SAP Identity Management
Overview

May 2016
Agenda

Introduction to SAP Identity Management
Role Management and Workflows
Business-Driven Identity Management
Compliant Identity Management
Reporting
Password Management
Connectivity
Architecture
Identity Virtualization
What’s New in Release 8.0
Summary & Additional Information
Appendices
Introduction to SAP Identity Management
SAP Identity Management
In the SAP Security Portfolio

- **SAP Single Sign-On**: Make it simple for users to do what they are allowed to do.
- **SAP Identity Management**: Know your users and what they can do.
- **SAP Access Control**: Ensure corporate compliance to regulatory requirements.
- **SAP Cloud Identity service**: Manage the identity life-cycle in the cloud.
- **Add-On for Code Vulnerability Analysis**: Find and correct vulnerabilities in customer code.
- **SAP Enterprise Threat Detection**: Counter possible threats and identify attacks.

**Platform Security**: Make sure that SAP solutions run securely.

**SAP HANA Platform**

**SAP NetWeaver Application Server**
Key Capabilities

Enables the **efficient**, **secure** and **compliant** execution of business processes

Holistic approach

Manage identities and permissions

SAP Identity Management

Ensures that the right **users** have the right **access** to the right systems at the right **time**

Consistent user **roles** and **privileges**

Across all systems and applications
Business Drivers for Identity Management

Operational costs
- Multiple sources of identity data
- Manual user provisioning
- Labor-intensive, paper-based approval systems
- Manual password reset processes

Changing business processes
- Transactions involve multiple enterprises
- Partners participate in business processes
- Company-specific requirements for user provisioning solutions

Compliance challenges
- No record of who has access to which IT resources
- Inability to deprovision user access rights upon termination
- No complete audit trail available
- Prevention of unauthorized access in multi-enterprise environments
Identity Lifecycle

How long does it take for new employees to receive all permissions and become productive in their new job?

Are permissions automatically adjusted if someone is promoted to a new position?

How can you remove permissions automatically if employees change their position?

Who has adequate permissions to fill in for a co-worker?

How long does it take to remove ALL permissions of an employee? And how can you ensure that they were properly removed?
Solution in a Nutshell

Central management of identities throughout the system landscape
Rule-driven workflow and approval process
Extensive audit trail, logging, and reporting functionality
Governance through centralized and auditable identity data
Compliance through integration with SAP Access Control
Compliant and integrated identity management solution to mitigate segregation-of-duties risks
A Holistic Approach to Compliant Identity Management

Example: On-boarding

SAP ERP
HCM

Integration with SAP Business Suite and SuccessFactors

Central identity store

Identity virtualization and identity as a service

SAP Access Control

SAP Identity Management

SAP BusinessObjects
Access Control (GRC)

Compliance checks

Rule-based assignment of business roles

Provisioning to SAP and non-SAP systems

Approval workflows

Password management

SuccessFactors
Solution in Detail
Role Management and Workflows
Role Definition and Provisioning

Role Definition (design, one-time task)
Read system access information (roles, groups, authorizations, etc.) from target systems
Define a business role hierarchy
Assign technical roles to business roles
Develop rules for role assignments

Provisioning (regularly)
Assign or remove roles to/from people
- Through request/approval workflow
- Manually (administrator)
- Automatically, e.g. HR-driven
Automatic adjustment of master data and assignments of technical authorizations in target systems
Context-Based Role Management: Reducing Complexity

Context-based role management simplifies the structure of roles through dynamic role assignment based on user context information.

Benefits
Reduced number of roles
Reduced complexity
Sufficient granularity
Improved data consistency and governance

Example:
20 roles in 1000 factories
- Conventional method: 20,000 entries (roles)
- Context-based: 1,020 entries (roles + contexts)
Workflows

**Notification**
- Identity Center sends a notification to user/manager

**Request**
- User sends a role request

**Provisioning**
- Identity Center provisions new roles and privileges to respective systems

**Processing**
- Identity Center processes request
  - Sends alert to manager / administrator

**Approval**
- Manager checks request and approves/denies
Solution in Detail
Business-Driven Identity Management
Integration with SAP Business Applications
Kim Perkins joins the company as a marketing specialist. From the first day with her new company, she is able to log on to all relevant systems, including access to the employee self-services, and access to SAP CRM to track the marketing activities she is responsible for.

