Dr. Christoph Wall electronic Administration and Services





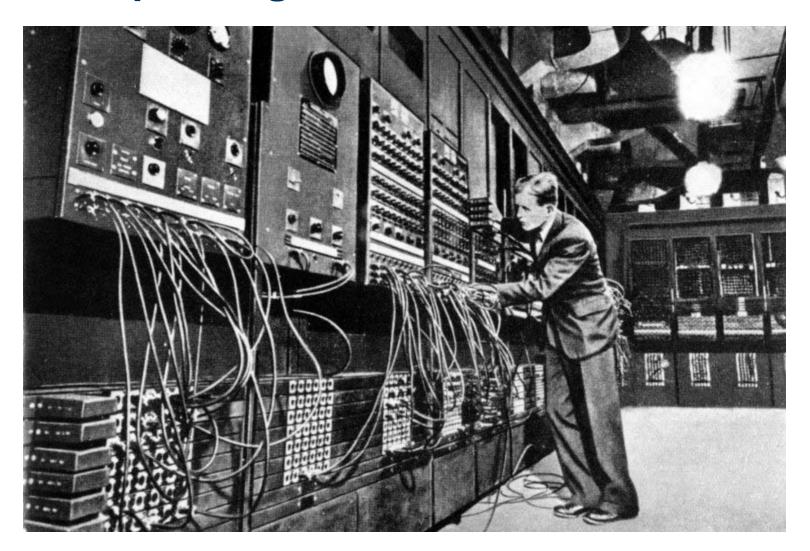
## **IT-Security**

**Governance and Technology** 

HERUG, 23.04.2013



#### After computers got started ...





### ... and went beyond their predicted numbers ...

*'I think there is a world market for about five computers'* Remark attributed to Thomas J. Watson (Chairman of the Board of IBM), 1943





#### ... to connect people around the globe ...

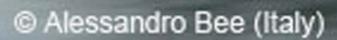




### ... I had a dream.

Can you picture what will be So limitless and free

Jim Morrison

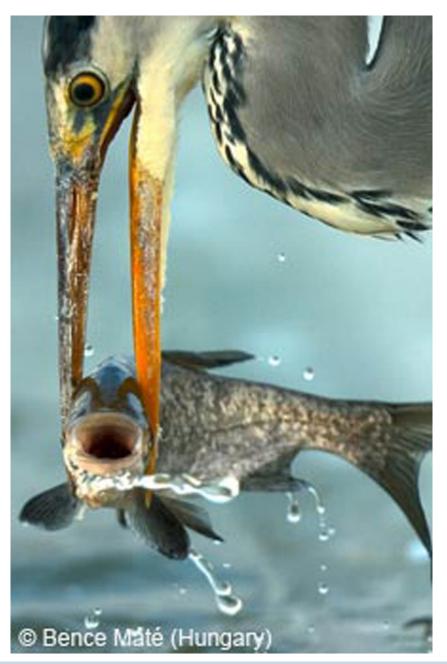


IT-Security @ FU Berlin, HERUG 2013



# But then I woke up

. . . .





### ... to find myself faced with the need for:





### **Europe needs it**





#### Germany needs it

Federal Office for Information Security



#### IT-Grundschutz

IT-Grundschutz Home IT-Grundschutz-Standards

IT-Grundschutz Catalogues

IT-Grundschutz Certification

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IT-Security Guidelines Source of supply

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#### **IT-Grundschutz**



The aim of IT-Grundschutz is to achieve an appropriate security level for all types of information of an organisation. IT-Grundschutz uses a holistic approach to this process. Through proper application of well-proven technical, organisational, personnel, and infrastructural safeguards, a security level is reached that is suitable and adequate to protect business-related information having normal protection requirements. In many areas, IT-Grundschutz even provides advice for IT systems and applications requiring a high level of protection.

#### Note:

Since 2005 the "IT-Grundschutz Manual" is called "IT-Grundschutz Catalogues". You will find in the IT-Grundschutz Catalogues the modules, threats and safeguards. The IT-Grundschutz Methodology and the Risk analysis based on IT-Grundschutz you will find in the BSI-Standards.

#### **IT-Grundschutz international:**

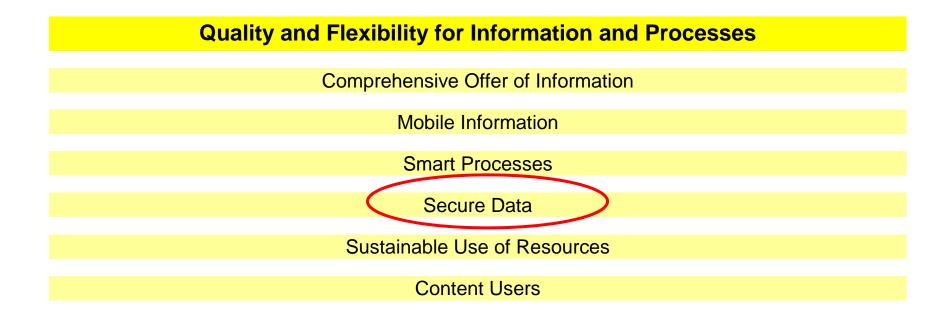
You will find more IT-Grundschutz documents in other languages at the IT-Grundschutz International website.

