

Team 2 - AAS Digital Nameplate

Präsentation Softwareengineering TINF21C Semester 4

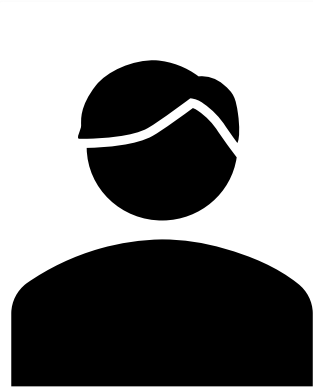
Team



Adrian Khairi

Projektleiter

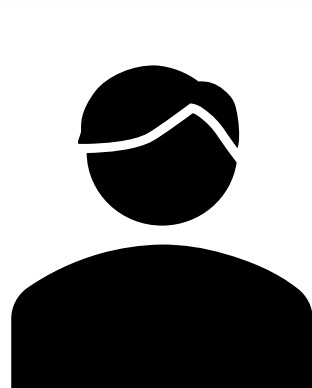
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Agenda

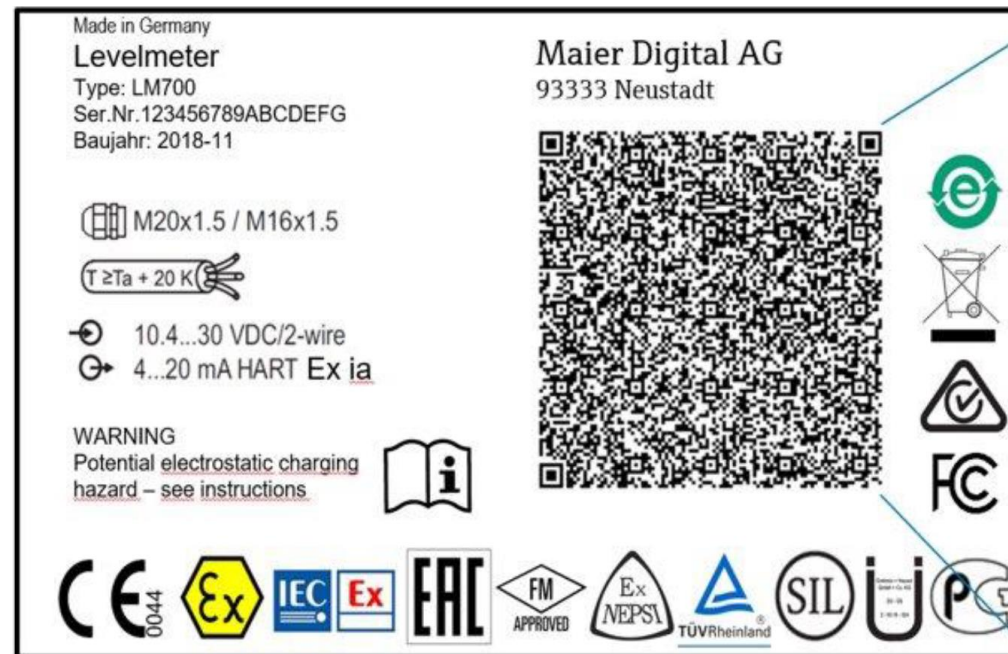
- **Master Usecase**
- **Produktübersicht**
- **Systemarchitektur**
- **Testen**
- **Demo**
- **Fazit und Ausblick**

Projektkontext

- Asset Administration Shell:
 - Verwaltung von Bauteilen / Bauteilgruppen / Maschinen
 - “Digital Twin” der realen Objekte
 - Erreichbar über eine REST-API
- Nameplate Submodell:
 - Beinhaltet Daten über ein Asset
 - z.B. Hersteller, Seriennummer, Betriebsrichtlinien, Zertifizierungen etc.

Projektziel

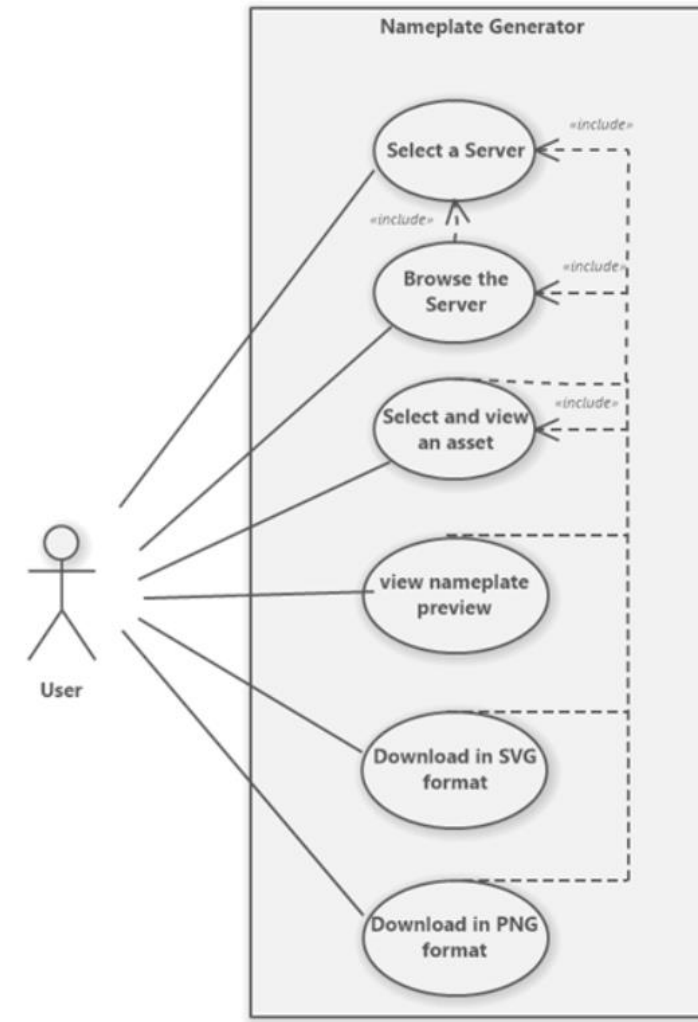
- Nameplates anhand einer gegebenen Datenquelle auf der Basis vom DIN-Standard, einer REST-API und einem AAS-Server



