANGES WILL BE MERGED IN RELEASE BRANCH
- AUTOMATIC PULL OF CHANGES TO FOLLOW-ON SYSTEM
- IMPORT CHANGES INTO ABAP RUNTIME
Which systems do I need?

Git platform
- To host your repositories

ABAP systems
- E.g. development, test and production system

CI server
- To host your pipelines
What do I need to install on these systems?

**Git platform**
- (nothing special)
- Can be e.g. GitHub, GitLab, CodeBucket, AWS Code Commit

**ABAP systems**
- S/4HANA 1909 (2020 for customizing support)
- **SapMachine** Version 11 or comparable JRE
- Some notes (depending on SP)

**CI server**
- (nothing special – you can use pipeline steps provided in project ‘Piper’)
What do I have to configure on these systems?

Git platform
- Create Repository (with initial commit)

ABAP systems
- gCTS Fiori UI
- Authorizations
- Set parameters, initialize systems
- Clone repository
- Create branches

CI server
- define pipeline
Demo
Demo scenario
Project ‘Piper’ – planned Steps

Library Steps in Project ‘Piper’
- gctsCloneRepository
- gctsCreateRepository
- gctsDeploy
- gctsExecuteABAPUnitTests
- gctsRollback
Health check

- Shows information about gCTS configuration, permissions,…
- Can be filtered by level
- Available with SAP S/4HANA 2020, requires implementation of SAP Notes in SAP S/4HANA 1909 – check SAP Note 2821718
Guides through main configuration steps to enable a system for gCTS

Executes health check at the end

Available with S/4HANA 2020, requires implementation of SAP Notes in SAP S/4HANA 1909 – check SAP Note 2821718
Adding customizing to gCTS

- New in S/4HANA 2020
- Choose the vSID that you created as target for the transport request

Technical background

- TDAT and VDAT are enabled
- TABU: Deletion of single entries is enabled
- Repository Layout Version 3 required
Format of repositories

- In SAP S/4HANA 2020 data will be stored in JSON-Format for newly created repositories
- XML format is still supported
- Why? To improve readability
Support for Conflict Resolution

Conflict Resolution UI

- Shows local and remote version
- Shows merged version indicating conflicts
- Merged version requires editing
- Integrated in Objects tab of gCTS app
Outlook
# Releases and their Features

## S/4HANA 1909
- Git-based distribution of custom development
- Support for workbench objects
- Option to set up Continuous Integration process
- Option to automate Continuous Deployment

## S/4HANA 2020
- Support for customizing objects
- Basic support for conflict resolution when merging branches

## Future Direction
- Enhance support for distributed development and maintenance / development use cases
- Leverage GitHub functionality for code reviews (e.g. pull requests)
- Integration in transport organizer
- Improve exception handling and logging
- Integration of gCTS with ChaRM
- Convenience functionalities to use gCTS for business processes on CI platforms.
Planned use case: Feature development and maintenance in parallel

One branch for feature development
One branch for maintenance
No doubled system landscape needed
Deploy the latest commit of one or the other branch to develop new features or to do maintenance
Two Dev Teams can work on the same object

Commit changes to repository

Merge into master branch, deploy to QA

Deploy to Production after test
Public SAP Web sites

- SAP Community:
  - gCTS initial announcement: [https://blogs.sap.com/2019/11/14/gcts-is-here/](https://blogs.sap.com/2019/11/14/gcts-is-here/)
- Guided Answer: [https://ga.support.sap.com/dtp/viewer/index.html#/tree/2504/actions/34024](https://ga.support.sap.com/dtp/viewer/index.html#/tree/2504/actions/34024)
- SAP Note: [https://launchpad.support.sap.com/#/notes/2821718](https://launchpad.support.sap.com/#/notes/2821718)
Thank you.

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