



# DevOps for SAP - SAP Installation: From 2 Months to 2 Hours

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# Agenda

1. What is SAP?
2. SAP installation haven't changed much
3. Automations with BASH
4. Automations with Ansible
5. How does it work?
6. Challenges throughout the process
7. Benefits
8. The help I'm looking for

# What is SAP

*SAP is one of the world's leading producers of software for the management of business processes, developing solutions that facilitate effective data processing and information flow across organizations.*

Source: <https://www.sap.com/about/company/what-is-sap.html>

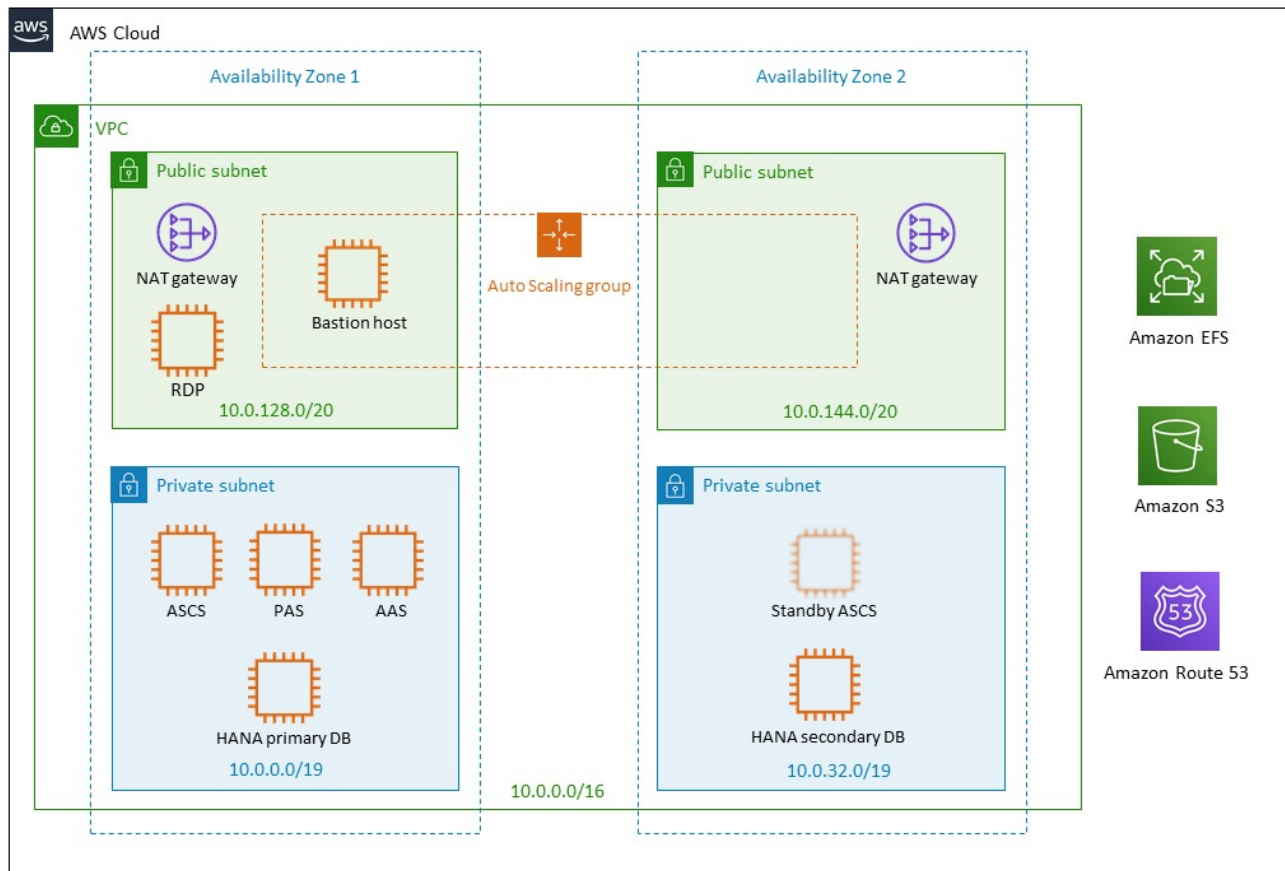


# **77% of the world's transaction revenue touches one SAP system**

Source: <https://www.sap.com/about/company/what-is-sap.html>

# SAP installations haven't changed much

The process of installing an **SAP HA landscape with no automation** (a) takes up to **two months** and **(b)** documentation for that is big and can easily have about **30 pages**



