# SAPERION ECM Suite

## Product Description, Version 7

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# 1 SAPERION ECM Suite

**SAPERION ECM Suite** is a high performance solution for every area of **Enterprise Content Management**. It provides essential functionality for handling all phases of document management, from capturing through processing to revision-proof archiving of data and documents.

SAPERION ECM Server is at the core of SAPERION ECM Suite and provides the multitude of services needed for higher-level aspects of a SAPERION solution, such as management of metadata, users, and documents.

In addition to SAPERION ECM Server, the following components are included in SAPERION ECM Suite:

+ SAPERION ECM Storage Plug-In (Level 1)
+ SAPERION ECM Rendering
+ SAPERION ECM Reporting & Auditing
+ SAPERION ECM EventScript
+ SAPERION ECM Full-Text Plug-In

The SAPERION ECM Suite simultaneously provides a platform that can be expanded at any time with additional components or solutions, such as e-mail archiving, Microsoft SharePoint integration, or SAP archiving.

# 2 Components of the SAPERION ECM Suite

## 2.1 SAPERION ECM Server

SAPERION ECM Server is the heart of a SAPERION ECM implementation. It provides a variety of services for all additional elements of a SAPERION solution.

Among other things, SAPERION ECM Server performs the following main tasks:

+ User management
+ Meta data administration and query management
+ Database communication and connection management

The **User Manager** in SAPERION ECM Server is a centralized tool for managing the rights of users, groups, profiles, access lists, and locations. Even in large networks, this tool is very easy to use. In order to facilitate straightforward administration of even larger organizational units, SAPERION ECM Server permits assignment of user rights, which are divided into access control lists (ACLs) and functional rights. The User Manager can be synchronized with existing directory services based on ADS DS (Microsoft) and LDAP.

The **metadata** (index data) of objects are administered in SQL databases. Use of SQL databases provides (in addition to familiar search queries) full-text search capabilities in stored objects as long as a suitable format filter is integrated. The format filter must be able to extract the text information from the respective object so this information can then be transferred to the full-text index. The search queries themselves respect the user's document access rights. Therefore, the results of the search will include only documents that the user is actually authorized to access.
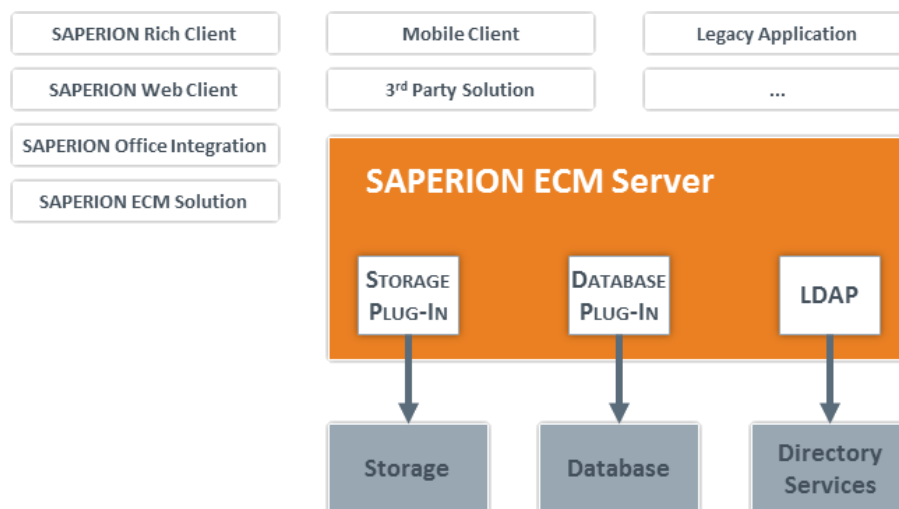
Figure 1: SAPERION ECM Server - High Level Architecture

SAPERION ECM Server offers a large variety of **storage connections**. Compliance stores such as EMC Centera, NetApp SnapLock, Hitachi Content Platform, IBM DR-550, or other storage subsystems like NAS or SAN Systems can be connected to the SAPERION ECM Server.

