itechWorks
the web professionals



cmsWorks 4.0

Features

Framework for

Web Content Creation, Management and Delivery

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Contents

Introduction

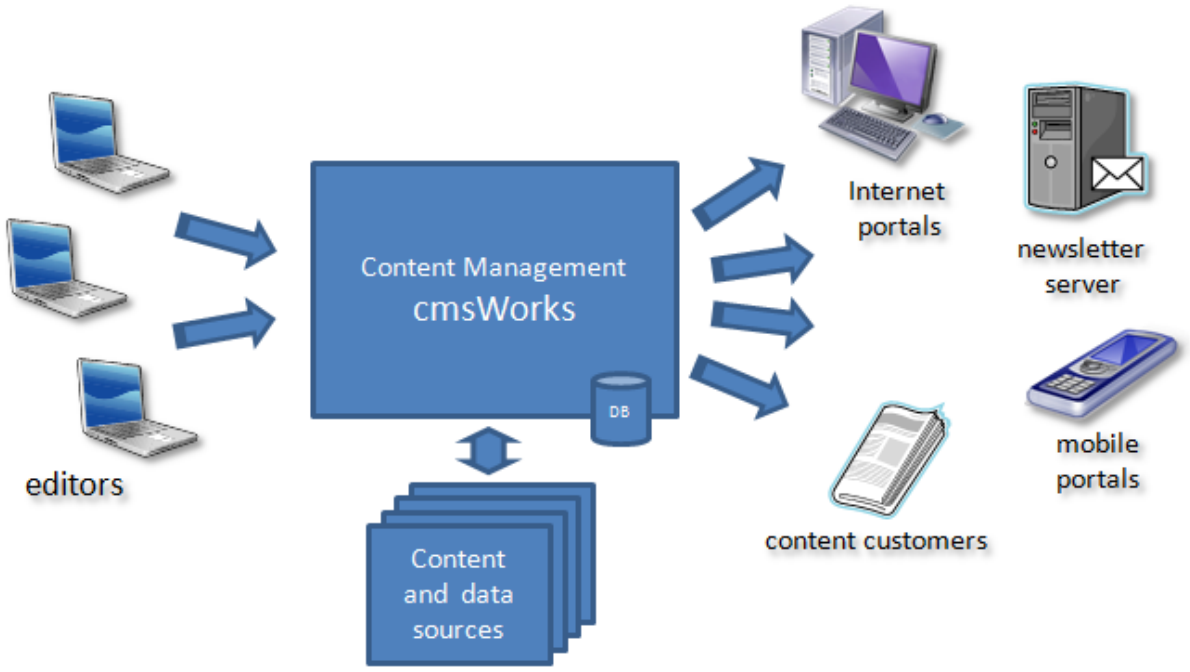
cmsWorks is a web content management system developed by itechWorks. The current version is cmsWorks 4.0. Built in the software is the experience of many years of creating high performance content solutions for some of the biggest Internet portals of Germany.

High traffic news portals and international corporations benefit most from cmsWorks. It is fast, provides flexible structures and supports editorial staff with a powerful yet easy to use web based desktop.

The technological foundation is highly available, extensible my modules and scales in a almost linear way.

What a CMS must provide

Users enter content via a user interface. The user interface provides forms for different kinds of contents and stores it in a structured way (similar to a file system). Data is stored in a central database. Other users can open and alter the content. Generators create websites and other forms of output (xml, pdf, mail) from this content.



Elements of a professional internet portal:

- Structured architecture of the pages. I.e. main pages and sub pages have different content types (e.g. news, articles, media, data) and different levels of interactivity (e.g. forms, communities)
- Pages of all types comprise of components like header, navigation, content, footer, advertising spaces, …

Two approaches to web content management

The first approach focuses strongly on creation and design of web pages. Such systems often offer direct editing in the layout of the page. It is very easy to edit with such systems and to create new websites. On the other hand it is often difficult to impossible to change structure of navigation of sites built with such systems. More often than not the whole site has to be recreated if a major change has to be made. In addition it is impossible to reuse content for additional channels.

The second approach to content management organizes all content separately from its output and layout. Data is stored in abstract documents. A generator takes the data from the database and builds the product (e.g. a web site). Different generator can build different products from the same data (e.g. mobile portal, xml, pdf). Changes to design and structure are made central and thus efficient and quick. On the other hand such systems are often difficult to use and maintain. In addition web design cannot be as spontaneous and flexible because all pages have to be based on a predefined set of templates. Incorrect composition of pages modules often lead to mistakes and errors on the website.

cmsWorks is the solution for professional Internet portals

cmsWorks integrates the advantages of both worlds and avoids most of the drawbacks. Flexible abstract documents allow creation and reuse of content of all kind and provide maximum flexibility in graphical and logical design. Free definition of document types allows the creative combination of components for web pages and other output channels (e.g. mobile).

