



Week 3: Add Enterprise Qualities

## Unit 4: Deploying for Production

## Deploying for Production

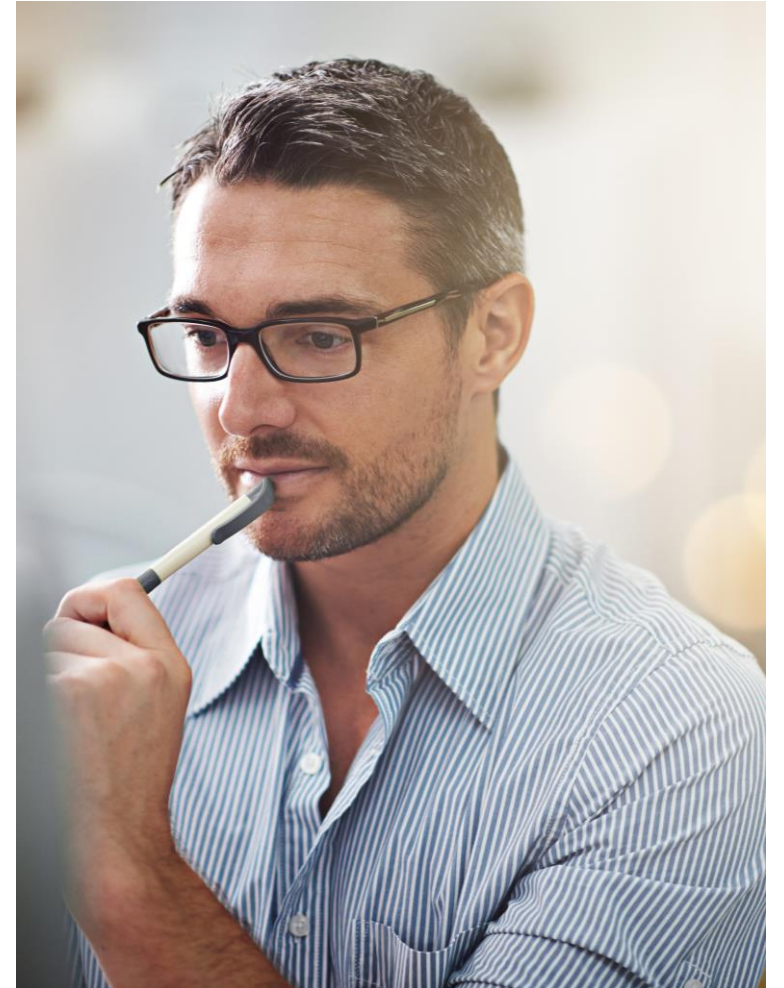
### Overview

CAP applications can be deployed to the [Cloud Foundry Environment](#) of SAP Cloud Platform.

Cloud Foundry (CF) is a platform-as-a-service environment for running cloud-native applications.

Use the ['cf' command line interface](#) (CLI) to

- Deploy your application to CF
- Create instances of platform services, e.g. SAP HANA service, User Account & Authentication service
- Bind those service instances to your application



### Deployment using cf push

Use the `cf push` command to deploy applications. It needs

- Application files to be deployed
- An optional manifest file

Services given in the manifest will be *bound* to the application

... but need to be created *manually* beforehand, e.g. using  
`cf create-service <type> <plan> <name>`

Plugin [create-service-push](#) is an alternative to automate service creation

See openSAP course [SAP Cloud Platform Essentials](#) (week 1, unit 5) for more on pushing applications to Cloud Foundry

```
manifest.yaml
```

```
---
applications:
- name: bookshop-db
  services:
  - bookshop-db-hdi-container

- name: bookshop-srv
  memory: ...
  services:
  - bookshop-db-hdi-container
```

# Deployment using cf push – Demo

1. Configure your project for SAP HANA:

```
cds add hana
```

2. Create ready-to-deploy files, incl. table definitions, manifests, and more:

```
cds build/all
```

3. Create the SAP HANA service, incl. a DB schema:

```
cf create-service hana hdi-shared bookshop-db-hdi-container
```

4. Push the database deployer application:

```
cf push -f gen/db
```

5. Push the actual service application:

```
cf push -f gen/srv --random-route
```

6. Find and open the application URL:

```
...  
requested state: started  
routes: bookshop-srv-...hana.ondemand.com
```



gen/db/manifest.yaml

```
---  
applications:  
- name: bookshop-db  
  path: gen/db  
services:  
- bookshop-db-hdi-container
```

## Multitarget applications – Overview

On top of cf push, SAP offers a convenient deployment API for CF called [multitarget applications](#) (MTA).