The IT-Grundschutz Catalogues are still available as "IT-Grundschutz-Kataloge" in German on which this English version is based on.

►



#### The Freie Universität Berlin needs it (IT Strategy)





### What is IT-Security?



Bundesamt für Sicherheit in der Informationstechnik



# IT Security Guidelines



### **Fundamental Values of IT-Security**

#### **Confidentiality**:

information that is confidential must be protected against unauthorized disclosure

#### **Availability:**

services, IT system functions, data and information must be available to users as required

#### Integrity:

data must be complete and unaltered



### Elements of an IT-Security-Management-System

#### Governance

**Risk assessment or analysis**: A risk analysis provides information on the probability of the occurrence of a damaging event and what negative consequences the damage would have.

**Security policy**: In a security policy the security objectives and general security safeguards are formulated in the sense of the *official regulations of a company* or a public authority. Detailed security safeguards are contained in a more comprehensive security concept.

#### Technical

Authentication: When a person logs in on a system, the system runs a check in an authentication process to verify the identity of the person. The term is also used when the identity of IT components or applications is tested.

Authorisation: Authorisation is the process of checking whether a person, an IT component or an application is authorised to perform a specific action.

**Data protection:** Data protection refers to the protection of personal data against misuse by third parties.

Data backup: Data backup involves making copies of existing data to prevent its loss.



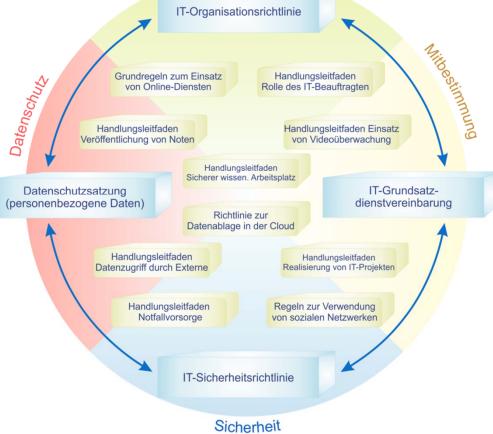
### Governance: Risk assessment for FU IT-Systems

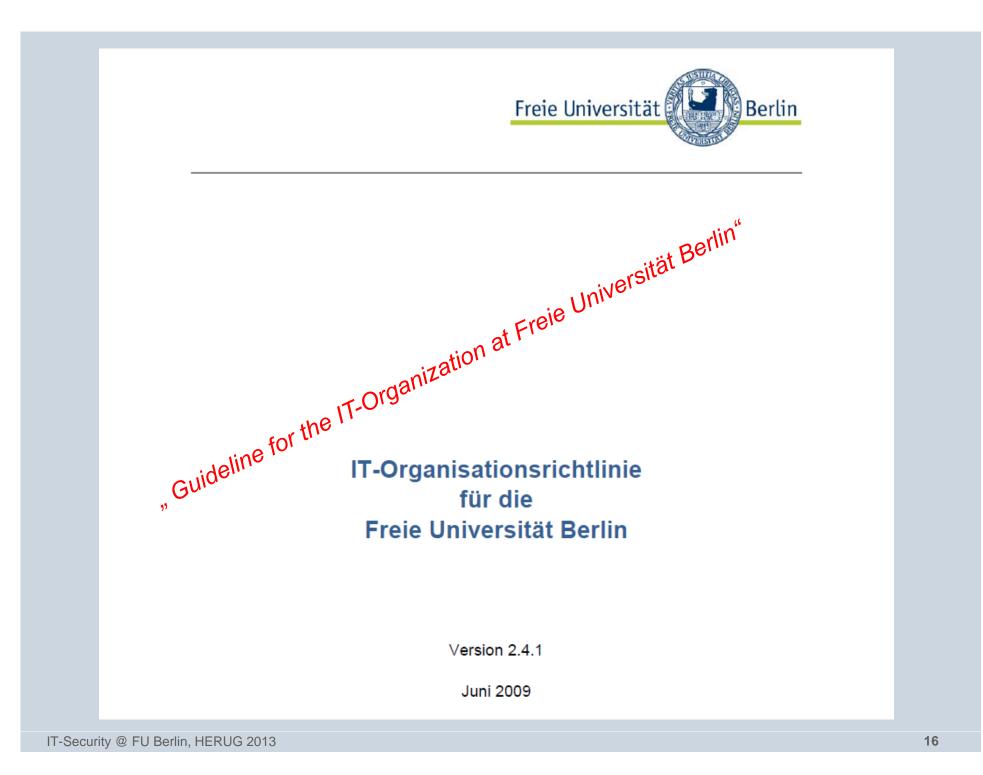
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- Verantwortlichkeiten	🔯 Geschäftsprozess: 3d Wegeleitsystem
IT-Verfahren	Datensatz: 3d Raum- und Lehrveranstaltungsdaten
Geschäftsprozesse	
IT-Systeme	Einschätzung der Vertraulichkeit
IT-Ressourcen	▶ Einschätzung der Integrität
Organisationseinheiten	Einschatzung der Integniat
Mitarbeiter	✓ Einschätzung der Verfügbarkeit
Auswertungen	
Administration	Der Verlust der Daten bzw. der Wegfall der Verfügbarkeit der Daten ist im Hinblick auf die Beeinträchtigung der gesellschaftlichen
- Schlüsseltabellen	Stellung, von Leib und Leben oder der wirtschaftlichen Verhältnisse der betroffenen Person wie folgt einzuschätzen:
- Löschen (FINAL)	geringfügige Auswirkungen
- Konfiguration	C erhebliche Auswirkungen
<ul> <li>Beschriftungen</li> <li>Benutzerverwaltung</li> </ul>	O gesellschaftlicher und wirtschaftlicher Ruin
- Berichtverwaltung	Grund:
	Schlimmstenfalls wird die Auffindung des gesuchten Ortes aufwändiger



