OpenText Extended ECM for SAP Solutions eBook

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Based on OpenText Extended ECM for SAP Solutions 10.0
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Abstract

This eBook will introduce you to OpenText Extended ECM for SAP Solutions (Extended ECM). Extended ECM is a comprehensive content management solution that integrates seamlessly into SAP® business processes, which provides the unstructured content for its business context. The product includes a complete set of Enterprise Content Management (ECM) capabilities such as Document Management, Records Management, Capturing, Archiving, Workflow, and Collaboration. Thus customers can manage the complete lifecycle of content, from creation, to sharing and approvals, publication, search archiving, retention and destruction – all within the context of the business process. With Extended ECM, you can access enterprise content via SAP interfaces, apply records management controls to SAP content, mitigate risk by maintaining content integrity, reduce the total cost of ownership (TCO) of your IT environment by optimizing hardware requirements and improving performance, and maximize the return on investment (ROI) of your SAP investments.

This eBook describes in detail the functional components of Extended ECM:

- Document Management
- Capturing
- Records Management
- Archiving
- Document-Centric Workflow
- Collaboration
- Content Access

Disclaimer

This eBook does not replace any official documentation shipped with the Extended ECM product. In case of doubt or ambiguity about functionality and provided capabilities it is always the official documentation (Release Notes and product manuals) that are the definite source of information.
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How to Read This Document

This document is organized around the seven core capabilities of Extended ECM, which are all described in a self-contained chapter:

1. **Document Management** (starting on page 28)
2. **Capture** (starting on page 101)
3. **Records Management** (starting on page 109)
4. **Archiving** (starting on page 132)
5. **Content-Centric Workflow** (starting on page 143)
6. **Collaboration** (starting on page 153)
7. **Content Access** (starting on page 164)

The ordering of chapters follows a logical sequence making sure all concepts and notions used in a chapter have been introduced in a preceding chapter. But you can also select single chapters to deep-dive into certain areas of Extended ECM. This document references other chapters wherever necessary.

Depending on the intention and knowledge of the reader, there are different ways to read this document.

1. Read the full eBook from page 1 to 249 to get the complete overview on all Extended ECM capabilities and integration points between SAP and ECM.

2. Readers who want to get insight in the Extended ECM capabilities with limited experience in ECM may prefer the following sequence:
   - Read *Introduction to Extended ECM* on page 18 to understand the main value propositions of Extended ECM.
   - Read Key Concepts of Extended ECM on page 23 to understand the most important concepts of Extended ECM.
   - Read the *Document Management* chapter starting on page 28. Document Management is the most fundamental capability of Extended ECM.
   - Read the *Content Access* chapter starting on page 164. It explains how users get access to content working inside or outside of SAP applications.

3. Readers who want to focus on the integration points between SAP and ECM and already have a good understanding of ECM may use this sequence:
   - Optional: Read *Introduction to Extended ECM* on page 18 to understand the main value propositions of Extended ECM.
   - Read Key Concepts of Extended ECM on page 23 to understand the most important concepts of Extended ECM.
   - To drill deeper into the concepts read the sections Content Workspaces – Connection to SAP Business Objects on page 36, Link Content to SAP – Business References on page 65, and Access control using Policies on page 91.
   - Read the section *Integration Points between ECM and SAP* in each chapter. They are always the last section in each chapter.
   - Read the *Content Access* chapter starting on page 164. It explains how users get access to content working inside or outside of SAP applications.
4. Readers primarily interested in Governance, Risk, and Compliance topics may find this sequence helpful:
   - Optional: Read Introduction to Extended ECM on page 18 to understand the main value propositions of Extended ECM.
   - Read Key Concepts of Extended ECM on page 23 to understand the most important concepts of Extended ECM.
   - Optional: Read the Document Management chapter starting on page 28. Focus on Content Metadata, Documents, Taxonomic Classification, and Controlling and Monitoring Content.
   - Read the Records Management Chapter starting on page 109.
   - Optional: Read the Archiving chapter starting on page 132 to better understand how Records Management is integrated with Archiving and how both can be used to build “intelligent storage management” in an Enterprise Library).
   - Read the Content Access chapter starting on page 164.

5. Readers interested in learning how to setup an Extended ECM scenario step by step should read section Extended ECM Configuration starting on page 206.

6. Readers interested in some examples of how Extended ECM could be used for different business processes may be interested to read section Extended ECM Example Scenarios on page 186.

7. Readers primarily interested in the technical infrastructure of the ECM platform should read the section Architectural Overview starting on page 233.

8. Readers who want to see a list of the components included in Extended ECM are referred to the appendix “List of Components” on page 235.
Introduction to Extended ECM

Structured and Unstructured Content

Most companies and government agencies today have invested in enterprise applications, such as enterprise resource planning (ERP), customer relationship management (CRM), and supply chain management (SCM) to standardize their core business processes such as customer relations, enterprise asset management, accounting, and supply chain management. They excel at managing highly structured, transactional information or numerical data such as addresses, customer numbers, and order numbers used in business processes.

However, enterprise applications such as ERP and CRM ignore the fact that many processes are triggered by, include, and generate unstructured content such as email, technical documentation, contracts, photos, résumés, product specifications, and much more. As a consequence many organizations have adopted Enterprise Content Management (ECM) applications to coordinate and control that content. ECM applications offer numerous services to help users create, collaborate on, share, store, archive, and eventually destroy this content.

Until now, however, the worlds of structured business processes and unstructured content have existed in isolation from one another. Organizations of all sizes frequently find that this can cause critical problems. In almost every customer or partner-facing process, extensive unstructured information is exchanged. At the moment it arrives or is created, its author and recipient understand its full context, and thus its importance. But soon that memory fades, and the content, stored haphazardly on desktops, shared drives, or standalone applications, is effectively lost to the organization. Even if an individual recollects its existence and location, there is no connection maintained between the content itself and the context of the business process that made it relevant in the first place. Employees spend inordinate amounts of time searching for misplaced content or recreating it entirely; the lack of authoritative information relating to a business process is one of the greatest sources of legal risk facing large companies today.

Analysts estimate that approximately 90% of all information exists in an unstructured format and continues to grow. The unstructured information continues to elude companies. Failing to integrate content into core business procedures, such as plant maintenance, accounts payable, or purchasing, for example, translates into labor-intensive processes, higher costs, and reduced customer service.

Content Silos

Other factors compound this situation, such as business documents that are geographically distributed in different sites or are technically distributed in different repositories or applications. Historical data and documents need to be retained too. Regulations require compliant storage of data and documents beyond operational use.

All this results in a severe disconnect between structured data and unstructured content and siloed departments or applications. It’s nearly impossible to get a sound overview on all of the important content that exists for a business object; such as customer, vendor, or contract (see Figure 1).
Content-Enriched Business Processes

There is one basic rule for each and every organization worldwide, independent of its location, industry or size: all activities within a business are driven by business processes. Business processes play a vital role in measuring, recording, and documenting a vast array of activities across an organization. They are responsible for the development and execution of key strategies including the budget, cash flow, and procurement to name a few. They influence decision making, such as decisions to pursue new directions or develop new products. Accurate preparation of financial reports and the protection of shareholder value are directly impacted by the quality and the execution of business processes. This makes business processes key to ensuring business efficiency, cost control, and legal compliance across the organization.

But in most organizations the core business processes are managed independent of vast majority of the unstructured content. In fact content management has been established as a separate discipline existing in parallel to process management. Content-enriched business processes want to overcome this old paradigm as shown in Figure 2.
To overcome disconnection between structured processes and unstructured content, Extended ECM brings Enterprise Content Management into the SAP Business Suite, such as the SAP ERP, CRM, SCM, SRM, PLM, HCM, and GRC applications. Extended ECM thus enables the management of unstructured content in the context of the SAP processes, transactions and business objects (see Figure 3).

Content-enriched business processes offer a wide variety of benefits compared to traditional ECM solutions:

- Content is easily accessible across the enterprise. Although access rights still apply, this solution gives SAP users a 360-degree visibility into any and all content associated with transactions. Users of SAP software can attach unstructured documents and entire ECM workspaces to transactions in SAP applications, and no longer have to log into multiple applications to find information.

- Users of non-SAP applications (such as Microsoft Office®, Microsoft Outlook®, Web, or an enterprise portal) can be given access to SAP information or content associated with the SAP business objects allowing them to leverage SAP content without extensive training.

- Transactional metadata from SAP can be associated with each piece of managed content, which means that users can always determine which process the item is connected to. For example, content like photographs from an industrial accident, an invoice, a quote, or a contract are all clearly associated with a business process and transaction so that users can figure out whether or not they are important.

- With Extended ECM, content in the ECM platform is connected to SAP enterprise applications, eliminating the need for multiple disconnected repositories and simplifying the IT landscape.

- By integrating records management from the ECM solution, organizations can ensure that relevant documents are retained for the right amount of time.

**Figure 3**

Content-Enriched Business Processes

![Content-Enriched Business Processes Diagram](image-url)
– ensuring regulatory compliance and reducing legal risk. This applies for content stored inside and outside SAP.

Components of Extended ECM

Extended ECM is designed to help organizations reduce the amount of time and effort spent managing, organizing, and sharing information across business processes. With its underlying secure and centrally managed OpenText Enterprise Library, Extended ECM enables the storage, control, and retrieval of any type of electronic and physical content so that you can deliver the right information, to the right person, at the right time – every time.

Extended ECM addresses the fundamental building blocks of an ECM strategy: document management (version control, access control, and approvals), capturing, records management (for the full lifecycle of both electronic and physical records), document-centric workflow, archiving (for access to archived information across any storage medium), collaboration, and content access. It is deeply integrated into the SAP Business Suite on the one side and into the mainstream content-authoring applications on the desktop, such as Microsoft® Windows® and Microsoft Office®. These integrated components allow an organization to implement true end-to-end content management solutions to empower business users, increase the business agility, and reduce the costs and risks involved in content processing.

Extended ECM includes the following seven core Enterprise Content Management capabilities (see Figure 4):

- **Document Management** (see page 28)

  The Document Management component is the core of Extended ECM. It allows managing content of all types and formats (i.e., office applications, emails, graphics, CAD drawings, images, and renditions). Check-in/check-out, version control for simple and compound documents, audit trails, comprehensive search, user, group, and role-based access controls are some of the most notable functions.

  It also includes a flexible and powerful metadata categorization to enrich content by structured data in order to create custom properties, control
document status, and support content search and retrieval. The classifications of content allows for the definition of role-based information taxonomies and business information views.

- **Capture** (see page 101)
  This component supports a wide range of document capture and review scenarios for high and low-volume requirements. Integrated with the workflow component, organizations can use barcodes and automated metadata collection and categorization to streamline the capture process and ensure valuable content is properly stored and organized in context with related electronic content.

- **Records Management** (see page 109)
  Records Management ensures that electronic or physical content is under a formal program that provides consistent control and lifecycle management rules. This includes capabilities to define content retention policies in addition to formalizing the procedures to classify (ensuring appropriate metadata), retain, destroy, and/or archive the records of an organization.

- **Archiving** (see page 132)
  The archiving component is often referred to as Enterprise Archiving as it provides the capability to do SAP data and document archiving combined with traditional ECM archiving. It can also be leveraged to implement an intelligent storage management to drive decisions on content storage media from the ECM application level. Based on rules defined in Extended ECM, the appropriate storage medium is selected on the fly without user interaction.

- **Content-Centric Workflow** (see page 143)
  The workflow component allows both structured and ad-hoc routing of documents for a variety of document automation processes like approval, review, and feedback to control every aspect of the document lifecycle.

- **Collaboration** (see page 153)
  Business processes can run across departments, divisions, regions, and even between different organizations, outside its boundaries. Extended ECM allows organizations to include all appropriate stakeholders, both within and outside of the organization, in collaborative processes while still within the context of the business process.

- **Content Access** (see page 164)
  The Content Access component provides users with the flexibility to access content from different sources from their preferred user interfaces and according to their job function (i.e., SAP GUI, SAP Portal, SAP Business Client, SAP WebDynpro-based clients (such as SAP CRM and SAP SRM), Microsoft Office® and the Microsoft Windows® desktop, and within the native web user interface of Extended ECM. Thus, giving users a 360-degree, single and secure view of all the content belonging to processes or business objects such as customer, vendors, products, or projects.

Each of these seven components is described in detail in the following chapters. At the end of each chapter a section called **Integration Points Between SAP and ECM** summarizes how the ECM capabilities can work with SAP applications and what integrations are possible. A detailed list of all components included in Extended ECM can be found in “List of Components” on page 235.
Key Concepts of Extended ECM

Workspaces

One of the key concepts of Extended ECM is called a workspace. A workspace contains all content relevant for a specific business process or a business object such as a customer, vendor, material or product. A workspace gives users a 360° view on the content related to an SAP business object and provides a full range of ECM capabilities to manage this content.

But a workspace is not just dealing with unstructured content – it also includes business data synchronized with SAP to give the content its context and provides collaborative capabilities such as tasks, workflows, follow-ups and activity feeds. On the other side the workspace is also deeply embedded into the SAP business suite such that SAP users working in transactions have all relevant content at their fingertips.

In a workspace the former divided worlds of structured data and unstructured content are united – underpinned with content lifecycle management such as archiving and records management.

Figure 5 shows the relationship between a workspace and an SAP business object.

Figure 5 Workspaces for content-enriched business processes

Workspaces are deeply integrated with the leading SAP applications.Outlined below are some capabilities of these workspaces:

- **Automatic Workspace Creation**
  Workspaces can automatically be created and updated when a corresponding SAP business object is created or updated. For example, if customers are managed in SAP ERP or CRM a customer workspace can
automatically be created by Extended ECM once a customer is created or updated in SAP.

- **Event-driven Data Synchronization**

  If SAP data such as customer data is changed in SAP this data is automatically synchronized with the metadata in Extended ECM. This happens instantaneously so there’s no time delay between data updates in SAP and the visibility of the updated data in the ECM system. Extended ECM hooks into the event system of SAP to achieve this. Based on this data content can be classified, categorized, searched or put under records management control.

- **Standardized Content Structures following SAP structures**

  Where traditional ECM system are mainly dealing with static folder structures that are hard to create and maintain in a consistent way Extended ECM allows the reuse of SAP information to create required content structures on-the-fly. Every business structure standardized in SAP by the organization such as customer hierarchies, project structures, plant maintenance locations or bill of materials can be reused to create corresponding content structures inside the workspaces of Extended ECM. The workspaces themselves are based on centrally managed templates. Based on information in SAP the right template gets selected automatically, e.g. a material workspace integrated with SAP Material Management (MM) can have a completely different structure based on the type of material.

- **360° view on all relevant Content**

  Workspaces bring together content from different applications and sources such as SAP ArchiveLink documents, Microsoft Office® documents, e-mails or images. Users don’t have to think about which application creates or manages the content – it will always be in the workspace connected to the SAP business object and available in the most convenient user interface for the multiple users involved in the business process.

- **Reusing SAP Roles and Authorizations**

  Managing permissions and authorizations can be a very labor-intensive task in an ECM system and contributes substantially to the Total Cost of Ownership (TCO) of such a system.

  Where ever organizations have already standardized access control inside their SAP system Extended ECM can leverage this investment and apply it to the ECM world. This means for example that an user granted access to customer data can automatically get access to the corresponding customer workspace – without any additional administrative effort in the ECM system.

- **Building Business Relationships between Workspaces**

  Once workspaces for different business objects like customers, sales orders and materials are managed by Extended ECM you can also reuse the business relationships SAP maintains between these items (e.g. sales orders are related to a customer and are also related to one or many products / materials sold). Extended ECM automatically maintains a browsable relationship to let users easily navigate from one workspace to a related workspace.

- **Integrated Content Lifecycle Management**

  All content managed inside workspaces – independent if ArchiveLink documents, office documents or e-mail can be controlled using Extended
ECM’s content lifecycle management using the same set of retention rules. Extended ECM includes Records Management with DoD 5015.2 certification.

**Business Relationships**

Customers standardizing their business processes with SAP can build on the SAP business suite to model their business processes. SAP provides a rich set of business logic around business objects like materials, vendors, customers, logistics and material management (to just name a few). In an ERP system, like SAP, these business objects are related to each other, e.g. a sales order belongs to a customer and a purchase order belongs to a vendor, materials are supplied by vendors, products are shipped to customers, projects may be carried out for customers and materials are used in plant maintenance. In SAP all business objects have a relationship to other business objects.

Figure 6 illustrates a simplified business model for a company running processes in SAP. Business objects like Materials, Products, Projects, Supplier, Customer and Plants & Assets are areas that many customers have standardized in SAP solutions.

As described in the section “Workspaces” (see page 29), Extended ECM is able to create and manage workspaces synchronized with single SAP business objects. Extended ECM also provides a concept called **Business Relationships** to reuse the SAP business logic to establish the same kind of relationship between workspaces that SAP maintains between the corresponding business objects and making it available inside ECM. Users can easily navigate from a vendor workspace to related material workspaces and from material workspaces to equipment workspaces used for plant maintenance processes. This brings unprecedented business insight and powerful navigation to SAP and more importantly ECM users working outside the transactional SAP applications.

The Business Relationships provided by Extended ECM are completely derived from SAP’s data so there’s no additional effort required in the ECM system to create and maintain it. It is always up-to-date.
Business References

Business References are another key concept of Extended ECM. They allow to link existing content (such as documents, folders or e-mails) to one or many SAP business objects. This way content managed in Extended ECM can be attached to a business process in SAP. Business References are typically used for scenarios where only a few documents are required for a process. In some instances using an Extended ECM workspace may be inappropriate. Another use case for Business References is to link documents to multiple SAP business processes or to link a document managed inside a workspace to another business object to expose it to a different process or a different user group.

Extended ECM provides powerful capabilities to create and maintain business references:

1. Each piece of content (such as a document or folder) can be linked to any number of SAP business objects (even in different SAP systems)
2. A Business Reference can automatically be created based on ECM metadata changes or ECM workflow capabilities.
3. By establishing a Business Reference SAP data can be synchronized to the metadata of the document.
4. Documents linked by Business References can be accessed directly inside SAP transactions.

More details on Business References can be found in section “Link Content to SAP – Business References” on page 65.

Policies

SAP authorization is typically based on SAP roles and SAP authorization profiles. The SAP authorization profile is part of the SAP role definition and restricts the access of users to transactions and objects.

Extended ECM allows mapping SAP authorization profiles to Policies in the ECM system to ensure that only authorized users have access to workspaces. This way SAP roles and authorization profiles can be reused to govern access also to unstructured content in the ECM system. These policies apply in addition to permission management in the ECM system.

More details on Policies can be found in section “Access control using Policies” on page 91.

Template Management

The way users work with content in a workspace managed by Extended ECM, is typically more strict and controlled than in a collaborative document-management scenario. The creation of content is governed by predefined procedures or triggered by SAP. In many cases a workspace is automatically created if a corresponding business object is created in SAP.

In Extended ECM all types of content can be created based on centrally managed templates – this applies for single documents or complete workspaces. Template management is built on a comprehensive concept which allows to automatically deriving the fitting workspace template or document template based on the type of the SAP business object. For a single type of business object like customer multiple customer workspace templates can be provided. Based on SAP data (such as sales revenue, industry or sales organization of the customer) the right customer workspace template can automatically be selected.
More details on Template Management can be found in section “Workspace Templates” on page 44.

Manage and Control ArchiveLink Documents

Many SAP-driven processes heavily rely on documents and other unstructured content. One of the most important standards of attaching documents to transactions in SAP is ArchiveLink. Many ArchiveLink documents are created inside SAP for incoming and outgoing documents such as scanned invoices, sales orders, and supplier forms. A characteristic of an ArchiveLink document is its “final status”, i.e. it is in many cases in an unalterable format such as PDF or TIFF.

Extended ECM provides capabilities to manage the full lifecycle of the content, i.e. it also deals with “living documents” that may have versions, comments, user updates and a rich set of metadata.

Though there is an intrinsic difference between ArchiveLink documents and living ECM documents, end users want to have both document types accessible inside the same location and user interface if they belong to the same task or process. From a compliance and records management perspective it doesn’t matter if a document is managed via ArchiveLink or as a general ECM document.

For these reasons Extended ECM provides all necessary means to manage and control ArchiveLink documents inside workspaces and also apply lifecycle control via records management to both types of documents.

More details on managing ArchiveLink documents can be found in section “Records Management for SAP” on page 129.
Document Management – Efficient Handling of Documents

The document management capabilities in OpenText Extended ECM for SAP Solutions provide a secure, central repository relying on comprehensive Enterprise Library functions. It offers functionality for organizing and sharing of content in an enterprise-wide fashion. Extended ECM stores and manages content of all types and formats – office applications, emails, graphics, CAD drawings, images, and renditions.

Check-in/check-out, version control for simple and compound documents, audit trails, metadata categorization, comprehensive search, user, group and role-based access controls are all elements of the document management core offering, delivered through Web browser, Microsoft Office application, or Windows® Internet Explorer® interfaces to meet a range of user preferences – enabling information workers and business users to accomplish their daily work more efficiently.

Document management also provides the framework for introducing the next layer of control and risk mitigation with integrated records management.

<table>
<thead>
<tr>
<th>Solution Enablers</th>
<th>Value Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version Control</td>
<td>Reduce time spent finding the “one version of the truth” document</td>
</tr>
<tr>
<td>Check In/Out</td>
<td>Trim discovery costs across enterprise content</td>
</tr>
<tr>
<td>Metadata Categorization</td>
<td>Shrink file server and legacy document management application costs</td>
</tr>
<tr>
<td>Compound Documents</td>
<td>Decrease printing and copying to desktops/file shares and between applications</td>
</tr>
<tr>
<td>Audit Trail</td>
<td></td>
</tr>
<tr>
<td>User/Group Access</td>
<td></td>
</tr>
<tr>
<td>Content Type Agnostic</td>
<td></td>
</tr>
<tr>
<td>Search</td>
<td></td>
</tr>
</tbody>
</table>

The benefit of deploying document management as part of a SAP-integrated ECM solution is that all business documents are filed with the business context from SAP in a common repository. Extended ECM gives organizations the ability to manage all of their business content in a way that is consistent with SAP. Wherever possible, users file content directly from the SAP process and the business context is automatically captured from SAP. It extends that capability outside of SAP to content that originates in other processes, but using the same SAP master data. The benefit is that Extended ECM can always deliver the
precise set of content needed by anyone working in the end-to-end business processes.

**Workspaces**

Extended ECM consists of related workspaces, folders, and other types of containers in which documents and other content objects can be stored, managed, and accessed. There are different types of workspaces, such as Personal Workspace, Enterprise Workspace, Case Workspace, or Business Workspace.

These workspaces provide context by emulating the ways in which people work – as members of an organization, as information workers in a project or case, or as individuals.

**Enterprise Workspace – centrally managed content**

In the Enterprise Workspace, enterprise content can be easily organized, shared, and accessed by any user with the necessary permissions – regardless of geographical location or user interface. From marketing information to plant equipment documentation, this workspace provides the ideal place for sharing and accessing corporate information that pertains to all members of an organization. Many organizations use this area to share best practices, policies, and procedures throughout the enterprise. The structure within the Enterprise Workspace is usually centrally managed by the organization and secured by appropriate permissions so users are able to find their way to content easily. Figure 8 shows an example of a workspace organized by departments.
Personal Workspace – organizing your own work

Each user of Extended ECM has a Personal Workspace. The Personal Workspace provides individuals with the ability to create a private, personalized area in which to work and store documents.

By allowing users to organize their content in a way that is intuitive to them, each user can optimize their personal productivity when using Extended ECM. They can set up quick access to the information that is most relevant to their job and make better decisions faster. In the Personal Workspace, users can organize personal or work-in-progress documents into folders and compound documents; store links to Web sites that are frequently used; save favorite queries to be able to run them in a single click; and save aliases to documents, folders, and other frequently used items in the Enterprise Workspace.
In addition to the Personal Workspace, the Personal menu also provides access to features that help individual users.

The Personal menu provides users with one-click access to information and functionality in Extended ECM that pertains to them as an individual user:

- **My Workspace** opens the user’s personal workspace.
• **Pulse** provides access to the social media capabilities of Extended ECM.

• **Assignments** opens a page listing all workflow steps that have been assigned to the user.

• **Borrowed Items** lists which physical items are currently borrowed by the user. This function is part of the physical records management functionality in Extended ECM.

• **Case Workspace** provides a comprehensive and personalized overview on case workspaces and binders that a relevant for the user (e.g. because he is assigned to a role in these cases or binders)

• **Collections** lists the document collections that the user has created. A collection can be used to logically group documents stored in different places of the repository.

• **Discussions** shows the user a list of ongoing discussions he/she is involved in.

• **eLink** opens a page on which the user can select the workflow-related events for which they want to receive per-event notification emails, such as when a workflow step has been assigned to them or when a workflow that they manage is late.

• **Favorites** opens a page that displays links to all of the items anywhere in the Extended ECM repository that they have marked as a favorite using the Make Favorite function.

• **Follow Ups** show the personal follow-ups assigned to the current user.

• **My Groups** displays a list of all groups of which the user is a member.

• **My Profile** opens the user’s personal profile, which is a form on which the user can indicate additional information about themselves that they want to share with other users on the system. For example, users can upload a photo of themselves, indicate additional contact information such as mobile telephone or pager numbers, list their hobbies, favorite Web sites, and so on.

• **Notification** opens the page on which the users configure the event notification reports that they want to receive. Users can opt to monitor events, such as new items being added to the repository or new versions of documents being added. Reports are generated at the intervals specified by the user and can either be consulted in the Web interface or delivered via email.

• **Recommendations** points the user to potential interesting content based on user’s personal profile and interests.

• **Recycle Bin** shows the content items recently deleted by the user.

• **Reports** opens a page that displays links to all of the saved queries and search result snapshots that they have personally saved, as well as a list of database reports that the administrator has made available.

• **Reserved Items** opens a page listing all of the documents that the user has reserved. When an user has reserved a document for editing, no other user can add a version to the document until the document is unreserved by the current user.

• **Search Templates** opens a page displaying links to all of the personalized advanced search templates that the user has saved.
- **Workflows** opens a page that displays links to all of the workflow instances that the user has initiated so that the user can check the progress of the workflow process and take remedial action if necessary.

Each user can personalize certain aspects of Extended ECM’s behavior and interface, allowing users to work in the way that suits them best.

![Personal Settings of an Extended ECM User](image)

*Figure 11: Personal Settings of an Extended ECM User*
Each user can configure the following settings, among other things:

- Preferred user interface language
- Default start page when logging in to Extended ECM – i.e., the Enterprise Workspace or Personal Workspace
- Default view of items – large icons, small icons, or detailed view
- Navigation style – hyperlinked trails or drop-down lists
- The duration of new and modified item indicators
- The Web user interface color scheme
- Case Management and Follow-up settings
- Custom Columns setting for individual browse page layout
- Workflow status settings, including a proxy user and content presentation preferences
- Records Management settings and settings for physical objects managed by Extended ECM (mainly personal default settings)
Content Workspaces – Connection to SAP Business Objects

Simple folder structures are very often not sufficient for representing complex SAP business objects or processes in the ECM. For that reason Extended ECM offers powerful workspaces with build-in SAP connectivity to combine business content, processes, and people to give a complete view on a business object, such as customers, vendors, and projects.