Pre-hire phase
HR ensures that all necessary employee data for Kim is available, such as position and entry date.

Event-based extraction of personnel data

Based on the position in HCM, IDM automatically assigns the business role “Marketing Specialist”.

Kim’s manager approves the assignment.

First day at work
Provisioning of role and authorization information to relevant target systems.

Success Factors:
- SAP ERP
- SAP HCM
- SAP CRM
- SAP Portal
- SAP Identity Management
- Line Manager
- HR Operations

User created “Marketing Professional”
User created “Employee”
User created Access to SAP ESS
Access to SAP CRM
Business Partner created

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After two years as a marketing specialist, Kim is promoted and takes over personnel and budget responsibility for her marketing team. On the first day in her new role, she has access to the manager self-services. In her new position, she is responsible for budget approvals for all marketing campaigns - this requires immediate access to SAP ERP to view the marketing costs.

**HR ensures that all necessary employee data for Kim is available**

**SAP Identity Management recognizes the line manager information for Kim and automatically assigns the business role “Marketing Manager”**

**Day of position change**

Provisioning of role and authorization information to relevant target systems

1. **HR Operations**
   - Event-based extraction of personnel data

2. **SAP ERP**
   - SAP ERP
   - SAP HCM

3. **SAP Identity Management**
   - Recognizes the line manager information for Kim and automatically assigns the business role “Marketing Manager”

4. **User updated**
   - “Employee”
   - “Line Manager”

**Success Factors**

- User created “Marketing Controller”
- User updated “Marketing Controller”
- User updated Access to SAP ESS
- Access to SAP MSS
- Access to SAP CRM
After eight years, Kim leaves the company. The day after her official assignment with the company ends, she is no longer able to access any corporate systems.

1. HR ensures that all data relevant for the employment contract termination is available, such as last day of work.

2. Event-based extraction of personnel data

3. SAP Identity Management recognizes the last day information for Kim; it automatically takes away all access rights and disables her accounts.

4. Day after termination of employment

- SAP ERP HCM: User disabled
- SAP ERP: User disabled
- SAP CRM: User disabled
- SAP Portal: User disabled
Solution in Detail
Compliant Identity Management
Compliant Identity Management: Capabilities

Consistent view on current and historic **access rights**, approvals and **policy violations**

Central management of heterogeneous environments

Integration based on standards

Compliant identity management across SAP and heterogeneous landscapes in one **integrated** solution

**SAP Identity Management**

**Manage identities and permissions**

**SAP Access Control**

**Identify and mitigate risks**

Compliance checks

Business risk controls and mitigation
Compliant Identity Management: Process View

1. Request role assignment
2. Forward request for risk analysis
3. Risk analysis
4. Risk mitigation
5. Risk status
6. Manager approval
7. Provisioning to target systems
8. Notification to user and manager

SAP applications
- SAP SCM
- SAP ERP HCM
- SAP ERP
- Success Factors
- Java
- SAP HCP
- Portal
- HANA

Non-SAP applications
- Active Directory
- Exchange
- Legacy
- SAP HCP
- Lotus Notes
- OS
- Web app
- Database
- …
Compliant, Business-Driven Identity Management

Requirement:
Provide automated, position-based role management while ensuring compliance

Solution:
Simplify and automate role assignment
Reduce risk through compliance checks and remediation
Automate manual processes through integration with SAP Business Suite

1. New Hire
   SAP ERP HCM

2. Calculate entitlements based on position

3. Compliance check
   Remediation

4. Approve assignments
   Yes
   No

5. SAP ERP HCM
   SAP ERP FI
   Portal
   Non-SAP
   Landscape

SAP ERP HCM   SAP Identity Management   SAP Access Control   Line Manager

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SAP ERP HCM   SAP Identity Management   SAP Access Control   Line Manager

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SAP ERP HCM   SAP Identity Management   SAP Access Control   Line Manager
Solution in Detail

Reporting
Reporting Options at a Glance

**Basic Reporting**
- Focus: Static, printable reports
- Report creation on database level

**Extended Reporting with SAP Business Warehouse (SAP BW)**
- Focus: Dynamic reports, offering more, highly detailed, and customizable reporting options
- Data is extracted from SAP Identity Management on a regular basis (as per defined job)
- Predefined report templates available, custom reports can be freely defined
- Filtering, sorting, export to MS Excel, CSV, PDF, send via e-mail, etc.