Features:

- Building and packaging self-contained and versioned application archives
- Single descriptor for even advanced deployments
- Declarative MTA descriptor to avoid maintaining deployment scripts. Detailed CF deployment actions are automatically derived out of it.
- Configuration parameters to distinguish different deployments (e.g. test vs. production)

Open Source tools are available for [building and packaging](#) MTAs and for [deploying](#) MTAs with the CF CLI.



### Multitarget applications – Build

- An MTA descriptor (`mta.yaml`) declares "modules" and "resources"
- Build your project using the MTA Build Tool (MBT). This creates a deployable artifact, the MTA archive.
- The MTA archive can then be deployed to CF with `cf deploy`
- CAP provides a tool to generate the `mta.yaml` file from existing configuration
- Enhance `mta.yaml` as needed, e.g., to add
  - More modules, e.g. UI modules
  - Specify creation parameters for platform services

`mta.yaml`

```
_schema-version: '3'
ID: bookshop
version: 1.0.0
modules: # correspond to CF applications
  # server module
  - name: bookshop-srv
    type: nodejs
    path: gen/srv
    requires:
      - name: bookshop-db-hdi-container
  # SAP HANA deployer module
  - name: bookshop-db
    type: hdb
    path: gen/db
    requires:
      - name: bookshop-db-hdi-container
resources: # correspond to CF services
  # SAP HANA service
  - name: bookshop-db-hdi-container
    type: org.cloudfoundry.managed-service
    parameters:
      service: hanatrial # or 'hana'
      service-plan: hdi-shared
```

## Multitarget applications – Demo

### Prerequisites:

- Install the [MTA Build Tool](#), e.g. using `npm install -g mbt`

### Procedure:

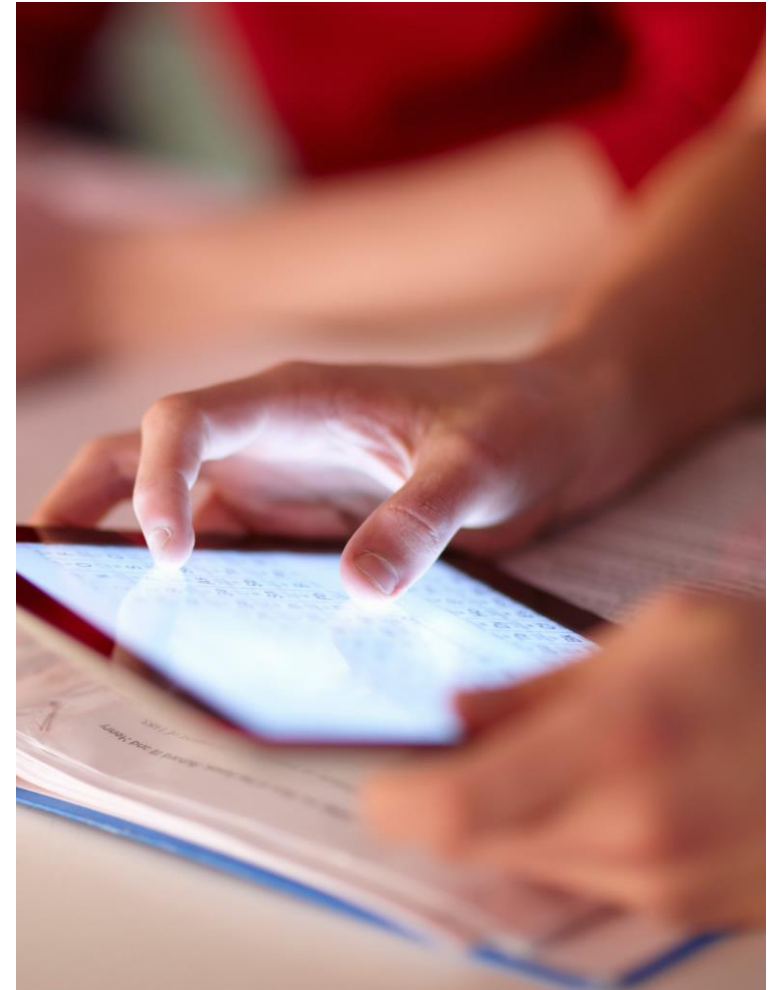
1. Configure the project for SAP HANA, adding e.g. the driver  
`cds add hana`
2. Generate MTA project descriptor file `mta.yaml`  
`cds add mta`
3. Build MTA archive  
`mbt build`
4. Log into your CF space. Then deploy MTA archive  
`cf deploy mta_archives/...mtar`
5. Identify the URL attached to the CF application "bookshop-srv" and open it in a browser



### What you've learned in this unit

- How to build a deployment package for Node.js
- How to deploy applications using cf push
- How to deploy multitarget applications
- The pros and cons of both approaches

Also see the 'Continuous Integration and Deployment' unit in week 4 that takes deployments to the next level of automation.





# Thank you.

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