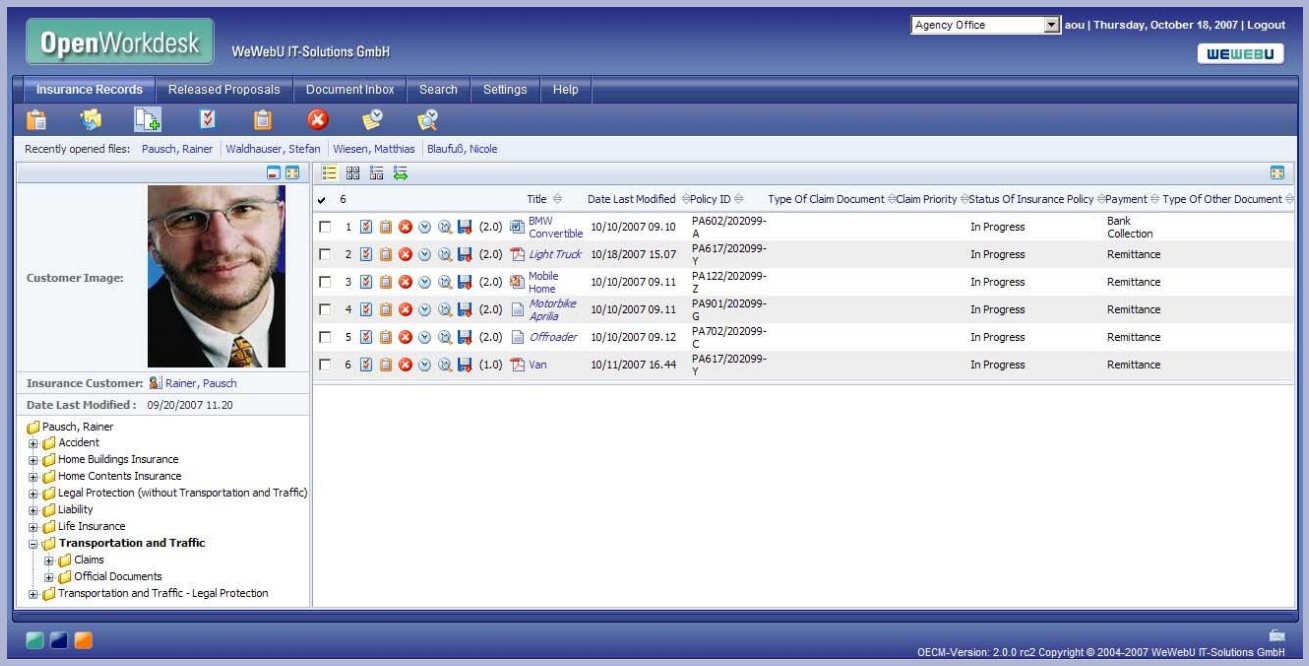


# WeWebU OpenWorkdesk / OpenECM-Framework

The Solution for Intuitive Working
with ECM Systems of the Leading Vendors

- Product Description
- OpenWorkdesk Version 2.0.0
- Status: Approved

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## Contents

# 1 Introduction - Management Summary

## 1.1 Situation in the ECM market

Enterprise Content Management means managing unstructured information and integrating it into the business processes of an organization. Although most companies have 80 to 90 per cent of all their relevant business information in unstructured documents, e-mails and on web pages, up to now the majority of IT projects have only dealt with structured data (e.g. for ERP or CRM) which are much easier to handle.

But for more and more medium and large-sized organizations managing unstructured data efficiently is becoming critical. Only those organizations which control their structured as well as their unstructured data and integrate them successfully with their business processes can guarantee that the necessary information is at the right place at the right time when a decision has to be made.

At present the ECM market emerges from formerly separated software segments such as document management, archiving and web content management. Leading vendors (e.g. IBM/FileNet, Open Text, EMC/Documentum, Oracle/Stellent etc.) now offer integrated platforms for ECM applications which make it possible to manage a wide range of unstructured information in centralized repositories.

But buying such a standard ECM infrastructure today does not mean that organizations get an integral solution: The requirements large enterprises have concerning their ECM applications are just too diverse. That is why until now individual solutions have often been developed in time-consuming and therefore expensive projects. Such solutions were based on the repositories of the leading vendors by using their powerful but proprietary APIs.

## 1.2 WeWebU OpenWorkdesk for IBM/FileNet customers

With OpenWorkdesk, WeWebU now offers a J2EE-based standard solution for web-based file and case management which can be run on different IBM/FileNet repositories (currently, IBM FileNet P8 Content Manager and IBM FileNet Image Services as well as IBM Content Manger and IBM Content Manager on Demand are supported).

The OpenWorkdesk is composed of modules and covers various requirements such as simple retrieval clients, convenient file management and even complex business process management (case management with integration of IBM FileNet P8 BPM) right out of the box.

Users of IBM FileNet P8 for whom the standard client (IBM FileNet Workplace) is not suitable get an alternative and ergonomic work environment for content and processes. With it, users can use all ECM and BPM functionalities of the platform without any training effort. OpenWorkdesk also supports deep links into IBM FileNet Workplace. Thus the user does not need to login there again to access eForms or entry templates. OpenWorkdesk as user interface for IBM FileNet P8 can be easily customized or extended. A key advantage in comparison to a client application based on IBM FileNet Workplace is that OpenWorkdesk runs without restrictions with future releases of the IBM FileNet P8 platform, thus protecting the investment in application development for IBM FileNet P8.

But WeWebU also offers a J2EE-based solution based on other IBM/FileNet repositories for existing IBM/FileNet customers who are unable to switch to P8 for the short term.

Furthermore, WeWebU OpenWorkdesk supports IBM/FileNet customers during their migration-path to the IBM FileNet P8 architecture later on.

With WeWebU OpenECM-Framework implementation time and project costs are reduced considerably when introducing IBM FileNet P8. Also, maintenance costs can decrease because various IBM FileNet P8 applications for different departments can be managed with a single deployment when using OpenECM-Framework. All in all, the OpenECM-Framework helps to reduce the total cost of ownership of IBM FileNet P8 particularly if used for an organization-wide introduction of this ECM-platform.

## 1.3 WeWebU OpenWorkdesk as a platform-independent ECM solution

The system architecture of WeWebU OpenWorkdesk is designed in such an open manner that not only IBM/FileNet but also other ECM systems from vendors such as Open Text EMC/Documentum or Oracle/Stellent can be used as base. Only the corresponding ECM adapter needs to be changed (see chapter 2.1). Therefore WeWebU OpenWorkdesk can run on any ECM system if a suitable ECM adapter is implemented. The only requirement is that appropriate Java interfaces are available. All ECM systems supporting JSR 170 can also use OpenWorkdesk with the corresponding ECM adapter for JSR 170.

Often different ECM systems are used within an organization (mainly for historical reasons). WeWebU OpenWorkdesk supports using several ECM systems at the same time. For this reason WeWebU OpenWorkdesk becomes a helpful toolkit for Enterprise Content Integration (ECI) in a heterogeneous environment. The OpenWorkdesk also simplifies migrating to a different ECM system later on: an application based on WeWebU OpenWorkdesk always looks the same to the end user independent of the used ECM system. When migrating from one ECM system to another, only the corresponding ECM adapter has to be changed.

# 2 Overview

## 2.1 System architecture

### 2.1.1 WeWebU OpenECM-Framework

WeWebU OpenWorkdesk's architectural core is a comprehensive, high-level framework for developing applications in the field of ECM. This WeWebU OpenECM-Framework was designed and implemented completely independent of the underlying ECM system. Based on this framework several modules like retrieval, file management or case management are realized as so-called plugin components. These plugins can be used by customers or partners to extend the existing functionalities based on their project's needs (see chapter 6.1). Thus, these plugin components are also independent of the underlying ECM system.

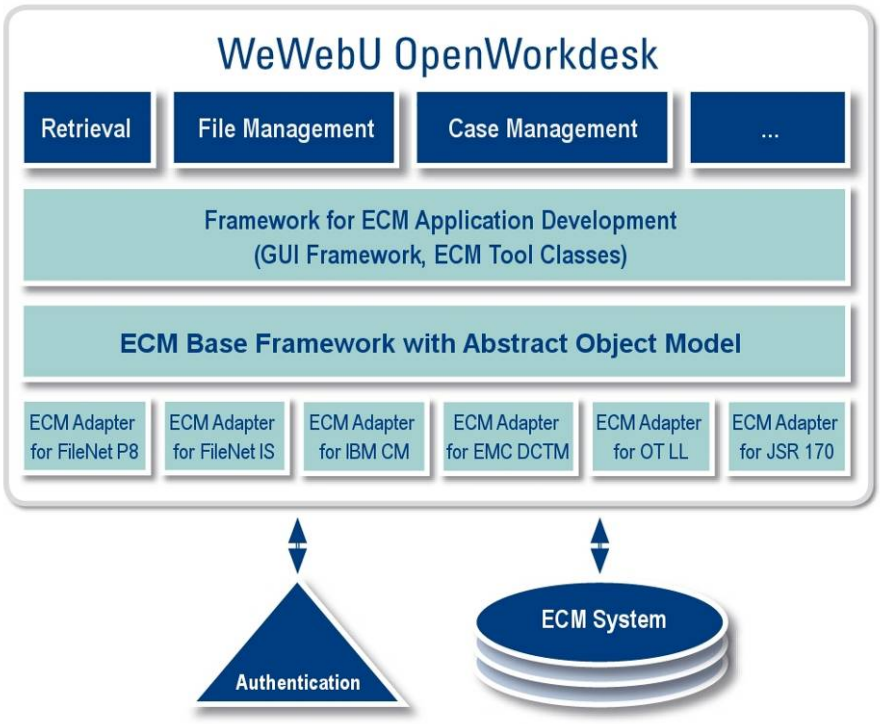


*Fig. 1 System architecture of WeWebU OpenWorkdesk*

To connect WeWebU OpenWorkdesk to an ECM system an appropriate ECM adapter is required. This adapter is the only interface to the underlying ECM system. WeWebU offers adapters for various leading vendors (e.g. IBM FileNet, Open Text). Authentication can be realized with any authentication mechanism. The authentication mechanism has to be integrated with the ECM adapter according to the specific project requirements as well.

The entire OpenWorkdesk solution is realized based on the WeWebU OpenECM-Framework with so-called plugin components. Such plugins are implemented using the powerful OpenECM-Framework and even inexperienced Java programmers can develop them within a short time. WeWebU offers several standard plugins for frequently needed ECM demands

such as retrieval, file management and case management. These standard plugins may be expanded to fit specific project needs.

Aside from these standard plugins WeWebU OpenECM-Framework can be used to efficiently develop platform-independent solutions for comprehensive Enterprise Content Management. The framework not only addresses end customers but also system integrators who want to develop individual platform-independent solutions for leading ECM / ECI platforms of different vendors.

### 2.1.2 Advantages of OpenECM-Framework

The WeWebU OpenECM-Framework can simplify the development of ECM applications resulting in the following competitive advantages:

**1. Efficient development of Java-based ECM applications**

WeWebU OpenECM-Framework is a toolkit for developing web-based ECM applications at minimal costs. With the OpenECM-Framework even inexperienced Java programmers can create highly-efficient, scalable J2EE-based applications, including multilingual support. The applications can be implemented as an HTML client or be integrated in a portal system.

**2. Protection of investment**

With WeWebU OpenECM-Framework, applications can be developed independently of the used ECM infrastructure. Thus an already developed application can run on ECM systems of different vendors with minimal modifications.

Therefore application development investments are protected. If it turns out later on that the ECM system has to be changed, it is not necessary to develop a new application. This makes it much easier to switch to future platforms of the leading vendors.

**3. Enterprise Content Integration**

Large enterprises often use various ECM systems for managing documents and other content in the single divisions for historical reasons (e.g. after a merger). Although it is desirable to consolidate such heterogeneously grown system environments, there are often several facts which make a quick and easy migration of such systems to a standard ECM infrastructure unlikely. With WeWebU OpenECM-Framework you can develop applications with a consistent look & feel beyond the limitations of different ECM systems. It is possible to integrate several ECM systems from different vendors into one application with relatively little effort. This enables cross-searching on various ECM platforms. With WeWebU OpenECM-Framework a comprehensive enterprise content platform can be realized without having to migrate the existing repositories.

### 2.1.3 Components of the OpenECM-Framework

In general the OpenECM-Framework consists of these three components:

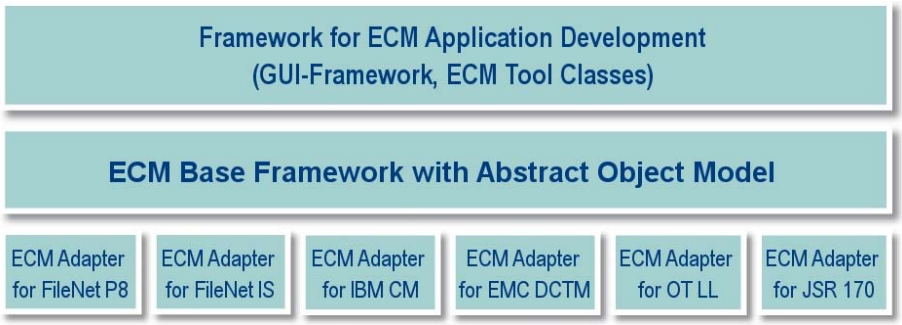


*Fig. 2 Components of OpenECM-Framework*

**Framework for ECM application development**

The framework contains numerous objects typically needed for developing ECM applications dealing with documents, files, work items, etc. Furthermore, it includes many GUI classes making it very easy (and time-saving) to create ergonomic HTML interfaces for an ECM environment.

**ECM base framework**

The ECM base framework defines all necessary objects for an ECM application (e.g. folders, documents, versions, attributes, permissions, etc.) based on an abstract (i.e. vendor-independent) object model. It supports not only archiving functions but also allows accessing complete DMS functionality such as version management. Thus the framework functions automatically adopt the features of the underlying ECM platform.

**ECM adapter**

The main access to the ECM base system is implemented within the ECM adapter. If an OpenECM application is migrated to another ECM platform, only this adapter has to be changed. WeWebU currently offers ECM-adapters for the following ECM/BPM systems:

- IBM FileNet Content Manager
- IBM FileNet BPM
- IBM FileNet Image Services
- IBM Content Manager
- IBM Content Manager on Demand
- EMC Documentum

Other systems are supported on request. At present WeWebU discusses with customers, partners and interested parties which other systems should be supported. Current suggestions are amongst others:

- Open Text Livelink
- Oracle/Stellent
- JSR 170

## 2.2 Ergonomics and user-friendliness

The success of an ECM project depends essentially on user acceptance. When designing WeWebU OpenWorkdesk, we used latest Web 2.0 technologies and took experiences of preceding projects into account to completely fulfil the typical end-user's demands on modern web-based user interfaces. WeWebU OpenWorkdesk is intuitively usable – not least because of several integrated AJAX functionalities – and provides a series of features which facilitate fast and efficient working. It supports different languages and provides a complete online help.

### 2.2.1 Customized layout, role model and security

WeWebU OpenWorkdesk can be optimally customized regarding the individual user's needs. Only those functions and applications (master plugins) the user needs because of his role in the organization are displayed. Thus, WeWebU OpenWorkdesk provides high security. Everything depends on the user's role. Functions are only shown and executable if the user is allowed to use them according to his role. Additionally, all security mechanisms of the ECM system apply in OpenWorkdesk.

The design of OpenWorkdesk can also easily be adapted to the customer's corporate identity. If a user assumes several roles in the corporation (e.g. specialist line manager), he can quickly switch roles by using the role selector without the need to logout and log-in again.

### 2.2.2 Functions for working ergonomically

Although OpenWorkdesk is a purely browser-based application, it offers the user almost the convenience of a fat-client as described by the following functions:

**Document import via drag & drop and copy & paste**

To import documents into OpenWorkdesk, the user can simply insert these from Windows Explorer or Desktop by using drag & drop or copy & paste. If necessary, he defines a document class or other parameters later on. The documents are immediately available in the ECM system. When importing several documents at once, the metadata entered for the first document can be inherited on all other ones. The user may make changes afterwards if necessary. In this way, a multitude of documents can be brought into the ECM system very fast.

**Shortcuts**

To quickly execute the most important functions, OpenWorkdesk allows working with shortcuts. If the user marks documents and calls the shortcut [CTRL + C] the marked documents will be copied to the clipboard.

**Working with the right mouse button**

The user can work with the right mouse button in OpenWorkdesk just as in Windows. If he clicks one or several documents in a result list they will be marked and a context menu will open and show all document functions relevant for him according to his role and access rights; ditto for cases. Thus the user can get a quick overview over all available functions and work with documents and cases in OpenWorkdesk as known from Windows.

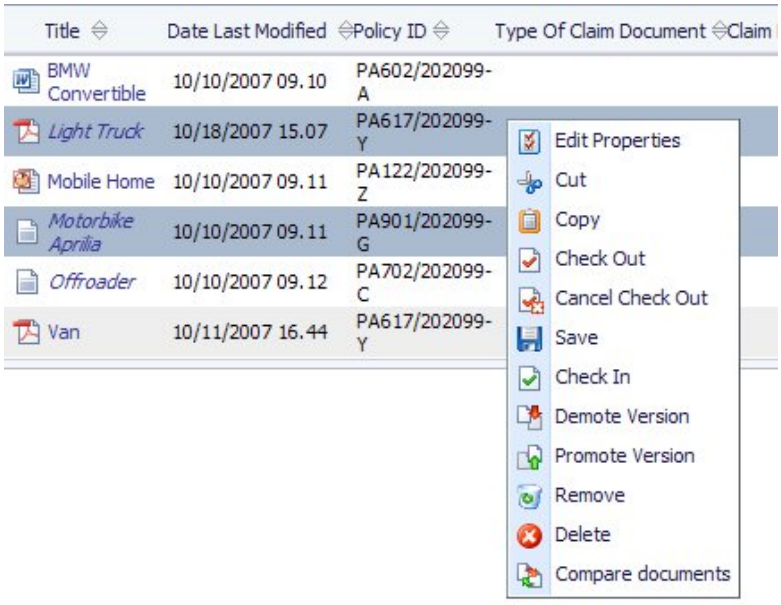


*Fig. 3 A context menu appears when clicking marked documents with the right mouse button*

### 2.2.3 Support of several languages

The user can choose the language he wants to use in OpenWorkdesk in the login page. Generally German and English are available, further languages can be easily integrated.

