

TA mit ROBOT FRAMEWORK®

Einführung und Praxis

digital imbus



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Chairman Robot Framework Foundation*

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Sales Manager imbus AG



```
4
5 *** Test Cases ***
6 ✓ Erfolgreiche Anmeldung
7   [Tags]    positive    smoke
8     CarConfig Öffnen
9     Benutzer Anmelden  admin    @RBTFRMWRKQ
10    Anmeldung Prüfen
11    [Teardown]  CarConfig Beenden
12
13
14
15
16 ▶ Fehlerhafte Anmeldung
17   [Tags]    negative   smoke
18     CarConfig Öffnen
19     Benutzer Anmelden  admin    1234567
20     Abgewiesene Anmeldung Prüfen
21     [Teardown]  CarConfig Beenden
22
23
24 *** Keywords ***
```

KEYWORD-DRIVEN

TESTING

Keyword-Driven Testing

Basics

- Testspezifikationsmethode
- Beschreibende Keywords
- Keyword = Testschritt = Aktion
- Keywords können strukturiert sein
- Menschenlesbar
- Imperative Methode
- Prozedurale Programmierung

```
5 *** Test Cases ***
6 Default Config
7
8 Open VSR Dream Car As Customer
9 Configure New Car
10 Select Basic Model      Model 3 (Rassant)
11 Click Next
12 Select Motor            EC0tech with Hybrid
13 Click Next
14 Select Special Model   Gomera
15 Click Next
16 Select Accessories     Floor mats
17 ...                     Autopilot Don'tCare
18 ...                     Sports Suspension
19 Click Next
20 Choose Color            Blue
21 Click Next
22 Verify Prices
23 ...
24 ...
25 ...
26 ...
27 ...
28
```

Keyword-Driven Testing

Vorteile

- **Lesbarkeit:** Tests für alle Beteiligten verständlich machen.
- **Wartbarkeit:** Updates vereinfachen und die Kosten für Änderungen reduzieren.
- **Wiederverwendbarkeit:** Die Nutzung gemeinsamer Komponenten fördern, um Duplikate zu vermeiden.
- **Modularität:** Tests so strukturieren, dass Funktionen isoliert werden.
- **Zusammenarbeit:** Die Kommunikation zwischen verschiedenen Teamrollen verbessern.

A dramatic photograph of a hand gripping a torch at its base, with intense orange and yellow flames erupting from the end. The hand is positioned over a smaller campfire, which is also ablaze. The background is filled with dark, billowing smoke and embers, creating a sense of heat and intensity.

Keyword-Driven
Testing

oder

Behavior-Driven
Development

?



Beides Hand in Hand

Behavior-Driven Development Testing

Temperaturmoduswechsel im Manuellen Modus

1. Aangenommen das Gerät ist im 'Manual Mode'
2. und die Temperatur ist 17 °C
3. Wenn man den 'Tempmode' Knopf drückt
4. Dann sollte der TempMode im 'Comfort Mode' sein
5. und sollte die Temperatur auf 21 °C eingestellt sein

Behavior-Driven Testing

Temperaturgruppen

1. Aangenommen IoT Server wurde als Administrator geöffnet
2. und die Geräte Konfiguration ist geöffnet
3. Wenn man eine Gruppe Showroom erstellt
4. und man das Gerät Heizung1 der Gruppe Showroom hinzufügt
5. und man das Gerät Wandthermol der Gruppe Showroom hinzufügt
6. und man die Temperatur am Wandthermol auf 21°C einstellt
7. Dann sollte auf Heizung1 die Temperatur 21°C betragen
8. Wenn man die Temperatur am Heizung1 auf 17°C einstellt
9. Dann sollte auf Wandthermol die Temperatur 17°C betragen

Keyword-Driven Testing

Temperaturgruppen

1.	IoT Server Seite öffnen	Administrator	
2.	Geräte Konfiguration öffnen		
3.	Gruppe erstellen	Showroom	
4.	Gerät zur Gruppe hinzufügen	Heizung1	Showroom
5.	Gerät zur Gruppe hinzufügen	Wandthermol1	Showroom
6.	Temperatur einstellen	Wandthermol1	21 °C
7.	Temperatur prüfen	Heizung1	21 °C
8.	Temperatur einstellen	Heizung1	17 °C
9.	Temperatur prüfen	Wandthermol1	17 °C

Roboter oder Gurken?

Keyword-Driven Testing

vs

Behavior-Driven Testing

- Imperative Spezifikation
- ✓ Hohe Wiederverwendbarkeit
- ✓ Sehr gute Wartbarkeit
- ✓ Modulare Architektur
- ✓ Gut für manuelle Regression
- ✓ Gut für System- u. Akzeptanztests
- Codeähnlicher / Abstrakter
- Höhere Qualitätsanforderungen

- Deklarative Spezifikation
- ✓ Akzeptanzkriterien als Tests
- ✓ Hilft syntaktischer Vollständigkeit
- ✓ Kommunikationsmittel
- Schlecht für "lange" Tests (> 6 Steps)
- Ungeeignet für Systemtest
- Unpraktisch für manuelle Tests