Mirroring mechanisms integrated into SAPERION ECM Server also allow time-optimized archiving on a variety of media. This permits **hierarchical storage management (HSM)** and ensures that archived documents can be accessed quickly without sacrificing legal compliance. This approach also ensures recoverability in the event of disaster.

By expanding the SAPERION ECM system with additional servers, the entire implementation's uptime can be boosted through **load distribution** and **failover** strategies.

A plug-in in the Microsoft Management Console (MMC) provides **centralized configuration** and **monitoring** of the SAPERION ECM Server.
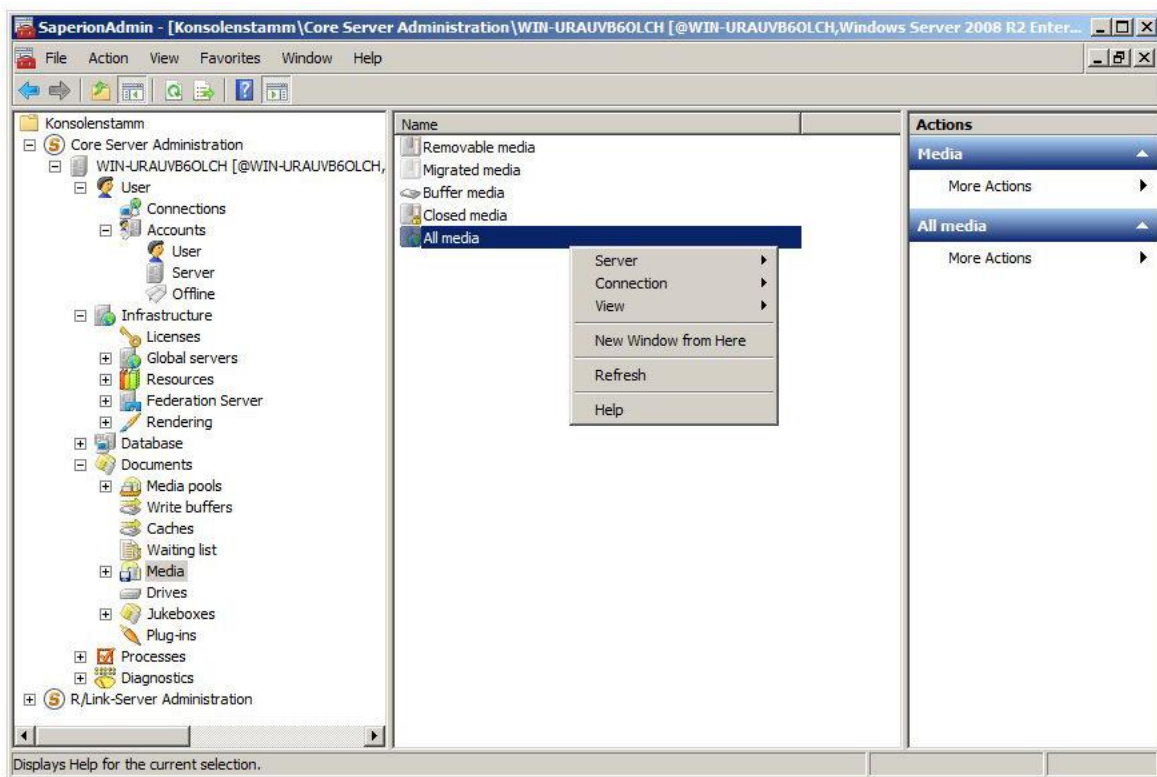


**Figure 2: SAPERION ECM Server - Centralized configuration via MMC**

## Integration and expandability

SAPERION ECM Server can be quickly and easily integrated into existing system landscapes. Interoperability, platform independence, and Service Oriented Architectures (SOA) are based on a variety of programming languages and integrations. This is where SAPERION comes into play with the integration capabilities of SAPERION ECM Server.