PRODUKTÜBERSICHT

Anforderungen

- Suche nach Asset oder Server
- Navigation
- Nameplate und QR-Code Generator
- Download Menü für SVG- und PNG-Format
- Error Message
- Laden einer Website unter sieben Sekunden



Home Page



The screenshot shows the home page of the 'Nameplate Generator' application. At the top, a dark blue header bar contains the application's logo and name on the left, and a hamburger menu icon on the right. The menu is open, showing 'Home', 'About', and 'GitHub' links. Below the header, the main content area has a light blue background. The title 'Nameplate Generator' is centered in a large, bold, dark blue font. Below the title is a search bar with the placeholder text 'Server address'. A red arrow points from the text 'Suche für Server' to this search bar. Below the search bar is a cartoon illustration of a yellow stick figure holding a grey server unit. The word 'Navigation' is positioned to the right of the search bar.

Nameplate Generator

Home
About
GitHub


Navigation

Suche für Server

Server address



Home Page – Vorgeschlagene Server

 Nameplate Generator 

Nameplate Generator

<https://ccae4836-001e-48c2-a4f9-235554f9400b.ma.bw-cloud-instance.org/>
<https://v3-2.admin-shell-io.com/>
<https://v3.admin-shell-io.com/>
<https://admin-shell-io.com/5001>
<http://aas.murrelektronik.com:4001/aas>











Übersicht Assets

Suche nach Server

Nameplate Generator

https://ccae4836-001e-48c2-a4f9-235554f9400b.m: x Q

Filter für Assets → AAS x Q

	AAS_Type_CD55B20_50
	AAS_Type_JSY205220
	AAS_Demo_4WRPEH6
	AAS_Demo_CytroPac
	AAS_R412026837
	AAS_R481712899
	AAS_Type_SPAU-P10R-T-G18M-L-PNLK-PNVBA-M8D
	AAS_Type_VUVS-L25-M52-AD-G14-F8-1C1

Asset Details - Nameplate

Nameplate Generator

https://ccae4836-001e-48c2-a4f9-235554f9400b.m... x Q

AAS_Demo_CytroPac



Nameplate

CYTROPAC-1X/20/AF1AS11/2/B/WA/1/7035
Kleinaggregat CytroPac

Bosch Rexroth
97816 Lohr am Main, Zum Eisengießer 1
Bayern
+49 (0) 9352 18 0
www.boschrexroth.com

www.boschrexroth.com/ids/aas/7031_8082_3022_7912
ManufacturerProductFamily: CytroPac
SerialNumber: 708900000842
YearOfConstruction: 2022
VATNumber: DE 813 084 274