A structured repository, supported by a powerful internal search, provides tidiness and efficient overview. Scripts and wizards support editors with content creation, clear error messages help avoiding compositions mistakes.

cmsWorks is not only a content management system, it also comes with a content delivery suite. That is why cmsWorks is able to guarantee a stable, scalable and fast delivery of content of all kind.

It’s modular setup based on standard interfaces makes it easy to extend. Many modules are ready available. They reach from integration of external data sources to a powerful advertising management for all current advertising format.

Open standards make it easy and inexpensive to maintain and further develop the system.

Features

There are many reasons for cmsWorks. Even in the most basic version cmsWorks offers all the features that are indispensible for professional websites that other systems cannot provide.

Here is an overview of the most important features of cmsWorks:

Modular page and document model

cmsWorks creates the final pages from modular pages elements. These elements are defined in a cascading document model with document types. There is limit on how these document types are defined or changed later on. This model has several advantages:

- Maximum flexibility in graphical design of pages and page elements.
- Structured architecture of the pages with easy and central maintenance of page types. So corporate design and style guides will be followed consistently.
- Efficient content creation in web based masks and forms that can be freely defined. So editors can easily follow creation guidelines.
- Storage and management of content and configuration elements in a structured repository offers clarity with only little effort.
- HTML-Code is XHTML 1.0 transitional conform and supports und supports web accessibility according to WCAG 1.0

cmsWorks comes with a predefined set of page types and document types (e.g. opening, teaser, distributor, articles, container). In addition the system is open and flexible for more types and elements.

itechWorks can assist you with the development of a document model that perfectly matches your needs and is extensible for future developments. We can draw on our experience with many large Internet portals.

Separation of Content and Design

cmsWorks stores design and content separately. This approach brings many benefits when it comes to showing and redistributing the content.

Multi-use of content

Creating content is an expensive process. Because of this is it important to make effective use of the content in many ways. Content stored in cmsWorks is not bound to one specific use (e.g. the web site) but can be re-used again and again for many different channels and customers.

Multisite-feature: Maintain many website with only one interface

Re-using content is not restricted to only one website. cmsWorks makes it possible to run several portals based on the a shared repository of content (i.e. articles, images, PDFs, and even page elements). All those sites can be maintained with a single web based interface.

Three typical cases are

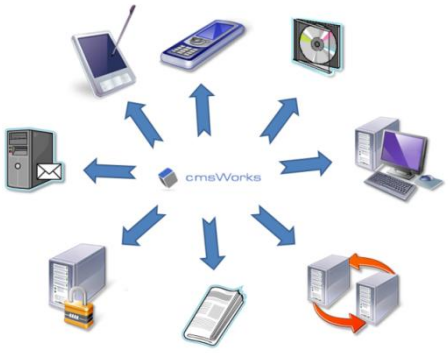
- **Multi-langue**: Similar sites in different languages share certain content. Cross references make it easy to organize and navigate.
- **Portals for subsidiaries of product lines**: Additional websites for separated parts of the organization or important product lines. Design and several page elements will be shared.
- **Portals for campaigns**: Websites that will be online only for a limited time under a separate Internet domain.

cmsWorks can work with more than just one editorial team. Each team can design and maintain their portal in a independent way if necessary. Permissions and roles avoid unwanted changes and misuse.

Example: A publishing company runs multiple websites for some of their print magazines. Certain content elements, e.g. footer, imprint, advertising, can be shared across all websites. cmsWorks provides an easy to use, central way of maintaining those elements. In addition all shared element may be displays in different ways (e.g. color) on each website.

Multi-channel output (cross media publishing)

Creation and output of content is not restricted to the web alone. Text and multimedia content can be used and re-used in many different ways. cmsWorks support a multitude of import and export formats. Even here all editing and configuration is provided within the same web based easy to use environment.



Typical cases are:

- Export to mobile devices (SMS, WAP, PDA, smartphones)
- Export to newsletter
- Export to publishing software for integration in printing process
- Provision of web 2.0 widgets
- Syndication of content to any number of customers almost any format (multi-customer)

Example: The editorial team of the German sport portal spox.com created news for the spox website. Many articles are immediately processed for distribution to spox' mobile portal and content customers.

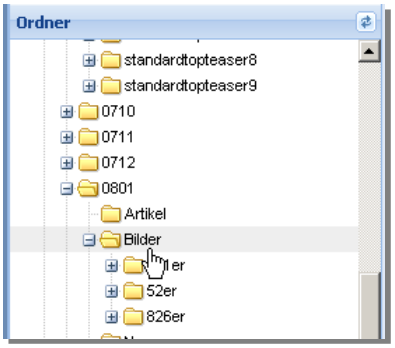
Supporting task division in the organization

Separation of content and way of output chimes with the typical separation of tasks in organizations. There are often specialists for content creation (editors, journalists) and specialists for programming and graphics. Each group can focus on it's strength without interfering with the other group too much.

Throughout control over dependencies

cmsWorks maintains total control over dependencies between documents and supports editors when changing or deleting elements (referential integrity). This avoids missing page and broken links, that annoys users and deteriorate the sites Google ranking.

