

Visual Document Testing

Using Robot Framework

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What's Document Testing?

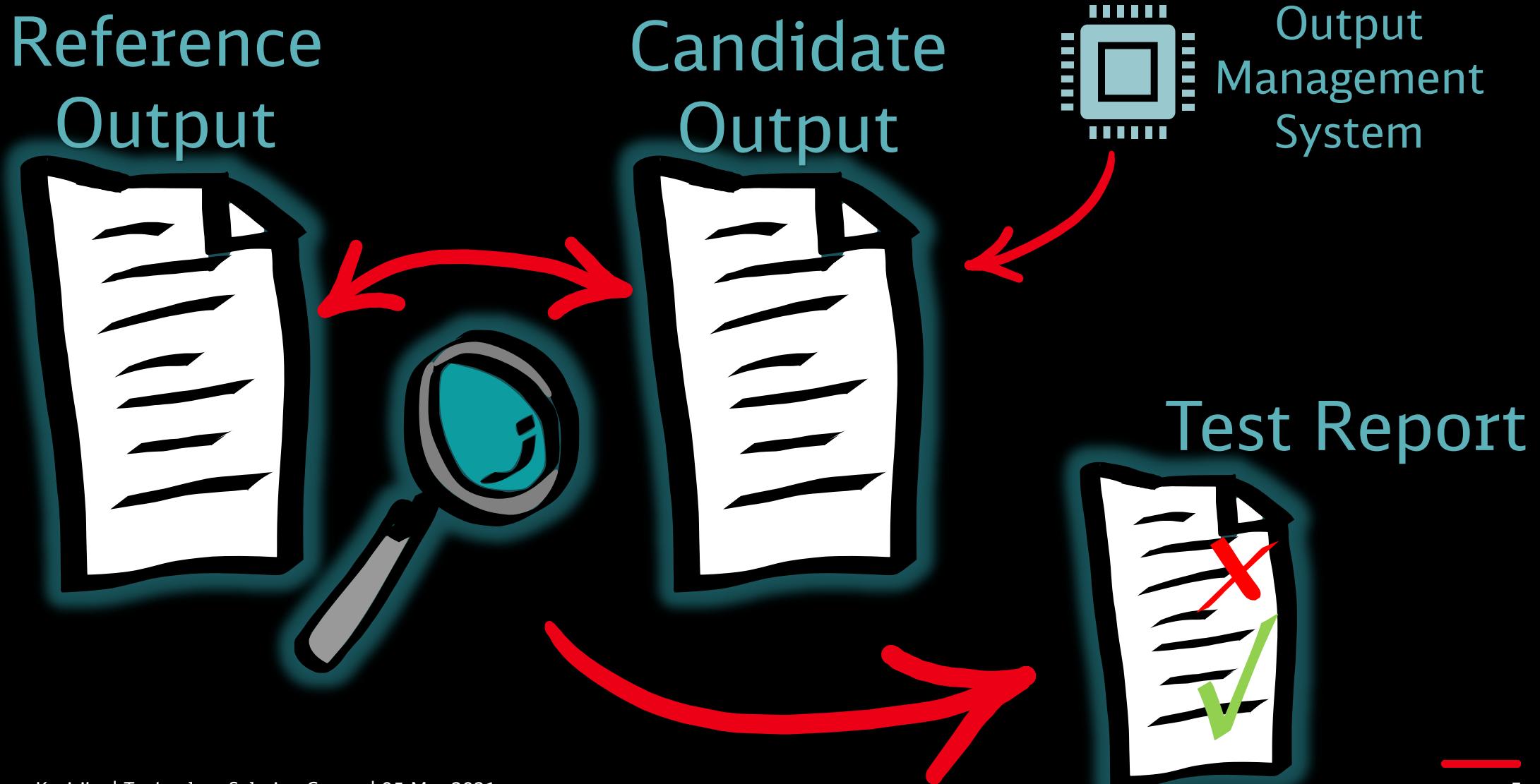
Output Testing is about finding differences...



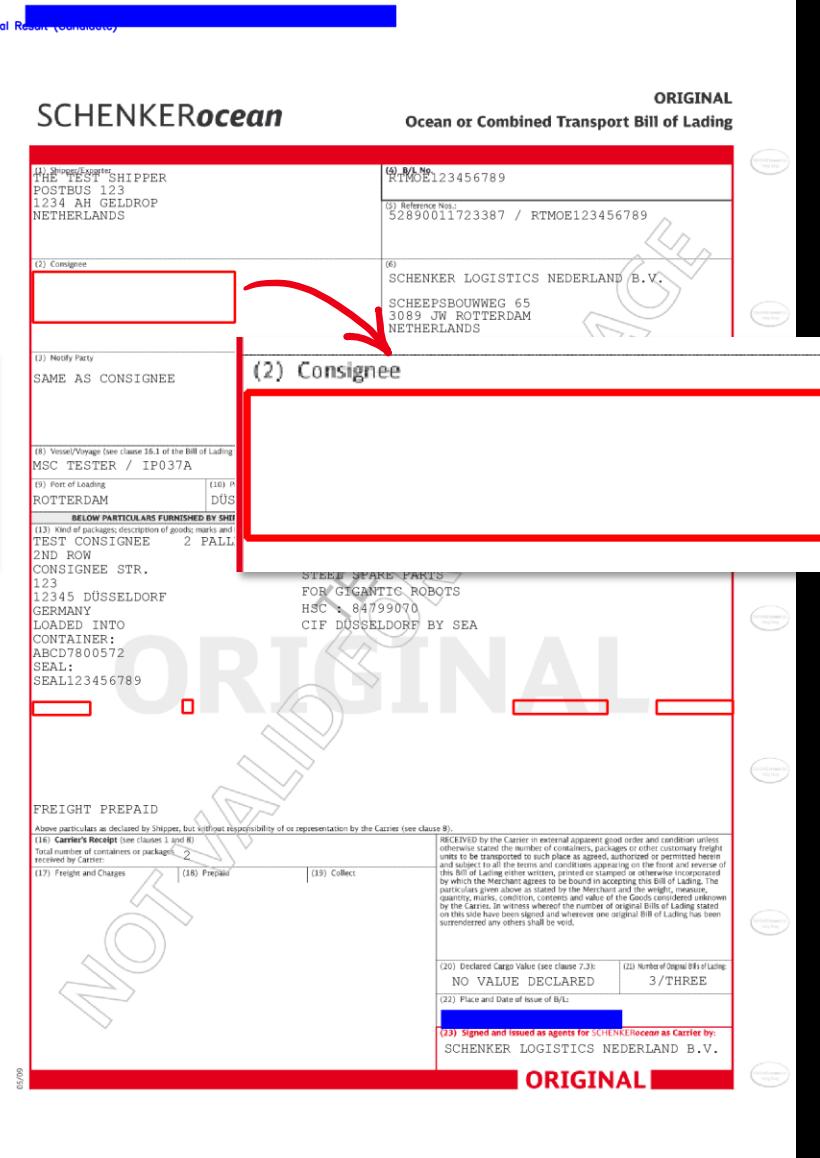
...making those differences visible...



Output Testing is basically about comparing documents..



...finding differences and making them visible...

Expected Result (Reference)		Actual Result (Candidate)	
 <p>SCHENKERocean</p> <p>ORIGINAL Ocean or Combined Transport Bill of Lading</p> <p>(1) Shipper/Exporter THE TEST SHIPPER POSTBUS 123 1234 AH GELDROP NETHERLANDS</p> <p>(5) B/L No. RTMOE123456789</p> <p>(3) Reference No.: 52890011723387 / RTMOE123456789</p> <p>(2) Consignee TEST CONSIGNEE 2ND ROW CONSIGNEE STR. 123 12345 DÜSSELDORF GERMANY</p> <p>(6) SCHENKER LOGISTICS NEDERLAND B.V. SCHEEPSBOUWWEG 65 3089 JW ROTTERDAM NETHERLANDS</p> <p>(3) Notify Party SAME AS CONSIGNEE</p> <p>(8) Vessel/Voyage (see clause 16.1 of the Bill) MSC TESTER / IP037A</p> <p>(9) Port of Loading ROTTERDAM</p> <p>BELLOW PARTICULARS FURNISHED BY SHIPPER</p> <p>(10) Kind of cargo, description of goods in TEST CONSIGNEE 2 2ND ROW CONSIGNEE STR. 123 12345 DÜSSELDORF GERMANY LOADED INTO CONTAINER: ABCD7800572 SEAL: SEAL123456789</p> <p>STEEL SPARE PARTS FOR GIGANTIC ROBOTS HSC : 84799070 CIF DÜSSELDORF BY SEA</p> <p>FREIGHT PREPAID</p> <p>Above particulars as declared by Shipper, but without responsibility or representation by the Carrier (see clause 8).</p> <p>(11) Carrier's Receipt (see clauses 1 and 8) Total number of containers or packages: 2</p> <p>(12) Total weight of containers or packages received by Carrier:</p> <p>(13) Freight and Charges (14) Prepaid (15) Collect</p> <p>(20) Declared Cargo Value (see clause 7.3): NO VALUE DECLARED (21) Number of Original B/Ls of Lading: 3/THREE</p> <p>(22) Place and Date of Issue of B/L:</p> <p>(23) Signed and issued as agents for SCHENKERocean as Carrier by: SCHENKER LOGISTICS NEDERLAND B.V.</p> <p>ORIGINAL</p>		 <p>SCHENKERocean</p> <p>ORIGINAL Ocean or Combined Transport Bill of Lading</p> <p>(1) Shipper/Exporter THE TEST SHIPPER POSTBUS 123 1234 AH GELDROP NETHERLANDS</p> <p>(5) B/L No. RTMOE123456789</p> <p>(3) Reference No.: 52890011723387 / RTMOE123456789</p> <p>(2) Consignee [Redacted]</p> <p>(6) SCHENKER LOGISTICS NEDERLAND B.V. SCHEEPSBOUWWEG 65 3089 JW ROTTERDAM NETHERLANDS</p> <p>(3) Notify Party SAME AS CONSIGNEE</p> <p>(8) Vessel/Voyage (see clause 16.1 of the Bill) MSC TESTER / IP037A</p> <p>(9) Port of Loading (10) P ROTTERDAM DÜS</p> <p>BELLOW PARTICULARS FURNISHED BY SHIPPER</p> <p>(10) Kind of cargo, description of goods in TEST CONSIGNEE 2 PALL 2ND ROW CONSIGNEE STR. 123 12345 DÜSSELDORF GERMANY LOADED INTO CONTAINER: ABCD7800572 SEAL: SEAL123456789</p> <p>STEEL SPARE PARTS FOR GIGANTIC ROBOTS HSC : 84799070 CIF DÜSSELDORF BY SEA</p> <p>FREIGHT PREPAID</p> <p>Above particulars as declared by Shipper, but without responsibility or representation by the Carrier (see clause 8).</p> <p>(11) Carrier's Receipt (see clauses 1 and 8) Total number of containers or packages: 2</p> <p>(12) Total weight of containers or packages received by Carrier:</p> <p>(13) Freight and Charges (14) Prepaid (15) Collect</p> <p>(20) Declared Cargo Value (see clause 7.3): NO VALUE DECLARED (21) Number of Original B/Ls of Lading: 3/THREE</p> <p>(22) Place and Date of Issue of B/L:</p> <p>(23) Signed and issued as agents for SCHENKERocean as Carrier by: SCHENKER LOGISTICS NEDERLAND B.V.</p> <p>ORIGINAL</p>	

...ignoring dynamic parts from comparison...

A screenshot of a DB Schenker document. A red circle highlights the date '2019-02-20 13:36' at the top left. A red arrow points from this highlighted area to a redacted section on the right. The document contains contact information for DB Schenker, a payment receipt number 'PRN000000008367', and a 'Received from' section. A magnifying glass is positioned over the highlighted date.

By email from: , Date: [REDACTED] UTC, To:

DB SCHENKER

Date:04-Dec-2018

Schenker
380 Littelfield Ave
San Francisco, CA 94103
United States of America
Phone No.: +1 650 745 3800
Fax No.: +1 650 7452237
E-mail: [REDACTED]
VAT-Id: 13-5619239

Payment Receipt No: PRN000000008367

Received from:
Quart2 Logistics Solutions Inc.
3130 Bluff Rd
Columbia, SC
United States

```
{
  "page": 1,
  "name": "Date",
  "type": "pattern",
  "pattern": ".*[0-9]{4}-[0-9]{2}-[0-9]{2}.*"
},
```

...with different mask types...

