Certificate

The certification body of TÜV Informationstechnik GmbH hereby awards this certificate to the company

SAP AG
Dietmar-Hopp-Allee 16
69190 Walldorf, Germany

to confirm that its product ensemble

SAP Business ByDesign and SAP Application Platform, (Feature Pack 1.2 as of 2008-03-19)

fulfils all requirements of the product specific document "Checklist – Verified Process Integrity for the SAP Business ByDesign Solution", Version 1.4 and the criteria

Trusted Product SOA, Version 1.0

of TÜV Informationstechnik GmbH. The requirements are summarized in the appendix to this certificate. The appendix is part of the certificate and consists of 4 pages.

The certificate is valid only in conjunction with the corresponding evaluation report until 2010-09-30.

SOA V1.0 PQ6113.08 TÜViT® 2008 Trusted Product

Voluntary Validation

Certificate Registration No.:
TUVIT-PQ6113.08

Essen, 2008-09-08

Dr. Christoph Sutter
Head of Certification Body

TÜV Informationstechnik GmbH
Member of TÜV NORD Group
Langemarckstr. 20
45141 Essen, Germany
www.certuvit.de

Evaluation report (in German)

- "Prüfbericht – Prüfung der Produktkombination SAP Business ByDesign und SAP Application Platform als TÜViT Trusted Product SOA für die SAP AG", Version 1.2 as of 2008-09-01, TÜViT GmbH

Criteria and scheme

- "Evaluation criteria – TÜViT Trusted Product SOA", Version 1.0 as of 2007-01-15, TÜViT GmbH

Specific requirements for the evaluation were derived from these evaluation criteria and specified in the following checklist.

- "Checklist – Verified Process Integrity for the SAP Business ByDesign Solution", Version 1.4 as of 2008-03-01, TÜViT GmbH

Non-applicable evaluation criteria:

Due to the checklist, the following requirements of the TÜViT Trusted Product SOA criteria were not applicable and therefore not evaluated:

- **1. Service Enablement**
- **4. System Deployment**

Target of Evaluation (ToE)

The ToE consists of the following components:

- SAP Business ByDesign
- SAP Application Platform

Functional scope under evaluation was Feature Pack 1.2 (Support Package 9) as of 2008-03-19.

Summary of the applied checklist

The specific "Checklist – Verified Process Integrity for the SAP Business ByDesign Solution" was derived from the "Evaluation criteria – TÜViT Trusted Product SOA". It consists of the following evaluation areas:

- **VPI Enterprise SOA**
  All business functionality is designed and implemented to assure seamless end-to-end process flows across business scenarios.
- **VPI Data Flow Verification**
  The integrity of the data of business object pairs can be verified and integrity violations of this data can be repaired.

The specific checklist is published together with the certificate on the web page of the certification body.

Summary of TÜViT Trusted Product SOA Criteria

1. Service Enablement

- **Accessibility of business functionality**
  All business functionality advertised by the product can be accessed and used via a service interface. Service descriptions are stored in a central repository.
- **Usage of accepted standards**
  The service interfaces use accepted standards for service description and invocation (for example WSDL, SOAP).

2. Business Architecture

- **Thorough business oriented requirements engineering**
  The product manufacturer applies state-of-the-art methods to assure that all relevant business require-

ments were gathered, documented, and implemented in the product.

- **Existence of a meaningful business architecture behind the services**
  Based on requirements engineering, the manufacturer designed, implemented, and published a suitable business architecture behind the service interfaces.
- **Systematic reuse of basic components and master data within the system**
  The product architecture promotes the reuse of basic components and master data to improve functional testing and to simplify product maintenance.

3. Software Quality

- **Thorough testing of the whole product and its components**
  The manufacturer applies state of the art quality assurance methods to test the product functionality. The test concept describes the test cases necessary to test the business functionality of the product. All tests are documented and end with the expected result.

4. System Deployment

- **Scalability and extensibility of the product and its components**
  The business transaction throughput of the product can be increased when additional hardware is added to the setup. Product operators can extend the product with their own data fields, user interfaces, and services.
- **Easy configuration, setup, and adjustment**
  The configuration allows a productive setup of the product to be finished within hours. An easy-to-

understand user interface allows the administrator to fine-tune the running product.