#### **Governance: Guidelines and Directives**

"Essentially, procedures or policies are implemented to tell people (administrators, users and operators) how to use products to ensure information security within the organization." *Wikipedia* 







### **Stakeholders of the IT-Organization**

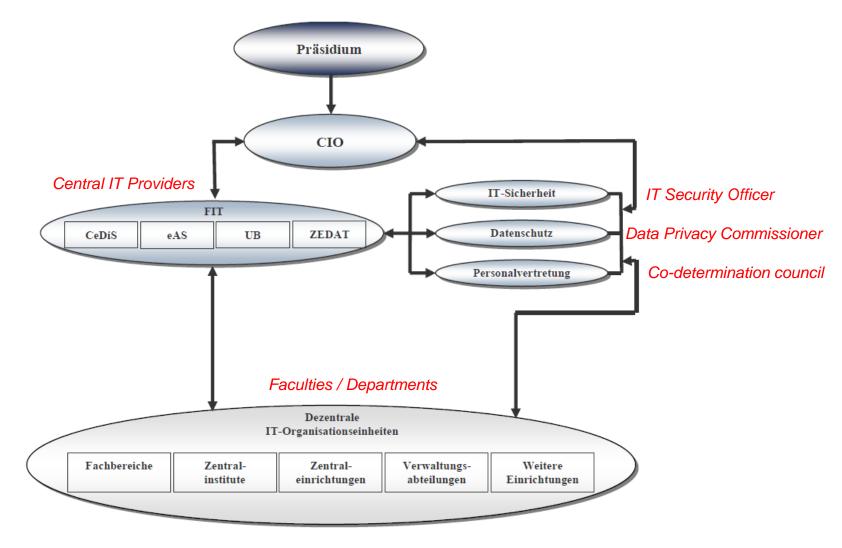


Abbildung 1: Darstellung der IT-Organisationsstruktur an der Freien Universität Berlin. Die Pfeile weisen auf operative Beziehungen hin.



### **Directive for handling security incidents**



Nur für den internen Dienstgebrauch!

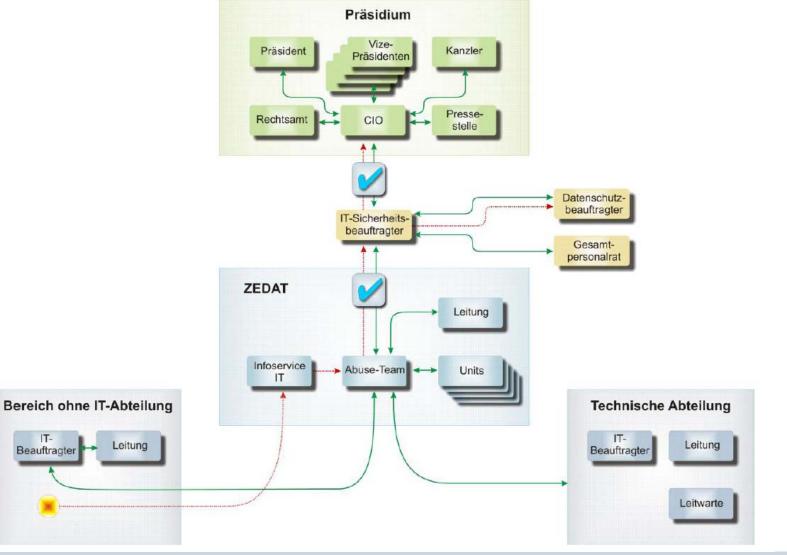
Freie Universität Berlin

Handlungsleitfaden

zur Behandlung von IT-Sicherheitsvorfällen



### Alarm chain



IT Sicherheit 2010



### Technology: SAP Functionality to support IT-Security

- Identity Management
  - Event-based onboarding
- Authentification
  - SSO with User Name/Password
- Role based Authorization
  - Design of User-Roles
  - Workflow for role allocation
- Layers of security for Web-Portal-Access to SAP backend
- Security Optimazation Self-Service (SOS Report)
  - e.g. Segregation of duties
- Action log for intrusion detection
- Identity Management
  - Automatic user deactivation
- Backup and Restore Support