- Area Masks

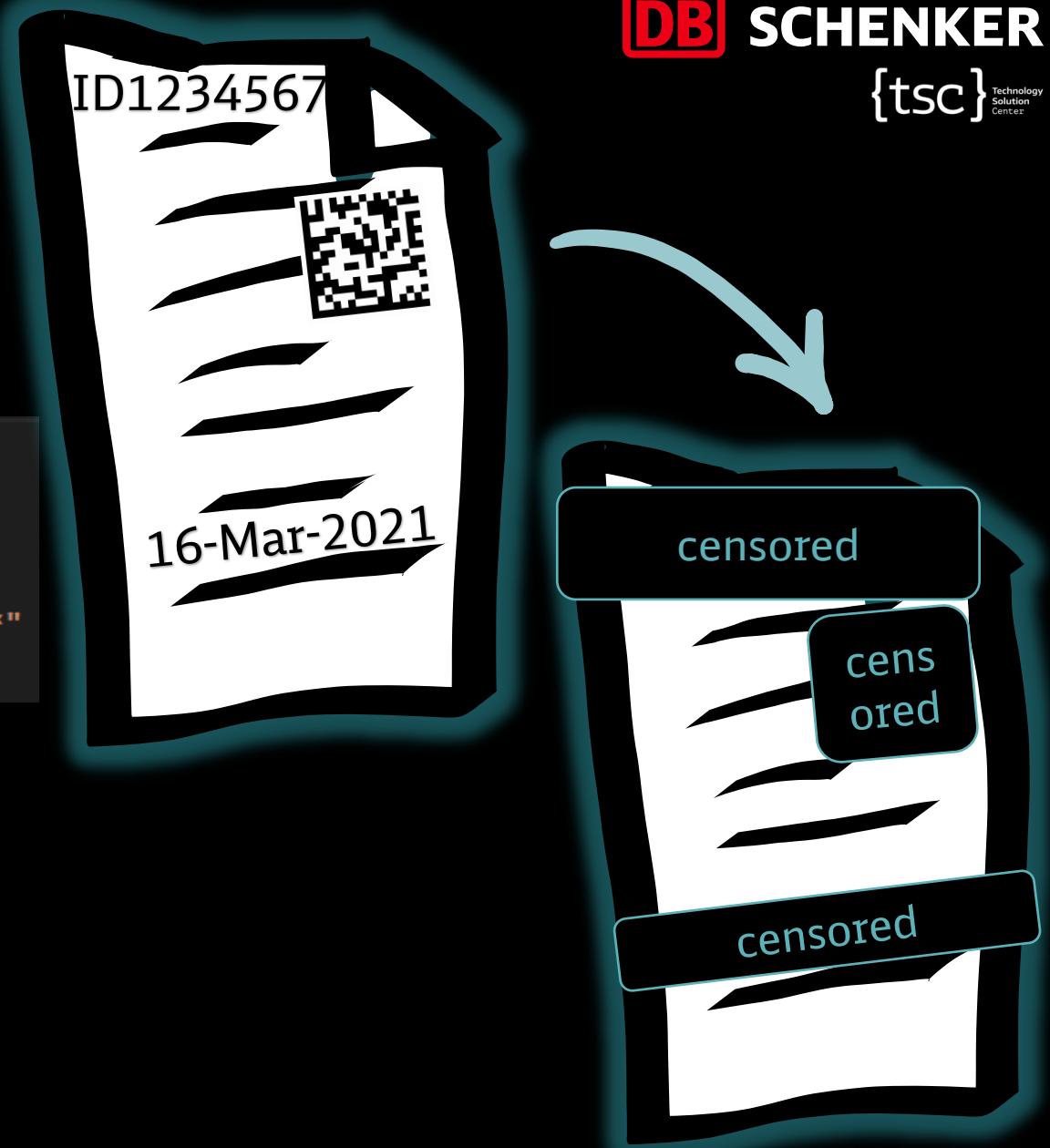
```
{  
    "page": "all",  
    "type": "area",  
    "location": "top",  
    "percent": 10  
},
```

- Text Pattern Masks

```
{  
    "page": 1,  
    "name": "Date",  
    "type": "pattern",  
    "pattern": ".*[0-9]{4}-[0-9]{2}-[0-9]{2}.*"  
},
```

- Coordinate Masks

```
{  
    "page": 1,  
    "name": "Header",  
    "type": "coordinates",  
    "x": 0,  
    "y": 0,  
    "height": 10,  
    "width": 210,  
    "unit": "mm"  
}
```



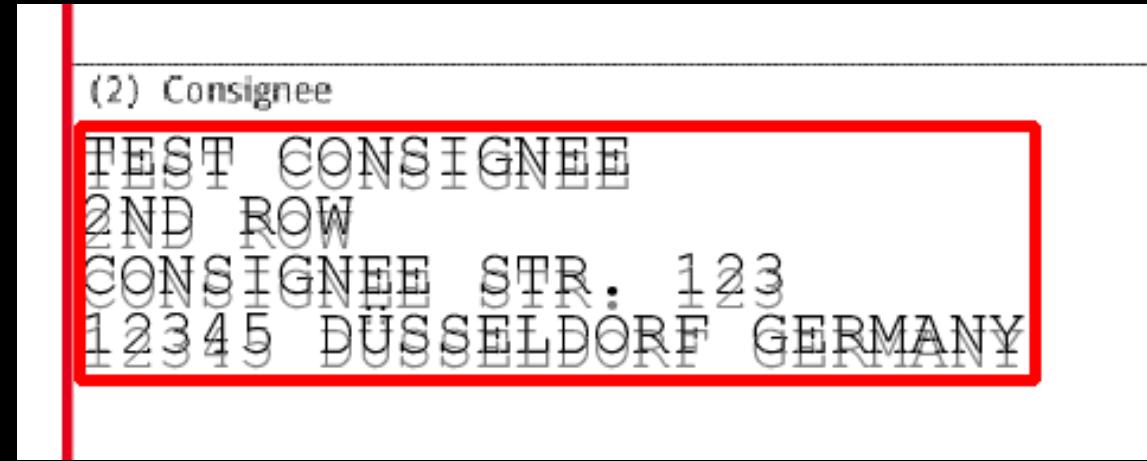
..sometimes accepting small visual differences..

SCHENKERocean

ORIGINAL
Ocean or Combined Transport Bill of Lading

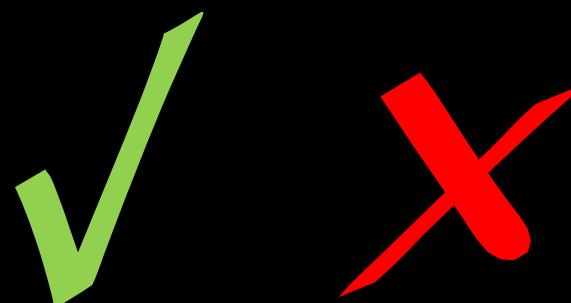
(1) Shipper/Exporter: THE TEST SHIPPER POSTBUS 123 1234 AH GELDROP NETHERLANDS	(4) B/L No: RTMOE123456789
(2) Consignee: TEST CONSIGNEE 2ND ROW CONSIGNEE STR. 123 12345 DÜSSELDORF GERMANY	(5) Reference Nos: 62890011723387 / RTMOE123456789
(3) Notify Party: SAME AS CONSIGNEE	(7) For Delivery of Goods apply to: THE IMPORTING COMPANY 2ND ROW THE IMPORTER STREET P.O. BOX 6702, 12345 DÜSSELDORF GERMANY TEL: 1111111 FAX: 2222222
(8) Vessel/Voyage (see clause 16.1 of the Bill of Lading Terms) MSC TESTER / IP037A	(11) Place of Receipt (Applicable only when document used as Combined Transport B/L) GELDROP (DOOR)
(9) Port of Loading ROTTERDAM	(10) Port of Discharge DÜSSELDORF
BELOW PARTICULARS FURNISHED BY SHIPPER - CARRIER NOT RESPONSIBLE - FOR MERCHANT'S USE ONLY AND NOT PART OF THE BILL OF LADING CONTRACT	
(13) Kind of packages; description of goods; marks and Numbers; Container No./Seal No. TEST CONSIGNEE 2 PALLETS SLAC. 2 500.000 KGS 0.500 CBM	
(14) Gross Weight (15) Measurement	
(16) Description of Goods: 2ND ROW CONSIGNEE STR. 123 12345 DÜSSELDORF GERMANY LOADED INTO CONTAINER: ABCD7800572 SEAL: SEAL123456789	
TOTALS: 2 500.000 KGS 0.500 CBM	
FREIGHT PREPAID	
Above particulars as declared by Shipper, but without responsibility of or representation by the Carrier (see clause 8).	
(16) Carrier's Receipt (see clauses 1 and 8) Total number of containers or packages: 2 Received by Carrier:	
(17) Freight and Charges (18) Prepaid (19) Collect	

VALID FOR 10 YEARS

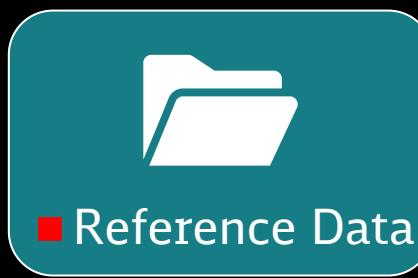
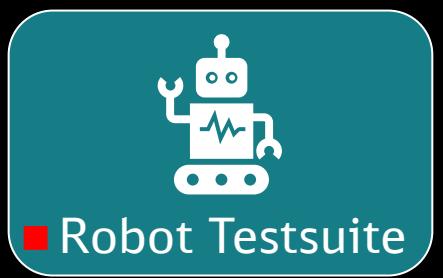


Optional pass criteria:

- Moved Textblock by max. 10 pixels?
- Same Text Content in changed area?



...having a proper test data and test suite setup..



```

1 *** Settings ***
2 Resource ../../resources/Keywords.robot
3 Library ../../resources/VisualTest.py DPI=${DPI}
4 Library OperatingSystem
5 Library DataDriver PROCARS.csv optimize_pabot=Equal
6 Test Template Compare Documents
7 Suite Setup Extract Zip File ${CURDIR}${/}reference${/}reference.zip ${CURDIR}${/}reference
8
9 *** Variables ***
10 ${REFERENCE_DIR} ${CURDIR}${/}reference
11 ${CANDIDATE_DIR} ${CURDIR}${/}candidate
12 ${REQUEST_DIR} ${CURDIR}${/}requests
13 ${DPI} 200
14
15 *** Test Cases ***
16 Create ${payload_file}
17
18 *** Keywords ***
19 Compare Documents
20 [Arguments] ${reference_image} ${payload_file} ${om_application} ${placeholder_file} ${check_text_content} ${move_tolerance} ${contains_barcodes} ${get_pdf_content} ${DPI}
21 [Teardown] Run Keyword If '${KEYWORD STATUS}'=='FAIL' Copy Files ${REQUEST_DIR}${/}${payload_file} ${REFERENCE_DIR}${/}${reference_image} ${candidate_file} ${OUTPUT DIR}${/}Failed${/}${TEST NAME}
22 ${candidate_file}= Send Payload and retrieve Output from Filesystem ${REQUEST_DIR}${/}${payload_file} ${CANDIDATE_DIR} ${om_application}
23 Compare Images reference_image=${REFERENCE_DIR}${/}${reference_image} test_image=${candidate_file} placeholder_file=${placeholder_file} check_text_content=${check_text_content} move_tolerance=${move_tolerance}

```

- ▼ Tests
- ▼ ODM
- ▼ PROCARS
 - ▼ reference
 - reference.zip
 - > requests
- ≡ PROCARS_DataDriver_POC.robot
- ≡ PROCARS_DataDriver.robot
- ≡ PROCARS.csv

