INT4

IFTT

INTERFACE TESTING TOOL

Automatic Interface Regression Tests

for SAP Middleware and SAP Backend systems

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Introduction to IFTT

INTERFACE TESTING TOOL

- Int4 Interface Testing Tool (int4 IFTT) is an automatic SAP interface testing software, provided as an ABAP backend system add-on.
- Officially certified by SAP:
  - for integration with SAP NetWeaver 7.40 via the SAP integration scenario ABAP Add-On Deployment for SAP NetWeaver.
  - for integration with SAP S/4HANA on-premise edition 1511 via the SAP integration scenario ABAP Add-On Deployment for SAP S/4HANA.
- It fully tests **SAP interface development after any source code / configuration changes**

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Interface testing – challenges

- Time-consuming testing with manual replication of documents. Small number of test cases
- Tests of specific components (mostly PI mappings)
- Test results are limited to laborious and error-prone checks

Benefits of using INT4 IFTT INTERFACE TESTING TOOL

Complete testing scope:
middleware
+
backend system

Quick and simple assertion rules setting.
do it once –
no need to change

Reduced downtime
for Integration architects,
functional experts
and developers

Support for all project phases
(waterfall / agile)

Reduced cost
of external resources.
No need to generate
new data

100% document accuracy.
Validation based
on the final data

More funds, time and resources available
for improvements

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Features of IFTT

INTERFACE TESTING TOOL

Creation of test cases based on existing documents

Full SAP landscape test scope

Single test case allows to verify all possible checks

Document comparison performed on the DB level (per configuration)

Other functionalities of IFTT

INTERFACE TESTING TOOL

Process-oriented approach
categorizing test cases by business processes

Single test case and full scenario
processing modes

SAP PO adapter independent
(MQ, SOAP, FTP, etc)

Testing both inbound & outbound scenarios.
Integration with ECATT

User-friendly comparison OK / FAILED report.
Comparision based on the final business docs

Open architecture
to support other integration platforms (HCI, AIF)

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Testing scope

Middleware layer – SAP PO (mappings, data structures, BPM, adapter modules, etc.)

Interface Program layer in SAP backend (AIF, IDOC, BAPI, PROXY, custom ABAP)

Configuration layer (all customizing settings from transaction SPRO that may impact the interface)

Testing Inbound Interfaces with INT4 IFTT

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1

Create test cases automatically by selecting business documents already created in the receiving application.

2

Run the test case and automatically validate the new created business documents by comparison with the originals.