The way users work with content in a Content Workspace is typically more strict and controlled compared to a collaborative document-management scenario. The creation of content is governed by predefined procedures or triggered by SAP. In many cases a Content Workspace is automatically created if a corresponding business object is created in SAP with a synchronization of SAP data to the workspace metadata. Typically, all types of content are created based on centrally managed templates – this applies for single documents or complete workspaces. The access to content in a SAP Content Workspace is typically regulated by a strict roles and permission model.

Extended ECM offers different types of SAP Content Workspaces: Business Workspaces, Binders and Cases. Business Workspaces and Binders typically represent a more static business object such as a customer, vendor, or product. A case workspace typically represents a dynamic object that has a clear beginning and end (such as project, claim, or investigation). Cases typically have phases and represent processes or procedures such as a customer project, a customer inquiry, vendor audit, or a sales transaction.

Workspace User Interface and Widgets

Each workspace has its own overview page, which gives the user a summary of the business context and the workspace content. This includes the most important business metadata, the involved roles, and the filing structure. Sidebars on the left and right of the screen provide additional business context or highlight new or changed content.

The three workspace types Business Workspaces, Binders and Cases have slightly different layouts.
Figure 11 shows an example of a Business Workspace for an equipment object.
Figure 11 shows an example of a Binder Workspace for a customer.

Specific for a binder workspace is the more prominent display of metadata in a widget on top and the additional widget showing the assigned workspace roles on the top right side of the screen. The other widgets are the same as for Business Workspaces.

In addition to business workspaces and binder workspaces the case workspace has additional capabilities:

- Widget for the work items and processing phases associated with the case
- Widget showing the active follow-ups and workflows of the case.
Figure 14 shows an example of a Case Workspace for a project.

![Figure 14 Case Workspace for a Project](image)

Case workspaces have a lifecycle, which is defined by the phases (work items) that may have assigned tasks (see section *Workspace* on page 46).

**Workspace Hierarchies and Business Relationships**

Workspaces can be organized in Extended ECM based on two different paradigms:

1. **Workspace Hierarchies**
2. **Business Relationships between Workspaces**

There are pros and cons for both paradigms and it depends on the business requirements which suits best for a given use case.

Using **Hierarchies** the workspaces can be nested like folders in the ECM system. Workspaces may have parent workspaces and many child workspaces. The advantages of using hierarchies are two-fold:

1. Many relationships between two business objects are naturally 1:n – these are typically kind of a “belongs to” or “is part of” relationships. These relationships typically are stable and don’t change too much over time. So nesting workspaces the same way is kind of a natural approach.
2. Many ECM systems strongly rely on hierarchical inheritance or hierarchical drill-downs. Metadata, roles and permissions are inherited down the filing hierarchy. Also search and some other ECM capabilities look down a hierarchy starting from a given root point.

Using **Business Relationships** (see section Business Relationships on page 25) it is the SAP business logic that defines how workspaces are related to each other,
e.g. a customer workspace to a sales order workspace. The advantages of using Business Relationships instead of static hierarchies are two-fold as well:

1. Business Relationships are dynamic – they automatically update if the underlying SAP business model is updated inside SAP. This guarantees consistency and can substantially reduce administration effort.

2. In situations where more complex relationships need to be modeled (like n:m relationships) hierarchies are not well suited to express this. A good example is the relationships between vendors and materials. The same material could be supplied by different vendors and the same vendor can supply multiple materials. So there’s no natural hierarchy here.

Business relationships are shown inside the workspaces via two means:

1. Widgets in the Side bar of a workspace, e.g. the related items of an Equipment workspace could be presented like illustrated in Figure 15.

Here the different types of related items such as Equipment, Maintenance Notifications and Maintenance Orders have their own widget in the sidebar to show related workspaces. The user can simply browse along these relationships by clicking on the names of the listed items. This allows ECM users to browse along SAP structures without working via SAP user interfaces.
2. Dynamic folders called Related Business Workspaces

There may be multiple Related Business Workspaces folders inside a workspace showing different types of related workspaces. As shown in the second figure above, Extended ECM allows for a detailed configuration of the workspaces types and the direction of the relationship (parent/child) to filter the relevant workspace relationships shown inside a Related Business Workspaces folder.

In most Extended ECM deployments there will be use cases for both hierarchies and business relationships. It depends on the business model and customer requirements which paradigm should be used for the individual scenarios.

The preference for hierarchies or Business Relationships gives a first indication what type of workspace may be most appropriate in a given scenario:

- **Business Workspaces** cannot be nested into each other and rely solely on Business Relationships.
- **Binder Workspaces** and **Case Workspaces** typically are organized in hierarchies so they may be used where hierarchies are required. But it is important to note that Binders and Cases fully support Business Relationships as well.
Workspace Classification

A type structure is used to classify the templates to allow users the selection of templates based on their type when they create a new business workspace such as a binder or case.

The type structure can be a complete taxonomy of types and sub-types. This is helpful when a high number of templates need to be managed.

The workspace types are managed in the classification volume of Extended ECM (also see section Taxonomic Classification on page 59). Typically cases, binders and business workspaces have their own dedicated classification tree.

Workspace Metadata

Each workspace type may have its own set of metadata that describes its properties. The following figure shows an example of metadata assigned to a customer workspace.
The workspace metadata can be manually maintained by the business users but in most cases it will be completely or partly synchronized from SAP data.

**Workspace Roles**

Case workspaces and binder workspaces can have its own unique role model to register and control the access to all content stored in the workspace. Each role in a role model is defined by a unique name, a description, and a set of default access permissions for the role (see Figure 19).
The roles are typically defined for the templates (see section below) and then automatically applied to all the workspaces created from this template.

Roles are not supported by Business Workspaces.

**Workspace Policies**

In many use cases the access to business data is already defined and controlled based on the SAP roles and authorization model. For these cases Extended ECM provides so-called *policies*. A detailed description of policies can be found in section *Access control using Policies* on page 91.

All three workspace types (business workspace, binder and case) fully support policies.

**Workspace Templates**

All Extended ECM workspaces are created from centrally managed templates. Extended ECM can manage different types of workspaces for different business objects and processes. For each type of business workspace different templates, roles and, metadata sets can be applied.

Templates determine default structures and properties of business workspaces. They control such settings as the permissions, roles, case tasks, folder structures, and metadata that are assigned to binders when they are first created.
Templates are centrally managed in the Templates Volume of Extended ECM (see Figure 20).

When users manually create an instance of a workspace, they must first select a workspace type. They are then presented with a list of available workspace templates to which the selected type is assigned. They can select the template they want to use from this list.

For example, a content manager could assign a classification called “purchase order” to a workspace template that is used for storing purchase orders. When an user creates a workspace and selects purchase order as the workspace type, the workspace is created using the purchase order template. If you also assigned the purchasing classification to a second workspace template, the user could choose between the two templates.

All three workspace types (business workspace, binder and case) fully support workspace templates.
Workspace Phases

Workspace Phases is a special concept that only Case Workspaces offer. Case workspaces of Extended ECM are typically used to manage artifacts with a dynamic aspect, characterized by events and phases:

Case workspace may have a specific sequence of lifecycle stages. Tasks can be assigned to each stage of the lifecycle. Figure 22 shows an example of a case workspace with five lifecycle phases (1 – 5).

The phases relate to work item groups, which may themselves contain defined tasks that have to be completed before the case can move on to its next phase.

Content Metadata

When a content item is added to Extended ECM additional information is stored to describe the item. This additional information is referred to as metadata.

Based on metadata, users may perform advanced searches, run reports, and navigate via facet browsing.

Extended ECM has two basic types of metadata:
1. System Attributes

   System attributes are metadata that all content items have in common. These are, for example item names, creator of an item, or the modification date.
2. Categories

Categories are custom metadata that organizations can define according to their requirements. Extended ECM allows defining multiple categories that can be used for different business objects or processes.

System attributes

Each item stored in Extended ECM has a common set of attributes that are independent of the item type.

Extended ECM automatically records these attributes when a piece of content is created or modified.

The most important of these system attributes are listed here:

- Name
- Type
- Description
- Size
- Creation Date / Time
- Modification Date / Time
- Creator of the Item (user)
- Owner of the Item (user)

Two very useful functions are the Nicknames and the Shortlinks, which can be accessed on the item properties page as well.

- **Nicknames** – allows giving an item a concise and meaningful name that can be used in the URL to access the item; e.g., by giving an item the nickname “EqualOpportunity” it can be accessed by using this URL in the Web browser: http://extendedecm/otcs/cs.exe/open/CustomerBeckerBerlin

- **Shortlinks** – allows copying or sending the URL of an item

Categories

Extended ECM allows you to store custom metadata with the different content types. Each custom metadata field is called an attribute. An administrator can group a set of attributes into a category, which an user can then associate with a document or any other type of Extended ECM item.
Figure 24 shows an example of a document with two assigned categories: “Corporate Policy” and “Policy Document”.

When an user creates a new item such as a document the metadata can be inherited from the folder location of the new document, derived from the document type, or derived from the document template.

If metadata is derived and inherited from different sources it can be merged for the newly created document. This allows for very powerful metadata scenarios.

Within a category, attributes can be either optional or required. When an user adds a document to a container, such as a folder or compound document that has categories with required attributes associated with it, the user is forced to specify values for those attributes to be able to upload or create the document.

Extended ECM’s metadata categories and attributes also provide the following key capabilities:

- **Easy-to-use category template designer** – A Web-based template design form makes it easy for users to create categories.

- **Ability for users to create categories and attributes** – As each group and department in an organization identifies the custom categories and attributes that they want created to support their specific needs, individuals within each department can create category objects in the repository where they have permissions without the assistance of an administrator. This extends the reach and power of categories and attributes to the entire organization.

- **Multi-Valued attributes** – Multi-Valued attributes are attributes to which you can assign more than one value for a given object.

- **Ability to apply permissions to categories** – Users with the Edit Attributes permission can associate multiple categories with an ECM object. In addition, access to the category objects themselves can be controlled using Extended ECM permissions.

- **Ability to inherit metadata in the folder hierarchy** – By default, categories are automatically inherited in the folder hierarchy. When an user adds a new document or a subfolder to an existing folder with assigned categories these are inherited to the newly added content. It is also possible to set default values for each attribute in a category on each folder level. This can reduce the extra effort for users when they add new content that requires metadata.

- **Ability to edit category/attribute information during add/move/copy** – Category and attribute information can be edited on the fly when performing Add Item, Add Version, Move, and Copy operations. Move and Copy operations also provide the option of adopting the categories of the...
destination container, retaining the categories from the source container, or merging the two.

- **Ability to search and report on category and attribute data** – The advanced search form includes the ability to add fields that users can use to search for terms within the custom metadata stored in categories and attributes.

- **Ability to use attribute values based on SQL-queries** – The range of possible values of attributes can be derived from database tables. By using SQL lookup statements, which values are offered to the user for selection, can be defined. It is also possible to define logical connections between attributes meaning that valid value lists can depend on, or cascade from, key values in other attributes. This functionality is based on the module OpenText Attribute Extensions, which is an integral component of Extended ECM.

- **Integrating SAP data as ECM metadata** – The SAP Business Suite applications have a huge amount of structured data that can be leveraged to categorize ECM content with business metadata. For example, customer data such as customer number, address, annual revenue, and contact persons stored in SAP can be assigned to a customer workspace in Extended ECM.

### Documents

A document has several properties that control how the document is managed and maintained, and how it can be accessed:

- **Document Properties** are the set of attributes that all documents share; for example, the owner of a document or the creation date of a document (see also section *System attributes* on page 47).

- **Document Metadata** is used to describe the document and its business context. Different types of documents may have different metadata assigned (see also section *Categories* on page 47).

- **Document Classification** defines the type of the document (i.e., an offer, a contract, or an invoice). The document classification also controls which templates can be used for creating a new document of this type.

- **Document Templates** create new documents based on templates that are managed in the ECM system and offered to the user based on the document type and the storage location of the new document.

- **Document Renditions** automatically convert documents in alternative formats like PDF.

- **Document Ratings and Recommendations** give users the capabilities to rate documents according to their value or quality and to recommend documents to users.

A document overview page lists the most important properties and offers access to the main functions of a document (i.e., download, email, and add version). This page also gives a short description of the document, the user-generated rating, and lets users configure notifications for document changes (see section *Notifications* on page 154).
The different document properties are described in the following sections.

**Document Classifications**

Extended ECM identifies and organizes different types of documents by assigning a document *classification* to the document. The document classifications are organized in *Classification Trees* in the Classifications Workspace of Extended ECM. Within the classification tree, each classification element represents a document type.

The document types can be a hierarchy of main types and any level of sub-types (see Figure 26).

![Figure 26 Hierarchy of Document Types in the Classifications Volume](image)

The granularity of the document type classification tree can easily be adjusted to the business need by adding additional sub-types.

**Document Templates**

The document templates are centrally managed in the *Templates Volume* of Extended ECM (see Figure 27). This allows for central maintenance and updates of document templates that may be supervised by a quality management or document control department.
Document Renditions

A rendition is an alternate representation of a document version. For example, 3-D or layered drawings can be made available as PDF renditions that users can view with any PDF viewer (like Acrobat® Reader®). Another type of rendition might be a translation of the source document into another language. Document versions can have more than one rendition type associated with them.

The renditions feature allows document items to be configured so that a particular rendition type is the default view of the document.

Renditions (once created) are fully indexed and searchable if the file format is support by the Extended ECM search. Renditions can be used in a couple of ways. A rendition could be a translation of the source document; users can search for terms in the rendition language and find the source document. Also, if the original document is in a format not support by Extended ECM indexing filters, the rendition can be indexed, allowing the document to be found using a search.
Renditions can be added to document versions manually or generated automatically using an external process (e.g. PDF generation software). For example, the renditions feature can be configured to send Microsoft Word® documents to an external process that automatically converts them to PDF. The PDF conversion is then automatically attached to the document version as a rendition (see Figure 29).

---

1 The Extended ECM product does not include PDF generation software. Additional software like Adlib Express® should be used for that.
Renditions are generated automatically in three ways:

1. **Global Renditions**, which requests a rendition automatically for every document or document version added to the document management system that has a particular file extension.

2. **Selective Renditions**, which requests a rendition automatically for all documents or document versions with a particular file extension (MIME Type) that are added to a specific folder or compound document, or for all versions added to a specific document.

3. **Ad Hoc Renditions**, which requests a rendition one time, for a specific document or for all documents in a specific folder.

If automatic renditions are active for a document a new rendition will be created each time a document is added or a new version of a document is created.

**Document Ratings and Recommendations**

Based on the content of documents that users search for and access, Extended ECM automatically suggests other documents with similar content that users may find useful as well. Extended ECM adds a *Recommendations* page to each user’s Personal menu providing users with easy access to statistics and recommendations, including popular items in the ECM system, a list of personal recommendations, a list of other users with similar interests, and a personal history of the user’s most recently accessed content items.
The Personal Recommendations page provides users with a quick and accessible means of locating the people and information that is relevant to their work. Extended ECM also lets users rate and review content, read other users’ reviews, and search against rating information.
Organizing Content

The Extended ECM provides key document management objects, allowing you to effectively manage any type of content object regardless of where it originated, such as:

- Folder hierarchies to organize content in a logical structure similar to a file system but providing powerful capabilities for a top-down inheritance of information such as metadata, document classifications, and permissions
- Dynamic references to other objects, which enable you to create multiple instances of the same object
- Complex compound documents, comprised of ordered documents that can be versioned as a whole called a *release*.
- Pointers called *generations* that link to specific versions of a document or specific releases of compound documents
- Taxonomic classifications that enable documents to be browsed according to alternate taxonomic themes independent of their locations in the folder hierarchy

Folders

Folders enable your enterprise to organize the information that it adds to the Extended ECM repository into logical, browsable hierarchies that reflect the needs and structure of your enterprise. Folders can contain any type of item that Extended ECM supports, including subfolders, compound documents, aliases, saved queries, and document items in any file format, such as office documents, CAD drawings, and rich media.

The users managing the contents of a folder can select items to be displayed as *Featured Items* in the Web user interface of Extended ECM. If a folder is selected as a featured item, it is displayed within the Featured Items panel with quick links to any featured sub-items shown directly beneath. Individual users can select whether to display non-featured items as *Large Icons*, *Small Icons*, or *Detail View*. Users with the necessary permissions can multi-select items displayed in Detail View and perform a copy, move, or delete action on the set of selected files (see section *Document Operations* on page 76). The Detail View also allows users to sort the items in the folder by different criteria, such as type, name, size, and modified date.
Compound Documents

Extended ECM provides a specialized container called a compound document for storing interrelated information that must be viewed in a specific order. Within a compound document you can include documents, aliases, and sub-compound documents to create a highly structured, multi-file document within Extended ECM.

Compound documents allow large complex documents to be broken down into a number of smaller and more manageable sub-documents. Each of the sub-documents in a compound document can be authored and updated simultaneously by different members of a team.

When a new version is added to one of the sub-documents, the state of the entire compound document is altered. Changes to compound documents can be saved as major releases or minor revisions. A pointer to a specific release or revision can be saved as an item called a generation. When opened, a generation displays an outline view of the particular release or revision of the compound document.
With Extended ECM, users can create dynamic references to documents called shortcuts, enabling them to maintain a single instance of an item, and simply reference it in other locations as additional instances are required.

Once an user creates a shortcut for another document item, that shortcut will always point to the source file within the Extended ECM repository, even if the item is moved, renamed, or a new version is added to the original. Shortcuts provide a powerful method of referencing information in multiple locations in Extended ECM. If the original document is updated, there is no need to update all of the subsequent references – the shortcut automatically references the updated content.

In the example shown in the preceding image, a shortcut to a document describing a company’s hiring policy has been added to the “4. HR Policies & Procedures” folder. This document is maintained by the HR department and the original is stored in their departmental folder.

Shortcuts can also be used to create references to any Extended ECM item type, including entire folders and compound documents. In Extended ECM, it is also possible to determine whether a particular document or other item has been referenced with a shortcut in another folder. For example, the image below...
(Figure 37) shows where the original compensation plan document has been referenced.

You can also create URL items that reference information in the Extended ECM repository, in other repositories, or to any page on the Web. URLs are static pointers, but you can use them to reference objects outside of the repository, such as a Web page.

Every item in the Extended ECM has a unique URL and each view or page of information associated with an item also has a unique URL. For example, you can use a URL to point directly to the overview page of a Microsoft Word document stored in the Extended ECM, and a different URL to point to the downloadable, original Word version.

Generations

Users can create static pointers to specific versions of documents at a given point in time to create a generation or to specify published versions. Generations are useful when you want to provide easy access to a particular instance or version of a document that is frequently updated.
The way in which documents are organized within a repository is referred to as its taxonomy. The folder structure that you create within Extended ECM’s repository is one such taxonomy. Users browse information within the repository according to this taxonomy.

Extended ECM provides the ability to classify documents according to multiple taxonomies that provide an alternative to the taxonomy implied by the organization of the folder hierarchy.

For example, a company may decide to organize content in Extended ECM’s Enterprise Workspace according to departments, creating folders with names such as Human Resources, Finance, Sales and Marketing, and so on. Each department would then populate their folder with the content they author and own. A new employee wanting to understand corporate policies may browse into the Human Resources folder looking for the dental benefits policy and into the Finance folder looking for the expense policy. One alternative way to organize the Enterprise Workspace is to create a folder called Policies with subfolders such as Benefits Policies, Expense Policies, etc.
Taxonomic classifications allow information to be browsed according to alternate information views without duplicating the documents. Classification librarians create classification objects, which can be nested to create entire classification trees. Users can associate documents, compound documents, and folders with one or more classifications (see Figure 41).

After information has been classified, users can browse structured classification trees as an alternative to the arbitrary folder trees in the repository of Extended ECM. Users can also search according to classifications or within particular branches of classification trees, enabling them to find precise, relevant information more quickly.

Facet Browsing and Custom Columns

Extended ECM includes a very powerful component called Facet Browsing to create business views on workspaces, documents, or any other kind of content based on metadata.

Facets combine the ease of browsing with the power of search by creating a virtual folder hierarchy based on metadata. With facet browsing, metadata can be used to generate taxonomies on the fly. Different facets of content, such as type, creation date, and responsible department can easily be combined into multi-dimensional navigation structures.
By using facet browsing it is very easy for users to quickly find documents or workspaces they seek. Figure 42 shows an example of a folder that uses three facets to browse customer workspaces: the country of the customer, the industry of the customer, and the status of the customer.

The facets are displayed in a side bar that is typically on the left hand of the browser window. For each facet a list of available facet values is shown.

Figure 42
Facet Browsing for Customer Workspaces
By selecting values from the facets users can restrict the items displayed in the folder to a subset they are interested in (see Figure 43).

In addition the facets it is possible to configure Custom Columns. These columns can be configured system-wide or for certain containers (such as workspaces and folders). Figure 38 shows a custom column called “City” that shows where the customers are located.

**Collections**

A collection is an user-defined compilation of items that are of relevance for this user and are typically subject to further processing. The items inside a collection are just pointers to the original items; i.e., items are not physically moved to a collection. In fact, a single item can be in any number of collections. Users are free to create any number of collections they need.
There are two ways of adding items to a collection:

1. The user can assign search results to a collection.
2. The user can utilize the "Collect" button in the multi-file operations.

Browsing into a collection is very similar to browsing normal folders.

The Location column displays where the item is physically stored (i.e., its original place in the folder hierarchy).

It is possible to apply further processing action on a collection or on selected items in a collection.
Link Content to SAP – Business References

Extended ECM includes a capability called Business References allowing to link content (such as documents, folders or e-mails) to one or many business objects in SAP.

Typically, a business reference is used to hand over a single document and make it available in an SAP transaction. Business References are also used in scenarios where only a few documents are required for a process. Using an Extended ECM workspace may be inappropriate in such situations.

Business References also allow to link documents to multiple SAP business processes or to link a document managed inside a workspace to another business object to expose it to a different process or a different user group.

Extended ECM provides powerful capabilities to create and maintain business references:

1. Each piece of content (such as document or folder) can be linked to any number of SAP business objects (even in different SAP systems)

2. Users can create and access Business References in all supported user interface in SAP or in the ECM system.
3. A Business Reference can be created automatically. Automatic creation is triggered by ECM metadata, e.g. when an user or a workflow assigns a certain attribute value to a document.

For example, an account executive prepares a contract in the ECM system. After the contract is approved, it is marked as final. This triggers that the Business Reference is created and that the contract can be accessed from the SAP system.

4. By establishing a Business Reference business data can be synchronized from SAP to the metadata of the document.

5. Documents linked by Business References to an SAP business object can be accessed directly inside SAP transactions of that business object.

6. SAP business objects linked by Business references to a document can be accessed directly from the document inside the ECM system.
Working with Content

Viewing Documents

Documents can be viewed in different ways:

1. Using the build-in “View as Web Page” capabilities of Extended ECM. This shows for supported document types an HTML rendition of the document:

![Document Viewing (HTML)](image)

**ERGONOMICS**

What is Ergonomics?

Ergonomics looks at the way in which people interact with their work, their working environment and physical equipment. Problems in any one of these areas may result in injury, i.e., neck, back and arm pains, eye strains, excessive fatigue, headaches, cumulative trauma disorders or other types of illness. Due to the changes in technology and the extensive use of computers in the workplace, both employers and employees are taking steps to improve the physical stress to improve physical working conditions. Ergonomics helps reduce the physical stress of working with a computer.

As a result of injuries that have been brought on by repetitive tasks, such as use of a keyboard, the Occupational Health and Safety Administration (OSHA) is working to develop a set of guidelines and standards to help employers protect their workers from risk of injury.

This following will outline some of the ways to use a computer or other office equipment in a healthy manner.

1. **The Back**

The development of the computer has completely changed the way that people work. An office or home that does not have a computer system is considered to be well behind the times. However, little is
2. Using the Extended ECM Imaging Web Viewer:

![Image of OpenText Imaging Web Viewer]

**Figure 51** Document Viewing (Web Viewer)

The viewer provides additional capabilities like thumbnails for pages, adding and storing of notes, zooming, and rotating of images. The viewer runs inside the browser and does not require software installation on user’s desktop computer.

3. Using the native application installed on the user’s desktop which is registered for the specific mime type of the document.

For editing documents Extended ECM’s provide integration into major desktop authoring applications like Microsoft Office® and Adobe Acrobat®. This is described in section “Integrating with Microsoft Office” on page 179.

### Creating Documents

Extended ECM’s Web interface provides a simple, intuitive way for users to add files from their local computer. Users simply select the Document option from the Add New Item drop-down list and the Add Document form appears, prompting them to specify the document name and description. The browse button allows users to browse to any location on their local or mapped network drives to add documents to the Extended ECM repository.
Extended ECM offers an advanced way of creating new documents based on templates. This makes sure that documents are created in a controlled manner and strict metadata rules. A step-by-step wizard makes it very easy to add new business documents this way.

If an user creates a new document in a business workspace, binder workspace, case workspace, or a subfolder of a binder or case, a list of available document types is presented in the first step of the wizard (see Figure 53).
The available types are controlled by the document type classification that is assigned to the target location (e.g. a workspace or folder) where the document is created (see section “Document Classifications” on page 50). This way it is very easy to restrict the types of documents that should be available in the context of a workspace in Extended ECM to a subset of the available document types in the system.

By selecting a type from the list of allowed document types the user will get a list of available document templates (in Figure 53 this is only “Project Contract.dot” but it also could be a list of different templates for this document type). The user then chooses a template by selecting one of the radio buttons in front of the templates.

The second step in adding a new document is about assigning metadata to the new document (see Figure 54).
The set of metadata for the new document can be derived or inherited from three sources:

1. Metadata that is inherited from the folder or workspace where the document is created (a category assigned to the parent folder or parent workspace of the new document).
2. Metadata that has already been assigned to the document template (a category assigned to the document template item in the Templates Volume).
3. Metadata that has already been assigned to the document type (which is the corresponding classification element).

All three sources may set their own default values for certain attribute fields in the categories, which makes this concept extremely flexible and powerful. It can also substantially reduce the number of values an end user has to enter for a new document, which (in general) increases the user acceptance of an ECM solution.

The last step is assigning classifications to the new document. Classifications typically impose a type concept on the documents.

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2 If the same categories are derived or inherited from multiple sources an intelligent merging process takes place. Default values from different sources will be merged into a superset of predefined values. If values for the same attribute are applied from different sources a precedence order is in place according to the numbering above.
It is possible to assign multiple classifications to one document. Classifications can also be used to set Records Management classifications according to a file plan (see section “File Plan” on page 111).