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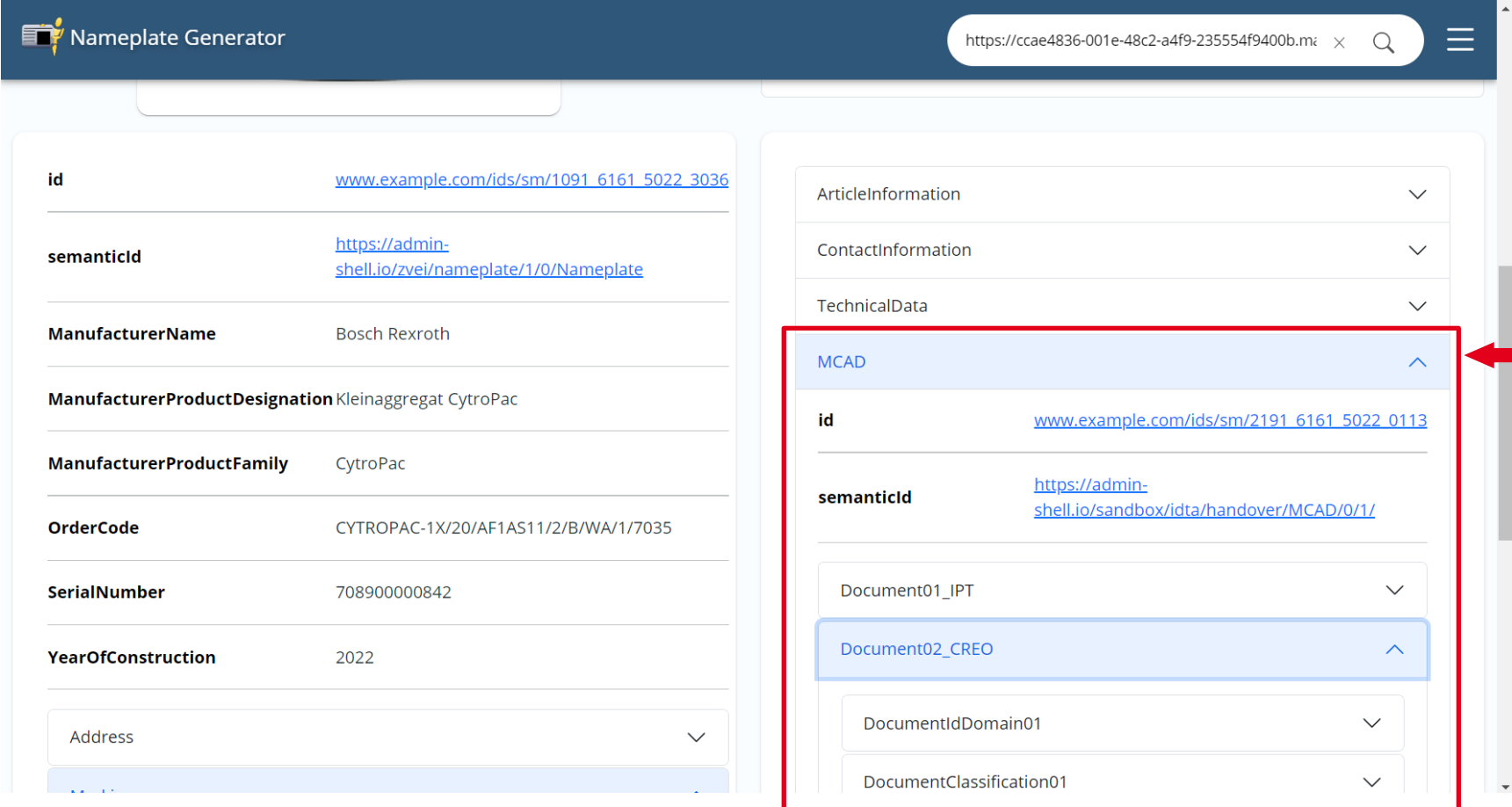
CE CE CE

Download SVG Download PNG

Scanbarer QR-Code

Download Nameplate

Asset Details – Weitere Informationen



The screenshot displays the 'Nameplate Generator' web application interface. The left panel shows a list of asset details, and the right panel shows expanded technical data for a selected asset.

Asset Details (Left Panel):

id	www.example.com/ids/sm/1091_6161_5022_3036
semanticId	https://admin-shell.io/zvei/nameplate/1/0/Nameplate
ManufacturerName	Bosch Rexroth
ManufacturerProductDesignation	Kleinaggregat CytoPac
ManufacturerProductFamily	CytoPac
OrderCode	CYTROPAC-1X/20/AF1AS11/2/B/WA/1/7035
SerialNumber	708900000842
YearOfConstruction	2022
Address	

Expanded Details (Right Panel):

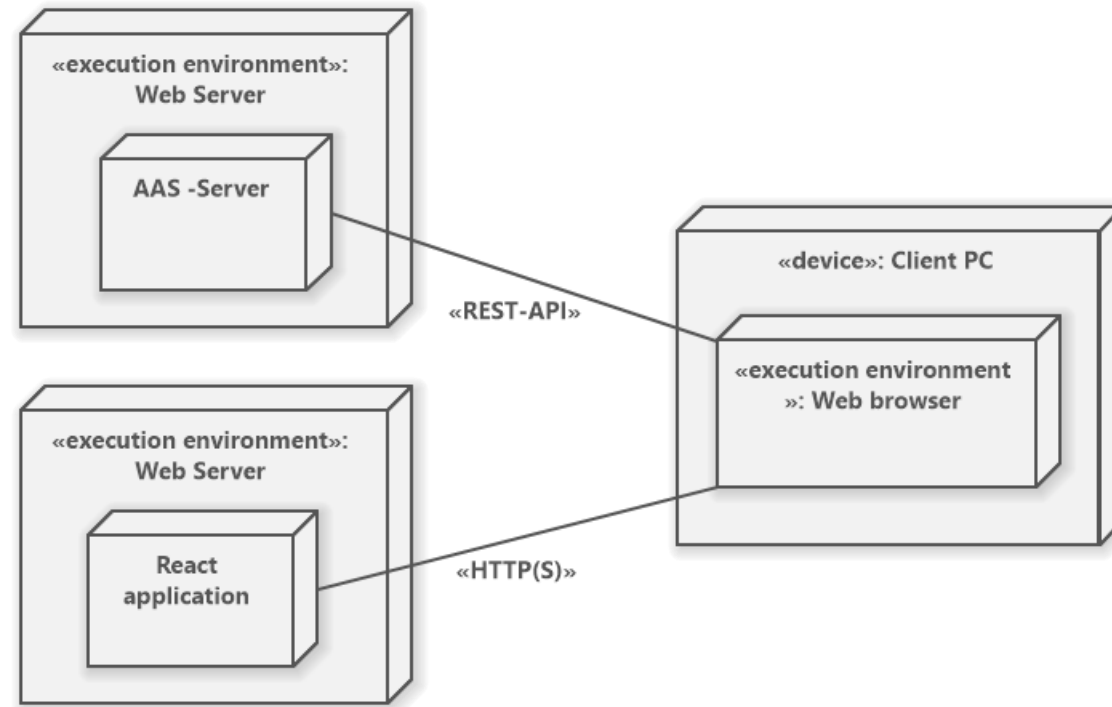
The right panel shows a list of expanded details for the selected asset. A red box highlights the 'MCAD' section, which is expanded to show further details. A red arrow points to this section with the label 'Erweiterte Details'.