A	B	C	D	E	F	G	H	I	J
1 *** Test Cases ***	\$[reference_image]	\$[payload_file]	\$[om_application]	\$[placeholder_file]	\$[check_text_content]	\$[move_tolerance]	\$[contains_barcodes]	\$[get_pdf_content]	\$[DPI]
2 Create ABL_MANIF_SJCDXB	WWSPC_SJCDXB#####SJCDXB024114791SJCDXB#2496580AWB8110036452.pdf	WWSPC_SJCDXB#####SJCDXB024114791SJCDXB#2496580AWB8110036452.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
3 Create ABL_MANIF_AIR_SJCBRU	WWSPC_SJCBRU#####SJCBRU018477131SJCBRU#1949009AWB8120088436.pdf	WWSPC_SJCBRU#####SJCBRU018477131SJCBRU#1949009AWB8120088436.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
4 Create ABL_MANIF_AIR_SJCBER	WWSPC_SJCBER#####SJCBER009592151SJBER#2194945AWB7209000205.pdf	WWSPC_SJCBER#####SJCBER009592151SJBER#2194945AWB7209000205.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
5 Create ABL_MANIF_AIR_SICCGN	WWSPC_SICCGN#####SICCGN023509451SJCCGN#6136675AWB7209000442.pdf	WWSPC_SICCGN#####SICCGN023509451SJCCGN#6136675AWB7209000442.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
6 Create ABL_MANIF_AIR_SJCFCRA	WWSPC_SJCFCRA#####SJCFCRA051887841SJCFRA#10543437AWB7209004969.pdf	WWSPC_SJCFCRA#####SJCFCRA051887841SJCFRA#10543437AWB7209004969.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
7 Create ABL_MANIF_AIR_SJGUA	WWSPC_SJGUA#####SJGUA0017053405SJGUA##65433AWB8120000185.pdf	WWSPC_SJGUA#####SJGUA0017053405SJGUA##65433AWB8120000185.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
8 Create ABL_MANIF_AIR_SJCBDU	WWSPC_SJCBDU#####SJCBDU010283881SJCBDU#1026970AWB8109000370.pdf	WWSPC_SJCBDU#####SJCBDU010283881SJCBDU#1026970AWB8109000370.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
9 Create ABL_MANIF_AIR_SJCDUB	WWSPC_SJCDUB#####SJCDUB#009868811SJCDUB#1048487AWB8115019718.pdf	WWSPC_SJCDUB#####SJCDUB#009868811SJCDUB#1048487AWB8115019718.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
10 Create ABL_MANIF_AIR_SJCLUX	WWSPC_SJCLUX#####SJCCLUX#035872215SJCLUX#948212AWB7809000119.pdf	WWSPC_SJCLUX#####SJCCLUX#035872215SJCLUX#948212AWB7809000119.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
11 Create ABL_MANIF_AIR_SJCMEX	WWSPC_SJCMEX#####SJCMEX#008264660SJCMEX#6064831AWB8101029934.pdf	WWSPC_SJCMEX#####SJCMEX#008264660SJCMEX#6064831AWB8101029934.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
12 Create ABL_MANIF_AIR_SICAMS	WWSPC_SICAMS#####SICAMS#7875735AWB8100565500.pdf	WWSPC_SICAMS#####SICAMS#7875735AWB8100565500.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
13 Create ABL_MANIF_AIR_SJCOSL	WWSPC_SJCOSL#####SJCOSL#014980581SJCOSL#1928551AWB8120025453.pdf	WWSPC_SJCOSL#####SJCOSL#014980581SJCOSL#1928551AWB8120025453.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
14 Create ABL_MANIF_AIR_SJCLIM	WWSPC_SJCLIM#####SJCCLIM#006989381SJCCLIM##851260AWB8110020167.pdf	WWSPC_SJCLIM#####SJCCLIM#006989381SJCCLIM##851260AWB8110020167.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
15 Create ABL_MANIF_AIR_SJCWAH	WWSPC_SJCWAH#####SJCWAH#002265951SJCWAH##257606AWB8110017252.pdf	WWSPC_SJCWAH#####SJCWAH#002265951SJCWAH##257606AWB8110017252.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
16 Create ABL_MANIF_AIR_SICOP0	WWSPC_SICOP0#####SICOP0#008132141SJCOPO#1071095AWB8150000701.pdf	WWSPC_SICOP0#####SICOP0#008132141SJCOPO#1071095AWB8150000701.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
17 Create ABL_MANIF_AIR_SJCSVX	WWSPC_SJCSVX#####SJCXSV#00407240SJCXSV##254211AWB815000039.pdf	WWSPC_SJCSVX#####SJCXSV#00407240SJCXSV##254211AWB815000039.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
18 Create ABL_MANIF_AIR_SJCLU	WWSPC_SJCLU#####SJCCLU#001253681SJCCLU##133346AWB8109000070.pdf	WWSPC_SJCLU#####SJCCLU#001253681SJCCLU##133346AWB8109000070.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	

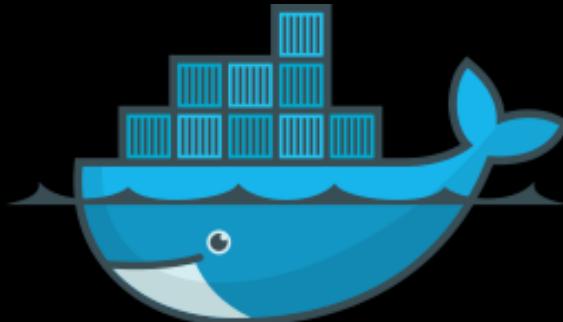
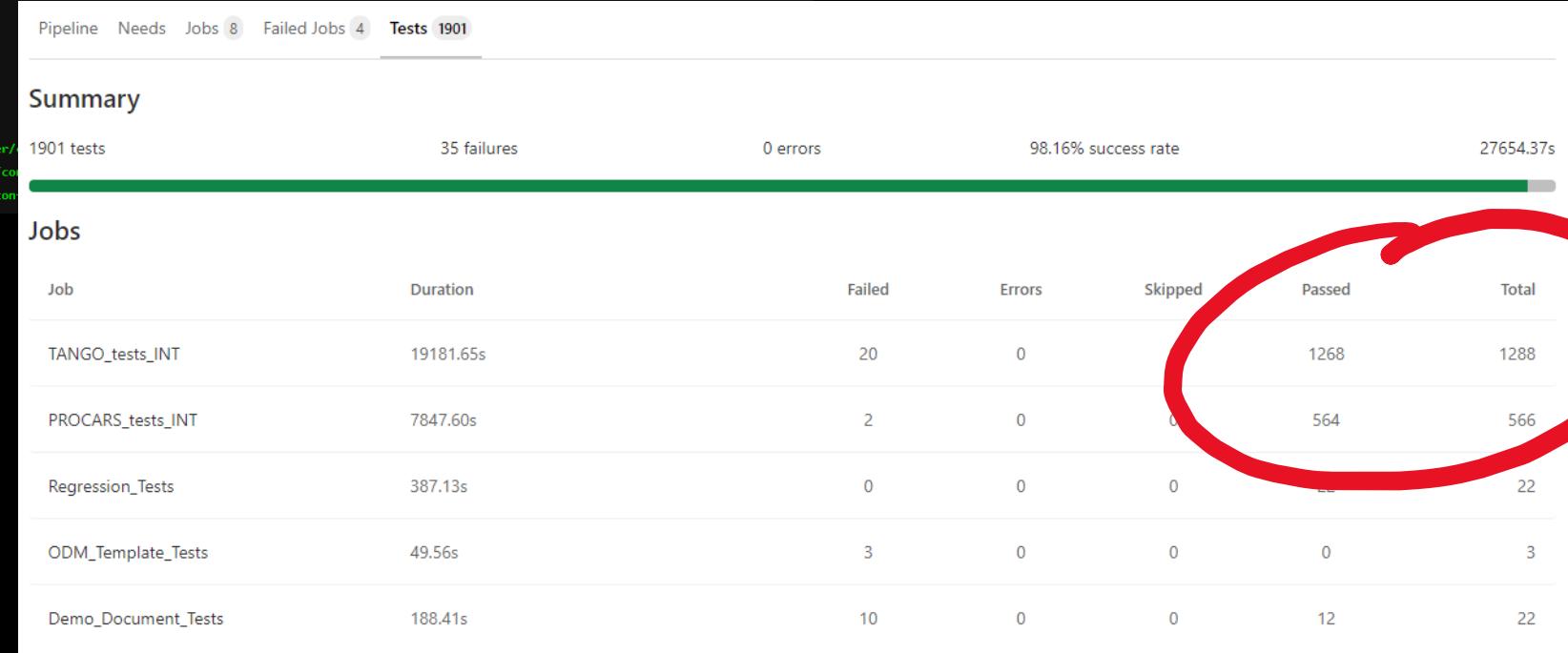
..running large amounts of tests in containers...

```
1 Running with gitlab-runner 13.8.0 (775dd39d)
2 on runner-spawner KB2N2Huy
3 Preparing the "docker+machine" executor
4 Using Docker executor with image docker.signintra.com/ta3s/odm/output-tests/robotframework-outputtest:master ...
5 Authenticating with credentials from job payload (GitLab Registry)
6 Pulling docker image docker.signintra.com/ta3s/odm/output-tests/robotframework-outputtest:master ...
7 Using docker image sha256:ff7f6463371f38dc694c7674d02d92acb42c2ff247db74ebcfbab508a808f934 for docker.signintra.com/ta3s/odm/output-tests/robotframework-outputtest:master with digest docker.signintra.com/ta3s/odm/output-tests/robotframework-outputtest@sha256:1e8da0228710c7c9496f7e1292baa5848f31c8d0b98fd2bfecb40d88b1f9fc3b ...
8 Preparing environment
9 Running on runner-kb2n2huy-project-5075-concurrent-0 via runner-kb2n2huy-gitlab-runner-machine-1611583184-72fad5be...
10 Getting source from Git repository
11 Fetching changes with git depth set to 1...
12 Initialized empty Git repository in /builds/ta3s/odm/output-tests/.git/
13 Created fresh repository.
14 Checking out d0a2d906 as master...
15 Skipping Git submodules setup
16 Executing "step_script" stage of the job script
17 $ export PYTHONPATH="$PYTHONPATH:."
18 $ set -a
19 $ . $PWD/resources/configuration/${ENVIRONMENT}.env
20 $ envsubst < $PWD/resources/OMSender/conf/PROCAR.S.properties.subst > $PWD/resources/OMSender/conf/PROCAR.S.properties
21 $ envsubst < $PWD/resources/OMSender/conf/TANGO.properties.subst > $PWD/resources/OMSender/conf/TANGO.properties
22 $ envsubst < $PWD/resources/OMSender/conf/STAR.properties.subst > $PWD/resources/OMSender/conf/STAR.properties
```

00:48

00:07

00:28



...using custom tools to support evaluation of results...

Output Test Result Evaluator

File

Test Results

	Test Suite	Test Case	Error Message	Accept
72	TANGO DataDriver 02	Create WWTAN_SBL_PICKPRE_SINGLESTOP_en...	The compared images are different.	<input type="checkbox"/>
73	TANGO DataDriver 02	Create WWTAN_SBL_SDO_en-CA_CATORBR0001	The compared images are different.	<input type="checkbox"/>
74	TANGO DataDriver 02	Create WWTAN_SMN_SUB2_en-DE_AEDXBBR0004	"No matching Document was fou...	<input type="checkbox"/>
75	TANGO DataDriver 02	Create WWTAN_SVO_IN_CASH_en-NZ_NZAKLBR0001	Reference File and Candidate File ...	<input type="checkbox"/>
76	TANGO DataDriver 02	Create WWTAN_SVO_IN_PROFORMA_it-IT_ITCTABR0001	DelegateError: ...	<input type="checkbox"/>
77	TANGO DataDriver 02	Create WWTAN_SVO_IN_en-AU_AUBNEBR0001	Reference File and Candidate File ...	<input type="checkbox"/>
78	TANGO DataDriver 02	Create WWTAN_SVO_IN_en-CA_ATLNZBR0001	The compared images are different.	<input type="checkbox"/>
79	TANGO DataDriver 02	Create WWTAN_SVO_IN_en-NZ_NZAKLBR0001	Reference File and Candidate File ...	<input type="checkbox"/>
80	TANGO DataDriver 02	Create WWTAN_SVO_IN_en-RS_RSBEGBR0002	The compared images are different.	<input type="checkbox"/>
81	TANGO DataDriver 02	Create WWTAN_SVO_IN_fr-CA_CATORBR0001	The compared images are different.	<input type="checkbox"/>
82	TANGO DataDriver 02	Create WWTAN_SVO_IN_sr-RS_RSBEGBR0002	The compared images are different.	<input type="checkbox"/>
83	TANGO DataDriver 02	Create WWTAN_SVO_PAY_en-CL_CLSCLBRA0001	The compared images are different.	<input type="checkbox"/>
84	TANGO DataDriver 02	Create WWTAN_SVO_PAY_en-CN_CNBJSBR0003	The compared images are different.	<input type="checkbox"/>
85	TANGO DataDriver 02	Create WWTAN_SVO_PAY_en-DE_DESTRBR0001	The compared images are different.	<input type="checkbox"/>
86	TANGO DataDriver 02	Create WWTAN_SVO_PAY_en-IN_INDELBR0001	The compared images are different.	<input type="checkbox"/>
87	TANGO DataDriver 02	Create WWTAN_SVO_PAY_es-CL_CLSCLBRA0001	The compared images are different.	<input type="checkbox"/>
88	TANGO DataDriver 02	Create WWTAN_SVO_PPYREQ_en-CA_CATORBR0001	The compared images are different.	<input type="checkbox"/>
89	TANGO DataDriver 02	Create WWTAN_SVO_ST_en-AU_AUSYDBR0001	Reference File and Candidate File ...	<input type="checkbox"/>
90	TANGO DataDriver 02	Create WWTAN_SVO_ST_en-CA_CATORBR0001	The compared images are different.	<input type="checkbox"/>
91	TANGO DataDriver 02	Create WWTAN_SVO_ST_en-RS_RSBEGBR0002	The compared images are different.	<input type="checkbox"/>

Reference Data Folder
C:\Users\MKASIRIH\Downloads\TANGO_tests_INT-master (10)\reports\reference_data

Bug Data Folder
C:\Users\MKASIRIH\Downloads\TANGO_tests_INT-master (10)\reports\bug_data

...learning that Amazon will show different bestseller categories when you open the same link

amazon.de Hallo Lieferadresse wählen Alle

Allgemeine Kategorien: Bestseller, Prime Video, Neuerscheinungen, Angebote, Prime, Kundenservice, Geschenkideen, Bücher, Küche, Haushalt & Wohnen, Elektronik & Foto, Computer.