Creating Workspaces

Extended ECM provides a guided process to create workspaces that makes sure workspaces are created in a controlled manner based on templates and strict metadata rules. A step-by-step wizard makes it very easy to add new workspaces for end users.

If an user creates a new workspace, a list of available workspace types is presented in the first step of the wizard (see Figure 56 – parameter case types).

The user creating the workspace will see a list of available workspace templates that match the selected workspace type (here “Customer Project”). The user then chooses a template by selecting one of the radio buttons in front of the templates.

Extended ECM allows users to directly link a workspace to an SAP object (e.g. an object in the SAP Project System). This is called a “Workspace Reference”. If the user clicks “Select” a SAP search help window is opened. Based on this search help the user has a very convenient way of selecting the corresponding SAP object.
If there’s no corresponding SAP object (yet) the user can check the checkbox “Workspace Reference will be provided later”.

The second step in adding a new workspace is about assigning workspace metadata (see Figure 58). This metadata can also be populated from SAP data if the business workspace is linked to a SAP business object.

The next step is assigning classifications to the new workspace. This can be used to control what documents should be allowed in the workspace (see Figure 59). This is typically already configured for the workspace template.
The last step in the step-by-step wizard for creating workspaces is the roles step. It is used to assign users or user groups to the workspace roles that are typically defined in the workspace template. This step is optional and only shown for case and binder workspaces.

A role can be filled with one or more user or group. It is also possible that the roles of a workspace are inherited from the roles of a parent workspace.

**Inline Text Editor and Spell Checker**

Extended ECM also contains an integrated Text Editor that enables you to compose and add simple text documents to the repository directly from within the Web interface - all in a single step. It is a convenient means of adding simple text documents without having to first compose them in a separate application. The Text Editor allows users to specify the MIME type of the text documents, which means that it can be used to author a variety of text formats, including plain text, HTML, and XML.
An existing text document within the Extended ECM repository can also be edited using the Text Editor.

![Text Editor](image)

**Figure 61**
**Text Editor**

The Text Editor includes a Spell-Check feature so that users can verify the spelling of the text documents that they have composed before adding them.

![Spell Checker](image)

**Figure 62**
**Spell Checker**
Document Operations

Documents and other content items such as folders and compound documents can be copied, moved, and deleted similar to items in a normal file system. These operations are available on a single item basis or users can apply these operations to multiple items at once.

To apply operations to multiple items at once, the detail view in Extended ECM’s browsing page offers multi-file operations:

The user can select multiple items by checking the checkboxes before each listed item. It is also possible to select all listed items by setting the first checkbox in the cyan colored headline. The following operations are available on top and below the listed items:

- Copy
- Move
- Delete
- Zip & Download
- Zip & Email
- Email Link
- Print
- Collect

These operations apply to the previous selected items in the list.
All these operations (except Collect) are also available for single items in the function menu of an item:

![Figure 64: Single-Item Operations](image)

Recycle Bin

All items that are deleted by users can be kept in a Recycle Bin. The administrator can configure what item types (such as documents, folders, and compound documents) are moved to the Recycle Bin before they are eventually deleted. It is also possible to configure how long items are kept in the Recycle Bin before the final deletion automatically occurs.

Each user has their personal Recycle Bin. The users are able to restore items from their Recycle Bin to undo a prior deletion (restore) or to manually delete items in their Recycle Bin.

The Recycle Bin is organized according to a year-month-day hierarchy to make it easy to find a deleted item. The following figure shows the Recycle Bin of Marc Diefenbruch for January 31, 2012:

![Figure 65: Recycle Bin of an User](image)

Users can select multiple items and use the multi-item operations (delete and restore) to act on more than one item.

Please note that if you have Records Management implemented, the Recycle Bin is typically turned off to allow for appropriate corporate governance and the deletion of corporate information based on retention policies.
Finding Content

One of the main benefits that enterprises realize from their investment in ECM software is the cost savings that result from users being able to find all relevant information faster. Extended ECM offers a comprehensive search and retrieval capability. The following sections describe the sophisticated indexing, search, and retrieval features that are an integral part of Extended ECM as developed by OpenText.

Search

Extended ECM offers powerful tools that help users find and access all textual information stored in the Extended ECM repository, including document content and metadata.

Extended ECM creates a full text index of all items in the repository, updating the index on the fly as items are added or updated. This means that when an user adds a new document or adds a version to an existing document, other users can search for and find the new or updated content within a few minutes.

Submitting Searches

Extended ECM includes the following features to make it easy for users to submit searches to quickly find the information they seek.

- **Quick Search Bar** — Appears at the top of every page in Extended ECM’s Web interface:

  ![Quick Search Bar](image)

  The Search Bar allows users to enter keywords to search for. The default search starts searching from the current container (e.g. folder, workspace) down in the hierarchy. This provides already a very natural way of restricting the search to an area that is relevant for the user.

  ![Search Popup Window](image)

  Users can easily narrow the search by selecting the scope, content types (★) or content date ranges (“Last Modified”). There are several options for all three parameters:

  The first parameter controls the scope of the search. In a container, such as a folder, compound document, or workspace, it allows users to perform a “From Here” search per the default (i.e., searches only within the current container and the entire hierarchy of sub-containers).
The Scope drop-down list allows users to select whether they want to search the index of the entire repository or within sub-indexes defined by special saved queries called slices.

![Figure 68 Search Scope](image)

The Object Type parameter allows users to restrict the search to specific types of documents, media or Extended ECM content containers such as folders or task lists. Alternatively or in addition the user can easily restrict the search to a time frame based on the last modify date of the content.

![Figure 69 Filters to narrow the Search](image)

To conduct even more powerful search queries the user can open the Advanced Search by clicking on the corresponding link in the search popup window.

- **Advanced Search Features** — The advanced search Web page provides a number of sophisticated search tools, including:
  - **Full-Text content and metadata** — Users can perform full-text searches within document content, document metadata, or both.
  - **Boolean searching** — Boolean operators can be used to create complex queries (operators supported are AND, OR, SOR, XOR, NOT).
• **Stemming** — Query terms can be expanded with stemming modifiers (i.e., related to, sounds like, begins with, ends with) to increase the number of relevant documents found. For example, the “related to” modifier applied to a search for the word *help* would also return documents containing *helps*, *helper*, *helping*, and so on.

• **Synonyms** — the “synonyms of” modifier finds documents that contain synonyms of the search terms entered. For example, a search for car would find documents containing *automobile*.

• **Natural language querying** — Users can enter search queries using natural language. For example, if the query “Show me all of the documents about human resource benefits written by Sarah Bellum” were entered as a natural language query, it would find only objects of type *document* authored by the user *Sarah Bellum* that contain terms such as *human*, *resources*, and *benefits*.

• **Classification searching** — Users can search for terms within documents and other items associated with specific taxonomic classifications.

• **Custom metadata searching** — Custom metadata can be used to reduce the scope of searches and improve the quality of search results. Instead of searching for the terms within the content of all documents, they can search within documents that have particular attribute values in their custom metadata. The following image shows how the advanced search page in Extended ECM can be used to search for policy documents with specific metadata attribute values.

![Figure 70 Metadata Search](image)

• **System attribute searching** — In addition to searching custom metadata, it is possible to search according to system metadata attributes, such as document MIME type, object type, author, and so on. For example, a search
could be performed that returns only Microsoft Word or PDF documents by specifying their MIME types.

- **XML Type searching** — Ability to search for terms within the element tags of XML documents as defined in their document type definitions (DTDs).

- **Saved queries** — after users define a query on the advanced search page, they can save it as an object called a saved query. When clicked in the Web interface, the saved query object automatically launches the query without the user having to re-enter the query terms and parameters.

- **Search scope** — a slice is a saved query that has been published to a special container by the administrator. Users can restrict the scope of a search by specifying that the search be performed within a slice.

- **Search templates** — Extended ECM’s advanced search form can be configured on the fly by users. They can add and remove elements from the form according to which advanced search features they want to use. If an user uses a particular configuration of the search form frequently, it can be saved as a search template.

**Figure 71**  
Personalized Advanced Search Page

**Working with search results**

After a simple or complex query is submitted to the Extended ECM search engine, all documents and other items matching the search criteria are displayed on the Search Result page (see Figure 72).
Extended ECM provides users with a number of tools on the Search Result page to assist them in interpreting, managing, and refining the results, including:

- **Relevancy ranking** – Extended ECM includes an algorithm that calculates a relevancy ranking score to assist the user in judging the relative value of a particular result. Results are listed in descending order of relevancy.

- **System attributes** – On the advanced search form, users can indicate which system metadata attributes they want to display with the search results. By default, the attributes available for display are location, date, size, MIME type, and description, but other system attributes can be made available for selection by the administrator.

- **Auto-Generated summaries with hit highlighting** – Extended ECM summarizes the found documents based on the sections of the document that contain the query terms. Users can opt to display summaries with the search results to help them decide whether a particular item is of interest. Furthermore, query terms are highlighted in the summary to assist users in quickly locating them.

- **Key phrase extraction** – Extended ECM extracts key phrases from found documents. Key phrases help identify the theme of a found document and may not always contain the query terms themselves. For example, a search for the term *cell* may return a document with key phrases such as *cell division* and *cancer cells*, while another document may contain phrases such as...
cellular telephone. Depending on what the user meant by the term cell, these key phrases will help identify which documents are of interest.

- **Clustered themes** – When Extended ECM is assembling search results, it determines whether there are any clusters of results within the following themes: authors, dates, locations, and topics. For example, if certain individuals were frequently the authors of the items matching the search criteria, these authors would be listed as common authors. Common date ranges, locations, and topics are also identified. Users can then refine the results to display only those that are contained within specific clusters.

- **Hit Highlighting** – In addition to highlighting occurrences of search terms in the auto-generated summaries, Extended ECM provides a Hit-Highlight command on the Function menu of each document. The Hit-Highlight function opens a window containing an HTML rendition of the entire document in which all occurrences of all search terms are highlighted throughout the document. Each highlighted term is bracketed by previous and next arrows to help the user quickly jump to the next occurrence.

- **Find Similar** – If an user sees a document in the search result list that is precisely the type of document for which the user is looking, the user can select the Find Similar command from the document’s Function menu. Extended ECM automatically constructs a query based on the key phrases in the document and performs a search that returns results based on that query.

- **Snapshots** – A snapshot is a saved set of search results. On the Search Result page, users can select which items they want to take a snapshot of and then save the selected items as a snapshot object. When the snapshot is later opened, it displays selected items found by the query at a given point in time.

- **Collections** – A collection is a set of links to a number of Extended ECM objects that are relevant to the user. On the Search Result page, the user can select which search results they want to add to a collection. The selected items appear on the user’s Collections page (accessed via the Personal menu), from where the user can move or copy them to a particular collection.

**Search in external data sources**

The search and index services of Extended ECM can also be fed by external data sources like server-based file systems or XML data sources.

**XML Activator**

The XML Activator can be used to index XML information generated by a third-party application so that Extended ECM users can query the indexed information and view the results in Extended ECM. These applications must feed on creation, update, or deletion of the index with XML files containing metadata and document content.

**Directory Walker**

Using Extended ECM’s Directory Walker technology, administrators can extend search to file servers. This allows users to search that data from within Extended ECM. For each Directory Walker the administrator specifies a set of one or more top-level directories on organizational file servers that should be indexed by the full text search.

It is possible to determine the types of files that the Directory Walker process collects by specifying inclusion and exclusion criteria (such as, file name patterns, date ranges, and file size ranges).
Crawl history files contain information about the files that the Directory Walker has already indexed. When a Directory Walker process rescans a set of directories, it compares the crawl history files to the files that are currently stored in the directory to locate new, updated, or deleted files. The Directory Walker process extracts only information about added, replaced, or deleted files and does not extract the entire file set again, which makes index updating more efficient.

Remote Enterprise Server Search

OpenText Remote Enterprise Server Search allows users to search remotely across multiple installations of Extended ECM using the standard search interface.

Performing a search against multiple instances will return search results from all Extended ECM installations:

Best Bets

Best Bets are predefined search results for specified search terms. They are similar to Google’s promoted links that are displayed at the top of the search result list if users search for anticipated words. Users can promote their documents (or folders) as Best Bets for certain search terms:
A Best Bet may have an expiration date as well.

When users enter searches that include this term, a link to the Best Bets items that match this query are listed and highlighted on the Search Result page. This works independent of the full text index of the documents.

Prospective search

A prospector is a powerful tool in Extended ECM that can be used to combine full text search with notifications. If an user is interested in documents that include interesting terms, the user can be notified as soon as documents including these terms are added to the repository. Where notifications are purely based on events, prospectors are based on search terms included in newly added content.

If a prospector identifies information that matches an user’s search criteria, it adds the corresponding item to a result list, where the user can access it.
LiveReports

Another powerful information retrieval tool is Extended ECM’s LiveReports, which provides unparalleled insight into the minute-by-minute activities of the organization. These comprehensive reports allow you to see the progress of processes and workflows, giving you access to information that might take months to compile by other methods. LiveReports’ complex queries provide an in-depth picture of just about any aspect of business performance.

LiveReports allows administrators to create custom reports using Structured Query Language (SQL) queries directly against the Extended ECM relational database. Extended ECM provides a significant number of predefined LiveReports queries out of the box. The LiveReports tool provides administrators with a number of options for displaying report results, including graphical charts such as pie charts:
Controlling and Monitoring Content

Extended ECM provides key library services. These capabilities enable users to view and manipulate the content and characteristics of objects in the repository.

- **Access control** – Configure up to nine levels of permissions on individual documents or entire folder structures, to enable powerful control of who has access to what information. Using Security Clearance, Extended ECM allows matching user clearance levels with content clearance levels to restrict access to confidential or sensitive content. Using Extended ECM policies, SAP access control can be applied to content inside Extended ECM.

- **Document review and approval** – Control and manage document lifecycles with robust workflow capabilities.

- **Version control** – Enable employees to check-in and check-out documents to avoid clobbering each other’s changes. Comprehensive version control allows users to easily access past versions of files, in the event of error or the need for roll-back.

- **Event monitoring** – Ensure that users are informed the minute that relevant information is updated in the document repository.

Access control using Permissions

**Users, Groups and Roles**

Each user in Extended ECM is assigned and represented by an user object. Permissions are then assigned to the user, enabling them access to the appropriate areas of Extended ECM. To save time, and prevent administrators from having to apply a variety of permissions to each individual user, users can be assigned to groups or roles and inherit all of the permissions from these objects. Groups can be nested as well. Roles are defined on a workspace level for Case and Binder workspaces (see section Workspace Roles on page 43).
Permissions Model

Extended ECM makes sharing corporate information effortless. Using a nine-level permissions model, Extended ECM ensures that only users with the appropriate permissions have access to corporate information.

Figure 78  Modifying Permissions

Permissions can be applied to individual documents, or to folders and their sub-items. The following permissions can be applied to a repository object:

- **See** – the user can see that the object exists, but cannot open or download it.
- **See Contents** – the user can view the contents of the object (by opening or downloading).
- **Modify** – the user can add new versions of the object.
- **Edit Attributes** – the users can modify the object attributes.
- **Add Items** – the user can add new items to the folder.
- **Delete Versions** – the user can delete versions of the object.
- **Delete** – the user can delete the object itself.
- **Reserve** – the user can lock this object from being edited by others.
- **Edit Permissions** – the user can modify other users’ permissions on this object.

Permission Inheritance

Users with the necessary privileges (such as users designated as document managers) can conveniently set access permissions, taxonomic classifications, and metadata categories on a folder. When new documents and other items are added to a folder, they inherit the permission, classification, and category settings of the folder to which they are being added. Furthermore, access permission and metadata category changes can be applied to a folder and all of its sub-items in a single step.
Access control using Security Clearance

Extended ECM provides additional security capabilities leveraging Security Clearance, which consists of two main components: security clearance levels and supplemental markings. These components enable you to restrict how users can access content in Extended ECM. Security Clearance applies in addition to the permissions of Extended ECM.

The basic idea of Security Clearance is to assign a security clearance level and supplemental markings to both content items (such as documents and folders) and users. The security clearance levels, which are hierarchical, are used to filter items that users are allowed to see based on their assigned security clearance levels. The hierarchy information for security clearance levels is defined by a numeric value.

Supplemental markings are very similar to security clearance levels but are non-hierarchical. Supplemental markings have multiple-attribute codes that are attached to individual objects.
Users assigned a high security clearance level can see objects with equal or lower security clearance levels, but users assigned a low security clearance level cannot see objects with higher security clearance levels.

Users who haven’t been assigned a special supplemental marking cannot see documents with this marking.
Access control using Policies

SAP authorization is typically based on SAP roles and SAP authorization profiles. The SAP authorization profile is part of a SAP role definition and restricts the access of users to transactions and objects.

Extended ECM allows mapping SAP authorization profiles to so called policies in the ECM system to ensure that only authorized users have access to workspaces. This way SAP roles and authorization profiles can be reused to govern access also to unstructured content in the ECM system.

Figure 82 shows an example of a role definition in SAP:
Policies in Extended ECM control the access to complete workspaces and apply in addition to other content control capabilities of Extended ECM like permissions and security clearance. For each type of workspace (e.g. vendor workspace, customer workspace) the use of policies can be turned on or off. If policies are enabled for a workspace the user needs to have

a) the required permissions to access the workspace (see section “Access control using Permissions” on page 87) and

b) one of the policies assigned that control the workspace.
Figure 83 shows a typical example of workspaces controlled by policies. The vendor workspaces have assigned an attribute called “Purchasing Organization”. User Phyllis Lindstrom can only see vendor workspaces that belong to purchase organization 1000.

Policies are extremely powerful and can reduce administrative efforts for permission handling substantially as all required updates of policies are done completely automatically triggered by the SAP system:

1. SAP data change

   If a vendor changes form one purchase organization to another the access to the workspaces will automatically update, e.g. if a vendor is added to purchase organization 1000 Phyllis will automatically get access to the workspace and if a vendor is removed from purchase organization 1000 she will lose the access.

2. SAP user / role change

   If user Phyllis moves from purchase organization 1000 to 2000 and she gets assigned to a new role in SAP the access to the workspaces are automatically updated as well. She will lose access to all vendors belonging to purchase organization 1000 and gets access to all vendor workspaces of vendors belonging to purchase organization 2000. In Extended ECM she gets assigned to the right policy automatically. The policies granted to an user can be seen on the “General” page in the user administration:
In Extended ECM, policies are automatically created, based on the mapping defined in the SAP system. In the following the typical steps to set up policies are described:

1. Assign SAP user to SAP roles
   
   This is normal administrative work in an SAP system and not related to Extended ECM.

2. Synchronize the SAP data the SAP profiles are based on to Extended ECM categories
   
   The authorization object fields of a SAP profile needs to be mapped to attributes of the workspaces in Extended ECM (see section “Categories” on page 47). This is required to allow Extended ECM to actually control the access on workspaces. This is typically configured to happen automatically.

3. Synchronize the SAP roles to Extended ECM policies
   
   Extended ECM proves a synchronization program running inside SAP that can synchronize SAP roles to Extended ECM policies completely.
automatically. This program can be started manually by the administrator or run automatically at defined times.

The synchronization can be restricted to selected roles, authorizations or users as shown in Figure 85.

4. Synchronize the SAP role membership information to Extended ECM policy memberships

This step is carried to together with step 3 and does not require any manual updates in the ECM system. The ECM users are automatically assigned to the policies according to their SAP role membership in SAP.
The policies are stored in the so called Policy Volume of Extended ECM:

![Figure 86 Policy Volume of Extended ECM](image)

You can display the properties for each policy using the Properties functions menu:

- The General tab displays general Content Server information

![Figure 87 Policy - General](image)
- The Specific tab displays the information, which SAP system and client created the policy.

![Figure 88: Policy - Specific](image)

- The Authorizations tab displays attributes that are used to restrict access to workspaces.

![Figure 89: Policy - Authorizations](image)

- The Users tab displays users assigned to the policy.

![Figure 90: Policy - Users](image)
Version control

Extended ECM provides both check-in/check-out functionality and a comprehensive version history to enable robust version control. It is also possible to differentiate between major and minor document versions for each folder in Extended ECM:

It can be defined if a linear versioning or a major/minor versioning should be used. Minor/Major versioning has the benefit of allowing readers to only see the last major version while authors may already edit the next minor versions.

Check-In/Check-Out

Users can check-in and check-out documents being worked on. When an user checks out a document, Extended ECM “locks” the object, preventing other users from adding new versions of it. Once the original user adds a new version of the document and checks it in, Extended ECM unlocks the object, and other users can once again make changes. Reserving documents prevents users from “clobbering” each other’s work—i.e., overwriting the changes each makes with their own versions.

Version History

Extended ECM retains a comprehensive version history for each document object stored in the repository. Administrators can configure the number of versions to keep before purging old ones, but Extended ECM can be configured to retain versions indefinitely. Version history functionality provides security to your knowledge workers. Old versions of document objects can easily be reverted if incorrect changes are made, or simply if a rollback is required.
Users can download, lock, and delete specific versions of objects, as well as view the categories, references, and general information for each individual version.

![Figure 93 Version History of a Document](image)

**Event monitoring (Audit Trail)**

Extended ECM provides powerful auditing functionality that tracks actions that are performed on content objects. Audit trails can be activated for any content type, including documents, user profiles, workflows, and electronic forms.

The audit trail contains the history of events concerning a content item. An audit trail lists the type of operation performed on the item, the date and time of the operation, and the user who performed the operation. Audit trails allow you to determine who, for example, modified, downloaded, or deleted a file.

![Figure 94 Audit Trail of a Document](image)

Administrators have the ability to access detailed audit trail information that shows not just who made the change but also the specific details of the change; for example, the before and after values of a metadata field.

**Integration Points between ECM and SAP**

The benefit of deploying document management as part of a SAP-integrated ECM solution is that all business documents are filed with the business context from SAP. Wherever possible, users can file documents directly from the SAP process and the business context is automatically captured from SAP. Extended ECM extends that capability outside of SAP to content that originates in other processes, but using the same SAP master data. The result is that Extended ECM can always deliver the precise set of content needed by anyone working in the end-to-end business processes. Some processes will start from the ERP system and some start from content itself.
Extended ECM delivers the following integration points between its Document Management component and the business processes and business objects of SAP:

- **Synchronization** between SAP data and ECM metadata
  
  Use SAP data from various business objects or from SAP master data to fill Extended ECM metadata (see section *Content Metadata* on page 46). The metadata can be filled when the ECM content is created or synchronized each time the data is updated on the SAP side.
  
  For SAP business partner data, a special attribute type called *partner database* is available that can automatically be synchronized with SAP.

- **Workspace Creation** and **Business References**
  
  Extended ECM can automatically create a business workspace (see section *Content Workspaces – Connection to SAP Business Objects* on page 36) in the document management system if a new business object such as a customer or vendor is created in SAP. This way content is directly contextualized by SAP. Extended ECM uniquely relates a business workspace to a SAP business object in a way that makes it easy to open the workspace from inside SAP or to jump to the corresponding SAP object from inside a business workspace.

- **Shared Documents** between SAP and Extended ECM
  
  Extended ECM can expose SAP documents – archived using Extended ECM’s Enterprise Library capability – in the Document Management component and vice versa. This provides true shared content between SAP and Extended ECM’s document management. The same document can be attached to a SAP business object and be visible as a document in Extended ECM without duplication of the document content.

- **Search in SAP and non-SAP content**
  
  SAP managed documents can be full-text searched by Extended ECM’s integrated search engine (see section *Finding Content* on page 78). Users can also combine the full-text search with a metadata search that uses SAP business data or any other Extended ECM metadata in order to refine the search. This allows for combined search scenarios across content from SAP and Extended ECM using SAP business data and/or Extended ECM metadata to refine the search.

- **Reuse of SAP roles and authorizations** for ECM
  
  In many use case the authorization for the users is already properly managed inside the SAP system. SAP has a powerful system to manage role based access based on SAP data. Users can be assigned to multiple roles. Extended ECM allows reusing the SAP roles to govern also the access to content. This way the administration effort and the risk of inconsistent erroneous access rights are reduced substantially.
Capture – Automate Filing and Indexing

The paperless office is still just a dream for most organizations. Many business-critical processes still rely at least in part on paper – accounts payable, contract negotiation, order management, inbound correspondence, and expense claim reimbursements, among others. While paper has a tangible quality that makes it attractive for on-the-road portability and reading, the effectiveness of relying on physical forms, letters and receipts is not ideal.

Even though Extended ECM provides the means to track and manage boxes of paper files (see section Physical Objects on page 121), organizations can achieve substantial cost reductions by digitizing paper files and integrating the content of those documents into core business processes. By digitizing paper, the cost of physical storage space can be eliminated; the risk of loss due to fire, flood, or other disaster is greatly diminished; and the content is made available to all users electronically at the same time.

Extended ECM supports the digitization of paper through its scanning function from both the SAP and ECM user interface for digestion. This allows organizations to connect a scanning device and release digitized versions of paper documents into the central ECM repository where they can be controlled and used more effectively. The function also supports barcode recognition, enabling quick input of paper-based information.

<table>
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<tr>
<th>Solution Enablers</th>
<th>Value Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scanning</td>
<td>Eliminate paper and free up office space</td>
</tr>
<tr>
<td>Indexing</td>
<td>Reduce printing, copying and paper storage costs</td>
</tr>
<tr>
<td>Forms Management</td>
<td>Ensure consistent and cost-effective filing and audits</td>
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<tr>
<td>Intelligent Classification</td>
<td>Eliminate manual entry errors</td>
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<tr>
<td>Batch Processes</td>
<td>Decrease cost of filing content from non-SAP processes</td>
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<tr>
<td>Imaging</td>
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<tr>
<td>Bar-Code Recognition</td>
<td></td>
</tr>
<tr>
<td>Capture of various inbound types (paper, fax, mail…)</td>
<td></td>
</tr>
</tbody>
</table>

Extended ECM includes integrated imaging to support a range of document capture scenarios for high and low-volume requirements. Integrated with the workflow component, organizations can use barcodes, Optical Character Recognition (OCR) and automated metadata collection and categorization to streamline the capture process and ensure valuable content is properly stored and organized in context with related electronic content.

Business Processes

- Customer Correspondence
- Claims and Complaint Management
- Travel Expenses
- Procurement Lifecycle Management
- Your scenario ...
Capturing also allows organizations to easily match scanned content with related information created electronically in any number of applications—email, office suites, CAD systems or SAP—associated with meaningful metadata, such as case or customer number. Familiar user actions such as sticky-note comments, annotations, redlining, and other markups are available electronically.

Extended ECM includes an Enterprise Scan Client that can be used to implement processes from paper receipt by post through scanning and indexing, through to filing into Extended ECM or SAP applications.