MCAD Details:

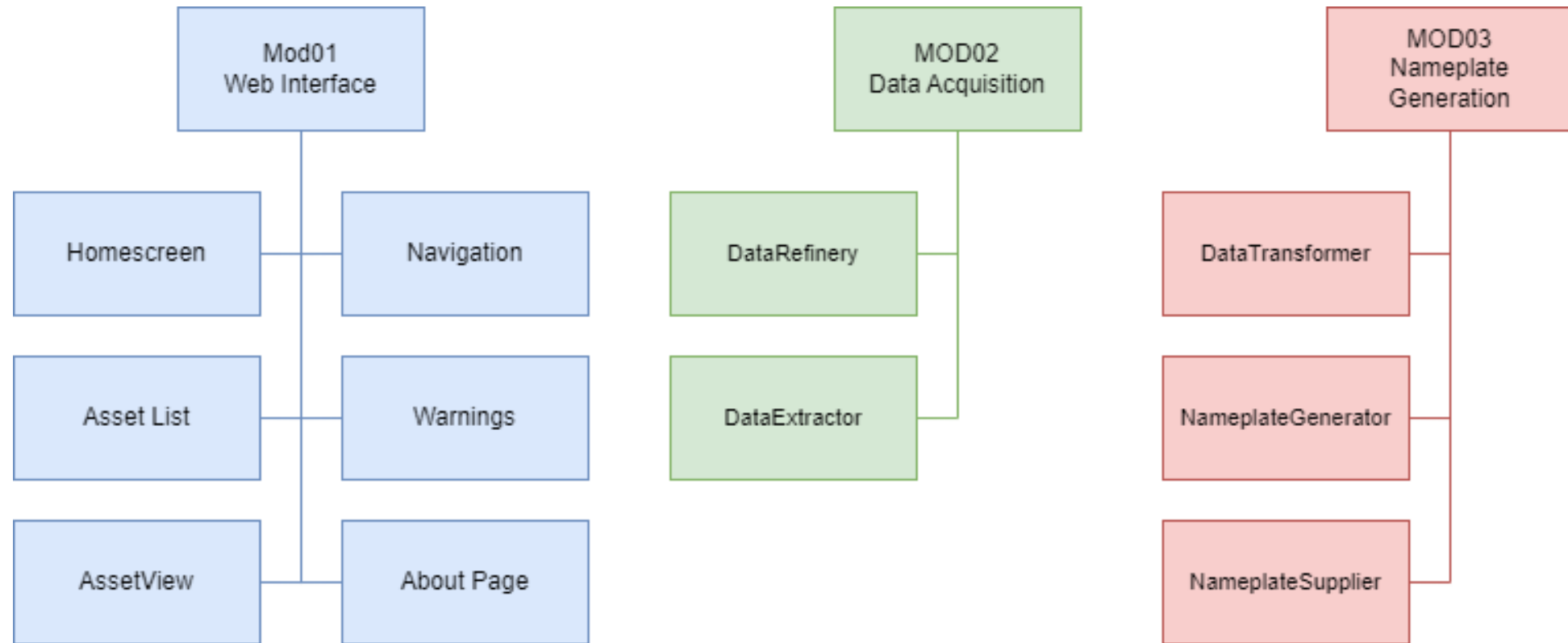
id	www.example.com/ids/sm/2191_6161_5022_0113
semanticId	https://admin-shell.io/sandbox/idta/handover/MCAD/0/1/
Document01_IPT	
Document02_CREO	
DocumentIdDomain01	
DocumentClassification01	