Bestseller Result (Reference)

DVD & Blu-ray

Siehe weitere Bestseller in DVD & Blu-ray

1. Harry Potter: The Complete Collection [8 DVDs] Daniel Radcliffe ★★★★★ 6.499
2. Tenet (+ Bonus-Blu-ray) Washington ★★★★★ 4.575
3. Knives Out - Mord ist Familiensache [Blu-ray] Craig ★★★★★ 21.577

Games

Siehe weitere Bestseller in Games

1. PSN Guthaben-Aufstockung | 10 EUR | deutsches Konto | PSN Download-Code Sony Interactive... ★★★★★ 17.833
2. Xbox-Guthabenkarte Microsoft ★★★★★ 12.297
3. PlayStation Plus 1 Monat Mitgliedschaft - 1 Monat Edition | PS4 Download-Code - deutsches Konto Sony Interactive... ★★★★★ 39.161

Bücher

Siehe weitere Bestseller in Büchern

1. LESEMAUS Connis Freunde im Zeitalter von Corona
2. Mein bunter Lern- und Übungsblick Kindergarten Lernspiele für Kinder
3. Das Kind in der Heimat finden

amazon.de Hallo Lieferadresse wählen Alle

Allgemeine Kategorien: Bestseller, Prime Video, Neuerscheinungen, Angebote, Prime, Kundenservice, Geschenkideen, Bücher, Küche, Haushalt & Wohnen, Elektronik & Foto, Computer.

Bestseller Actual Result (Candidate)

Musik-CDs & Vinyl

Siehe weitere Bestseller in Musik-CDs & Vinyl

1. Die drei ??? Kelch des Schicksals Die Drei ★★★★★ 169
2. Power Up AC/DC ★★★★★ 14.148
3. 6 Monate Tiger Media Deutschland GmbH 4203 6 Monate tigertones Premium-Zugang ★★★★★ 841

DVD & Blu-ray

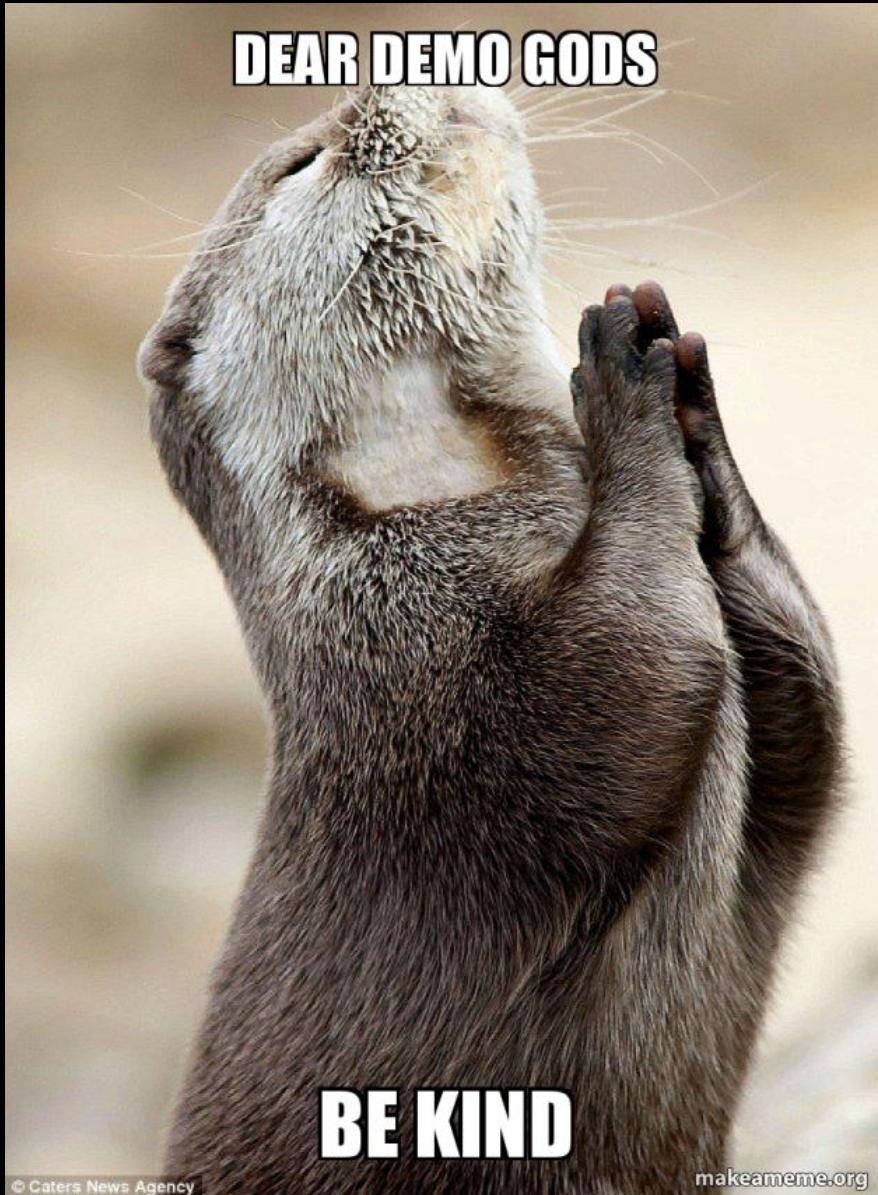
Siehe weitere Bestseller in DVD & Blu-ray

1. Harry Potter: The Complete Collection [8 DVDs] Daniel Radcliffe ★★★★★ 6.499
2. Tenet (+ Bonus-Blu-ray) Washington ★★★★★ 4.575
3. Knives Out - Mord ist Familiensache [Blu-ray] Craig ★★★★★ 21.577

Bücher

Siehe weitere Bestseller in Büchern

1. LESEMAUS Connis Freunde im Zeitalter von Corona
2. Mein bunter Lern- und Übungsblick Kindergarten Lernspiele für Kinder
3. Das Kind in der Heimat finden



Are you ready?
It's DEMO TIME

```
Beach.robot X

atest > Sample > Beach.robot > ...
Run Suite | Debug Suite
1 *** Settings ***
2 Library DocTest.VisualTest
3
4 *** Test Cases ***
5 Run | Debug
6 Compare two Beach Images
7 | Compare Images testdata/Beach_left.jpg testdata/Beach_right.jpg
```

Demo

Test Execution Log

SUITE Beach

Full Name: Beach
Source: c:\RoboCon-DocTest\latest\Sample\Beach.robot
Start / End / Elapsed: 20210623 21:55:53.379 / 20210623 21:55:56.510 / 00:00:03.131
Status: 1 test total, 0 passed, 1 failed, 0 skipped

TEST Compare two Beach Images

Full Name: Beach.Compare two Beach Images
Start / End / Elapsed: 20210623 21:55:56.356 / 20210623 21:55:56.510 / 00:00:00.154
Status: FAIL
Message: The compared images are different.

KEYWORD DocTestVisualTest. **Compare Images** testdata/Beach_left.jpg, testdata/Beach_right.jpg

Documentation: Compares the documents/images `reference_image` and `test_image`.
Start / End / Elapsed: 20210623 21:55:56.357 / 20210623 21:55:56.510 / 00:00:00.153

21:55:56.496 INFO Compare Image Object created in 0.0180 seconds
21:55:56.496 INFO Compare Image Object created in 0.0176 seconds

The image shows two versions of a colorful beach scene. The left version is labeled 'Expected Result (Reference)' and the right is 'Actual Result (Candidate)'. Numerous red rectangular boxes highlight specific differences between the two images, such as people's positions, beach umbrellas, and background elements like palm trees and buildings. The overall scene includes a lighthouse, a beach, and a town with houses and a shop labeled 'SOUVENIR'.

REPORT

Generated
20210624 11:58:40 UTC+02:00
6 seconds ago

01 Images Log

Test Statistics

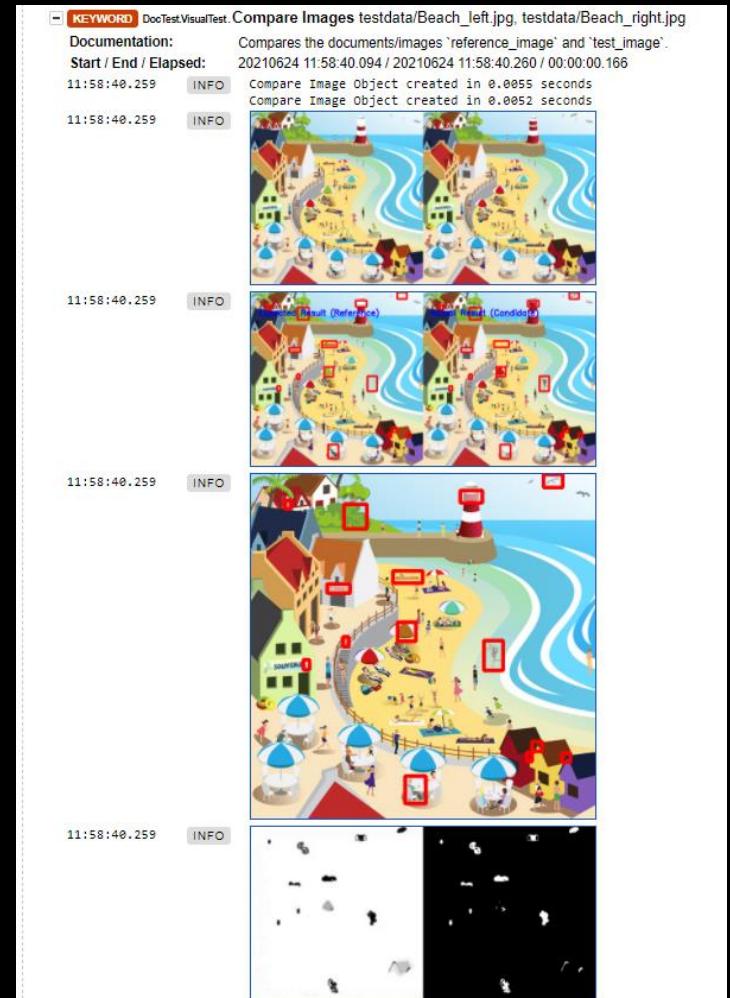
Total Statistics	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
All Tests	1	0	1	0	00:00:00	FAIL

Statistics by Tag	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
No Tags						

Statistics by Suite	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
01 Images	1	0	1	0	00:00:01	FAIL

Test Execution Log

- **SUITE** 01 Images 00:00:01.245
 - Full Name: 01 Images
 - Source: c:\RoboCon-DocTest\latest\Visual\01_Images.robot
 - Start / End / Elapsed: 20210624 11:58:39.016 / 20210624 11:58:40.261 / 00:00:01.245
 - Status: 1 test total, 0 passed, 1 failed, 0 skipped
- **TEST** Compare two Beach images 00:00:00.166
 - Full Name: 01 Images.Compare two Beach images
 - Start / End / Elapsed: 20210624 11:58:40.094 / 20210624 11:58:40.260 / 00:00:00.166
 - Status: FAIL
 - Message: The compared images are different.



Robot Framework

Where to start...?