In addition to **Java Connectors**, SAPERION ECM Server also supports **Web Services** for integrating other programming languages like .NET, PHP, and others. SAPERION will continue to the support Microsoft COM interface to ensure long-term compatibility.

The integration capabilities of SAPERION ECM Server permit realization of the following objectives, among others:

+ Integration of SAPERION ECM into Service-Oriented Architectures
+ Augmentation of portal-based applications with ECM aspects
+ Standardized, enterprise-wide access to content in the ECM system
+ Preservation of platform independence
+ Creation of proprietary interface-based clients

Integration interfaces facilitate straightforward connections to the SAPERION ECM backend (SAPERION ECM Server). This is a lean interface solution that also permits straightforward connection of existing applications and legacy systems. The integration interface acts as a Java Gateway through which SAPERION kernel functionality can be addressed. SAPERION ECM Server provides two different options for using the integration interface from within a variety of environments:

+ **Java Classes**, provided in a library and accessible through any Java-based client;
+ **Web Services**, which also enable connection of .NET, PHP, and other environments.

**SAPERION Business Rule Server** (BRS) is yet another option with which the SAPERION ECM System can be expanded to meet individualized requirements. The Business Rules Server is a **Java-based application** that provides for regular execution of automated tasks, including within a workflow. Business Rules Server provides a **framework** that helps integrate **business logic** in the form of **Java classes** or **Web Services** into the execution of business processes. The business rules server automatically checks at regular intervals (configurable) whether any tasks are ready for execution. If any are found, they are executed with the aid of integrated Java classes.

## 2.2 SAPERION ECM Storage plug-in

A variety of storage plug-ins are available for SAPERION ECM systems. The choice of plug-in depends on the storage subsystem that is used. The SAPERION ECM storage plug-ins listed below are available for various "levels" of storage and differ only in the volume of manageable storage.

+ Level 1: up to 1 TB
+ Level 2: up to 5 TB
+ Level 3: up to 10 TB
+ Level 4: unlimited storage volume

### SAPERION ECM Storage Plug-In for EMC Centera

ECM Centera is specially designed for long-term, fixed content. Centera generates a hash value, also known as a "digital fingerprint", for every saved file. The SAPERION ECM storage plug-in for EMC Centera uses this content address (hash value) to manage and address the documents.

In addition to the ability to set what is known as a "retention date" (when Centera is configured properly), the plug-in also provides disaster recovery capabilities.

### SAPERION ECM Storage Plug-In for NetApp

SAPERION ECM Storage Plug-In for NetApp supports NetApp SnapLock functionality so that a document retention period can be defined through SAPERION ECM and NetApp. The plug-in uses normal network protocols (either CIFS for Windows or NFS for UNIX) to communicate with the hardware, so this must be taken into consideration when configuring NetApp (software licenses).

Some providers (EMC, FAST LTA, GRAU, iTernity) offer a SnapLock-compatible mechanism with their respective products. These storage backends usually work smoothly with the NetApp plug-in from SAPERION. Please refer to the compatibility list if experiencing problems or if additional information is required.

### SAPERION ECM Storage Plug-In for IBM DR550

SAPERION ECM Storage Plug-In for IBM DR550 enables access to IBM Tivoli Storage Manager for Data Retention/DR550. Tivoli Storage Manager for Data Retention is part of the IBM Storage Family. The advantage of using it with SAPERION ECM is that Tivoli Storage Manager enables a transparent connection to both tape-based storage mechanisms and to hard-drive-based installations. When comparing the SAPERION ECM system to other archive solutions, it is important to stress that its highly granular access to archived information objects greatly reduces the risk of problems in the tape operation (such as delays caused by access collisions). Nevertheless, it is strongly advised to take stock of the objects that will be archived, their quantities, and the access patterns. Accordingly, it is recommended to consult with Professional Services employees from IBM and SAPERION during or after configuration and startup.