The following picture illustrates the possible scenarios based on Enterprise Scan:

**Input**

Extended ECM’s Enterprise Scan capabilities can process images from different sources:

- **File Import / File Input** (TIFF, BMP and JPG files)
- **Scanner** (ISIS scanners, Kofax®-certified scanners)
- **External Storage** (Read in pages that have been buffered in this external store from within Enterprise Scan. This is a useful option in case the processing of scanned documents is distributed among multiple workstations.)
- **Fax Input** (Lotus Notes®, Microsoft® Exchange)
Extended ECM’s page processing capabilities improve the legibility of the document. In most cases, the page processing is performed automatically during the scanning operation. It allows for several page optimizations, such as:

- convert color images to black and white,
- reduce the size of the resulting images by reducing the number of colors in the image,
- rotate pages automatically,
- automatically de-speckle dirty black/white pages, and
- remove black borders from the image.

Barcode Recognition

Extended ECM includes the recognition of barcodes that can be stored for later processing. It is also possible to validate barcodes against regular expressions.
Separating Documents

In mass scanning scenarios, the individual documents can be separated automatically during scanning. If users do not define any separation criteria, all pages will be scanned into one document. After scanning, users can split the document manually into several documents.

To avoid this manual work, users can define separator pages specifying the end of one document and the beginning of a new one. The first page of a document can be recognized by a barcode, a patch code, or a blank page, or defined after a certain amount of pages.

Post-Processing

After scanning, the pages can be checked carefully, straightened, and cleaned up. Several functions are available to improve order, layout, and legibility. Several optimizations are available in Extended ECM’s Enterprise Scan client:

- Rotating Pages
  Some pages may have been scanned using the wrong orientation. Rotate these pages before the document is stored in Extended ECM to avoid having the user rotate the pages in the viewing application each time the document is retrieved.

- Sorting Documents
  The pages of a document can be in the wrong order or a page belongs to the wrong document. Complete documents might be at the wrong place in the document stack. This can all be corrected easily within Enterprise Scan.

- Separating or Joining Documents
  Users are able to correct the automatic separation during processing (see above).
• Merging Documents
  Merging interleaves the pages of two documents. This is useful when pages from a double-sided original have been scanned in by a device that can only scan one side at a time.

• Deleting Pages
  If you discover that a scanned page is illegible, you can delete it and scan the page again.

Indexing and Exporting
With Enterprise scan you can define where and how the scanned and processed pages will be stored.
Once the pages have been scanned, checked, sorted, and combined to form documents and groups, the indexing and archiving process is started.

Indexing with Extended ECM metadata
Indexing is the process of assigning metadata to the scanned documents for further processing and filing in the ECM repository.
To enter metadata in the Enterprise Scan process, the Extended ECM category that defines the metadata schema has to be configured first (see section Categories on page 47):

![Figure 99 Extended ECM Categories for Indexing in Enterprise Scan](image)
The users involved in the scanning process can then index the scanned documents with metadata from Extended ECM:

Exporting to Extended ECM

Enterprise Scan can send scanned documents directly into a folder in Extended ECM. The target folder can be set to a static folder or dynamically calculated based on index information and placeholders. Optionally, a workflow in Extended ECM can be started, and attached with the scanned documents (see section Content-Centric Workflow – Define, Control, and Accelerate Decision Processes on page 143).

Another option is to process the scanned documents in a document pipeline before storing them eventually in Extended ECM. This has the advantage that the document can be rendered (e.g., to PDF) or passed through an OCR before it is stored in Extended ECM.
Create Searchable PDFs

Enterprise Scan includes a functionality to create searchable PDFs that can be searched with Extended ECM’s full text search. It transforms images into PDF files (PDF/A or PDF) with the option to make them searchable using Optical Character Recognition (OCR). Possible input formats for the conversion are multi-page TIFF images or JPEG images.

To optimize the Optical Character Recognition it is possible to indicate the main language of the document in the parameterization. This affects the output character set as well as the choice of internal linguistic logic of the OCR.

Scan Integration with Barcode

Extended ECM provides built-in functionality to print barcodes. The barcode module enables users to print barcodes from container items such as workspaces or folders, and for documents. The following figure shows how to print a barcode for a document using the Function menu of the document.
When the paper version of a document is scanned in, the barcode is scanned as well (as a cover page). The electronic version of the document is then automatically stored in a workspace or folder specified by the barcode. If the barcode was generated from a document, the scanned document is automatically stored as a new version of the document.

Integration Points between ECM and SAP

The capturing component of Extended ECM allows for several integrations between SAP and ECM:

- Scanned documents can be forwarded to both SAP or Extended ECM.
- Scanned documents can be indexed with data from SAP or with metadata from Extended ECM’s Document Management component, and
- Documents that are scanned into a business workspace of Extended ECM can automatically be linked to the corresponding SAP business objects with Extended ECM Business References.
Records Management – Control Content and Reduce Compliance Costs

The exponential growth of unmanaged and unstructured content is a growing regulatory and legal risk for many organizations. If you don’t know where your unstructured content resides, who has access to it, if it still has value, or whether it should be destroyed – then these uncertainties pose a tangible risk to your organization. Many times valuable content might not be fully leveraged, the wrong people may have access to it, or it may be lost in a disaster. Obsolete content may be kept unnecessarily, driving up storage costs and becoming discoverable in the case of litigation. Auditable content control and retention is also necessary to comply with various regulations or needed to defend that you deleted the content in accordance with your records management program.

Extended ECM mitigates these risks by applying records management classifications to content to control its entire lifecycle from creation through archival to destruction. Extended ECM allows you to apply records management classifications to all unstructured content (including SAP content), whether it is added by users working in the ECM interface or in native SAP interfaces. It can be configured to apply records management classifications to documents automatically, eliminating the need for users to classify documents manually and helping ensure that the classifications are performed consistently and accurately.

But of course, not all enterprise content is electronic. Extended ECM also enables you to track the location and manage the circulation, manage the warehouse space, and control the lifecycle of physical content, such as boxes, files, DVDs, magazines, books, or any other type of physical object.
Records management is the next logical extension to document management: enriching the metadata on content, enhancing security, extending the corporate repository to physical content and storage space management, and allowing scheduled archiving, movement or destruction of content based on corporately approved rules and event triggers.

Highly regulated industries with rigid external compliance mandates, public sector, or paper-intensive processes can quickly benefit from the implementation of the records management offering as part of a governance strategy. In these cases, extending the capture, control, and preservation requirements to a broader range of electronic work-in-progress content is what then drives subsequent adoption of the document management offering.

The successful deployment of a records management program must include strong direction from internal business managers and corporate legal. Thinking about records management as purely a technology problem is unlikely to address the real business risks that could result from inappropriate destruction or retention policies. It is the business that faces compliance issues, and business users who generate the content that needs to be managed as a record. The deployments that are most successful are those that bring a cross-functional team into the planning stages: business users, legal, IT, records or knowledge managers backed up with executive sponsorship and funding.  

Records Management is an integral part of Extended ECM. A designated Records Management Workspace is used to configure the specific rules and policies that make up the Records Management solution:

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**Records Management Certifications**

Extended ECM – Records Management meets the following Record Management centric standards and certifications:

- Extended ECM’s Records Management is DoD 5015.2 STD v.3 Chapter 2 and DoD 5015.2 Chapter 3 certified (classified records) – February 2012

3 Useful guidelines, standards and best practices have been published by organizations such as ARMA, [https://www.arma.org/standards/index.cfm](https://www.arma.org/standards/index.cfm)
• OpenText Records Management - DoD 5015.2 STD v.3 Chapter 2 and 3 certified (classified records) – October 2011

• OpenText is the only vendor to have DoD 5015.2 Records Management certification for SAP, with OpenText Extended ECM for SAP Solutions; OpenText was the first to receive records management certification under the US Department of Defense (DoD) 5015.2 certification program (v.2 in Jan 2008).

• VERS Certified (Australia)

• Extended ECM’s Records Management is able to be used in combination with the OpenText Electronic Signatures (sold separately by OpenText) module to achieve FDA 21 CFR part 11 compliance.

• Extended ECM’s Records Management is able to be used in combination with OpenText Archive Server and OpenText Email Monitoring (sold separately by OpenText) to achieve SEC 17a-4 compliance.

• Extended ECM’s Records Management is able to be used in combination with internal policies to achieve ISO 15489 compliance.

OpenText is committed to delivering new solutions that meet Europe’s new records management software standard, called MoReq2010 with the recent modifications to that standard. OpenText is playing a role in helping to shape MoReq in industry forums, sharing expertise as a global leader in records management with proven experience delivering solutions that meet the world’s leading records management standards. The OpenText Records Management Product Manager was a member of the Expert Review Panel for the MoReq2010 specification. The OpenText feedback to the DLM Forum was instrumental in re-evaluating the specification and test cases.

File Plan

The role of the user in an ECM system is to create, manage, and collaborate on content that serves their business needs and related core business processes. End users require business taxonomy where they can place content. The business taxonomy organizes content in a fashion appropriate to the business need, and is easily understandable and navigable to the end users in that business.

The role of the Records Manager is to ensure that content is under a formal and consistent records management program. The Records Manager defines and describes the retention policies in addition to formalizing the procedures to classify (ensuring appropriate metadata), retain, destroy and/or archive the records. The primary taxonomy for the Records Manager is called file plan. The file plan is based on the classification taxonomies of Extended ECM (see section Taxonomic Classification on page 59)

The Records Manager ensures that business taxonomies are governed by the formal Records Management (RM) program and underpinned by the proper records classifications and retention schedules. This alleviates the challenge of teaching the entire organization about a file plan and how to file content appropriately. The end-user’s records live in their business containers (i.e. folders and workspaces) that are named on their business processes but are governed by the corporate records management program.

The records management classification / file plan provides logical, intuitive order to the enterprise content so it can be identified, stored, and retrieved. Extended ECM allows organizations to create as many levels in the classification file plan as are required to fully identify and index all corporate content. Records
Management classifications can be set up as functional (based on function – activity - transaction), in addition to the traditional block numeric classification structure (see Figure 106).

 Declare Records
As users add content to the Extended ECM repository, the object (and its content) can be classified and managed as a record (based on metadata,
retention schedule, vital record status, and so on). Most organizations automatically manage the record declaration so that users are not required to select the appropriate classification.

In addition, administrators can set up the metadata fields desired for population during record declaration. This can be accomplished through categories and attributes. Categories and attributes are additional metadata that are applied based on users’ business needs and processes.

Figure 108
Adding a Record (with minimal entry fields)
Most of the records management functionality is bound to documents by applying a RM classification to these documents. Extended ECM provides several options to classify records:

- inheritance of classification,
- manual classification by the user,
- assisted classification,
- automatic classification, and
- default classifications.

**Inheritance of Classification**

The first and most common method is inheritance from parent folder or workspace. The records management classification is set on the parent folder or workspace and all objects below the parent inherit the records management classification and retention from the container item. This applies to existing sub-items at the time of classification, as well as new sub-items added after classification.

At the time of record creation, the user is shown which RM classification would be applied if they elect to use the inheritance method. If the user has the proper privileges and requires a different RM classification, they can use one of the manual methods listed below.
Manual Classification

The second method is manual classification. Most companies do not employ this method of implementing records management due to the end-user complexity and fault-prone classification process.

Listed below are options for manual classification from the Add Item page:

- Navigate through the records management classification hierarchy to select the appropriate records management classification.
- Browse through “Favorite Classifications” to select the appropriate records management classification.
- Select using the “User Pick List,” which is automatically created and is populated with the 10 records management classifications most recently selected by the user.
- Select using the “Group Pick List” which allows records managers to create pick lists for specific groups. This pre-populated pick list can be set based on the user’s role or group in the organization.
- Search records management classifications by any metadata attribute or content to locate a records management classification.
- In addition to the Add Item page, manual classification can be done from different processes within the application. These include:
  - Search Result Set – The entire result list or specific objects can be chosen and classified.
  - Collection Area – The entire collection or specific objects within the collection can be classified.
  - Higher Level Container – The container can be classified and the classification can be applied to all sub-items.
  - Records Details Page – Each object can be classified using the properties page called Records Details.

Automatic Classification

The third method is auto-classification. Records can be classified automatically without intervention by records managers or end-users. This method is commonly used for doing records management on SAP content.

Records management classifications can be automatically assigned by key words in the content or the metadata discovered in the document during the indexing process. Exemplar documents for each classification can be used to train the automated records management classification. The system analyzes the exemplar documents and automatically identifies key words and phrases that characterize the classification. These phrases must be contained in documents to which the classification is automatically assigned.

Assisted Classification

The fourth method uses the assisted classification methodology. The automated system (see previous paragraph) proposes a classification assignment which records managers may confirm or reject.
Default Classification

As a final safeguard, the fifth method of classification can be deployed – assigning default Records Management classifications. Default classifications can be assigned based on the users’ defaults, the object type within the system, or a system-wide default. This method is typically used in combination with any of the above methods and is generally considered a failsafe to ensure classification in the event the object does not otherwise obtain a classification.

Users can set their own defaults and change them at will. This allows file clerks to create content in one part of the file plan to set their default for the duration of filing, and then change it for the next part for filing.

Setting a default based on item type can allow for specific fallback plans based on content types. For example, if an email perhaps doesn’t get classified by any of the above means because it doesn’t meet any criteria, it may be policy to assign it a transitory classification; on the other hand, if a contract isn’t classified it may be policy to assign it a pending classification that is monitored by the records managers, so they will be aware that the object needs to be classified.

Lastly, a system-wide default classification can be set, which would apply to any object that does not get classified by any other means. The use case for this is similar to the example above where a records manager may monitor this classification and ensure appropriate re-classification if necessary.

Once a document or object has been added to the Extended ECM repository and given a records management classification, the document or object is treated as a record. The document or object now has a records management classification with the appropriate retention schedule assigned to it.

Retention Schedules

Extended ECM provides the ability to fully define and manage corporate retention schedules. Records Series Identifiers (RSIs) define the retention schedules so the organization is in compliance with legislation and corporate policies. Retention schedules are assigned to RSIs and are used to identify records that have reached the end of a predetermined stage and are ready to be sent to the next stage of their lifecycle. Time, event, and time/event-based schedules are supported with the ability to use calculated dates, calendar calculations, event triggers, fixed dates, or permanent designations (see Figure 110 – Figure 112).
Figure 110
Information on the Retention Schedule

Figure 111
Justifications and Legal References
Retention calculations can be based on the following:

- **Calculated Date** (used when a rule states an action must be taken on a record after a specified period of time has elapsed),
- **Calendar Calculation** (used when a rule states an action must be taken on a record after a period of time following a specified year-end has elapsed),
- **Event Based** (used to define the state the record must be in or an event which must occur in order for the record to meet the criteria for the disposition to happen). Events can include updates to dates, codes, or other metadata changes,
- **Fixed Date** (used when a rule states an action must be taken on a specific date), and
- **Permanent** (used when a rule states a record is to be kept indefinitely).

**Dispositions and Holds**

**Disposition**

Extended ECM actively manages the lifecycle of content, enabling Records Managers to track and report on all necessary disposition activities. A disposition is a transition of content to the next stage in its lifecycle. Disposition approvals can be routed via workflow to the appropriate authorities (i.e., owning departments, corporate records managers, senior counsel) to request approval for particular activities, such as deletion of records.
The disposition search functionality provides a list of all the ECM and SAP content items, both physical and electronic, that have met the criteria of a specific retention schedule. These items have all reached a transition point in their lifecycle (i.e., they are ready to transition from active stage to inactive).

The search results of the disposition search identify what process can take place. This is all based on the rules and events created by the appropriate retention schedule.

Disposition searches can be created using whatever parameters an organization’s records management policy requires. Given the permissions, the disposition action can be modified (and an audit of this activity will be maintained in the system) or the action performed. Once the action is performed, all metadata associated with the object will be automatically updated (i.e., box has been moved to status equal to transferred, or box has been destroyed).

Extended ECM also keeps a full audit of all disposition activities so records managers can track the who, what, when, how, and why of actions performed against corporate records. This is often time required when content is involved in litigation.

Following is a screenshot of returned results from a disposition search to identify what action that records are ready for (in this case, destruction):

Once the disposition search results are displayed, an email notification of the results of the disposition processing can automatically be sent to the user who initiated the processing.

Disposition searches can be set up to run automatically at certain time periods (such as daily, weekly, monthly, annually, etc.), and the creator of the search will receive an email notification that the search has been completed. The user may also set the searches to automatically action the results so no intervention is needed to perform the actions due by the retention schedule.

The actions that are available to be taken as part of a disposition search (and can be performed either automatically or manually) are: delete the electronic portion of the record, but leave the metadata intact; destroy the record including metadata; export the record and metadata; change the status of the record; mark the record official; and update the storage provider (or move the content to a different storage provider).
Holds

An important aspect of Extended ECM Records Management control is to place content on hold (or even have multiple holds applied). If a hold applies to a content it will become frozen (i.e. cannot be deleted) and will no longer move through other phases of its lifecycle until all the holds are removed. Content with a hold will not appear on the disposition listing either.

Extended ECM has an area for Hold Maintenance, which is where one performs the administration of the holds, such as:

- Create the holds and specify the name, the hold type, and anticipated date of suspension
- View all holds,
- Suspend the hold if it is no longer applicable,
- View all objects associated to the hold(s), and
- Export all contents of the hold, for the purpose of discovery, for example.

Holds can be applied to items directly or indirectly. When the user assigns a hold to an item, this is called a direct application of a hold. If the user is a Records Manager or has the proper functional access, they can assign a hold directly by the following means:

1. On the Hold Properties tab of an item.

2. From a search result, selection of objects or the entire results list via a batch method.

3. From a collection of items (see section Collections on page 62).

An indirect application of a hold is when an object is under the control of the hold, but the hold isn’t directly applied to it. Examples of this method are:

1. If a container item like a folder has a hold applied, then all contents and sub-contents are also on hold indirectly.

2. If content has a direct hold, then its parent items up the “tree” are also on hold indirectly. So if a document in a folder is on hold, the folder is also prevented from deletion so as not to create orphaned items.

3. If a records classification has a hold applied, then all the content associated to that classification and its parents, children, etc., are on hold.

When a hold is applied to content (either directly or indirectly), the permissions on the content are not modified, rather the prevention of deletion is done dynamically when any request for deletion is made. It is understood that thousands or more documents can be placed on hold at one time (and this could result in many more
indirect holds applied). If the access control lists of all these objects needed to be updated, this would be a considerable hit on system performance. It should be noted too, that when a hold is lifted from the object it just resumes its previous status, and no permissions have to be replaced on the object because they were not modified to begin with.

There is no limit to the number of holds any one object can have in the system – an object can be placed on hold for different audits, and for litigation or other reasons as well. The object cannot be deleted until all holds have been removed. A full audit trail is kept regarding which holds are on which objects and who assigned them and when.

Extended ECM has full capabilities to export content on hold, either in XML format (with all metadata), or stored to a CD image, which is often used when content is requested in a discovery motion.

Holds are generally used for specific purposes, such as distinct audits, or specific legal cases. Extended ECM has other options for customers who wish to prevent deletion yet don’t have the legal requirements for applying holds. If a customer does not want to manage the hold process, yet wishes to control the deletion of content, some other choices of configuration are:

1. Use a setting called Under Disposition Control. If this setting is enabled on a retention code (RSI), content under the control of that code is not allowed to be deleted except from the disposition process. This is not a system wide setting, but can be determined for each RSI; therefore, the user can specify which objects should not be deletable except from a disposition process.

2. Use the Recycle Bin. If the user has no legal reason for using holds, and wants to have a method to return content that has been deleted, they can use the Recycle Bin functionality (see section Recycle Bin on page 77).

3. Use storage media that supports hardware retention. Some storage vendors have the capability to lock down content and create a non-alterable media for a period of time. Extended ECM can work with this functionality and pass down the retention period based on the RSI and records classification. This is another method to prevent deletion for a certain time period.

Many of the above options can be used in combination to achieve the desired results.

Physical Objects

Extended ECM manages both physical and electronic assets. It provides the necessary function and features that are specific to manage physical objects (i.e., labels, boxing, transfers, warehouse management, space management, and so on). From an enterprise records management perspective, whether an organization is managing physical and/or electronic content, the overall program will remain consistent. This means that the classifications such as retention schedules, disposition, and workflow, are managed the same on electronic and physical content.
But due to its physical nature, Records Management for physical content needs additional functionality over its lifecycle:

Figure 115
Management of physical Content

Adding physical objects is similar to adding folders and documents:

Figure 116
Add a Physical Object
Physical records do have specific requirements to address, and Extended ECM has a special workspace dedicated to address these specific needs:

![Figure 117 Physical Objects Workspace](image)

**Physical Item Types**

Physical item types are used to describe physical items; some common examples are types such as letter box, A4 box, hanging file, folder, memo, contract, CD, microfiche, DVD, etc. There is no limit to the number of physical item types that can be in use in a system. Each physical item type can have a different (and customizable) associated icon and metadata attributes. Special properties can be assigned to each type to adhere to business rules; for instance:

- Set up permissions on each type so only a subset of users can create microfiche or A4 boxes.
- Designate some types as being container objects and allow children’s objects.
- Set up rules such that an A4 box cannot contain hanging files.
- Set up specific formats for each type’s unique ID, if desired.

Many of the business rules above facilitate having a global RM solution with the ability to execute locally. For instance, an office in the UK will have A4 size paper, and an office in the US will have letter size paper. They may wish to share the same system and to perhaps send all boxes to the same warehouse, but they need to be treated separately for reasons of storage, etc.
Circulations

Tracking the movement of your physical content within your organization is called circulation. Circulation includes requesting objects, borrowing objects, passing objects to others, flagging objects for pick-up, and returning objects. End users can perform these functions in bulk from a search result or individually from the object’s properties tab.

The option of using barcodes to facilitate these actions is also available. Any barcode scanner reading 3 of 9 fonts is supported (remote scanners are also supported). Administrators can also run reports on borrowed objects and send overdue notices out, etc. They also have access to a full circulation history showing who has had the objects and when.

The permissions required for circulation activities are configurable via Functional Access and system settings.

Extended ECM also has the capability to have specific custodian sites if desired. This also facilitates a global program that can be executed locally. For instance, it is very likely that global companies will have many record centers scattered across geographies. It is also likely there will be managers of each center that are the custodians (so to speak) that manage the ability to perform circulation tasks. With Extended ECM, the location codes can be set up to have specific
custodians to ensure that, for example, the UK custodian cannot circulate objects in the US, but would have to go through a request process to the US custodian. And as mentioned in an earlier section, Requests can be configured to automatically send an email to a designated address for the location of the record.

![Figure 119 Borrowing Physical Items](image)

**Boxing**

As mentioned in subsequent sections, boxing of content is supported in many scenarios. Content may be assigned to boxes simply by scanning the barcode of the objects going into the box, or the system can be manually updated. There are also many business rules that can be set up for boxes, for example:

- Restrict the contents going into the box to ensure that all the objects have the same retention code. This is to ensure that when performing disposition functions, the user can simply action the whole box and not have to action the contents individually. The system can be set to either warn the user or prevent the user from adding content to a box that has a different retention code.

- Synchronize the metadata of the fields, such as location with the content in the box. This would ensure the metadata for the single objects as well as that the box is synchronized.

- Restrict the contents going into the box to be within the date range of the box, or alternatively the user can automatically adjust the box’s date range if the content going in is outside the original range.

Again, these rules allow the user to manage the lifecycle at the box level if desired.
All Extended ECM functionalities can take place throughout the RM workspace, Physical Objects (PO) workspace, or directly from a search screen or on the individual objects themselves.

**Barcodes and Labels**

Extended ECM’s records management functionality supports the generation and printing of labels, including barcode and color-coded labels. Labels can be printed on demand, one at a time, in batches, or even at different starting points on the label sheet. They can be printed to predetermined printers, thermal printers, laser printers, etc.

The details of the label will be based on the organization’s business requirements. All metadata contained within the physical object can be applied to the label. The barcode is based on the unique ID for each physical object and any record is searchable based on this unique ID. The placement of the fields and the fonts and colors used are determined via scripts and XML. Below is a sample label with barcoding. Extended ECM supports any 3 of 9 barcode font.
Space / Warehouse Management Capabilities

Physical items can be transferred into a physical space (i.e., a warehouse) for the purpose of safekeeping. Setting up the type of facility and number of facilities is totally configurable based on organizational needs. The Records Manager may also choose how they wish the space in the facility be managed; for example, if they wish to store highly requested objects in a convenient spot, and less requested objects in more difficult spots to access, this arrangement can be set up this way. The Records Manager can also set up to manage space based on the sizes of the objects (only letter-size boxes on shelves 1-10, for example).

Boxes are assigned specific locators. For example, the system can verify there is sufficient free space. The system can also be used to search all available spaces. When a box is assigned a locator, the free space left in the locator is automatically decremented based on the box size. It is also possible to associate an offsite storage ID (i.e., the Iron Mountain locator number) for easy retrieval of content from 3rd party storage vendors as well.

It is also possible to define a “transfer” and then assign boxes to the transfer. The transfer can then be sent and later received. The boxes in the transfer can be assigned to locators (i.e., facility, area, location). Users can also send boxes outside of transfers. The screenshots below identify the metadata associated with a box (i.e., transfer information, storage management information, etc.).
Figure 122 shows some of the properties of a box.

Metadata associated with a Box

Figure 123 shows how transfers are managed.

Managing Transfers
Figure 124 shows how storage locators are managed.

Records Management for SAP

Extended ECM allows the declaring SAP documents (SAP ArchiveLink documents and SAP print lists) as records and put them under control of Extended ECM’s Records Management. This way organizations can establish an enterprise-wide Records Management program that covers SAP documents and non-SAP documents with the same policies and rules for content lifecycle and retention management.

The declaration can be performed in three ways:

1. Interactive records declaration by a SAP user.
2. Automatically record declaration during document creation in SAP.
3. Batch mode records declaration by a SAP administrator.

Most organizations tend to use the second method for managing SAP content when applying records management to this content.

Extended ECM’s disposition process will eliminate expired content in the same manner it does for non-SAP content. Extended ECM reads the corresponding notification messages and deletes all affected document links in SAP as well. Most organization chose not to separate the disposition process of SAP content from non-SAP content and have a combined disposition result set with all corporate content that has reached the end of its lifecycle.

In SAP users can attach documents to SAP transactions or SAP business objects via the SAP Generic Object Services (GOS). GOS are available in almost any SAP business transactions.

Extended ECM extends the GOS attachment list service to allow for the declaration and viewing of records. For this reason Extended ECM enhances the attachment list in SAP ECC with additional toolbar buttons and columns.
The Extended ECM toolbar allows users to declare a document as a record (.fa) and to view the record details (fa). In the attachment list, records are marked with fa and official records are marked with fa in an additional column.

Figure 126 shows the dialog mask presented to SAP users querying the records information of a document.
Integration Points between ECM and SAP

Extended ECM delivers the following integration points between its Records Management component and the business processes and business objects of SAP:

- **Leverage SAP Data** to drive Records Management
  The ability to leverage SAP metadata to determine which RM classification records should be assigned, and the lifecycle of content can be controlled by the business information available in SAP. For event-based retention schedules SAP metadata can be used to trigger the event.