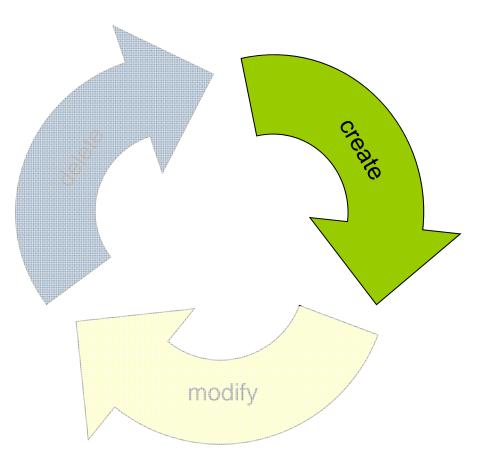


### **Identity Management**



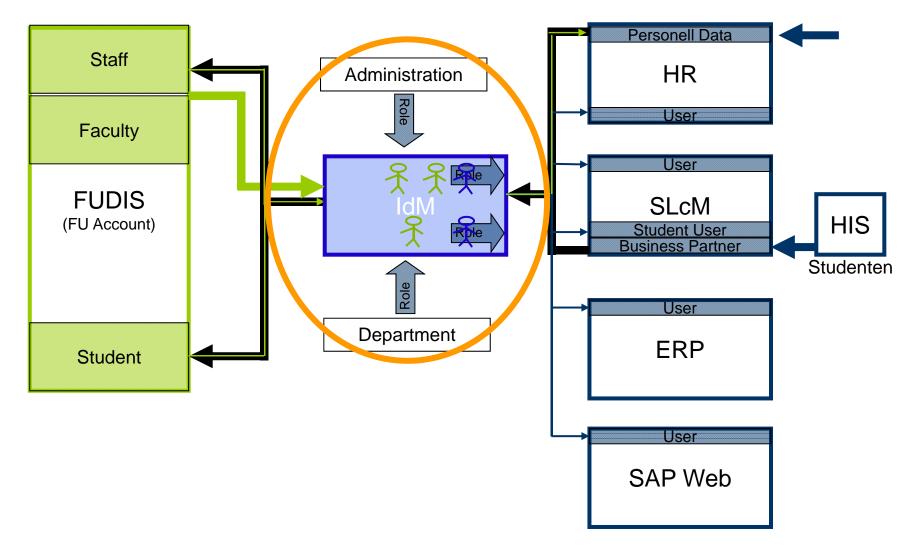


### **User Lifecycle Management Stage 1**





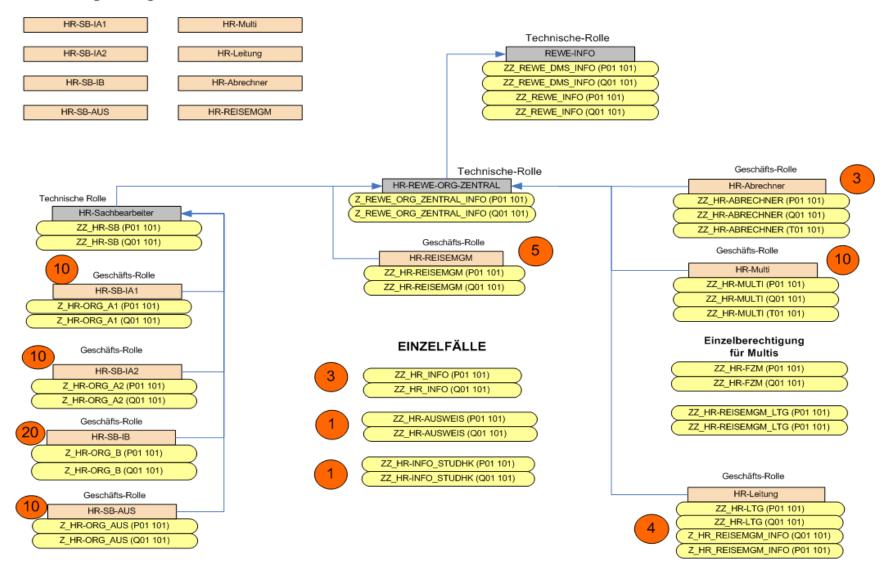
### Create/modify (Onboarding & Berechtigung)