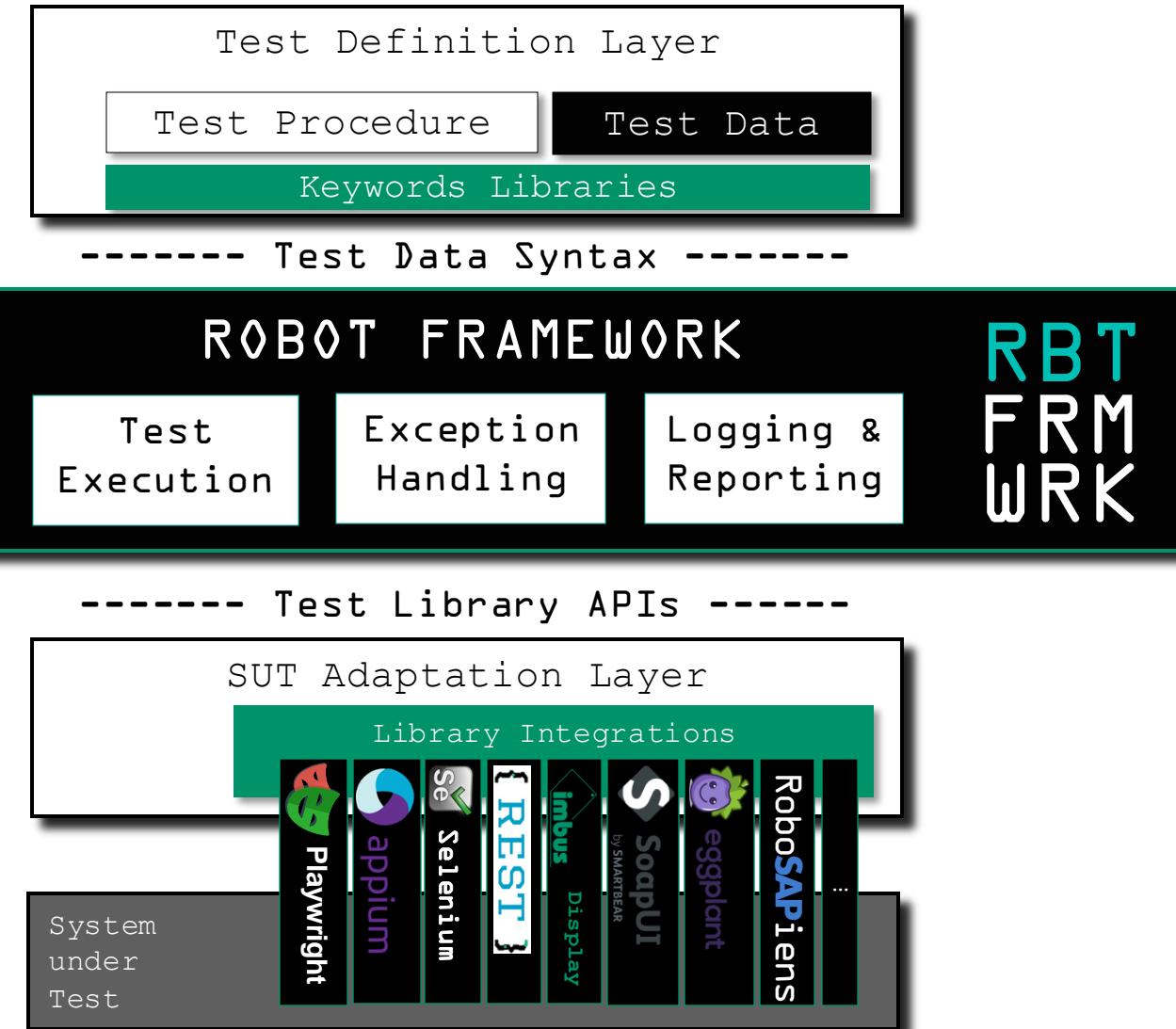
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4
5 *** Test Cases ***
6 Erfolgreiche Anmeldung
7   [Tags]    positive    smoke
8     CarConfig Öffnen
9     Benutzer Anmelden  admin  @RBTFRMWKO
10    Anmeldung Prüfen
11    [Teardown]  CarConfig Beenden
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21   [Teardown]  CarConfig Beenden
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23
24 *** Keywords ***
```

ROBOT FRAMEWORK®

Was ist ROBOT FRAMEWORK?

Open Source Keyword-Driven Testing

- Generisches Automatisierungs Framework
 - Test Automation
 - Robotic Process Automation
- 100% Open-Source (Apache 2.0)
- Keyword-Driven Testing
- Behavior-Driven Testing
- Technologieunabhängig
 - From Web To Embedded-Testing
- Finanziert durch
Robot Framework Foundation



FOUNDATION MITGLIEDER ~75



KUKA



KONE

ABB

CISCO

SLOVENSKÁ Š
sporiteľňa

amico OSRAM

F-Secure ING



München

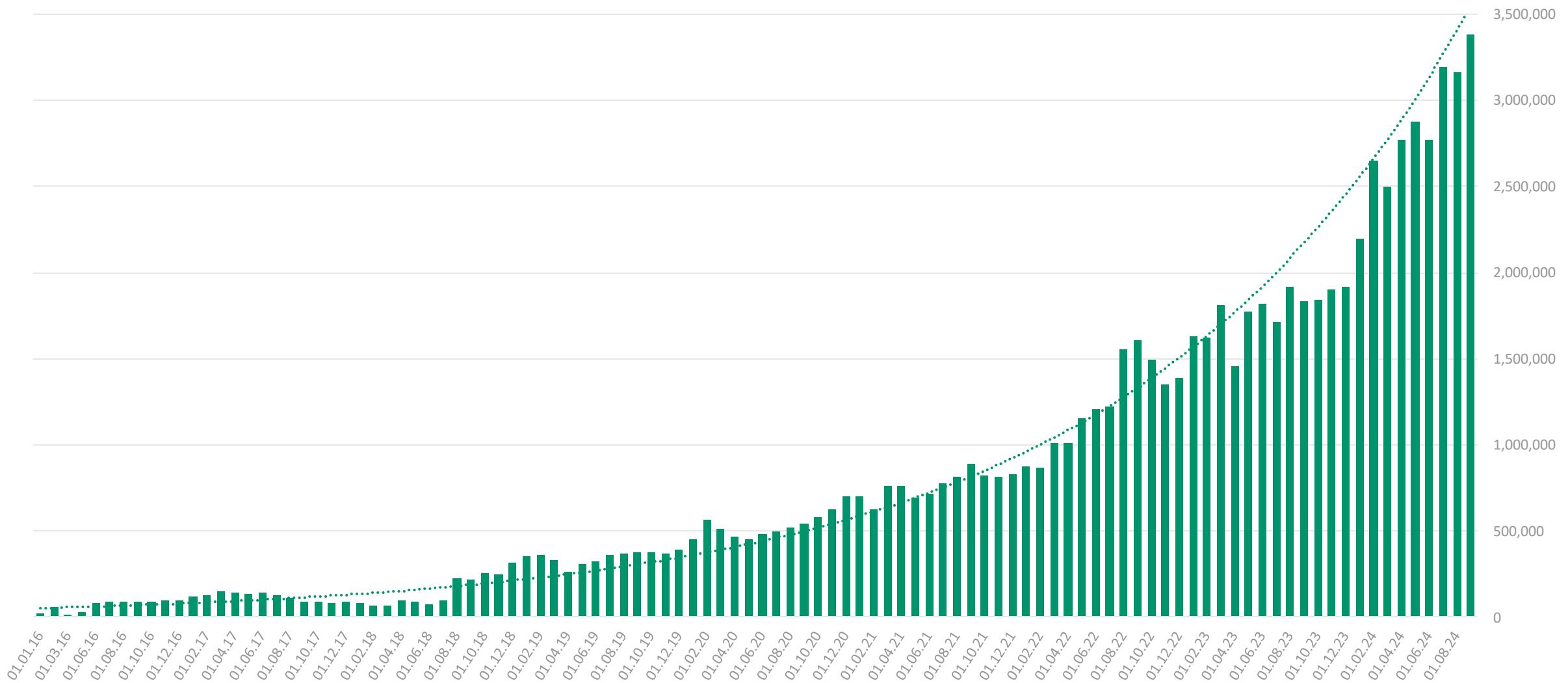


PROVINZIAL

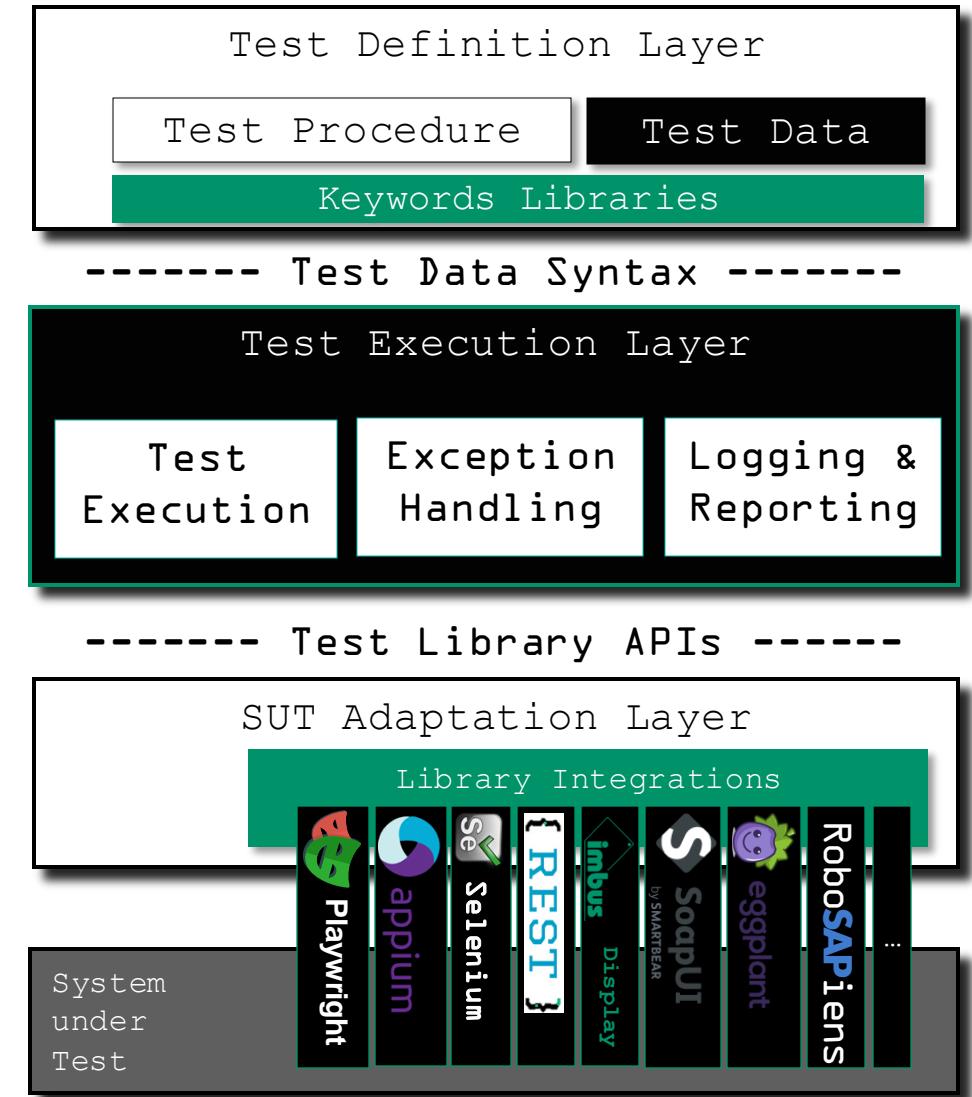
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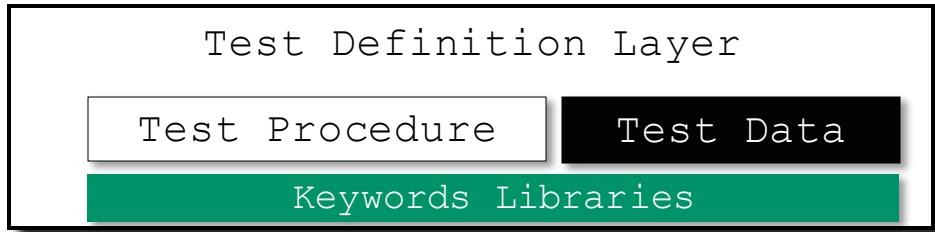
ROBOT FRAMEWORK Downloads/Monat



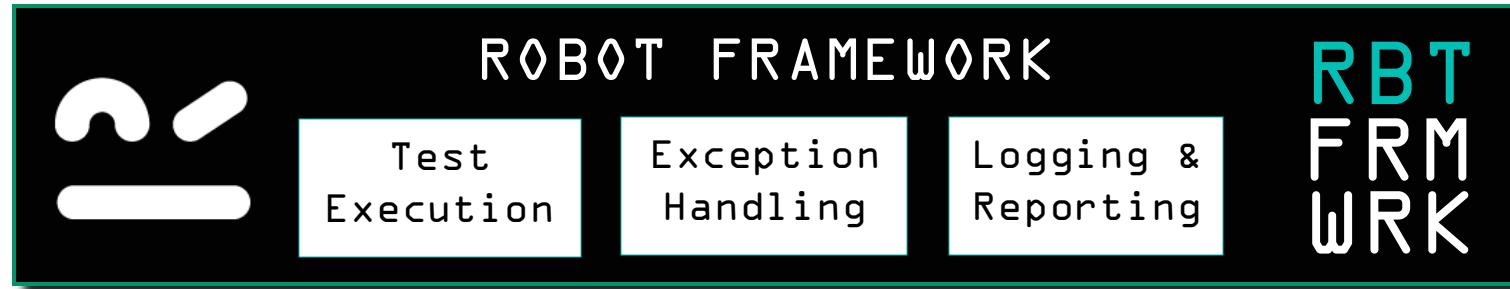
Generic Test Automation Architecture



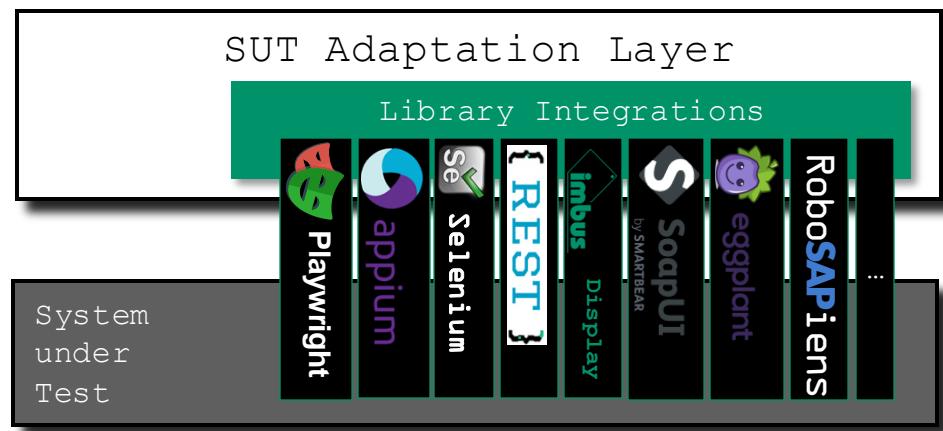
Generic Test Automation Architecture



----- Test Data Syntax -----

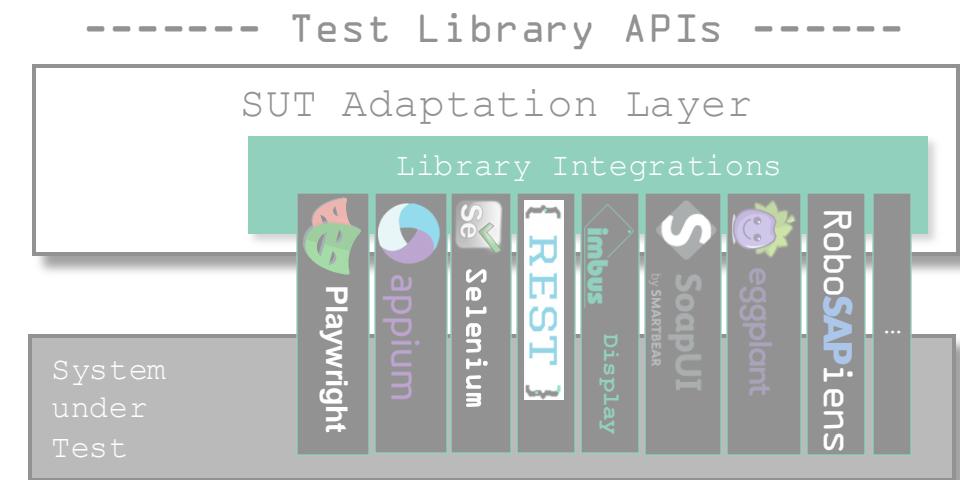
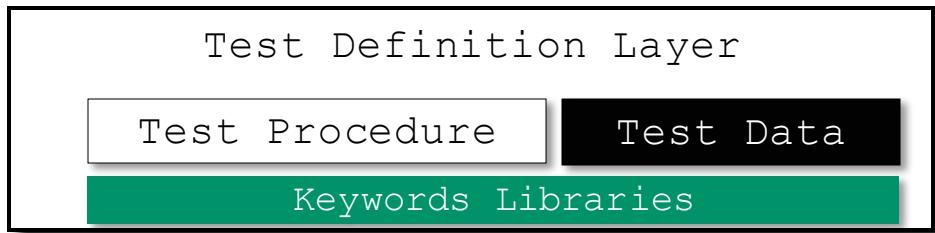


----- Test Library APIs -----



Editor & Spezifikation