- **Model-based extension of business functionality**
  The product is realized using a model-based architecture approach. The customer can extend business functionality with model-based development tools and procedures.
- **User interfaces optimised for business process support**
  The user interfaces were developed based on state-of-the-art methods for usability engineering and involved end users in requirement gathering and design phases.

Checklist – Verified Process Integrity for the SAP Business ByDesign Solution

Version 1.4

01.03.2008

Content

1 Introduction

The check schema TÜViT Trusted Product SOA ([1], in the following *SOA check schema*) is intended for standardized checks and certifications of SOA-based products. It consists of general requirements in service enablement, business architecture, software quality and system deployment for SOA-based products.

The check area *Service Enablement* requires

- access to all business functionalities of a product via service interfaces,
- use of accepted standards like WSDL and SOAP for description and invocation of service interfaces and
- storage of service descriptions in a central service repository.

The check area *Business Architecture* requires

- thorough business oriented requirements engineering,
- existence of a meaningful business architecture behind the services and
- systematic reuse of basic components and data within the system.

The check area *Software Quality* requires

- thorough testing of the whole product and its components.

The check area *System Deployment* requires

- scalability and extensibility of the product and its components,
- easy configuration, setup and adjustment of the product,
- model based extension of business functionality and
- optimised user interfaces for business process support.

According to the SOA check schema the general requirements have to be refined into specific check criteria for a certain product to be certified. However, any refinement must be fully compatible to the general requirements of the SOA check schema.

2 Checklist Verified Process Integrity

The following checklist Verified Process Integrity describes specific check criteria for product properties associated with the integrity of business document flow. Besides a thorough design of business document flow within the product, the checks assess whether the product actively analyses the flow along end-to-end business processes and reports problems and inconsistencies in the business documents to the user.

The checklist focuses on the SAP products *SAP Application Platform* and *SAP Business ByDesign*. The *Application Platform* is SAP's own service-oriented platform which provides

comprehensive operational business functionality. *Business ByDesign* is a SAP standard product based on the *Application Platform*. It provides the user interfaces to support the business processes of medium-sized companies. The *Application Platform* itself contains no own user interfaces.

The specific checklist Verified Process Integrity was developed together with representatives from SAP's developing organisation responsible for *SAP Application Platform* and SAP *Business ByDesign*.

3 Check areas for Verified Process Integrity

The check areas for the evaluation and certification of Verified Process Integrity are as follows:

1. VPI Enterprise SOA: All business functionality is designed and implemented to assure seamless end-to-end process flows across business scenarios
2. VPI Data Flow Verfication: Integrity of BO pair data can be verified and Integrity violation of BO pair data can be repaired

4 Scope and Relevance

The product specific checklist Verified Process Integrity is relevant for the product combination *SAP Application Platform* / *Business ByDesign*. The checklist currently refers to the Scope "Feature Pack 1.2" of these products.

All check criteria relate to the product version under test and are thus relevant for any forthcoming check.

5 Checklist for Verified Process Integrity

The following table contains the specific checklist for Verified Process Integrity. The check items in the list are structured according to *check areas*, *check points* and *check criteria*. A check area is refined into one or more check points, a checkpoint is refined or operationalized into one or more check criteria. Every check criterion can be evaluated with a certain check method. If all check criteria are fulfilled, the corresponding check point is regarded to be fulfilled. If all check points are fulfilled, the whole corresponding check area is fulfilled.

legend

The columns in the check list mean the following:

ID	Short identification of the check area, check point or check criteria.
Check item	A check item is a check area, a check point or a check criterion. Check areas are formatted in **bold**, check points are formatted in *cursive* and check criteria are formatted in standard.
Check method	Check methods are used to evaluate the check criteria. Check methods can be *test*, *audit*, *review* and *check tool*. The check methods are described in the SOA check schema [1].
Mapping to SOA check schema	Identifies the corresponding general criterion of the SOA check schema. This column shows the mapping of the specific Verified Process Integrity checklist to the general evaluation criteria of the SOA check schema. All relevant criteria of the SOA check schema must be covered by one or more specific criteria of the Verified Process Integrity checklist.