### **Cascading role design**

#### Zu genehmigende Rollen:





### IdM role provisioning workflow

		Zugeordnet						
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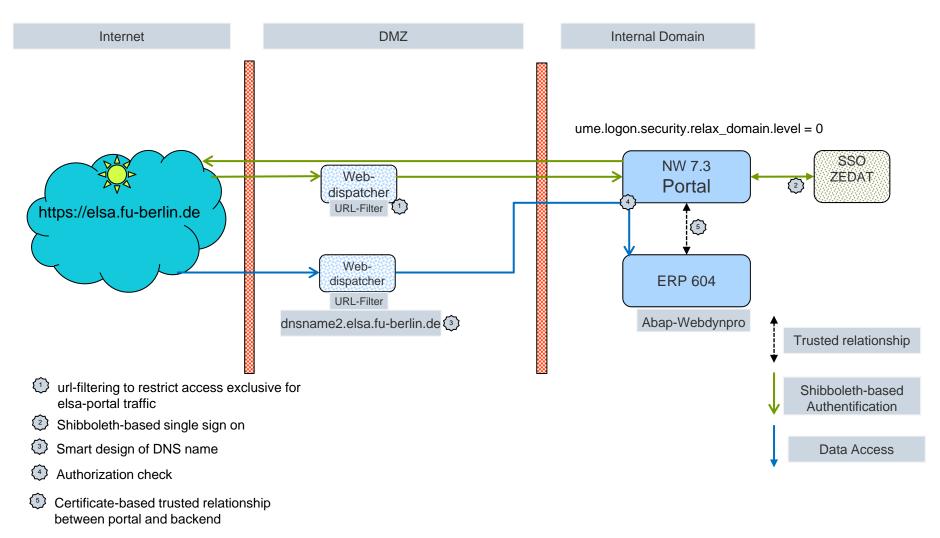


### Single Sign On

Freie Universität	erlin		Startseit	e Kontakt	Impressum
SINGLE SIGN-ON					
zedat	SAP Portal         Benutzername:         Passwort:         Passwort:         Anmelden         Passwort vergessen?    Wichtige Hinweise: • Nach der Anmeldung können Sie weitere an das Single Sign-On angeschlossene Webanwendungen nutzen, ohne erneut nach Benutzernamen und Passwort gefragt zu werden. • Bitte verwenden Sie die Zugangsdaten Ihres FU-Accounts, der Ihnen von der ZEDAT bereitgestellt wird.		Anwendun Bereichen	RTAL vebgestützte gen aus der Forschung, chulstatistik	n Finanzen
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Single Sign-On	-	Startseite	Kontakt	Impressum	Feedback



### **Security layers for SAP access**









### **Future Potential: Strong Authentification**



Die TAN für die Einzelüberweisung vom 27.02.2013 22:16:31 über 186,53 EUR auf das Konto lautet: 946404	٢
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### **Security Audit Log: Configuration (SM19)**

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### Security Audit Log: Analysis (SM20)

#### Analysis of Security Audit Log

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sapp02	26.03.2013	14:01:05	MPOST	ZUV9787	PA30
sapp02	26.03.2013	14:01:05	MPOST	ZUV9787	PA30
sapp02	26.03.2013	14:03:14	ZHR_AZUBI	ZUV10356	PA30
sapp02	26.03.2013	14:03:14	ZHR_AZUBI	ZUV10356	PA30
sapp02	26.03.2013	14:03:14	ZHR_AZUBI	ZUV10356	PA30
sapp03	26.03.2013	13:10:37	BETTINAB	TSFUB15	SESSI
sapp03	26.03.2013	13:10:37	BETTINAB	TSFUB15	SESSI
sapp03	26.03.2013	13:21:12	MOENKE	ZUV9243	FDTA
sapp03	26.03.2013	13:21:12	MOENKE	ZUV9243	FDTA
sapp03	26.03.2013	13:25:34	MOENKE	ZUV9243	FDTA

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sapp03 26.03.2013 13:25:45 MOENKE ZUV9243 FDTA SAPMFDTA Download 7424 Bytes to File Y:\SAP\AU5132	
sapp03 26.03.2013 13:32:16 BETTINAB TSFUB15 SESSION_MANAGER SAPMSYST Password check failed for user BETTINAB in client 101	
sapp03 26.03.2013 13:32:16 BETTINAB TSFUB15 SESSION_MANAGER SAPMSYST Logon Failed (Reason = 1, Type = A)	
sapp03 26.03.2013 13:35:33 ANNEM ZUV9154 FMRP_RFFMEP1AX RFFMEPGAX Download 5920 Bytes to File C:\Users\annem\Desktop\RL	
sapp03 26.03.2013 13:36:19 ANNEM ZUV9154 FMRP_RFFMEP1AX RFFMEPGAX Download 40 Bytes to File Excel file	
sapp03 26.03.2013 13:44:56 FRENZELF ZUV6417 SESSION_MANAGER SAPMSYST Password check failed for user FRENZELF in client 101	
sapp03 26.03.2013 13:44:56 FRENZELF ZUV6417 SESSION_MANAGER SAPMSYST Logon Failed (Reason = 1, Type = A)	
sapp03 26.03.2013 13:48:18 BRIESI ZUV621 SESSION_MANAGER SAPMSYST Password check failed for user BRIESI in client 101	
sapp03 26.03.2013 13:48:18 BRIESI ZUV621 SESSION_MANAGER SAPMSYST Logon Failed (Reason = 1, Type = A)	
sapp03         26.03.2013         13:52:52         SAP*         SAPMSSY1         RFC/CPIC Logon Successful (Type = F)	
sapp03 26.03.2013 13:52:52 SAP* SAPMSSY1 Successful RFC Call SALC_GET_MT_LIST_BY_MTCLASS (Function	on Group = SALC)
sapp03         26.03.2013         13:52:52         SAP*         SAPMSSY1         RFC/CPIC Logon Successful (Type = F)	
sadd03 26.03.2013 13:52:52 SAP* SAPMSSY1 Successful RFC Call SALC GET MT LIST BY MTCLASS (Function	on Groud = SALC)