```
*** Test Cases ***
Default Config as User
  Open VSR Dream Car
  Login User    customer_c01    password_c01
  Configure New Car
  Select Basic Model      Model 3 (Rassant)
  Select Motor            ECotech with Hybrid
  Select Special Model   Gomera
  Select Accessories     Floor mats
  ...
  ...
  Choose Color           Autopilot Don'tCare
  Verify Prices          Sports Suspension
  ...
  ...
  Choose Color           Blue
  Verify Prices          finalPrice=26.873,40
  ...
  basePrice=17.000,00
  ...
  enginePrice=4.999,00
  ...
  editionPrice=1.413,00
```



Editor & Sp

```
Filter (e.g. text, !exclude, @tag) ⚏ 5 *** Test Cases ***
6 Default Config as User
7 Open VSR Dream Car
8 Login User    customer_c01    password_c01
9 Configure New Car
10 Select Basic Model   Model 3 (Rassant)
11 Select Motor        ECOtech with Hybrid
12 Select Special Model Gomera
13 Select Accessories Floor mats
14 ...
15 ...
16 Choose Color       Blue
17 Verify Prices
18 ...
19 ...
20 ...
21 ...
22 ...
23 ...
24 Adding Discount as Sales
25 Open VSR Dream Car
26 Logi| Keyword (vsr_DreamCar_keywords)
27 ...
28 ...
29 ...
30 ...
31 ...
32 ...
33 ...
34 ...
35 ...
36 ...
37 ...
38 ...

*** Keywords ***
Login User
[Arguments]  ${username}  ${password}
Fill Text    "Username"  ${username}
Fill Text    "Password"  ${password}
Click      id=button_login
```



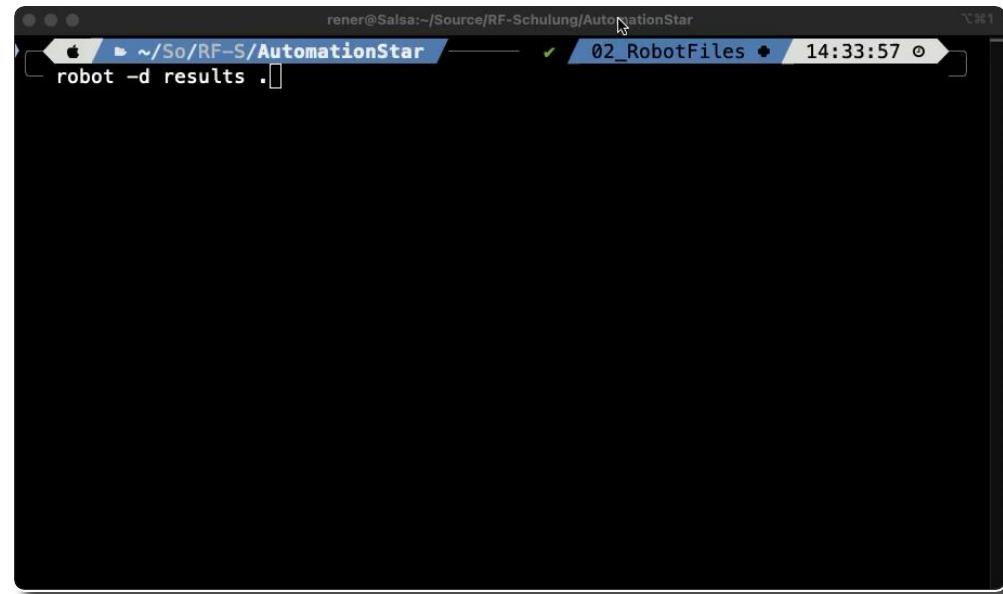
RBT
FRM
WRK

Editor & Sp

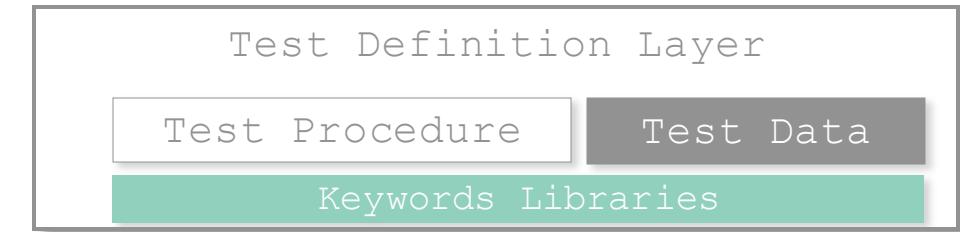
```
19      ...     basePrice=17.000,00
20      ...     enginePrice=4.999,00
21      ...     editionPrice=1.413,00
22
23
24 Adding Discount as Sales
25 Open VSR Dream Car
26 Logi [Autocomplete]
27   ↗ Login User          Keyword (vsr_DreamCar_keywords)
28   ↗ Log Variables
29   ↗ LocalStorage Get Item
30   ↗ LocalStorage Set Item
31   ↗ LocalStorage Remove Item
32 *Keywords ***
33 Login User
34   [Arguments]  ${username}  ${password}
35   Fill Text    "Username"  ${username}
36   Fill Text    "Password"  ${password}
37   Click        id=button_login
38
39 Open VSR Dream Car
40   New Browser  ${BROWSER}  headless=${HEADLESS}
41   IF  ${TRACING}  New Context  tracing=trace_${TEST_NAME}.zi
42   New Page    https://vsr.testbench.com/login
```

RBT
FRM
WRK

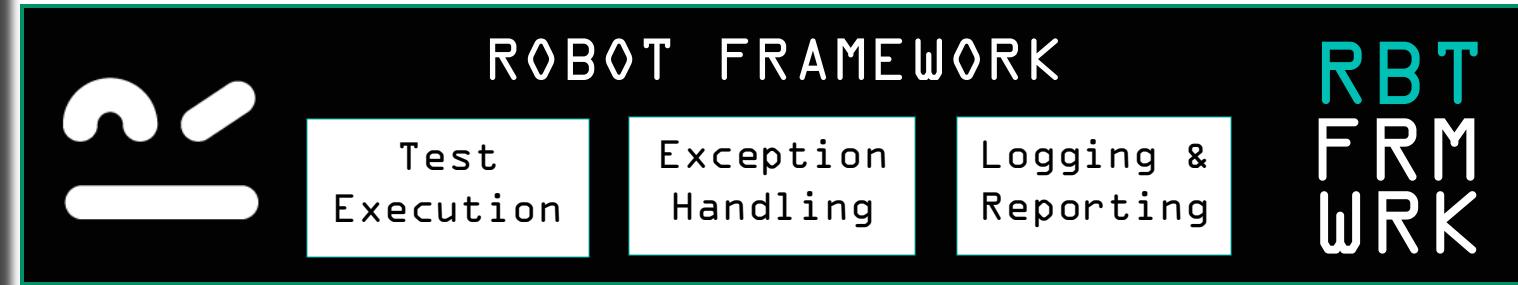
Execution



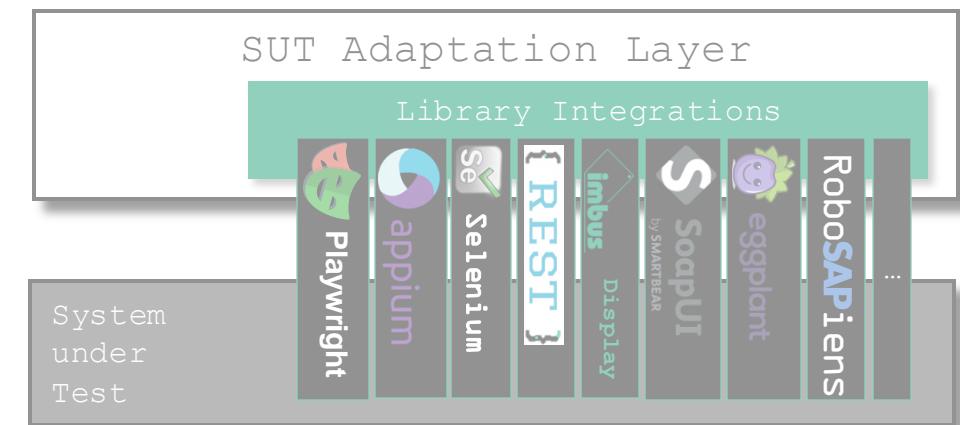
A terminal window showing the execution of a Robot Framework test suite. The command entered is `robot -d results .`. The output shows the path `~/So/RF-S/AutomationStar`, the file `02_RobotFiles`, and the time `14:33:57`.



----- Test Data Syntax -----



----- Test Library APIs -----



Keyword Libraries

```

 5 class Interaction(LibraryComponent):
 6     @keyword(tags=("Setter", "PageContent"))
 7     def click(self, selector: str, button: MouseButton = MouseButton.left):
 8         """Simulates mouse click on the element found by ``selector``.-
 9         self.click_with_options(selector, button)
10
11
12     @keyword(tags=("Setter", "PageContent"))
13     def click_with_options(
14         self,
15         selector: str,
16         button: MouseButton = MouseButton.left,
17         *modifiers: KeyboardModifier,
18         clickCount: int = 1,
19         delay: Optional[timedelta] = None,
20         force: bool = False,
21         noWaitAfter: bool = False,
22         position_x: Optional[float] = None,
23         position_y: Optional[float] = None,
24         trial: bool = False,
25     ):
26         """Simulates mouse click on the element found by ``selector``.-
27         selector = self.presenter_mode(selector, self.strict_mode)
28         with self.playwright.grpc_channel() as stub:
29             options = {
30                 "button": button.name,
31                 "clickCount": clickCount,
32                 "force": force,
33                 "noWaitAfter": noWaitAfter,
34                 "trial": trial,
35             }
36             if delay:
37                 options["delay"] = self.get_timeout(delay)
38             # Without the != None @ being falsy causes issues
39             if position_x is not None and position_y is not None:
40                 positions: Dict[str, object] = {"x": position_x, "y": position_y}
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```

Keyword Libraries

Robot Framework Superpower

765 Projekte für "robotframework" @ PyPi.org

Viele fertige Keyword Bibliotheken:

- SeleniumLibrary
- Browser Library
- DatabaseLibrary
- RequestsLibrary
- SSHLibrary
- DocTest Library



```
292 class InteractionLibrary:
293     """Simulates mouse interactions"""
294     def click(self, selector, button=MouseButtons.LEFT):
295         self.click_with_opt(selector, button, force=False)
296
297     def click_with_opt(self, selector, button=MouseButtons.LEFT,
298                         *modifiers: KeyModifiers, clickCount: int = 1,
299                         delay: Optional[TimeDelta] = None, force: bool = False,
300                         nowaitAfter: Optional[TimeDelta] = None,
301                         position_x: Optional[int] = None,
302                         position_y: Optional[int] = None,
303                         trial: bool = False):
304         """Simulates mouse interaction with the given selector.
305         If no selector is provided, the current active element will be used.
306         If no button is specified, the left mouse button will be used.
307         If no modifiers are specified, no modifier keys will be pressed.
308         If no click count is specified, one click will be performed.
309         If no delay is specified, no delay will be applied between the click
310         and the release of the button.
311         If no force is specified, the click will be performed normally.
312         If no nowaitAfter is specified, the script will wait for the click
313         to complete before continuing.
314         If no position_x or position_y are specified, the click will be
315         performed at the current position.
316         If no trial is specified, the click will be performed normally.
317
318         :param str selector: CSS selector for the element to interact with.
319         :param MouseButtons button: Which mouse button to use.
320         :param KeyModifiers modifiers: Modifiers to press during the click.
321         :param int clickCount: Number of times to click.
322         :param TimeDelta delay: Delay between click and release.
323         :param bool force: Force the click even if it fails.
324         :param TimeDelta nowaitAfter: Time to wait after the click.
325         :param int position_x: X coordinate for the click.
326         :param int position_y: Y coordinate for the click.
327         :param bool trial: Perform a trial click.
```



Keyword Libraries

```
15 class Interaction(LibraryComponent):
292     @keyword(tags=("Setter", "PageContent"))
293     def click(self, selector: str, button: MouseButton = MouseButton.left,
294             """Simulates mouse click on the element found by ``selector``. If
318             self.click_with_options(selector, button)
319
320     @keyword(tags=("Setter", "PageContent"))
321     def click_with_options(
322         self,
323         selector: str,
324         button: MouseButton = MouseButton.left,
325         *modifiers: KeyboardModifier,
326         clickCount: int = 1,
327         delay: Optional[timedelta] = None,
328         force: bool = False,
329         noWaitAfter: bool = False,
330         position_x: Optional[float] = None,
331         position_y: Optional[float] = None,
332         trial: bool = False,
333     ):
334         """Simulates mouse click on the element found by ``selector``. If
369         selector = self.presenter_mode(selector, self.strict_mode)
370         with self.playwright.grpc_channel() as stub:
371             options = {
372                 "button": button.name,
373                 "clickCount": clickCount,
374                 "force": force,
375                 "noWaitAfter": noWaitAfter,
376                 "trial": trial,
377             }
378             if delay:
379                 options["delay"] = self.get_timeout(delay)
```

*** Keywords ***

Login User

```
[Arguments]    ${username}    ${password}
Fill Text      "Username"    ${username}
Fill Text      "Password"    ${password}
Click          id=button_login
```

Open VSR Dream Car

```
New Browser    ${BROWSER}    headless=${HEADLESS}
IF            ${TRACING}    New Context    tracing=trace_${TRACING}
New Page      https://vsr.testbench.com/login
```

FRM
WRK

Exception
Handling

Logging &
Reporting

Test Library APIs -----

SUT Adaptation Layer

Library Integrations

BROWSER

playwright

appium Selenium REST

imaplib2 SoapUI

eggplant Robot Framework

...



Auf in den Kaninchenbau

Specification File Syntax

Space Matters

```
Tutorial > TestCases > 03_Browser_Tests > 02_Case_01.feature
1 *** Settings ***
2 Metadata      Conference
3
4 Resource      00_technical_keywords.resource
5
6
7 *** Variables ***
8     1 space =    }      http://car
9         Value
10
11 *** Test Cases ***
12 Configure Car with Pass
13     [Setup]      Open Web Page    ${TEST_URL}
14     Login User    admin          @RBTFRMWRK@
15     Click New_Car
16     Select Base Model   Minigolf
17     Select Special Model  Jazz
18     Select Accessories   ABS    Außenspiegel   Fußmatten   lenkrad   Radio
19     Verify Total Price  16,619.00   €
20     Set Car Name      My New Car
```

1 Space is a valid character
>=2 Spaces are separators

Recommendation 4 Spaces

1 space = Value 4 spaces = Separator

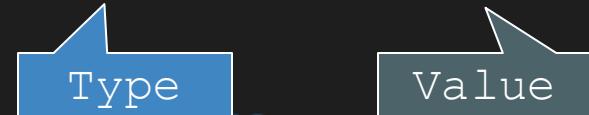
*.robot / *.resource - Sections



*** Settings ***

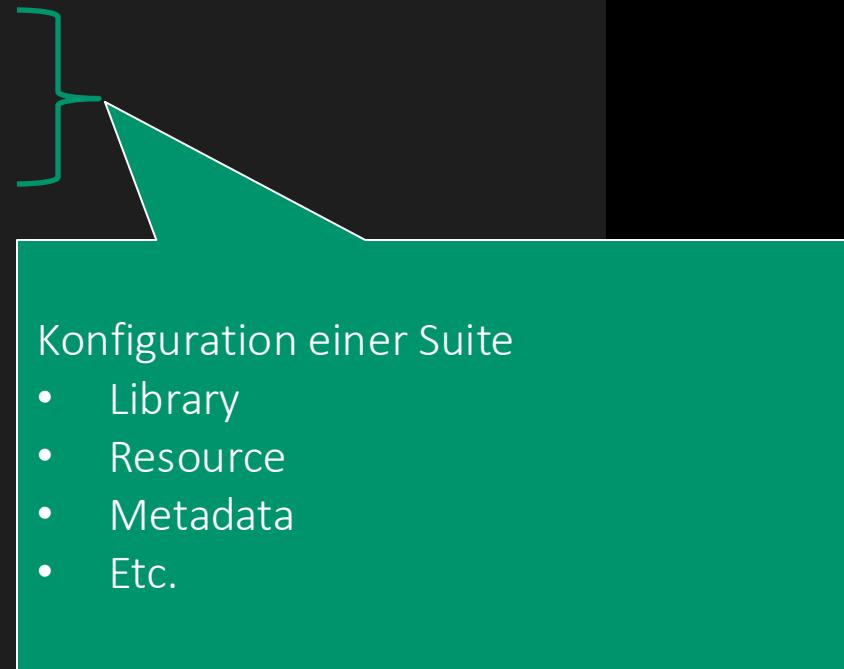
```
Tutorial > TestCases > 03_Browser_Tests > 02_CarConfig.robot > ...
```

```
1  *** Settings ***
2  Metadata    Conference    RoboCon
3
4  Resource    00_technical_keywords.resource
```



```
5
6  *** Variables ***
7  ${TEST_URL}    http://car.keyword-driven.de
8
```

```
9
10
11 *** Test Cases ***
12 Configure Car with Pass
13     [Setup]    Open Web Page    ${TEST_URL}
14     Login User    admin    @RBTFRMWRK@
15     Click New_Car
16     Select Base Model    Minigolf
17     Select Special Model    Jazz
18     Select Accessories    ABS    Außenspiegel    Fußmatten    lenkrad    Radio
19     Verify Total Price    16,619.00    €
20     Set Car Name    My New Car
```



*.robot / *.resource - Sections



*** Variables ***

```
Tutorial > TestCases > 03_Browser_Tests > 02_CarConfig.robot > ...  
1  *** Settings ***  
2  Metadata    Conference    RoboCon  
3  
4  Resource    00_technical_keywords  
5  
6  
7  *** Variables ***  
8  ${TEST_URL}    http://car.keyword-driven.de  
9  
10  
11  *** Test Cases ***  
12  Configure Car with Pass  
13      [Setup]    Open Web Page    ${TEST_URL}  
14      Login User    admin    @RBTFRMWRK@  
15      Click New_Car  
16      Select Base Model    Minigolf  
17      Select Special Model    Jazz  
18      Select Accessories    ABS    Außenspiegel    Fußmatten    lenkrad    Radio  
19      Verify Total Price    16,619.00    €  
20      Set Car Name    My New Car
```

Variables of test suite

- Values that are used often
- Values that configures test cases

The code block shows a snippet of Robot Framework test code. A variable definition is highlighted: \${TEST_URL} http://car.keyword-driven.de. Three callout boxes point to this line: 'Type' points to the \${TEST_URL}, 'Name' points to the variable name, and 'Value' points to the URL value.

*.robot / *.resource - Sections



*** Test Cases ***

```
7  *** Variables ***
8  ${TEST_URL}    http://car.keyword-driven.com/
9
10
11 *** Test Cases ***
12 Configure Car with Pass
13     [Setup]  Open Web Page  ${TEST_URL}
14     Login User  admin  @RBTFRMWRK@
15     Click New_Car
16     Select Base Model  Minigolf
17     Select Special Model  Jazz
18     Select Accessories  ABS  Außenspiegel  Fußmatten  lenkrad  Radio
19     Verify Total Price  16,619.00  €
20     Set Car Name  My New Car
21     Save New_Car
22
23
24
25
26     [Arguments]  ${user}  ${password}
27     Set Username  ${user}
28     Set Password  ${password}
```

Test Case Name

Test Cases Section

- Test cases
- Test case specification

Keyword call

26

[Arguments] \${user} \${password}

27

Set Username \${user}

28

Set Password \${password}

Keyword
argument values

*.robot / *.resource - Sections



*** Keywords ***

```
11  *** Test Cases ***
12  Configure Car with Pass
13      [Setup]  Open Web Page  ${TEST_URL}
14      Login User    admin    @RBTFRMWRK@
15      Click New_Car
16      Select Base Model  Minigolf
17      Select Special Model  Jazz
18      Select Accessories  ABS  Außenspiegel
19      Verify Total Price  16,619.00  €
20      Set Car Name    My New Car
21      Save New_Car
22
23
24  *** Keywords ***
25  Login User
26      [Arguments]  ${user}  ${password}
27      Set Username  ${user}
28      Set Password  ${password}
29      Click Login Btn
```

called Keywords

Keyword name

Keyword arguments

Keyword Section

- Local keywords
- Keywords specification

Keyword Layer

Von der Technik zur fachlichen Sicht

```

23  *** Keywords ***
24  Start CarConfig as Administrator
25      [Tags]    business
26      Open CarConfigurator
27  Login User    admin    @RBTFRMWRK@
28
29  Login User
30      [Tags]    functional
31      [Arguments]  ${user}    ${pwd}
32      Type Username    ${user}
33      Type Password    ${pwd}
34      Click Login Button
35
36  Type Username
37      [Documentation]  Types the given \${username} into the user
38      [Tags]    technical
39      [Arguments]  ${username}
40      Type Text    id=input_username    ${username}
41