Category-/Resort-System



In cmsWorks all content elements are stored in a folder structure like files in Microsoft Windows. Folders and subfolders can be freely named according to topics, products, departments, languages or else. This supports not only clarity but predefines the URL of the pages on the websites in a search engine optimized way.

All is assigned directly or indirectly to a category. Categories stand for many content and page characteristics that can be managed in a efficient and central way:

- Content specific navigation (independent of the folder were a document is stored)
- Color sets

- Advertising
- Syndication
- Page elements (e.g. right column, footer)
- Showing or hiding of certain elements
- Pixel for counting and statistics (e.g. IVW)
- Variation in content formats (e.g. long or short versions of articles, page separation)

Categories can contain sub categories that will inherit configurations.

Example: An article about a new GPS device is written once but placed in two places on the same website. Without further changes this article will be presented in a long version and blue/white color set in the “technology” category and at the same time in orange/white in a short version in the “recreation” category of the portal.

Navigation: Unmatched flexibility

cmsWorks separates navigation and document storage. Menus and submenus are independent of where the documents are stored in the folder structure.

You get maximum freedom in building the user guidance and optimal usability. Navigation entries can link to any internal or external document. Same goes for breadcrumb navigation, meta-navigation and sub-navigation. Based on a number of configurations menus and shown or hidden depending on context.

Another important benefit: Changes to the folder structure or location of documents do not interfere with the navigation. Changes to the navigation have no influence on where documents have to be stored. Both gives plenty of opportunities of constantly improve user guidance and usability.

Meta navigation for additional guidance

cmsWorks provides additional navigation elements called “meta navigation” that give users additional ways to find what they are looking for. One or more meta navigation elements can be placed on all or only selected pages.

The cmsWorks editors desktop

Most content management systems that offer a web based client for editing and organizing the content do not offer the same functionality and comfort like “real” applications do. The web based cmsWorks desktop is different.

Unrestricted working– always and everywhere

Modern Ajax-technology allows easy and comfortable working any time and from everywhere. You don’t have to install any special client software. Just need a modern Internet browser. In order to make it easier for the editor we recreated the familiar look and feel of a Windows desktop and integrated all the handy features.

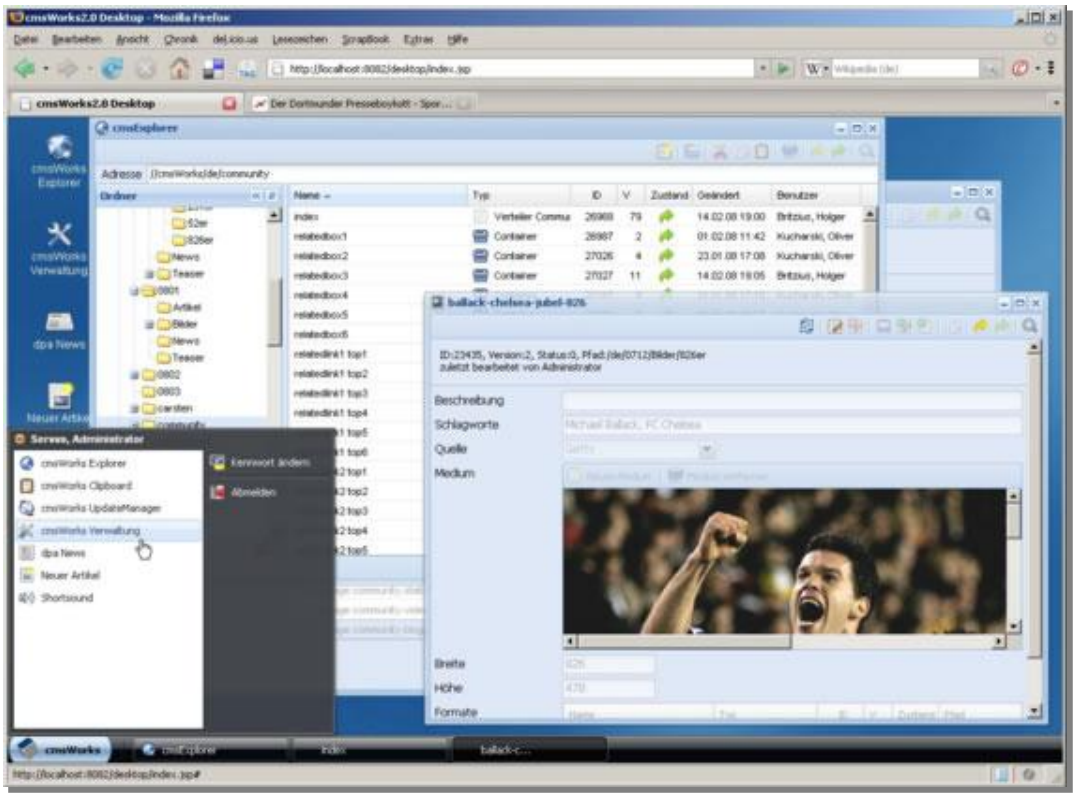


Figure 1 Powerful and intuitive: The cmsWorks editor desktop in a Firefox web browser