- **Enterprise-Wide Records Management for SAP and non-SAP documents**
  Extended ECM’s Records Management component can be used to control the lifecycle of both SAP documents and non-SAP documents. The same file plan and the same retention schedules can be used for all business documents in an organization independent of where they originate or which application is displaying them. When native SAP documents have reached the end of their lifecycle and are ready for disposition they are also deleted and no longer visible in SAP.
Archiving – Compliance and Intelligent Storage Management

Faced with today’s climate of strict compliance and demands for maximizing ROI, archiving matters more than ever. Companies inundated with content – scanned documents, email, files from file systems, data files from host, SAP, Microsoft, and other applications – must deal with it every day in ways that meet all regulatory requirements and instill organizational trust amongst shareholders and customers. Archiving plays a central role in long-term preservation of content in a secure and cost-effective way so that it’s available when needed.

Archiving has become strategic and mission-critical to organizations because it can help achieve the following goals:

- Archiving allows users to store content from various sources such as SAP documents, SAP data, and non-SAP content into a central Enterprise Library.
- Archiving allows for vendor agnostic storage management to make it transparent to the content management application which storage hardware is used.
- Archiving supports a company’s compliance efforts. It supports the discovery of information for litigation, and allows you to abide by new regulations designed to ensure the integrity of financial control and reporting.
- Archiving forms the basis for records management (automating the management of record archiving and retention policies – see section Records Management – Control Content and Reduce Compliance Costs starting on page 109).
- Archiving saves costs in the IT department by single-instance archiving, legacy system decommissioning, and the consolidation of archiving landscape.
- Archiving allows for intelligent storage management that can move content between different storage systems depending on the business value or risk associated with the content.
Intelligent Storage Management

As content ages or changes status, it is typically used and retrieved less frequently. Yet few organizations have solid insights into how often content is used, or what proportion of content is still viewed after six months. The Intelligent Storage Management capabilities offered by the archiving component of Extended ECM gives IT the flexibility to move and store infrequently used or less critical content to more economical storage devices. High value and frequently used content can be directed to premium storage devices for high accessibility and rapid retrieval. Content that is no longer changed, but still of evidence for the company can be archived on a secure long-term repository, giving you the peace of mind that all documents are safely stored for years, yet still instantly available when needed.

Stored content has a cost – the hardware devices, regular backup, and administration overhead. Intelligent Storage Management offers the ability to reduce the cost and burden of content storage as its value or usefulness decreases. The ability to synchronize content value with vendor-agnostic storage virtualization opens the door to new ways to manage IT costs. Intelligent Storage Management allows a liberal mix of storage technologies from a diverse group of storage vendors to be combined into one or more logical enterprise archive repositories. The storage of inactive or infrequently used content can be directly tied to records management storage rules, and item movement can be triggered by metadata or other key lifecycle events.
Intelligent Storage Management integrates Enterprise Content Management with storage virtualization and archiving services to substantially reduce storage costs. The solution drives storage according to business context, harnessing the rich metadata of Extended ECM to optimize storage – including migrating content automatically through multiple storage tiers, leveraging less expensive media, while providing high-end storage services to further reduce storage demands.

**Archive Server**

OpenText Archive Server incorporates the following components for storing, managing, and retrieving content:

- **Document Service** – Controls the storage and retrieval of the individual components. It provides the key capabilities such as transparent content compression, content encryption, and single-instance archiving.
- **Storage Manager (STORM)** – Transfers the content to the storage platforms and controls the storage devices. The Storage Manager is responsible for handling storage devices and storing content on the storage platforms.

- **Document Pipeline** – Used to transport and process the data and documents to be archived. (The Document Pipeline is optional.)

- **Archive Cache Server** – Speeds up the access to the archived documents. The Cache Server is optional and used in ECM environments, mostly with worldwide, distributed departments and low network bandwidth. The Document Service itself contains a service to cache content from slow media.

Complex ECM landscapes can consist of several Archive Servers; for example, to reduce access time in large – possibly worldwide distributed – networks, or to improve reliability by mirroring an entire Archive Server. If an Archive Server acts as a mirroring system of another server, it is called a Replication Server. Additional Cache Servers complement these servers to a complete, worldwide storage landscape.

**Archiving Non-SAP Content**

**Storage Provider and Storage Rules**

The administrator of Extended ECM uses *Storage Providers* and associated *Storage Rules* to map each content type to an appropriate storage type according to business needs. Every new document version within Extended ECM will be matched against these storage rules and stored in the according Storage Provider. These storage rules are highly configurable and can be based on name, node, workspace, metadata, Records Management classification, document size, date, or any other characteristic or combination of characteristics of content.

The different types of content storage are transparent for the user, which means all functionality such as storing, editing, creating of new document versions, indexing, searching, and retention rules (within Records Management) are universally available for documents on all storage types. The storage type of a document within Extended ECM can be seen by checking the document properties. Within the “Versions” tab of the document properties, the Storage Provider is specified for each version (see Figure 130).

The Archive Server of Extended ECM allows users to group content into (one or more) logical archives. A logical archive may have individual storing properties such as compression, single-instance archiving, and encryption. Therefore the configuration of the Storage Providers within the Extended ECM administration is based on logical archives, not on archive servers. First step in configuring a Storage Provider is connecting the Content Server to an Archive Server, which then unveils all configured logical archives to the Storage Provider. In a second step logical archives can be used to configure Storage Providers of type...
**Enterprise Archive.** In a third step, storage rules are configured using the existing Storage Providers.

![Configure Storage Rules](image)

The storage rules have a prioritization schema within Extended ECM (priority is top to bottom in the list of the administration) and are evaluated in order of this schema. The first storage rule applying will take effect even if another lower prioritized rule will also apply. If no storage rule applies, the default Storage Provider is used. A default Storage Provider is always configured for Extended ECM and can't be removed by the administrator.

In the following figure, there is an example storage rule defining that corporate records should be moved to a secure archive:

![Configure Rule: Corporate Records go to Archive Server](image)

Each storage rule consists of the actual rule, which defines the property of the documents to be checked, a description text, the value of the selected property, and the Storage Provider that should be used when the rule applies.
Content Move

Extended ECM provides the capability to move content between storage locations. The *Content Move* component allows you to apply storage rules to existing documents in order to move document content from one storage provider to another. Within so-called *move jobs* you define when to apply the storage rules and on which documents. Move jobs can be scheduled to be executed regularly or only once.

Every document version is treated by the storage rules as a single item, which means that it is possible to move only some versions of a document to another Storage Provider. For example, it is possible to move all but the newest version of a document to a cheaper medium.

There is a special volume in Extended ECM where all content move jobs are administered:

![Image of Content Move Jobs](image)

**Figure 133 Content Move Jobs**

Enabled move jobs are started automatically at the scheduled date and time. You can schedule the move job to run more than once per day or at varying times on different days, or periodically at recurring times. Thus, you can automatically keep the storage for documents consistent to the defined storage rules.

The current status and activity of the scheduled move jobs is displayed in the overview as well.
The following Figure 134 shows a content move job that is used to move all content in the Recycle Bin of Extended ECM to a cheaper medium (based on the storage rules shown in Figure 132):

![Figure 134: Recycle Bin Content Move Job]

The *Condition* parameter controls the starting point for the move job. This can be a specified folder, volume, Storage Provider or from a list of dedicated nodes. All documents contained therein are evaluated and processed according to the actual defined storage rules. If a storage rule applies to a document, the document is moved to the Storage Provider prescribed by the rule.

You can define *start date* and *end date* and a maximum *duration* for a move job; if this time limit is exceeded, the move job is stopped and restarted at the next scheduled starting time of the move job. This is useful to avoid interfering with regular daytime business transactions on the server.

The move jobs are processed in the order of definition. Once the first move job is finished, the next is started, and so on. When you define a new move job, an order is automatically defined. However, you can change the order manually.

Generally, enabled move jobs are started automatically at the scheduled time and stopped when they are completed. If another move job with a higher priority is found during execution, the first move job is stopped temporarily until the higher prioritized move job is finished. The first move job is rescheduled; i.e., if it is still within its maximum duration time when the interrupting move job finishes, the first move job is continued. Otherwise, it is continued at the next scheduled starting time.

However, you can also control the execution of a move job manually. This is useful for test purposes or to rerun move jobs dropped for any other reason (like hardware maintenance on the server).
Archiving SAP Content

Data Archiving

Every SAP business process generates data that is typically stored within the SAP database. Over time, however, the volume of data hampers SAP system performance and slows down access to information. The prolonged backup and restoration of information adds to administrator workload and increases costs.

Data Archiving is the process of archiving SAP transactional data. It allows organizations to select, export, and remove obsolete transaction data from the SAP system database. It collates all relevant business data from the many tables in the database. The transactional data is written to a file and archived on a secure and reliable content repository such as OpenText Archive Server, which is part of Extended ECM.

In addition to standard SAP Data Archiving, business content can also be stored as data extracts, reports, and print lists. These allow companies to generate summary reports with data from different transactions and applications and can be converted to formats that are viewable independent of the SAP system. They can range from several megabytes to gigabytes and can be archived at several intervals, such as weekly, monthly, or quarterly. The Archive Server and Imaging Viewer components of Extended ECM optimize access, search, and retrieval of data extracts, reports, and print lists. An example of such optimization is the ability to access specific parts of a data extract, report, or print list without having to download the entire object (which may be gigabytes in size). Simple access to data extracts, reports, and print lists guarantees the availability of information. Users can access original archived documents by using hyperlinks in the data extracts, reports, and print lists; searching in them or performing an attribute search.

The benefits of Data Archiving for SAP include:

- **Reduced maintenance and support costs** (lower total cost of ownership (TCO)) – Manage the growth of the SAP database, keep the SAP application healthy and thereby response times low. Reduce the costs of maintaining and running a growing application infrastructure by removing historical data and documents. Reduce down times during system backup and system upgrades.
- **Reduced risk** – Reduce operational risks by storing data archiving files and print lists securely in a tamper-proof form.

- **Regulatory compliance** – Comply with regulations that govern data and document retention (for example, data related to tax filings) by secure long-term archiving of data files.

**Document Archiving**

Document Archiving is the process of archiving documents, linking them to a SAP business object, and making them accessible from the corresponding SAP business transaction. This functionality is provided as part OpenText Extended ECM for SAP Solutions.

SAP applications can generate a huge volume of outgoing electronic documents during transactional processing. An example of such a process is the weekly billing run, which generates customer invoices. These invoices are then printed out and sent to customers via direct mail.

On the other hand, transactional processes in SAP often require the integration of incoming documents. The best known example of such documents are incoming invoice documents, which trigger the accounts payable process in SAP. Other examples of content-driven processes in SAP are HR processes, order entry, or contract management. In addition, desktop and office documents in any form can be archived and linked to SAP.

In all of these examples, the electronic copies of the involved business documents must remain accessible for years after the process is complete to meet legal requirements. The ability to archive large volumes of business documents, therefore, not only enhances business efficiency, but also enables regulatory compliance.

![Access to archived documents in SAP GUI](image)

Extended ECM enables users to create, access, manage, and securely archive all SAP related business documents, thereby addressing stringent requirements.
for risk reduction and operational efficiency. It provides highly scalable and secure document imaging and archiving services for the complete range of SAP business documents, such as incoming/outgoing invoices, orders, delivery notes, contracts, HR employee documents, and more. This is a complete out-of-the-box solution which supports the complete SAP Business Suite, i.e., SAP ERP, HCM, CRM, SCR, SRM, PLM plus the SAP industry solutions based on SAP ERP, and provides seamless integration with SAP Workflow.

Once a document has been saved in the archive, it is immediately available to users at every workstation. Finding documents involves using standard SAP transactions and the SAP object. Retrieval is through a special SAP menu item, the attachment list of the object services.

In addition, OpenText offers solutions for viewing documents, adding notes and annotations to documents, scanning high, mid and low document volumes, form overlay of outgoing documents printed on paper forms, and integrating with Microsoft Office and groupware (Microsoft Exchange and Lotus Notes) applications.

The benefits of Extended ECM SAP Document Archiving for SAP include:

- **Higher process efficiency and reduced operational costs** – Completely eliminate paper or microfiche archives and greatly reduce paper handling inefficiencies. Provide direct access to business documents anytime and anywhere, thereby reducing cost per transaction and enabling shared service centers.

- **Accelerated SAP processes** – Paper-based processes such as invoice verification or incoming order management immediately benefit from electronic workflow with document integration by the elimination of the paper transport time. This results in shorter process cycle times and in a payback period of typically less than one year. The return on investment (ROI) may be driven by taking advantage of cash discounts through instant invoice verification, the competitive advantage gained through same-day order processing, full access to customer data that ensures a high service level, and so on.

- **Compliance with regulations and internal controls** – Secure, long-term archiving (in a standard format such as TIFF or PDF/A) is a requirement for document retention in accordance with legal regulations (for example, archiving tax-related documents).

- **Reduced risk** – Content must be protected from loss in disasters, such as fire, flooding, and storms. With this solution, documents can be replicated to additional geographically dispersed storage locations. If one of these locations is destroyed, vital documents remain available.

**Integration Points between ECM and SAP**

Archiving allows storing content from various sources such as SAP documents, SAP data, and non-SAP content from Extended ECM’s Document Management component into a central *Enterprise Library*.

The integration between Archive Server and SAP is based on and certified for various standard SAP interfaces:

- SAP ArchiveLink™ interface,
- SAP HTTP Content Server interface, and
- SAP ILM WebDAV interface (together with other components of Enterprise Library).
The SAP ArchiveLink interface — developed in 1992 by SAP and IXOS Software AG (which is now OpenText), is the most important communication interface between SAP and an external archive system. This standard SAP component allows for linking documents that Archive Server manages with SAP business processes, and provides retrieval through SAP transactions.

The SAP HTTP Content Server interface is the current version of the ArchiveLink interface. In addition to accommodating ArchiveLink documents, it allows for connection to the SAP Knowledge Provider, which is used for SAP PLM and SAP DMS, for example.

The SAP ILM WebDAV interface is the successor to the SAP WebDAV XML Data Archiving interface. The ILM WebDAV interface is used to manage the complete lifecycle of archived SAP data. Enterprise Library together with the Archive Server enforces the retention periods and holds, which are transmitted by SAP for the data archiving files.

All these integrations into standard SAP interfaces allow customers to leverage the document functionality of SAP in each and every SAP module. Also through the usage of these standard interfaces, Archive Server can be rapidly connected to SAP.
Content-Centric Workflow – Define, Control, and Accelerate Decision Processes

A core feature of Extended ECM is a content-centric workflow tool, which allows both structured and ad-hoc routing of documents for a variety of approval, review, and feedback processes to control every aspect of the document lifecycle. Using simple graphical tools to map out the process flow, authorized users and administrators can automate routine activities, streamline the movement of content across teams, show measurable cost and time savings by eliminating redundant stages, automate escalations, relieve the burden of using email to transport duplicated attachments, and provide insight and transparency into process bottlenecks and missed deadlines.

It’s important to note that the Extended ECM content-centric workflow is not meant to be used for modeling complex business processes, which is clearly an area for SAP Workflow or other Business Process Management solutions.

Workflows in Extended ECM provide the following key features and benefits:

- Define and modify user and group participation in workflows.
- Define steps, assignment profiles, and specific instructions.
- Specify which steps require approval.
- Create parallel workflows so that multiple steps can be performed simultaneously.
- Attach documents and folders to workflows while maintaining powerful document management and audit control.
- Set milestones to denote major points along a workflow.
• Dynamically route information and processes based on conditional workflow steps, values in custom attributes, workflow status, values in electronic forms, and/or milestone status. For example, you can define a conditional workflow based on milestones—if a milestone is missed, then launch another workflow.

• Automatically save versions of workflows – Extended ECM full Document Management functionality even applies to workflows, including audit trails, version control, and permissions.

• Advanced step-assignment features include: the ability to assign steps based on roles; the ability to assign steps to more than one group, role, or user; and the ability to designate the step assignee based on the assignee in the previous step or on an attribute value.

• Conditional expressions have more powerful and flexible features, including support for compound expressions and the ability to define multiple paths.

• Eight levels of permissions can be specified for users and groups in a workflow, including “See Details”, “Suspend”, “Stop”, “Delete”, “Archive”, “Change Permissions”, “Change Date”, and “Change Route”.

Creating Workflow Maps

Extended ECM’s graphical browser-based Workflow Designer enables you to drag and drop steps and assignees, attach documents or other objects, create sub-workflows, define conditional loopbacks, set milestones, and specify project details such as deliverables and due dates.

Modifying workflow maps is just as easy – simply drag and drop workflow steps on the map to modify and update processes.

Figure 138
Workflow Painter
There are different step types available in the Extended ECM workflow:

<table>
<thead>
<tr>
<th>Workflow Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Step</td>
<td>The first step in the workflow. There has to be exactly one start step in each workflow.</td>
</tr>
<tr>
<td>User Step</td>
<td>The user can review documents, add documents as attachment to the workflow, or update workflow forms or metadata.</td>
</tr>
<tr>
<td>Initiator User Step</td>
<td>A user step that is assigned to the initiator of the workflow.</td>
</tr>
<tr>
<td>Item Handler Step</td>
<td>This step can automatically update documents or change metadata in Extended ECM.</td>
</tr>
<tr>
<td>Condition Step</td>
<td>Models a decision point in the workflow to make a distinction of different cases. It decides on the routing in the workflow.</td>
</tr>
<tr>
<td>Milestone</td>
<td>Identifies an important point in the workflow.</td>
</tr>
<tr>
<td>Process Step</td>
<td>Can be used to send emails to users or to execute event scripts in Extended ECM.</td>
</tr>
<tr>
<td>Form Step</td>
<td>A special user step that presents an electronic form to the user (for data entry or for data review).</td>
</tr>
</tbody>
</table>

Managing Workflows

In order to control the status of in-progress workflows at any given moment each Extended ECM user has a workflow status page to inspect workflows that the user has initiated.

![Figure 139 Workflow Management](image)

The user can see the Status of the workflow (i.e., OK, Step Late, etc.), the Start Date, and the Due Date. The user can also see their relationship to the workflow (typically, the user is the initiator of the workflow).
By clicking on a workflow users get a detailed overview on the workflow:

![Workflow detailed Processing Status (Step List)](image)

Here the workflow manager can see who already processed the workflow steps (1) and who is currently in charge of processing the next step (2).

**Working with Workflows**

**Initiating Workflows**

A workflow can be initiated by an user of Extended ECM in several ways:

1. Clicking on the workflow map item in the Web Client of Extended ECM opens the initiation page of the workflow. The user can add attachments to the workflow, enter workflow attributes and comments, and finally start a new instance of this workflow map by clicking the *Initiate* button.

![Initiate a Workflow](image)

2. Using a Form to trigger a workflow and passing all the form fields to the workflow (see section "Working with Forms" on page 151).

3. Assigning an email address to the workflow lets users send an email to this address to initiate a workflow. The workflow will start using the body and attachments of the email. This function is based on the Extended ECM eLink capability (see also section "Email-enabled Container Items" on page 181).
4. Workflows can also easily be initiated for a given document (e.g., document approvals or reviews), or for complete workspaces (e.g., to control the case processing).
The user has to select the actual workflow from a list of available workflows:

![Selecting the Workflow](image)

For the workspaces, the currently running workflows are displayed on the case workspace overview page:

![Inspecting the running Workflows in a Workspace](image)

The user can directly see the status of the workflow and for which items in the workspace the workflow was initiated. By clicking on the workflow the user is able to see the full details of the running workflows related to the workspace.
There is a very flexible configuration on how workflows are mapped to the workspaces:

![Figure 147 Assigning Workflows to Documents and Workspaces](image)

In the initiation tab of each workflow the administrator can define what properties a workspace or document should have in order to make this workflow available. This can be controlled by the content type (item type), the content metadata (categories), and the assigned classification (or a combination of these conditions).

**Workflow Assignments**

When workflow processing reaches a step that is assigned to an user or to a group to which the user belongs, it appears on user’s My Assignments page and on the Assignments tab on the My Workflows page.
Users need to display the step on the Workflow Step page to learn about the task they need to perform and then do one of the following:

- Complete the step tasks, and then send on workflow processing to the next step.
- If the step is assigned to a group to which the user belongs, they accept or decline responsibility for completing the task.
- Send the step tasks for review by another user before sending on workflow processing to the next step.

Also, if the workflow designer has email-enabled the workflow, the user may be able to complete a workflow task through email.

**Send Steps for Review**

After an user completes work on a step, they can send the step to another user or group for review. Also, the user can forward the step to a sub-workflow for review. For example, if the user requires editorial approval of a report, they could send the report to a separate workflow that automates an editorial review process.

After the user sends a workflow step for review, it disappears from the Assignments page and appears on the Assignments page of the reviewing user or group. When the review is complete, the workflow returns to the original user so they can send on the workflow to the next step.

**Delegating Steps**

Users can delegate a step to another user or group to perform the step task. Also, users can forward a step to a sub-workflow required by the step. For example, if the user requires approval of a purchase order, you could delegate the pending purchase order to a separate workflow that automates purchase order approval.

A delegated workflow step is moved from the user’s Assignments page to the Assignments page of the user or group to whom the step was delegated.
Working with Forms

Extended ECM includes built-in support for Forms. Forms are electronic documents organizations can use to collect and store structured data such as survey information, requests, and questionnaires. Also, Forms can be used in workflows to collect or present structured data in the workflow or to start a workflow by submitting a Form.

Extended ECM allows selection of processing and data-storage options for each individual Form:

- **Versions** – Each submitted Form is saved as a version of the Form, similar to document versioning.
- **Relational Database Tables** – Dedicated database tables can be created to store the Form data of each submitted Form where it can be accessed by LiveReports (see page 86) or external applications.
- **Initiate Workflow** – The Form data is passed to a workflow that is initiated when an user submits the Form.
The Form derives its layout and design from the Form Template on which it is based. Form Template fields are defined using the Form Painter, which allows adding and configuring the fields that should appear on the Forms based on this template.

The Form Designer can define single value fields, pop-up fields, or a checkbox, allowing you to determine the best input method for each piece of Form data.

Form Templates can have multiple custom views. A custom view is an alternative presentation of the default Form based on the Form Template. The Form Designer can create any number of views to customize a Form for specific purposes. For instance, you can create a custom view that hides a field that you do not want to use in special cases. The Form Designer can specify which users or groups receive this view by default when they access the Form.

Extended ECM comes with Web Forms, which allows adding HTML custom views to Form Templates.

Integration Points between ECM and SAP

Extended ECM delivers the following integration points between its content-centric workflow component and the business processes and SAP:

- **Extended ECM Workflow Initiation**
  Each time a business object such as customer or contract is created in SAP Extended ECM users can start a content-centric workflow to initialize a content workspace or to start a collaborative process.

- **Trigger release of final or approved documents to SAP**
  Content-centric workflows are often used to manage the approval process of business documents. If a document is eventually approved the workflow can trigger the release of the approved documents to a SAP business object.
Collaboration – Empower Teams to Collaborate Efficiently

Extended ECM provides users with functionality that encompasses the entire collaborative process, whether they are located around the world or in the same office. Project leaders can create workspaces for their team members, enabling employees to define, organize, share, and monitor their work from development to delivery. Tasks and follow-ups help ensure that project deliverables are on track, and that important deadlines and dates are met. Project participants can be actively involved as members or coordinators, or passively involved as guests. Managers can easily monitor project work and progress in both detail and at a high level.

What is unique about Extended ECM is that individuals can collaborate in the context of the SAP business processes. Collaboration often takes place in defined phases of an overall business process when exceptional efforts or the involvement of externals from other departments or organizations are required. In this case the business process may trigger a collaborative project feeding all necessary master data and commercial documents from the SAP side into a project workspace when the project starts. In the course of the project a lot of important documents may be created that are related to the business and that have relevance beyond the actual project run time. By connecting collaborative projects with SAP business applications like SAP PS, organizations can make sure all necessary information is available at project start and all relevant content that is created in the project gets fed back into the regular business process.

Figure 152
Collaboration – Overview

Business Processes

- Asset Operation and Maintenance
- Creation and Negotiation of Contracts
- Quality Management
- Project Management
- Your scenario …

<table>
<thead>
<tr>
<th>Solution Enablers</th>
<th>Value Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team and Project rooms</td>
<td>Boost productivity and accelerate business decisions</td>
</tr>
<tr>
<td>Shared Workspace</td>
<td>Connect project teams globally</td>
</tr>
<tr>
<td>Forums</td>
<td>Push business decisions to the appropriate individuals</td>
</tr>
<tr>
<td>Discussions</td>
<td>Streamline/automate communication within the organization</td>
</tr>
<tr>
<td>Notifications</td>
<td>Reduce risks by providing secure access to content</td>
</tr>
<tr>
<td>Task Lists</td>
<td></td>
</tr>
<tr>
<td>News Channels/Ticker</td>
<td></td>
</tr>
<tr>
<td>Polls</td>
<td></td>
</tr>
</tbody>
</table>

The section Workspaces (see page 29) has already introduced the basic concept of collaborative workspaces. In the following sections additional concepts of Extended ECM’s collaboration capability are introduced.
Notifications

Extended ECM provides integrated event monitoring functionality (see section Event monitoring on page 99) that enables users to stay informed when changes occur within relevant documents, or quickly determine what changes have occurred in the past if necessary. This creates the necessary awareness in a collaborative work environment.

Users can configure personal notification to stay informed whenever changes occur to documents of interest. The types of events reported as a notification interest can come from a predefined list of global interests, as well as from a specific interest set on a particular content item.

The events that users can monitor include:

- when a news item, reply, topic, compound document, revision, other item, or version is added,
- when the user is added to a project or group, or is assigned a task or workflow step, and
- when a workflow step is assigned or late, or a workflow is completed.

![Set Email Notification for Events](image)

Notifications generate reports, informing users that events of interest have occurred. Users can specify whether they want to receive the reports by email at scheduled times or view them on-demand in their Web browser.
Discussions, News, and Polls

Polls

Polls in Extended ECM enable project managers to efficiently obtain a consensus on project issues:

- Attach Polls to Tasks or News Channel items.
- Apply six levels of permissions to the Poll object—including See, See Contents, Modify, Edit Attributes, Delete, and Edit Permissions. The See and See Contents permissions are required to vote.
- Poll questions can have multiple preset responses, which are either mutually exclusive (radio buttons) or concurrent (checkboxes).
- Each user can vote in a given Poll only once. After voting, the user sees the Poll result when viewing the Poll.
- Apply a date range in which the Poll is active, after which time users can no longer vote.
- Add an image to the display of the Poll interface.
- Create Polls in any folder or workspace.
News Channel

Extended ECM provides News Channels that allow you to deliver a variety of news items to users in an effective and non-intrusive manner. News Channel items appear one at a time on the browse page of a workspace or folder, and refresh at a specified duration. Users can click the displayed News item to view its content, or alternatively, view all of the News items at once.

Channels can be added to project workspaces, providing members with quick access to up-to-date information, or providing guests with quick links to relevant information.

