

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

## **SAP AG**

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to confirm that its product ensemble

## **SAP Business ByDesign and SAP Application Platform (base scope as of 2007-06-21)**

fulfils all requirements of the product specific document  
“Checklist – Enterprise SOA for Business ByDesign Solution,  
Version 2.0” 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 2009-10-31.



Certificate Registration No.:  
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sign. Dr. Sutter  
Certification Body

**TÜV Informationstechnik GmbH**  
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**Certificate**

## **Evaluation report and checklist**

- *Prüfung der Produktkombination SAP Business ByDesign und SAP Application Platform als TÜViT Trusted Product SOA für die SAP AG, Version 1.0 as of 2007-10-17, TÜViT GmbH*
- *Checklist – Enterprise SOA for Business ByDesign Solution, Version 2.0 as of 2007-10-15, TÜViT GmbH*

## **Target of Evaluation (ToE)**

The ToE consists of the following components:

- SAP Business ByDesign and
- SAP Application Platform

which are defined by the Business ByDesign base scope as of 2007-06-21.

## **Criteria and scheme**

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

## Specific Checklist – Enterprise SOA:

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The specific checklist was derived from the Evaluation Criteria for the purpose of evaluation. It is published together with the certificate on the web page of the certification body.

## Evaluation Criteria

Summary of the Evaluation Criteria

### TÜViT Trusted Product SOA, Version 1.0

#### 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.

- **Use of accepted standards**

The service interfaces use accepted standards for service description and invocation (e. g. WSDL, SOAP etc.).

#### 2. Business Architecture

- **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.

- **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 ease 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. The product operator can extend the product with his 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 realised with 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 involving end users in requirement description and design.

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### **Not applicable Evaluation Criteria**

The following criteria of the Evaluation Criteria were not applicable for the certified product:

- **Easy configuration, setup and adjustment**

These criteria were not part of the evaluation of the base scope.



# Checklist - Enterprise SOA for Business ByDesign Solution

Version 2.0

15.10.2007

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## 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 Enterprise SOA for SAP Business ByDesign

The following checklist Enterprise SOA describes the specific check criteria for an Enterprise Service Oriented Architecture (Enterprise SOA). 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 was developed together with representatives from SAP's developing organisation responsible for *SAP Application Platform* and *SAP Business ByDesign*.

### 3 Check areas for Enterprise SOA

In the following the check areas for the evaluation and certification of an Enterprise SOA are listed.

Remark: The acronym "ESA" ("Enterprise Service Architecture") is used as a synonym for *Enterprise SOA*.

1. ESA Enterprise Enablement (ESA\_ESE) "All business functionality in the software component is structured reasonably and service enabled."
2. ESA Model-driven Development (ESA\_Mod) "ESA products support model-driven implementation of applications from business requirements to final runtime deployment."
3. ESA Productivity (ESA\_Prod) "The product supports optimized user interfaces."
4. ESA Deployment (ESA\_Deploy) "Flexible deployment is achieved by grouping together functionally related and decoupling functionally unrelated components (deployment units)."
5. ESA Configuration (ESA\_Config) "The product allows fast, comprehensive, and consistent business driven configuration based on a model-driven architecture"

### 4 Scope and Relevance

The product specific checklist Enterprise SOA is relevant for the product combination *SAP Application Platform / Business ByDesign*. The checklist currently refers to the Base Scope of these products.

Check criteria relating to functionality not in the scope of the product version under test are marked "*not relevant*" in the checklist.



## 5 Checklist for Enterprise SOA

The following table contains the specific checklist for Enterprise SOA. 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 <b>bold</b> , check points are formatted in <i>cursive</i> and check criteria are formatted in standard.
Check method	Check methods are used to evaluate the check criteria. Check methods can be <i>test</i> , <i>audit</i> , <i>review</i> and <i>check tool</i> . The check methods are described in the SOA check schema [1].
Check plan	One or more check criteria, which can be evaluated together with one test method or on one test object are collected in <i>check plans</i> .
Not relevant	The check criterion is not relevant for the base scope of <i>Application Platform / Business ByDesign</i> .
Mapping to SOA check schema	Identifies the corresponding general criterion of the SOA check schema. This column shows the mapping of the specific Enterprise SOA 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 Enterprise SOA checklist.