SYSTEMARCHITEKTUR

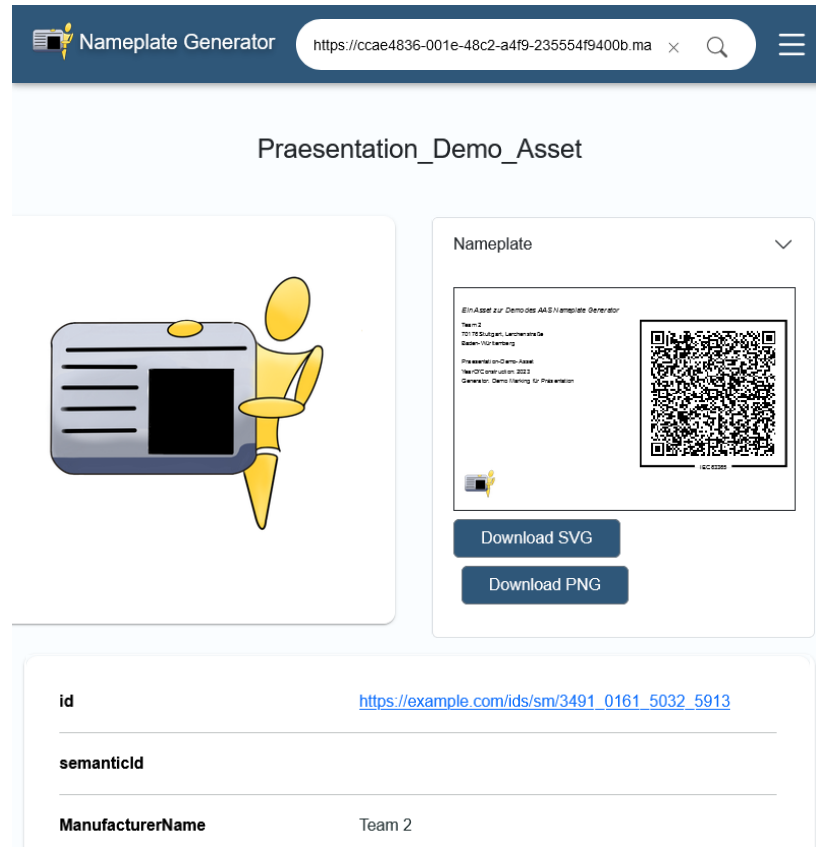
System Architektur - Systemverteilung



Module



MOD01 – Web Interface



- Interface aus modularen Komponenten
- Umsetzung in React

MOD02 – Data Acquisition

Daten von Server anfordern

```

1  {
2    "idShort": "Nameplate",
3    "description": {
4      "langStrings": [
5        {
6          "language": "de",
7          "text": "Dies ist ein Asset zur Demo des AAS_Nameplate_Generator"
8        }
9      ]
10   },
11   "id": "https://example.com/ids/sm/3491_0161_5032_5913",
12   "kind": "Instance",
13   "semanticId": {
14     "type": "GlobalReference",
15     "keys": []
16   },
17   "submodelElements": [
18 >   { ...
19   },
20 >   { ...
21   },
22 >   { ...
23   },
24 >   { ...
25   },
26 >   { ...
27   },
28 >   { ...
29   },
30 >   { ...
31   },
32 >   { ...
33   },
34 >   { ...
35   },
36 >   { ...
37   },
38 ]
39 "modelType": "Submodel"
40 }

```

DataRefinery

Daten in internes Format umwandeln

```

1  {
2    "idShort": "Praesentation_Demo_Asset",
3    "id": "Praesentation-Demo-Asset",
4    "num": 16,
5 >   "productImages": [ ...
6   ],
7   "Nameplate": {
8     "idShort": "Nameplate",
9     "id": "https://example.com/ids/sm/3491_0161_5032_5913",
10    "ManufacturerName": "Team 2",
11    "ManufacturerProductDesignation": "Ein Asset zur Demo des AAS Nameplate Generator",
12    "YearOfConstruction": "2023",
13    "Address": {
14      "Street": "Lerchenstraße",
15      "ZipCode": "70176",
16      "City_Town": "Stuttgart",
17      "State_County": "Baden-Württemberg"
18    },
19    "Markings": {
20      "Generator": {
21        "FilePath": "https://cdae4836-001e-48c2-a4f9-235554f9400b.ma.bw-cloud-instar
22        "MarkingFile": "/aasx/SWELogo.png",
23        "MarkingName": "Demo Marking für Präsentation"
24      }
25    }
26   },
27   "TechnicalData": {
28     "idShort": "TechnicalData",
29     "id": "https://example.com/ids/sm/2184_5171_5032_0578",
30     "GeneralInformation": {
31       "FilePath": "https://cdae4836-001e-48c2-a4f9-235554f9400b.ma.bw-cloud-instance.c
32       "ProductImage01": "/aasx/SWELogo.png",
33       "ManufacturerName": "Team2"
34     }
35   }
36 }
37 }

```

DataExtractor

MOD03 – Nameplate Generation

Nameplate aus internem Datenformat generieren

```

1  {
2    "idShort": "Praesentation_Demo_Asset",
3    "id": "https://example.com/ids/sm/3491_0161_5032_5913",
4    "num": 16,
5    "productImages": [ ...
6  ],
7  },
8  "Nameplate": {
9    "idShort": "Nameplate",
10   "id": "https://example.com/ids/sm/3491_0161_5032_5913",
11   "ManufacturerName": "Team 2",
12   "ManufacturerProductDesignation": "Ein Asset zur Demo des AAS Nameplate Generator",
13   "YearOfConstruction": "2023",
14   "Address": {
15     "Street": "Lerchenstraße",
16     "ZipCode": "70176",
17     "City_Town": "Stuttgart",
18     "State_County": "Baden-Württemberg"
19   },
20   "Markings": {
21     "Generator": {
22       "FilePath": "https://cdae4836-001e-48c2-a4f9-235554f9400b.ma.bw-cloud-instar
23       "MarkingFile": "/aasx/SWELogo.png",
24       "MarkingName": "Demo Marking für Präsentation"
25     }
26   }
27 },
28 "TechnicalData": {
29   "idShort": "TechnicalData",
30   "id": "https://example.com/ids/sm/2184_5171_5032_0578",
31   "GeneralInformation": {
32     "FilePath": "https://cdae4836-001e-48c2-a4f9-235554f9400b.ma.bw-cloud-instance.c
33     "ProductImage01": "/aasx/SWELogo.png",
34     "ManufacturerName": "Team2"
35   }
36 }
37 }