This new web based desktop makes editors’ live easier in many ways:

- Working at any time and from everywhere.
- Intuitive, easy to learn interface.
- Well known short keys and functions like drag-and-drop are real time savers.
- Supports international spell checking.
- Convenient workgroup features (e.g. instant messenger, file transfer) support collaboration of editors even in particular if they are working abroad.
- An powerful image-tool that allows picture manipulation right in the web-browser.
- Context related online help

This new approach is favorable in term of technology as well:

- No security issues or configuration hassle with firewalls. The desktop can use TCP port 80.
- No installation and maintenance of client software, Java or .NET frameworks. So no additional administration efforts are necessary.
- cmsWorks desktop uses bandwidth and computer resources very responsible. That is most important in offices with many editors.
- Unlike with competitors' products changes to the desktop can be made in plain HTML or JavaScript. That is open and save a lot of money.

Convenient features make work much easier

Editing tables in text

The built-in WYSIWYG editor has supports the direct editing of tables in texts. Several styles can be defined and used.

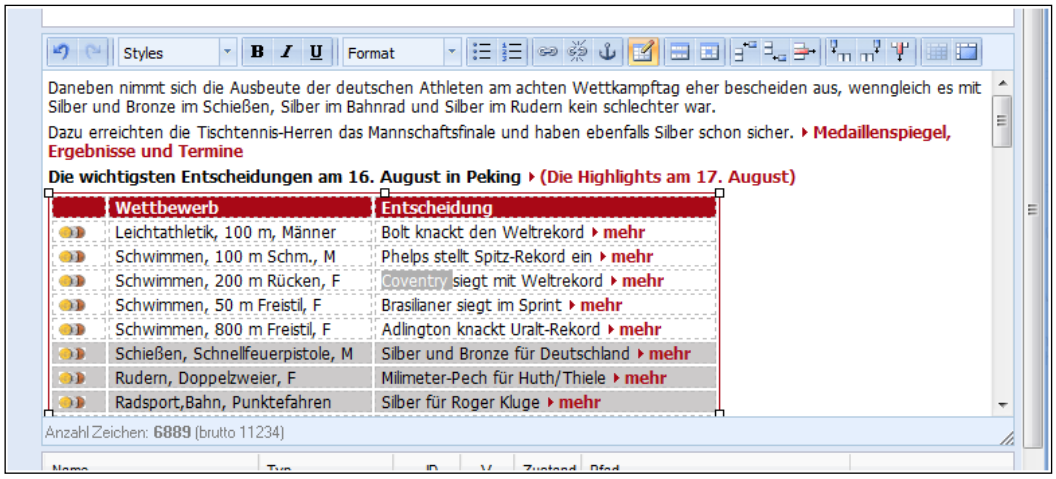


Figure 2 Tables can be inserted and changed in text

Copy and paste from Microsoft Word and Excel

Keep using applications like Word or Excel to prepare text and tables if you like. With a simple Copy and Paste one can transfer content to cmsWorks. Useful formatting will be preserved.

Direct image editing

The internal image viewer provides a preview as well as features of direct editing. You do not necessarily need external programs like Photoshop.

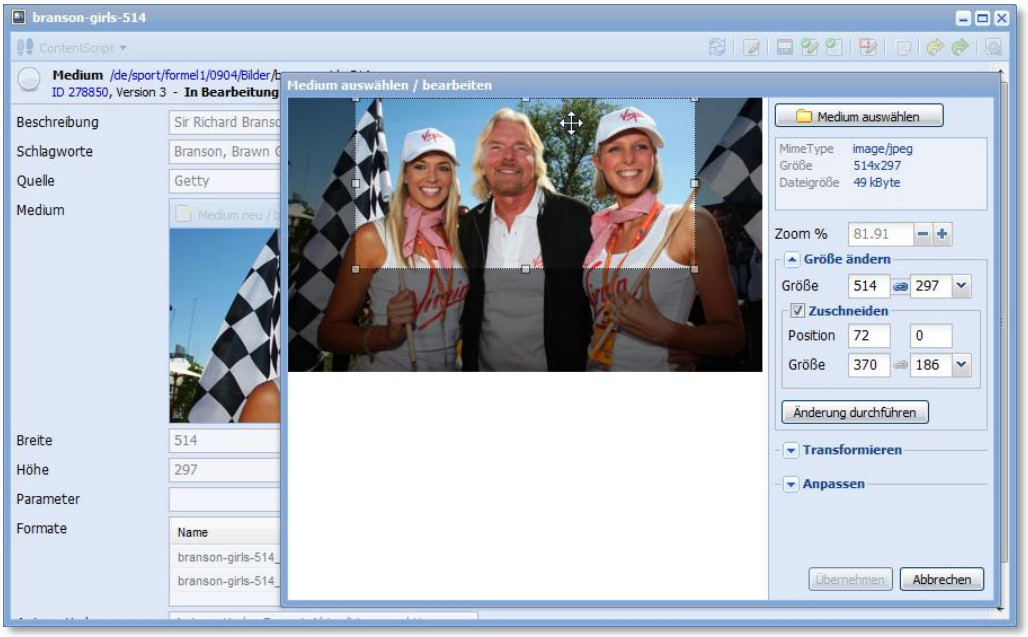


Figure 3 Everyday image editing tasks (resize, crop, turn/mirror and optimize) can be done within the internal image viewer

Quick access because of internal search engine

A powerful search module supports the content creation process. Editor easily find all type of content based on different criteria (keyword, full text, ID, document type, parent element, version, …).