ID	Check item	Check method	Check plan	Not relevant	Mapping to SOA check schema
<b>ESA_ESE</b>	<b>All business functionality in the software component is structured reasonably and service enabled</b>				
ESA_ESE_1	<i>All business logic is reachable by services</i>				
ESA_ESE_1.1	All business logic is reachable by services	Test	Test#1		3.1.1
ESA_ESE_2	<i>BOs (Business Objects) are the basic elements of the application architecture</i>				
ESA_ESE_2.1	Each BO represents a set of unique, identifiable business entities	Audit	Audit#1		3.1.1
ESA_ESE_2.2	Each BO implements the core service interfaces "CUD", "retrieve by association", "query" und "action"	Test	Test#1		3.1.1
ESA_ESE_2.3	Each compound service is implemented using only core services for BO access and modification	Review	Review#6		3.1.1
ESA_ESE_3	<i>Global data types, GDTs are a set of data types with clear business semantics used for all service interfaces</i>				
ESA_ESE_3.1	All service interfaces are realized using GDTs as specified in the PIC process (process integration content process)	Review	Review#1		3.1.1
ESA_ESE_3.2	Each GDT is defined in ESR using XML Schema based on UN/CEFACT CCTS	Review	Review #1		3.1.1
ESA_ESE_3.3	Each GDT is approved by PIC process according to naming conventions	Audit	Audit#1		3.1.1
ESA_ESE_4	<i>Service modelling in ESR is based on WSDL with SAP-specific extensions</i>				
ESA_ESE_4.1	Service modelling in ESR is based on WSDL with SAP-specific extensions	Review	Review#2		3.1.2

ID	Check item	Check method	Check plan	Not relevant	Mapping to SOA check schema
ESA_ ESE_5	<i>Each BO shall incorporate the field and code extensibility concept</i>				
ESA_ ESE_5.1	Field extensibility is provided for all nodes in all BOs	Test	Test#2		3.4.1
ESA_ ESE_5.2	End-to-end extensibility is provided in Reports/Forms/UIs/Searches	Test	Test#2		3.4.1
ESA_ ESE_5.3	Extensions will survive upgrades of the Application Platform	Test	Test#2	x	3.4.1
ESA_ ESE_5.4	Pre and post user exits are provided for the CUD services of the BOs	Test	Test#2	x	3.4.1
ESA_ ESE_5.5	Process oriented field extensibility is provided for selected extension scenarios	Test	Test#2	x	3.4.1
<b>ESA_Mod</b>	<b>ESA products support model-driven implementation of applications from business requirements to final runtime deployment</b>				
ESA_ Mod_1	<i>Complete model driven development process is supported from business requirement to runtime deployment</i>				
ESA_ Mod_1.1	Service provision side	Review	Review #7		3.2.2, 3.4.3
ESA_ Mod_1.2	Service consumption side	Review	Review #8		3.2.2, 3.4.3
ESA_ Mod_2	<i>The product provides a number of integration scenario models as description of the end-to-end business processes supported by it</i>				
ESA_ Mod_2.1	All ISMs went through an approval process	Audit	Audit#1		3.2.1
ESA_ Mod_2.3	Each element defined in an ISM is implemented in the product	Test	Test#1		3.2.1
ESA_	<i>Process component interaction is</i>				