- Generic Open Source Automation Framework
 - Test Automation
 - Robotic Process Automation
- Developed by Nokia Networks in 2008
- Actively developed by Robot Framework Foundation
 - Schenker AG is also a member
- Open and extensible
 - Extensions can be developed in Python
- Easy to integrate with other tools
- Easy syntax with human-readable keywords
- Rich ecosystem, consisting of other libraries and tools
- Independent of Operation System and applications
- Very well documented
- Supporting community
 - Discussion Boards, Slack Channel, Stackoverflow, ..



robotframework.org

*** Test Cases ***

Valid Login

Open Browser To Login Page

Input Username demo

Input Password mode

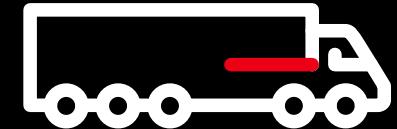
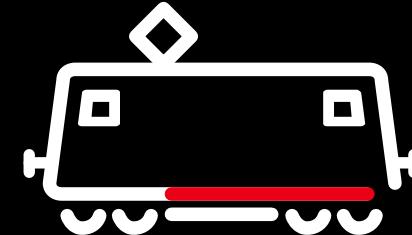
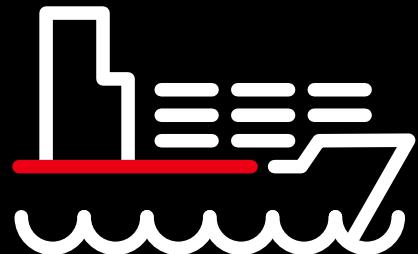
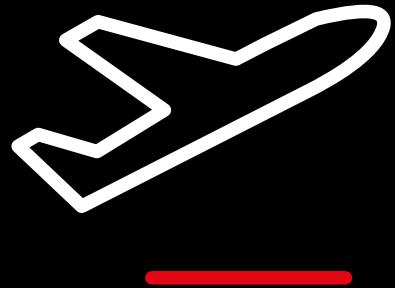
Submit Credentials

Welcome Page Should Be Open

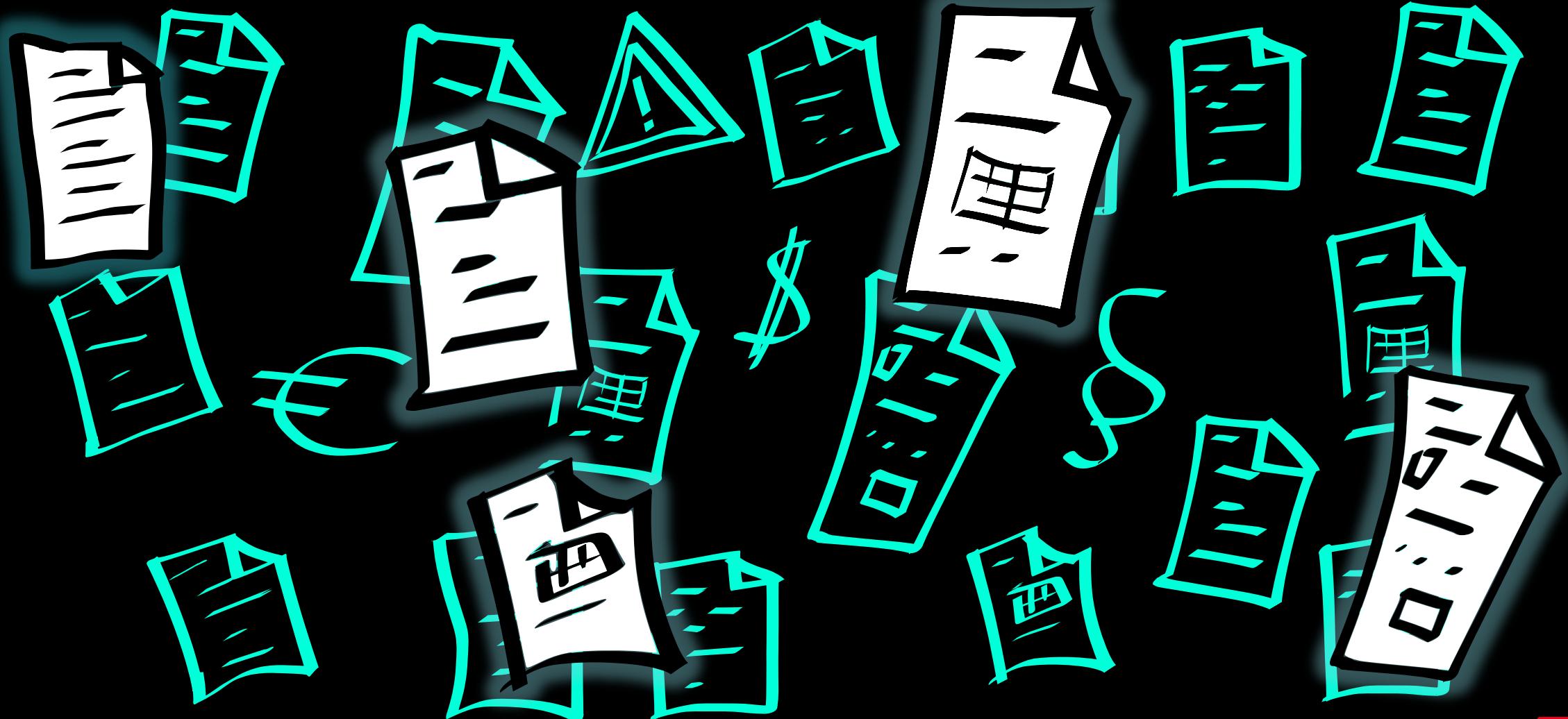
[Teardown] Close Browser

Freight Forwarding, Documents and Testing...

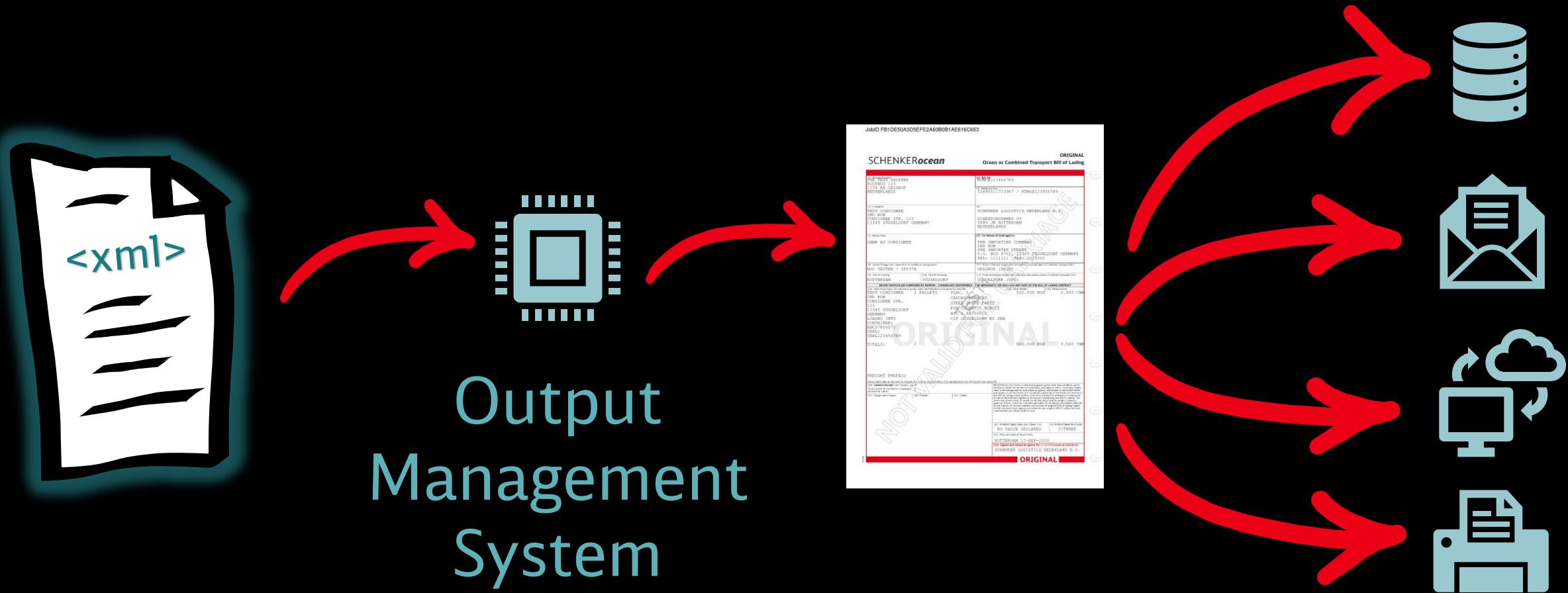
What people think freight forwarding is about



But it is also about documents



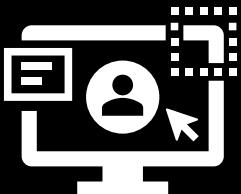
Output creation is simple, right?



But there are some things to consider...

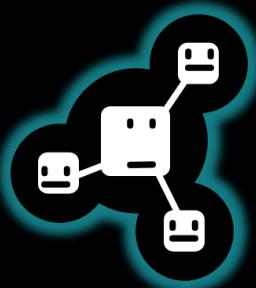


- Lots of different documents
- Country specific rules per document
- Different output channels/formats
- Different applications sending data





We wanted



Pabot

- a small, serverless & decentralized solution
- something that can scale easily
- something that we can easily extend ourselves
- to give something back to the Open Source community
- something like a VW Up instead of a Maybach



You might need different ways to retrieve outputs (Not shown in this presentation)



Retrieve Outputs from a Database

- Execute SQL statement and store Binary Object



Retrieve Outputs from Mailbox

- Access Office 365 Mailbox via Microsoft **Graph API**



Retrieve Outputs from Filesystem

- Connect to Server **Filesystem** via SSH



Retrieve Outputs from a Webservice

- Retrieve Output as response to a Webservice request



Retrieve Outputs from SMS

- Fake SMS by sending as eMail and retrieve from Mailbox

DEMO TIME

Run | Debug

8 Compare two Beach images with date without mask

9 Compare Images testdata/Beach_date.png testdata/Beach.png

10



```
Run | Debug  
11 Compare two Beach images with date with patter mask  
12 Compare Images testdata/Beach_date.png testdata/Beach.png placeholder_file=testdata/pattern_mask.json
```

TEST Compare two Beach images with date with patter mask

Full Name: 01 Images.Compare two Beach images with date with patter mask
Start / End / Elapsed: 20210623 22:00:44.736 / 20210623 22:00:48.188 / 00:00:03.452
Status: **PASS**

KEYWORD DocTest:VisualTest. Compare Images testdata/Beach_date.png, testdata/Beach.png, placeholder_file=testdata/pattern_mask.json
Documentation: Compares the documents/images 'reference_image' and 'test_image'.
Start / End / Elapsed: 20210623 22:00:44.737 / 20210623 22:00:48.188 / 00:00:03.451
22:00:48.188 INFO Compare Image Object created in 0.0131 seconds
Re-Render document for OCR at 300 DPI as current resolution is only 72 DPI
Re-Render document for OCR at 300 DPI as current resolution is only 72 DPI
Identified Masks: [{"page": 1, "x": 153, "y": 5, "height": 25, "width": 124}, {"page": 1, "x": 318, "y": 405, "height": 44, "width": 124}
Compare Image Object created in 3.3782 seconds
22:00:48.188 INFO

```
testdata > {} pattern_mask.json > ...  
1 [  
2 {  
3   "page": "all",  
4   "name": "Date Pattern",  
5   "type": "pattern",  
6   "xoffset": 5,  
7   "yoffset": 5,  
8   "pattern": "[0-9]{2}-[a-zA-Z]{3}-[0-9]{4}"  
9 },  
10 {  
11   "page": "all",  
12   "name": "JobID Pattern",  
13   "type": "pattern",  
14   "xoffset": 5,  
15   "yoffset": 5,  
16   "pattern": ".*[0-9A-Z]{9}.*"  
17 }  
18 ]  
19 }
```

Demo

Run | Debug

14 Compare two Beach images with date with area mask
15 | Compare Images testdata/Beach_date.png testdata/Beach.png placeholder_file=testdata/area_mask_top_bottom.json

TEST Compare two Beach images with date with area mask

Full Name: 01 Images.Compare two Beach images with date with area mask
Start / End / Elapsed: 20210623 22:00:48.188 / 20210623 22:00:48.269 / 00:00:00.081
Status: PASS

KEYWORD DocTest.VisualTest.Compare Images testdata/Beach_date.png, testdata/Beach.png, placeholder_file=testdata/area_mask_top_bottom.json

Documentation: Compares the documents/images 'reference_image' and 'test_image'.
Start / End / Elapsed: 20210623 22:00:48.189 / 20210623 22:00:48.268 / 00:00:00.079
22:00:48.268 INFO Compare Image Object created in 0.0083 seconds
Identified Masks: [{"page": "all", "x": 0, "y": 0, "height": 45, "width": 450}, {"page": "all", "x": 0, "y": 405, "height": 45, "width": 450}]
Compare Image Object created in 0.0162 seconds
22:00:48.268 INFO