```



Ein Asset zur Demo des AAS Nameplate Generator

Team 2
70176 Stuttgart, Lerchenstraße
Baden-Württemberg

Praesentation-Demo-Asset
YearOfConstruction: 2023
Generator: Demo Marking für Präsentation



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TESTEN

Testentwurfungsverfahren

White-Box

Modultest

- MOD01 Web Interface
- MOD02 Data Acquisition
- MOD03 Nameplate Generation

Verantwortung

- Jeder Entwickler testet sein Modul
- Review durch Software Architekt vor Merge

Black-Box

Anforderungsbasiert

- System Requirements Specification

Testfall- und Testdatenermittlung

- Äquivalenzklassenbildung (ÄK)
- Starker ÄK-Test
- Paarbildung
- Grenzwertanalyse

Verantwortung

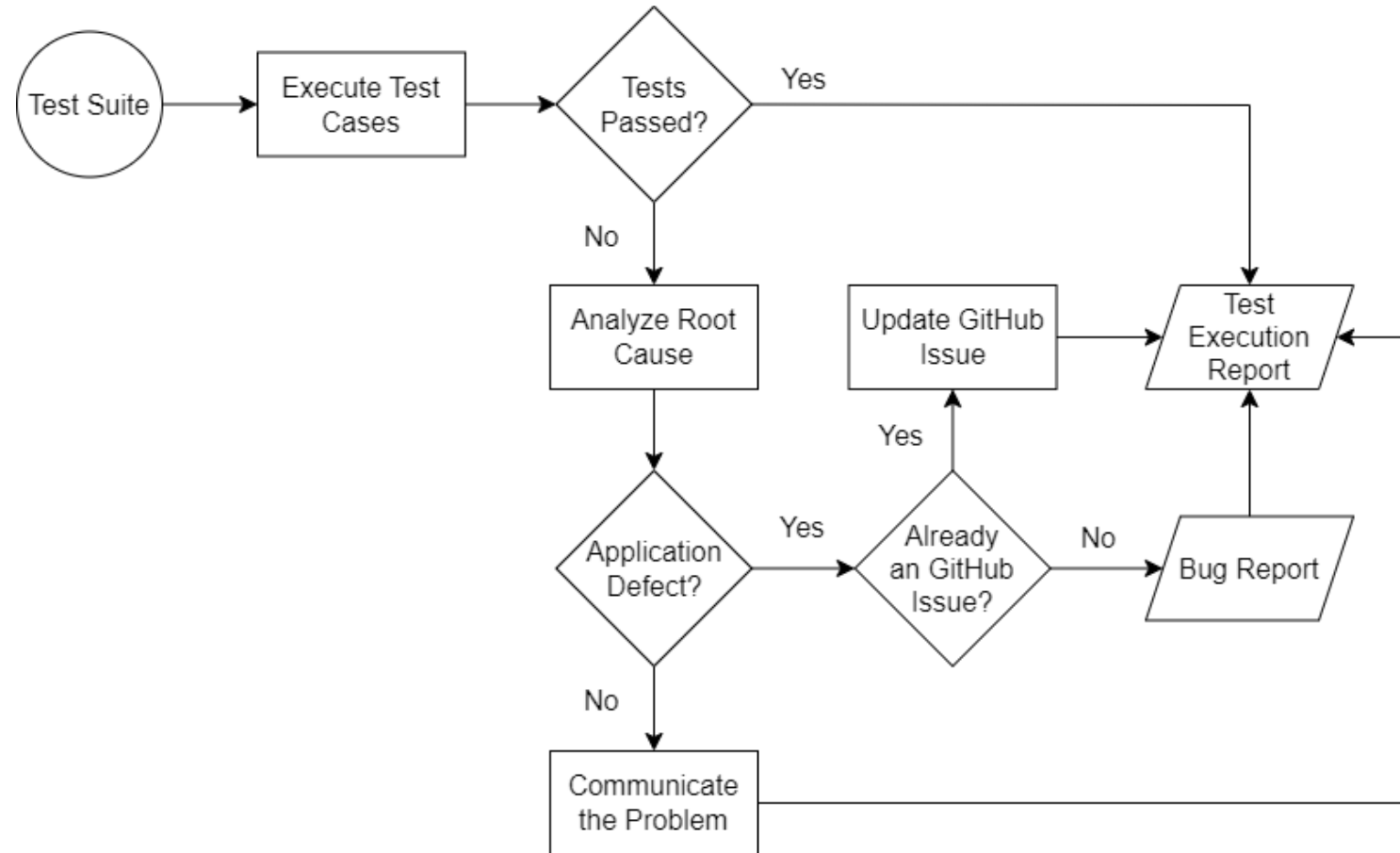
- Durchführung durch Test Manager

Requirements Traceability Matrix

Requirement ID	Functionality
DNG.GUI.001	Responsive and compatible GUI
DNG.GUI.002	Download menu for SVG and PNG format
DNG.GUI.003	Search functionality
DNG.GUI.004	Navigation buttons
DNG.GUI.005	QR-code generator
DNG.GUI.006	Nameplate generator
DNG.GUI.007	Error handling
DNG.PERF.001	Performance

Requirement Identifiers	Reqs Tested	DNG .GUI .001	DNG .GUI .002	DNG .GUI .003	DNG .GUI .004	DNG .GUI .005	DNG .GUI .006	DNG .GUI .007	DNG .PERF .001
Test Cases	26	7	2	3	2	2	2	7	1
TC.INST .001.F	1							X	
TC.CON .001.F	3	X		X				X	
TC.CON .002.F	3	X		X				X	
TC.NAV .001.F	2	X			X				
TC.NAV .002.F	2	X			X				
TC.OV .001.F	2	X						X	
TC.NP .001.F	5	X	X			X	X	X	
TC.NP .002.F	5	X	X			X	X	X	
TC.PERF .001.F	3			X				X	X

Inzident Management



Test Umgebung

Geräte

No.	Resources	Descriptions
01	Computer	HP EliteBook 850 G7 Notebook Operating system: Windows 10 Home 64
02	Computer	MacBook Pro 13" Operating system: MacOS 12.6.5
03	Smartphone	Galaxy S20 Ultra 5G Operating system: Android 12

Software

Internet Browsers:

- Firefox 111.0
- Microsoft Edge 110.0
- Google Chrome 111.0

Handy Applikationen:

- Kamera
- Uhr



Eigener AAS-Server

Testbericht



Test Case	Result
<TC.INST.001.F>: Access front end on local machine	PASS
<TC.CON.001.F>: Connect to AAS-Server via search bar	PASS
<TC.CON.002.F>: Connect to suggested AAS-Server via search bar	PASS
<TC.NAV.001.F>: Navigation bar	PASS
<TC.NAV.002.F>: Browser's navigation buttons	PASS
<TC.OV.001.F>: Choose asset of asset list	PASS
<TC.NP.001.F>: Download nameplate in SVG	PASS
<TC.NP.002.F>: Download nameplate in PNG	PASS