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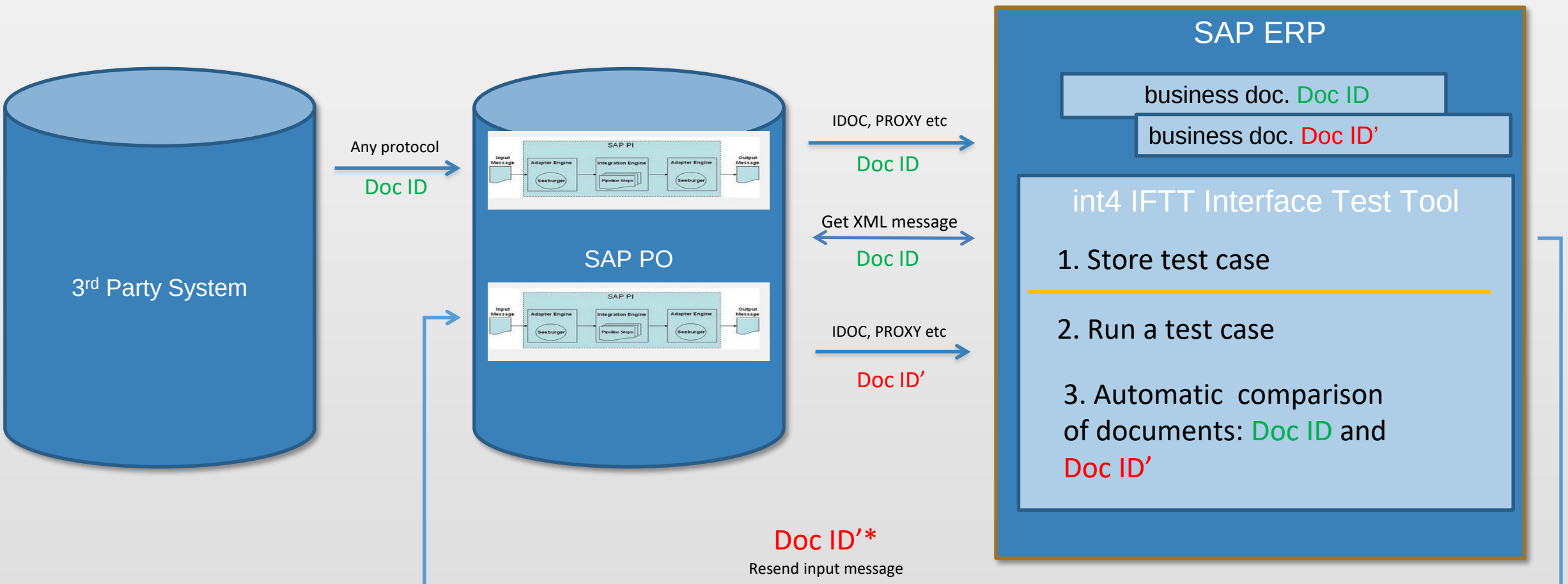
Testing Inbound Interfaces with IFTT

INTERFACE TESTING TOOL



*External message ID is randomized each time

Testing Outbound Interfaces with INT4 IFTT

INTERFACE TESTING TOOL

In order to **create a test case,** start with triggering the message by:

1

posting a business document using an **eCATT** recording

OR

using another inbound interface*

2

Then, use an outbound message to store the original **XML** and **associated business object name** for future assertions.

3

Run the test case and automatically validate the XML.

*(i.e. inbound sales order triggers outbound sales order acknowledgement.)