ID	Check item	Check method	Mapping to SOA check scheme
VPI_eSOA	**All business functionality is designed and implemented to assure seamless end-to-end process flows across business**		
VPI_eSOA_1.1	All defined end to end business processes are designed via ISMs (Integration Scenario model) with use of PCIMs	Audit	2.1 2.2 2.3
VPI_eSOA_1.2	All ISMs and PCIMs are correctly implemented in the final product AP	Test	3.1
VPI_DFV	**Integrity of BO pair data can be verified and Integrity violation of BO pair data can be repaired**		
VPI_DFV_1.1	Verification is focussed on business needs (e.g. legal requirements or high risc PCIMs)	Review	2.1
VPI_DFV_1.2	Integrity rules for each BO pair in the defined scope are developed depending on business needs	Audit	2.1
VPI_DFV_1.3	Integrity of BO pair data can be verified within and across DUs to detect process breaks	Test	3.1
VPI_DFV_2.1	Inconsistencies in message communication and BO pair data can be repaired across DUs.	Test	3.1

6 General requirements of TÜViT Trusted Product SOA

In the following the general requirements of the check schema TÜViT Trusted Product SOA are listed as described in [1]. The general requirements are mapped with specific check criteria of the checklist Verified Process Integrity (see Column *Mapping to SOA check schema* of checklist Verified Process Integrity).

Id	General requirement check schema TÜViT Trusted SOA
1	**SERVICE ENABLEMENT**
1.1	**Accessability of all business functionality via service interfaces:** All business functionality advertised by the product can be accessed and used with a service interface. Service descriptions are stored in a central repository.
1.2	**Usage of accepted standards for service interfaces:** The service interfaces use accepted standards for service description and invocation (e.g. WSDL, SOAP etc.).
2	**BUSINESS ARCHITECTURE**
2.1	**Thorough business oriented requirements engineering:** The product manufacturer applies state of the art methods to assure that all relevant business requirements were gathered, documented and implemented in the product.
2.2	**Existence of a meaningful business architecture behind the services:** Based on his requirements engineering, the manufacturer designed, implemented and published a suitable business architecture behind the service interfaces.
2.3	**Systematic reuse of basic components and master data within the system:** The product architecture promotes the reuse of basic components and master data to improve functional testing and to ease product maintenance.

Id	General requirement check schema TÜViT Trusted SOA
3	**SOFTWARE QUALITY**
3.1	**Thorough testing of the whole product and its components:** The manufacturer applies state of the art quality assurance methods to test the product functionality. The test concept describes the test cases necessary to test the business functionality of the product. All tests are documented and end with the expected result.
4	**SYSTEM DEPLOYMENT**
4.1	**Scalability and extensibility of the product and its components:** The business transaction throughput of the product can be increased when additional hardware is added to the setup. The product operator can extend the product with his own data fields, user interfaces and services.
4.2	**Easy configuration, setup and adjustment:** The configuration allows a productive setup of the product to be finished within hours. An easy-to-understand user interface allows the administrator to fine-tune the running product.
4.3	**Model-based extension of business functionality:** The product is realised with a model-based architecture approach. The customer can extend business functionality with model-based development tools and procedures.
4.4	**User interfaces optimised for business process support:** The user interfaces were developed based on state of the art methods for usability engineering involving end users in requirement description and design.

7 References

[1] “Evaluation Criteria - TÜViT Trusted Product SOA”, version 1.0 as of 2007-01-15, TÜViT GmbH

8 Abbreviations

ARIS	**Ar**chitektur integrierter **I**nformations**s**ysteme: Concept and tool set for describing and modelling business processes.
BO	Business Object
CUD	Create, Update and Delete methods
DU	Deployment Unit
Enterprise SOA	Enterprise Service Oriented Architecture
ESA	Enterprise Service Architecture: synonym for -> Enterprise SOA
ESR	Enterprise Service Repository
GDT	Global Data Type
ISM	Integration Szenario Model
PCIM	Process Component Interaction Model
PIC process	„Process Integration Content Council“. SAP-internal gremium governing the business architecture of SAP products. PIC process consists of a number of different review stages to assure compliance to business and technical requirements.
S&AM	Status and Action Management
SOA	Service Oriented Architecture
SOA check schema	check schema TÜViT Trusted Product SOA
UI	User Interface
VPI	Verified Process Integrity
WSDL	Short for “Web Service Description Language” for the standardised technical description of web service interfaces (e.g. service name, parameters, types, call conventions, URLs)