



COSMO CONSULT

Business-Software für Menschen

DevOps

Docker



Prerequisite

Use Workshop-VM / Workshop-Computer
follow the instructions of the Boarding Pass



Visual Studio Code

<https://code.visualstudio.com>



Git

<https://git-scm.com>



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VS Code

Useful Extensions

> AL Formatter

- > Indentation
- > Keyword case style
- > Sort variable definitions
- > Readability Guidelines - Spacing and newlines (experimental)

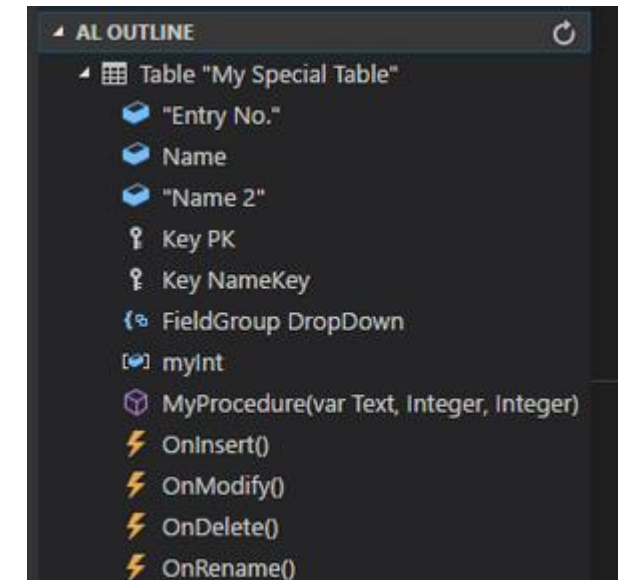
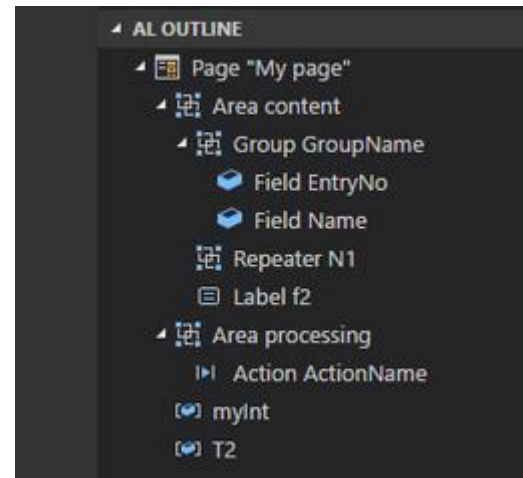
> AL Code Outline

- > Outlining – AL Object Structure
- > “Create List Page” from Table
- > “Create Card Page” from Table

> al-util

- > “Rename & Move” Objects
- > Templates e.g. “Readme.md”

```
Codeunit 70000000 MyCodeunit
{
    var
        Customer : Record Customer;
        Counter : Integer;
        InvalidCustomerErr : TextConst ENU='Invalid Customer.
    trigger OnRun();
    begin
        if Customer.FindSet then
            repeat
                if not Customer.HasAddress then
                    Error(InvalidCustomerErr);
            until Customer.Next = 0;
    end;
}
```



AGENDA

1

Docker, NAV on Docker, Docker Commands

2

Hand On

3

NAV Container Helper (Powershell)

4

Hands On

5

Q & A



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Infrastructure Docker

CONNECTION
ANALYSIS
DATA
SEARCHING
VERIFICATION
CODING
SENDING

Infrastructure | Docker

Overview

www.docker.com

- Isolate application's view of the operating environment
- Easy & Simple Application Deployment

➤ Requirements

- Windows 10 / Windows Server 2016
- Recommended 16GB Ram & 40 GB HDD on C:
- Hyper-V enabled
- [Install Docker for Windows](#)

➤ After Docker Installation

- Switch Container Mode to “Windows”
(Docker @ Taskbar Icon → [Right Click] Menu → Switch to Windows Container Mode)
this may require a restart