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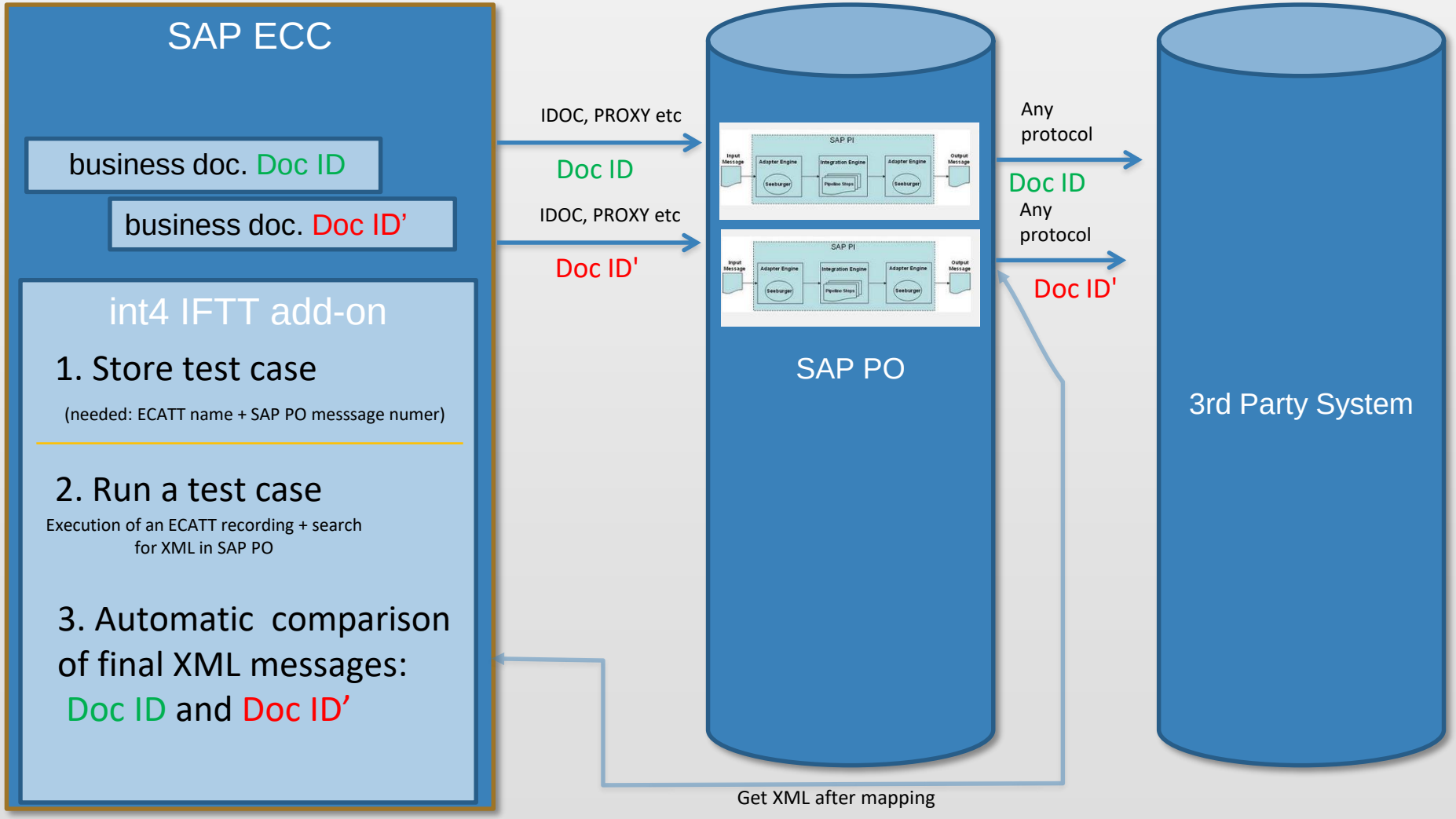
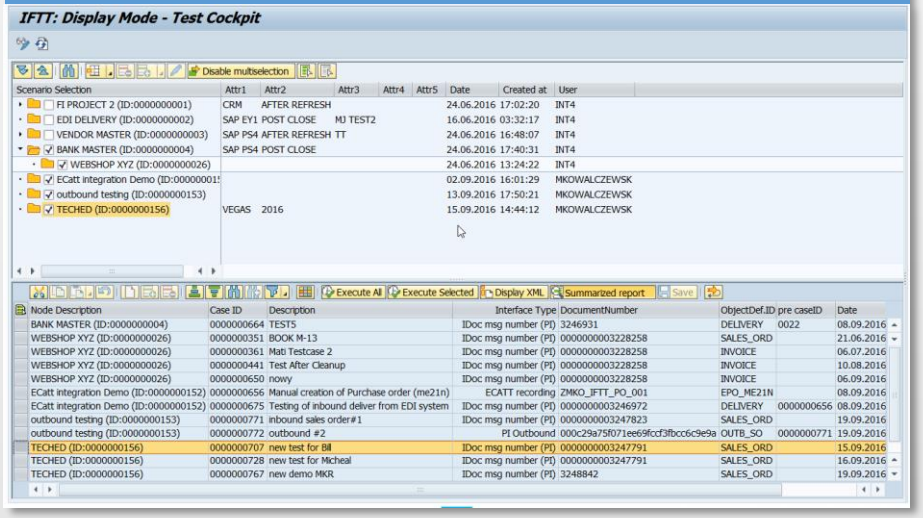
Testing Outbound Interfaces with IFTT