### **The SOS Report**

The **SAP Security Optimization Service** is a comprehensive support service that identifies security risks for your SAP system and helps you to determine the appropriate measures to protect it from these risks.

The security checks of SAP Security Optimization are performed for the following security aspects:

- Availability: ensuring that a system is operational and functional at any given moment
- **Integrity:** ensuring that data is valid and cannot be compromised
- Authenticity: ensuring that users are the persons they claim to be
- Confidentiality: ensuring that information is not accessed by unauthorized persons
- **Compliance:** ensuring that the system security set-up is in accordance with established guidelines



...3

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サービスレポート		2 GENERAL INFORMATION ABOUT THE
		3 DETECTED ISSUES
		4 SPECIAL FOCUS CHECKS
		4.1 COMPARE CLIENTS FROM DOWNLO
SAP Security Optimization Se	elf-Service	5 AUTHENTICATION
or a coounty optimization of		5.1 PASSWORDS
		5.1.1 Password Logon is at Least Pa 5.1.2 Trivial Passwords Are Not Suffic 5.1.3 Number of Characters in Which
		5.1.4 Required Number of Digits in P 5.1.5 Required Number of Special Ch
		5.2 GENERAL AUTHENTICATION
SAP システム ID		5.2.1 Users Who Have Not Logged C 5.2.2 Interval After Which Inactive Us
		5.3 PASSWORD BASED AUTHENTICATIO
SAP コンポーネント		5.3.1 Logon via SSO Tickets Is Allow
		6 BASIS AUTHORIZATION
リリース		6.1 BASIS ADMINISTRATION
		6.1.1 Users - Other Than the System 6.1.2 No Critical Transactions Are Loc 6.1.3 No Timely Accurate Resolution
DBシステム		6.2 BATCH INPUT.
		6.2.1 No Timely Accurate Resolution
		6.2.2 Users - Other Than the Batch II Dialog (0221)
御社名		6.2.3 Users - OtherThan theBatch I (0222)
		6.3 Spool & PRINTER
		6.3.1 Users - Other Than the Spool A
		6.4 BACKGROUND
		6.4.1 Background Users That Are No
		6.5 OS Access
		6.5.1 Users - Other Than the System (0172)
		6.6 INCOMING RFC
		6.6.1 Incoming RFC with Expired Pa 6.6.2 Users Authorized for Trusted R
サービスセンター		6.6.3 REC Security in the Service Ma
9 - E スピンター 電話番号		7 CHANGE MANAGEMENT
Fax番号		7.1 DATA & PROGRAM ACCESS
		7.1.1 Users - Other Than the Query U
セッション開始日 30.03.2011 レポート提出日 15.08.2011	Session No. 101000004372 Installation No. 0120058874	7.2 CHANGE CONTROL
作成者 Tatjana Ruhland Freie Universität Berlin	Customer No.	7.2.1 Users Are Authorized to Execut 7.2.2 Users Are Authorized to Execut
		7.2.3 SAPgui User Scripting Is Enabl
		SAP Security Optimization - Self Service,