```

```

722  @keyword(tags=("PageContent",))
723  def type_text(
724      self,
725      selector: str,
726      txt: str,
727      delay: timedelta = timedelta(microseconds=0),
728      clear: bool = True,
729      log_response: bool = True,
730      strict: bool = True,
731  ):
732      selector = self.presenter_mode(selector, str(selector))
733      with self.playwright.grpc_channel() as stub:
734          delay_ms = self.get_timeout(delay)
735          response = stub.TypeText(
736              Request().TypeText(
737                  selector=selector,
738                  text=txt,

```



Let's talk!



www.imbus.de/digital-imbus



NOW
IT'S
DEMO
TIME



```
tree: 10 test-keywords.spec.ts > VSR > selectBasicModel
class VSR {
  @step
  async openVSRDreamCar() {
    await this.page.goto('https://vsr.testbench.com/login'); - 1491ms
  }

  @step
  async loginUser(username: string, password: string) {
    await this.page.getByLabel('Username').fill(username); - 28ms
    await this.page.getByLabel('Password', { exact: true }).fill(password); - 37ms
    await this.page.getByRole('button', { name: "Log In" }).click(); - 37ms
  }
}
```

Playwright

```
@step
async openVSRDreamCar_As_Customer() {
  await this.openVSRDreamCar();
  await this.loginUser('avengers_c01', 'password_c01');

}

@step
async configureNewCar() {
  await this.page.getByRole('button', { name: 'New car' }).click(); - 389ms
}

@step
async clickNext() {
  await this.page.locator(...)
```



PLAYWRIGHT & PLAYWRIGHT TEST



enables reliable end-to-end testing for modern web apps.

- Any browser • Any platform • One API
- Resilient • No flaky tests
- No trade-offs • No limits
- Full isolation • Fast execution
- Powerful Tooling

Browser automation API (+Test)

Release 2020

Fork of Puppeteer (Google)

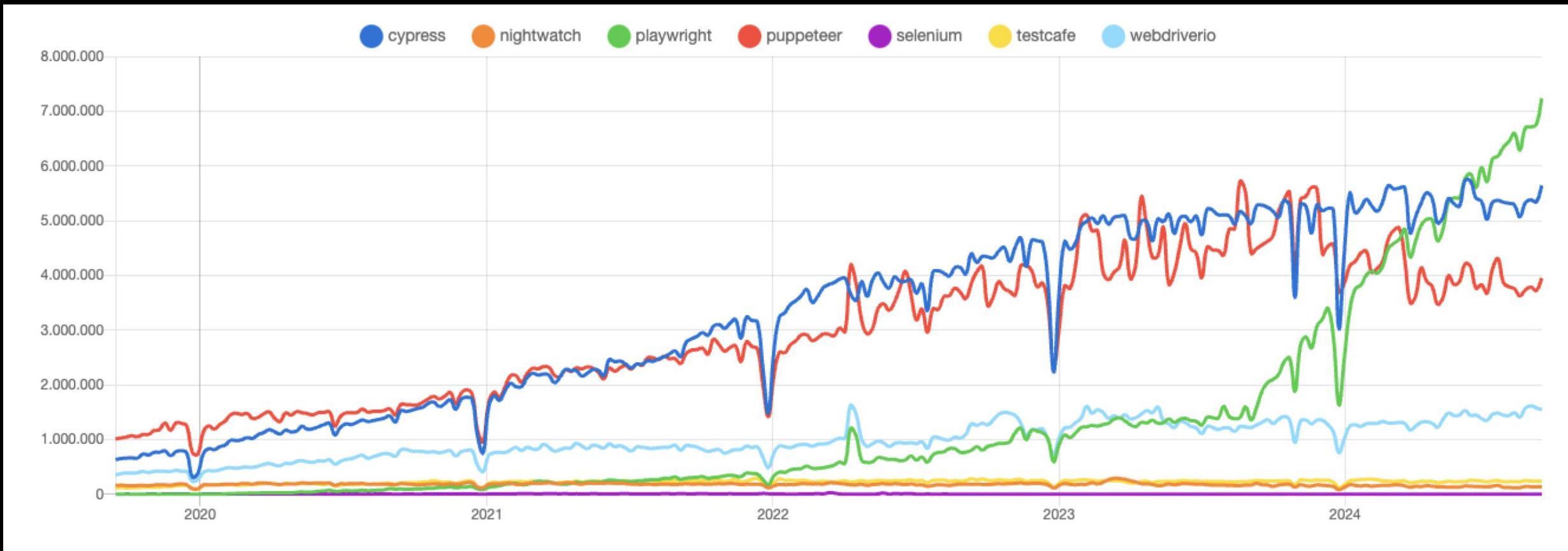
Developed by Microsoft

Chromium, Firefox, Webkit

NodeJS (+ some more)



PLAYWRIGHT & PLAYWRIGHT TEST



PLAYWRIGHT & PLAYWRIGHT TEST



Warum Robot Framework Browser das Playwright API verwendet?

- Schnelle und moderne Alternative zu Selenium
- Offenes API für die Anbindung
- Echte Lösung für ShadowDOM (WebComponents)
- Gute Selektoren (Kaskadierung)
- Browser, Context, Page
- Wir hatten Bock auf TypeScript 😊



PLAYWRIGHT TEST VS ROBOT FRAMEWORK

Test Design

```
test('Default Config', async ({ page }) => {
  const vsr = new VSR(page);
  await vsr.openVSRDreamCar_As_Customer();
  await vsr.configureNewCar();
  await vsr.selectBasicModel('Model 3 (Rassant)');
  await vsr.selectMotor('EC0tech with Hybrid');
  await vsr.selectSpecialModel('Gomera');
  await vsr.selectAccessories([
    'Floor mats',
    'Autopilot Don\'tCare',
    'Sports Suspension'
  ]);
  await vsr.chooseColor('Blue');
  await vsr.verifyPrices({
    finalPrice: '26.873,40',
    basePrice: '17.000,00',
    enginePrice: '4.999,00',
    editionPrice: '1.413,00'
  });
});
```



*** Test Cases ***

Default Config as User	
Open VSR Dream Car	
Login User avengers_c01 password_c01	
Configure New Car	
Select Basic Model	Model 3 (Rassant)
Select Motor	EC0tech with Hybrid
Select Special Model	Gomera
Select Accessories	Floor mats
...	Autopilot Don'tCare
...	Sports Suspension
Choose Color	Blue
Verify Prices	
... finalPrice=26.873,40	
... basePrice=17.000,00	
... enginePrice=4.999,00	
... editionPrice=1.413,00	

PLAYWRIGHT TEST VS ROBOT FRAMEWORK

Test Steps

```
@step
async loginUser(username: string, password: string) {
    await this.page.getLabel('Username', { exact: true }).fill(username);
    await this.page.getLabel('Password', { exact: true }).fill(password);
    await this.page.getRole('button', { name: "Log In" }).click();
}

@step
async configureNewCar() {
    await this.page.getRole('button', { name: 'New car' }).click();
}

@step
async selectBasicModel(modelName: string) {
    await this.page.locator('#select_basemodel').click();
    await this.page.getText(modelName).click();
}
```

Login User

```
[Arguments] ${username} ${password}
Fill Text "Username" ${username}
Fill Text "Password" ${password}
Click id=button_login
```

Configure New Car

```
Click button:has-text("New car")
```

Select Basic Model

```
[Arguments] ${model}
Click id=select_basemodel
Click "${model}"
```



PLAYWRIGHT TEST vs ROBOT FRAMEWORK

Execution Reports

Failing Config

test-keywords.spec.ts:30 10.0s

chromium

⌚ Run

Errors

Test timeout of 10000ms exceeded.

Error: locator.check: Test timeout of 10000ms exceeded.
Call log:
 - waiting for getByLabel('NOT EXISTING')

```
116 |   await this.page.locator('#arrow_next').click();
117 |   for (const accessory of accessories) {
> 118 |     await this.page.getByLabel(accessory).check(); ^
119 |
120 |   }
121 | }
```

at VSR.selectAccessories (/Users/rener/Source/Playwright/tests/test-keywords.spec.ts:118:45)
at /Users/rener/Source/Playwright/tests/test-keywords.spec.ts:59:14
at /Users/rener/Source/Playwright/tests/test-keywords.spec.ts:37:5



PLAYWRIGHT TEST vs ROBOT FRAMEWORK

Execution Reports

Test Steps		
>	✓ Before Hooks	51ms
>	✓ VSR.openVSRDreamCar_As_Customer — test-keywords.spec.ts:58	1.6s
>	✓ VSR.configureNewCar — test-keywords.spec.ts:58	841ms
>	✓ VSR.selectBasicModel — test-keywords.spec.ts:58	1.0s
>	✓ VSR.selectMotor — test-keywords.spec.ts:58	333ms
>	✓ VSR.selectSpecialModel — test-keywords.spec.ts:58	83ms
✗	VSR.selectAccessories — test-keywords.spec.ts:58	6.1s
✓	locator.click(#arrow_next) — test-keywords.spec.ts:116	49ms
✓	locator.getLabel('Floor mats').check — test-keywords.spec.ts:118	33ms
✗	locator.getLabel('NOT EXISTING').check — test-keywords.spec.ts:118	6.0s
>	✓ After Hooks	5ms
>	✓ Worker Cleanup	21ms



PLAYWRIGHT TEST vs ROBOT FRAMEWORK

Execution Reports

REPORT

AutomationStar Log

Generated
2024/09/30 19:31:46 UTC+02:00
1 minute 50 seconds ago

Test Statistics

	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
All Tests	4	2	2	0	00:00:21	<div style="width: 50%;">Pass</div>
Statistics by Tag	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
No Tags						

	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
AutomationStar	4	2	2	0	00:00:24	<div style="width: 50%;">Pass</div>
Automodeller_Browser_VSR	4	2	2	0	00:00:24	<div style="width: 50%;">Pass</div>
Automodeller_Browser_VSR_VSR_DreamCar	1	1	0	0	00:00:07	<div style="width: 100%;">Pass</div>
Automodeller_Browser_VSR_VSR_DreamCar keywords	2	1	1	0	00:00:13	<div style="width: 50%;">Pass</div>
Automodeller_Browser_VSR_Gherkin_BDD	1	0	1	0	00:00:04	<div style="width: 0%;">Fail</div>