Preview and live publication

All changes to web content can be previewed right away without influencing the “online version” of the site.

Preview testing with several browsers

By clicking on the preview icon another window opens showing a real preview of the current page in the current browser. This page can be views in any other browser (e.g. Apple Safari)

as well allowing extensive testing. One can even send the preview URL and thus give others to preview.

Clear error messages and 1-click-change in preview

Most pages consist of more than one page element. If somebody arranges elements in an incorrect way or does not fill in the required fields cmsWorks will warn the editor or producer with clear error messages. The error messages even provide a clickable link to where the error occurred.

cmsWorks' unique 1-click-technology provides the editor with a way directly select and change content elements even on the most complex pages. direct. With a simple key one can make small icons visible on the page that can be clicked and give access to that specific content element. That saves a lot of time.

cmsWorks makes sure that defective page elements do not "destroy" the rest of the page if published. In most cases those elements are simply suppressed or replaced by something predefined.

Live publication without waiting cycles

cmsWorks was built for editorial teams that must work and publish news under serious time pressure.. New articles have to be online without any delay, sometimes multiple times a minute. That is why all published content in cmsWorks is immediately online. There is no such thing like a next publication cycle.

Example: A sports portal is able to update a page with an national football medal ranking every time there is a goal and add some narratives if necessary. Sometimes several times a minute. The portal is always current.

Security – taken one step further

Web bases interfaces have many benefits carry some risks as well. Instable connections may lead to data loss during authoring. That is particular troublesome if one just typed in a long article. The cmsWorks desktop has some built in counter measures like an update manager, checksums and hand-shakes to reduce the risk.

Permission scheme and workflow

cmsWorks comes with a simple yet powerful permission scheme and workflow with three steps: change, approval, publication (put it online).

Figure 4 Next step after changing is approving and then publishing

Any number of editors can work with cmsWorks at the same time. cmsWorks prevents simultaneous changing of content in order to avoid inconsistencies. If documents were locked unintentionally the system will eventually revoke the lock after some time.

There is a versioning for all content. It is possible to go back to an earlier version if needed. This way cmsWorks is compliant with regulations in most countries. Because of the special way of storing content in the databases access to content will not slow down even with high version numbers.

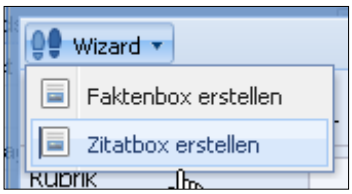
Right the publication of a document cmsWorks check all references to included or linked documents. If some included elements are not yet published themselves, cmsWorks offers a convenient dialog in order to publish these first.

In a similar way cmsWorks makes sure that documents cannot be deleted as long as only a single other document makes use of it. Hereby cmsWorks prevents missing images, missing pages and broken links.

The optional ContentScripting module allows the automation of recurring routine work and definition of complex workflows.

Optional: Plugins and wizards (ContentScript)

With the optional ContentScript module new features and tools can be added to the desktop. Wizard plugins provide interactive dialogs for routine work, e.g. resizing of images, creation and placement of specific content modules.



Optional: Standard web interface.

In certain situations it is feasible to offer just a very simple user interface with a minimal function set. cmsWorks has an alternative web based interface for such cases offering very specific forms for selecting, creating and editing. This simple interface blends in easily with intra- and extra-nets.

Search engine optimized (SEO)

Using cmsWorks Google and other search engines will like increase your search rank. This is done in many small but important ways:

- Long, descriptive URLs for paths and documents
- Consistent use of HTML declarations like H1 and H2
- Dynamic title tag
- Dynamic meta tags
- W3C compliant, code is XHTML 1.0 transitional (includes HTML 4.0)
- TITLE information in href links
- ALT information with all images
- Full referential integrity

Statistics and website optimization

cmsWorks provides some useful ways to collect statistic information. These can be analyzed with powerful tools like Google Analystic or Omniture. To get the most out of this analyses cmsWorks is capable to pass many context parameters to the counting pixels and routines.

cmsWorks supports even the integration of routines for more sophisticated optimization methods like A/B testing and multivariate web analysis.

cmsWorks and web 2.0

The Internet changed in many ways during the last couple of years. The new options for graphics and interaction have been subsumed with the term “web 2.0”. The most important aspects of web 2.0 are:

- “participation features” like comments, voting, blogs, media upload, tagging, social networks
- decentralization and integration, like RSS, widgets, mash-ups
- interactive rich media interfaces made with flash and ajax
- open standards and exchange of data, like SOAP, opened

cmsWorks support many already as part of the basic version, others are available as add-on modules or can easily and seamlessly integrated from third party application providers (e.g. twitter, Google maps).