2 GENERAL INFORMATION ABOUT THE SAP SECURITY OPTIMIZATION SERVICE	3
3 DETECTED ISSUES	5
4 SPECIAL FOCUSCHECKS	8
4 1 COMPARE CLIENTS FROM DOWNLOAD TO QUESTIONNAIRE DATA	8
5 AUTHENTICATION	
5.1 PASSWORDS	Q
5.1.1 Password Logon Is at Least Partly Allowed (0139).	
5.1.2 Trivial Passwords Are Not Sufficiently Prohibited (0125)	
5.1.3 Number of Characters in Which Passwords Have to Differ is Too Low (0128)	
5.1.4 Required Number of Digits in Passwords Is Too Low (0129)	
5.1.5 Required Number of Special Characters in Passwords Is Too Low (0131)	
5.2 GENERAL AUTHENTICATION	
5.2.1 Users Who Have Not Logged On for an Extended Period of Time (0010)	
5.2.2 Interval After Which Inactive Users Are Logged Off Is Too Long (0137)	
5.3 PASSWORD BASED AUTHENTICATION ADMITS PASSWORD ATTACKS (0591)	
5.3.1 Logon via SSO Tickets Is Allowed (0601)	
5 BASIS AUTHORIZATION	11
6.1 BASIS ADMINISTRATION	11
6.1.1 Users - Other Than the System Administrators - Are Authorized to Maintain Own Lock Entries (	0166)11
6.1.2 No Critical Transactions Are Locked (0158)	
6.1.3 No Timely Accurate Resolution of Erroneous Locks (0160)	
6.2 Ватен Ілрит	
6.2.1 No Timely Accurate Resolution of Failed Batch Input Sessions (0223)	
6.2.2 Users - Other Than the Batch Input Administrators - Are Authorized to Run Batch Input Sessio Dialog (0221)	
6.2.3 Users - Other Than the Batch Input Administrators - Are Authorized to Administer Batch Input (0222).	Sessions
6.3 Spool & Printer	13
6.3.1 Users - Other Than the Spool Administrators - Are Authorized to Print on all Devices (0197)	13
6.4 BACKGROUND.	14
6.4.1 Background Users That Are Not Used in Any Periodic Batch Job (0215)	14
6.5 OS Access	14
6.5.1 Users - Other Than the System Administrators - Are Authorized to Execute External OS Comm (0172)	
6.6 INCOMING RFC	15
6.6.1 Incoming RFC with Expired Password Is Allowed (0234)	
6.6.2 Users Authorized for Trusted RFC (Object S_RFCACL) (0239)	
6.6.3 REC Security in the Service Marketplace (0247)	
7 CHANGE MANAGEMENT	16
7.1 Data & Program Access	16
7.1.1 Users - Other Than the Query Users - Are Authorized to Run Queries (0519)	16
7.2 CHANGE CONTROL	16
7.2.1 Users Are Authorized to Execute Catts in the Production System (0312)	16
7.2.2 Users Are Authorized to Execute eCatts in the Production System (0313)	
7.2.3 SAPgui User Scripting Is Enabled (0314)	18
SAP Security Optimization - Self Service, 30.03.2011	2



### **Risks are pointed out**

#### 7.4.1 Users are Authorized to Approve Transports (0346)

Import of programs that have not been tested properly.

**Note:** This check should normally run in the Quality System. We assume that if the users have these authorizations in the Productive System, they also have them in the Quality System.

Client	User	Туре	Last Name	First Name	Department	User Group
101	ADMINISTRATO	А				
101	ANDIPAND	А				
101	ASUMIYA	Α				I-HR-MOD
101	JACEWSKI	А				I-BC-ADMIN
101	NELDERT	Α				
101	Count :	0005				

**Recommendation:** Check the roles and profiles of the users in your QA system that are evaluated by this check. Use the Profile Generator (PFCG) to correct roles and transactions. Use transaction SU02 (Maintain Profiles) and SU03 (Maintain Authorizations) to correct profiles and authorizations, depending on your environment. You can use the authorization information system (SUIM) to check the results. For this check, look at the roles or profiles that include the authorization objects listed below.

#### Authorization objects:

Object 1: S\_TCODE with TCD=STMS\_QA

Object 2: S\_CTS\_ADMI with CTS\_ADMFCT=QTEA

Es ist o.k. - diese User wurden in Questionary aufgenommen.





#### **SAP Security Optimization Self-Service**

#### 3.13 Transport Administrators (0351)

#### Procedure

For each client, enter the known Transport and SPAM Administrators. If the Transport and SPAM Administrators are the same in all clients, enter "ALL" in the field "Client".

Client	User
101	DDIC
101	SAP*
101	RUHLAND
101	HOLLERJ
101	KUSZYNSKI
101	EHLERSD
101	JACEWSKI
101	ANDIPAND



### **Examples for Authentification Alerts**

#### 5.1.2 Trivial Passwords Are Not Sufficiently Prohibited (0125)

Parameter	Beschreibung	Aktueller Wert	Empfohlener Wert
USR40 Entries	Number of entries in USR40	18	50

#### Evaluated Risk - Medium

You already use entries in table USR40. They can be used on a generic level as well.

#### Recommendation;

Maintain at least 100 values in table USR40 to prevent passwords from being guessed easily.

#### 5.2.1 Users Who Have Not Logged On for an Extended Period of Time (0010)

Client	User [%]
101	14

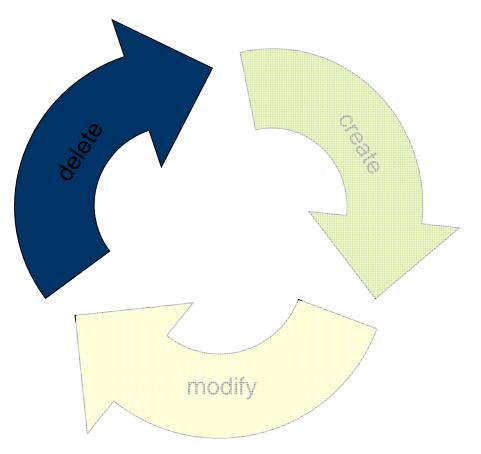
#### Evaluated Risk - Medium

#### Recommendation:

A large number of users have not logged on to the SAP system in the last 2 months. Find out why this happens. Either there are users registered in the SAP system who do not use the system at all, or there may still be users in your system who no longer exist in your company. As the SAP license is user-based, we recommend that you check this, and either delete or lock some of the users. (To find these users we checked the field TRDAT in the table USR02).