# SAP Installations haven't changed much

- Is very **error prone** and is used to delay
- **Centralizes knowledge** across a very small number of people
- **Cannot be repeated**
- **Cannot be audited**
- Usually is just **superficially documented**

SAP Software Provisioning Manager

Legend More

1 Define Parameters 2 Review Parameters 3 Execute Service 4 Service Completed

### General SAP System Parameters

Enter the profile directory of the SAP system.

**SAP System Identification**

Profile Directory: W:\sapmnt\NCS\SYS\profile

Destination Drive: I:

**Additional Information**  
Existing parameters are retrieved from the SAP system profile directory. The location of your SAP system profile directory is as follows:

- Windows: \\<SAPGLOBALHOST>\sapmnt\<SAPSID>\SYS\profile
- UNIX and IBM i: /<SAP Mount Directory>/<SAPSID>/profile or /usr/sap/<SAPSID>/SYS/profile

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TASK LIST LOG FILES HELP

# Automations with BASH

Common scenarios for automation currently being used:

- Folder structure creation
- Package manager (yum, apt, zypper, etc) baselining
- Configure hostnames
- Configure networking /etc/hosts



**BASH**  
THE BOURNE-AGAIN SHELL



# Automations with BASH

**Still... The installation is left behind**

All these scenarios already provide a certain level of automation, but **still are very error prone.**

BASH is too low level.

Let's use the right tool for the right job!



**BASH**  
THE BOURNE-AGAIN SHELL

# Automating with Ansible



ANSIBLE

Internal project on AWS ProServe released in early 2022 – includes Terraform, Ansible and Jenkins:

<https://aws.amazon.com/blogs/awsfor sap/automating-sap-installation-with-open-source-tools/>

## Stage View



# How does it work?



A N S I B L E

1. **User initiates a local Jenkins master agent.**
2. **Fills in parameters like:**
  - SAP media files path on Amazon S3
  - SAP specifics:
    - Installation as HA (High Availability) or not.
    - Hostnames, SID (SAP ID), Instance number, etc.
  - Infrastructure specifics:
    - Instance CPU/memory configurations, AWS credentials, etc

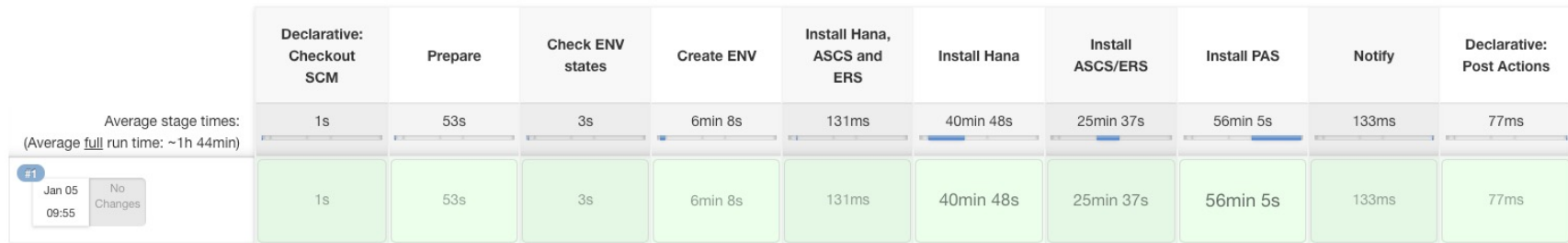
# How does it work?