Expansion Modules

cmsWorks grows just like your business grows. Many modules are ready available, others can be implemented quickly. That gives you the freedom to plan and grow in small steps

Because of the open architecture and complete API documentation of cmsWorks even third party developers can extend the system with custom made modules. Changing the document model is done even more easily with some mouse clicks.

Front-end Modules

Most of the front-end modules add functionality to the website or some output channel.

Poll Module (Trend)

The poll module gives editorial staff a way to ask users questions and find trends. The module can open a popup window or display results as part of the page.

Definition of questions and graphical elements (e.g. images, colors, background) is done on the cmsWorks desktop. Many polls can be prepared in advance, older question stay in an archive.

Security measures avoid cheating. The poll module is technically separated from the rest of the CMS so even brute force attacks cannot impair the CMS overall performance.

Gallery, Photo Show, Video Show

Galleries and media shows are very popular among users and a useful tool for gaining high page view. The cmsWorks gallery module not only blends in the pages it is also fully integrated in the cmsWorks desktop. The module supports all major media formats (e.g. images, films, flash). Slide shows can contain any number of images. Each image can come with a comment, link text and additional information (e.g. source, keyworks). Each gallery can be linked to other, related galleries.

Galleries can used in pop-ups and page element, e.g. in articles. In articles they can be placed within the text. Clicking the images may or many not refresh the whole page (both ways are possible).

Advertising / Presenting Management

Even the standard version of cmsWorks allows simple advertising boxes as part of the header or right column. Content element with free HTML content give even less experienced

a means of integrating simple advertising networks like Google AdSense and alike. The optional advertising module offers many additional features and dynamic page elements. For sites that rely on advertising revenue this module is indispensable. Again the configuration is done in the cmsWorks desktop in a centralized and concise manner. Extensive changes concerning ad-tags as they often occur in real life are simply done by changing one entry and the system propagates the changes through the whole site. Even changing the advertising network is pretty easy. The advertising can maintain several campaigns in parallel controlling places and types of advertising on the whole page.

Additional features:

- Support for all current advertising formats (from banner to LayerAd/Action Layer)
- Support for any kind of special advertising formats (now and the future)
- Support for presenting and microsites
- Support for more multiple advertising networks and campaigns
- Support for campaign tracking

Best of / Top10 Module

This module collects data about the behavior of the users as they browse the content and creates a list of the most viewed articles (or pictures etc.) in real time. The measure-intervals and categories (i.e. soccer, formula 1) are freely configurable. The results of this module can be inserted into the page as visual components or you may use it to optimize the syndication in bandwidth-critical applications like mobile pages.

Search

The search-module finds all kinds of content within the CMS (articles, pictures, videos, PDF-documents etc.). It may be used to search through even integrated and external services, too. The results can be sorted for relevance or least-date, they may be limited to certain content types like “results from one category”, “only articles”, “full text” and mixtures of these.

Search results can be restricted and thus supports archives that are subject to charge.

Back-end Modules

Back-end modules expand the functionality of the system at the “back end”, e.g. by extending the usability of the cmsWorks desktop, import/export or automated data processing.

Content Scripting

ContentScript provides a simple yet very powerful way to extend the system through programming workflows, simplifying routine works or processing changes to the data of the system. A content Script therefore can fulfill all tasks a normal editor can do (though it is faster and more repeatable/reliable). The ContentScript has a built-in rollback mechanism in case an error occurs.

ContentScripts can do batch processing in an effective way. Examples for these batches are: “automatically generate a sub-format for all pictures that have a certain format” or “delete all pictures from a certain picture stock exchange deliverer (which are older than a certain date)”.

A ContentScript may run in background, unrecognized through the editors of the CMS. Or it may be linked into the cmsWorks desktop through icons, dropdowns or pulldown-menues. In case a ContentScript is intended to interact with an editor, dialogs and user interface elements will be generated automatically without the need to program them separately.

Some of the extensions of cmsWorks need the ContentScript module to work properly (i.e. the news-agency importer).

XML Content Generator

This module provides an additional XML generator for the production of alternative output streams, e.g. for mobile devices. The XML structure and content can be changed to the project requirements. The module documentation contains some configuration examples.

News-Agency Tool: Selection and import

The “news-agency-tool” provides a comfortable user-interface for a multi-level selection-and-import-process of textual news, ticker-data, tables and graphical material from news-agencies.

The tool presents agency news in a well-arranged list to the editor. Different colors and icons help to show certain properties of the incoming content, the editor can review this content with one click. Different filters and search opportunities help to quickly find the best news.