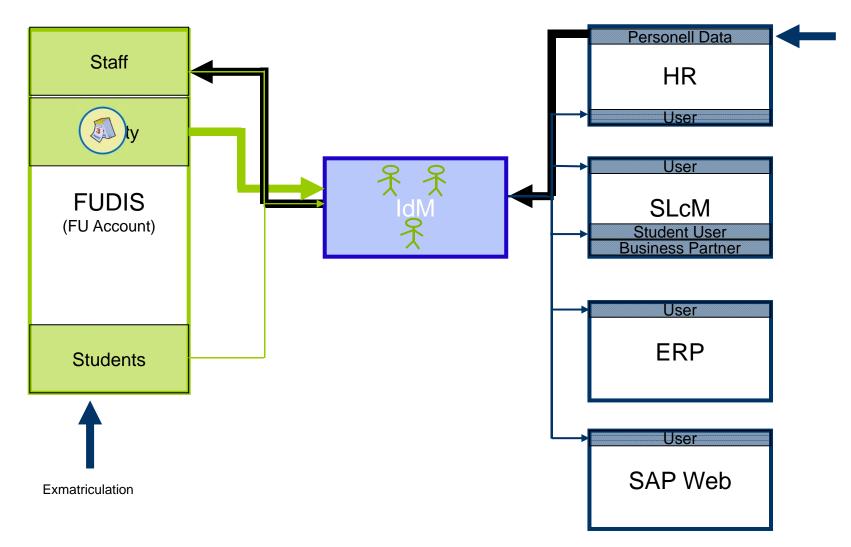


### **User Lifecycle Management: Deactivation**





### **Deactivation of Users**





### Business continuity: Backup and restore support

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### **IT-Security-Management-System reloaded**

#### Governance

**Risk assessment or analysis**: A risk analysis provides information on the probability of the occurrence of a damaging event and what negative consequences the damage would have. **Security policy**: In a security policy the security objectives and general security safeguards are formulated in the sense of the *official regulations of a company* or a public authority. Detailed

security safeguards are contained in a more comprehensive security concept.

#### Technical

Authentication: When a person logs in on a system, the system runs a check in an authentication process to verify the identity of the person. The term is also used when the identity of IT components or applications is tested.

Authorisation: Authorisation is the process of checking whether a person, an IT component or an application is authorised to perform a specific action.

**Data protection:** Data protection refers to the protection of personal data against misuse by third parties.

Data backup: Data backup involves making copies of existing data to prevent its loss.

### **Information policy**

# Recommendations for IT Security

#### **IT Security**

#### Motivation

Information technology (IT) has become an integral part of the workplace. To maintain the security of data and IT systems, users must obey certain "rules of the game". Technical security measures alone are of little benefit, if (for instance) passwords are carelessly managed. The issues to be considered are detailed in the IT Security Principles<sup>1)</sup> published by the Freie Universität Berlin. This current flyer briefly summarizes the most important principles for new users. IT security forms a fundamental basis for data privacy, which thus has been integrated into the IT Security Principles of the Freie Universität Berlin.

The IT Security Workgroup

#### Contacts

- Urgent security problems: IT information service Tel.: (030) 838-77777 (Hotline) E-mail: hilfe@zedat.fu-berlin.de
- For further questions, please consult the designated IT representative for your department <sup>2)</sup>
- 1) www.fu-berlin.de/it-sicherheit/IT-Sicherheitsrichtlinie (IT Security Principles)
- www.fu-berlin.de/it-sicherheit/IT-Beauftragten-Liste (List of IT Representatives)
- www.fu-berlin.de/it-sicherheit/Cloud-Papier (Use of Data Clouds)
- 4) www.zedat.fu-berlin.de

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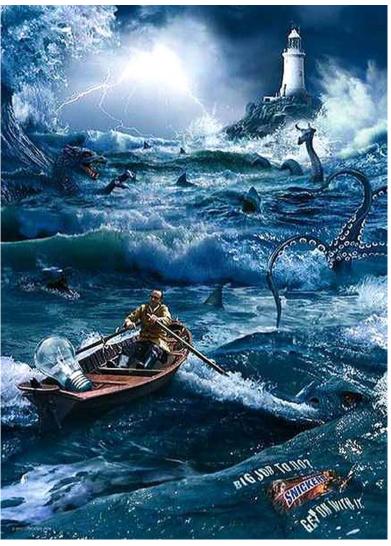
The IT Security Workgroup of the Freie Universität Berlin







### Big job to do?



### Get on with it !





#### elektronische Administration und Services

Dr. Christoph Wall Boltzmannstr. 18 14195 Berlin Germany

Christoph.wall@fu-berlin.de +49 30 838 58000