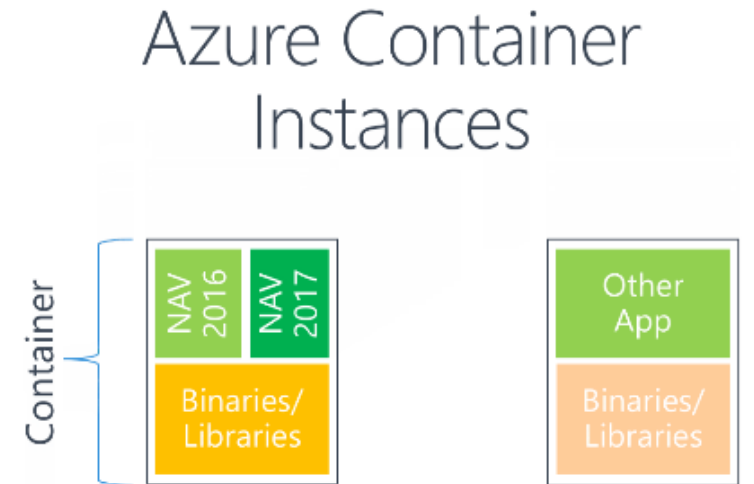
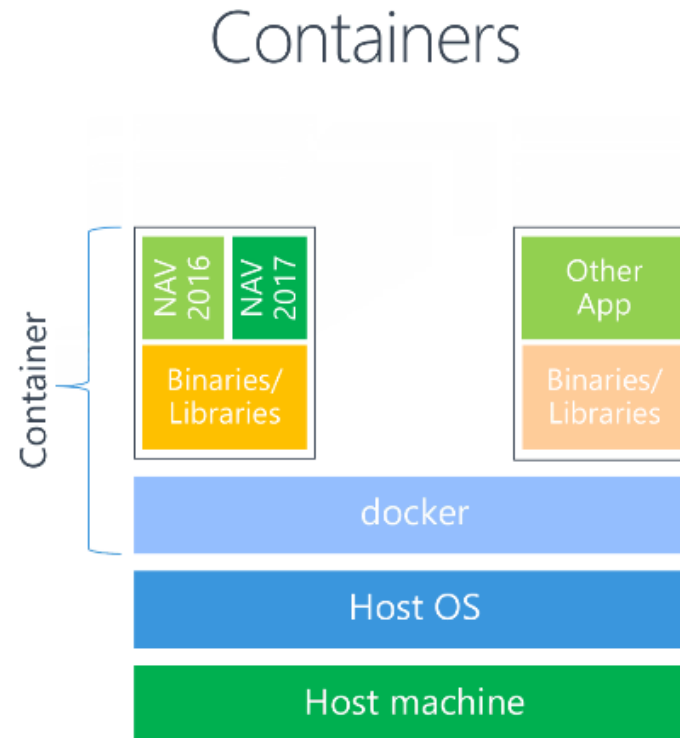
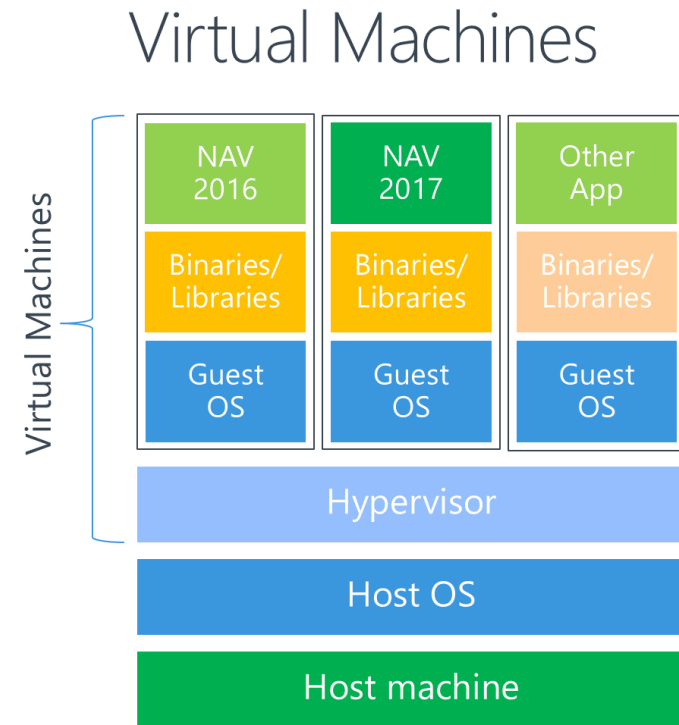
➤ [Documentation](#)



Source: [https://de.wikipedia.org/wiki/Datei:Docker_\(container_engine\)_logo.png](https://de.wikipedia.org/wiki/Datei:Docker_(container_engine)_logo.png)