Test Execution Log

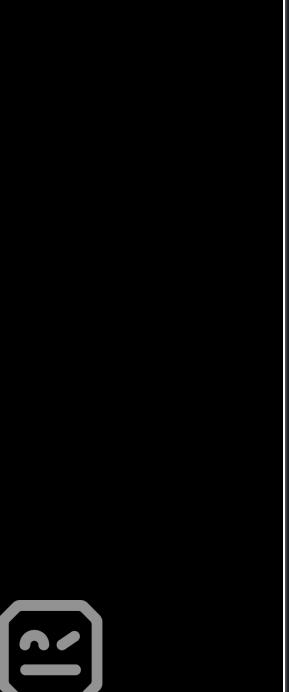
- **SUITE** AutomationStar
 - Full Name: AutomationStar
 - Source: /Users/reiner/Source/RF-Schulung/AutomationStar
 - Start / End / Elapsed: 2024/09/30 19:31:22.376 / 2024/09/30 19:31:46.598 / 00:00:24.223
 - Status: 4 tests total, 2 passed, 2 failed, 0 skipped
- **SUITE** Browser VSR
 - Full Name: AutomationStar.Browser_VSR
 - Source: /Users/reiner/Source/RF-Schulung/AutomationStar/Browser_VSR
 - Start / End / Elapsed: 2024/09/30 19:31:22.388 / 2024/09/30 19:31:46.597 / 00:00:24.209
 - Status: 4 tests total, 2 passed, 2 failed, 0 skipped
- + **SUITE** ver DreamCar
 - Full Name: AutomationStar.Browser_VSR.ver DreamCar
 - Source: /Users/reiner/Source/RF-Schulung/AutomationStar/Browser_VSR.ver_DreamCar.robot
 - Start / End / Elapsed: 2024/09/30 19:31:29.794 / 2024/09/30 19:31:42.813 / 00:00:13.019
 - Status: 2 tests total, 1 passed, 1 failed, 0 skipped
- + **TEST** Default Config as User
 - Full Name: AutomationStar.Browser_VSR.ver DreamCar.keywords.Failing Config as User
 - Start / End / Elapsed: 2024/09/30 19:31:34.216 / 2024/09/30 19:31:42.798 / 00:00:08.582
 - Status: FAIL
 - Message:

Error: locator.waitFor: Timeout 500ms exceeded.
Call log:
[2m-waiting for locator:text="NOT EXISTING"]
 - Tip: Use "Set Browser Timeout" for increasing the timeout or double check your locator as the targeted element(s) couldn't be found.
- + **KEYWORD** Open VSR Dream Car
 - Start / End / Elapsed: 2024/09/30 19:31:37.344 / 2024/09/30 19:31:42.798 / 00:00:05.454
- + **KEYWORD** Login User avengers_c01 password_c01
 - Start / End / Elapsed: 2024/09/30 19:31:37.344 / 2024/09/30 19:31:42.798 / 00:00:05.454
- + **KEYWORD** Configure New Car
 - Start / End / Elapsed: 2024/09/30 19:31:37.344 / 2024/09/30 19:31:42.798 / 00:00:05.454
- + **KEYWORD** Select Basic Model Model 3 (Rasant)
 - Start / End / Elapsed: 2024/09/30 19:31:37.344 / 2024/09/30 19:31:42.798 / 00:00:05.454
- + **KEYWORD** Select Motor ECOTech with Hybrid
 - Start / End / Elapsed: 2024/09/30 19:31:37.344 / 2024/09/30 19:31:42.798 / 00:00:05.454
- + **KEYWORD** Select Special Model Gamera
 - Start / End / Elapsed: 2024/09/30 19:31:37.344 / 2024/09/30 19:31:42.798 / 00:00:05.454
- + **KEYWORD** Select Accessories Floor mats NOT EXISTING Sports Suspension
 - Start / End / Elapsed: 2024/09/30 19:31:37.344 / 2024/09/30 19:31:42.798 / 00:00:05.454
- + **KEYWORD** Click Next
 - Start / End / Elapsed: 2024/09/30 19:31:37.344 / 2024/09/30 19:31:42.798 / 00:00:05.454
- + **FOR** \${accessory} IN @accessories
 - Start / End / Elapsed: 2024/09/30 19:31:37.685 / 2024/09/30 19:31:42.798 / 00:00:05.113
- + **ITERATION** \${accessory} = Floor mats
 - Start / End / Elapsed: 2024/09/30 19:31:37.685 / 2024/09/30 19:31:42.798 / 00:00:05.113
- **ITERATION** \${accessory} = NOT EXISTING
 - Start / End / Elapsed: 2024/09/30 19:31:37.711 / 2024/09/30 19:31:42.798 / 00:00:05.087
- + **KEYWORD** Browser.Check Checkbox "\${accessory}"
 - Documentation: Checks the checkbox or selects radio button found by selector.
 - Tags: PageContent_Setter
 - Start / End / Elapsed: 2024/09/30 19:31:37.711 / 2024/09/30 19:31:42.798 / 00:00:05.086
- 19:31:42.793 [INFO] Configuration name: base
19:31:42.793 [INFO] See also file:///Users/reiner/Source/RF-Schulung/AutomationStar/results/playwright-log.txt for additional details.
- 19:31:42.794 [FAIL] Error: locator.waitFor: Timeout 500ms exceeded.
Call log:
[2m-waiting for locator:text="NOT EXISTING"]
- Tip: Use "Set Browser Timeout" for increasing the timeout or double check your locator as the targeted element(s) couldn't be found.
- + **KEYWORD** Choose Color Blue
 - Start / End / Elapsed: 2024/09/30 19:31:42.793 / 2024/09/30 19:31:42.798 / 00:00:00.000
- + **KEYWORD** Verify Prices finalPrice=26.873,40 basePrice=17.000,00 enginePrice=4.999,00 editionPrice=1.413,00
 - Start / End / Elapsed: 2024/09/30 19:31:42.793 / 2024/09/30 19:31:42.798 / 00:00:00.000
- + **SUITE** ver Gherkin BDD
 - Start / End / Elapsed: 2024/09/30 19:31:42.793 / 2024/09/30 19:31:42.798 / 00:00:03.781



PLAY

Execute



AutomationStar Log

Generated
20240930 19:31:46 UTC+02:00
1 minute 50 seconds ago

Test Statistics

Total Statistics	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
All Tests	4	2	2	0	00:00:21	<div style="width: 50%; background-color: #2e7131; height: 10px;"></div> <div style="width: 25%; background-color: #dc3545; height: 10px;"></div>
Statistics by Tag	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
No Tags						
Statistics by Suite	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
AutomationStar	4	2	2	0	00:00:24	<div style="width: 50%; background-color: #2e7131; height: 10px;"></div> <div style="width: 25%; background-color: #dc3545; height: 10px;"></div>
AutomationStar.Browser VSR	4	2	2	0	00:00:24	<div style="width: 50%; background-color: #2e7131; height: 10px;"></div> <div style="width: 25%; background-color: #dc3545; height: 10px;"></div>
AutomationStar.Browser VSR.vsr DreamCar	1	1	0	0	00:00:07	<div style="width: 100%; background-color: #2e7131; height: 10px;"></div>
AutomationStar.Browser VSR.vsr DreamCar keywords	2	1	1	0	00:00:13	<div style="width: 50%; background-color: #2e7131; height: 10px;"></div> <div style="width: 25%; background-color: #dc3545; height: 10px;"></div>
AutomationStar.Browser VSR.vsr Gherkin BDD	1	0	1	0	00:00:04	<div style="width: 25%; background-color: #dc3545; height: 10px;"></div>

Test Execution Log

- SUITE AutomationStar	00:00:24.223
Full Name:	AutomationStar
Source:	/Users/rener/Source/RF-Schulung/AutomationStar
Start / End / Elapsed:	20240930 19:31:22.375 / 20240930 19:31:46.598 / 00:00:24.223
Status:	4 tests total, 2 passed, 2 failed, 0 skipped
- SUITE Browser VSR	00:00:24.209
Full Name:	AutomationStar.Browser VSR
Source:	/Users/rener/Source/RF-Schulung/AutomationStar/Browser_VSR
Start / End / Elapsed:	20240930 19:31:22.388 / 20240930 19:31:46.597 / 00:00:24.209
Status:	4 tests total, 2 passed, 2 failed, 0 skipped
+ SUITE vsr DreamCar	00:00:07.403
- SUITE vsr DreamCar keywords	00:00:13.019
Full Name:	AutomationStar.Browser VSR.vsr DreamCar keywords
Source:	/Users/rener/Source/RF-Schulung/AutomationStar/Browser_VSR/vsr_DreamCar_keywords.robot
Start / End / Elapsed:	20240930 19:31:29.794 / 20240930 19:31:42.813 / 00:00:13.019
Status:	2 tests total, 1 passed, 1 failed, 0 skipped
+ TEST Default Config as User	00:00:03.144
- TEST Failing Config as User	00:00:08.582

PLAY

Execution

Start / End / Elapsed: 2024-09-30 19:31:37.344 / 2024-09-30 19:31:42.798 / 00:00:05.454

Status: FAIL

Message: Error: locator.waitFor: Timeout 5000ms exceeded.
Call log:
[2m- waiting for locator('text="NOT EXISTING")][22m]

Tip: Use "Set Browser Timeout" for increasing the timeout or double check your locator as the targeted element(s) couldn't be found.

Step	Keywords	Duration
1	+ KEYWORD Open VSR Dream Car	00:00:01.507
2	+ KEYWORD Login User avengers_c01 password_c01	00:00:00.081
3	+ KEYWORD Configure New Car	00:00:00.327
4	+ KEYWORD Select Basic Model Model 3 (Rassant)	00:00:00.945
5	+ KEYWORD Select Motor ECOtech with Hybrid	00:00:00.199
6	+ KEYWORD Select Special Model Gomera	00:00:00.066
7	- KEYWORD Select Accessories Floor mats NOT EXISTING Sports Suspension	00:00:05.454
8	Start / End / Elapsed: 2024-09-30 19:31:37.344 / 2024-09-30 19:31:42.798 / 00:00:05.454	
9	+ KEYWORD Click Next	00:00:00.340
10	- FOR \${accessory} IN @{accessories}	00:00:05.113
11	Start / End / Elapsed: 2024-09-30 19:31:37.685 / 2024-09-30 19:31:42.798 / 00:00:05.113	
12	+ ITERATION \${accessory} = Floor mats	00:00:00.026
13	- ITERATION \${accessory} = NOT EXISTING	00:00:05.087
14	Start / End / Elapsed: 2024-09-30 19:31:37.711 / 2024-09-30 19:31:42.798 / 00:00:05.087	
15	- KEYWORD Browser.Check Checkbox "\${accessory}"	00:00:05.086
16	Documentation: Checks the checkbox or selects radio button found by selector.	
17	Tags: PageContent, Setter	
18	Start / End / Elapsed: 2024-09-30 19:31:37.711 / 2024-09-30 19:31:42.797 / 00:00:05.086	
19	19:31:42.793 INFO	
20		
21	19:31:42.793 INFO See also file:///Users/rener/Source/RF-Schulung/AutomationStar/results/playwright-log.txt for additional details.	
22	19:31:42.794 FAIL Error: locator.waitFor: Timeout 5000ms exceeded. Call log: [2m- waiting for locator('text="NOT EXISTING")][22m]	
23	Tip: Use "Set Browser Timeout" for increasing the timeout or double check your locator as the targeted element(s) couldn't be found.	
24	+ KEYWORD Choose Color Blue	00:00:00.000
25	+ KEYWORD Verify Prices finalPrice=26.873,40 basePrice=17.000,00 enginePrice=4.999,00 editionPrice=1.413,00	00:00:00.000
26	+ SUITE vsr Gherkin BDD	00:00:03.781

+ KEYWORD Select Model E-GT-Estate with Hybrid

+ KEYWORD Select Special Model Gomera

- KEYWORD Select Accessories Floor mats NOT EXISTING Sports Suspension

Start / End / Elapsed: 20240930 19:31:37.344 / 20240930 19:31:42.798 / 00:00:05.454

+ KEYWORD Click Next

- FOR \${accessory} IN @{accessories}

Start / End / Elapsed: 20240930 19:31:37.685 / 20240930 19:31:42.798 / 00:00:05.113

+ ITERATION \${accessory} = Floor mats

- ITERATION \${accessory} = NOT EXISTING

Start / End / Elapsed: 20240930 19:31:37.711 / 20240930 19:31:42.798 / 00:00:05.087

- KEYWORD Browser.Check Checkbox "\${accessory}"

Documentation: Checks the checkbox or selects radio button found by selector.