<TC.PERF.001.F>: Performant under expected or peak loads	PASS


LIVE DEMO

Demo


 Nameplate Generator 



Nameplate Generator



 










Demo


 **Nameplate Generator**

<https://ccae4836-001e-48c2-a4f9-235554f9400b.ma>  


	Norgren_B84G_4GK_AP3_RME
	Norgren_ISOLine_PRA_802032_M_100
	ARGO-HYTOS Filter Element EXAPOR MAX3
	ARGO_HYTOS_Return_Filter_ES075
	Parker_D1FPE50MB9NB0_ISDE8HU
	Parker_HMI-2203250342054_HGDK8HU
	Parker_PV046R2L1T1NMMC_JU64L8HZ

Demo

 Nameplate Generator

https://ccae4836-001e-48c2-a4f9-235554f9400b.ma

Praesentation_Demo_Asset




Nameplate


Ein Asset zur Demo des AAS Nameplate Generator

Team 2
70176 Stuttgart, Lerchenstraße
Baden-Württemberg

Praesentation-Demo-Asset
YearOfConstruction: 2023
Generator: Demo Marking für Präsentation



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Download SVGDownload PNG

id

[https://example.com/ids/sm/3491 0161 5032 5913](https://example.com/ids/sm/3491%20161%205032%205913)

TechnicalData

Demo

Ein Asset zur Demo des AAS Nameplate Generator

Team 2

70176 Stuttgart, Lerchenstraße

Baden-Württemberg

Praesentation-Demo-Asset

YearOfConstruction: 2023


Generator: Demo Marking für Präsentation



IEC 63365



Demo

 Nameplate Generator

https://ccae4836-001e-48c2-a4f9-235554f9400b.ma × 🔍 ☰

Digital Nameplate Generator

Introduction to our project

The main purpose of the Digital Nameplate Generator is to generate nameplates for assets provided by the Asset Administration Shell (AAS). The AAS is a standardized and open framework for managing assets in Industry 4.0 environments, and the nameplate is an essential component of the AAS. It contains product identification information in digital form, which can be read using smartphones and tablets. The application we developed generates graphical illustrations based on the properties provided by the AAS and also generates QR codes according to the DIN standard. Additionally, we designed and implemented a user-friendly front-end application using React. The home page allows users to enter a server address and displays a list of all components available on the server. After selecting the server, the user can view the data regarding the asset chosen. Furthermore, our application provides the option to download the nameplate in SVG or PNG format. We also offer a User Manual documentation online.