Infrastructure | Docker

NAV in Containers



Source: <https://blogs.msdn.microsoft.com/freddyk/2017/10/31/what-is-docker-what-are-containers/>

Infrastructure | Docker

NAV Containers

➤ Pull (Download the Image)

Repository\<Image-Name>[:<Tag>]

➤ NAV Container

➤ Windows Server Nano

➤ SQL Server Express

CORNUS DB

➤ Web-Server

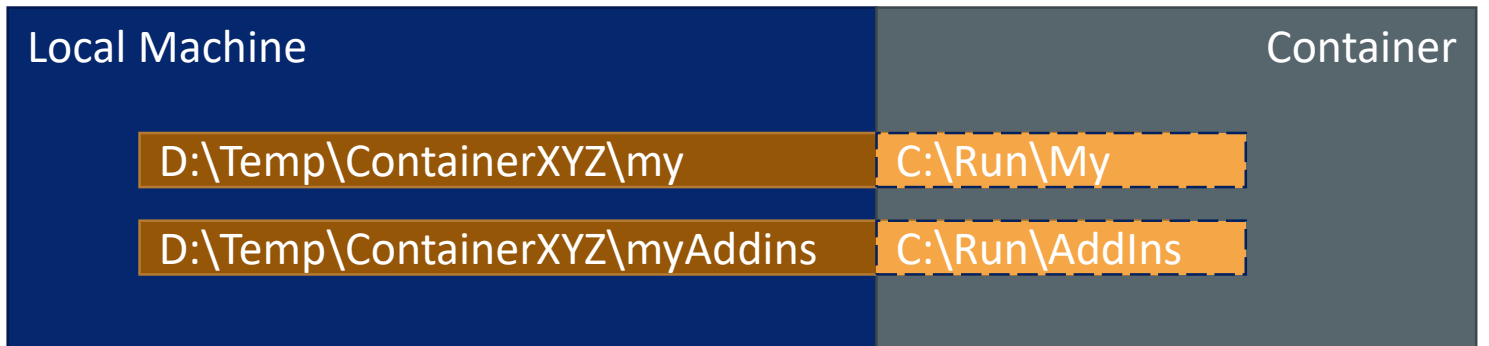
➤ Navision in the right version:

NST, WebClient, RTC, C/Side (FinSQL.exe)

➤ Folders

➤ Volume Mapping

```
-v "<OutSide>:<InSide>"
```



Docker

Common Commands

Cheat-Sheet

List all containers

```
$ docker ps -a
```

List all images

```
$ docker images -a
```

Fetch the logs of a container

```
$ docker logs <container ID or Name>
```

Kill a container

```
$ docker kill <container ID or Name>
```

Remove a containers

```
$ docker rm <container ID or Name>
```

Remove a container image

```
$ docker rmi <image ID>
```

Pull a container from registry

```
$ docker pull <registry>/<image>[:<tag>]
```



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Hands On



Docker

Hands On

➤ Prerequisites

- Connect to your Workshop VM → use Instructions on your Workshop Boarding Pass

➤ Hand On - Tasks

- Learn how to interact with docker
- Pull some containers
- Get some information from the container

Docker

Hands On

➤ Open your PowerShell (Admin Mode)

- Which docker images are present at the machine?
- Which Container are running?
- Query the Log-Information of a running container!

```
$ docker ps -a
```

```
$ docker images -a
```

```
$ git logs <container ID or Name>
```

➤ Pull / Update an image

- Docker Registry: microsoft
- Docker Image: dynamics-nav
- Docker Tag: 2018-cu5-de

```
$ docker pull <registry>/<image>[:<tag>]
```



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Infrastructure
NAV-Container-Helper



NAV Container Helper

Introduction

➤ Freddy DK Microsoft

➤ Install on Windows:

<https://blogs.msdn.microsoft.com/freddyk/2018/03/20/navcontainerhelper-1/>

➤ Setup CSIDE development environment with source code management

<https://blogs.msdn.microsoft.com/freddyk/2018/03/22/navcontainerhelper-setup-cside-development-environment-with-source-code-management/>