### 2.2.4 Context-sensitive help

OpenWorkdesk offers a comprehensive online-help. If the user clicks the help tab, the corresponding help page opens automatically. The help page has its own scrollbar. Therefore the header of OpenWorkdesk is always visible when scrolling.

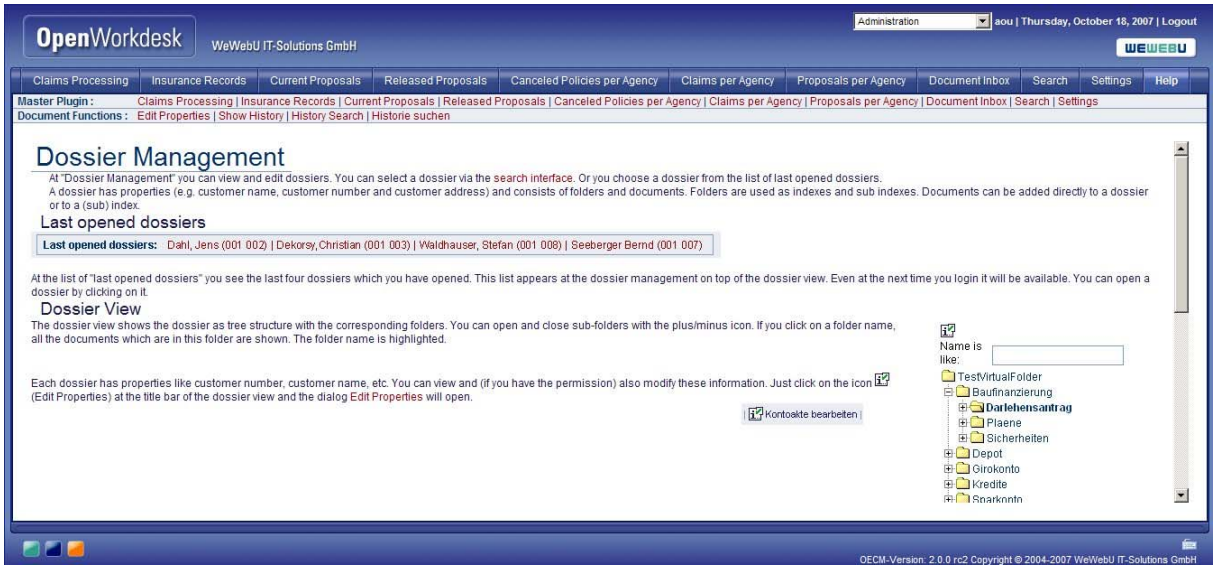


*Fig. 4 Context-sensitive online-help in OpenWorkdesk*

### 2.2.5 Tool-tips on function icons

Icons to quickly execute functions – e.g. *Edit Properties* – are generally self-explanatory. However, each icon is described by a tool-tip (a short explanatory text) that appears when keeping the curser above an icon without any action.

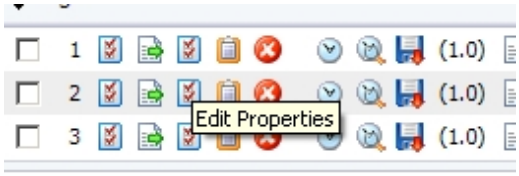


*Fig. 5 Help on function icons through tool-tips*

### 2.2.6 Context-sensitive help on shortcuts

All shortcuts available for a specific site can be displayed by clicking the keyboard-symbol at the lower right border of the screen.

### 2.2.7 Web 2.0 technology

Latest Web 2.0 technologies and AJAX functionalities are integrated into WeWebU OpenWorkdesk. Among others, that is why the web front-end is as intuitive as a rich client application.

In hit lists the column order and width can individually be modified with the help of an AJAX grid. By Clicking the symbol  the document list is switched to AJAX. The column order is changed per drag & drop when clicking the column header, dragging it to the wanted position and dropping it there.


*Fig. 6 Changing the column order per drag & drop*

The column width can be easily modified by just moving the separator to the wanted position while holding the left mouse button pressed. Double clicking the separator automatically adjusts the column to its optimum.


*Fig. 7 Changing column width*

Users can directly edit metadata of documents in the hit list without opening the properties dialog. Metadata displayed in a list can easily be changed, completed or overwritten by double-clicking in the respective field.


*Fig. 8 In-line Editing*

**Auto-complete for choice lists**

In long choice lists (drop down selection boxes), the user can quickly select the wanted property by inserting its initial letters – similar as in the directory of a cell phone. This function is available for all choice lists in OpenWorkdesk.

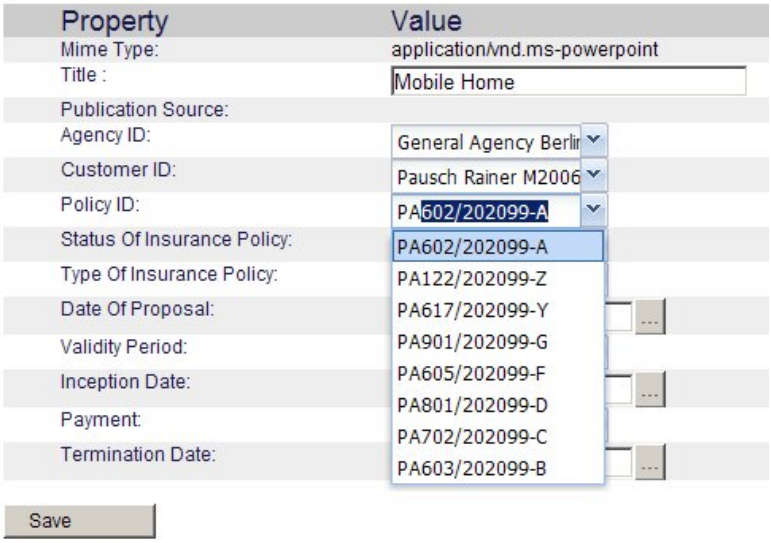


*Fig. 9 Auto-complete of entries in choice lists*

### 2.2.8 Different list types

The user can select between different types of hit-lists. Next to the above mentioned AJAX list, a simple HTML document list, a list of thumbnails and a mixture of both are available. In every list but the thumbnail list, objects are sorted in any order by clicking on the respective column header. In the AJAX list, a thumbnail of a document is displayed when the cursor is stopped for a short time over a list item.

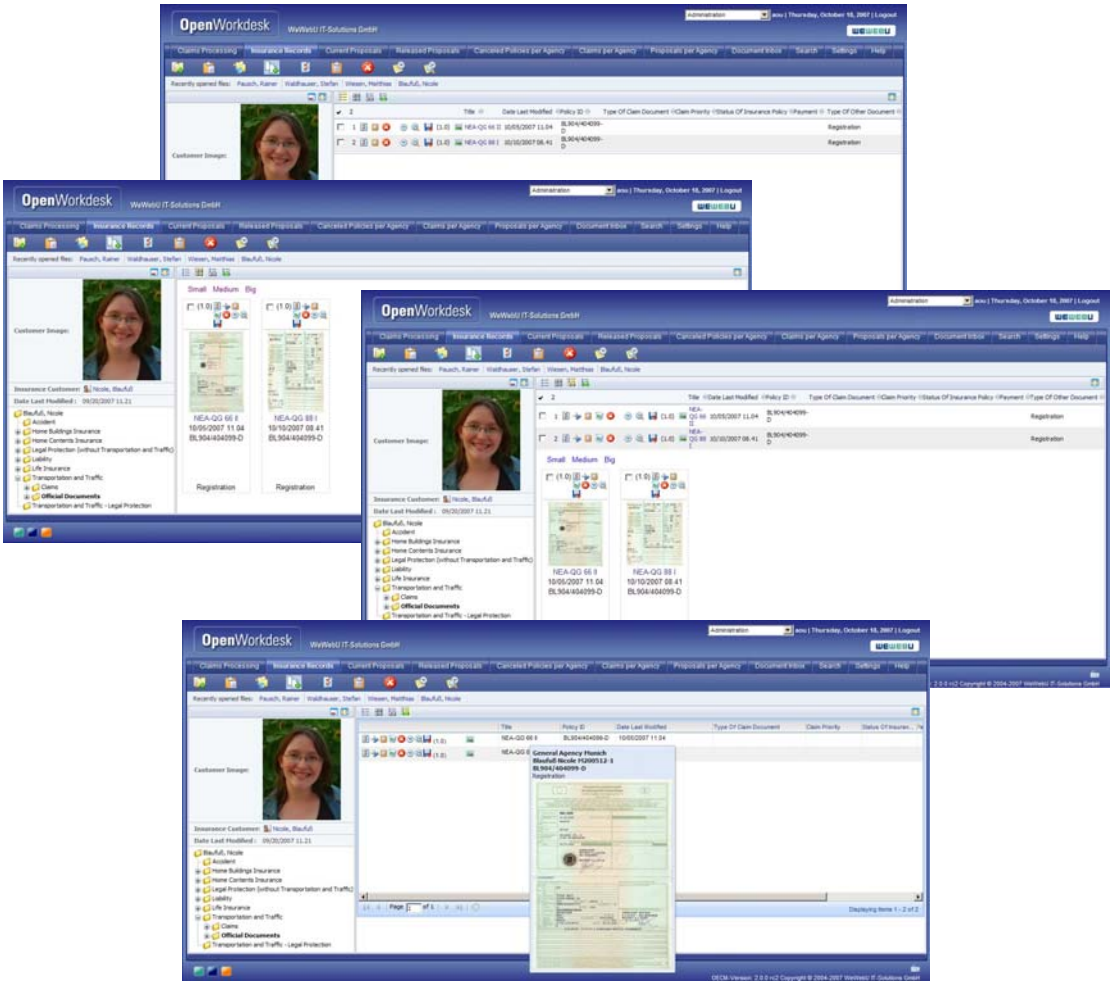


*Fig. 10 Different list types: HTML list, thumbnail list, mixed list and AJAX list with mouse-over thumbnail*

The last opened item of a list of documents is marked (e.g. in boldface). Elements that have already been edited or displayed are marked differently (e.g. in italics) than ones that have not. Objects the users have recently been working with are easy to find in this way.

| ✔ | 4 | | | Title | Date Last Modified | Policy ID | Ty |
|---|---|---|---|---|---|---|---|
| ☐ | 1 | | (1.0) | *Car Policy* | 10/05/2007 09.50 | WA202/234234-B | |
| ☐ | 2 | | (1.0) | Insurance for Scooter | 10/05/2007 10.07 | WA203/234234-C | |
| ☐ | 3 | | (1.0) | ***Future Customer Assistance*** | 10/05/2007 09.50 | WA202/234234-B | |
| ☐ | 4 | | (1.0) | Car Policy - Addendum2 | 10/05/2007 09.50 | WA202/234234-B | |

*Fig. 11 Recently edited documents are marked, e.g. in italics*

## 2.3 Standard plugin components

The main components of WeWebU OpenWorkdesk are a configurable retrieval client, an ergonomic file management and a case management solution. These components can also be installed separately; this means an OpenWorkdesk solution contains exactly the functionalities the customer needs.

The components for retrieval and file management do **not** need their own data model. Instead, they exclusively use the capabilities of the underlying ECM repositories for storing their data.

### 2.3.1 General functionalities

WeWebU OpenWorkdesk always offers the following main functionalities:

- Login / Logout (prepared for Single Sign On)
- Configurable audit trail

### 2.3.2 Retrieval Client

The retrieval client offers the following functions:

- Configurable search
- Result lists (sortable)
- Display of any archived document
- Display and edit document attributes
- Edit annotations
- Version management
- Complete image display of the main view (e.g. result list)
- Full-text search
- Customization of look & feel with CSS

### 2.3.3 File Management

For file management the following functions exist:

- File search (search by file name)
- Display and browse files with Explorer view
- Open document from file:
    - for inspection at a viewer or for editing at a program
    - for direct editing of Office documents in MS Office (with the help of WeWebU Zero-Install Office Integration)
- Display of recently opened files
- Complete image display of the main view
- Add documents to file (import function also possible via drag & drop)
- Create new file

- Clipboard

In addition there is a complete context-sensitive online help and functions to personalize OpenWorkdesk in the tab "*Settings*".

The functions for retrieval and file management are described in detail in chapter 3 of this paper.

### 2.3.4 Business Process Management based on IBM FileNet BPM

OpenWorkdesk's BPM plugin for IBM FileNet BPM offers a complete integration of IBM FileNet Process Engine's work items with OpenWorkdesk. All functionalities of IBM FileNet's workflow engine (e.g. design, analysis and process simulation) are available. The BPM plugin offers the following features:

- Easily configurable step processors
- Group and personal inboxes
- Virtual queues and group inboxes
- Attachments and attributes for work items
- Manually forwarding, resubmission, note function, comprehensive proxy rules
- Extending business functions
- Forwarding work items according to business rules
- Filter and overview function (e.g. user specific views)
- Extended personalization (e.g. user specific configurable display of attributes)
- Configurable audit trails
- Role concept (users, groups, roles)

These functionalities are described in detail in chapter 4 of this paper.

## 2.4 Authorization

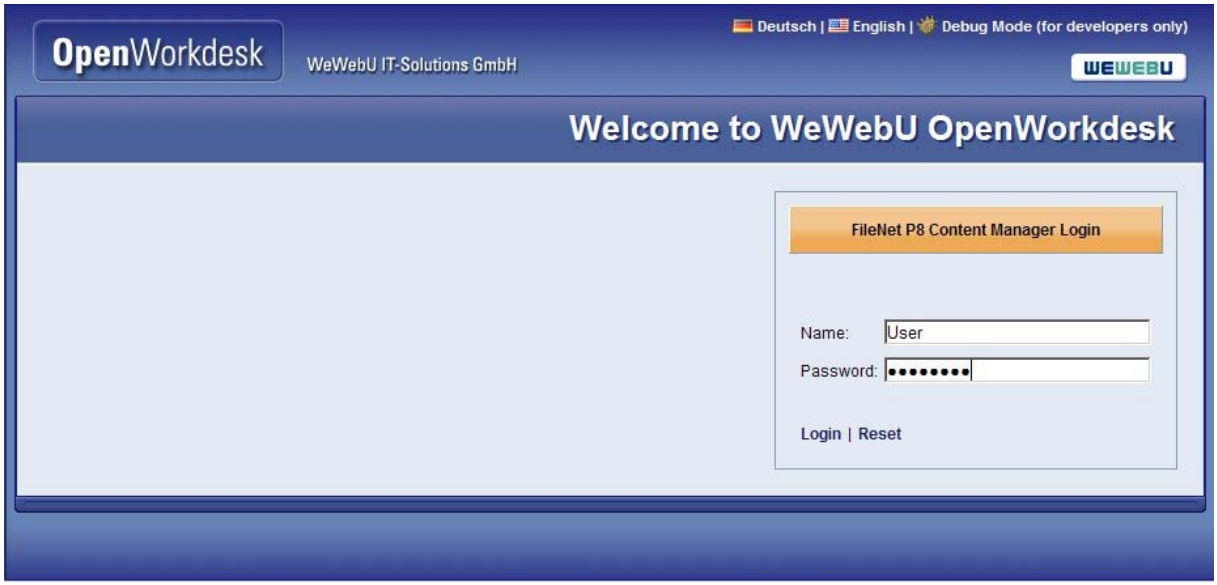


*Fig. 12 Login mask of OpenWorkdesk for IBM FileNet P8*

In the login mask of OpenWorkdesk, the user authenticates at the ECM system. The login mask is automatically shown in the browser's default language. Users can choose the language they want to use in OpenWorkdesk via the displayed flags (in Fig. 12 German and English).

Alternatively the user can be provided with a link with pre-selected language. The layout of the login mask depends on the ECM system. For example, IBM FileNet Image Services not only offers login information but also lets you choose a library.

Furthermore, it is possible to use an automatic login (Single Sign On). With it, users just have to login once at the network and administrators can consistently manage the users for both desktop and back-end.

Each user needs just one user account in WeWebU OpenWorkdesk, even if he assumes different functions within the organization. After the login he can quickly switch between his master-roles with the help of a role-selector and without the need to log out and log in again.

OpenWorkdesk can use any authentication mechanism offered by the according ECM adapter. By default, the ECM adapter for IBM FileNet Image Services applies the user management of IBM FileNet Image Services or optionally Active Directory, for example. OpenWorkdesk does not require its own user management. The authentication is customized by adjusting the ECM adapter to the customer's environment, while the ECM adapter interface remains unchanged.

## 2.5 Navigation

OpenWorkdesk is divided into separate navigation fields. Their arrangement is defined by the layout. The main layout is arranged as follows:

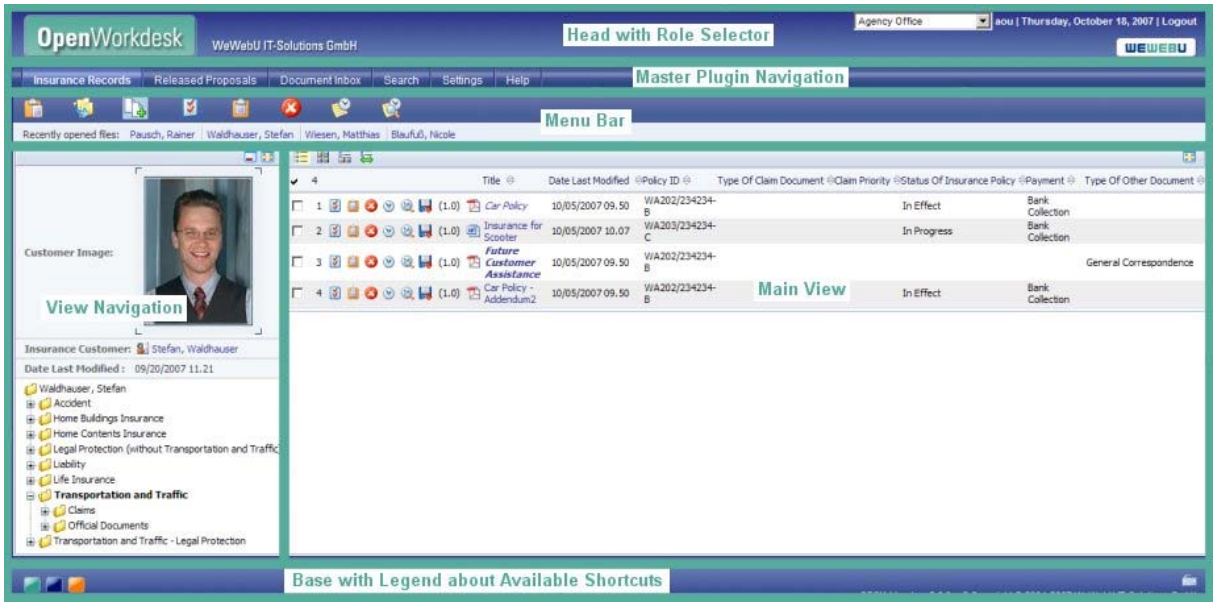


*Fig. 13 Navigation elements at the main layout*

At the header you can find the logout button and if needed a role selector. With it, the user can switch his roles without the need to logout and login again. If a user assumes several roles in the corporation (e.g. specialist line manager), he can quickly chose the needed one using the check box where all his roles are displayed.