Tags: PageContent, Setter

Start / End / Elapsed: 20240930 19:31:37.711 / 20240930 19:31:42.797 / 00:00:05.086

19:31:42.793 INFO



19:31:42.793 INFO See also file:///Users/rener/Source/RF-Schulung/AutomationStar/results/playwright-log.txt for additional details.

19:31:42.794 FAIL Error: locator.waitFor: Timeout 5000ms exceeded.
Call log:
[2m- waiting for locator('text="NOT EXISTING"')] [22m]

Tip: Use "Set Browser Timeout" for increasing the timeout or double check your locator as the targeted element(s) found.

+ KEYWORD Choose Color Blue

+ KEYWORD Verify Prices finalPrice=26.873,40 basePrice=17.000,00 enginePrice=4.999,00 editionPrice=1.413,00

PLAYWRIGHT TEST vs ROBOT FRAMEWORK

Traces sind mindbowing awesome!

The screenshot displays the Playwright Trace Viewer interface. On the left, a timeline shows the execution of a test step, "VSR.selectAccessories", which took 3.6s. The timeline bar has markers at 1.0s, 2.0s, 3.0s, 4.0s, 5.0s, 6.0s, 7.0s, 8.0s, 9.0s, 10.0s, and 11.0s. Below the timeline, a list of actions is shown:

- > Before Hooks 819ms
- > VSR.openVSRDreamCar_As_Customer 3.9s
- > VSR.configureNewCar 829ms
- > VSR.selectBasicModel 1.1s
- > VSR.selectMotor 331ms
- > VSR.selectSpecialModel 82ms
- > VSR.selectAccessories 3.7s
 - locator.click locator('#arrow_next') 49ms
 - locator.check getLabel('Floor mats') 33ms
 - locator.check getLabel('NOT EXISTING') 3.6s
- > After Hooks 156ms
- > Worker Cleanup 16ms

The middle section shows a screenshot of a web application for "VSR-DREAMCAR". The "Extras" tab is selected, displaying various car accessories with their prices and descriptions. A checkbox for "Floor mats" is checked. The total price for extras is 46.00 €.

The right side of the interface is a DevTools Elements panel. It shows the DOM structure for the "Floor mats" checkbox and its label. The label has the class "label.mdc-label" and the text "Floor mats". The checkbox has the class "mat-mdc-checkbox mat-accent mat-mdc-checkbox-checked". The DevTools panel also includes a Styles tab with CSS styles for these elements.





Dream Team

AutomationStar

TESTING ...

TEST EXPLORER

Filter (e.g. text, !exclude, @tag)

3/5 26.8s

AutomationStar 6.3s

AutomationStar 6.3s

Browser VSR 6.3s

vsr DreamCar 3.3s

Atomic Default Config 3.3s

vsr DreamCar keywords

Default Config... D ↗ ↘

Adding Discount as Sales

vsr TraumAuto keywords 3...

vsr_DreamCar_keywords.robot 4 ● vsr_DreamCar.robot vsr_TraumAuto_keywords.robot

Browser_VSR > vsr_DreamCar_keywords.robot > {} Keywords > Open VSR Dream Car

31 *** Keywords ***

32

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61

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63

64

65 Select Accessories

66 [Arguments] @{accessories}

67 Click Next

68 FOR \${accessory} IN @{accessories}

69 | Check Checkbox "\${accessory}"

70 END

71

72 Choose Color

73 [Arguments] \${color}

74 Click Next

75 Check Checkbox "\${color}"

76

77 Verify Prices

78 [Arguments]

79 Click Next

80 Get Text id=

81 Get Text id=

82 Get Text id=

83 Get Text id=

84

85 Open VSR Dream Car

86 Open VSR Dream

87 Login User

88

89 Open VSR Dream Car

90 New Browser

91

92

93

94 \${BROWSER} chr[ø] browser=

95 \${HEADLESS} Tru[ø] headless=

96 \${TRACING} Fal[ø] args=

97 [ø] channel=

[ø] chromiumSandbox=

[ø] devtools=

[ø] downloadsPath=

[ø] env=

[ø] executablePath=

[ø] ignoreDefaultArgs=

[ø] proxy=

[ø] reuse_existing=

[ø] slowMo: timedelta = 0:00:00,

[ø] timeout: timedelta = 0:00:30)

SupportedBrowsers (Enum)

chromium

firefox

webkit

SupportedBrowsers

RTS COMMENTS

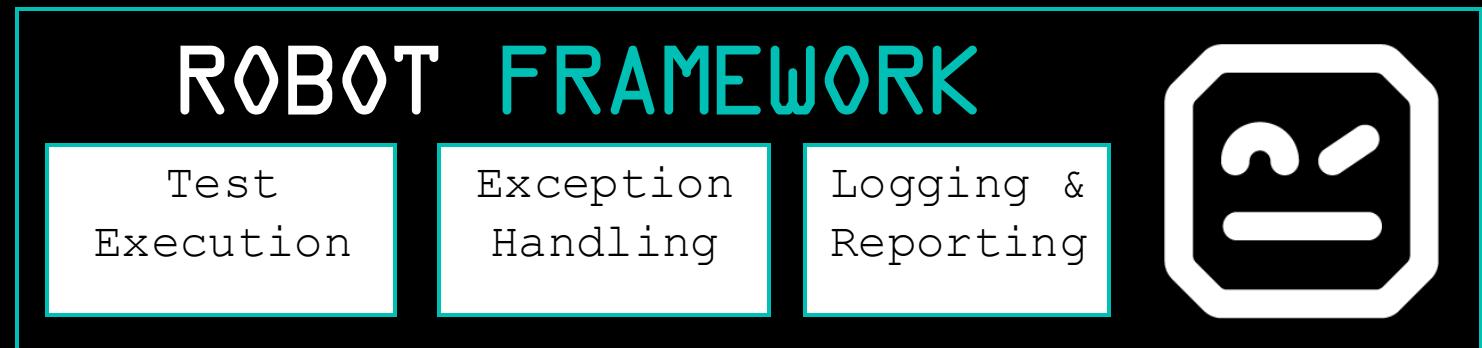
DREAM TEAM WEB AUTOMATION



YES
WE'RE
OPEN
SRC



----- Test Data Syntax -----



----- Test Library APIs -----





NOW
IT'S
DEMO
TIME



Let's be specific!

Wie kann imbus helfen?