All news items on a news channel can be viewed at once from the channel overview page:
Discussions

Discussions provide a way to share thoughts and information publicly with other users. In addition to reading and writing posts, users can rate posts, view a list of the forums you have posted to, and subscribe to discussions. Conversations over discussions provide a rich exchange of thoughts and ideas on different topics. For instance, a timely discussion forum topic can be configured to appear as a featured headline in a project workspace.

Task Management

Extended ECM includes task lists, which provide a simple way to manage and track the details of work assignments. They enable all of the project participants to remain informed of each other’s task status. A task list contains all of the tasks, sub-tasks, milestones, and task groups that have been assigned in a particular area, such as a project workspace or a business workspace (see Figure 158).
Tasks in Extended ECM provide the following features:

- Each task has a detailed instruction and comment for the assignee, a priority (e.g., high, medium, low), a starting date, and due date. A task has a status such as pending, in process, issue, on hold, completed, or cancelled.

- Milestones can be added to a task list workspace to define when one or multiple tasks should be completed. When tasks are created, they can be associated with a particular milestone. A progress bar is displayed for each milestone indicating the percent of completion and whether it is late.

- Within a task list workspace, a task group can be created to group related tasks. The task group is a more convenient way of grouping tasks than adding sub-tasks to a task because it does not have status and other task metadata associated with it.

- Each task list has a task list menu that contains functions for displaying summary, detailed milestone, and detailed resource reports.

Users can quickly view their task assignments from the Personal menu in the Extended ECM Web user interface. The My Assignments window provides a comprehensive view of all of the user’s tasks in progress, including the due date, priority, status, and more.

![Personal task-assignment page](image)

**Figure 159**

**Follow-Ups**

Follow-Ups are scheduled reminders that track important deadlines and upcoming activities in a workspace. Users can create follow-ups to receive alerts and monitor the status of a variety of action items, such as required payments, product shipments, or contract cancellation options.

Each new follow-up is assigned a due date, activation date, and a status, along with one or more assignees (see Figure 160).
When the activation date is reached, the follow-up sends a reminder email to the assignees, and changes the value of the status to active. The assignees are then responsible for updating the status to track the progress of the activity represented by the follow-up.

Each user is able to see their personal follow-ups by selecting “follow-ups” from the Personal menu. It is easy to filter follow-ups according to different criteria such as status, type, and due date:
Social Media

Extended ECM includes social media capability called *Pulse* that allow users to build up social networks by connecting to each other and following other user’s status updates and content related activities.

Feedback or questions can be provided in convenient ways by giving comments attached to content, sending private messages or simply by clicking "Like" for other users status updates, content updates or comments.

Pulse Personal Homepage

Each user in Extended ECM has its own status page provided by Pulse. Figure 162 shows the Pulse page of Peter Bond:

Peter Bond can follow his social network inside the organization here:
- See whom he is following (“I’m Following”)
- See his followers (“Following Me”)
- See new connections to other users (“Recent Connections”)
• See status updates of all users or just users he is following
• See content updates (e.g. new documents or document versions) of all users or just users he is following
• See where he has been mentioned (“@ Mentions”)
• Enter status updates
• Provide comments and feedback via “Like”

Pulse in Workspaces and Folders

Pulse is not just integrated into the personal Pulse Homepage but also in the sidebar of all folders and workspaces inside Extended ECM.

This way all users can directly see what activities and updates happened recently to the content inside a folder or workspace. They can quickly provide feedback and comments here as well.

Commenting

Commenting capabilities are important to provide direct and visible feedback to other users.

All users that can see the content that has been commented can also see the comments. Comments can have documents or shortcuts attached. It is also possible to answer comments. This may produce a complete discussion thread around a document.
User Profiles

In addition to the technical user data such as login and password, individual users can enhance their personal profile by providing extra information such as gender, birthday, alternative email, home address, home phone, home fax, cellular phone, pager, My Homepage, My Favorite Links, and interests. It is also possible for an user to upload a photo to be displayed on their personal profile page. Extended ECM users are able to browse the personal profiles of other users to learn more about them.
Extended ECM also enables users to quickly view their group membership by selecting *My Groups* from the Personal Workspace menu. From the My Groups page, users can view a list of the groups to which they belong, as well as the other members of the group, and their contact information.

Figure 167
The “My Groups” Display for a User

Integration Points between ECM and SAP

Extended ECM delivers the following integration points between its Collaboration component and SAP:

- **Automatic Creation of Collaborative Workspace**
  
  Extended ECM can automatically create a project workspace if a new SAP business object like a SAP PS project is created. This way collaborative content is directly contextualized by SAP. With *business references* Extended ECM uniquely relates a project workspace to a SAP business object in a way that makes it easy to open the workspace from inside SAP or to jump to the corresponding SAP object (such as a SAP PS project) from inside a business workspace.

- **Attach collaborative content to SAP business objects**
  
  Collaborative content such as comments, discussions or polls can be assigned to SAP transactions or business objects to obtain a consensus on business issues or decisions that are not completely governed by transactional processes but require communication, negotiation, or discussion that is documented in a traceable way.

- **Use Follow-Ups for SAP Documents**
  
  Important business documents that are managed in SAP applications such as contracts or invoices may also require personal or collaborative follow-up or resubmission mechanisms. By making these SAP documents available in ECM workspaces all collaborative or content-centric functionality such as follow-ups (see section *Follow-Ups* on page 158) or task management (see section *Task Management* on page 157) can be used for this SAP content as well.
Content Access – Native Access for SAP Users and Non-SAP Users

Bridging the gap between transactional applications such as SAP ERP and the unstructured document-centric content that these applications need is the key benefit of using Extended ECM. This gives business users a role-based 360-degree view and search interface to all information relevant to a customer, product, service or supplier, regardless of whether the documents are stored in SAP or in the corporate document management system.

Productized integration capabilities provide a single point of access for users to access the business content they need, across multiple information sources without requiring them to perform multiple searches, use multiple user interfaces, or to log into multiple systems. This can provide huge benefits for organizational responsiveness and efficiency.

<table>
<thead>
<tr>
<th>Solution Enablers</th>
<th>Value Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role-based UI</td>
<td>Reduce search costs</td>
</tr>
<tr>
<td>Integration into MS Office, Web GUI and SAP GUI</td>
<td>Improve SAP user productivity</td>
</tr>
<tr>
<td>Comprehensive Search</td>
<td>Increase content accessibility for cross-functional collaboration</td>
</tr>
<tr>
<td>Content Browsing and Navigation</td>
<td>Reduce deployment time</td>
</tr>
<tr>
<td>Virtual Folding</td>
<td>Eliminate need for end-user training</td>
</tr>
<tr>
<td>Personalization</td>
<td></td>
</tr>
<tr>
<td>Permission and Role Management</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee self-service</td>
</tr>
<tr>
<td>Customer folder for customer service</td>
</tr>
<tr>
<td>Supplier self-service</td>
</tr>
<tr>
<td>Plant maintenance</td>
</tr>
<tr>
<td>Your scenario …</td>
</tr>
</tbody>
</table>
Figure 169 shows the typical information requirement in a process involving SAP and non-SAP users and content.

The disconnection between the SAP and non-SAP side manifests for users and content. In nearly all processes there will be process-relevant content inside and outside of SAP. The same is true for the users: in most processes there will be users predominantly working inside SAP and there will be persons involved in the end-to-end process working outside SAP applications.

A user working in an SAP transaction typically requires data and content from SAP applications but also content from outside SAP such as emails or office documents. This user then has to lookup content in multiple applications and will in many times miss important context information not available in his primary interface which is SAP. For example if an SAP users wants to find out why and by whom a customer contract was signed a year ago he needs context information that could be emails, documents, meeting notes and working drafts of the signed contract.

On the other side, users in the non-SAP space that are typically working in a document-centric, collaborative way require access to SAP context information or SAP documents as well. For example a sales person may want to look into the terms and conditions of a customer contract or may require access to the customer invoices generated and managed in SAP. Without integration between data and content in SAP and content from non-SAP sources that may force users to call someone familiar with the SAP applications and ask him to lookup the desired information. This is time-consuming and decelerates the complete process.

With Extended ECM the two worlds of SAP and non-SAP content will unite. Though users can continue to work in their preferred applications and user interfaces they get a 360° view on all relevant data and content of the process providing a maximum of transparency. This is achieved by managing all process relevant content in Workspaces provided by Extended ECM (see section “Content Workspaces – Connection to SAP Business Objects” on page 36).
Once the content is managed in workspaces Extended ECM provides users with the flexibility to access these workspaces in all relevant user interface, i.e., Web user interface, SAP GUI, SAP NetWeaver® Portal, SAP Business Client, SAP Web Dynpro-based clients (e.g., CRM, SRM), Microsoft Office, email clients, and the Microsoft Windows desktop.

Users of the SAP Business Suite have access in their standard SAP interfaces, making it easier for them to learn and use the full range of Extended ECM functionality (see section “Content Access for SAP Users” on page 167). This extends the SAP applications with content from outside SAP and improves usability by providing a convenient interface to file and retrieve the relevant content. This interface is available in SAP GUI, SAP NetWeaver® Portal, in the SAP Business Client and in the SAP Web Dynpro-based clients (e.g. SAP CRM or SAP SRM).

Organizations can also provide access to SAP content and non-SAP content via the Extended ECM Web interface, empowering users who need to be part of the overall process, but don’t need (or shouldn’t have) direct access to SAP applications (see section “Extended ECM Web User Interface” on page 176). The
Web interface provides the full capabilities of Extended ECM with an intuitive and convenient user experience.

Users who primarily work with documents or emails may prefer to work purely in their desktop environment and access content in SAP or the Extended ECM document management from their desktop applications such as Microsoft Windows Internet Explorer® or their email client. Extended ECM provides a native integration with these applications (see section “Integrating with Microsoft Windows® Explorer” on page 178).

**Content Access for SAP Users**

The SAP business suite consists of multiple applications and different user interface options. Extended ECM provides a broad set of integrations into the major user interfaces of the SAP business suite such as:

- **SAP ERP / ECC** via SAP GUI or SAP NetWeaver® Business Client
- **SAP DocuLink** running in SAP GUI, SAP NetWeaver® Business Client or SAP NetWeaver® Portal
- **SAP Customer Relationship Management (CRM)**
- **SAP Supplier Relationship Management (SRM)**
- **SAP NetWeaver® Portal**

The integration provided for SAP SRM can also be used for other SAP Web Dynpro based applications.

In the following sections examples are given on how content access works with Extended ECM for these applications.

**SAP ECC (SAP GUI & NetWeaver® Business Client)**

Extended ECM uses the Generic Objects Services (GOS) as the main integration point into the SAP transactions.
Figure 184 shows an example for the integration of Extended ECM in the GOS:

The SAP menu contains three additional menu items introduced by Extended ECM:

1. **Attachment List PLUS** – these are extended capabilities for ArchiveLink documents

   Users can the all ArchiveLink documents attached to an SAP business object. Extended ECM provides thumbnails for previewing the document and Records Management capabilities to put ArchiveLink documents under control of the Enterprise Library.

2. **DocuLink**

   DocuLink is part of Extended ECM and is typically used for defining business views on SAP data and content. It is described in more detail in section “DocuLink” starting on page 173.
3. Display Business Workspace

Workspaces provide a full set of ECM capabilities and are used to manage all content belonging to an SAP business object. Workspaces are described in detail in section Workspaces on page 23 and page 29.
4. Business References

Business References are used for linking content items (such as documents or folders) to SAP business objects (see section Link Content to SAP – Business References on page 65). Figure 176 shows an example of business references linked to an SAP Sales & Distribution (SD) customer object.
SAP CRM

Extended ECM provides a productized integration into the SAP CRM’s web interface. It implements two additional assignment blocks for the SAP CRM Web User Interface to provide direct access to Extended ECM workspaces and business references. Thus, providing CRM users with the full ECM capabilities inside CRM.
SAP Interaction Center

Extended ECM provides a productized integration into SAP Interaction Center. It implements two additional browsing tabs in SAP Interaction Center Web User Interface to provide direct access to workspaces and business references of Extended ECM. Users of the Interaction Center (such as Call Center Agents) are provided with the full ECM capabilities inside their working environment.

SAP SRM

Similar to the integration into SAP CRM Extended ECM also provides a productized integration into SAP SRM (this requires Extended ECM 10 SP1 or newer). Figure 179 shows two examples of SRM objects (Purchase Order and Shopping Cart) with embedded Extended ECM workspaces.
The integration provided for SAP SRM can also be used as a basis for integration into other SAP Web Dynpro based applications.

DocuLink

Business processes in SAP systems often incorporate documents such as order documents or invoices that are directly created in the business context. But business processes may span not only different SAP transactions and modules, but even different SAP applications such as ERP and CRM. The business documents are then typically attached to many different business objects in SAP. This means that the SAP business documents are often isolated from other business documents that are attached to other SAP business objects but still belong to the same overall business process. As a result, retrieving all of the information associated with, say a customer or product, can be a time-consuming and inefficient activity.

DocuLink component of Extended ECM adds a process-oriented view to all business documents and data. DocuLink provides document-centric views of data and documents from different applications running in one or multiple SAP systems and can also incorporate workspaces of Extended ECM. Data and documents can originate from different transactions, modules, and even different SAP systems.

DocuLink displays documents (no matter where they come from) in a dynamically generated, hierarchical folder structure. Users can retrieve documents by browsing the DocuLink folder structure or by using standard search dialogs. To find a document, users no longer need to know the SAP menu paths or individual transactions. SAP transactions can be integrated into the folder structure as well. This allows users to start SAP transactions directly out of the DocuLink folder tree. This lets even occasional SAP users quickly find the information they need.
For example, customer-related documents from different sources within SAP and from external, non-SAP sources can be consolidated into several views, enabling consistent access from all customer-facing business processes, including accounts receivable, vendor management, contracts management, and customer support. Even occasional users can retrieve content using the simple-to-use and customizable navigation in folder hierarchies.
DocuLink users can access content through the standard SAP GUI, via the Web as a standalone application, or integrated as an iView in SAP NetWeaver® Portal. In addition, DocuLink also provides direct integration with SAP transactions via Generic Object Services (GOS).

DocuLink for SAP Solutions relies on the existing SAP authorization model to ensure data security and regulatory compliance. This ensures the highest possible security since no security models have to be re-implemented or copied from SAP to an external system.

DocuLink for SAP Solutions fully supports all SAP ArchiveLink documents and is also able to integrate with the SAP Knowledge Provider (KPro) document models of SAP PLM Document Management System (DMS) and SAP CRM.

**SAP NetWeaver® Portal**

Extended ECM provides best-in-class document management and collaboration functionality for SAP NetWeaver® Portal and SAP Enterprise Workspaces users. Extended ECM natively integrates in all major SAP NetWeaver® Portal concepts:

- Delivering content via *portlet* s natively implemented in SAP’s iView technology
  - Document Management iView
    - Adding content items such as documents and folders (see section “Creating Documents” on page 68)
    - Document management operations such as copy, move, delete, edit, add version, reserve / unreserved (see section “Document Operations” on page 76)
    - Tree view of folder structures and workspaces
  - Collaboration and Social Media iView
    - Discussions (see section “Discussions” on page 157)
    - Workflow Initiation (see section “Initiating Workflows” on page 146)
    - Activity Feeds (see section “Pulse in Workspaces and Folders” on page 161)
- Fully supporting Single Sign On between SAP Portal and Extended ECM
- Integration of Extended ECM’s search into the Portal Search framework supporting both, simple and advanced search of Extended ECM (see section “Search” on page 78).
- Integration of Extended ECM’s favorites into the Portal Favorites
- Integration of Extended ECM’s workflow assignments into SAP’s Universal Work List (UWL) (see section “Workflow Assignments” on page 149)
- Supporting Portal Roles and Personalization concepts

Figure 182 shows an example of Extended ECM’s iViews running in SAP NetWeaver® Portal.
Content Access for non-SAP Users

Extended ECM Web User Interface

All of Extended ECM’s features can be accessed using a Web browser such as Microsoft Internet Explorer or Firefox. No software other than a Web browser needs to be installed on end-user workstations to enable users to access the Extended ECM. Extended ECM’s Web accessibility also makes it easy to use as an extranet to collaborate with customers, suppliers, contractors, and other
trading partners of an organization providing access to SAP and non-SAP content.

With easy-to-understand toolbars, search capabilities, navigation panes, and document-centric function menus, Extended ECM delivers rich and intuitive search and navigation features to both casual document consumers and more demanding content creators and reviewers.

Figure 184
Content Access – Web User Interface of Extended ECM

Extended ECM’s web interface has the following common features as shown in the image above:

- **Title bar** – This area at the top of the page indicates the title of the container.
- **Search bar** – The search bar contains a field for entering search terms and a drop-down list for entering the scope of the search. For example, users can search “From Here” (only this part of the hierarchy) or the entire Extended ECM repository. The “Advanced Search” link on the search bar opens the advanced search page.
- **Menu bar** – The Personal, Enterprise, Tools, and Help menus are available on every page, allowing users to quickly navigate to other areas of the repository. On some pages, such as the workflow map painter, an additional menu appears that contains commands specific to that function.
- **Navigation trail** – It shows the users where they are in the hierarchy of the repository. It also allows users to navigate to a higher level in the hierarchy. The navigation trail can be configured to be displayed as a drop-down list or a hyperlinked trail.
• **Add New Item menu** – Users with sufficient permissions can view the Add New Item menu, which allows them to add items such as documents, folders, compound documents, and so on to the container.

• **Custom banner and HTML** – The appearance of a container page can be customized with images and custom HTML code. If custom code is added to a page, it appears above the Featured Items view.

• **Content area** – This area displays all of the items in the container. The items can be displayed in Features View or in Detail View, both of which are shown in the previous image. The Detail View can be sorted according to different criteria such as document type, name, or date.

• **Function menus** – Each item in a container has an associated function menu. When the menu option is selected, the function menu is displayed as a small white button with a blue downward arrow. When clicked, the menu displays all of the functions the current user has permission to perform on the item, such as add version, delete, and so on.

**Integrating with Microsoft Windows® Explorer**

Extended ECM includes client-side integration with Microsoft Windows Explorer called *Enterprise Connect*. This integration allows Microsoft Windows to access the Extended ECM repository in a way that is similar to accessing local or network drives. The Windows Explorer integration makes it easy for new users to adapt to using Extended ECM by providing them with a familiar means for getting documents in and out of the repository.

The Windows Explorer integration allows users to:

• drag-and-drop files between Extended ECM and the Windows desktop;
• display tree and list views of Extended ECM content;
• browse and manage all Extended ECM workspaces;
• double-Click documents stored in Extended ECM to edit them in their native applications;
• access all Extended ECM functions via the right-click context menu on each object;
• upload or download multiple files and/or folders in a single step; and
• connect to more than one Extended ECM repository and drag-and-drop content between them.
For users who frequently travel or work on remote sites without broadband network access, offline support ensures work done away from the corporate network is synchronized with the Extended ECM repository to ensure documents are up-to-date and correctly versioned. Users can mark items for offline use and access this content of Extended ECM while working offline and perform content synchronization when back online.

From within Microsoft Explorer users can also access documents attached to SAP business objects and add new documents to SAP via a simple drag and drop to an Extended ECM folder.

**Integrating with Microsoft Office**

A strong integration with the popular Microsoft Office eases adoption and minimizes training efforts when Extended ECM is deployed. This integration allows Microsoft Office users to directly access the Extended ECM repository from their Office applications (MS Word®, MS Excel®, MS PowerPoint®, MS Project®, MS Visio®, and Adobe Acrobat®). These capabilities can be directly accessed via the *File* menu in Office applications like Microsoft Word (see Figure 186).
Via this integration users have direct access to MS Office documents from all sources including SAP.

**Integrating with eMail Clients**

*Microsoft Outlook and IBM Lotus Notes integration*

Users often spend a large proportion of the work day inside their email applications like Microsoft Outlook® or IBM Lotus Notes®. The email integration of Extended ECM allows users to attach documents from Extended ECM to new emails in their email client application. Users can use drag-and-drop functionality and save emails, or just move the email attachments from the email client directly into Extended ECM.
This way it is also possible to attach an email with a SAP business object, which is represented as an Extended ECM folder in MS Outlook, allowing the email to be contextualized by placing it in the SAP business process it supports.

As you can see in Figure 187 this integration is not limited to emails only. It is also possible to directly access documents stored in Extended ECM by MS Outlook.

**Email-enabled Container Items**

Extended ECM allows users to email documents directly into particular folders, and compound documents using the eLink capability. Users can assign a unique email address to a folder or compound document or workflow. When an user sends an email with document attachments to this email address, the attachments are added to the associated folder or compound document or workflow.

**Sending Documents**

Extended ECM also allows users to email a document that is already in the repository to any email address.
In addition, the *My Mailbox* option that is available on the *Personal* menu allows each user to read and compose email messages in the Extended ECM Web interface. Users simply have to specify the parameters of their enterprise’s email server to configure *My Mailbox*. 

![Emailing a Document from within the Extended ECM Repository](image1.png)

![Viewing Corporate email in Extended ECM](image2.png)
WebDAV

Web-Based Distributed Authoring and Versioning, or WebDAV, is a standardized set of extensions to the Hypertext Transfer Protocol (HTTP) that allows users to collaboratively edit and manage files on remote Web servers.

Extended ECM has built-in support for WebDAV. By using WebDAV users can open, save, edit, copy, rename, and delete items stored in the repository of Extended ECM from any client application that supports the WebDAV protocol.

There are several ways of accessing Extended ECM by using WebDAV. The easiest way is by clicking on the “Drag & Drop” tab in a browsing page of Extended ECM’s Web user interface:

![WebDAV view of an Extended ECM Folder](image)

The user can thereby switch to the WebDAV view of this folder embedded into the browser page of Extended ECM. This assures that the user doesn’t have to switch the client application and never loses the working context. Documents can be added to the embedded WebDAV view simply by dragging and dropping documents or folders from the user’s desktop. WebDAV also allows the user to open a document for editing in the native application by double-clicking it in the WebDAV pane.

Users preferring to work in the desktop environment and not using a Web browser can use WebDAV as well. They just have to open the WebDAV URL in their desktop file manager (such as Microsoft Windows Explorer).
Extended ECM integrates in all major user interfaces of an organization. This allows users working in different or with different applications or user interfaces to effectively work on the same content shared via a Workspace.

- **Ubiquitous Workspace Access – one version of the Truth**
  Once an ECM workspace is connected to a SAP business object the SAP user can open the workspace from within the SAP application and non-SAP users can access the workspace in their preferred user interface, whether it is a web interface, using the desktop integration or directly working with content from Microsoft Office® applications.

- **Shared content scenarios via Enterprise Library**
  Based on the underlying Enterprise Library (including the Archive Server) that can manage documents and records from SAP and non-SAP sources, SAP content that is archived or put under Records Management control becomes accessible to Extended ECM’s components such as Document Management and Collaboration.

- **Offline Access to Content**
Users can browse and work with SAP managed documents when not connected to SAP or even totally offline by synchronizing the documents to the desktop via the Windows integration of Extended ECM (see section *Integrating with Microsoft Windows® Explorer* on page 178).
Extended ECM Example Scenarios

Organizations can benefit from Extended ECM in many processes within the complete value chain. The following figure lists some examples.

To qualify a scenario or process with respect to its ECM demand some qualification questions such as the following are helpful:

1. What are the business processes that most rely on documents?
2. Are documents created / managed outside of SAP that are part of the overall process?
3. Are people involved in the process that are working outside of SAP or in different organizations?
4. What documents needs to be preserved as corporate records?

In the following sections some typical use cases (but not limited to) of Extended ECM are briefly summarized.

Project Management

Idea: Comprehensive control of projects by integrating structured and unstructured content that originates form SAP Project System (PS) and other content sources such as project document management and email systems.
Business Challenges

Organizations that have standardized their project management with SAP Project System (PS) are still facing challenges originating from unstructured content:

- Increased project efforts provoked by a disconnection of SAP project data and project content (e.g., documents, e-mails …) and fragmented project documentation in different “content silos”.
- Difficulties sharing project content between project members and externals in geographically dispersed teams and between different project applications.
- Difficulty finding relevant documents or knowledge of similar projects.
- Complex and error-prone document handover procedures between projects, operations, and externals such as partners and contractors.
- Risk of non-compliant management of important business documents associated with the project delivery process.

Business Benefits & Key Differentiators

- High quality and consistency of project delivery by reusing SAP project data for management of unstructured project content.
- Lower effort and risk in the course of collaboration with external project participants by providing secure collaborative workspaces for project worker, project manager and externals project members.
- Mitigate project risks by traceable and transparent documentation of a project and build-in records management functionality to classify and store project content and making it accessible for compliance purposes.
- Secure and long-term storage of valuable project deliverables allows the reuse of content, experience and knowledge from previous projects.
- Increase productivity of project workers by easy filing and finding relevant project documents and with a 360°view on all relevant project information.
- Support project workers in their preferred working environment with a tight integration into Microsoft Office®, Microsoft Windows®, email applications and SAP Project System.

The added value that Extended ECM brings to the SAP Project System (PS) is summarized in Figure 196:

**Figure 196**
**Added Value of Extended ECM for Project Management**

### Example Implementation

Extended ECM for Project Management builds on the capabilities already available in SAP Project System and supplements it as exemplarily shown in Figure 197:

**Figure 197**
**Example: Project Management Process with Extended ECM**

Typical SAP business objects that can be enhanced with Extended ECM workspaces in project management could be but not limited to:

- Project (BUS2001)
- Work Breakdown Structure (WBS) (BUS2054)
- Material (BUS1001006)

Figure 198 shows a project workspace in the Extended ECM Web User Interface using a Case Workspace:

Figure 199 shows the same project workspace in the SAP GUI:

Customer & Sales

Idea: Complete transparency about customer interaction by integrating structured and unstructured content, easy collaboration, and ad-hoc document generation based on managed templates.
Business Challenges

Organizations that have standardized their customer related sales, marketing and service processes with SAP ERP and CRM are still facing challenges originating from unstructured content:

- Difficulty finding relevant customer documents or knowledge of similar opportunities / prospects / support cases due to disconnected content silos (e.g. email, file system, …), and data in SAP CRM and SAP ERP.
- High effort to maintain customer data because many changes / updates on customer information have to be made manually in different systems and documents.
- Inconsistent documents and customer filing structure due to missing templates and content management best practices.
- Customer content cannot easily be shared between different departments.
- Compliance issues due to lack of secure and long term storage of customer records.

Business Benefits & Key Differentiators

- Productivity of sales and customer support employees is increased by Extended ECM workspaces providing full transparency on customers, sales orders or contracts with a 360° view on data and content from SAP ERP, SAP CRM and non-SAP applications.
- Customer-facing employees are supported with powerful document management capabilities providing centrally managed templates for ad-hoc document generation. They can access all content in their preferred working environment such as Microsoft Office®, Microsoft Windows®, email applications, SAP CRM and SAP Interaction Center.
- Data quality and consistency is optimized by fully automated data synchronization between SAP CRM, ERP and Extended ECM.
Full-text search allows users to leverage information and documents from past opportunities or support cases.