Our project is open source, and we have licensed it under the MIT License.

This project was created as part of our course in Software Engineering at the Baden-Wuerttemberg Cooperative State University (DHBW) Stuttgart. Thank you for visiting our website, and please feel free to contact us if you have any questions or feedback about Digital Nameplate Generator.

Design and Software development by

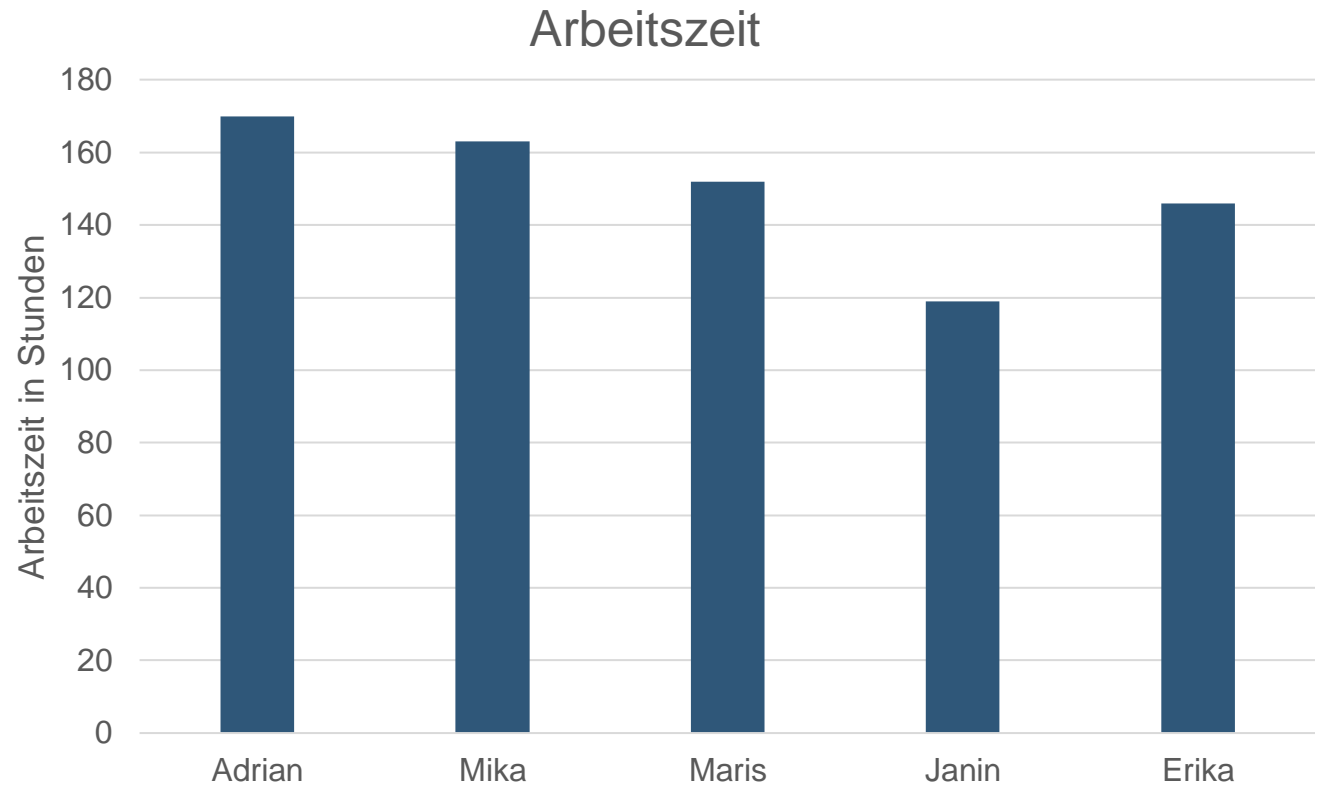
Team Lead: Adrian Khairi
Test Manager: Janin Ahlemeyer
System Architect & Software Developer: Mika Kuge
Technical Documentation: Maris Koch
Product Manager: Erika Zhang

Build created on: 2023-05-09-19:17:39
Commit Hash: a61872e

FAZIT UND AUSBLICK

Projekt Statistiken

- 76 Issues
- 89 Pull Requests
- 395 Commits



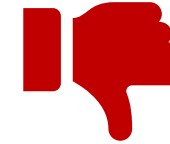
Lessons learned

Was lief gut?



- Endergebnis erfüllt Anforderungen
- Aufgaben- und Arbeitsverteilung im Team
- Nutzung der Möglichkeiten in GitHub

Was lief schlecht?



- Erhöhte Aufwandschätzung durch Restrukturierung
- Perfektionismus

Ausblick

- Viel Spielraum zur weiteren Entwicklung
- Vorhandene Issues bearbeiten
- Kombination von “Viewer” und “Generator”



Verwendete Referenzen

- 241-0-25_2020-0016_Druckmanuskript_Digitales_Typenschild.pdf
- DIN_SPEC_91406.pdf
- IDTA 2006-1-1_Submodel_Digital Nameplate_Review.docx
- IEC_63365_ED1_DigitalNameplate.pdf

FRAGEN UND FEEDBACK