➤ GitHub

<https://github.com/Microsoft/navcontainerhelper>

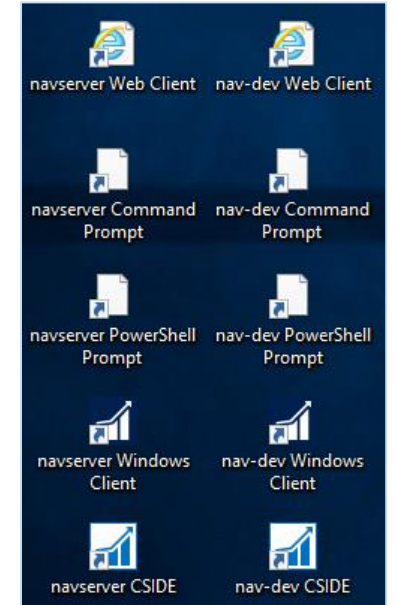
➤ Windows 10 or 2016 Server & Docker **required**

➤ Installation *PowerShell*

```
$ install-module navcontainerhelper -force
```

➤ Local Container Path

```
$ C:\ProgramData\NavContainerHelper\Extensions\
```



Dieser PC > Windows (C:) > ProgramData > NavContainerHelper > Extensions			
Name	Änderungsdatum	Typ	
nav-2017	17.05.2018 13:30	Dateiordner	
nav-dev	24.04.2018 08:49	Dateiordner	
navserver	18.05.2018 11:04	Dateiordner	

NAV Container Helper

Introduction

➤ Pull & Setup Containers for NAV

- [The Right NAV-Image](#)
- Import license file
- Mount Volumes (PS-Scripts, Add-ins, DB-Backup Dir)
- Authentication
- Symbols Loading

➤ Import/Export Objects, Database, Apps (PowerShell)

```
New-NavContainer -accept_eula:$accept_eula `
                 -accept_outdated:$accept_outdated `
                 -containerName $containerName `
                 -imageName $imageName `
                 -licenseFile $licenseFile `
                 -credential $credential `
                 -memoryLimit $memoryLimit `
                 -includeCSide `
                 -doNotExportObjectsToText:$doNotExportObjectsToText `
                 -alwaysPull:$alwaysPull `
                 -enableSymbolLoading:$enableSymbolLoading `
                 -updateHosts:$updateHosts `
                 -useSSL:$useSSL `
                 -auth $auth `
                 -additionalParameters $additionalParameters `
                 -myScripts $myScripts|
```

NAV Container Helper

Common Commands

Cheat-Sheet

List common Commands

```
$ Write-NavContainerHelperWelcomeText
```

Create new C/SIDE development container

```
$ New-CSideDevContainer -accept_eula -containerName <name> -imageName "Microsoft/dynamics-nav:2018-cu4-de" ...
```

Create new Nav container

```
$ New-NavContainer -accept_eula -containerName <name> -imageName "Microsoft/dynamics-nav:2018-cu4-de" ...
```

```
$
```

```
$
```

```
$
```

```
$
```



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Hands On



Docker

NAV Container Helper

➤ Material

- Project Skeleton „04-DevOps-Docker**Starter**\COSMO-CONSULT-1\”

➤ Prerequisites

- Connect to your Workshop VM → use Instructions on your Workshop Boarding Pass

➤ Hand On - Tasks

- Learn how to setup a development environment
- Create and access a dev container with C/Side, RTC & WebClient short cuts
- Develop against to the Container

Docker

NAV Container Helper

- Open your PowerShell ISE (Admin Mode)
- Create a new Container with NavContainerHelper
 - Docker Registry: microsoft
 - Docker Image: dynamics-nav
 - Docker Tag: 2018-cu5-de
 - Container Name: nav-dev
- Run the Script

```
$ docker pull <registry>/<image>[:<tag>]
```

```
$authUser    = 'student'
$authPass    = 'WS-VSCode2018'
$secpasswd   = ConvertTo-SecureString $authPass -AsPlainText -Force
$credential  = New-Object System.Management.Automation.PSCredential ($authUser, $secpasswd)

New-NavContainer -accept_eula `
                 -accept_outdated `
                 -containerName "nav-dev" `
                 -imageName "microsoft/dynamics-nav:2018-cu5-de" `
                 -licenseFile "<OutSide-Folder>\License.flf" `
                 -credential $credential `
                 -includeCSide `
                 -enableSymbolLoading `
                 -auth NavUserPassword
```

Docker

NAV Container Helper

- Open your Project „...\Starter\COSMO-CONSULT-1\“ in VS Code
 - Fix the „lauch.json“
 - Deploy and run the solution
- TBD 😊

Q & A



Channel

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