Effective document centric collaboration with all involved parties is fostered by social media capabilities build into Extended ECM allowing a traceable and transparent documentation of all customer interactions.

All customer content is governed by corporate records management program regardless of point of origin.

Example Implementation

Typical customer-related SAP business objects that can be enhanced with Extended ECM workspaces could be but not limited to:

- Customer (KNA1)
- Customer Contract (BUS2034)
- Customer Inquiry (BUS2030)
- Sales Quotation (BUS2031)
- Sales Order (BUS2032)
- Business Partner (SAP CRM)

Extended ECM’s Business Relationships (see section “Workspace Hierarchies and Business Relationships” on page 39) could for example be used for maintaining the following relationships between the workspaces:

- Customer – Customer Contract
- Customer – Customer Inquiry
- Customer – Sales Quotation
- Customer – Sales Order
- Customer – Business Partner
- Sales Order – Sales Contract
Figure 201 shows a customer workspace in the Extended ECM Web User Interface:

![Figure 201 Example: Customer Workspace in Web UI](image)

Figure 202 shows the same customer workspace in SAP GUI:

![Figure 202 Example: Customer Workspace in SAP GUI](image)
Figure 203 shows a sales contract workspace in the Extended ECM Web User Interface:

### Figure 203
**Example: Sales Contract Workspace in Web UI**

Figure 204 shows the same sales contract workspace in the SAP GUI:

### Figure 204
**Example: Sales Contract Workspace in SAP GUI**

Vendor & Procurement

**Idea:** Complete transparency about purchasing processes by integrating structured and unstructured content and improved vendor collaboration and contract management.

**Business Challenges**

Organizations that have standardized their procurement processes and vendor management with SAP ERP and SAP SRM (Supplier Relationship Management) are still facing challenges originating from unstructured content:
- Content related to vendors and the procurement processes (such as purchase orders, contracts and vendor audit information) is fragmented across multiple applications forcing users to work with multiple user interfaces. This produces process inefficiencies, a lack of transparency, and an increased risk of erroneous business decisions.

- Inconsistencies and incompleteness of procurement information are caused by the disconnection between procurement data in SAP ERP, SRM, associated documents, correspondence, by missing templates, and content management best practices for procurement documents and filing structures.

- Vendor and procurement content cannot easily be shared between departments. Typically vendor correspondence is managed in an individual instead of collaborative way and disconnected from the process.

- Compliance issues are due to lack of secure and long-term storage of vendor and procurement records.

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**Business Benefits & Key differentiators**

- Productivity of the procurement team is increased by Extended ECM workspaces providing full transparency on vendors, purchase orders or contracts with a 360°view on data and content from SAP ERP, SAP SRM and non-SAP applications.

- Employees in procurement and vendor management are supported with powerful document management capabilities providing centrally managed templates for document creation. They can access all content in their preferred working environment such as Microsoft Office®, Microsoft Windows®, email applications, and SAP SRM.

- Data quality and consistency is optimized by a fully automated data synchronization between SAP SRM, ERP and Extended ECM.

- Full-text search allows users to leverage all existing information and documents in procurement processes, for example, contract negotiation.

- Effective document centric collaboration with supplier and other departments is fostered by follow-up management and social media capabilities build into

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**Figure 205**

*Example: Procurement*
Extended ECM allowing a traceable and transparent documentation of all supplier interactions.

- It reduces maverick procuring by means to better interact with internal clients, procurement/legal departments and the supplier.
- All content in the procurement department is governed by corporate records management program.

Example Implementation

Typical vendor or procurement related SAP business objects that can be enhanced with Extended ECM workspaces could be:

- Vendor (LFA1)
- Purchase Requisition (BUS2105)
- Purchase Order (BUS2012)
- Request for Quotation (BUS2010)
- Purchase Contract (BUS2014)

These business objects may be managed in SAP ERP or SRM. Extended ECM can connect to both SAP applications in the same way.

Extended ECM’s Business Relationships (see section “Workspace Hierarchies and Business Relationships” on page 39) could for example be used for maintaining the following relationships between the workspaces:

- Vendor – Purchase Order
- Vendor – Purchase Contract
- Vendor – Request for Quotation
- Purchase Requisition – Request for Quotation
- Purchase Order – Purchase Contract

Figure 206 shows a vendor workspace in the Extended ECM Web User Interface:
Figure 207 shows the same vendor workspace in SAP GUI:

Figure 208 shows a purchase order workspace in the Extended ECM Web User Interface:
Enterprise Asset Management

**Idea:** Manage unstructured content related to enterprise assets and maintenance processes over the complete asset lifecycle and allow for a more efficient collaboration in asset-related projects to improve reliability, safety in production, and to reduce downtimes or outages of plants.

Business Challenges

Organizations that have standardized their enterprise asset management with SAP ERP Plant Maintenance (PM) are still facing challenges originating from unstructured content:

- Content related to enterprise assets and maintenance processes (such as functional locations, equipment and maintenance work orders) are fragmented across multiple applications. This produces process inefficiencies, a lack of transparency, and an increased risk of erroneous
decisions by maintenance workers and plant operators which impacts plant safety and reliability.

- Inconsistencies or incompleteness of plant information are caused by the disconnection between plant data in SAP ERP and associated technical documents and correspondence and by missing templates for documents and filing structures. High effort in handling documents and drawings not associated with SAP equipment or plant maintenance data is the consequence.
- Complex document handover processes between involved departments (i.e. operations, maintenance, and procurement) and externals such as subcontractors and MRO service provider.
- Long downtimes and outages due to inefficient collaboration in asset-related projects such as plant construction / change management, equipment failure analysis and shutdown-turnaround. Inability to retrieve and review historical failure analysis and recommendations for plant equipment.
- Compliance issues are due to lack of secure and long-term storage of asset documentation.

**Business Benefits & Key differentiators**

- Shortened repair cycles, reduced downtimes, and efficiency gains for operators, technicians and engineering personnel by simplifying the process of collecting, storing, and retrieving up-to-date plant maintenance documentation.
- Decrease safety compromise by providing easy access to up-to-date and complete documentation for plant operators and field technicians ensuring worker safety, procedural compliance and efficient repairs.
- Deeper insight into the root causes of failures by providing operators, engineers and technicians access to the historical failure analysis records, remediation plans, and all associated content.
- Technical documentation, operating procedures, reports and recommendations are immediately tied to all SAP plant maintenance data – available for SAP and non-SAP users.
- Resolve complex issues more quickly by in-process collaboration capabilities for operations, engineering, contractors and equipment vendors.
- Increase the efficiency and accuracy of procuring replacement parts.
- Reduced regulatory risk with in-depth records management functionality allowing organizations to manage the lifecycle of content related to enterprise assets.
- Low implementation risk by a productized integration of ECM into SAP Plant Maintenance.
The added value that Extended ECM brings to the SAP Plant Maintenance (PM) and SAP Enterprise Asset Management (EAM) is summarized in Figure 211:

Example Implementation

Extended ECM for Enterprise Asset Management builds on the capabilities already available in SAP Plant Maintenance (PM) and SAP Enterprise Asset Management and supplements it as exemplarily shown in Figure 212:

Typical asset management related SAP business objects that can be enhanced with Extended ECM workspaces could be but not limited to:

- Functional Location (BUS0010)
- Equipment (EQUI)
- Maintenance Notification (BUS2038)
- Maintenance Work Order (BUS2007)
- Material – for operational supplies and spare parts (BUS1001006)

Extended ECM’s Business Relationships (see section “Workspace Hierarchies and Business Relationships” on page 39) could be used for maintaining the following relationships between the workspaces:

- Functional Location Hierarchy
- Equipment – Functional Location
- Equipment – Material (Bill of Materials)
- Maintenance Work Order – Equipment
- Maintenance Work Order – Project / WBS
- Maintenance Notification – Equipment

Figure 213 shows a Functional Location workspace in the Extended ECM Web User Interface:
Figure 214 shows the same Functional Location workspace in SAP GUI:

![Figure 214 Example: Functional Location Workspace in SAP GUI](image)

Figure 215 shows an Equipment workspace in the Extended ECM Web User Interface:

![Figure 215 Example: Equipment Workspace in Web UI](image)
Figure 216 shows the same Equipment workspace in the SAP GUI:

![Figure 216 Example: Equipment Workspace in SAP GUI](image1.png)

Figure 217 shows a Work Order workspace in the Extended ECM Web User Interface:

![Figure 217 Example: Work Order Workspace in Web UI](image2.png)
Figure 218 shows the same Work Order workspace in the SAP GUI:

![Figure 218 Example: Work Order Workspace in SAP GUI](image)

Product and Material Management

**Idea:** Provide and manage all product related information and documentation over the complete product lifecycle.

![Figure 219 Example: Product and Material Management](image)

Business Challenges

Organizations that have standardized their product lifecycle management with SAP ERP and SAP PLM are still facing challenges originating from unstructured content:

- Product related documentation is spread over the complete value chain of an organization, making it hard or even impossible to get full transparency on existing product information (see Figure 220):
• Competitive disadvantages by long time to market of new products.

• Risk of non-compliant management of important product and production documents along the product lifecycle.

• Long time to find product related information due to many “content silos” and applications used in the involved department and processes.

**Business Benefits & Key differentiators**

• Reduced time to market by role specific access to all data and documents related to the product (360 degree view on all product-related content) managed in a central repository.

• Faster order processing, improved service quality, reduced warranty costs, and more successful campaigns by faster and more complete lookup of product information in sales, marketing and customer service processes.

• More consistency and higher quality of product documentation by an ECM metadata layer that reuses and aggregates existing SAP data.

• Lower implementation risk by productized integration with SAP ERP (Material Management, Sales & Distribution), SAP Product Lifecycle Management (PLM) and SAP CRM.

**Example Implementation**

Typical product management related SAP business objects that can be enhanced with Extended ECM workspaces could be, but not limited to:

• Material (Raw material)

• Material (Finished Product)

• Material (Semi-finished Product)

Extended ECM’s Business Relationships (see section “Workspace Hierarchies and Business Relationships” on page 39) could be used for maintaining the following relationships between the workspaces:

• Material / Product Hierarchy and Bill of Materials
- Material – Vendor
- Product / Material – Sales Order
- Product / Material – Purchase Order

Figure 221 shows a Product workspace in the Extended ECM Web User Interface:

![Figure 221 Example: Product Workspace in Web UI](image)

Figure 222 shows the same Product workspace in the SAP GUI:

![Figure 222 Example: Product Workspace in SAP GUI](image)
Extended ECM Configuration

This chapter gives an insight in the configuration of Extended ECM. The focus here is not on software installation or basic technical configuration of the Enterprise library but on the required steps to configure Extended ECM for a given scenario.

The configuration of an Extended ECM scenario typically involves four different roles (of course a skilled person could cover more than one role)

- **SAP Administrator**
  This should be a technical person familiar with SAP administration especially SAP IMG / SPRO.

- **ECM Administrator**
  This should be a technical person familiar with the ECM administration of Extended ECM (with access to the so called admin.index settings)

- **SAP ABAP Programmer (optional)**
  This person is familiar with ABAP programming. ABAP skills are only required if custom-made property providers should be implemented (see “Implement a Property Provider” on page 216).

- **ECM Information Manager**
  This is a person familiar with the ECM concepts such as metadata, classification and workspace templates (see section “Content Workspaces – Connection to SAP Business Objects” on page 36). This role has extended configuration access but does not require administrative access.

Workspace Configuration

As a matter of course the configuration of an Extended ECM scenario requires proper planning and conceptual work. Here is a list of typical prerequisites required before the actual configuration work:

- Identify SAP Business Object
- Define which SAP data should be made available for ECM
- Define whether the workspace should be created automatically or manually
- Define the folder / filing structure inside the workspace
- Define permission / role model for the workspace
- Define which logical document types should be used in the workspace
- Define the relationship between the different workspace types

Helpful is to start with an “Entity Relationship Model” to collect the required information about the SAP Business Objects and how their relationship should be mapped to Extended ECM.
The cardinality of the relationships (1:n or n:m) gives a first indication whether workspace hierarchies or workspace relationships (using Extended ECM’s Business Relationships – see section Workspace Hierarchies and Business Relationships on page 39) are most appropriate.

Then it is typically a ten step process to configure a scenario that is described in the following sections.

1. Create a Metadata Category for the Workspaces

**Role:** ECM Information Manager

Each workspace typically has a set of metadata that is synchronized with SAP. The most common use case is to provide base data from SAP business objects to the ECM workspace. In a customer scenario with a customer workspace that could be the customer name, customer address and customer ID. Metadata in Extended ECM is typically stored in so called Categories (see section “Categories” on page 47). All categories are typically stored in a dedicated volume of Extended ECM called “Content Server Categories”: 

![Diagram](image)
Best practice is to create a Category Folder (📁) that contains all categories for a given scenario. In Figure 224 “Customer & Sales” contains categories for the SAP business objects Business Partner, Customer, Customer Contract and Sales Order.

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Figure 224
Category Volume

Figure 225
Category Customer & Sales
Each Category (\(\square\)) contains the definition of the set of attributes that should be used for the workspace:

![Figure 226 Customer Category](image)

Make sure to include an attribute for each SAP data field that should be synchronized with Extended ECM. If SAP manages multiple values for a data field (like Sales organization for a customer) Extended ECM should be configured to also have multi-value attributes. You can add additional attributes that are not synchronized with SAP but maintained inside the ECM system.

2. **Create the Classifications for the Workspace**
   **Role:** ECM Information Manager

Each workspace needs to have a type. A type is defined using a classification element of Extended ECM. Classifications in Extended ECM are stored in a dedicated volume of Extended ECM called “Classifications”:

![Figure 227 Classification Volume](image)

All workspaces and workspace templates needs to be classified. Based on the classification of the templates Extended ECM provides the right templates to
users manually creating workspaces. Also workspaces created by SAP get a configurable classification assigned.

As shown in Figure 228 workspace classification is typically based on a hierarchy of classification elements, here there may be a differentiation between different types of customers that should get a different workspace configuration (e.g. an “Enterprise Customer” may require more SAP data or a more complex folder structure inside the workspace):  

3. Configure the Template Management Framework

**Role:** ECM Administrator

This step is only required for Case and Binder workspaces. First administrators have to define the case types that should be used in the application. Cases have a unique feature – they have their own technical type in Extended ECM allowing them to have their own names, icons and “Add Item” buttons in Extended ECM’s web user interface.

Then the actual case and binder configuration needs to be done. As described in section “Content Workspaces – Connection to SAP Business Objects” binders and cases always go together, i.e. cases can only be created below binders in the ECM system. So called Areas are places in the Extended ECM Enterprise Workspace where binders with defined case types can be created and managed (see Figure 230).
Each area consists of Binders holding one or many different types of cases. Figure 231 shows an example area for customer binders that can contain two types of cases namely Claim Cases and Project Cases:

Extended ECM allows the detailed configuration of each case and binder in an area.

By clicking on the pencil icon (📖) behind the binder icon (🗂️) one can configure the properties and behavior of the binders in this Case Management area.
The Classification parameter controls which binder workspace templates are offered to the user when creating a new binder workspace for specific area. For example, if the area is intended to only store customer binders, the case administrator could restrict the available classifications to customers.

The base category controls which metadata can be used for binder searches.

Binders can have specific formats for their numbers and names. Reference Numbers can automatically restart each calendar year. It is also possible to assign reference sub-numbers if sub-binders are stored inside binders.

A storage location for binders inside the Case Management client's root folder can be specified as an optional parameter. If the storage location is omitted, users can create binders in any sub-folder under the Case Management client's root folder. If a storage location is specified, binders are stored inside an automatically generated folder structure that represents the year and month of creation.

Additional parameters control whether new binders inherit permission settings from their parent items and if users can create binders inside other binders.

A couple of display parameters allow for a detailed customization of the binder presentation. They define the name of the content section (that's where the cases inside the binder are listed) and whether or not the metadata of the binder should be displayed in a special header section when the binder is opened.

Similar to the binder configuration, each available case type can be configured per area. The following figure shows the configuration page of a project case:
The configuration of a case type includes the following parameters:

- **The Classifications** parameter controls which case templates are offered to the user when creating a new case of this type. For example, if the client is intended to only store human-resources cases, the case administrator could restrict the available classifications to HR.

- **The Base Category** controls which metadata can be used for case searches in the case workspace.

- Cases can have specific formats for their numbers and names. **Reference Numbers** can automatically restart each calendar year. It is also possible to assign reference sub-numbers if sub-cases are stored inside cases.

- Additional parameter control whether new cases **inherit permission** settings from their parents and if users can create **cases inside other cases**.

- A couple of **display parameters** allow for a detailed customization of the case presentation. They define whether or not the metadata of the case should be displayed in a special **header** section when opening the case and if **follow ups, work items, and active workflows** are displayed in the case workspace.

4. **Declare the Business Object in SAP**

   **Role:** SAP Administrator

   For each SAP business object type that should have workspaces or business references attached there needs to be a declaration in the SAP Reference IMG (Implementation Guide).
Each business object type for which a workspace should be provided needs a line item in this configuration dialog. Opening a single workspace configuration shows the following configuration dialog:

Figure 234
Declare Business Object in SAP IMG
The parameters have the following meaning:

1. **Object Type** – this is the SAP business object type, e.g. KNA1 is a customer business object.

2. **EL ID** – this is the ID of the Enterprise Library – that’s basically the Extended ECM backbone the workspace should be created in. Please note that Extended ECM allows connecting one SAP system to multiple Enterprise Library deployments if required.

3. **Properties Provider** – this is a function (piece of ABAP code) that collects the SAP data that should be provided for the Workspace (see next step).

4. **Search Help** – this is the SAP Search help for the selected SAP business object that should be provided to ECM users in Extended ECM. It is used where an ECM user needs to pick an SAP business object to connect an existing workspace.

5. **Business Reference Name** – not relevant for workspaces

6. **Workspace Name** – naming convention for the workspace name. This may include static text put allows entering placeholders for SAP data as well.

7. **Workspace Location** – target folder in the Enterprise Workspace of Extended ECM where the workspace should be created
   a) **Workspace Location Selection**: can be “static” or “dynamic”
   b) **Workspace Location ID**: specifies the target in case of “static” selection
   c) **Workspace Location Property**: specifies the property that contains the target in case of “dynamic” selection (this property must be delivered by the property provider defined above)

8. **Workspace Template** – workspace template for the workspace (see section Workspace Templates on page 44 for more details)
   a) **Workspace Template Selection**: can be “static” or “dynamic”
   b) **Workspace Template ID**: specifies the template in case of “static” selection
c) **Workspace Template Property**: specifies the property that contains the template in case of "dynamic" selection (this property must be delivered by the property provider defined above)

9. **Classification** – classification that should be assigned to the workspace (see section “Workspace Classification” on page 42 for more details on classifications)
   a) **Classification Selection**: can be "static" or "dynamic"
   b) **Classification ID**: specifies the classification in case of "static" selection
   c) **Classification Property**: specifies the property that contains the template in case of "dynamic" selection (this property must be delivered by the property provider defined above)

5. **Implement a Property Provider**

   **Role**: SAP ABAP Programmer

   The property provider is a piece of ABAP code that retrieves the data from the SAP business objects (or related data) that should be mapped to ECM metadata of the workspace. These fields can then be mapped to Extended ECM categories (see Categories on page 47).

   If no specific Property Providers is required or not yet implemented the default Property Provider /OTX/RM_WSCI_CL_WSPROV_DEFAULT can be used.

   A Property Provider basically has to implement to methods:
   1. GET_PROPERTY_DEFS
   2. GET_PROPERTIES

   The first delivers the list of properties names and the second delivers the actual values for these properties. The property provider can pull data from any SAP database table where relevant data is stored. This makes it extremely powerful and flexible.

   ![Property Provider Definition](image)
6. Configure the Mapping between SAP Data and ECM Metadata

**Role:** SAP Administrator

Once the business object declaration and the property provider is in place the actual mapping of data between SAP and Extended ECM can be configured.

![Figure 237 Metadata Mapping SAP-ECM](image)

The parameters have the following meaning:

- **Object Type** – the SAP business object type
- **Cat ID** – this is the ID of the category definition in Extended ECM. This is the category that was created in step 1.
- **Category Attribute** – this is the name of the attribute inside the category definition.
- **SAP property** – this is name of the property that is delivered by the property provider.

This configuration maps SAP properties to attributes of the configured category in Extended ECM (that is attached to the workspace). The mapping is executed at the creation time of the workspace or when the data is updated in SAP.

7. Configure Automatic Workspace Creation and Update

**Role:** SAP Administrator

To enable automatic creation and update of workspaces Extended ECM hooks into the event system of SAP to get notified about CREATE and CHANGE events for the respective SAP business objects.

For automatic creation of workspaces Extended ECM needs to reacts on the CREATE event of the SAP business object. For update of workspaces Extended ECM listens to the CHANGED event of the SAP business object.
For each SAP business object type that should have workspaces created or updated automatically there needs to be a declaration in the SAP Reference IMG (Implementation Guide) for “Maintain Receiver Module Events”:

If a workspace should react to both CREATE and CHANGE events there need to be two entries in this table per SAP business object. Figure 239 shows an example on how an event registration looks like.
The function module /OTX/RM_WSC_UPD updates an existing workspace when the CHANGED event occurs. When the CREATED event occurs the function module either updates the workspace or creates a new workspace if it does not exist yet.

For update of existing business workspaces the function module /OTX/RM_WSC_UPD_EXISTING can be used. It updates an already existing workspace but does not create any new workspace.

8. Declare the SAP Systems in Extended ECM

**Role:** ECM Administrator

In this step the connection from the ECM side of Extended ECM to the SAP systems needs to be configured. This is done inside the administration of Extended ECM.
9. Declare the Business Object in Extended ECM

**Role:** ECM Administrator

In this step the SAP business objects declared in step 4 in SAP get their final configuration on the ECM side. This includes configuration of workspace properties and business reference settings.
The configuration of the declaration for an SAP customer object (KNA1) is shown in the following Figure 242.

### Figure 241
*Business Object Declarations*

<table>
<thead>
<tr>
<th>Configuration Name</th>
<th>Logical SAP System</th>
<th>SAP Business Object Type</th>
<th>Active</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>TMS</td>
<td>EQL2</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Maintenance Order</td>
<td>TMS</td>
<td>BUS2007</td>
<td></td>
<td>Delete</td>
</tr>
<tr>
<td>Maintenance Notification</td>
<td>TMS</td>
<td>BUS2038</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Standard Material</td>
<td>TMS</td>
<td>B35 100.1006</td>
<td></td>
<td>Delete</td>
</tr>
<tr>
<td>Functional Location</td>
<td>TMS</td>
<td>BUS2010</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Customer</td>
<td>TMS</td>
<td>KNA1</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Project</td>
<td>TMS</td>
<td>BUS2001</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>VatID</td>
<td>TMS</td>
<td>BUS2054</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Vendor</td>
<td>TMS</td>
<td>LFA1</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>CRM Business Partner</td>
<td>CMS</td>
<td>BUS1006</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Purchase Requisition</td>
<td>TMS</td>
<td>BUS2105</td>
<td></td>
<td>Delete</td>
</tr>
<tr>
<td>Purchase Order</td>
<td>TMS</td>
<td>BUS2012</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Request for Quotation</td>
<td>TMS</td>
<td>BUS2010</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Customer Contract</td>
<td>TMS</td>
<td>BUS2034</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Sales Order</td>
<td>TMS</td>
<td>BUS2032</td>
<td></td>
<td>Configure</td>
</tr>
<tr>
<td>Case</td>
<td>CMS</td>
<td>SCARIE</td>
<td></td>
<td>Configure</td>
</tr>
</tbody>
</table>
Here's the explanation of the parameters that are relevant for the configuration of a Workspace scenario:

- **Active**
  This parameter activates the configuration. For administration and testing purposes, one can set all required parameters for several configurations and then activate only those that are currently required.

- **Configuration Name**
  This parameter defines the name for the configuration.

- **Used for**
  This parameter defines for what capabilities the configuration should be used (Business References and / or Workspaces). The “Workspace” checkbox must be selected for a workspace scenario.

- **SAP Business Object Type / Logical SAP System**
  These two settings show to which SAP business objects and which SAP system the configuration is connected to. These settings can only be changed during the creation of a business object declaration.

- **Display URL**
  Specifies the URL used for displaying the SAP business object in a SAP transaction. For Workspaces, this URL is used for the Display button on the General tab of the business workspace’s properties (function menu Properties → General)
Administrators can use variables to define the URL.

- **Business References**
  Not relevant for workspace scenarios.

- **Automatic Business References**
  Not relevant for workspace scenarios.

- **Business Workspaces**
  - **Policies**
    This parameter specifies whether policies should be used for this type of workspace.
  - **Icon**
    The parameter specifies the icon to be used for this workspace type.
  - **Side Bar Widgets**
    Extended ECM workspaces feature a side bar containing a set of widgets that enhance the standard user interface with additional information related to the respective SAP business object.

The following widget types are available:

- **Attributes**
  Displays attribute values of the business workspace. The attributes can be generated from metadata of the SAP business object.

- **Recent Changes**
  This widget displays a list of documents inside the workspace that have been changed recently.

- **Related Items**
  Displays a list of workspaces related to the workspace.

- **Work Items**
  Displays the work items assigned to the user inside the workspace. These work items include tasks, workflow tasks and follow-ups.
10. Create the Workspace Templates

**Role:** ECM Information Manager

All workspaces templates are managed inside a dedicated area of Extended ECM as described in section “Workspace Templates” (see page 44).
The workspace template for a customer is shown in the following Figure 245. It has already a prepared folder structure and the corresponding classification and the defined category are assigned. If the workspace is a binder or case it has also the roles defined and assigned to the template workspace.

There must be at least one template per workspace. But it is also possible to have multiple templates to cover specific business needs. The template could then be selected based on SAP information.

Business Reference Configuration

The second major concept of Extended ECM is linking existing ECM items such as folders and documents to SAP business objects (see section “Business References” on page 26).

1. Create a Metadata Category for the Business Reference

Role: ECM Information Manager

This step is identical to the step “Create a Metadata Category for the Workspaces” on page 207. It is optional and just required if SAP data should be mapped to Extended ECM and assigned to the ECM item that owns the Business Reference.
2. Declare the Business Object in SAP

**Role:** SAP Administrator

The business object declaration for Business References is using the same configuration dialogs than for workspaces, in fact there needs to be only one configuration for a SAP business object even if both workspaces and business references should be used:

Only the following parameters are relevant for Business References:

- **Properties Provider** – optional – can be used to assign ECM metadata to the Business Reference item in Extended ECM, e.g. setting the metadata of a document linked to a SAP business object.

- **Bus. Ref. Name (Business Reference Name)** – naming convention for the business reference – can use placeholders the property provider is delivering the values for.