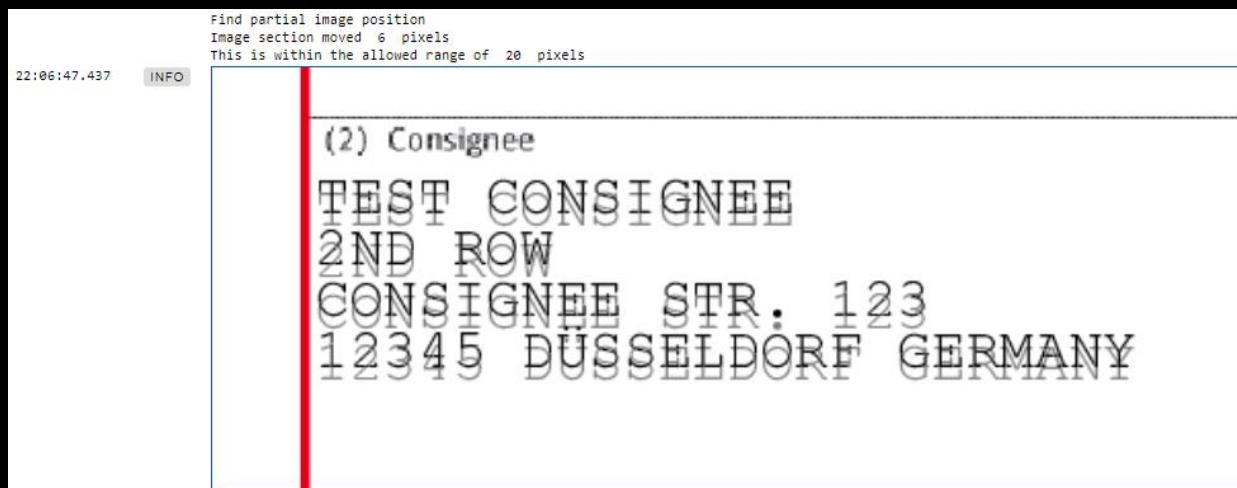


The compared images are equal
Visual Image comparison performed in 0.0582 seconds

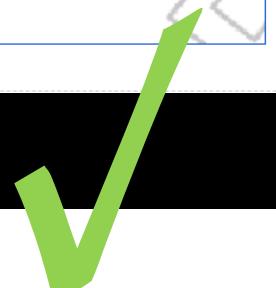
testdata > { area_mask_top_bottom.json > ...

```
1 [  
2 {  
3   "page": "all",  
4   "type": "area",  
5   "location": "top",  
6   "percent": 10  
7 },  
8 {  
9   "page": "all",  
10  "type": "area",  
11  "location": "bottom",  
12  "percent": 10  
13 }  
14 ]
```

```
14 Compare two different PDF Files with moved text within tolerance via visual comparison
15     Compare Images      testdata/reference.pdf      testdata/candidate_movedtext.pdf      move_tolerance=20
16
17 Run | Debug
18 Compare two different PDF Files with moved text within tolerance via pdf content
19     Compare Images      testdata/reference.pdf      testdata/candidate_movedtext.pdf      move_tolerance=20      get_pdf_content=${true}
```



Find partial image position
Image section moved 6 pixels
This is within the allowed range of 20 pixels



Capabilities of Visual Output Testing Library

Visual Output Testing Library

- Different Filetypes
 - Images, PDF, PCL, Postscript
- Visual (pixel wise) comparison of outputs
- Definition of masks to ignore areas
 - Based on Coordinates, Text Patterns or Areas
- Reading and masking barcode content (not presented)
- Compare text value for changed areas
- Allow moved text blocks within a defined range
- Test Report highlighting changed areas
 - Separate view of reference/candidate output
 - Merged view of reference/candidate output

SCHENKERocean
Ocean or Combined Transport Bill of Lading

ORIGINAL

(1) Name THE SHIPPER TEST CONSIGNEE 1234 AH GELDROP NETHERLANDS	(4) Reference No. RTMOE123456789
(2) Consignee TEST CONSIGNEE 2ND ROW CONSIGNEE STR. 123 DÜSSELDORF GERMANY	(5) Address No. SCHENKER LOGISTICS NEDERLAND B.V. SCHEEPSBOUWEG 65 3089 JW ROTTERDAM NETHERLANDS
(3) Notify Party SAME AS CONSIGNEE	(6) For Delivery of Goods apply to: THE IMPORTING COMPANY 2ND ROW THE IMPORTER STREET P.O. BOX 6702 / 12345 DÜSSELDORF GERMANY TEL: 1111111 / FAX: 2222222
(7) Vessel/Carrier (See clause 15.3 of the Bill of Lading terms) MSC TESTER / IP037A	(8) Place of Receipt (Applicable only when document used as Combined Transport B/L) GELDROP (DGQR)
(9) Port of Loading ROTTERDAM	(10) Port of Discharge DÜSSELDORF (GFS)
(11) Particulars furnished by Shipper - CARRIER NOT RESPONSIBLE - IN MERCHANT'S USE ONLY AND NOT PART OF THE BILL OF LADING CONTRACT	
(12) Marks or numbers of packages, description of goods, names and addresses, Container No./Box No. TEST CONSIGNEE 2 PALLETS	(13) Gross Weight (kg) (14) Measurements (cm) SLAC. 2 CARDBOARD BOXES, STEEL SPARE PARTS FOR GIGANTIC ROBOTS HSC 84799070 ABC07800572 CIF DÜSSELDORF BY SEA 500.000 KGS 0.500 CBM
(15) Freight Prepaid	
Above particulars as declared by Shipper, but without responsibility of or representation by the Carrier (see clause 8). The Carrier shall not be liable for any loss or damage arising from any error or omission in the particulars given above. The Carrier shall not be liable for any loss or damage arising from any error or omission in the particulars given above as stated by the Merchant and the weight, measure, quality and description of the goods, and the condition of the containers, packages or other conveyances, as declared by the Carrier. In witness whereof the number of original Bills of Lading stated on the face hereof, and the number of copies of this document are one original Bill of Lading, no copy surrendered; any others shall be void.	
(16) Freight and Charges (See clause 7.3) Received Carriage Paid (See clause 1 and 4) Total amount of carriage or packing charges received by Carrier:	(17) Freight and Charges (18) Prepaid (19) Collect
(20) Declared Cargo Value (See clause 7.3) NO VALUE DECLARED	(21) Number of Original Bills of Lading 3/THREE
(22) Place and Date of Issue of B/L	
(23) Signed and issued an agent for SCHENKER/Received as Carrier by: SCHENKER LOGISTICS NEDERLAND B.V.	
ORIGINAL	

Capabilities of Printer File Comparison (Not shown in demo)

Printer file comparison

- Filetypes: PCL, Postscript
- Properties for comparison
 - PCL
 - Paper Source, Copies, Duplex, Page Orientation, Paper Format
 - Postscript
 - Comments, Pages, Features, Setup, Header, Trailer, PJL Commands
- Comparison of Reference/Candidate File
- Check properties of single file (without Reference File)

```
ESC&ESC&u300DESC&l1SESC&t0PESC&l1HESC&l0o0EESC&l1XESC*c14400x14400YESC*p0x0YESC*c0TESC#0BIN;  
WU0;  
SP1;  
PU;  
SC0,3.3867,0,3.3867,2;  
TR0;  
LA1,2;  
LA2,1;  
PW0;  
PA-131,6000;  
PM0;  
PD;  
PR2480,0;  
PR0,-3508;  
PR-2480,0;  
PR0,3508;  
PU;  
PM2;
```

PCL File

```
19 /StrsPSOct10 50 dict dup begin  
20 /bd{bind def}bind def  
21 /ld{load def}bd  
22 /TR{translate}bd  
23 /M{moveto}bd  
24 /A{0 moveto}bd  
25 /RM{rmoveto}bd  
26 /L{lineto}bd  
27 /RL{rlineto}bd  
28 /RT{rotate} ld  
29 /LW{setlinewidth}bd  
30 /ST{stroke}bd  
31 /SD{1 eq {2 array astore 0 setdash}{[] 0 setdash}ifelse}bd  
32 /RCT{moveto exch dup 0 rlineto exch 0 exch rlineto neg 0 rlineto closepath}bd  
33 /XS{xshow} ld  
34 /rgb/setrgbcolor ld  
35 /t/show ld
```

Postscript File

Checking for text value inside a PDF



```
atest > Content > PDF.robot > ...
Run Suite | Debug Suite | Run in Interactive Console
1 *** Settings ***
2 Library DocTest.PdfTest
3
4 *** Test Cases ***
Run | Debug | Run in Interactive Console
5 This text exists in the PDF File
6 | @{strings}= Create List THE TEST SHIPPER TEST CONSIGNEE
7 | PDF Should Contain Strings ${strings} testdata/reference.pdf
8
Run | Debug | Run in Interactive Console
9 This text does NOT exist in the PDF File
10 | @{strings}= Create List THE TEST SHIPPER THIS STRING DOES NOT EXIST IN THIS DOJO
11 | PDF Should Contain Strings ${strings} testdata/reference.pdf
```

=====

PDF

=====

This text exists in the PDF File	PASS
This text does NOT exist in the PDF File Some expected texts were not found in document	FAIL

=====

PDF

2 tests, 1 passed, 1 failed

=====

Output: c:\workspace\tacon2021\output.xml
 Log: c:\workspace\tacon2021\log.html
 Report: c:\workspace\tacon2021\report.html

=====

- SUITE PDF

Full Name: PDF
 Source: c:\workspace\tacon2021\latest\Content\PDF.robot
 Start / End / Elapsed: 20210929 11:19:24.721 / 20210929 11:19:25.276 / 00:00:00.555
 Status: 2 tests total, 1 passed, 1 failed, 0 skipped

+ TEST This text exists in the PDF File

- TEST This text does NOT exist in the PDF File

Full Name: PDF.This text does NOT exist in the PDF File
 Start / End / Elapsed: 20210929 11:19:25.224 / 20210929 11:19:25.275 / 00:00:00.051
 Status: FAIL
 Message: Some expected texts were not found in document

+ KEYWORD @{strings} = `Builtin.Create List THE TEST SHIPPER, THIS STRING DOES NOT EXIST IN THIS DOJO`

- KEYWORD DocTest.PdfTest.PDF Should Contain Strings \${strings}, testdata/reference.pdf

Documentation: Checks if each item provided in the list `expected_text_list` appears in the PDF File `candidate_document`.
 Start / End / Elapsed: 20210929 11:19:25.226 / 20210929 11:19:25.274 / 00:00:00.048

11:19:25.243 INFO [{"text": "THIS STRING DOES NOT EXIST IN THIS DOJO", "document": "testdata/reference.pdf"}]

11:19:25.274 FAIL Some expected texts were not found in document

Checking printer files (.ps, .pcl) visually and by content

```
atest > Content > PrinterFiles.robot > ...
Run Suite | Debug Suite | Run in Interactive Console
1 *** Settings ***
2 Library DocTest.PrintJobTests
3 Library DocTest.VisualTest    take_screenshots=true    screenshot_format=png    show_diff=true
4
5 *** Test Cases ***
6
7 Run | Debug | Run in Interactive Console
8 Compare two different PS files visually
9     Compare Images    testdata/reference_single.ps    testdata/candidate_changed.ps
10
11 Run | Debug | Run in Interactive Console
12 Compare two different PCL files visually
13     Compare Images    testdata/reference_single.pcl    testdata/candidate_changed.pcl
14
15 Run | Debug | Run in Interactive Console
16 Compare two Postscript files metadata with different properties
17     Compare Print Jobs    pcl    testdata/reference.pcl    testdata/candidate.pcl
```

```
=====
PrinterFiles
-----
Compare two different PS files visually | FAIL |
The compared images are different.

Compare two different PCL files visually | FAIL |
The compared images are different.

Compare two PCL files metadata with different properties | FAIL |
The compared print jobs are different.

Compare two Postscript files metadata with different properties | FAIL |
The compared print jobs are different.

=====
PrinterFiles
4 tests, 0 passed, 4 failed
-----
Output: c:\workspace\tacon2021\output.xml
Log:   c:\workspace\tacon2021\log.html
Report: c:\workspace\tacon2021\report.html
```

Test Results for different metadata in .pcl print job



- **TEST** Compare two PCL files metadata with different properties

Full Name: PrinterFiles.Compare two PCL files metadata with different properties

Start / End / Elapsed: 20210929 11:16:11.614 / 20210929 11:16:12.825 / 00:00:01.211

Status: **FAIL**

Message: The compared print jobs are different.

- **KEYWORD** DocTest.PrintJobTests.Compare Print Jobs pcl, testdata/reference.pcl, testdata/candidate.pcl

Documentation: Compares several print job metadata/properties of `reference_file` and `test_file`.

Start / End / Elapsed: 20210929 11:16:11.615 / 20210929 11:16:12.824 / 00:00:01.209

11:16:12.822 INFO Reference File:
[{"property": "pcl_commands",
 "value": [{"page": "1", "property": "paper_source", "value": "1"},
 {"page": "1", "property": "page_orientation", "value": "0"},
 {"page": "1", "property": "copies", "value": "1"}]]

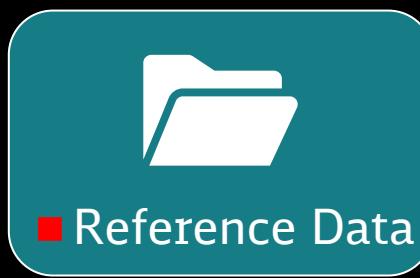
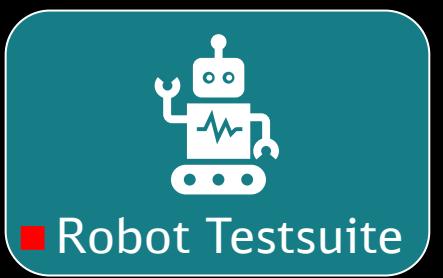
Candidate File:
[{"property": "pcl_commands",
 "value": [{"page": "1", "property": "paper_source", "value": "1"},
 {"page": "1", "property": "page_orientation", "value": "0"},
 {"page": "1", "property": "copies", "value": "2"}]]

{"values_changed": {"root[0]['value'][2]['value']": {"new_value": "2",
 "old_value": "1"}}}

[{"file": "reference",
 "property": "pcl_commands",
 "value": {"page": "1", "property": "copies", "value": "1"}},
 {"file": "test",
 "property": "pcl_commands",
 "value": {"page": "1", "property": "copies", "value": "2"}]]

11:16:12.824 **FAIL** The compared print jobs are different.