ANSIBLE

Triggers installation and waits for 2 about hours

## Stage View



# How does it work?

After about 2 hours, the installation is done

```
ad0adm@demo-hana:/usr/sap/AD0/HDB00> sapcontrol -nr 00 -function GetProcessList | grep GREEN
hdbdaemon, HDB Daemon, GREEN, Running, 2022 04 18 08:08:10, 0:26:06, 2203
hdbcompilesrv, HDB Compilesrv, GREEN, Running, 2022 04 18 08:08:38, 0:25:38, 3345
hdbindexserver, HDB Indexserver-AD0, GREEN, Running, 2022 04 18 08:08:38, 0:25:38, 3395
hdbnameserver, HDB Nameserver, GREEN, Running, 2022 04 18 08:08:11, 0:26:05, 2313
hdbpreprocessor, HDB Preprocessor, GREEN, Running, 2022 04 18 08:08:38, 0:25:38, 3348
hdbwebdispatcher, HDB Web Dispatcher, GREEN, Running, 2022 04 18 08:09:09, 0:25:07, 4149
hdbxsengine, HDB XSEngine-AD0, GREEN, Running, 2022 04 18 08:08:38, 0:25:38, 3398
ad0adm@demo-hana:/usr/sap/AD0/HDB00>
```

```
demo-ascs:ad0adm 5> sapcontrol -nr 00 -function GetProcessList | grep GREEN
msg_server, MessageServer, GREEN, Running, 2022 04 18 07:57:18, 0:38:04, 15770
enq_server, Enqueue Server 2, GREEN, Running, 2022 04 18 07:57:18, 0:38:04, 15771
sapwebdisp, Web Dispatcher, GREEN, Running, 2022 04 18 07:57:18, 0:38:04, 15772
gwr, Gateway, GREEN, Running, 2022 04 18 07:57:18, 0:38:04, 15773
demo-ascs:ad0adm 6>
```

# Challenges throughout the process

Commands that used **SAP specific terminal libraries** (like *HDB*, *hdbnsutil*, *hdbuserstore*, etc), required a **forced “source”** from customized SAP terminal setup

```
- name: Start Hana if it's stopped
  shell: |
    source {{ home_path }}; HDB start
  when: not default_mode_started_hana in sec_node_stopped.stdout
  become: true
  become_user: "{{ internal_sid_user }}"
```

```
8  home_original_path: /usr/sap/{{ GLOBAL_HANA_SID | upper }}/home/.sapenv.sh
9  home_path: /usr/sap/{{ GLOBAL_HANA_SID | upper }}/home/.sapenv-ansible.sh
```

# Challenges throughout the process

**tset (or reset)** command in RHEL demands interaction from the user, and therefore caused **Ansible to hang**

```
tset(1)
```

## NAME

**tset, reset** - terminal initialization

## SYNOPSIS

```
tset [-IQVcqrsW] [-] [-e ch] [-i ch] [-k ch] [-m mapping] [terminal]
reset [-IQVcqrsW] [-] [-e ch] [-i ch] [-k ch] [-m mapping] [terminal]
```

## DESCRIPTION

**Tset** initializes terminals. **Tset** first determines the type of terminal

1. The **terminal** argument specified on the command line.
2. The value of the **TERM** environmental variable.

# Automating with Ansible



## Automating tasks – benefits around the code:

- Retry tasks that *can fail* from time to time
- Intelligent check over parameters included as inputs
- Maintaining a single source for repeatable portions of the code common for different SAP products



# Automating with Ansible



## **Automating tasks – benefits for the organization:**

- Creates a repeatable process
- Dramatically reduces errors on the process
- Reduces dependency on specific knowledge from highly-specialized team members
- Allows audit
- Code is documentation
- Increases traceability over IT operations

# Here's the help I'm looking for



Amazon Machine  
Image (AMI)

## Switch EC2's AMI of a running SAP installation:

- Have a pre-baked AMI with company-wide security policies applied.
- Automate the process of updating and/or upgrading the OS.

Get in touch!

[sesterhg@amazon.com](mailto:sesterhg@amazon.com)



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# Thank you!

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