3. Implement a Property Provider

**Role:** SAP ABAP Programmer

This step is optional and works exactly the same way for workspaces and business references. For Business references it is only required if ECM metadata (categories) of the ECM item should be filled with SAP data. Please see page 216.

4. Configure the Mapping between SAP Data and ECM Metadata

**Role:** SAP Administrator

This step works exactly the same way for workspaces and business references. Please see page 217.

5. Declare the SAP Systems in Extended ECM

**Role:** ECM Administrator
This step works exactly the same way for workspaces and business references. See 217 for explanations.

6. Declare the Business Object in Extended ECM

**Role:** ECM Administrator

The configuration of the declaration for an SAP customer object (KNA1) is shown in the following Figure 242.

![Business Object Declaration for Business Reference](image)

Here’s the explanation of the parameters that are relevant for the configuration of a Business Reference scenario:

- **Active**
  
  This parameter activates the configuration. For administration and testing purposes, one can set all required parameters for several configurations and then activate only those that are currently required.

- **Configuration Name**
  
  This parameter defines the name for the configuration. The name is used as the Reference Type name of the Business Reference.

- **Used for**
  
  This parameter defines for what capabilities the configuration should be used (Business References and/or Workspaces). The “Business Reference” checkbox must be selected for Business Reference scenarios.
- **SAP Business Object Type / Logical SAP System**  
  These two settings show to which SAP business objects and which SAP system the configuration is connected to. These settings can only be changed during the creation of a business object declaration.

- **Display URL**  
  This parameter specifies the URL used for displaying the SAP business object in a SAP transaction. This URL is used when the user clicks the Display action of a Business Reference (see section “Link Content to SAP – Business References” on page 65).  
  Administrators can use variables to define the URL.

- **Business References**  
  Specifies which interactions with the SAP system are used for the Business Reference.  
  - Enable Meta Data Mapping from SAP to Extended ECM  
    This specifies an automatic mapping of SAP object metadata to corresponding Content Server categories during the creation of a business reference.
  
  - Enable Callback SAP Interface (BAdI) before Adding Business Reference  
    Optional execution of additional Business Add-Ins (BAdIs), which enhance the SAP functions; these are executed prior to the process of adding a business reference.

  - Enable Callback SAP Interface (BAdI) before Deleting Business Reference  
    Optional execution of additional Business Add-Ins (BAdIs), which enhance the SAP functions; these are executed prior to the process of deleting a business reference.

- **Automatic Business References**  
  - Trigger automatic creation by  
    This is only relevant for the automatic creation of business references. The parameter specifies a category attribute; this attribute must be of the checkbox type. A business reference is created automatically when this checkbox attribute is checked. Checking the attribute could be done by an end-user or for example by a workflow.

  - Retrieve Business Object Key from  
    This is only relevant for the automatic creation of business references. Specifies an attribute of a category in which the key of the SAP business object is stored. It determines the target for the Business reference.

- **Business Workspaces**  
  Not relevant for Business References.

**Records Management for SAP Configuration**

This Extended ECM capability basically takes ArchiveLink documents and puts them into the Enterprise Library. They still can be accessed like normal
ArchiveLink documents but are controlled by Extended ECM and the underlying content lifecycle management.

This capability could also be used to automatically copy existing ArchiveLink documents into Extended ECM workspaces – this can be extremely helpful to consolidate non-SAP documents and ArchiveLink documents into one place – even if Records Management functionality is not required.

**Automatic Record Declaration**

The document declaration defines what SAP data is used for ECM metadata and records declaration, where the content is stored in Extended ECM, and the additional Records Management properties (such as classification, record date, etc.).

![Figure 248 Document Declaration](image1)

To create a new document declaration, administrators have to follow this four-step process:

1. Select ID, description, and the SAP business property provider.

![Figure 249 Document Declaration – Business Property Provider](image2)

---

This is not a “physical” copy since the documents are stored in the same Archiving component of Extended ECM. That way the document is stored once but linked into the workspaces and linked to the ArchiveLink document in SAP.

---
A document declaration consists of a unique declaration ID, a description, and a *business property provider*. The business property provider is a customized function that delivers a list of SAP business data values that can be used in the further records declaration (it is very similar to the property provider used in workspace scenarios – see page 216).

2. Select the storage location and the metadata categories in Extended ECM.

![Figure 250 Document Declaration – Storage Location and Categories](image)

- **Enterprise Library ID**
  The Enterprise Library ID identifies an instance of the Extended ECM repository that should be used to store and manage the records.

- **System Category**
  Defines which Extended ECM category will store the ArchiveLink properties of the SAP documents.

- **Categories**
  A list of Extended ECM categories that will store relevant business data of the records provided by the business property provider specified before.

- **Document Location**
  The document location defines the specific target folder or workspace where the ArchiveLink documents will be stored.
  The *Root Folder* field contains the ID of any folder or workspace in Extended ECM. It can be specified as a constant value, a workspace item, or based on a SAP business value (“Business Property”).
  The *Sub Folder* field uses a template mechanism with placeholders to define the actual target folder name using the document property values.
  Property placeholder can be inserted using the *Insert Placeholder* button.

- **Document Name**
  SAP documents declared as records are stored in the defined document location; the record name is defined in the *document name* field. A template mechanism with placeholders is provided similar to the one for document location field.
  Property placeholders can be inserted using the *insert placeholder* button.

3. Define the metadata mapping between the SAP business properties and the Extended ECM metadata (categories).
Categories mapping allows for a very flexible mapping between SAP business data and Extended ECM metadata. For each category selected in Step 2, a separate mapping exists.

4. Define the records management settings.

The last step defines the most important records management settings for the document declaration. The records management settings can be selected from constant values or based on SAP business properties.

Batch Mode Records Declaration

A batch record declaration is required if organizations want to put a large number of already existing ArchiveLink documents under records management control. These documents may have been created before the Extended ECM installation or their document types were not maintained initially.
Define batch Declaration of Records

The output shows the processed ArchiveLink entries; icons signal the result of the declaration. SAP documents which have been declared as records before are ignored.

Results of batch declaration of records
Extended ECM Architecture and Administration

Architectural Overview

Extended ECM is a complete platform for Enterprise Content Management. It consists of components providing capabilities inside the SAP business applications but can also be deployed for an enterprise-wide content management including non-SAP users and non-SAP content.

The heart of Extended ECM is OpenText Enterprise Library. Figure 255 shows the building blocks of Enterprise Library in a simplified diagram.

The two major components are OpenText Content Server and OpenText Archive Server. The Archive Server is described in more detail in section Archive Server on page 134.

OpenText Content Server is the core application of Extended ECM providing the foundation for the following capabilities:

- Document Management (see page 28)
- Records Management (see page 109)
- Content-Centric Workflow (see page 143)
- Collaboration (see page 153)

OpenText Content Server is tightly integrated with OpenText Archive Server. All content managed by Content Server is automatically stored in the Archive Server. The Archive Server works mainly as an abstraction layer to the underlying storage hardware.

As shown in Figure 255, the Enterprise Library provides different interfaces to access content and functionality. OpenText Content Web Services provide a Web Service Interface to OpenText Content Server. Basically, all content operations available to end users are available in the Web Service API as well.

On the Archive Server side, the Enterprise Library provides an ArchiveLink interface and an WebDAV / ILM interface making it easy to connect the Enterprise Library to SAP applications.
Like an umbrella, API the Enterprise Library Services combine Content Web Services and ArchiveLink interfaces into a powerful service layer providing all capabilities of the combination of Archive Server and Content Server.

Figure 256 shows an overview of the Extended ECM architecture.

The components of Extended ECM are deployed in three ways:

1. **Client components running on user’s desktop**
   - **OpenText Enterprise Connect**
     This component provides the integration in the desktop applications such as Microsoft Windows® Explorer, Microsoft Office® and Adobe Acrobat® (see section “Integrating with Microsoft Windows® Explorer” on page 178 for more details). It is also responsible for the offline access to content.
   - **Extended ECM Web GUI (in Browser)**
     This component provides a Web-based interface to the majority of the Extended ECM functions and to content originating from SAP and non-SAP applications (see section “Extended ECM Web User Interface” on page 176 for more details).
   - **OpenText Imaging (Enterprise Scan and Viewers)**
     Enterprise Scan Client provides an application to scan paper-based content directly to SAP or into the Enterprise Library (see section “Capture – Automate Filing and Indexing” on page 101 for more details).

2. **Server components which are integrated in the Enterprise Library**
   - **OpenText Content Server**
     OpenText Content server provides the core document management, search, records management, collaboration, and workflow capabilities of Extended ECM.
   - **OpenText Archive Server**
     Interface and abstraction layer for the storage layer. It is responsible for the long-term preservation of content.
o Runtime and Core Services

Java-based Web services provide the core interfaces of the Enterprise Library, such as CMIS, ArchiveLink, ECMLink, and WebDAV. These services deliver the Extended ECM capabilities to the SAP Business Suite.

3. Components running in the SAP Business Suite

o DocuLink

The DocuLink for SAP Solutions component of Extended ECM adds a process-oriented view to all business documents and data from different SAP applications (for more information see section Content Access for SAP Users on page 167).

o ECMLink

The ECMLink component of Extended ECM allows putting SAP documents under control of OpenText Enterprise Library, applying Records Management policies and retention schedules (for more information see section Records Management for SAP). It also implements the Workspace and Business Reference capabilities on the SAP side of Extended ECM.

User Administration

The requirement to allow ECM applications to synchronize their users and groups with a central directory service, and provide network users with single log in, is critical to deployment success. Organizations can administer users and groups in a single directory, and use administrative tools to synchronize user and group information in Extended ECM with the centrally maintained directory service. Users can log in transparently, and are not required to enter their usernames and passwords multiple times.

The Extended ECM users are typically provided by the OpenText Directory Services which is part of the Enterprise Library. OpenText Directory Services (OTDS) is a repository of user information and a collection of services to manage this user information. Directory Services pushes these users and groups to OpenText components automatically and incrementally. This synchronization of user and group data across OpenText components allows Directory Services to enable single sign on and secure access to all OpenText components.

In SAP, users are either provided and maintained inside SAP system or in an external identity provider. Directory Services can synchronize with your identity provider to pull user and group information from your identity provider automatically.

If user and group information is maintained in your SAP system, you will need to push them to an external LDAP server from which OTDS can pull user and group information.

Alternatively, users can be created manually in OpenText Directory Services.

Internationalization and Localization

Extended ECM allows the localization of the user interface as well as the localization of important content properties such as folder names, workspace names, and classifications.
Extended ECM (version 10) is currently available in these nine user interface languages:

- English (US)
- German
- French
- Spanish
- Italian
- Portuguese
- Russian
- Japanese
- Simplified Chinese

Languages for the Extended ECM user interface can be installed easily in form of so called language packs. The language packs can coexist on one installation of Extended ECM allowing users to select their preferred language.

Besides the user interface localization Extended ECM also provides internationalization capabilities. It is possible to configure the display of user names and date/time formats for each separately for each user interface language (see Figure 258).
### Configure User Name Display

<table>
<thead>
<tr>
<th>Language</th>
<th>Language Code</th>
<th>Display Name Format</th>
<th>Append (Log-in ID):</th>
<th>Example</th>
<th>User Display Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>zh_CN</td>
<td>Log-in ID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English (United States)</td>
<td>en_US</td>
<td>Lastname, Firstname</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>fr</td>
<td>Log-in ID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>de</td>
<td>Log-in ID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japanese</td>
<td>ja</td>
<td>Lastname, Firstname</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portuguese</td>
<td>pt</td>
<td>Log-in ID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russian</td>
<td>ru_RU</td>
<td>Log-in ID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>es</td>
<td>Log-in ID</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 258**
Extended ECM Internationalization of User and Date/Time Display
Extended ECM allows also localizing important metadata of the content. Metadata that can be localized includes:

- Names of all content items such as documents, folders, and workspaces
- Descriptions of content items
- Classification names
- Category names

It is important to note that content metadata can be localized completely independent of the localization of the user interface. This allows translating content metadata to languages that are not available as user interface languages. Figure 259 shows the configuration of the metadata languages.
Each user of Extended ECM can configure the preferred user interface language and the preferred metadata language in his/her personal settings:
Figure 261 shows to Extended ECM localized to Russian languages. Both, the user interface and the content names are presented in Russian language.

**Extensibility**

Activator for SAP enables organizations to integrate Extended ECM with their corporate SAP business applications in a more customized way. Extended ECM’s Activator for SAP is used to trigger transactions in SAP from Extended ECM. The SAP business data can be accessed using SAP BAPIs (Business APIs) or RFCs (Remote Function Calls).

The Activator for SAP is utilized by core components of Extended ECM, but can also be used to implement customer-specific data integrations between SAP Business Suite Extended ECM.
# List of Components

The following table lists the most important components included in Extended ECM:

<table>
<thead>
<tr>
<th>Component / Module</th>
<th>Description</th>
<th>More details in this document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archive Server</td>
<td>OpenText Archive Server provides the storage capability for documents and data, and the central archiving functionality. Depending on the business process, the document type, and the storage media, Archive Server can use different techniques to store and access documents. This guarantees optimal data and storage resource management. OpenText Archive Server supports transparent Single Instance Archiving, Content Encryption, and Content Compression.</td>
<td>Archive Server (page 134)</td>
</tr>
<tr>
<td>Content Server</td>
<td>OpenText Content Server is the core component of Extended ECM implementing Document Management, Search, and Workflow.</td>
<td>Architectural Overview (page 233)</td>
</tr>
<tr>
<td>Appearances</td>
<td>Open Text Appearances enable easy modification and enhancement of the user interface of Extended ECM. It can also be used to reduce functionality in the Web user Interface for occasional users.</td>
<td></td>
</tr>
<tr>
<td>Attributes</td>
<td>OpenText Attribute Extensions is a module that extends the functionality of standard metadata of Extended ECM. With this module, attribute values can be selected from lists of valid values from database tables. These attributes can be cascading, meaning that valid value lists can depend on, or cascade from, key values in other attributes.</td>
<td>Categories (page 47)</td>
</tr>
<tr>
<td>Extensions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barcode</td>
<td>Module that implements the barcode generation for Extended ECM folders, workspaces and documents. This allows scanning back documents to Extended ECM in a very convenient way.</td>
<td>Scan Integration with Barcode (page 107)</td>
</tr>
<tr>
<td>Case Management</td>
<td>Open Text Case Management Framework (now renamed to OpenText Template Workspaces) provides all necessary means to manage workspace templates for Extended ECM.</td>
<td>Content Workspaces – Connection to SAP Business Objects (page 36)</td>
</tr>
<tr>
<td>Framework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classifications</td>
<td>OpenText Classifications adds taxonomic classification capabilities, providing an alternative way to organize, manage, and browse items in Extended ECM. Users can classify any type of items, such as documents, compound documents, and folders. By classifying items, users are able to browse Classification Trees in addition to the traditional folder hierarchy.</td>
<td>Taxonomic Classification (page 59)</td>
</tr>
<tr>
<td>Content Move</td>
<td>OpenText Content Move allows administrators to apply storage rules to existing documents in order to move document content from one storage provider to another. So-called Move Jobs define when to apply the storage rules and on which documents. Move Jobs can be scheduled to be executed regularly or only once.</td>
<td>Content Move (page 137)</td>
</tr>
<tr>
<td>Directory Services</td>
<td>OpenText Directory Services (OTDS) is a component of the Enterprise Library that allows Extended ECM to synchronize its users and groups with a central directory service.</td>
<td>User Administration (page 235)</td>
</tr>
<tr>
<td>Component / Module</td>
<td>Description</td>
<td>More details in this document</td>
</tr>
<tr>
<td>--------------------</td>
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<td>--------------------------------</td>
</tr>
</tbody>
</table>
| ECMLink            | Core component of Extended ECM implementing the connection between Open Text Content Server and SAP. In particular Business Workspaces, Business References, and Policies are implemented by ECMLink in OpenText Content Server. | Content Workspaces – Connection to SAP Business Objects (page 36)  
Link Content to SAP – Business References (page 65)  
Access control using Policies (page 91) |
| eLink              | OpenText eLink lets users interact with Extended ECM using an email client. Using eLink functionality users can send emails to ECM folders; email documents from within Extended ECM, and use the built-in My Mailbox email client. Also, users are able to interact with workflows through email messages. | Email-enabled Container Items (page 181)  
Sending Documents (page 181)  
Initiating Workflows (page 146) |
| Enterprise Server Search | Search is an integral component of Extended ECM. It includes full text, NLO, Naturalizer, slices, searching in file systems, Saved Queries, Saved Results, Hit-Highlighting, Summarization, Result Themes, Soundex, Thesaurus, Boolean, personal and global search templates, native XML searching, system metadata searching, custom metadata searching, Find Similar, and Relevancy ranking. | Search (page 78) |
| Enterprise Connect | OpenText Enterprise Connect implements the various desktop integrations of Extended ECM: integration with MS Windows Explorer, MS Office, Adobe Acrobat, and the email clients, such as MS Outlook and Lotus Notes. | Integrating with Microsoft Windows® Explorer (page 178)  
Integrating with Microsoft Office (page 179)  
Microsoft Outlook and IBM Lotus Notes integration (page 180) |
<p>| Follow Up Management | Implements the follow-up capabilities with personalized reminders. This functionality is part of the OpenText Template Workspaces (OpenText Case Management Framework) | Follow-Ups (page 158) |
| LiveReports        | LiveReports provide access to information in Extended ECM's database, and enables you to find, organize, and present the information stored there. LiveReports obtain information by issuing Structured Query Language (SQL) statements to the database. | LiveReports (page 86) |
| Prospectors        | OpenText Prospectors allows users to create prospective queries and receive notification when items of interest are discovered or added to Extended ECM. | Prospective search (page 85) |
| Recommender        | Based on documents that users search for and access, OpenText Recommender automatically suggests other documents with similar content that users may find useful as well. It provides users with easy access to statistics and recommendations, including popular items in Extended ECM, a list of personal recommendations, a list of other users with similar interests, a personal history of the user's most recently accessed content items, and more. | Document Ratings and Recommendations (page 53) |
| Recycle Bin        | OpenText Recycle Bin offers each user their personal Recycle Bin. The users are able to restore items from their Recycle Bin to undo a prior deletion (restore) or to manually delete items in their Recycle Bin. | Recycle Bin (page 77) |</p>
<table>
<thead>
<tr>
<th>Component / Module</th>
<th>Description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Remote Enterprise Server Search</td>
<td>OpenText Remote Enterprise Server Search allows users to search remotely across multiple deployments of Extended ECM.</td>
<td>Remote Enterprise Server Search (page 84)</td>
</tr>
<tr>
<td>Renditions</td>
<td>OpenText Renditions enables Extended ECM to generate and maintain Renditions (e.g., PDF) of documents stored in the ECM repository. It is possible to relate multiple renditions to a single document version.</td>
<td>Document Renditions (page 51)</td>
</tr>
<tr>
<td>WebDAV</td>
<td>WebDAV (Web-based Distributed Authoring and Versioning) is a set of extensions to the HTTP protocol that enables users to collaboratively manage files on remote Web servers.</td>
<td>WebDAV (page 183)</td>
</tr>
<tr>
<td>Forms and WebForms</td>
<td>OpenText Forms is a powerful means to collect structured data by user data entry. Forms can be used in conjunction with Extended ECM workflow. WebForms enables the creation of HTML custom views to adapt the layout and design of the form.</td>
<td>Working with Forms (page 151)</td>
</tr>
<tr>
<td>Workflow</td>
<td>OpenText Workflow has a built-in capability of Extended ECM that allows users to create workflow maps with a built-in workflow painter. Each user has a personal workflow inbox to see which workflow tasks are due.</td>
<td>Content-Centric Workflow – Define, Control, and Accelerate Decision Processes (page 143)</td>
</tr>
<tr>
<td>Enterprise Archive Server Storage Provider</td>
<td>Storage Providers and associated Storage Rules are used to map each content type to an appropriate storage type according to business needs. Every new document version within Extended ECM will be matched against this storage rules and stored in the according Storage Provider.</td>
<td>Storage Provider and Storage Rules (page 135)</td>
</tr>
<tr>
<td>Activator for SAP</td>
<td>OpenText Activator for SAP Solutions allows calling SAP BAPI or RFC functions from within Extended ECM to transfer structured data from SAP to Extended ECM. It is typically used to develop customized solutions that are beyond the scope of the predefined scenarios offered by Extended ECM.</td>
<td>Extensibility (page 240)</td>
</tr>
<tr>
<td>Records Management</td>
<td>OpenText Records Management defines and describes the records retention policies in addition to formalizing the procedures to classify (ensuring appropriate metadata), retain, destroy, and/or archive content in Extended ECM.</td>
<td>Records Management – Control Content and Reduce Compliance Costs (page 109)</td>
</tr>
<tr>
<td>Security Clearance</td>
<td>The Security Clearance module allows restricting how users can access content in Extended ECM. Security Clearance applies in addition to permissions. It assigns security clearance levels and supplemental markings to both items (such as documents and folders) and users. The security clearance levels, which are hierarchical, are used to filter items that users are allowed to see based on their assigned security clearance levels.</td>
<td>Access control using Security Clearance (page 89)</td>
</tr>
<tr>
<td>Imaging</td>
<td>OpenText Imaging includes two major components: OpenText Imaging - Enterprise Scan is a high-performance scan client, which enables the digitization, indexing, and archiving of large quantities of paper documents. OpenText Imaging Windows Viewer is a high-performance application for displaying and editing documents in a Microsoft Windows environment.</td>
<td>Capture – Automate Filing and Indexing (page 101)</td>
</tr>
</tbody>
</table>
Add-Ons to Extended ECM

Extended ECM provides a rich set of ECM capabilities. But there are specific requirements beyond the scope of Extended ECM that can be addressed with add-on components. These components are not included in the Extended ECM product but have a productized integration into Extended ECM. In the following three interesting add-on components are presented.

Electronic Signatures

OpenText Electronic Signatures (eSign) extends the Extended ECM workflow (see section “Content-Centric Workflow – Define, Control, and Accelerate Decision Processes” on page 143). It adds capabilities to manage processes that require the application of electronic signatures to documents by authorized users. Signing workflows incorporate the same functionality as standard Extended ECM workflows, but with additional features. A signing workflow is created and edited in the same way than standard workflow.

eSign provides signing tasks in the workflow, requesting the electronic signing of a document by a workflow user. Passwords and digitized signatures can be used during the signing process, and review audit and event information, such as when and by whom the document was signed are available.

When an user has received a signing assignment, he/she is required to provide the user name and password in order to either approve and sign the document, or reject it.

eSign also can convert documents to PDF during workflow execution before they are either approved and signed or rejected.

A signing page can be appended to the document when it is approved. The signing page includes digitally stamped information that represents the actual signing event. Signing pages store information about the signing event and the signing authority. If the document is rejected, no signing page is appended to the document, and no information is stamped.

The events in the signing workflows are defined using electronic signatures workflow steps. Electronic signatures workflow steps control how a document is converted to a compatible document format (PDF), and then approved and signed, or rejected, in a signing workflow.

With Electronic Signatures, there are three unique steps added to the Workflow Painter:

<table>
<thead>
<tr>
<th>Workflow Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signatory step – requires that a document be approved and signed, or rejected. The document to be signed is either the document used to initiate the Workflow, or the first document attached to the Workflow. The document can be part of the Workflow definition or added during Workflow execution.</td>
<td></td>
</tr>
<tr>
<td>Robot step – converts documents to PDF documents, sets security, and applies watermarks.</td>
<td></td>
</tr>
<tr>
<td>Generation step – Which creates a record keeping reference to signed and approved Documents.</td>
<td></td>
</tr>
</tbody>
</table>
Extended Viewing Capabilities – Brava!

Brava! is a powerful document viewing solution of the OpenText partner Informative Graphics Corporation (http://www.infograph.com). It provides a simple way to accurately view documents, images or CAD drawings in the web interface of Extended ECM or inside Enterprise Connect.

Figure 262 shows search results for drawing documents with thumbnails provided by Brava!

![OpenText Content Server](image1.png)

**Figure 262**

Brava! Viewer for CAD documents
Brava can compare text, image and CAD drawings, visually highlighting differences between document versions. It can also compare documents in different formats, such as Word to PDF renditions.

Sensitive content in document can be protected with Brava’s redaction tools. Documents or drawings can also be stamped (e.g., approved, confidential, etc.).

Microsoft SharePoint Integration

OpenText Application Governance & Archiving for Microsoft® SharePoint® provides deep and native integration into SharePoint.

SharePoint allows creating and configuring pages using so called Web Parts. Web parts are pre-configured elements such as tables and forms with predefined content. You can integrate major features of Extended ECM as web parts into the SharePoint web user interface when editing or creating a page in SharePoint:

- Browsing Extended ECM workspaces and folder hierarchies (see section “Workspaces” on page 29)
- Searching for Content in Extended ECM (see also section “Finding Content” on page 78)
- Adding documents and working with documents (see section “Working with Content” on page 67)
- Managing the user inbox for Extended ECM workflow (see section “Workflow Assignments” on page 149)
- Running LiveReport (see section “LiveReports” on page 86)

Figure 263 shows an example of browsing a customer workspace and adding a document to a workspace via the SharePoint® user interface.
Where to Get More Information

Product Related Information
Visit our Solutions homepage on the OpenText corporate Web site:

Customer Success Stories
Strategic Partnership with SAP

OpenText is a SAP Global Software Solution Partner. OpenText and SAP have shared a partnership and co-development relationship since 1992. As a result of this cooperative relationship, OpenText is the market leader in document management, document archiving, data archiving, accounts payable optimization, and Enterprise Content Management for SAP Solutions.

OpenText offers a complete portfolio of ECM for SAP solutions:

These solutions are tightly integrated running on the same “ECM backbone” (Archiving / Enterprise Library).

OpenText has been awarded with SAP® Pinnacle Awards four years in a row! Global partner awards recognize SAP partners that made exemplary contributions to SAP’s ecosystem. Pinnacle Awards are granted to leading SAP partners that have excelled in enhancing the customer experience, addressing...
critical issues such as accelerating co-innovation and improving return on investment.

OpenText is pleased to be recognized by SAP as a 2011 Pinnacle Award Winner in two categories: Global Software Solution Partner of the Year and Global Enterprise Support Partner of the Year.
OpenText

OpenText is a leader in Enterprise Content Management (ECM). With two decades of experience helping organizations overcome the challenges associated with managing and gaining the true value of their business content, OpenText stands unmatched in the market.

Together with our customers and partners, we are truly The Content Experts™, supporting 46,000 organizations and 20 millions of users in 114 countries and 12 languages around the globe. We know how organizations work. We have a keen understanding of how content flows throughout an enterprise, and of the business challenges that organizations face today.

It is this knowledge that gives us our unique ability to develop the richest array of tailored content management applications and solutions in the industry. Our unique and collaborative approach helps us provide guidance so that our customers can effectively address business challenges and leverage content to drive growth, mitigate risk, increase brand equity, automate processes, manage compliance, and generate competitive advantage. Organizations can trust the management of their vital business content to OpenText, The Content Experts.

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