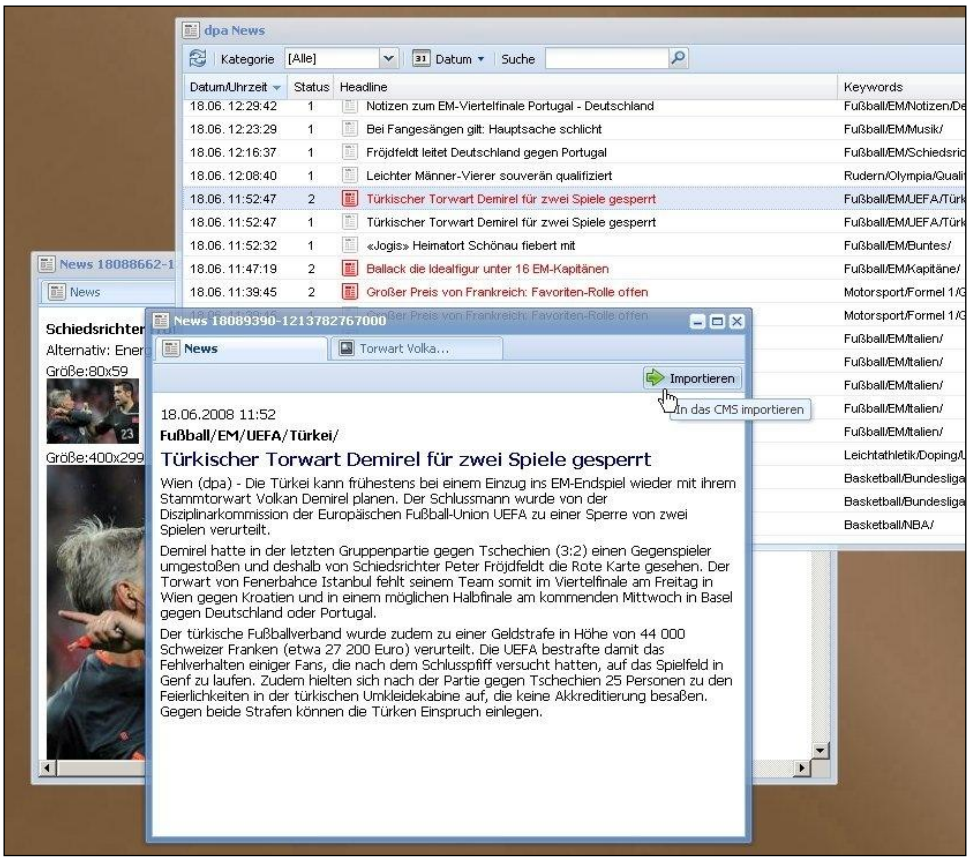


Figure 5 The news agency tool creates articles with just one click

With only one additional click on the “import” button, the selected content is adopted into the content management system. Doing so, the needed articles, teasers and media documents are created; the content is places therein automatically.

Another click publishes the content to the website, the news is placed in the top-news-components of the page, if needed.

This way imported news can be imported, edited and published in a manner of seconds. The editor department gets a real advantage sparing time and doing the job with more ease.

The news-agency-tool can effortless be tailored to accept other data sources as well.

Automated scaling of images

This module creates resized versions of any format from an uploaded image. It creates thumbnails or pictures for teasers without the need to start any external software package like Photoshop simply by selecting the format in the cmsWorks desktop itself. The CMS then is able to choose the right format for the right rendering component, i.e. it will choose a large picture for an article and a small one for a thumbnail linking to the article.

Sitemap / RSS module

This module provides an universal interface for the aggregation and production of lists of contents. You may, for example, generate specialized RSS-Feeds, a seven-days-news view,

aggregated news in general or Google-Sitemaps/Google-Newsmaps to index content for Google.

In a nutshell: It enables free definable views on existing content and delivers these views in a HTML/XML-compatible way.

Content Bridge

The Content Bridge is a technology to bring content from one (web-)site or repository (portal A) automatically into the content structure of another site (portal B).

Contributions and graphical material created by the editor department can be automatically distributed to “daughter companies” or partners this way. In case the receiving portal is a cmsWorks-system, the contents will be inserted in an automated way, at the right place and will be published without manual interaction.

In any case graphical materials will be scaled to the right formats on the way. On both sides, the sender and the receiver, many kinds of filters can be used which allow/disallow the sending/receiving of content parts. Beside the export- and import-workflow the Content Bridge delivers tools to analyze and debug this process.

Example: The editors of SPOX.com create a new article and corresponding pictures that have to be published on the cmsWorks-system of the portal www.BRAVOSport.de (obeying certain circumstances and filtering rules). At BRAVOSport.de they will be imported automatically or suggested to the editors for further processing. The whole process last only a few seconds. News will be viewable on all portals without any time-loss.

Figure 6 Content from SPOX.com is automagically transferred to BRAVOSport.de

The Content Bridge therefore uses XML as transport format and works with the most current content management systems, from Typo3 to CoreMedia.

This module requires the Content Script module.