### SAPERION ECM Storage Plug-In for Generic NAS

This plug-in allows connection of common SAN and NAS products in addition to storage media with file-system emulation, such as tapes, through corresponding emulation software.

## 2.3   SAPERION ECM Rendering

The SAPERION ECM Rendering module facilitates conversion of application files (such as Microsoft Office files) into other formats (like images or PDFs, including PDF/A) as well as archiving of those files.

**SAPERION ECM Rendering** can run on the **server side** for centralized generation of document renditions. This is particularly useful when rules for automated rendering shall be defined.

Alternatively, the rendering process can run **locally on the clients**. In this case, output runs through a special printer driver. As a result, even applications without direct SAPERION ECM integration can take advantage of SAPERION ECM functions. Local rendering of documents requires merely starting a SAPERION ECM rich client on the relevant workstation.

When needed, it is even possible to generate **combinations of several formats**. For example, a Microsoft Office file (*.doc, *.docx) can be archived as a structured SAPERION document with each page as a separate image file (single-page TIFF, for example), a PDF document with all pages together (multi-page), and the original Word document.
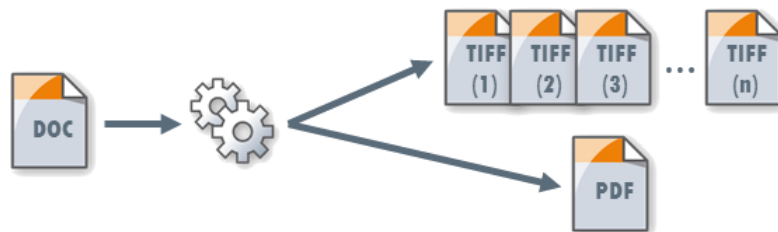
**Figure 3: SAPERION ECM Rendering - Combining multiple formats**

The configuration even allows the user to define whether the original document shall be archived together with one or the other rendered versions. All documents are archived in a document container known as a **"structured document"**. This ensures that the context between the original documents and the rendered versions remains intact.
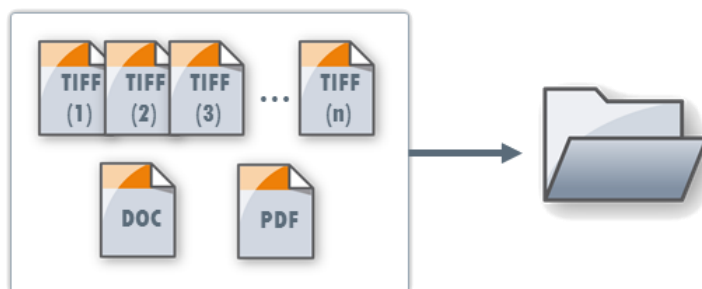
**Figure 4: SAPERION ECM Rendering - Archiving into a SAPERION structured document**

No additional programs (such as Acrobat Distiller) are required to generate PDF documents because an integrated PDF printer driver is already included.

When considering deployment of the SAPERION ECM Rendering module, it is important to consider that generation/rendering of complex or password-protected documents may require additional services and may not be suitable for automation.

## 2.4 SAPERION ECM Reporting & Auditing

The SAPERION ECM Reporting & Auditing module provides for continuous monitoring of system events that occur while SAPERION ECM is in use. In addition, integrated quality assurance can also monitor proper saving of archived documents. At the same time, system events are saved in the protocol tables and administered in SAPERION ECM just like other database tables. This module gives the system administrator a comprehensive tool for providing support, tracking errors, and producing documentation in order to fulfill compliance requirements.

## 2.5 SAPERION ECM EventScript

SAPERION ECM EventScript allows the use of BASIC macros for adaptation of the SAPERION ECM system. The component lets you create high-performance macros and routines and use them to insert or influence application-specific procedures in SAPERION. For example, you can integrate into SAPERION ECM environments complex document transfers or convenient interfaces to other applications.