**Reporting with SAP Lumira**
- Focus: Customer-specific reposts/analyses for identity management
- Rich graphical capabilities for visualizing and utilizing reported data
- Low integration and maintenance efforts
- Easy extension

* SAP BW is not part of the SAP ID Mgmt license
** SAP Lumira, desktop edition license is included
Basic Reporting

Application/privilege-centric
Determination of system access

User-centric
Determination of user privileges

Entry data
Current data, historical data, time stamps, modified by, audit flags

Approval data
Who approved what when?

Who had which privilege when?
Segregation of duties, Attestation

Task audit log
Determination of tasks run on user / by user

General logs

Off-the-shelf reporting tools can be used
Extended Reporting with SAP Business Warehouse

**SAP BW report templates**
Persons, privileges, roles and their assignments over time and for specific dates
Content-based and time-based reporting

**Advanced filtering and sorting options**

**Access control**
Roles for reporting user
(administrator, manager, owner)

**Basic audit data**
Who changed what

**Flexibility**
BEX reports
Reporting with SAP Lumira

Customer-specific reposts/analyses for identity management

Rich graphical capabilities for visualizing and utilizing reported data

Low integration and maintenance efforts

Easy extension
Solution in Detail
Password Management
Password Management

**Requirement:**
Reduce help desk calls related to password reset inquiries
Enable password provisioning across heterogeneous landscapes

**Solution:**
Centralize and automate password management

- Reset password
- Recover lost password
- Set new password

User — Helpdesk — SAP Identity Management — SAP ERP HCM
— SAP ERP FI
— Portal
— Non-SAP
— Landscape
Solution in Detail

Connectivity
Connectivity Framework

Databases
- Microsoft SQL Server
- Microsoft Access
- Oracle database
- IBM UDB (DB2)
- MySQL
- Sybase
- SAP HANA

On-Premise/Cloud Applications
- SAP Business Suite
- SuccessFactors
- SAP Access Control
- Lotus Domino / Notes
- Microsoft Exchange
- RSA ClearTrust
- RSA SecurID

Directory Servers
- Microsoft Active Directory
- IBM Tivoli Directory
- Novell eDirectory
- SunONE Java Directory
- Oracle Internet Directory
- Microsoft ADAM
- Atos DirX Identity
- OpenLDAP
- eB2Bcom View500 Directory Server
- CA eTrust Directory
- SAP IDM Virtual Directory Server
- Any LDAP v3 compliant directory srv

Technical
- SPML
- LDAP
- ODBC/JDBC/OLE-DB
- RFC
- LDIF files
- XML files
- CSV files

Other
- SAP Application Server
- Microsoft Windows NT
- Unix/Linux
- Shell execute
- Custom Java connector API
- Script-based connector API
SAP Identity Management Integration

SAP partners as well as potential partners and independent software vendors (ISVs) are invited to create an SAP Identity Management connector using the public IDM interfaces and to integrate the application into the identity management landscape.