ID	Check item	Check method	Check plan	Not relevant	Mapping to SOA check schema
<i>Mod_3</i>	<i>modelled with process component interaction models</i>				
ESA_ Mod_3.1	There are process component interaction models in ARIS defined for every meaningful communication relationships resulting from business process requirements	Audit	Audit#1		3.2.1
ESA_ Mod_3.2	Process component interaction models entail proper implementation of communication between process components (process integration)	Test	Test#1		3.2.1
<i>ESA_ Mod_4</i>	<i>BOs and services are consistently described in all relevant repositories and fully implemented in the product</i>				
ESA_ Mod_4.1	Each BO and each service called for in ARIS is modelled in the ESR	Check Tool	Check Tool#3		3.2.1
ESA_ Mod_4.2	For each service modelled in the ESR there exists an implemented service in the product	Test	Test#1		3.3.1
<i>ESA_ Mod_5</i>	<i>Model-based implementation of Status and Action Management</i>				
ESA_ Mod_5.1	Status and Action Management of BOs can be adapted with a model based procedure	Review	Review#5		3.2.1
ESA_ Mod_5.2	All BOs passed through S&AM governance process	Audit	Audit#2		3.2.1
ESA_ Mod_5.3	All BOs with S&AM relevance have a S&AM model and implement the necessary calls	Test	Test#3		3.3.1
<i>ESA_ Mod_6</i>	<i>Integration into Visual Composer</i>				
ESA_ Mod_6.1	ESR holds a number of BOs usable in Visual Composer for modelling UIs	Review	Review#8		3.2.1

ID	Check item	Check method	Check plan	Not relevant	Mapping to SOA check schema
ESA_Mod_7	<i>Application Platform interfaces must be stable in future releases</i>				
ESA_Mod_7.1	Service interfaces modelled in the ESR and implemented in the Application Platform have to be stable in future releases	Review	Review#4		3.1.1
ESA_Prod	<b>The product supports optimized user interfaces</b>				
ESA_Prod_1	<i>The product supports optimized user interfaces</i>				
ESA_Prod_1.1	The product provides a range of ready-to-use meaningful UIs	Audit	Audit#3		3.4.4
ESA_Prod_1.2	UIs are built from patterns according to standards and guidelines	Review	Review#8		3.4.4
ESA_Prod_1.3	Customer can extend the range of UIs with a model based procedure	Review	Review#8		3.4.4
ESA_Prod_2	<i>All UIs are decoupled from business logic via the service interfaces</i>				
ESA_Prod_2.1	All UIs are decoupled from business logic via the service interfaces	Review	Review#8		3.4.4
ESA_Prod_3	<i>Every UI shall support the field extensibility concept</i>				
ESA_Prod_3.1	Every UI shall support the field extensibility concept		Test#2		3.4.3, 3.4.4
ESA_Prod_4	<i>The product provides access to processes and data via role based as well as a task oriented approach</i>				
ESA_Prod_4.1	All UIs are reachable via the control center / work center framework based on user role	Review	Review#8		3.4.4
ESA_Prod_4.2	The product provides a task list with all open issues and solution oriented navigation	Review	Review#8		3.4.4

ID	Check item	Check method	Check plan	Not relevant	Mapping to SOA check schema
ESA_Prod_5	<i>Output management (printing, fax, email, etc.) shall use forms linked to business objects only</i>				
ESA_Prod_5.1	Output management (printing, fax, email, etc.) shall use forms linked to business objects only	Review	Review#3		3.4.4
<b>ESA_Deploy</b>	<b>Flexible deployment is achieved by grouping together functionally related and decoupling functionally unrelated components (deployment units)</b>				
ESA_Deploy_1	<i>Entities being deployed together in common business contexts are grouped together as Deployment Units (DUs)</i>				
ESA_Deploy_1.1	Process components inside an DU have high cohesion, process components in separate DUs have low cohesion	Audit	Audit#1		3.4.1
ESA_Deploy_1.2	Different DUs can be operated on separate systems independent of each other	Check Tool	Check Tool#1	x	3.4.1
ESA_Deploy_1.3	BOs from different DUs communicate via process agents and messages only	Check Tool	Check Tool#1		3.4.1
ESA_Deploy_1.4	Data consistency across DUs is achieved by message based communication	Check Tool	Check Tool#2		3.4.1
ESA_Deploy_1.5	Synchronous writing A2A-communication shall follow the tentative update and compensate or confirm pattern	Test	Test#4		3.4.1
ESA_Deploy_2	<i>Application Platform comprises a substantial set of reusable platform process components in the foundation</i>				
ESA_Deploy_2.1	Application Platform comprises a substantial set of reusable platform process components in the foundation	Audit	Audit#1		3.2.3
ESA_	<i>Master data management: Master data is</i>				