Using DataDriver for DataDriven testing using .csv files



```

1 *** Settings ***
2 Resource ../../resources/Keywords.robot
3 Library ../../resources/VisualTest.py DPI=${DPI}
4 Library OperatingSystem
5 Library DataDriver PROCARS.csv optimize_pabot=Equal
6 Test Template Compare Documents
7 Suite Setup Extract Zip File ${CURDIR}${/}reference${/}reference.zip ${CURDIR}${/}reference
8
9 *** Variables ***
10 ${REFERENCE_DIR} ${CURDIR}${/}reference
11 ${CANDIDATE_DIR} ${CURDIR}${/}candidate
12 ${REQUEST_DIR} ${CURDIR}${/}requests
13 ${DPI} 200
14
15 *** Test Cases ***
16 Create ${payload_file}
17
18 *** Keywords ***
19 Compare Documents
20 [Arguments] ${reference_image} ${payload_file} ${om_application} ${placeholder_file} ${check_text_content} ${move_tolerance} ${contains_barcodes} ${get_pdf_content} ${DPI}
21 [Teardown] Run Keyword If '${KEYWORD STATUS}'=='FAIL' Copy Files ${REQUEST_DIR}${/}${payload_file} ${REFERENCE_DIR}${/}${reference_image} ${candidate_file} ${OUTPUT DIR}${/}Failed${/}${TEST NAME}
22 ${candidate_file}= Send Payload and retrieve Output from Filesystem ${REQUEST_DIR}${/}${payload_file} ${CANDIDATE_DIR} ${om_application}
23 Compare Images reference_image=${REFERENCE_DIR}${/}${reference_image} test_image=${candidate_file} placeholder_file=${placeholder_file} check_text_content=${check_text_content} move_tolerance=${move_tolerance}

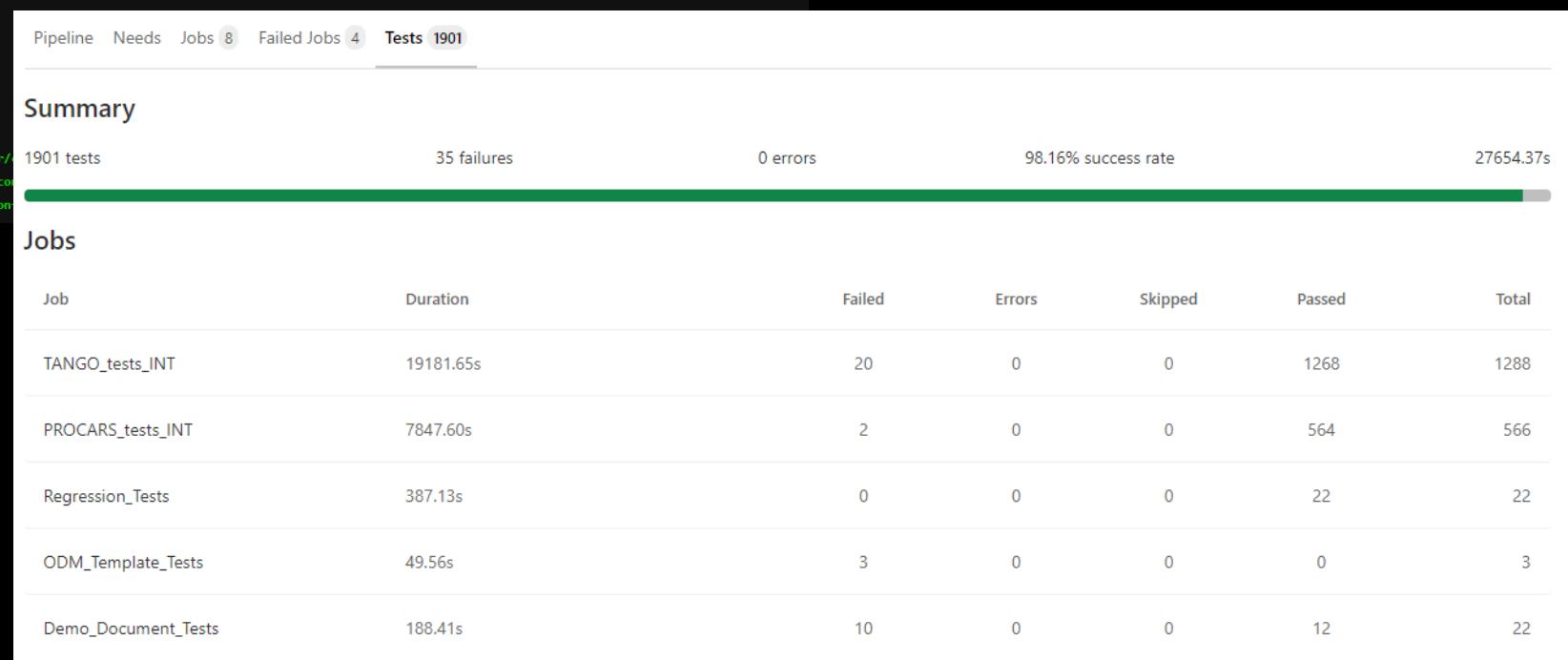
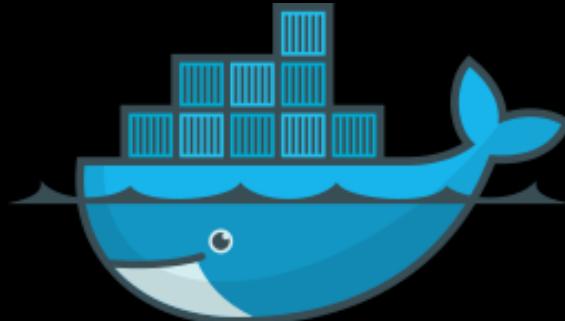
```

- ▼ Tests
- ▼ ODM
- ▼ PROCARS
 - ▼ reference
 - reference.zip
 - > requests
- ≡ PROCARS_DataDriver_POC.robot
- ≡ PROCARS_DataDriver.robot
- ≡ PROCARS.csv

A	B	C	D	E	F	G	H	I	J
1 *** Test Cases ***	\$[reference_image]	\$[payload_file]	\$[om_application]	\$[placeholder_file]	\$[check_text_content]	\$[move_tolerance]	\$[contains_barcodes]	\$[get_pdf_content]	\$[DPI]
2 Create ABL_MANIF_SICDXB	WWSPC_SICDXB#####SICDXB024114791SICDXB#2496580AWB8110036452.pdf	WWSPC_SICDXB#####SICDXB024114791SICDXB#2496580AWB8110036452.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
3 Create ABL_MANIF_AIR_SJCBRU	WWSPC_SJCBRU#####SJCBRU018477131SJCBRU#1949009AWB8120088436.pdf	WWSPC_SJCBRU#####SJCBRU018477131SJCBRU#1949009AWB8120088436.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
4 Create ABL_MANIF_AIR_SJCBER	WWSPC_SJCBER#####SJCBER009592151SJCBER#2194945AWB7209000205.pdf	WWSPC_SJCBER#####SJCBER009592151SJCBER#2194945AWB7209000205.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
5 Create ABL_MANIF_AIR_SICCGN	WWSPC_SICCGN#####SICCGN023509451SICCGN#6136675AWB7209000442.pdf	WWSPC_SICCGN#####SICCGN023509451SICCGN#6136675AWB7209000442.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
6 Create ABL_MANIF_AIR_SJCFCRA	WWSPC_SJCFCRA#####SJCFCRA051887841SJCFCRA10543437AWB7209004969.pdf	WWSPC_SJCFCRA#####SJCFCRA051887841SJCFCRA10543437AWB7209004969.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
7 Create ABL_MANIF_AIR_SJGUA	WWSPC_SJGUA#####SJGUA00107053405SJGUA##65433AWB8120000185.pdf	WWSPC_SJGUA#####SJGUA00107053405SJGUA##65433AWB8120000185.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
8 Create ABL_MANIF_AIR_SJCBDU	WWSPC_SJCBDU#####SJCBDU010283881SJCBDU#1026970AWB8109000370.pdf	WWSPC_SJCBDU#####SJCBDU010283881SJCBDU#1026970AWB8109000370.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
9 Create ABL_MANIF_AIR_SJCDUB	WWSPC_SJCDUB#####SJCDUB#009868811SJCDB#1048487AWB8115019718.pdf	WWSPC_SJCDUB#####SJCDUB#009868811SJCDB#1048487AWB8115019718.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
10 Create ABL_MANIF_AIR_SJCLUX	WWSPC_SJCLUX#####SJCCLUX#03587221SJCCLUX#948212AWB7809000119.pdf	WWSPC_SJCLUX#####SJCCLUX#03587221SJCCLUX#948212AWB7809000119.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
11 Create ABL_MANIF_AIR_SICMEX	WWSPC_SICMEX#####SJCME#008264660SJCME#6064831AWB8101029934.pdf	WWSPC_SICMEX#####SJCME#008264660SJCME#6064831AWB8101029934.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
12 Create ABL_MANIF_AIR_SI CAMS	WWSPC_SI CAMS#####SI CAMS#0620490215SI CAMS#7875735AWB8100565500.pdf	WWSPC_SI CAMS#####SI CAMS#0620490215SI CAMS#7875735AWB8100565500.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
13 Create ABL_MANIF_AIR_SJCOSL	WWSPC_SJCOSL#####SJCOSL#014980581SJCOSL#1928551AWB8120025453.pdf	WWSPC_SJCOSL#####SJCOSL#014980581SJCOSL#1928551AWB8120025453.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
14 Create ABL_MANIF_AIR_SJCLIM	WWSPC_SJCLIM#####SJCCLIM#006989381SJCCLIM##851260AWB8110020167.pdf	WWSPC_SJCLIM#####SJCCLIM#006989381SJCCLIM##851260AWB8110020167.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
15 Create ABL_MANIF_AIR_SJCWA W	WWSPC_SJCWA W#####SJCWA W#002265951SJCWA W##257606AWB8110017252.pdf	WWSPC_SJCWA W#####SJCWA W#002265951SJCWA W##257606AWB8110017252.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
16 Create ABL_MANIF_AIR_SI COPO	WWSPC_SI COPO#####SI COPO#008132141SICOP#1071095AWB8150000701.pdf	WWSPC_SI COPO#####SI COPO#008132141SICOP#1071095AWB8150000701.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
17 Create ABL_MANIF_AIR_SJCSVX	WWSPC_SJCSVX#####SJC SVX#00407240SJC SVX##254211AWB815000039.pdf	WWSPC_SJCSVX#####SJC SVX#00407240SJC SVX##254211AWB815000039.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	
18 Create ABL_MANIF_AIR_SJCLIU	WWSPC_SJCLIU#####SJC LIU#001253681SJC LIU##133346AWB8109000070.pdf	WWSPC_SJCLIU#####SJC LIU#001253681SJC LIU##133346AWB8109000070.xml	WWSPC	\$[MASKS_DIR]/A4_footer.json \$[false]	\$[None]	\$[false]	\$[false]	\$[DPI]	

All tests can run headless in docker containers (yes, visual comparisons also work headless)

```
1 Running with gitlab-runner 13.8.0 (775dd39d)
2 on runner-spawner KB2N2Huy
3 Preparing the "docker+machine" executor
4 Using Docker executor with image docker.signintra.com/ta3s/odm/output-tests/robotframework-outputtest:master ...
5 Authenticating with credentials from job payload (GitLab Registry)
6 Pulling docker image docker.signintra.com/ta3s/odm/output-tests/robotframework-outputtest:master ...
7 Using docker image sha256:ff7f6463371f38dc694c7674d02d92acb42c2ff247db74ebcfbab508a808f934 for docker.signintra.com/ta3s/odm/output-tests/robotframework-outputtest:master with digest docker.signintra.com/ta3s/odm/output-tests/robotframework-outputtest@sha256:1e8da0228710c7c9496f7e1292baa5848f31c8d0b98fd2bfecb40d88b1f9fc3b ...
8 Preparing environment
9 Running on runner-kb2n2huy-project-5075-concurrent-0 via runner-kb2n2huy-gitlab-runner-machine-1611583184-72fad5be...
10 Getting source from Git repository
11 Fetching changes with git depth set to 1...
12 Initialized empty Git repository in /builds/ta3s/odm/output-tests/.git/
13 Created fresh repository.
14 Checking out d0a2d906 as master...
15 Skipping Git submodules setup
16 Executing "step_script" stage of the job script
17 $ export PYTHONPATH="$PYTHONPATH:."
18 $ set -a
19 $ . $PWD/resources/configuration/${ENVIRONMENT}.env
20 $ envsubst < $PWD/resources/OMSender/conf/PROCAR.S.properties.subst > $PWD/resources/OMSender/conf/PROCAR.S.properties
21 $ envsubst < $PWD/resources/OMSender/conf/TANGO.properties.subst > $PWD/resources/OMSender/conf/TANGO.properties
22 $ envsubst < $PWD/resources/OMSender/conf/STAR.properties.subst > $PWD/resources/OMSender/conf/STAR.properties
23 $ set +a
```