1

Trainings & Coaching

durch langjährige Experten

2

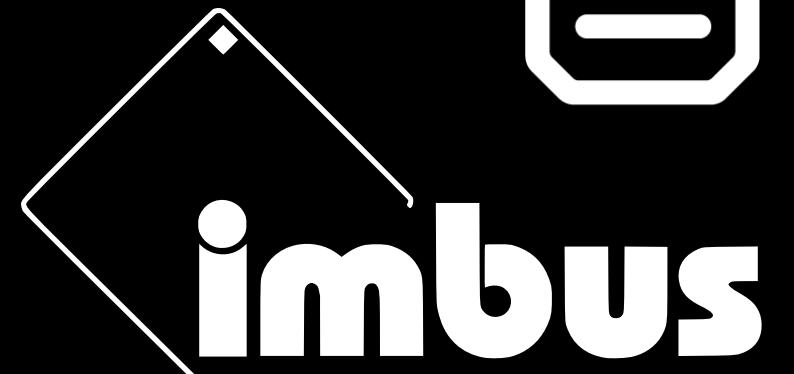
Automatisierungsdienstleistung

Wir automatisieren Ihre Tests

3

Robot Framework Entwicklung

Libraries, Anbindungen, Tools

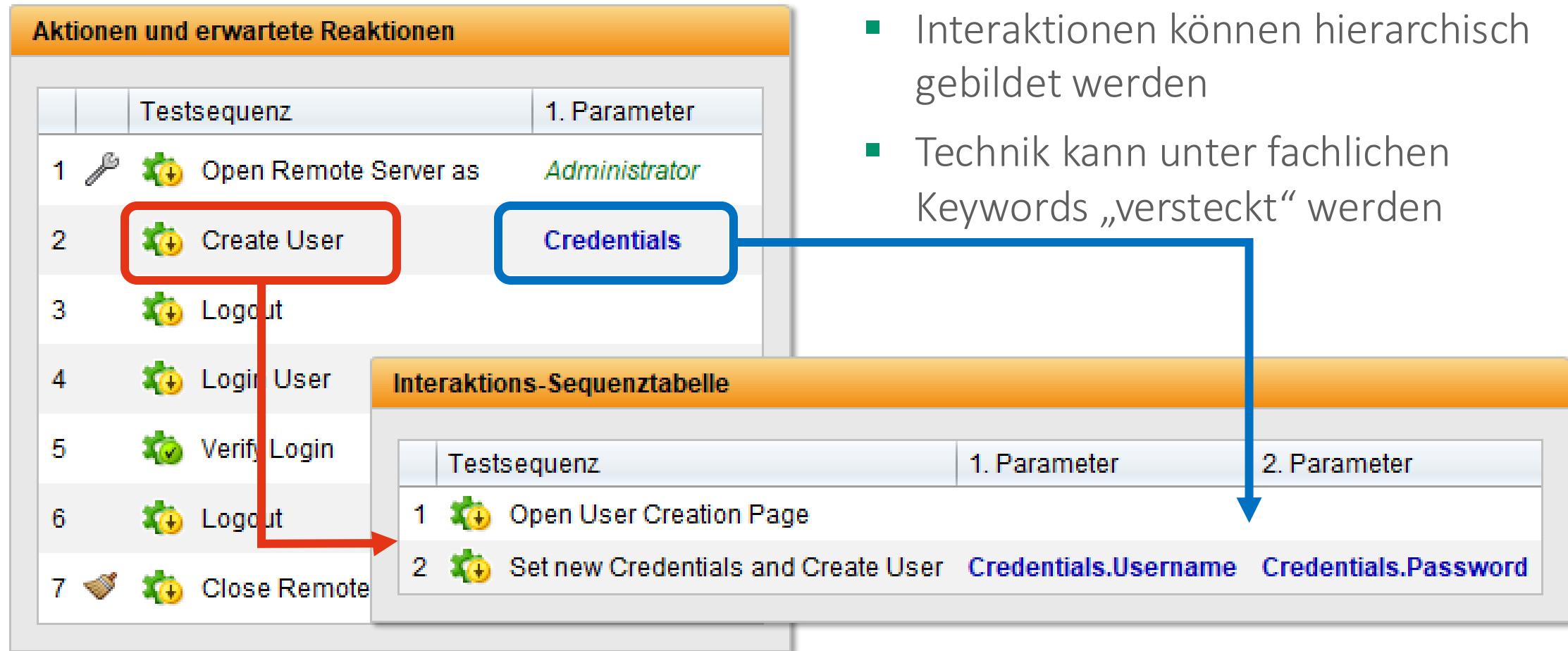




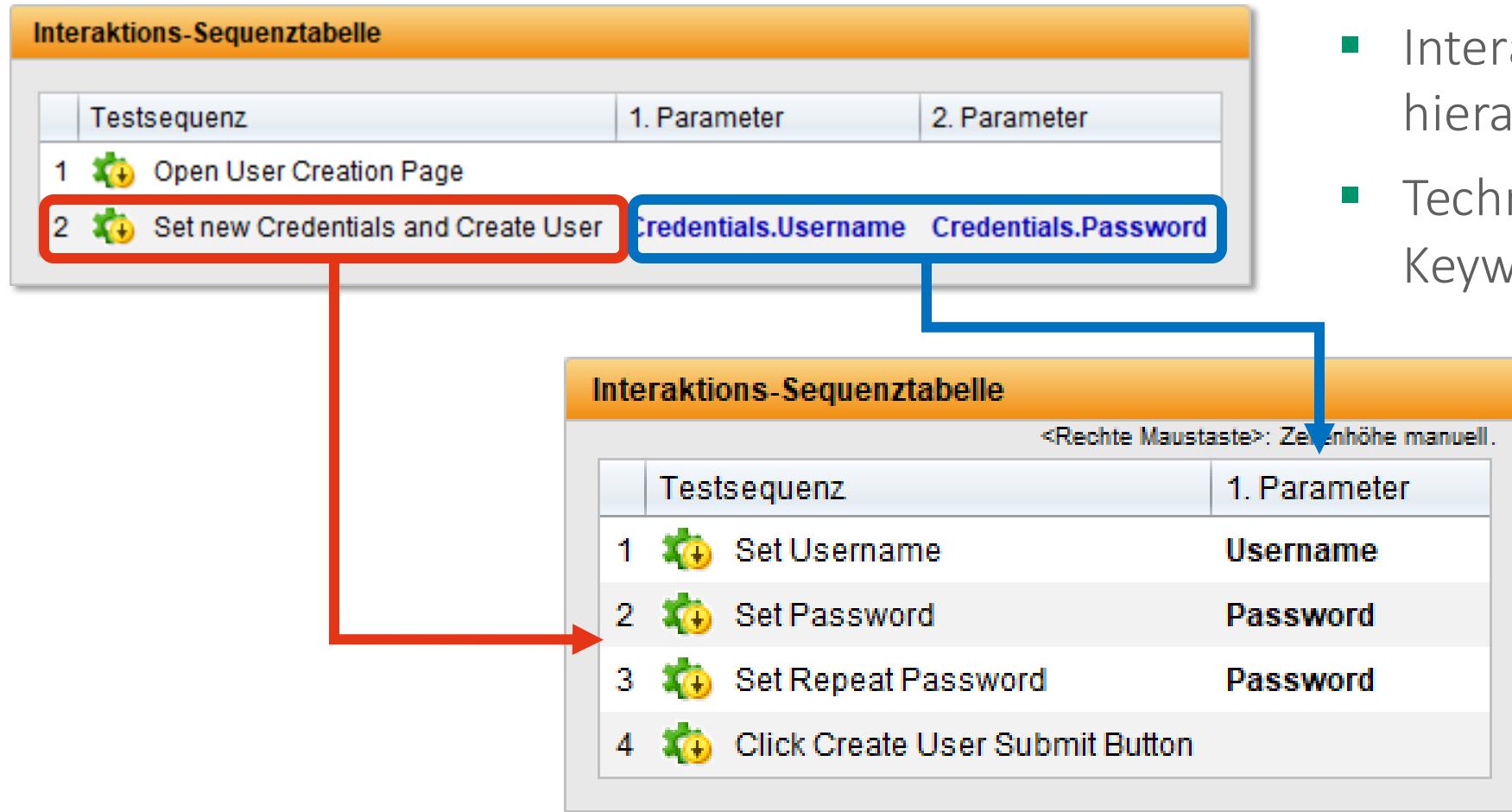
MANAGED KEYWORD-DRIVEN TESTING

Testmanagement als wichtige Ergänzung

Ebenen des Keyword-Driven Test



Ebenen des Keyword-Driven Test



- Interaktionen können hierarchisch gebildet werden
- Technik kann unter fachlichen Keywords „versteckt“ werden

Ebenen des Keyword-Driven Test

Interaktions-Sequenztabelle	
	<Rechte Maustaste>: Zeilenhöhe manuell.
	1. Parameter
1	Set Username Username
2	Set Password Password
3	Set Repeat Password Password
4	Click Create User Submit Button

```
Verify Price
[Arguments]    ${expected_price}
${price_text}=  Get Text  css=span.summaryTotalPriceStyle
Should Contain  ${price_text}  ${expected_price}

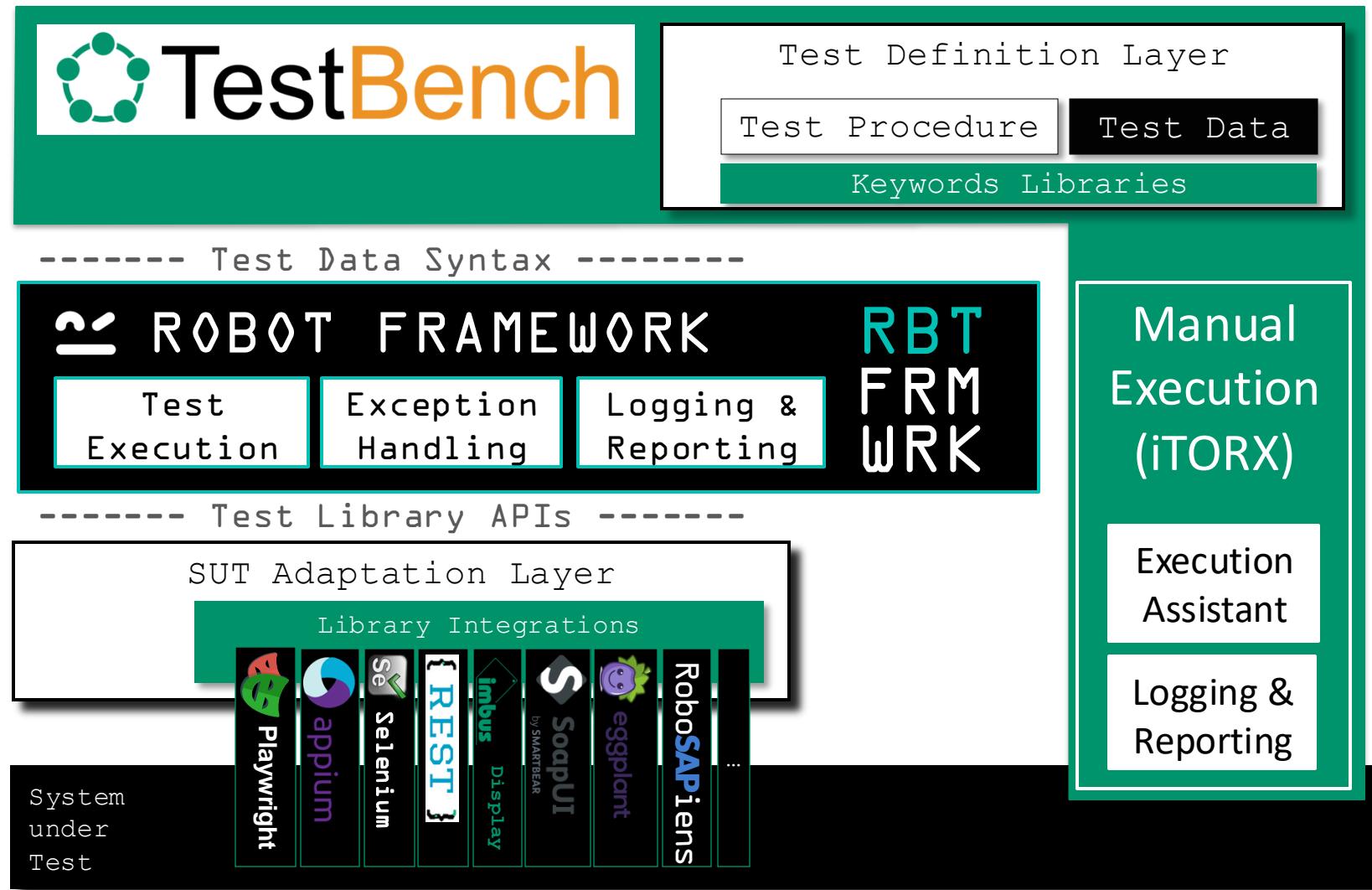
Set Username
[Arguments]    ${user}
Fill Text  id=input_username  ${user}

Set Password
[Arguments]    ${password}
Fill Secret  id=input_password  ${password}

Click Login Btn
Click  id=button_login

Verify Accessory
[Arguments]    ${accessory}  ${price}
Get Text  .extraEquipmentListStyle >> text=${accessory} >>
```

Eine Architekturskizze





DEMO

Let's be specific!

Weitere Webinare im Angebot:

—
Keyword Driven Testing
- Webinar



—
 **TestBench**
Webinar



—
ISTQB® Test
Automation Engineer



Don't forget

Save the date!

Dates

- 24.3. Hamburg
- 26.3. Braunschweig
- 28.3. Köln
- 31.3. Hofheim
- 02.4. Nürnberg
- 04.4. München

Trends■
in Testing





THE 8TH ANNUAL
ROBOT FRAMEWORK
CONFERENCE

A GLOBAL IN-PERSON
AND ONLINE SOFTWARE
AUTOMATION EVENT



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Community Day - Feb 11th

Workshops - Feb 12th

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Tickets & Info : robocon.io

Eine weitere Session gewünscht?



Sie haben noch Fragen zum Thema und möchten einige Dinge vertiefen?

Wir schenken Ihnen eine 1:1 Session mit einem unserer gefragten
Robot Framework Experten, in der Sie alle Fragen loswerden können!

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Let's talk!



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