OpenWorkdesk is divided into separate fields (so-called master plugins) such as retrieval, file management, case management, settings etc. The user sees only those master plugins at the master plugin navigation that he needs depending on his currently selected role. He can conveniently switch between the single fields. A context-sensitive help is available for all master plugins. Except for the login area, all fields have a logout button.

In the field of file management OpenWorkdesk provides a menu bar including all basic functions. Optionally, a different navigation can be used. The administrator configures which file functions (record Plugins) are displayed there.

The layout of “main view” and “view navigation” is defined by the current master plugin. All layouts can be customized. It is even possible to save several layouts and navigation menus in so-called designs and to use them depending on the user’s role. This means that the user interface of the OpenWorkdesk can look different for users with different roles. All icons – for master plugins as well as for function plugins – can be exchanged flexibly. So OpenWorkdesk can meet any requirements of the customer regarding look & feel and can be adapted to his corporate identity. Everything is implemented with just one deployment.

## 2.6 Customization of user interface and use of designs

The entire display and layout of OpenWorkdesk can be easily modified to the specific user requirements by CSS and replacing JSP-files and images (icons for master plugins and functions). Apart from font, color and decoration the element size and space can also be defined in detail. The layout of OpenWorkdesk can be changed to meet almost any customer needs. Furthermore the JSP pages make it possible to integrate individual, dynamic information content. Since the user interface is implemented as MVC pattern, the designer of the user interface does not need to know about business logic and Java implementation.

A user interface (images, JSP files and CSS) can be stored as so-called design. It is possible to have several designs and assign these according to the user role.

Thus it is easy to follow an organization's corporate identity guidelines or to integrate OpenWorkdesk with an existing enterprise portal.

## 2.7 Compliance

Although the requirements to assure compliance differ a lot from branch to branch and from corporation to corporation, there is one common denominator: Higher transparency and control over contents and processes within the enterprise.

Documents and cases managed and edited in OpenWorkdesk can be controlled by authorized employees at all times because of its comprehensive capabilities regarding historization. The configuration possibilities enable everything from passing on any audit trail to historicizing each individual step, even every mouse click. Changing attributes, for example, may be historicized, too. By means of comprehensive historization, each authorized user can retrace all steps of editing in the audit trail. Thus the highest transparency is guaranteed.

Thus, WeWebU OpenWorkdesk facilitates to assure legal rules and regulatory directives optimally, regarding storing and managing documents as well as documentation of critical business processes.

# 3 Retrieval Client / File Management

Managing files and documents electronically in an ECM system is very simple with WeWebU OpenWorkdesk, even for untrained users. Paper-based files can be transformed one-to-one into their electronic image. Navigating through the files is very intuitive by using a tree-structure as in Windows Explorer. Various DMS functions are available in OpenWorkdesk (version management, check-out, check-in, etc.). Documents can be opened from a file either for inspection in a viewer or for editing in an appropriate program. It is also easy to create new files and add documents to a file (by import function or drag & drop).

Furthermore, OpenWorkdesk provides a convenient and configurable retrieval client, making it quick and easy to find documents and cases. Any archived files or documents, or document attributes can be displayed in the result list. Partly it is possible to edit attributes and annotations even within the result list.

## 3.1 Retrieval Client

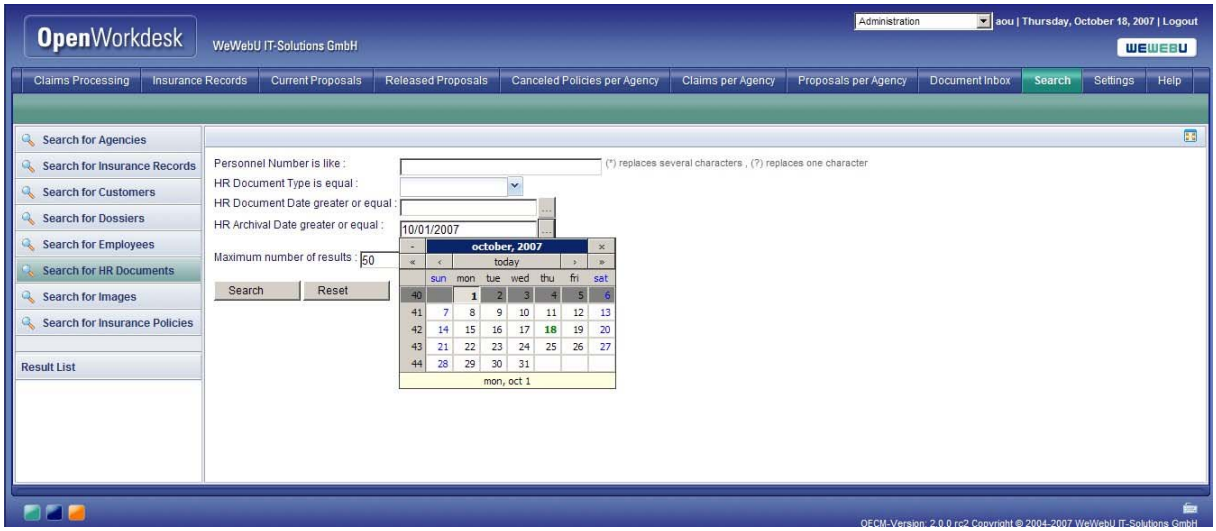


*Fig. 14 Search template of OpenWorkdesk with open date control*

After login, the system switches to the search plugin. There you can easily search for documents and files in the ECM system. Depending on his role, the user is provided with different search templates. During a session, the criteria of the previous search are shown as initial values for the next search. Wildcards as placeholder for any symbol can be used. Which character is used as placeholder (e.g. *, %,…) can be configured.

The search template offers a convenient date control with calendar display for setting data criteria. The user or the administrator can configure the date format. Thus all dates are displayed uniformly and as expected, contributing to easy readability as well as avoiding errors.

The search process starts with clicking the *Search* button. OpenWorkdesk then switches to the result list. The *Reset* button resets the search fields. With *max. number of results* the user sets the maximum number of search results. Alternatively, the absolute maximum of displayed results can be set by the administrator centrally for all users. The process of

searching can also be started simply by pressing the return key. By pressing it again you get back to the used search template.

The user can navigate between search mask and result list with the navigation bar at the left side. Full text search and searching for documents from the past few days is supported as well, providing the underlying ECM system offers this possibility.

### 3.1.1 Search templates

The retrieval client contents different search templates to find the desired data quickly. Next to the document search (e.g. *Search for HR Documents* or *Search for Images*) it is also possible to search for files (e.g. *Search for Dossiers*) or for data from external data sources like a customer data base (e.g. *Search for Customers*).

After searching the result list is displayed.

### 3.1.2 Result list

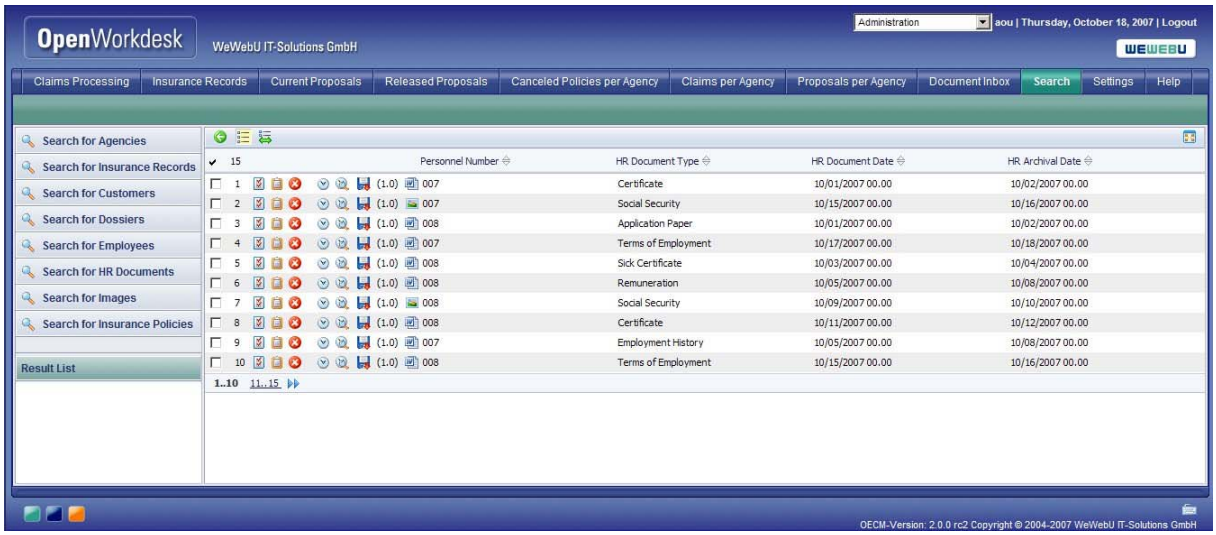


*Fig. 15 Result list of OpenWorkdesk*

The result list shows the results of the latest search. All search results can be opened directly by clicking their links. Further information in chapter 3.3.

On the right side, the result list displays – using various icons – a column for document functions for each document. These functions can be extended by plugins (see chapter 6.1). The administrator configures which functions are already available here, e.g. *edit properties* and *copy*.

The result list can be sorted in ascending or descending order according to a column's document attribute by clicking a column header. Accumulated sorting according to several criteria is possible. When executed, the current sorting process re-sorts the results of the previous one without discarding it completely. If the user e.g. sorts by account number first and then according to document title, the results will be shown in alphabetic order first and then sorted by account number. The results of a new search will be automatically listed in the previous order. After a new login the sorting will no longer be available.

The results are listed in blocks of a fixed size. Thus it is not necessary to scroll in the whole browser; the navigation menu and the page header are always visible. At *settings → page*

*size* the user can define the number of displayed documents. On the left lower part of the screen navigation elements for the next result pages are displayed.

If the user clicks a file in the result list, it will be automatically displayed in the file management master plugin. Documents will be opened in the respective viewer or a program for editing.

## 3.2 File Management

### 3.2.1 Display of files

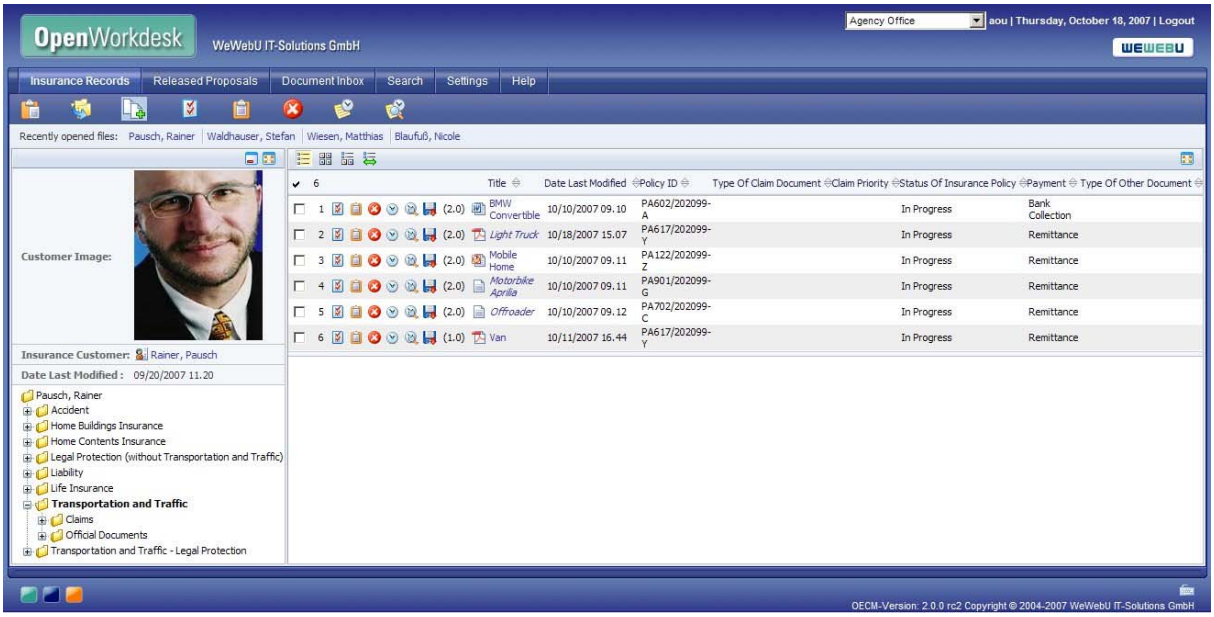


*Fig. 16 File management at OpenWorkdesk*

Besides a menu bar with basic functions the file management has three views. The file view displays the file as a tree structure similar to Windows Explorer. Clicking a sub-folder opens this folder on the right. The folder view shows document names and the attributes. The administrator can use an XML file to configure which attributes are shown. The column lists specific functions which can be executed depending on the document. Basic document functions are links to the *Edit properties* dialog and *copy* to clipboard.

The user can access the last opened files directly above the menu bar. Clicking a document opens it in the respective viewer or in a program for editing (further information in chapter 3.3).

Columns can be sorted in ascending or descending order by clicking the column header. Accumulated sorting according to several criteria is possible here, too. When executed, the current sorting process re-sorts the results of the previous one without discarding it completely.

### 3.2.2 Clipboard

The clipboard makes it possible to copy (), cut () and paste () any object, e.g. documents, folders and whole files. These functions are available via shortcuts, too. When copying, a reference of the copied object is saved at the clipboard. The clipboard is a storage which is connected to the session. It is available at all plugins and views of the OpenWorkdesk. The function *Paste* allows pasting a document or a reference to it (according to its document class) which has been copied to the clipboard into a file or a work item. The function *Move* will move the copied objects to the new folder.

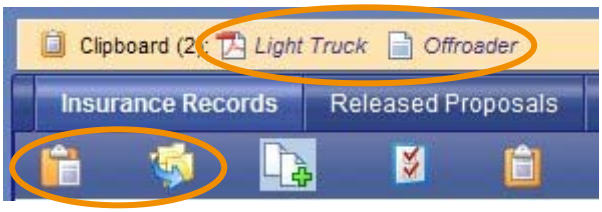


*Fig. 17 The functions Paste and Move are activated if there is at least one object at the clipboard.*

### 3.2.3 Virtual and physical file structure

The file structure in WeWebU OpenWorkdesk can be created in several ways: by using folders in the ECM system (physical file structure), by combining search criteria (virtual file structure) or by a mixture of both (semi-virtual file structure).

**Physical file structure**

The folders and file structure from in the ECM system are displayed in OpenWorkdesk's file management just as they are.

**Virtual file structure**

Virtual folders or views are not created by folders existing in the ECM system, but by a combination of search criteria for existing metadata. These search criteria are displayed as a tree structure. To the user there is no visible difference between the physical file structure consisting of folders and the virtual file structure created with a combined search. Both types of file structure can be used with WeWebU OpenWorkdesk. However, the virtual structure is usually preferred because of several advantages:

- It is possible to create different views on a file without creating document redundancy. In this way, one document can be displayed in different virtual folders, but it is stored just once in the ECM system. For example employees in the claims office of an insurance see the new claim document "XYZ" in the folder of the respective customer, whereas the Claims Manager sees it the folder "In Progress" and thus gets an overview of all current claims.
- It is possible to simultaneously change the file structure and manage it centrally. The administrator can easily create new file structures by combining the respective search criteria. So every department can work with a structure of data storage that best supports its needs.
- Documents are automatically added to a file by their attributes. Thus, if OpenWorkdesk is implemented for an existing ECM system – possibly with millions of documents – the files are created automatically and do not have to be created explicitly. Thus, importing or editing a multitude of documents is very easy, because

they appear automatically in the correct virtual folders just because of their metadata. They do not have to be moved or added to a file manually.

- Virtual file structures can be created for any ECM system regardless of system support for folder objects. This independence provides an almost unlimited scalability.
- Consistency between document attributes and files is guaranteed: A modification of the file attributes or changing the document attributes automatically links documents to the right file.

Therefore the virtual file structure offers a much more flexible approach to file management than a physical file structure. In particular, long-term customers of IBM FileNet Image Services will be pleased that they can create files from their existing documents out of the box simply by using OpenWorkdesk.

**Semi-virtual file structure**

A semi-virtual file structure consists of both, files existing in the ECM system containing metadata (being the parent object) and a virtual file structure to fine-tune the view to documents with one or more of the same metadata. E.g. the physical personnel file in the ECM system is identified by the metadata “name” and “personnel number” of an employee. This physical file can become the highest object in the hierarchy of a semi-virtual personnel file. Documents with the same personnel number are then automatically displayed in this file. To fine-tune the view to that multitude of documents, other metadata like (functional) document type (e.g. employment contract, CV, certification, warning,…), date of creation etc. can define the hierarchy below, e.g.:

+ John Doe, Personnel No. F10005
    + Employment Contract
        + 2006
        + 2007
    + CV
    + Certifications
        + 2005
        + 2006
        + 2007
    + Warnings

### 3.2.4 Add folder

Since OpenWorkdesk uses a virtual folder structure by default, it is not necessary to manually add new files or folders respectively. They are created implicitly in OpenWorkdesk simply by adding a new document indexed with a specific key criterion. The newly created folder automatically appears in the file management. If a completely new file structure is needed, the administrator can easily create it by combining the needed search criteria.

Alternatively, the OpenWorkdesk can also use physical or semi-virtual file structures. In such a scenario a function for adding new files is available.

### 3.2.5 Add new documents

WeWebU OpenWorkdesk offers different ways to import one or several new documents. By default, the following steps are executed:

1. The user selects the file and folder in OpenWorkdesk he wants to add documents to.

2. He uploads documents from the desktop's file system either

   2.1 with the help of the "Add new documents" dialog: By browsing through the local file system the user selects and uploads the documents one after the other.