INT4 IFTT
INTERFACE TESTING TOOL

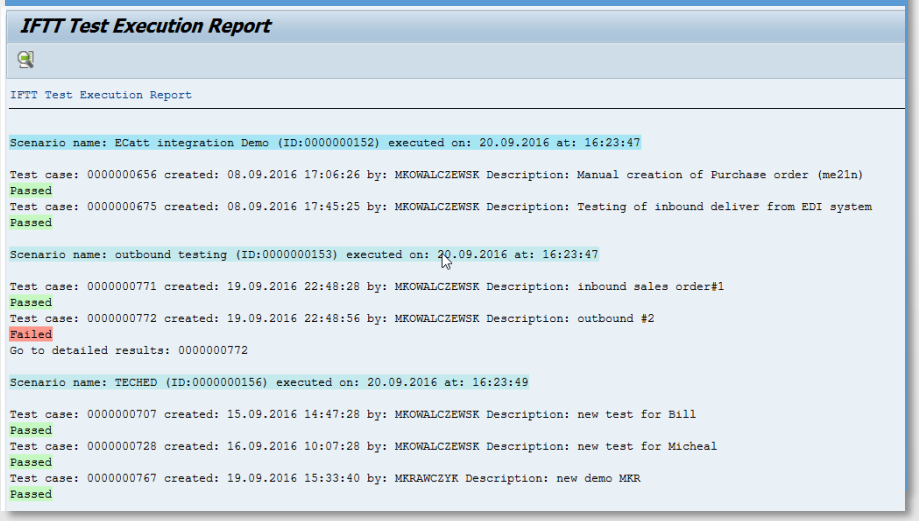


Screenshots

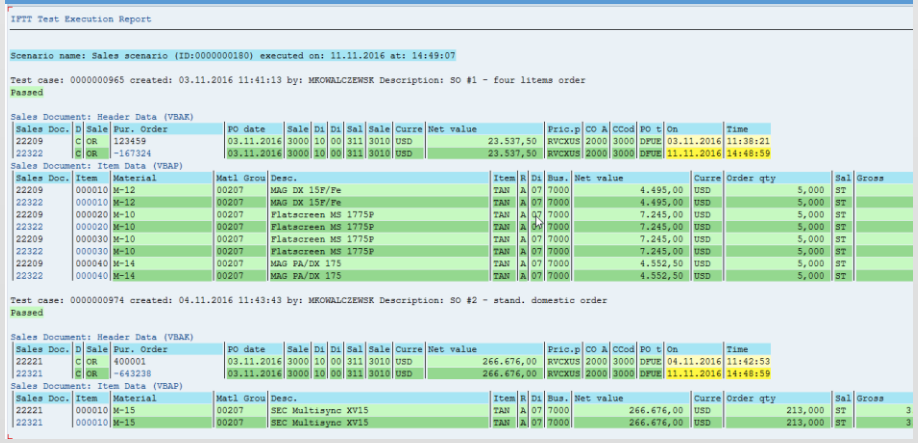
Test management



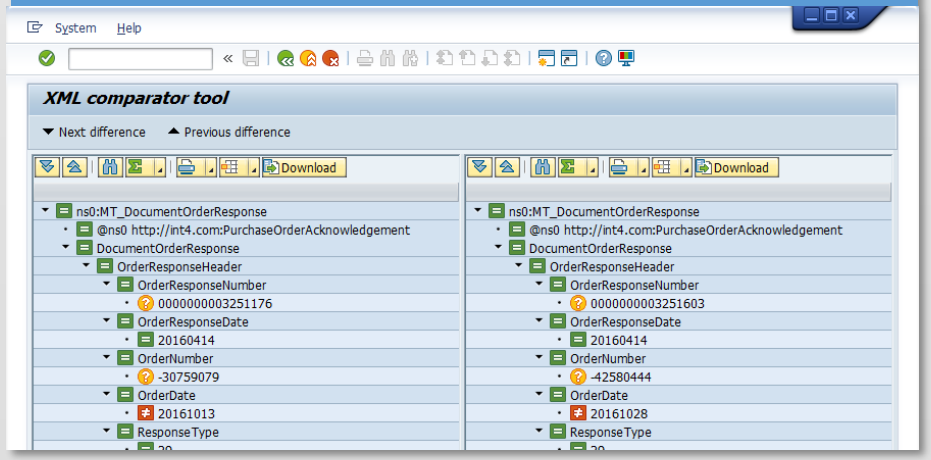
Summarized execution report



Detailed report of assertions for inbound interface*



Detailed report of assertions for outbound interface



*Presents selected fields of original document (light green) compared with the current document (dark green).