For more information about connectivity, including third-party connectors, please refer to the SAP Identity Management Connector Overview on SCN: http://scn.sap.com/docs/DOC-4388
Solution in Detail

Architecture
SAP Identity Management Architecture
Virtual Directory Server

Virtual Directory Server (VDS) provides

- Single consistent view and entry point for multiple distributed identity data sources
- Identity information as a service for applications through standard protocols (LDAP, SPML)
- Abstraction layer for underlying data stores

Consumer only sees one standard interface

- Transform incoming LDAP requests, and connect directly to the existing data repositories while data stays within original data source and performs efficient caching

Properties

- Real-time access to data
- No need to consolidate data sources
- No extra data store with quick LDAP deployment and easier and cheaper maintenance
- Attribute manipulation
- Name space modifications
- Complex operations on-the-fly

SPML  \(\rightarrow\)  LDAP  \(\rightarrow\)  Virtual Directory Server

SPML  \(\rightarrow\)  LDAP  \(\rightarrow\)  JDBC  \(\rightarrow\)  Application
SAP Identity Management 8.0
What’s New in Release 8.0
Main Enhancements in SAP Identity Management 8.0

New Connectors
- SuccessFactors
- Lotus Notes

SAP ASE as a database option

Identity Management Developer Studio in Eclipse
- New security model for development
- Configuration in packages
- Provisioning framework distributed as packages
- Graphical workflow editor
- SAP NetWeaver Cluster support
- MacOS and Linux support
- Eclipse Luna support

Enhanced integration with SAP Access Control
Connector to SuccessFactors Employee Central

1. **Personnel action in HR**
   - New hire, termination, change of position etc

2. **Event-based extraction of personnel data**

3. **Based on organizational data in HR**
   - Automatic role assignment possible

4. **Manager approves the assignment**

5. **At relevant date**
   - Provisioning of role and authorization information to relevant target systems

- SAP ERP HCM
- SAP CRM
- SAP Portal
- SAP Identity Management
- Line Manager
- HR Operations
- SuccessFactors
New IBM Lotus Domino Server Connector Using Java API

Bulk operations (initial load)
- Reading of users
- Reading of groups

Admin process
- User creation with certificate generation
- Admin rename request
- Admin delete user request
- Delete group

Non-admin process
- User modification
- User deletion

Group actions
- Create group
- Modify group
- Delete group
- Add and remove members

Password reset
- Invoked from a Domino Agent; example code provided
Enhanced SAP Identity Management –
SAP Access Control Integration: GRC Request Grouping

A business role and its child privileges are grouped into one group and send to SAP Access Control as one request; available as of SAP Identity Management 7.2 SP10
Provisioning Monitor

Motivation
- Provides transparency of the workflow
- Helps analyze issues related to the provisioning queue

Functionality
- Extract all the workflows in the provisioning queue related to a specified entry
- Problem report based on system’s workflow

Release independent Component
IdM 8.0
IdM 7.2
Disabling and Enabling of Repositories

Motivation
- Handle target system maintenance
- Prerequisite for changing repository types

Functionality
- Manually enable/disable repository from the administration UI
- Visualization of repository state
- Maintaining provisioning operations while repository is disabled
Changing of Repository Types

Motivation
- Get benefit from a new functionality for specific target systems

Functionality
- Manually trigger the change for disabled repository
- Repository is renamed and kept for consistency
- Repository with the original name and the new repository type is created
- New and the old repositories should be enabled
- Optionally perform initial load for the new repository type
Summary

SAP Identity Management is part of a comprehensive SAP security suite that includes access control as well as secure programming and compliance aspects.

The solution covers the entire identity lifecycle and automation capabilities based on business processes.

A strong integration with SAP Access Control creates a holistic identity and access governance solution.

Extensive connectivity with SAP and non-SAP applications extends identity management to all areas of the enterprise.
Visit the SAP Community Network (SCN) for comprehensive information on SAP Identity Management, such as

- Discussion forum, product information, documentation, training, and support information
- Articles, blogs, WIKI, FAQs, and newsletters
- Downloads

http://scn.sap.com/community/idm
SAP Identity Management
Rapid deployment solution

Short project times and reduced TCO by simplifying assignment and management of roles and privileges to users

- Implementation of best practice processes out of the box with a fixed scope and most important and common scenarios, e.g. defined set of customer specific configuration, connection of source- and target-systems, provisioning etc
- Pre-configured functionality of SAP Identity Management in a development system
- Step-by-step guide, describing each activity during deployment
- Solution can be extended with additional add-on options