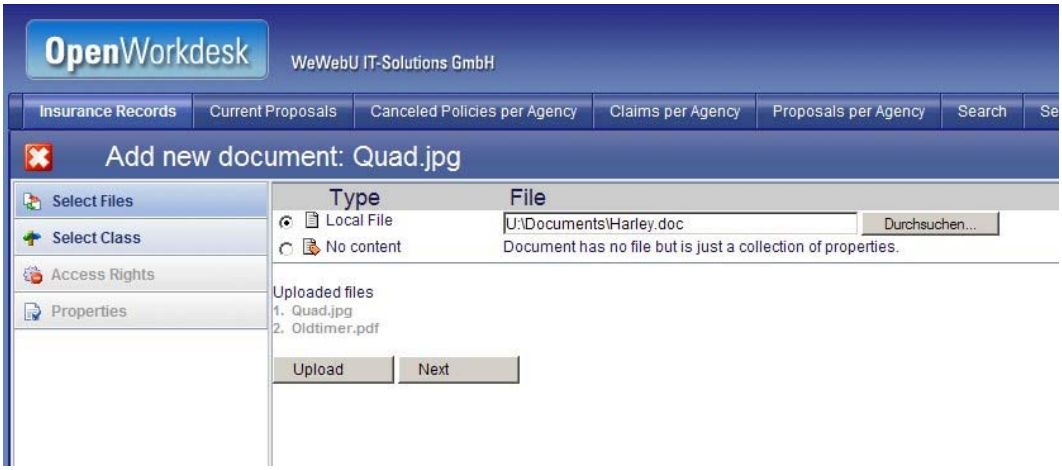


*Fig. 18 Adding of several documents with the "Add new document" plugin*

   2.2 by drag & drop: In Windows Explorer or Desktop the user selects the objects to be imported, drags them to the "Add new documents" icon in OpenWorkdesk and drops them there.

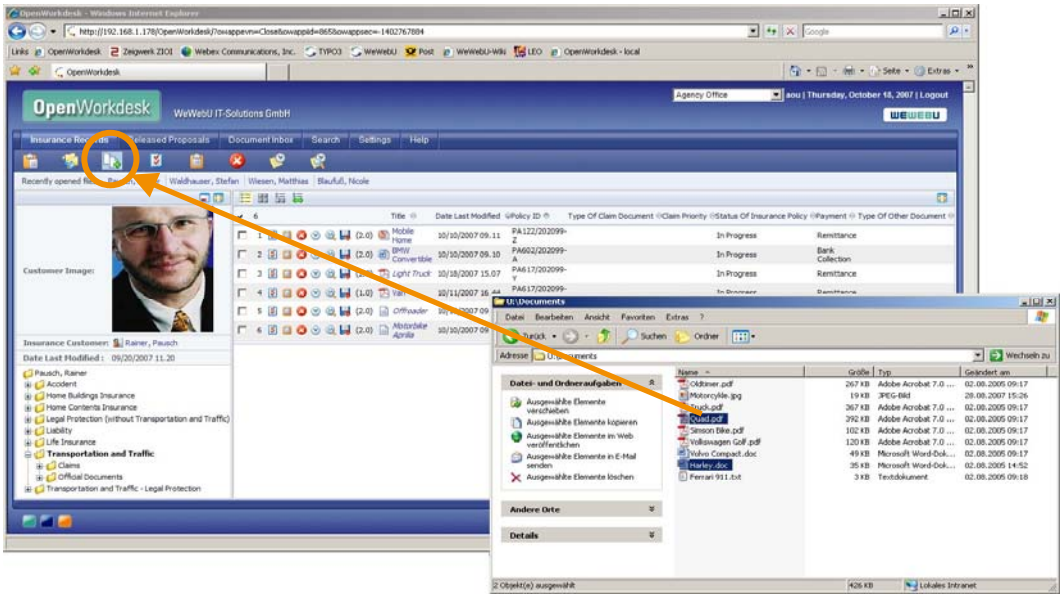


*Fig. 19 Adding documents by drag & drop*

2.3 or by copy & paste: The user selects the documents to be imported and copies them. Afterwards he can paste them in the function-field “Add new documents”.

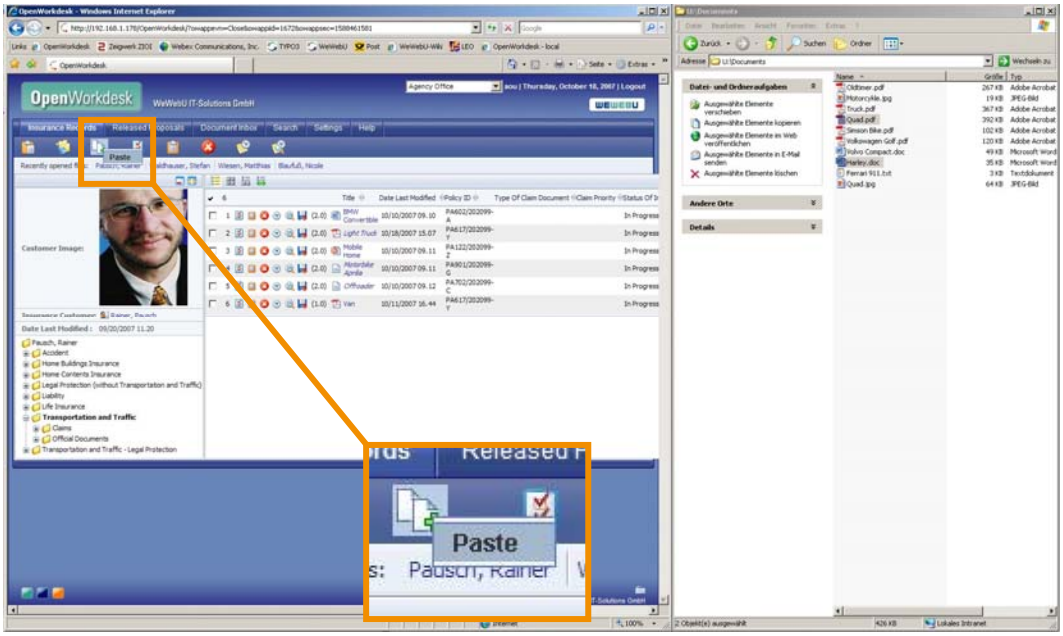


*Fig. 20 Adding documents by copy & paste*

3. The user selects the document class (often predefined).

4. He assigns access rights for the added documents. Otherwise the rights of the respective folder are inherited by default. It can be configured, whether rights should be assigned explicitly.

5. He edits the document properties. When indexing several documents, metadata of the first document are inherited to the next ones, but can be modified. The documents are displayed in the respective viewer in order to facilitate indexing as described in 3.2.6.

After finishing these steps, the documents are added to the core repository and appear in the corresponding file.

Also with a virtual file structure adding documents is possible in that way. Metadata set by the virtual file are initialized with the respective values.

Optionally, documents can be imported into OpenWorkdesk with the help of WeWebU Zero-Install Office Integration directly from the Office application (further information in chapter 7.1)

### 3.2.6 Edit properties dialog

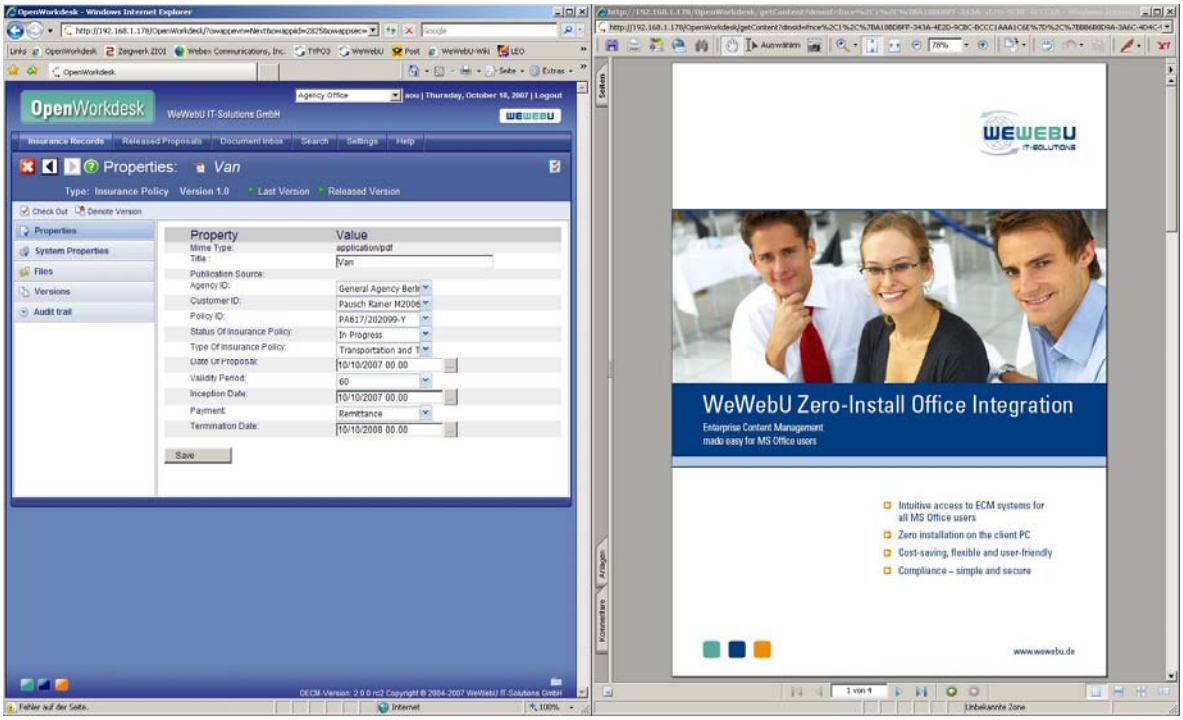


*Fig. 21 Edit properties dialog at OpenWorkdesk with opened viewer*

The *Edit properties* dialog is used to edit the properties of one or several documents. All attributes are clearly arranged in various categories. Depending on his role the user is shown all or just some of these categories. When editing the properties of several documents at once, the user can easily navigate through the batch of documents by using arrow buttons. The currently selected document is in parallel displayed in the viewer. Thus, editing a multitude of properties from several documents is simple and fast.

If the underlying ECM system supports the locking of documents, the user must first lock the documents from other users with *Lock Document*. He can then edit the document properties and save them with *Apply changes*. With *Unlock document* the document is unlocked and other users again have access to it. In ECM systems without document locking, the changeable properties can immediately be edited.


*Fig. 22 View system properties in OpenWorkdesk*

After clicking the *System properties* tab, the system attributes of a document are shown.

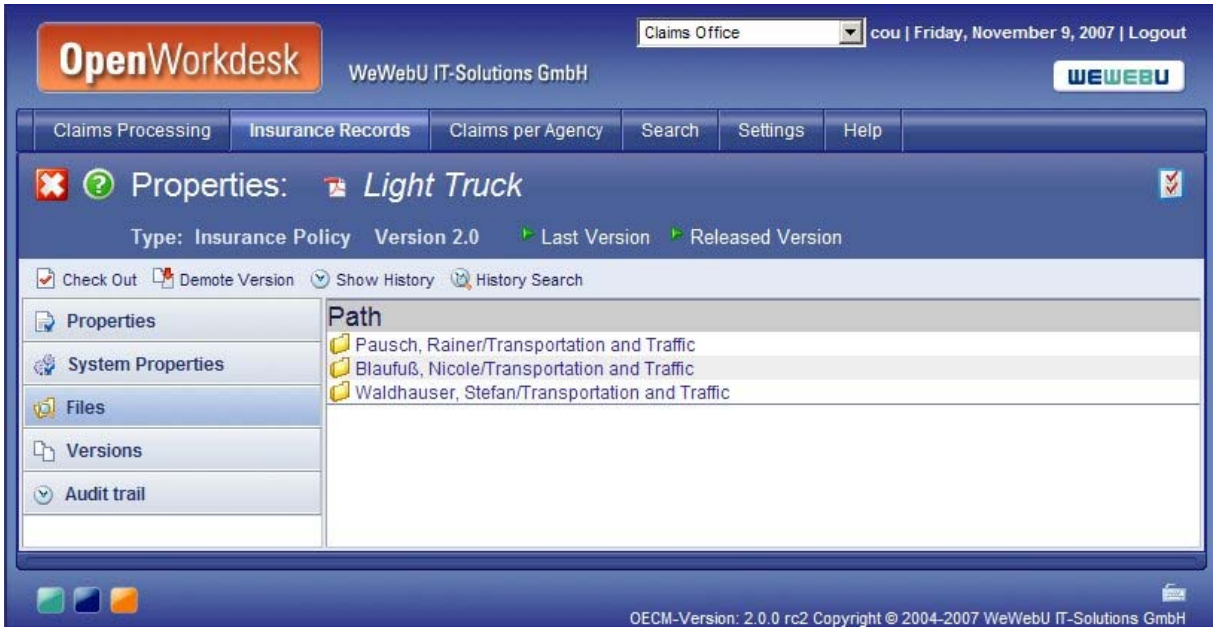


*Fig. 23 Display of files containing a document*

The tab *Files* shows in which files the document is located. The link opens the corresponding file as well as the sub-folder in which the document is contained.

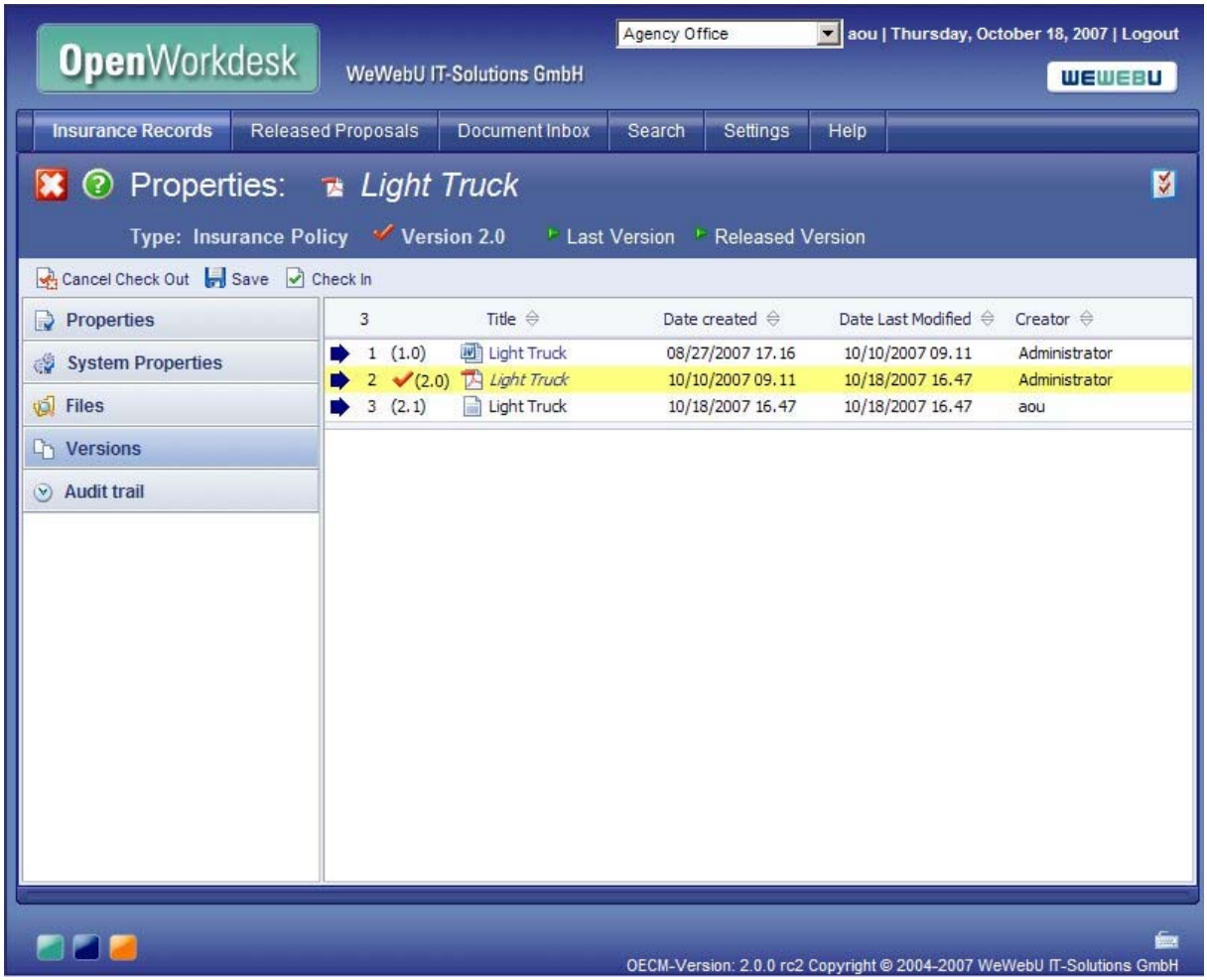


*Fig. 24 Display of all versions of a document*

In the tab *Versions*, all versions of a document are displayed. There the user can view older versions, promote a minor version or demote a major version.