Business Object Concept

- **int4 IFTT** business objects represent assertions for business document as well as SAP PO technical details of interface (examples include: Sales invoice, inbound delivery, outbound delivery, etc.)
- For inbound interfaces the assertions are defined as a model of database tables and fields to be checked each time during the test case execution. Usually, they cover all aspects of business document, so there is no need for extensive planning during the test case creation. This means the results are always comprehensive and not limited to single checks (for example instead of checking VAT only, the whole invoice is verified)
- For outbound interfaces, the assertion is made based on comparing the original XML with the one produced during the test case execution with configured exception list managed by XPath expressions (for example the invoice number will always be different and will not fail the test case)
- Every test case must be associated with a single business object

eCATT integration

- **eCATT** is a standard built-in SAP tool. It offers a graphical user interface with ABAP script editor and its own command syntax. It allows for recording creation of business documents.

- **int4 IFTT** integrates with **eCATT** in order to:

  - Implement scenarios where the business process starts in SAP. A good example is testing a inbound delivery interface, where each time a fresh purchase order is required as SAP blocks goods receipt over the limit. The **eCATT** recording contains creation of a particular purchase order and it is executed by **int4 IFTT** each time before the inbound delivery test case execution

  - Test outbound scenarios. Outbound scenarios need a trigger to create a message (IDoc, proxy, rfc etc). These messages are generated by recorded executions of business transactions. Hence **int4 IFTT** tests also all customizing and ABAP development (user-exits) needed to trigger outbound messages from SAP

- Thanks to the **eCATT** integration, all scenarios that require manual user actions are still fully automated.

Grouping dependent cases

- Test case = single business document
- Some test cases require preceding document to be executed
- **int4 IFTT** allows to group test cases and replicate the whole business flows
- It is possible to mix inbound and outbound interfaces and manual operations together
- Variable concept (part of business objects) allows test cases to pass their own document numbers between each other

Grouping dependent cases

- Sample process:

1. Inbound sales order *(interface step)*
2. Outbound sales order confirmation *(interface step)*
3. execution of **eCATT** recording to create a delivery in reference to sales order
4. Outbound **ASN** *(interface step)*
5. execution **eCATT** recording to invoice the **SO** from step 1
6. Outbound invoice *(interface step)*

Testing outbound messages with INT4 IFTT

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- Prerequisite: The **ICO** (integrated configuration object) in the **PI/PO** needs to be set to store the message content after mapping, the one that will be delivered to the receiver
- Test case consists of two steps:
  - 1) Action to trigger the message by **eCATT** posting of business document or by posting other inbound interface (ex. inbound sales order triggers outbound sales order ack.)
  - 2) Outbound message to store the original **XML** and associated business object name for future assertions.

Case ID	Description	Interface Type	DocumentNumber	ObjectDef.ID	pre caseID
0000000771	inbound sales order#1	IDoc msg number (PI)	0000000003247823	SALES_ORD	
0000000772	outbound sales order ack. #1	PI Outbound	000c29a75f071ee69fccf3fbcc6c9e9a	OUTB_SO	0000000771

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Testing outbound messages with int4 IFTT

INTERFACE TESTING TOOL

- During the execution, **int4 IFTT** automatically searches SAP PI/PO database of processed messages and finds the proper XML message by interface name and namespace stored in the business obj. definition and business document references given by the previous step.
  This message would be used for comparison with the original message stored during the test creation.

- The assertion allows for exceptions, which are stored as XPath expressions in the obj. def. assigned to the test case. Exceptions include: *creation date & time*, *business document number,* etc.