ID	Check item	Check method	Check plan	Not relevant	Mapping to SOA check schema
Deploy_3	<i>replicated between DUs in a transparent way.</i>				
ESA_Deploy_3.1	Master data management: Master data is replicated between DUs in a transparent way.	Test	Test#5	x	3.4.1
ESA_Config	<b>The product allows fast, comprehensive, and consistent business driven configuration based on a model-driven architecture</b>				
ESA_Config_1	<i>The product allows fast, comprehensive and consistent business-driven configuration based on a model-driven architecture.</i>				
ESA_Config_1.1	Configuration can be achieved by customer in ¾ h (High-level) or 2 days (detailed scoping) respectively. A trial tenant can be generated automatically within 4 h.	Test	Test#6	x	3.4.2
ESA_Config_1.2	Starting from country and industrial area, the configuration tool provides standard configurations for setting up a working solution with minimal effort.	Review	Review#9	x	3.4.2
ESA_Config_1.3	The configuration tool supports stepwise refinement of the configuration. The refinement ends with a detailed go-live activity-list for the customer.	Review	Review#9	x	3.4.2
ESA_Config_1.4	The configuration content comprises only valid solution capabilities of the product.	Review	Review#10	x	3.4.2
ESA_Config_1.5	Configuration tool set and configuration content make sure that any deployed configuration is always consistent and complete.	Test	Test#7	x	3.4.2
ESA_Config_1.6	Configuration content can be visualized in the context of process modelling	Review	Review#11	x	3.4.2

## 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]. All general requirements are mapped with at least one specific check criterion of the checklist Enterprise SOA (see *Column Mapping to SOA check schema* of checklist for Enterprise SOA).

Id	General requirement check schema TÜViT Trusted SOA
3.1	<b>Service enablement</b>
3.1.1	<b>Accessibility of all business functionality via service interfaces:</b> All business functionality advertised by the product can be accessed and used with a service interface. Service descriptions are stored in a central repository.
3.1.2	<b>Usage of accepted standards for service interfaces:</b> The service interfaces use accepted standards for service description and invocation (e.g. WSDL, SOAP etc.).
3.2	<b>Business architecture</b>
3.2.1	<b>Thorough business oriented requirements engineering:</b> The product manufacturer applies state of the art methods to assure that all relevant business requirements were gathered, documented and implemented in the product.
3.2.2	<b>Existence of a meaningful business architecture behind the services:</b> Based on his requirements engineering, the manufacturer designed, implemented and published a suitable business architecture behind the service interfaces.
3.2.3	<b>Systematic reuse of basic components and master data within the system:</b> The product architecture promotes the reuse of basic components and master data to improve functional testing and to ease product maintenance.
3.3	<b>Software quality</b>
3.3.1	<b>Thorough testing of the whole product and its components:</b> 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.



Id	General requirement check schema TÜViT Trusted SOA
3.4	<b>System deployment</b>
3.4.1	<p><b>Scalability and extensibility of the product and its components:</b></p> <p>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.</p>
3.4.2	<p><b>Easy configuration, setup and adjustment:</b></p> <p>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.</p>
3.4.3	<p><b>Model-based extension of business functionality:</b></p> <p>The product is realised with a model-based architecture approach. The customer can extend business functionality with model-based development tools and procedures.</p>
3.4.4	<p><b>User interfaces optimised for business process support:</b></p> <p>The user interfaces were developed based on state of the art methods for usability engineering involving end users in requirement description and design.</p>

## 7 References

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

## 8 Abbreviations

ARIS	<b>Architektur integrierter Informationssysteme.</b> 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
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
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)