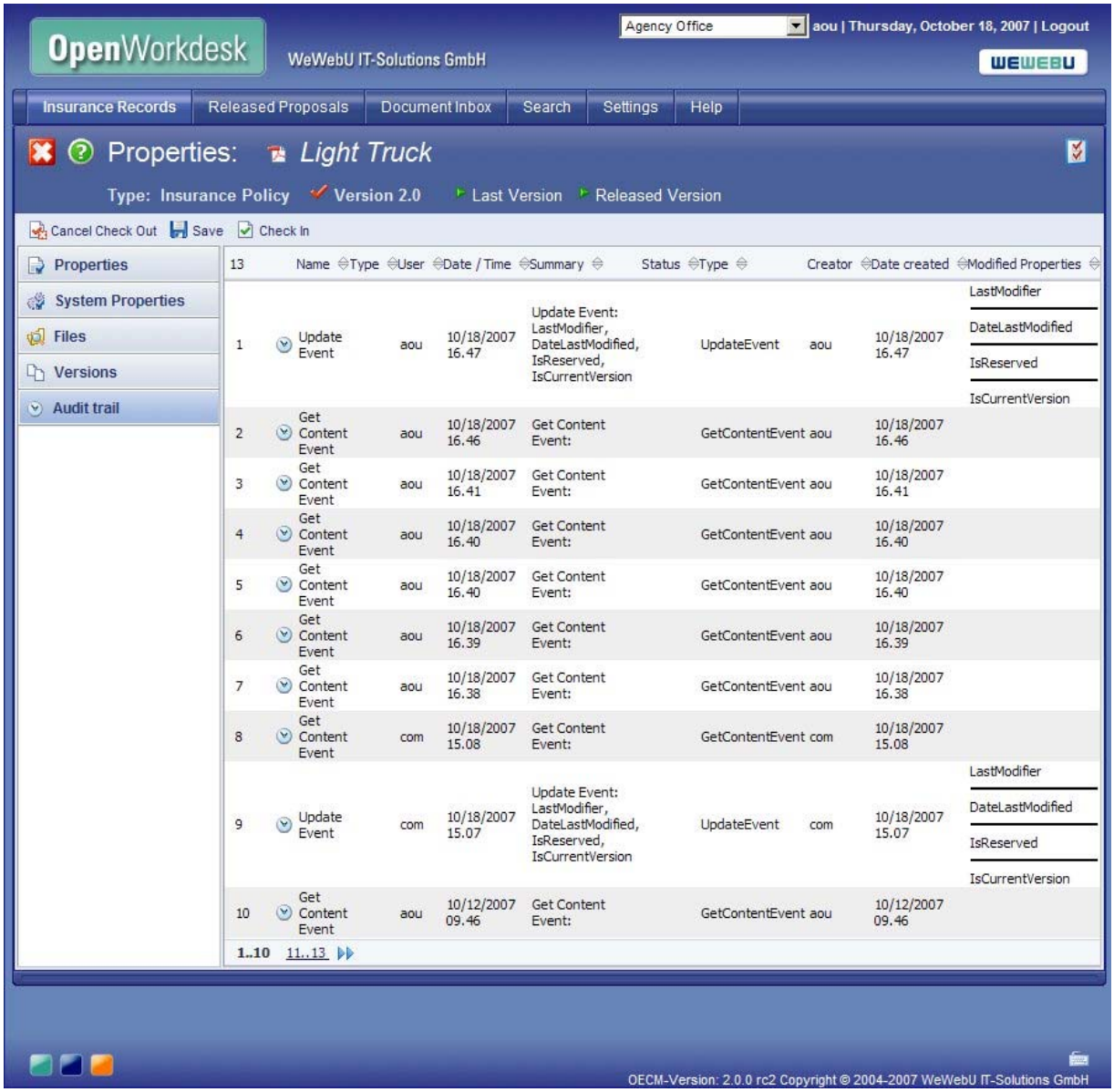


*Fig. 25 Showing the audit trail in Edit properties dialog*

The tab *Audit trail* shows the document's history (further information in chapter 4.2.8). There, all tracked process steps are traceable.

The Close button closes the Edit properties dialog. Then OpenWorkdesk switches back to the last visited page.

For ECM systems that only use symbolic names for document properties, OpenWorkdesk offers a configurable "translation" into names, which can be read more easily by the end user. The translation file is managed by the administrator.

### 3.2.7 Version management

If supported by the underlying ECM system (e.g. IBM FileNet Content Manager), complex version management functions are available:

- Check Out
- Cancel Check Out
- Check In
- Save
- Show Versions
- Demote / Promote Version

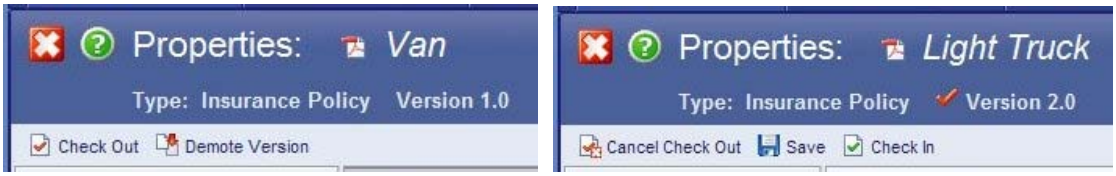


*Fig. 26 DMS document functions*

## 3.3 Viewing and editing documents

Documents from file management or from the search result list can be conveniently displayed in OpenWorkdesk using different viewers. The viewer window's header shows document title. Thus it is easy to find the wanted window among many opened windows.

The frame position of viewer and OpenWorkdesk are saved. So, both can be optimally displayed on the screen even if the viewer should be closed in the meantime. Authorizations of any kind, e.g. for printing documents or making annotations, can be controlled based on roles.

If the document to be displayed is an Office document, it can be opened and edited directly in MS Office with the help of WeWebU Zero-Install Office Integration. It is fully integrated into OpenWorkdesk. When the user clicks an Office document within the web-browser it is opened with the appropriate Office application. Then the user can edit the document directly without the need to explicitly search for and re-open it. After editing, the document is re-imported to the IBM FileNet P8 system directly without detour through the file system (further information in chapter 7.1).

# 4 Business Process Management based on IBM FileNet BPM

The BPM plugin enables the complete mapping of all functionalities of the IBM FileNet Process Engine to OpenWorkdesk. For example, a workflow created with IBM FileNet Process Designer can be mapped to OpenWorkdesk's BPM plugin with only little change. In this case, WeWebU's data-based workflow control is no longer necessary.

Furthermore, the administrator can define – with very flexible access rules – under which circumstances who is allowed to process what. A work item represents a specific case, or rather a processing task and can include other objects such as documents or files as attachments.

## 4.1 Views

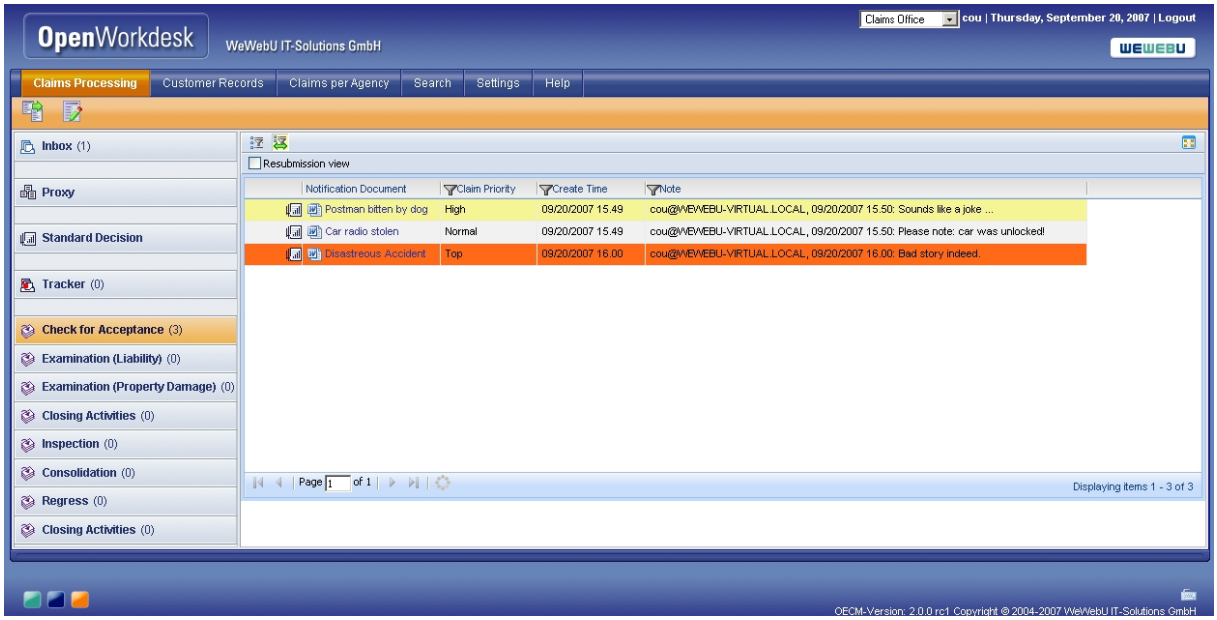


*Fig. 27 Views in P8 BPM plugin*

Users can navigate between the different views with the navigation bar on the left (q.v. fig. 27). There are personal inboxes, group inboxes, optional overviews, a proxy and a tracker view. These views are described in detail in the following sections.

The content of the selected view is displayed in the right part of BPM plugin. The user can configure which columns are shown (see chapter 6.1.5). He can sort the work items by clicking a column header. Frequently used functions can be applied to a work item directly by an icon next to it. All other functions are comfortably available via a context menu. It is also possible to select several work items at once. Afterwards, all selected work items can comfortably be processed one after the other without returning to the inbox.

In the menu bar above the hit list the user can switch to the resubmission view. Clicking the funnel symbol next to a column header, the filter configuration will appear above the list. Both will be explained in detail in the chapters 6.2.5 and 6.2.6.

In all views work items can be marked with different colors depending on their processing priority. A colored mark and/or a priority flag helps to catch important work items faster.

The inboxes of WeWebU OpenWorkdesk's BPM plugin can be created in several ways: On the one hand by using the physical inboxes from the underlying ECM system. Then, the inboxes from the underlying ECM system are displayed in OpenWorkdesk's BPM plugin one-to-one. Functions for e.g. forwarding or the creation of different views may be limited. Creating new inboxes then requires manually compiling them in the ECM system, too.

On the other hand, virtual inboxes can be created by combining search criteria of work items. These search criteria are then displayed as inboxes or views. To the user there is no visible difference between physical inboxes and virtual ones. Both types can be used with WeWebU OpenWorkdesk. However, the virtual inboxes and views are usually preferred because of several advantages:

- One work item can be displayed in different views or inboxes according to the user's interest.
- The administrator can easily create new inboxes and views by combining the needed search criteria without the need to configure complex IBM FileNet group inboxes. So every department can work with its familiar structure of work item processing.
- If the views are only mapped to one IBM FileNet group inbox, work items can be forwarded between all virtual views. This feature is not available with IBM FileNet group inboxes in that way.

Therefore virtual inboxes and views offer a much more flexible approach to business process management than physical ones.

### 4.1.1 Personal inbox

Each user has a personal inbox where he finds all work items he has to process personally. He can forward work items from other inboxes to his own and return them later on.

### 4.1.2 Group inboxes

Asides from the personal inbox, users can usually access several group inboxes. There, users can either access an IBM FileNet group inbox directly (physical inbox) or see a section of various IBM FileNet group inboxes (virtual views defined by search templates); all accessible work items are shown.

The authorization concept of IBM FileNet group inboxes is, of course, retained when using virtual views. The administrator can centrally configure which metadata of the work items are shown in the columns of virtual group inboxes.

### 4.1.3 Tracker (optional)

Workflow designers can appoint different users as trackers who then watch single work items or groups of work items. The work items a tracker watches are displayed in the tracker view during the entire processing. Tracking is primarily needed to analyze the workflow. Opportunities to improve the workflow's efficiency can be found by this control. In the tracker view, it is possible to directly open the IBM FileNet P8 Workflow Designer to check the position of a single work item in the underlying workflow. Such deep links into the ECM back-end can also be used to access other IBM FileNet Workplace functions like IBM FileNet eForms and Entry Templates.

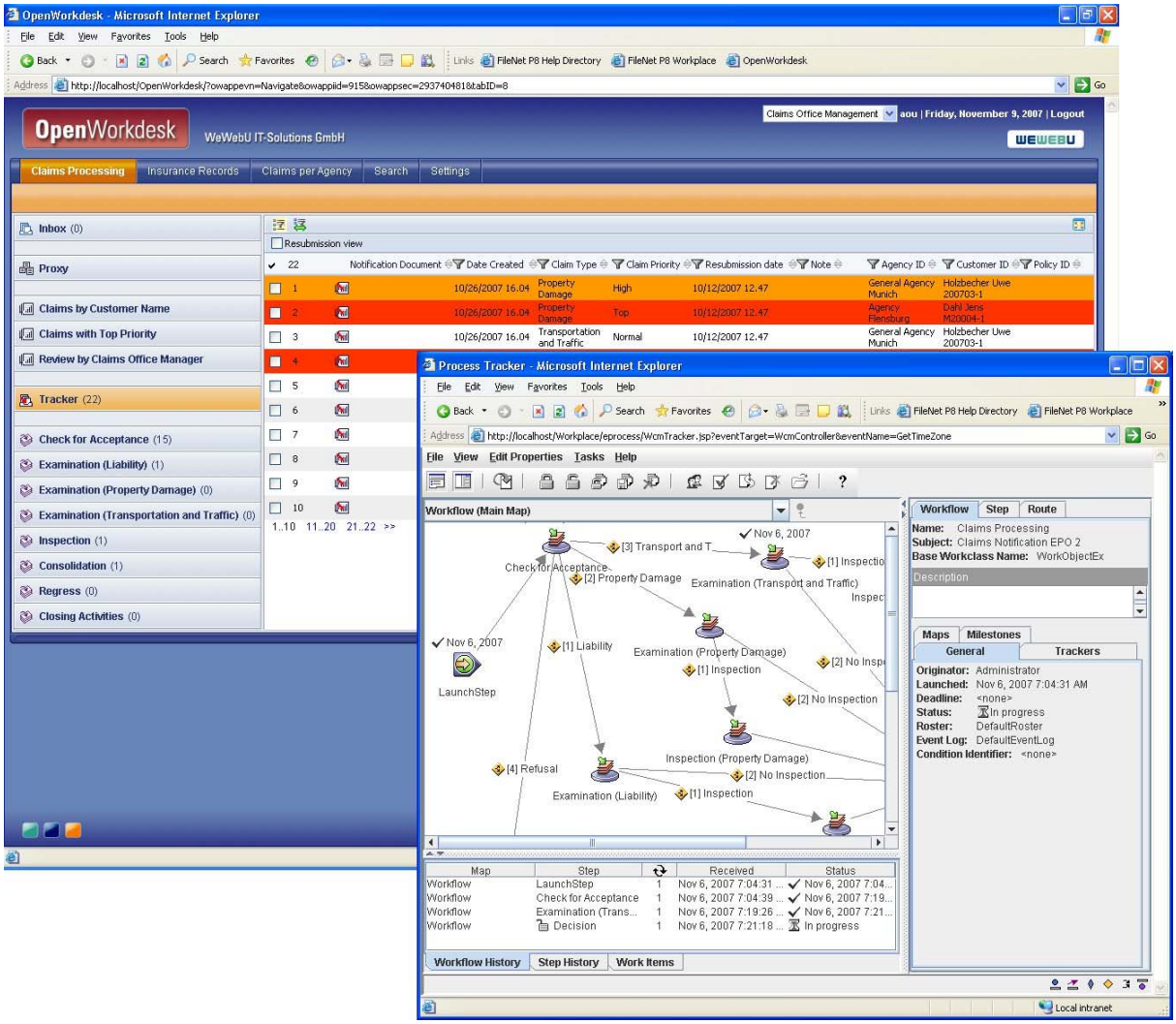


*Fig. 28 Tracker view with deep link into IBM FileNet Workflow Designer*

### 4.1.4 Overviews or virtual group boxes

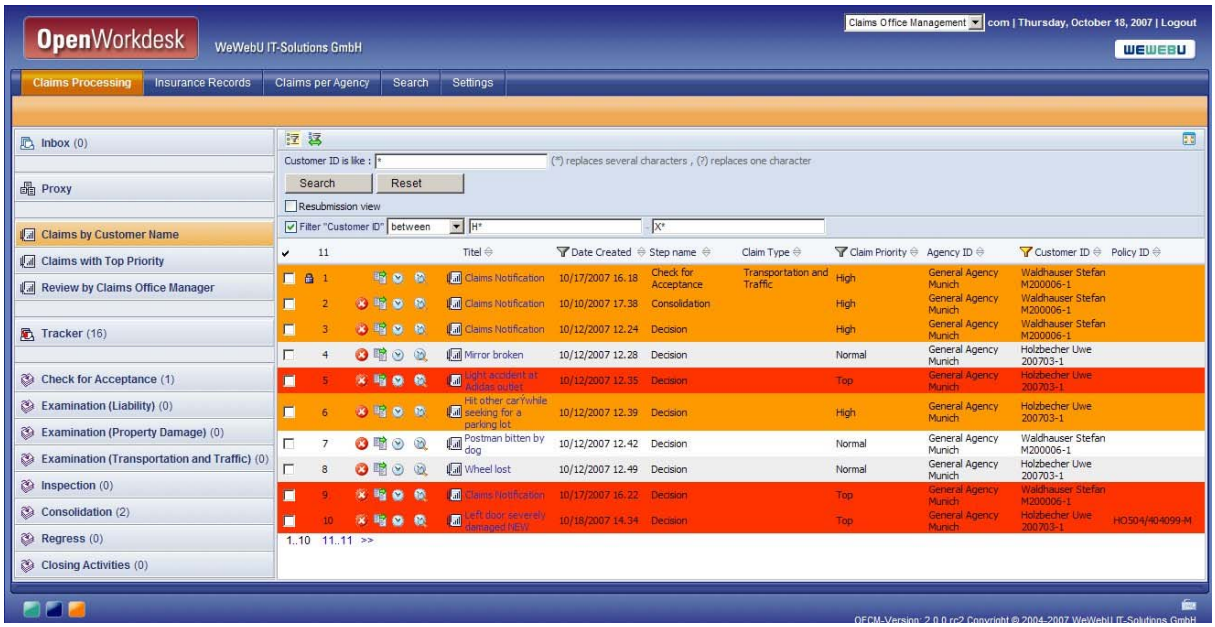


*Fig. 29 Overview in P8 BPM*

Overviews help to find out which work items exist in the system. Overviews display all work items (e.g. Claims by Customer Name) or a special part of them (e.g. Claims with Top Priority) and respective metadata (e.g. processing status). Thus, a user can easily answer questions about the work items in the whole system.
These views can be filtered like all other inboxes. Thus it is possible to quickly find a work item with a combination of filters even with numerous work items in the system.

### 4.1.5 Proxy

The P8 BPM plugin offers a proxy configuration to guarantee the processing of work items at all times. In case of planed absence, e.g. if the user is on vacation or in a seminar, he can define a proxy in the tab *Configuration*. There he can name his proxy and set the term of substitution. If a user is unexpectedly absent, the administrator can also assign a proxy.


*Fig. 30 Defining a proxy in the Configuration tab*

In the proxy view all work items from a user's personal inbox – so even those that had been in there before setting a proxy – can be searched for and processed by the proxy during the defined period. Optionally, such work items can be displayed in the proxy's inbox with a respective mark. Generally, it is ruled out that several users might substitute one another.