- Scope: ECC output determination, standard and custom ABAP routines to generate the message, SAP PI routing and mapping steps, RFC lookups, BPM

- Out of scope: operations in outbound communication channel

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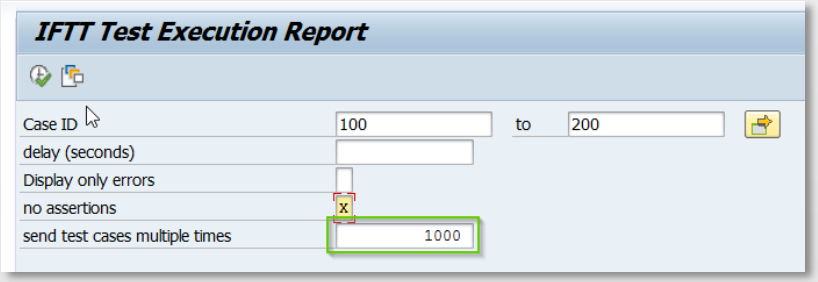
Test case versioning

- Once created, interface test case may not be valid after implementing Change Requests to its functionality
- It can be updated with the following procedure:
  - Run the test case, the results will fail due to the current definition
  - Validate & confirm new business document created by the execution
  - Update the test case, using the current interface message as its basis

Alternative use: Load generator

int4 IFTT can be used as an interface load generator tool:

- It supports mode where the messages from select test cases are sent to the middleware platform (SAP PI/PO) multiple times:



- It would use the standard method of configuration variables to generate unique document numbers and randomize the content (in a limited way)

- As a standard, **int4 IFTT** only tests the SAP part of the integration flow, but with a simple workaround, the **int4 IFTT** can deliver messages outside SAP, for example to MQ (by creating a separate interface in SAP PI and attaching it to the **int4 IFTT** configuration). This approach allows performing a real end-to-end performance testing.

Landscape & project phases

- In a typical project landscape:

IFFT can be installed and used in:

- DEV: **used by Developers / Integration Architects / Functional Experts** mostly **during the development phase and unit testing** but also for any interface-related **defect fix /CR implementation and retesting**.

- QA: **used by Integration Architects and Functional Experts during the Integration Testing and UAT.** During the UAT all scenarios and test cases should be finalized and the regression testing should start on regular basis. It should be mandatory for all defect fixes and CRs to confirm if interfaces are working in the way that was accepted and signed off by UAT

- TST: This is a system closest to production environment, it should contain the most comprehensive database of interface test cases that cover all business process operated globally by all sites (not only the scope of the current project). In TST the **int4 IFTT** is mostly operated by **Run teams**. **Mandatory test runs** should precede **any deployment** to production of interface-related changes and in particular any **new site go-live**.

- **int4 IFTT** is not intended and should never be used in a production environment (even when deployment is disabled by checking the mandatory attributes)

Parallel run using IFTT

INTERFACE TESTING TOOL

Case study: Existing interfaces, due to incorrect implementation, cause low data quality and high maintenance cost. No business involvement expected – business logic remains intact.

1

Automatically compare business documents posted using both – the new and the old interfaces on two separate test systems in order to catch any possible inconsistences.

2

Save time and resources with testing **2 000 business documents in 1 minute!**

3

Get your recently tested interface running on the production system **without engaging the business!**

*(i.e. inbound sales order triggers outbound sales order acknowledgement.)

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Executive summary

INT4 IFTT INTERFACE TESTING TOOL

Part 1

- **Testing both** the integration platform and the application **systems simultaneously**
- **Quick and simple** test case generation (just choose any of the existing business documents; no need to create one from scratch like in Tosca Test Suite, for example)
- **Flexible configuration** with pre-delivered content
- Testing **does not involve time & resources** of the source system

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Executive summary

INT4 IFTT INTERFACE TESTING TOOL

Part 2

- **define what needs to be checked only once** – results based on database entries and associated business objects
- **Support for Agile Methodology**, quick tests after each development cycle
- Applicable for **both for development and support team**
- **Assurance of business system stability**
- Nearly **End-to-End testing** → covers the whole SAP Landscape

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