A custom python tool to analyze results and accept changes



tsc Technology
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Test Results				
	Test Suite	Test Case	Error Message	Accept
72	TANGO DataDriver 02	Create WWTAN_SBL_PICKPRE_SINGLESTOP_en...	The compared images are different.	<input type="checkbox"/>
73	TANGO DataDriver 02	Create WWTAN_SBL_SDO_en-CA_CATORBR0001	The compared images are different.	<input type="checkbox"/>
74	TANGO DataDriver 02	Create WWTAN_SMN_SUB2_en-DE_AEDXBBR0004	"No matching Document was fou...	<input type="checkbox"/>
75	TANGO DataDriver 02	Create WWTAN_SVO_IN_CASH_en-NZ_NZAKLBR0001	Reference File and Candidate File ...	<input type="checkbox"/>
76	TANGO DataDriver 02	Create WWTAN_SVO_IN_PROFORMA_it-IT_ITCTABR0001	DelegateError: ...	<input type="checkbox"/>
77	TANGO DataDriver 02	Create WWTAN_SVO_IN_en-AU_AUBNEBR0001	Reference File and Candidate File ...	<input type="checkbox"/>
78	TANGO DataDriver 02	Create WWTAN_SVO_IN_en-CA_ATLNZBR0001	The compared images are different.	<input type="checkbox"/>
79	TANGO DataDriver 02	Create WWTAN_SVO_IN_en-NZ_NZAKLBR0001	Reference File and Candidate File ...	<input type="checkbox"/>
80	TANGO DataDriver 02	Create WWTAN_SVO_IN_en-RS_RSBEGBR0002	The compared images are different.	<input type="checkbox"/>
81	TANGO DataDriver 02	Create WWTAN_SVO_IN_fr-CA_CATORBR0001	The compared images are different.	<input type="checkbox"/>
82	TANGO DataDriver 02	Create WWTAN_SVO_IN_sr-RS_RSBEGBR0002	The compared images are different.	<input type="checkbox"/>
83	TANGO DataDriver 02	Create WWTAN_SVO_PAY_en-CL_CLSCLBRA0001	The compared images are different.	<input type="checkbox"/>
84	TANGO DataDriver 02	Create WWTAN_SVO_PAY_en-CN_CNBJSBR0003	The compared images are different.	<input type="checkbox"/>
85	TANGO DataDriver 02	Create WWTAN_SVO_PAY_en-DE_DESTRBR0001	The compared images are different.	<input type="checkbox"/>
86	TANGO DataDriver 02	Create WWTAN_SVO_PAY_en-IN_INDELBR0001	The compared images are different.	<input type="checkbox"/>
87	TANGO DataDriver 02	Create WWTAN_SVO_PAY_es-CL_CLSCLBRA0001	The compared images are different.	<input type="checkbox"/>
88	TANGO DataDriver 02	Create WWTAN_SVO_PPYREQ_en-CA_CATORBR0001	The compared images are different.	<input type="checkbox"/>
89	TANGO DataDriver 02	Create WWTAN_SVO_ST_en-AU_AUSYDBR0001	Reference File and Candidate File ...	<input type="checkbox"/>
90	TANGO DataDriver 02	Create WWTAN_SVO_ST_en-CA_CATORBR0001	The compared images are different.	<input type="checkbox"/>
91	TANGO DataDriver 02	Create WWTAN_SVO_ST_en-RS_RSBEGBR0002	The compared images are different.	<input type="checkbox"/>

DEMO TIME

Visiting Amazon Site and compare screenshots visually

```
atest > Website > Website.robot > ...
    Run Suite | Debug Suite | Run in Interactive Console
1  *** Settings ***
2  Library  DocTest.VisualTest  take_screenshots=${true}  show_diff=${true}
3  Library  Browser
4
    Run in Interactive Console
5  *** Variables ***
6  ${REFERENCE_DIR}  ${CURDIR}${/}reference
7  ${CANDIDATE_DIR}  ${CURDIR}${/}candidate
8  ${BROWSER}  chromium
9
10 *** Test Cases ***
Run | Debug | Run in Interactive Console
11 Check Visual Differences on Amazon
12     New Browser  browser=${BROWSER}  headless=False
13
14     Open Amazon Website
15     Take Screenshot  ${REFERENCE_DIR}${/}amazon_main
16     Navigate to Bestsellers
17     Take Screenshot  ${REFERENCE_DIR}${/}amazon_bestseller
18
19     Open Amazon Website
20     Take Screenshot  ${CANDIDATE_DIR}${/}amazon_main
21     Navigate to Bestsellers
22     Take Screenshot  ${CANDIDATE_DIR}${/}amazon_bestseller
23
24     Run Keyword And Continue On Failure  Compare Images  ${REFERENCE_DIR}${/}amazon_main.png  ${CANDIDATE_DIR}${/}amazon_main.png
25     Run Keyword And Continue On Failure  Compare Images  ${REFERENCE_DIR}${/}amazon_bestseller.png  ${CANDIDATE_DIR}${/}amazon_bestseller.png
26     Close Browser
```

Test Results when visiting amazon mutiple times

- KEYWORD BuiltIn.Run Keyword And Continue On Failure Compare Images, \${REFERENCE_DIR}\${}/amazon_main.png, \${CANDIDATE_DIR}\${}/amazon_main.png

Documentation: Runs the keyword and continues execution even if a failure occurs.

Start / End / Elapsed: 20210929 11:22:26.179 / 20210929 11:22:27.837 / 00:00:01.658

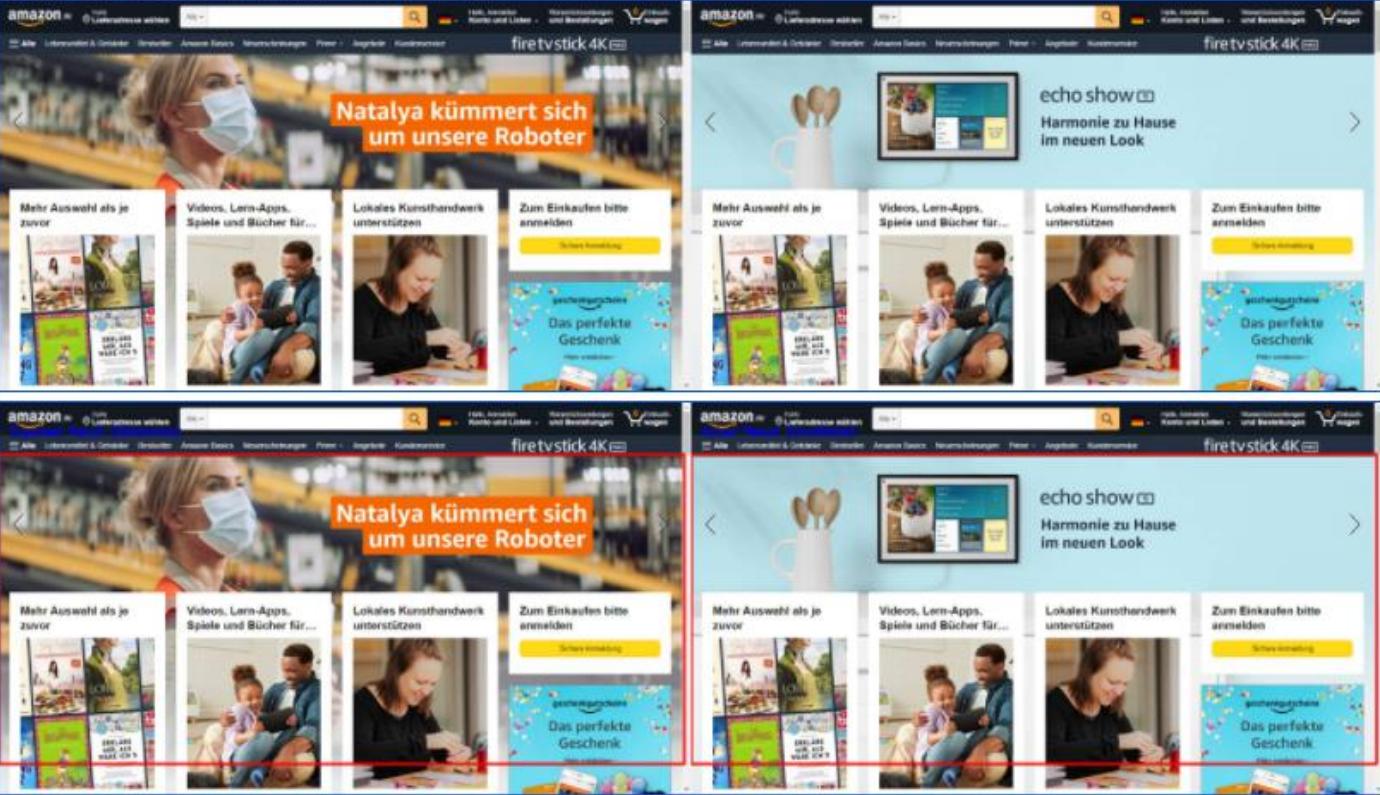
- KEYWORD DocTestVisualTest.Compare Images \${REFERENCE_DIR}\${}/amazon_main.png, \${CANDIDATE_DIR}\${}/amazon_main.png

Documentation: Compares the documents/images reference_image and test_image.

Start / End / Elapsed: 20210929 11:22:26.180 / 20210929 11:22:27.836 / 00:00:01.656

11:22:27.767 INFO Compare Image Object created in 0.0697 seconds
Compare Image Object created in 0.0739 seconds

11:22:27.767 INFO



Test Results when visiting amazon multiple times

Expected Result (Reference)

Actual Result (Candidate)

Bestseller

Unsere beliebtesten Produkte, basierend auf Bestellungen. Ständig aktualisiert.

Alle Kategorien

- Amazon Launchpad
- Amazon-Geräte & Zubehör
- Apps & Spiele
- Audible Hörbücher & Originals
- Auto & Motorrad
- Baby
- Baumarkt
- Beauty
- Beleuchtung
- Bücher
- Bürobedarf & Schreibwaren
- Computer & Zubehör
- Drogerie & Körperpflege
- DVD & Blu-ray
- Elektro-Großgeräte
- Elektronik & Foto
- Fashion
- Games
- Garten
- Geschenkgutscheine
- Gewerbe, Industrie & Wissenschaft
- Handmade Produkte

Bestseller in Sport & Freizeit

#1	#2	#3	#4
EUROPAPA® 20x FFP2 Schwarz Maske 5-Lagen Mundschutzmaske CE Stelle zertifiziert Atemschutzmasken hygienische	air up Starter-Set - 1 x Trinkflasche BPA-freies Tritan 650 ml 2 x Pods Geschmack Limette & Orange-Maracuja - Für Aromatisiertes	DANSI LED Fahrradleuchtenset, Leuchtstärken Geschmack Limette & Orange-Maracuja - Für Aromatisiertes	adidas Damen Adilette Aqua Straßen-Laufschuh
★★★★★ 2.215 13,59 €	★★★★★ 17.659 39,95 €	★★★★★ 21.806 10,99 € - 48,44 €	★★★★★ 41.229 7,45 € - 121,30 €

Bestseller in Musik-CDs & Vinyl

#1	#2	#3	#4
EUROPAPA® 20x FFP2 Schwarz Maske 5-Lagen Mundschutzmaske CE Stelle zertifiziert Atemschutzmasken hygienische	air up Starter-Set - 1 x Trinkflasche BPA-freies Tritan 650 ml 2 x Pods Geschmack Limette & Orange-Maracuja - Für Aromatisiertes	DANSI LED Fahrradleuchtenset, Leuchtstärken Geschmack Limette & Orange-Maracuja - Für Aromatisiertes	adidas Damen Adilette Aqua Straßen-Laufschuh
★★★★★ 2.215 13,59 €	★★★★★ 17.659 39,95 €	★★★★★ 21.806 10,99 € - 48,44 €	★★★★★ 41.229 7,45 € - 121,30 €

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Thank you!

Questions?

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<https://github.com/manykarim/robotframework-doctestlibrary/>