### 4.1.6 User-defined views

In the tab *Configuration*, every user can configure his inbox and other views in P8 BPM plugin flexibly according to his needs.

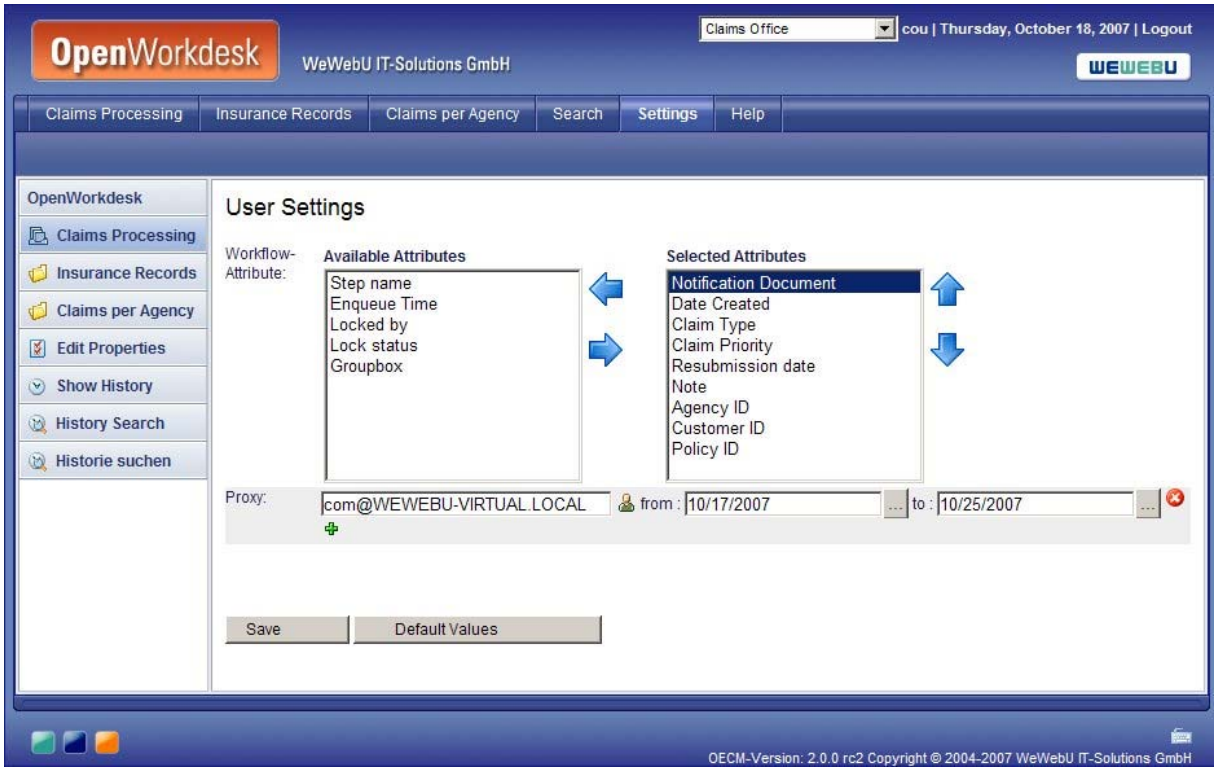


*Fig. 31 Configuration of P8 BPM's views*

From a list of available attributes, the user can select those that should be displayed as a column header in the selected inbox or view. With the arrow symbols to the left and to the right marked attributes are added to a list or delete it from it. The order of appearance can be defined by using the arrow symbols up and down. The administrator defines which attributes can be selected at all.

## 4.2 BPM Case Management

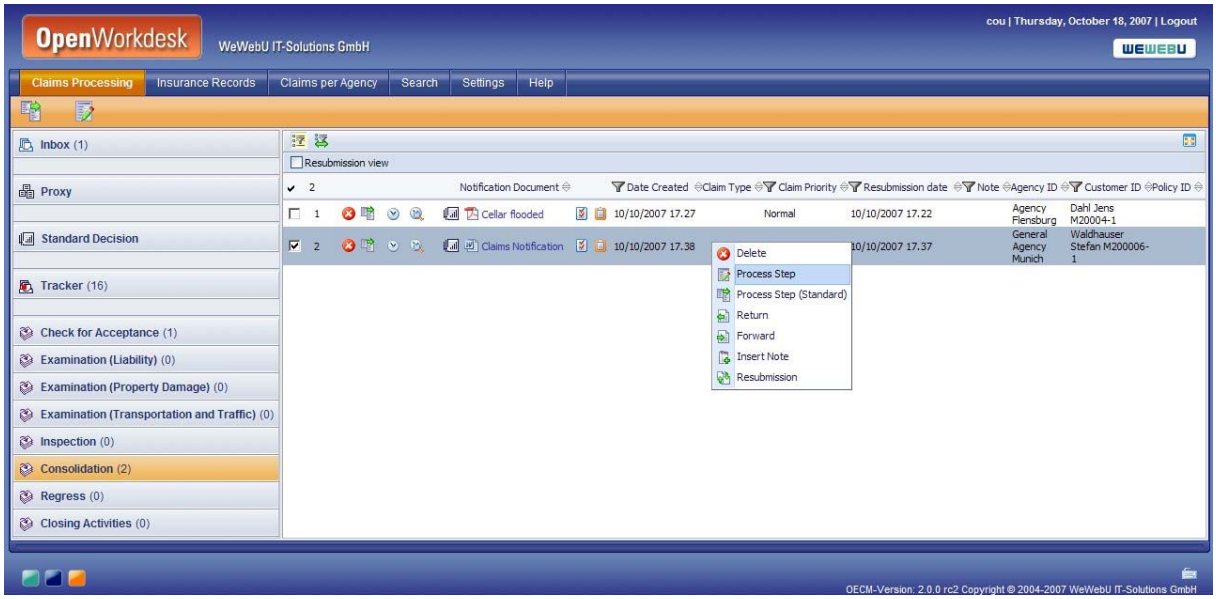


*Fig. 32 Work item processing in P8 BPM*

Single work items can be processed either through a function icon, by using the “Edit next” button in the menu bar or via a context menu. Furthermore, several work items can be selected conveniently by mouse-click. Marking one or several work items locks them for other users. When a user logs out, they are automatically unlocked again.

At least the following basic functions are available for work items:

- Process Step
- Return
- Forward
- Insert Note
- Resubmission
- Show Audit Trail

Other project-specific functions can be integrated through a defined interface.

### 4.2.1 Process step

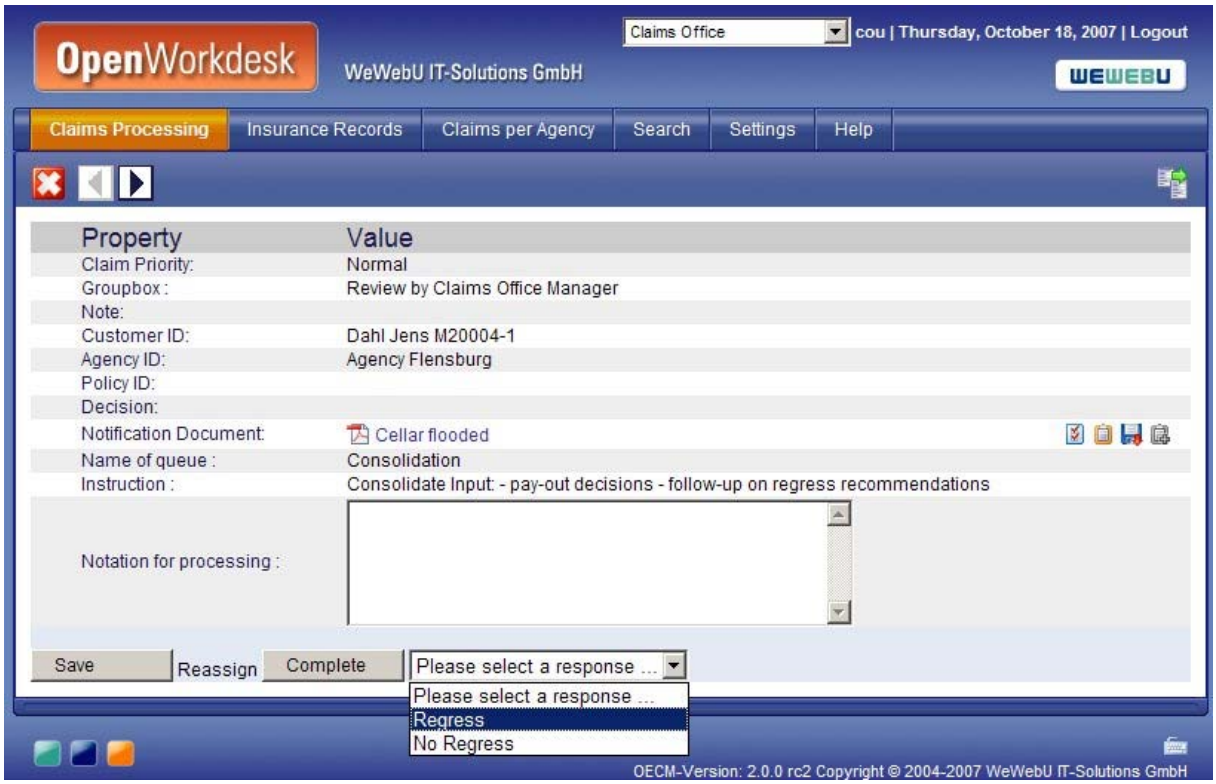


*Fig. 33 Processing of a work item*

After selecting one or several work items, the user can process them by using the function *Process Step*. With the arrows above the form the user can navigate back and forth in a batch of workitems. Thus an efficient editing of several work items is possible. Viewing a work item, the user can modify its metadata and add a note. He can view and edit the attachments and chose his response to the current task. When he clicks *Save*, all changes will be saved. Thus it is possible to pause the processing. If the user clicks the exit-button, he returns to the last visited inbox. *Complete* finishes the current process step and forwards the work item to the next group inbox. *Reassign* returns the work item to the last group inbox.

Generally for each step of the workflow a generic form is displayed that shows all available data and the objects attached to the work item. Often however it is useful to supply a custom form for each single step of the process to make the user's work easier. The BPM plugin provides a simple mechanism to do so. The forms used for the single steps can be designed variously. Next to simple HTML and JSP forms also advanced form technologies like IBM FileNet eForms can be used.

### 4.2.2 Pull work item function

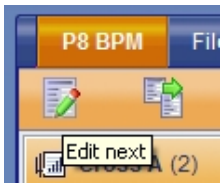


*Fig. 34 "Edit next" work item*

The "Edit next" button located in the menu bar above the inboxes automatically opens the work item to be edited next. The user does not need to sort the list of work items according to priority or date. Thus, work items can be processed fast and prompt, no work item is unnoticed. The administrator sets which criteria define the work item to be edited next (Date of Creation, First In First Out, priority, …).

### 4.2.3 Forward

The user can forward selected work items to his personal inbox, a group inboxes or a virtual inbox.

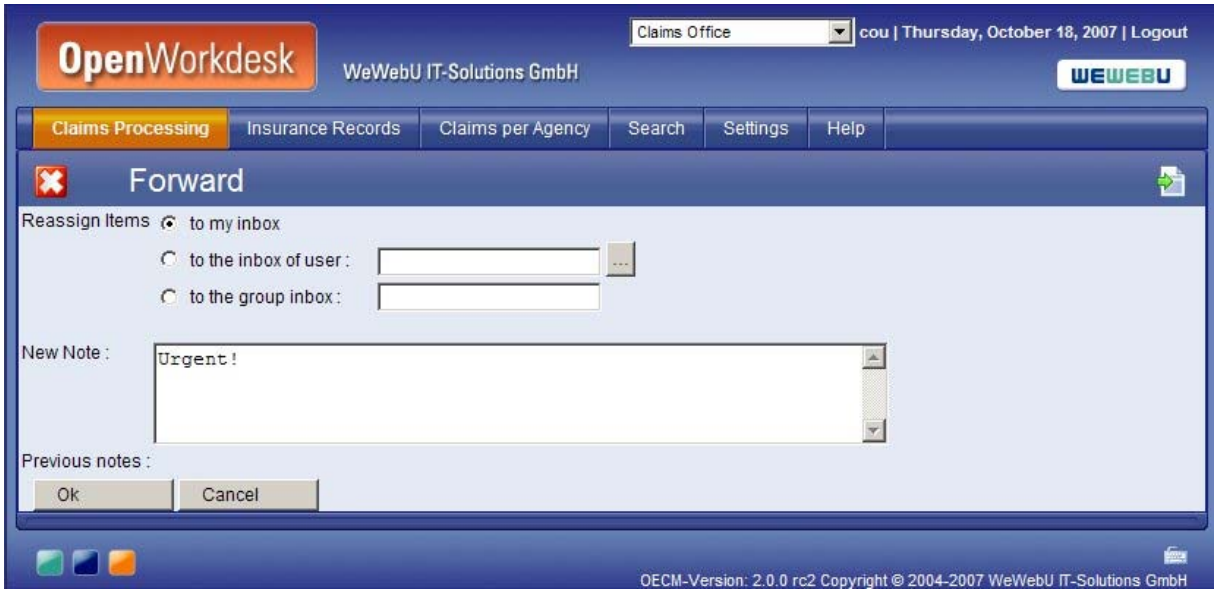


*Fig. 35 Forwarding dialog*

Before forwarding a work item, OpenWorkdesk checks the selected inbox for the proper process authorization. If authorization fails, the work items are not forwarded and a warning appears. If several work items are selected, only those matching the authorization rules are forwarded.

One or several instructions for the recipient of the work items may be added in the note field (see chapter 6.2.4). The entered notes are saved in all forwarded work items. If required, notes can be shown in the audit trail.

### 4.2.4 Return

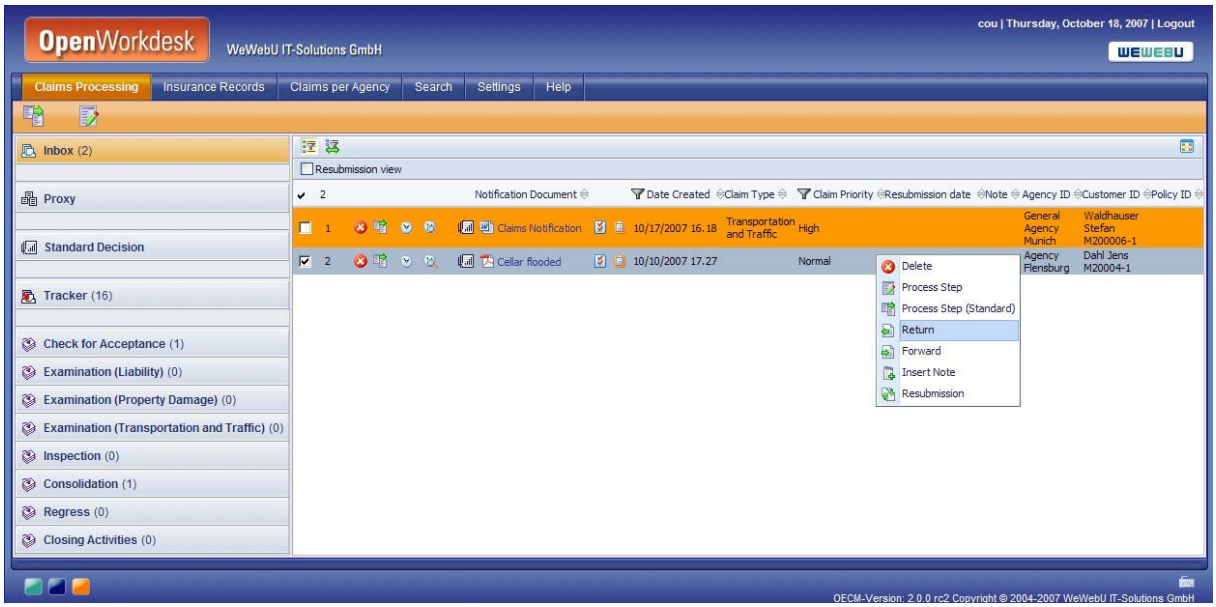


*Fig. 36 Passing a work item back to a group inbox*

If the user forwards work items to his personal inbox, he can undo this step by using the function *Return*. Then all selected work items appear in the appropriate group inboxes.

Completed work items cannot be returned because work items are forwarded automatically to the appropriate group inbox after one step is completed.

### 4.2.5 Insert note

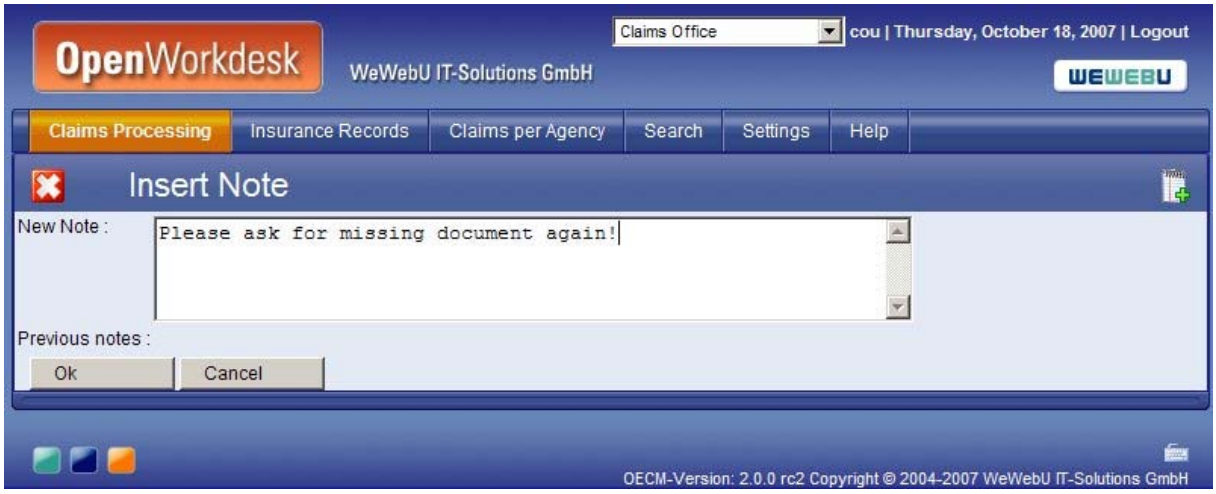


*Fig. 37 Insert note dialog*

Users can add one or several comments to a work item by using the function *Insert Note*. These comments must not be mixed up with the so-called annotations offered by different archive systems such as IBM FileNet Image Services, which are added directly to the document or work item and usually can only be viewed when the object is opened.