The SAPERION ECM Server's Java-based API is an alternative to programming service tasks with VBScript.

## 2.6 SAPERION ECM Full-Text Plug-In

The SAPERION ECM Full-Text Plug-In enables integration of search functionality using full-text searches, such as dtSearch, MS SQL Server with full-text, or Oracle with full-text). The plug-in enables combined searching via a SAPERION ECM application's index criteria and the previously exported full document text. To the extent supported by the full-text application, search results can be delivered and presented to the user with attributes like relevance. The relevant database components must be activated in order to utilize full-text search.

# 3 Optional SAPERION ECM modules & extensions

## 3.1 SAPERION ECM Records Management

**Records Management** refers to the process of identifying, classifying, archiving, preserving, and destroying written information. Records Management is a primarily organizational task for ensuring compliance with policies that describe proper methods of retaining and destroying all types of business-related information (records).

This includes both paper-based as well as electronic objects. Electronic formats include unstructured documents stored on a hard drive, e-mails, rows of data in a database table, and many other formats. The most important property of a record is its **immutability during retention and use**. This extends from the time it is created or captured until it is destroyed or transferred to another system, such as a national archive. Policies that stipulate which documents and information must be retained, how long they must be retained, or when they must be destroyed are determined individually for each company upon the basis of **internal and/or external regulations** set forth in contracts, laws, and directives. Policies differ among countries but also among industries. Examples of material that must be retained (without revisions) for a specific length of time are paper-based documents or e-mails that have business and/or tax relevance, including quotations/proposals, orders, contracts, invoices, or delivery certificates. Objects that must be destroyed are subject to data protection stipulations. These contain primarily personal information and include job application forms, employee reviews, or insurance documents.

This places records management within the context of **compliance**. Records management is growing in importance, particularly as an increasing number of violations of business and privacy rules are made public. Companies must view records management as a permanent and ongoing task. Internal and external regulations regarding these matters continue to evolve. At the same time, new applications are introduced and old technologies are replaced. As a result, internal corporate processes must be adapted as the document management environment changes.

The standard version of SAPERION ECM Suite offers a variety of document management functions, including revision-proof filing, security features to ensure that information is displayed only to authorized persons, and secure deletion, including a recycle bin function.

The **SAPERION ECM Records Management** module augments the basis functionality of SAPERION ECM Suite in order to enable implementation of **retention directives** in the SAPERION ECM system. This works by assigning documents to "**content types**" like "invoices" or "contracts", which expands general access authorizations (Access Control Lists or ACL) by defining the "**retention class**" to which the document or content type belongs. The retention class then defines the **retention period**, among other things. This defines when a document may actually be physically deleted from the archive. The retention period may be defined in advance, such as "seven years after archiving" or it may be triggered by an event, such as "five years after processing is complete". SAPERION ECM Server forwards the selected retention periods to the storage subsystem, ensuring that the hardware also respects the retention periods (depends on the actual storage system; refer to the compatibility list for supported systems).

The **SAPERION ECM Records Management** module supplements the basis functionality of SAPE-RION ECM Suite with the following capabilities:

+ **Policy Management** features for records managers
+ Categorization of document lifecycles into **fixed and event-based retention**
+ **e-discovery** and **deletion blocks** during a legal dispute
+ Restoration or secure, manual deletion with the recycle bin function
+ Automated deletion and destruction
+ Log table entries provide an audit trail
+ Administration of even paper-based documents*
+ Administration of records in external systems*

*project-based custom features

## 3.2 SAPERION ECM Workflow Extension

**SAPERION ECM Workflow Extension** enables expansion of the SAPERION ECM system to a complete **business process management suite**. Structured, complex business processes are modeled graphically and executed according to the models. The system logs all actions taken during process execution. This data is then available for statistical analysis and process optimizations as well as for documentation of compliance requirements.