<table>
<thead>
<tr>
<th>Standard solution</th>
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<tbody>
<tr>
<td>Connection of 1 source- and 2 target systems</td>
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<tr>
<td>Automatic authorization assignment</td>
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<td>Approval workflows</td>
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<td>Mass user administration jobs</td>
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<tr>
<td>E-mail notification framework</td>
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<tr>
<td>Support of system specific attributes</td>
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<tr>
<td>Predefined HTML based reports</td>
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<tr>
<td>New Web UI tasks</td>
</tr>
</tbody>
</table>

| Add-On 1: |
| Connection to additional SAP systems |

| Add-On 2: |
| Additional Go-Live Support |
Appendix 1
Architecture
Components Overview
Identity Center Database

Core of the IDM product
Tables, views, stored procedures and triggers
Holds:
- Identity data (Identity Store)
- Configuration data:
  - Jobs, processes, forms, etc.
- Logs
- Audit data
- Delta information
- Status
- Scheduling
Runtime Components

**Dispatcher**
- Evaluates process workflow
- Starts runtime engine to execute tasks and jobs
- Housekeeping
- Runs as a service

**Runtime Engine**
- Responsible for doing the work
- Connects to external repositories and systems
- Runs on Java only
User Interfaces

End-user UI
Main interface for users and managers
• Web interface for registration and approvals
• Self-service interface
• Password reset
Based on Web Dynpro Java
Partially available on UI5

Administration UI
Monitoring and audit
Management of repositories and constants
Based on Web Dynpro Java

REST API
For custom-developed UIs
Developer Studio

Used for IDM configuration development

Eclipse Plugin – multi-platform support
- Runs where eclipse runs

Developers don’t know the DB credentials or encryption keys

Developer Studio REST service

Shared by multiple developers

Can connect to multiple IDM DBs

Not exposed for custom development
Other Components

**Virtual Directory Server (VDS)**
Provides a virtualized directory service information, offering LDAP support (when running standalone) and SPML support (when running on AS Java)
Can connect to various external systems
Use VDS to provide LDAP/SPML access to Identity Center database data

**Dispatcher Utility**
Supports management for dispatchers

**Keys.ini Utility**
Utility to manage encryption keys
Appendix 2
Reporting with SAP Business Warehouse
Reporting with SAP BW: Input Help

List of attributes can be extended/modified
### Person Details (State)

<table>
<thead>
<tr>
<th>Person</th>
<th>Person Display Name</th>
<th>E-Mail Address</th>
<th>Attribute Name</th>
<th>Attribute Value</th>
<th>Referenced Entry Type</th>
<th>Referenced Entry</th>
<th>Changed By</th>
<th>Change Information</th>
<th>Change Time</th>
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<tbody>
<tr>
<td>u1</td>
<td>Jackie Rees</td>
<td><a href="mailto:u1@demo.com">u1@demo.com</a></td>
<td>DISPLAYNAME</td>
<td>Jackie Rees</td>
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<tr>
<td></td>
<td></td>
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<td>MSKEYVALUE</td>
<td>u1</td>
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<td></td>
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<td></td>
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<td></td>
<td>MXREF_MX_ROLE</td>
<td>31147</td>
<td>MX_ROLE</td>
<td>Manager user</td>
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<td>MX_ADDRESS_COUNTRY</td>
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<td>MX_PRIVILEGE</td>
<td>MX_PRIV:VW:TAB_HISTORY</td>
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**Reference attributes:**
Show referenced entry’s type and MSKEYVALUE
Reporting With SAP BW: Person History
Reporting With SAP BW: Privilege Aggregations

### Systems with Their Privileges and Assigned Persons (State)

<table>
<thead>
<tr>
<th>System</th>
<th>Privilege Display Name</th>
<th>Person Display Name</th>
<th>E-Mail Address</th>
<th>Display Name</th>
<th>Changed By</th>
<th>Change Information</th>
<th>Change Time</th>
<th>Number of Assignments</th>
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<td>MS SQL</td>
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<td>SUN ONE</td>
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<td>GP Admin Group-Group (SUN ONE)</td>
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Number of assignments per privilege
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