The added notes are saved as a workflow attribute for the specific work item. As the notes are saved in the database, it is also possible to create a filter which searches for work items with a specific note. The note can also be used to remember particular tasks in case of resubmission or to give processing instructions to other users in case of forwarding a work item. An overwrite-protection can be configured, so that existing notes cannot be overwritten but new ones can be added.

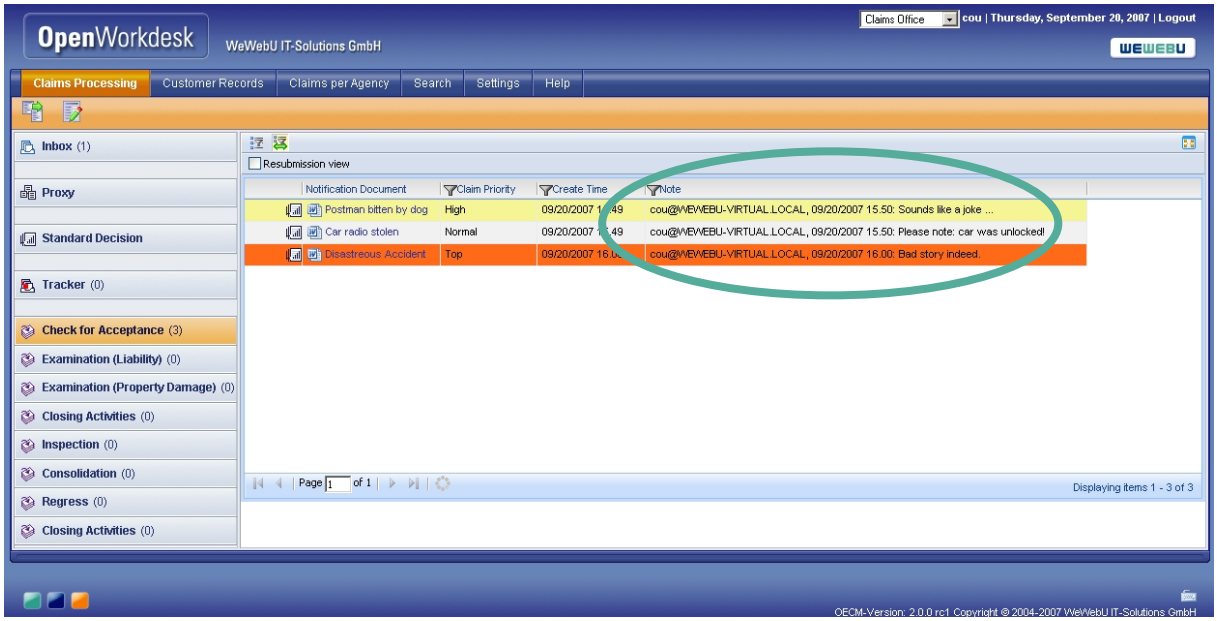


*Fig. 38 Notes can be shown in the view of each inbox*

### 4.2.6 Resubmission

Users can resubmit work items at any future date. If a date of resubmission is set for a work item, the work item is hidden and does not appear in the inboxes until the specified date. It then reappears automatically in the original inbox.

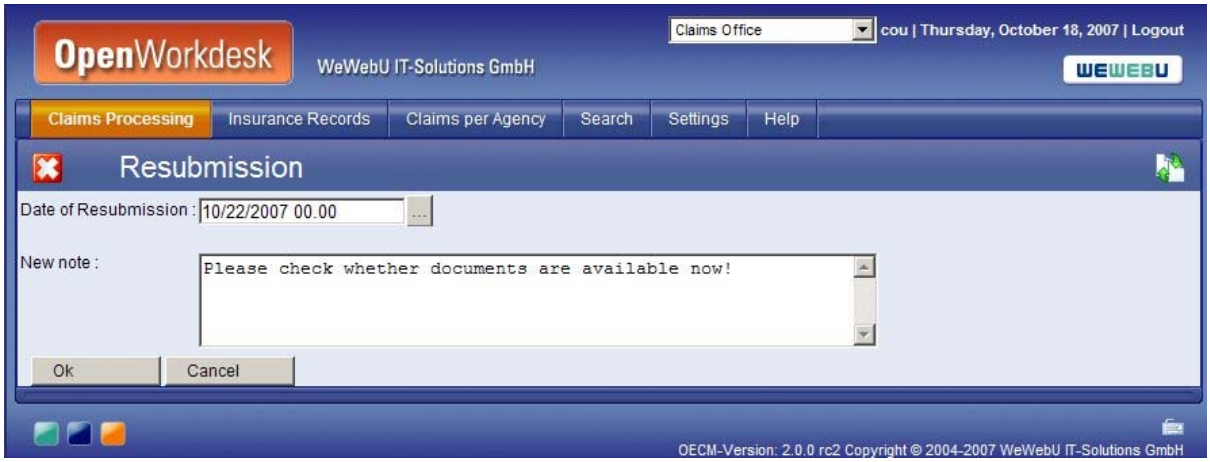


*Fig. 39 Resubmission dialog*

If a resubmission date has been set for a work item and the user wants to access it before this date, he can select the resubmission view. There the work item can be edited just like work items without a resubmission date.

### 4.2.7 Filter criteria and filter view

To find a certain work item or a number of work items in an inbox faster, users can choose their own filter criteria. Filters can be defined using the filter icons (funnel) for each column. The filter settings then appear above the result list.

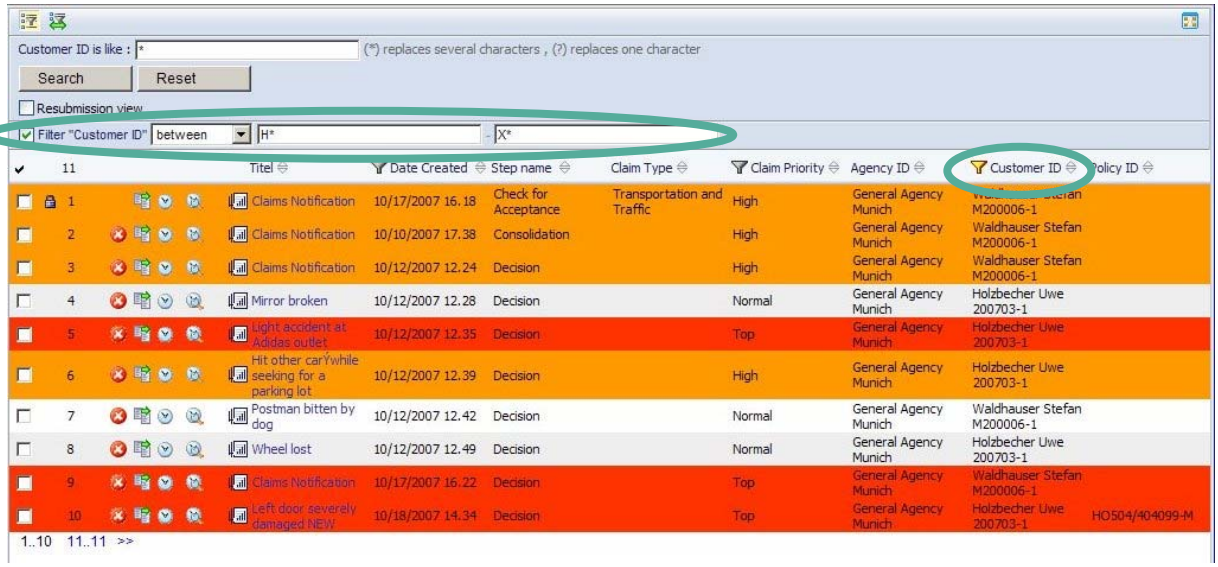


*Fig. 40 View of a group inbox with set filter criteria*

Several filters can be combined. All defined filters are linked by a Boolean AND.

The filter criteria are persistent which means that they available after logout and new registration. These filters make it very easy and ergonomic to work with inboxes containing many work items. With filters the user is able to display only the work items which he currently wants to process.

### 4.2.8 Show audit trail

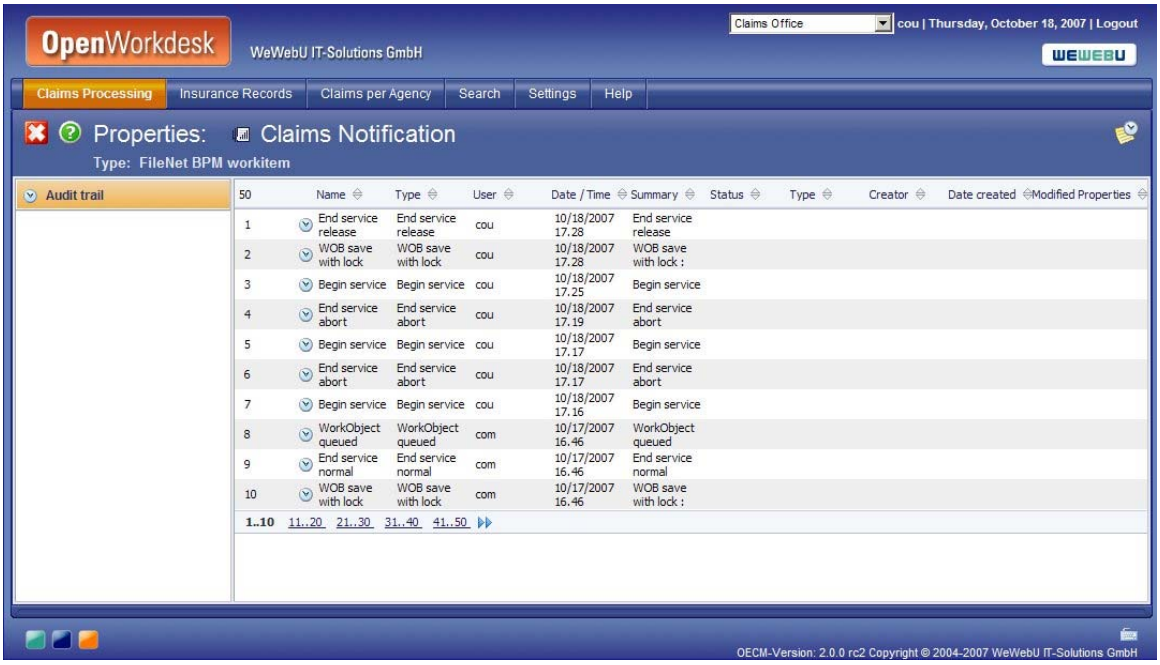


*Fig. 41 Audit trail of a specific work item*

WeWebU OpenWorkdesk provides extensive possibilities for creating an audit trail. Its extend depends on the underlying audit trail manager and the administrator‘s configurations. Such configuration choices range from not recording any system usage to logging each individual step of all users. Even if a user views the audit trail, this act can be shown in the audit trail. By viewing the audit trail, every user can reconstruct every single step of processing each work item.

## 4.3 Case objects

A case object connects an object from IBM FileNet Content Engine and the respective workflow from IBM FileNet Process Engine. With the help of case objects – which are available in the BPM plugin – it is e.g. possible to search for work items with the help of their attachments or to display a work item’s audit trail even after it has been completed. When switching between file management and case management the step processor is not closed. Thus, documents and work items can be processed as unit.

# 5 System Requirements

## 5.1 Client-side requirements

WeWebU OpenWorkdesk has only a few requirements on the client-side and runs on all popular browsers which support JavaScript such as MS Internet Explorer, Opera or Mozilla. Therefore WeWebU OpenWorkdesk normally runs on every client without requiring any installation and thus making software distribution unnecessary. Also, the security concerns raised by many organizations regarding web-based applications are taken into consideration: WeWebU OpenWorkdesk – unlike many other web-based applications – does not need a Java environment (except if one wants to use the drag & drop functionality in order to add documents) or the support of client-side ActiveX components.

## 5.2 Server-side requirements

On server side, WeWebU OpenWorkdesk needs an application server. The following ones are supported:

- IBM WebSphere
- BEA Web Logic
- JBoss
- Tomcat
- others on demand.

The ECM adapter for IBM FileNet Image Services requires – besides the IBM FileNet Image Services-Archive – the corresponding J2EE-interfaces (IBM FileNet ISRA adapter).

Normally, OpenWorkdesk does not need an additional database. Even for the case management, the database of the underlying ECM base system (Oracle or MS SQLServer, other on demand) can usually be used for mapping the data model of OpenWorkdesk.

# 6 Extensibility of WeWebU OpenWorkdesk

WeWebU OpenWorkdesk is designed as releasable standard software and will be maintained and enhanced by the WeWebU IT-Solutions GmbH in the long-term. Nevertheless it is possible for customers or partners to customize and extend WeWebU OpenWorkdesk. It is designed as a flexibly applicable solution that allows realizing complex individual project requirements for electronic file and case management on the basis of the leading ECM platforms with minimal effort. If functional extensions are desired, or if integration with other systems (e.g. ERP or CRM) becomes necessary, customers and partners of WeWebU can extend the software through the OpenECM-Framework interface.

## 6.1 Plugin concept

Every customer has individual requirements towards an ECM front-end. To be able to meet those diverse demands OpenWorkdesk is based on a framework: WeWebU OpenECM-Framework. This is based on a plugin concept, so every function can easily be enhanced and exchanged. With it WeWebU partners or customers can comprehensively extend OpenWorkdesk and also develop own complete solutions based on it. Several plugin interfaces – described in the following sections – are available.

### 6.1.1 Interface for master plugins

The master plugins are the primary components of OpenWorkdesk. An unlimited number of components can be realized. The plugins have access to the ECM adapter as well as the whole system and can communicate with other plugins. Furthermore, the framework offers services for persistence of session data and configuration.


*Fig. 42 Master plugin examples for insurances seen in different user roles*

With this interface it is possible to realize further plugins or integrate complex third party systems (e.g. workflow engines, portals).

### 6.1.2 Interface for document functions

The interface “document functions” allows extending the function menus of the document lists. The plugin has access to the selected document(s) and is displayed as an icon next to the document or in a context menu. Optionally, the document function can be displayed only in the menu of the properties dialog. Thus, only frequently used document functions are shown directly next to the document.

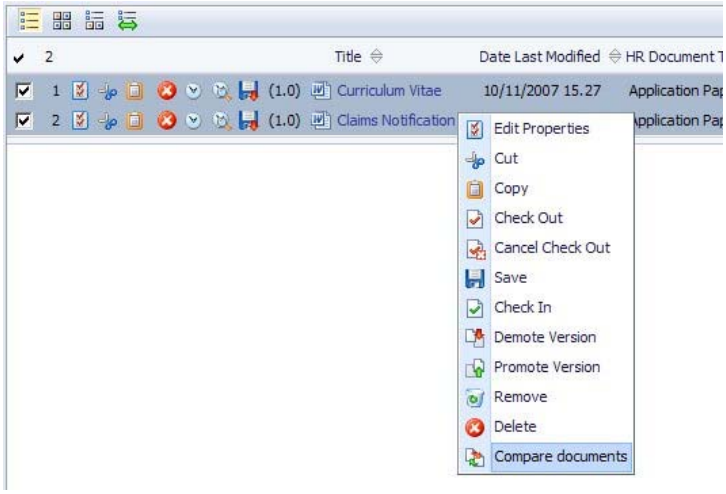


*Fig. 43 Document functions plugin example: Compare documents*

With this interface it is possible to realize functions for displaying special documents directly in the browser, as well as attribute and editing functions.

### 6.1.3 Interface for file functions

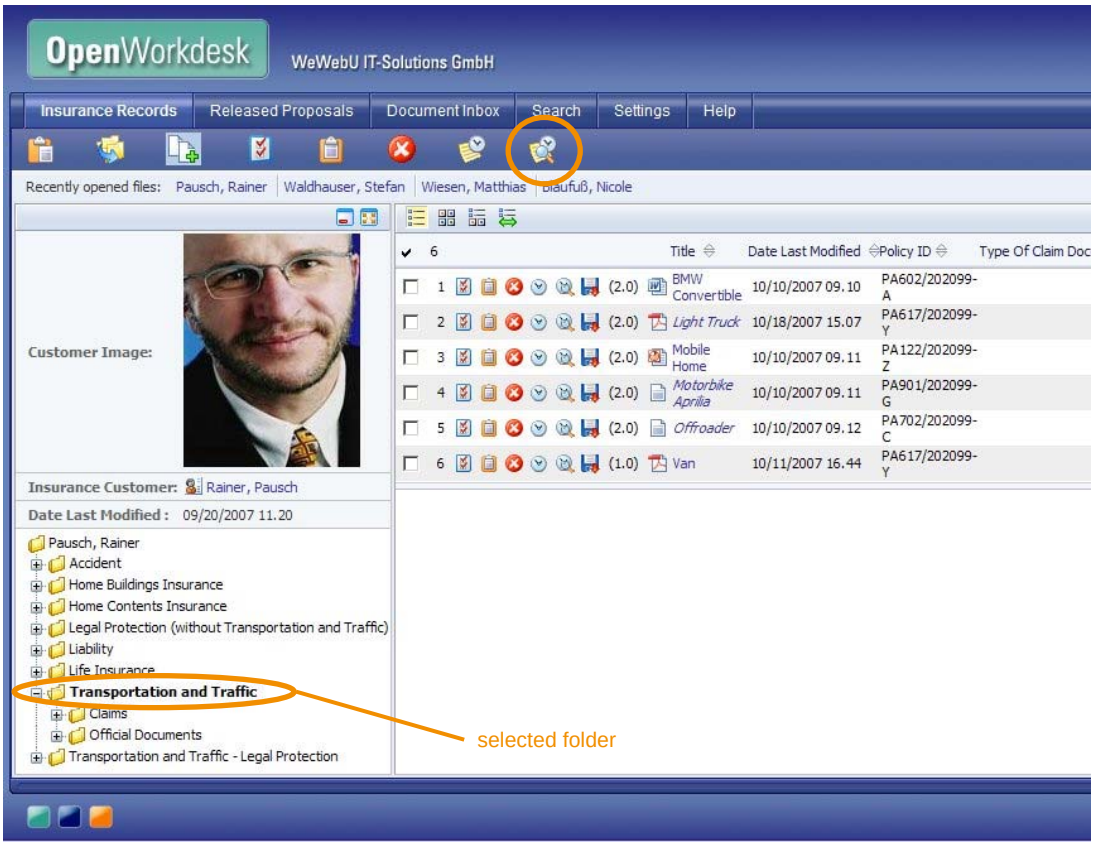


*Fig. 44 File functions plugin example: Search for audit trail*

The interface for file functions allows extending the file management by new functions. The plugin has access to the opened file and its opened folder. The plugin functions are displayed in the menu.