**SAPERION ECM Workflow Engine** controls all functions related to completion of business processes. Typical functions include forwarding of a business case from one activity to the next, including role-based task distribution and deputy rules. SAPERION ECM Workflow Server checks deadlines and initiates an escalation if deadlines are exceeded. If a reminder has been reached, it resubmits the business event back to the associated user. Structured processes are configured with the aid of an integrated **graphical process designer** that is designed for use by people without programming knowledge. Ad hoc workflows, on the other hand, are easily configured through the use of a **Wizard**. From the user's perspective, the **workflow inbox** is the central element for completing processes. It functions like a control center from which he or she can work through objects and tasks in the task list.
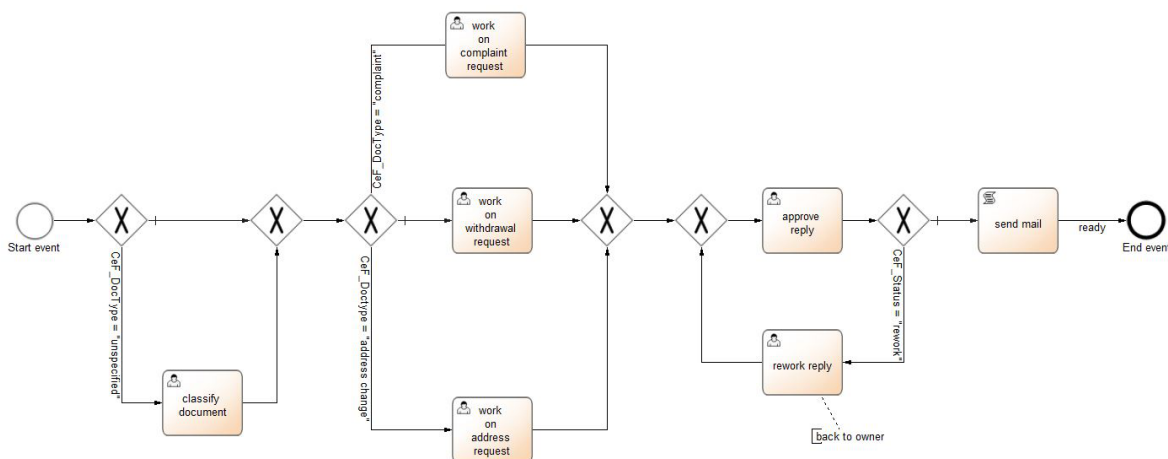


**Figure 5: Process mapping with the SAPERION ECM Workflow extension**

The SAPERION workflow environment can be expanded yet further. For example, a **Business Rule Engine** like JBoss Drools or IBM iLog (based on the **JSR 94** industry standard) can be integrated through the SAPERION Business Rule Server. Additional services, like those available through a Web Services interface, may also be integrated into the processes with the SAPERION Business Rule Server.

Other optional components (based on the **BPMN 2.0 standard**) provide tools for collaborative graphical modeling, documentation, and analysis of business processes (see **SAPERION ECM Process Modeler powered by Signavio).**

## 3.3  SAPERION ECM COLD Converter

**SAPERION ECM COLD Converter** makes it easy to transfer lists and documents from external systems. This data typically originates from business applications (financial accounting, inventory management, etc.) running on a variety of machines (PCs, mainframes) and is prepared for line-by-line printing on suitable printers. For this reason, it is also referred to as **COLD** (Computer Output on Laser Disk). A typical application would be printing of outgoing documents on special forms.

Analysis, interpretation, and importing of print data is client-based with the **SAPERION ECM COLD Converter**. With the "**Visual Greybar Interface**", ANSII/ASCII and EBCDIC formats and data may be processed. A variety of background pages may be configured for each archived COLD document (first page, subsequent pages, final page). The Configuration Editor in the SAPERION ECM COLD Converter has a graphical interface. Defining index fields on the print output forms is easy to do by simply pulling gray bars over the selections.

SAPERION ECM COLD Converter is available for Windows clients. Transfer of print data is highly flexible and permits not only fully automated archiving of COLD documents, but also the ability to display and print those documents in **true-to-original format** in a special text editor module of the **SAPERION Multiformat Viewer**. COLD documents require only a small amount of memory (approximately 2 KB/page) because the separately archived form pages are stored only as reference. Displaying the documents in print layout also facilitates rapid and efficient handling of archived print data.

## 3.4   SAPERION ECM Importer

Every ECM project must address the question of how new or existing information and documents will get into the system. **SAPERION ECM Importer** provides straightforward and reliable methods, especially for large quantities of information.

**SAPERION Universal Importer** serves bulk importing of documents, together with their index data. It converts application and image data with accompanying index information (including Unicode) into CSF or XML files and provides a great deal of flexibility in this area. For example, users with special requirements can specify proprietary formats with a plug-in interface. **SAPERI-ON Universal Importer** typically monitors a defined directory for newly added files so these files can then be archived in the SAPERION ECM system. Documents and index data are archiving synchronously, with documents and corresponding index values written to the archive simultaneously. **SAPERION Universal Importer** is characterized by its extensive configuration options. For example, the user can define in detail how to handle documents after importing or how to treat duplicates during the import process. Additionally, an open framework makes it possible to adapt SAPERION Universal Importer to individualized requirements.

SAPERION Universal Importer includes a comprehensive logging mechanism that ensures the security and/or traceability of data imports.

**When required by specific projects**, an **asynchronous import tool** may also be used. In this case, first document objects are imported into the SAPERION ECM archive. In the next step, index values are written to the search database. This approach is especially well suited to importing **very high volumes of time-critical documents**.

## 3.5   SAPERION ECM OCR/Barcode Plug-In

The SAPERION ECM OCR/Barcode Plug-In facilitates **integration of ABBYY FineReader** for recognizing text or barcodes. Barcodes can then be extracted automatically from scanned documents. The extracted data is assigned to the scanned document as an index value. The document can then be researched by this information. Similarly, ABBYY FineReader allows full-text recognition of a scanned document. The information obtained in this way (the text) can also be assigned to the scanned document as an index field. As a result, it is possible to perform a full-text search of the data store, including scanned documents.

The ABBYY FineReader OCR component must be licensed separately and is available as a runtime license upon request.

## 3.6 SAPERION ECM Security Plug-In

The SAPERION ECM Security Plug-In contains functions for **encrypting and signing documents**. Users with elevated requirements for data security can also archive documents in encrypted format. Components available through the **Microsoft Crypto API** can be used. When signature applications from **AuthentiDate** or **secrypt** are integrated, documents can be signed in accordance with laws regulating electronic signatures, thereby converting formerly paper-based workflows into purely electronic processes. The signing and verification steps can also be automated or executed in batches.

An **LTANS-compliant process of hash tree formation** is available to ensure the evidentiary value of qualified signed documents over a longer period of time. The product **digiSeal archive** from secrypt is required to provide this functionality. When an encryption algorithm is categorized as "weak", it is not necessary to renew every single signature.

The respective signature components from each partner must be licensed separately and are available upon request.

## 3.7 SAPERION ECM Multi-tenant capability

SAPERION can be operated as a **multi-tenant system**. In these cases, unstructured data ("content objects" such as images, text documents, or other files) as well as structured data (index data) for each tenant are **archived and managed separately from each other**.

The SAPERION ECM system can be configured centrally (whereby configuration is identical for all tenants) or individually for each tenant. Configuration includes things like definition of individualized repository structures, dialog windows, and custom adaptations (macros). Separate administrators can be defined for each tenant.

In addition to physically separating the various tenants' data, this makes it easy to export or import a tenant.

# Table of figures

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