With this interface it is possible to realize extended functions for adding new documents or editing files and folders.

### 6.1.4 Interface for work item functions

The interface for work item functions allows adding functions to be executed on work items in the case management of OpenWorkdesk. Therefore the plugin has access to locked work item objects and the selected inbox. Furthermore, each function can open a dialog to set the parameters of the function and their execution.

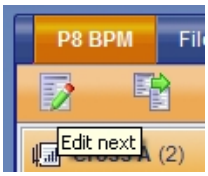


*Fig. 45 Work item function plugin example: Edit next*

With this interface it is possible to realize functions for editing specific attributes or validation functions.

## 6.2 Configurable components

Aside from the plugin concept there are also other possibilities to customize the application for specific requirements. The components described in the following chapters can be customized or even completely replaced without compromising the releasability of the software.

### 6.2.1 Field manager

The main problem of document management is the consistent display and editing of metadata and search criteria. It is necessary that the documents are properly formatted; however, document properties should only be modified after a successful validation. It is particularly desirable that a validation or formatting of metadata implemented once is then generally available and does not have to be repeatedly implemented for every dialog and context. To improve usability, error messages during validation should be shown directly next to the attributes.

OpenWorkdesk uses central component – called field manager – for validating and formatting metadata and search-criteria.

### 6.2.2 Role manager

All plugins of OpenWorkdesk as well as various functions (e.g. editing of metadata) are subject to the role management. Thus it is possible to specify roles for every master plugin, every document function, etc. If the corresponding function or plugin is called, OpenWorkdesk checks whether the user has the permissions to execute the function or access the plugin. As the role manager is a replaceable component, it can be implemented on a customer-defined basis. For example, roles can be specified in the LDAP.

If the customer has no own database for roles, the default database role manager can be used to map the roles within a relational database (Oracle or MS-SQL). The roles can be configured with the administration tool.

### 6.2.3 MIME type manager

The MIME type manager resolves the relation between the MIME type of a document and the corresponding viewer or function. The MIME types are assigned to respective viewers / functions with an XML file. If the user clicks a document, it is opened with the corresponding viewer or the corresponding function is executed (e.g. open a file at file management). Even the settings the viewer should open with, can be defined by the MIME type. According to the MIME type the viewer will be opened with e.g. different positions and/or different viewer settings (e.g. zoom).

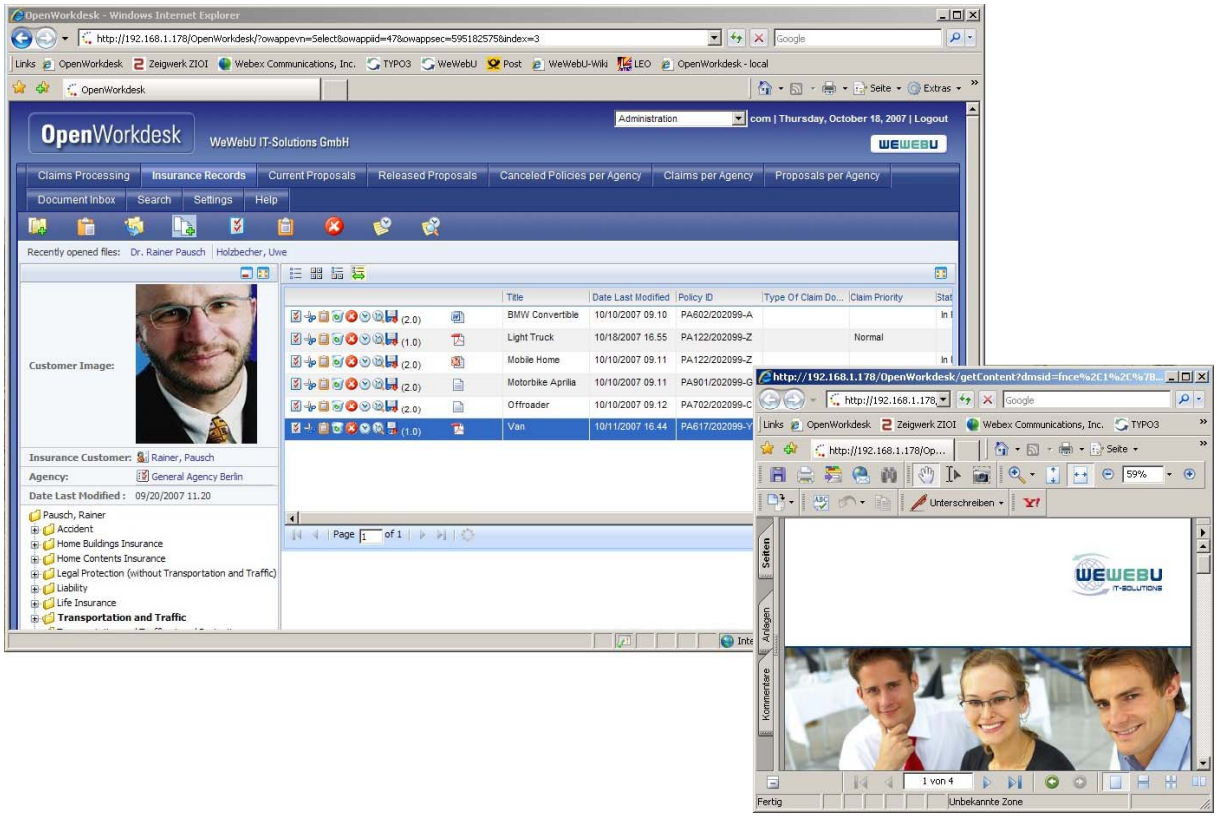


*Fig. 46 MIME type manager: Clicking a document starts its viewer.*

## 6.3 OpenECM Developer Toolkit

OpenWorkdesk is designed in such a way that customers and partners are able to customize and extend it. To support developers WeWebU offers a toolkit with substantial developer documentation including example code for possible extensions:

| Component | Format | Description |
|---|---|---|
| ECM dummy adapter example | Source | Small example implementation of an ECM adapter for a file system. Offers a good overview of the architecture. |
| Master plugin example | Source | Simple example of a master plugin |
| Document functions plugin example | Source | Simple example of a document function plugin. Makes it possible to not only dynamically display functions but also an icon and tool tips for documents. |
| Case management plugin example | Source | Simple example of a work item function in the case management |
| JavaDoc Documentation of the complete API and the plugin interfaces | HTML Files | Complete documentation of all Java classes including plugins of the OpenWorkdesk. |
| OpenWorkdesk Plugin Configurator | Admin Tool | Graphic tool which helps the administrator to edit all essential XML files. |

## 6.4 OpenWorkdesk Plugin Configurator

OpenWorkdesk Plugin Configurator – a part of OpenECM Developer Toolkit – helps administrators in configuring WeWebU OpenWorkdesk.

Every plugin of OpenWorkdesk can be centrally configured. The Plugin Configurator offers an overview over all plugins no matter whether they were included in the default delivery or were developed by the customers or partners themselves. Thus the risk of faulty insertions is reduced. The graphic user interface enables a simple navigation through the structure of configuration.

After changing or generating a plugin, a validity check takes place automatically. If necessary insertions are missing or given insertions are incorrect, the user is notified and invalid input fields are marked with a red frame (Fig. 48). Furthermore, new plugin configurations can be added, existing ones removed and their order changed.

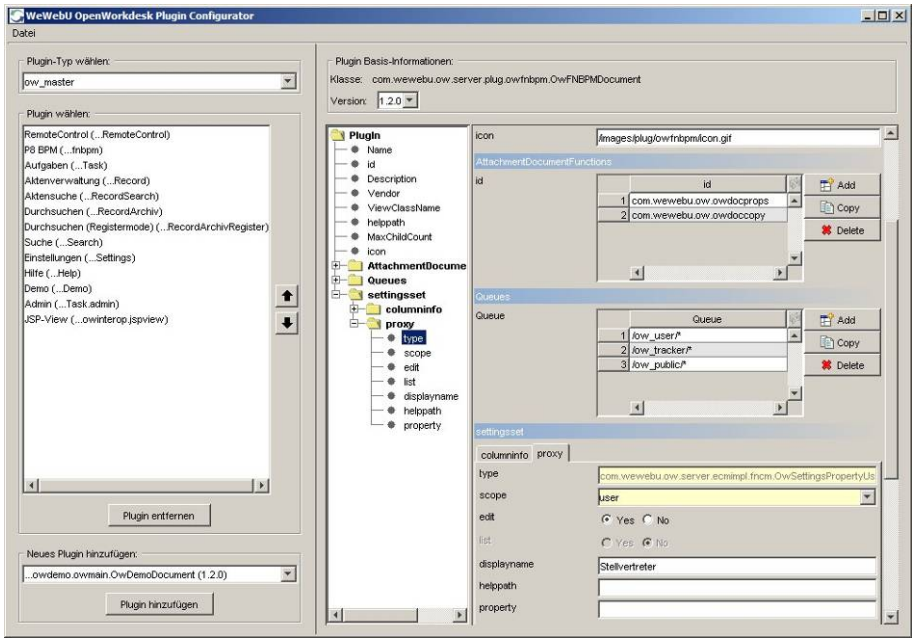


*Fig. 47 Plugin Configurator*

In the left part of the Plugin Configurator you first select the wanted plugin type and then a plugin of that group. Every plugin is listed with its name and well-defined ID. The Plugin Configurator automatically checks the clearness of the IDs.

You can easily define in which order the master plugins should appear in the navigation bar of OpenWorkdesk by using the arrow symbols next to the Select Plugin field.

In the upper right part of the Plugin Configurator you can find the JAVA class of the plugin and a check box for selecting its version (if two Plugins of the same class have been instantiated in different version). The tree view in the middle shows the XML structure of the respective plugin configuration. Next to that you can find the insertion fields.

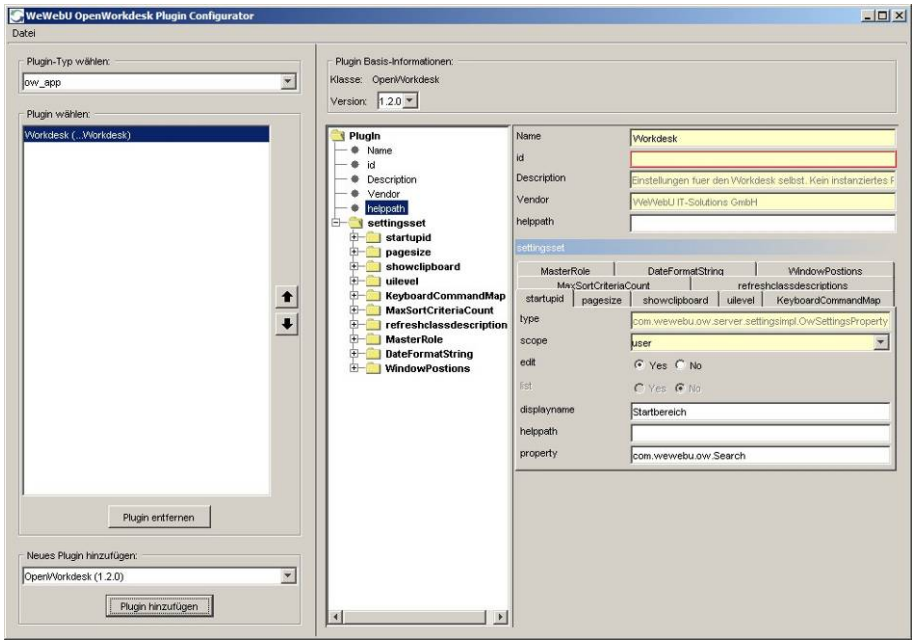


*Fig. 48 Invalid insertion at the Plugin Configurator*

By default the Plugin Configuratior is available in German and English. The local language can be defined in the configuration file “PluginConfigurator.properties“. There you find the setting „Local“. Its value can be „de“ for German or „en“ for English.

# 7 Integration of Other WeWebU Components

WeWebU OpenWorkdesk can be enhanced and customized with different WeWebU components.

WeWebU Zero-Install Office Integration provides the possibility to open Office documents directly from OpenWorkdesk and edit them at the adequate Office application. Next to that it is possible to comfortably import Office documents into the ECM system.

WeWebU Open Input Management Suite is a modular solution to handle input management scenarios (scanning, identification, import, indexing, archiving) with a volume of up to 100,000 incoming documents a day. With this product, individual input management solutions can be realized very efficiently even in case of complex requirements because of comprehensive configuration possibilities that supersede costly individual programming.

## 7.1 WeWebU Zero-Install Office Integration

With WeWebU Zero-Install Office Integration, users of WeWebU OpenWorkdesk get a user-friendly integration of the Microsoft Office applications, which for the first time requires no client installation. Thus all related problems and resulting efforts and costs are avoided. Nevertheless, every user can access the ECM system intuitively from within Microsoft Office and with literally no training.

When the user clicks an Office document within the Web-browser it is opened with the appropriate Office application. Then the user can edit the document directly without the need to explicitly search for it and re-open it. After editing, the document is re-imported in the IBM FileNet P8 system directly without detour through the file system.

WeWebU Zero-Install Office Integration uses terms the users are already familiar with from MS Office. Several DMS functions are summarized to intuitive menu items. In this way, the users do not have to care about the version status and other ECM terms and thus can continue to concentrate on their actual work using the Office products.

WeWebU Zero-Install Office Integration also facilitates to easily access files and search templates of the ECM system. In this way, finding and editing Office documents already archived in the ECM system is real comfortable.

WeWebU Zero-Install Office Integration is implemented as a web-service. Through this SOA architecture it is possible to customize and enhance it according to specific project needs. Moreover, it is available for different ECM repositories. WeWebU Zero-Install Office Integration uses standard Microsoft interfaces. So it is possible for the first time to access the ECM system directly via Office without any client installations. Additionally, numerous Office versions and service packs are supported out of the box. Thus costs for installation, roll out and support are avoided, especially in heterogeneous system environments.

## 7.2 Integration with the WeWebU Open Input Management Suit

With WeWebU Open Input Management Suite, individual input management solutions with high demands on functionality, stability and scalability can be realized very efficiently.

The Open Input Management Suite is a modular software suite for input management and allows creating individual input management solutions by configuring rather than programming. Paper-based input management processes are supported by the ergonomic user interfaces of Scan Client and Index Client (based on IBM FileNet Capture). Bulk processing of electronic documents can be managed by Input Manager.

With Open Input Management Suite, document capture processes can optimally be dovetailed with individual business demands. A user-defined dispatching to diverse process steps and work stations is easily possible. Comprehensive mechanisms of monitoring and troubleshooting lead to an outstanding robustness even in high-productive system environments with large data volumes.

Open Input Management Suite is implemented in .NET and can help customers of IBM FileNet Capture to migrate their (often individually developed) Visual Basic (VB6) based input management solutions efficiently to .Net and to make future-proof enhancements. Because of Open Input Management Suite's plug-in architecture, this application is expandable in every .NET-compatible programming language e.g. for integration and migration of any OCR/ICR products into the capture process.

Open Input Management Suite offers the full flexibility of an individual development based on a long-term maintainable standard product. This results in decreased project costs, minimal TCO and reduced project duration, especially with complex projects in the field of input management.

# 8 Glossary

| Term | Description |
|---|---|
| AJAX | Asynchronous Javascript and XML<br>Concept to exchange data between a server and a browser without the need to reload a web page completely with every request. |
| BPM | Business Process Management<br>Systematic support and optimization of business processes within an organization |
| COLD | Computer Output on Laser Disk<br>Method for saving data on digital optical storage media |
| CSS | Cascading Style Sheets<br>Used to describe the presentation of a web page written in HTML |
| DMS | Document Management System<br>System for digital capturing, management, retrieval and archiving of documents |
| ECI | Enterprise Content Integration<br>Integration of unstructured information (e.g. documents) which are managed in different repositories within the organization because of different reasons |
| ECM | Enterprise Content Management<br>Management of unstructured information (e.g. documents) within an organization as well as their integration into the business processes of the organization |
| File | Document, especially on a computer, aka. data file<br>In WeWebU OpenWorkdesk: folder structure used to store documents |
| File Management | Application in WeWebU OpenWorkdesk for the management of documents in files, (in Human Resources context called “Dossier Management”) |
| HTML | Hypertext Markup Language<br>Standardized markup language for creating web pages |
| ISRA | Image Services Resource Adapter<br>Interface to IBM FileNet in order to access the IBM FileNet Image Services repository via Java-based applications |
| J2EE | Java 2 Enterprise Edition<br>Extension of the Java 2 Standard Edition for development and operation of enterprise-specific applications |
| JSP | Java Server Pages<br>Java technology that allows to dynamically generate HTML web pages |

| Term | Description |
|---|---|
| OCR | Optical Character Recognition<br>Software which translates images of typewritten text (usually captured by a scanner) into machine-editable text |
| XML | eXtensible Markup Language<br>Simplified subset of the Standard Generalized Markup Language (SGML) for presenting structured data |

# 9 About WeWebU IT-Solutions GmbH

Customers who strategically choose an ECM infrastructure from one of the leading vendors can generate maximum ROI with ECM solutions provided by WeWebU IT-Solutions.

By using our applications, front-end technologies and our development platform, we are successful in obtaining demonstrable savings in the process of introducing and operating an ECM-system, while maintaining rising productivity and optimally supported business processes. We achieve this with our unmatched user-friendliness, comprehensive general functionality, extensive scalability, and a simple expandability of our products. This is complemented by not requiring any software installation on the client PC, the extent of the platform-neutrality, and the know-how of our consultants and partners.

In addition to Bayerischer Rundfunk, SIEMENS AG and DATEV e.G., the continually growing customer-base of WeWebU IT-Solutions mainly consists of well-known financial institutions such as the Hamburger Sparkasse, Sparkasse Bremen, Cortal Consors S.A., as well as the NÜRNBERGER VERSICHERUNGSGRUPPE.