Techniques and Technology

Over eight years of experience doing content management and content solutions are incorporated into the development of the cmsWorks software suite. The result is a system which is technically and functionally mature and solves nearly all mainstream needs of content management simply out-of-the-box.

Strategic advantage: Java and topasWorks

cmsWorks is programmed in Java and runs as scalable service collection on the application server topasWorks from itechWorks.

For huge and more or less complex portals, Java is a better choice to implement these portals. At first it can follow a more general way in complex systems because it keeps running on the server all the time (not only for one request) and therefore may implement more sophisticated caching mechanisms than scripting languages like PHP or Ruby. Second it is a compiled language, which means that it is faster and will consume less server power, resulting in fewer servers to be obtained and maintained. And third it is, by design, much more save regarding intruding and hacking attempts because it separates delivery (i.e. from a Webserver) and generation (i.e. from the application server). The application server topasWorks additionally allows a fast and flexible development while granting a high scalability and stability of the complete system.

The services that gather to be cmsWorks are programmed in Java, the pages are programmed using standardized Java Server Pages (JSP) and Java Server Faces (JSF) technologies. That way even third-party companies or internal IT departments can develop, extend and maintain sites and portals using cmsWorks. The system interfaces, APIs and frameworks of cmsWorks and topasWorks are documented completely. And even page elements, programmed in other languages than Java can be integrated seamlessly.

Action-matrix:

No	Service-name	State	start/stop	restart	reload with hot-redeploy
1	MyCMS	running	stop	restart	
2	CMSApi	running	stop	restart	
3	ResourceHistoryDB	running	stop	restart	
4	SiteSearchCollector	running	stop	restart	
5	MediumProcessor	running	stop	restart	

Figure 7 cmsWorks Services

JSPs may be updated at any time without disturbing the normal delivery of pages. In case that service-classes, used by these JSPs have to be updated, a specialized “hot-redeploy” - mechanism of the application server enables software updates without restarting the whole server, rather the server is reloading single services that use these classes. This grants uptimes of a cmsWorks-server of some hundred days even in development system which has to undergo heavy and sometimes grave development cycles and changes.

Additionally, memory management is also bound to this philosophy so that memory leaks do not infect the whole server. Restarting the server, as needed with many open source or competition systems is not necessary. cmsWorks on topasWorks practically is “always on”.

Open for all kinds of databases

cmsWorks is written in a service-oriented-manner. This means that it integrates easily in existing IT- and content-infrastructures. Multiple databases (such as MySQL, Oracle, DB2, MSSQL, …) can be integrated simply by configuration. A lean database model relying on standards, optimized for speed and internal caching algorithms relying on the memory of your server deliver high performance, be it while you use the cmsWorks desktop to alter data or a generator to produce the data..

Development, deployment and their infrastructure

The consequent use of industry standards, the service oriented approach (every kind of task runs in a different service) and the documentation grant fast learning and development cycles to your IT department from scratch – if you wish so. There is no need to be dependent from one IT service provider or any agency.

Using the well-documented APIs new products can be created simply using JSPs. Optional you can use the ContentScript-API for cmsWorks-services and the cmsWorks desktop.

The user interface , the cmsWorks desktop, can be altered and programmed by simply using HTML, CSS and Javascript – the technologies your IT department already works with on a daily base.

Taking all this in account there is no need to change your development environment because cmsWorks “plays” all types of IDEs like Eclipse, NetBeans, IntelliJ or a simple text editor like “vi”, if desired.

That said, cmsWorks is no monolith block but a gathering of services which fulfill certain tasks balanced to work together. These services serve their distinct purpose and rely on the underlying application server that provides low-level processing like logging, I/O and database connectivity so that even additional services can concentrate on doing their work without the need to care about these issues.

The “hot-redeploy” – mechanism cares for classes, dependencies and loading/unloading these into the application server. In case a deployment to a cmsWorks-server is inconsistent, incomplete, incorrect or contains compilation errors the server automatically warns the

programmer with deployment error messages. This greatly helps to identify errors and their reasons before new program releases are switched online and have to be identified in a productive system.

Staging, Offline Development and Rapid Deployment

cmsWorks not only supports staging- and test-systems in its development system, but rather encourages to use them. Every development system may, if desired, work as a stand-alone cmsWorks eco-system. To ensure this every cmsWorks system is delivered with an internal database that can be used while development or for testing scenarios.

Deploying a cmsWorks system can be as easy as copying a folder to another computer. The internal database with the complete (internal) database state and the (development-) release and the configuration can be "deployed" this way. In fact, this is the reason why cmsWorks is able to run from an USB-stick. The system itself is up and running after a view seconds, a configuration of a (complex) cmsWorks-system for productive use can be done in about one to two hours..

Administration and configuration

The administration of the complete system and the application server is kept as simple as possible: Human readable property-files were chosen over complex XML-configurations. An alteration in these property-files are immediately recognized by the server.

A web interface ("Maintenance") shows the state of the server and enables runtime-changes such as starting or stopping different services. Additionally, an interactive telnet server grants complete control over the server, revealing things like the hostname, server time or re-routing logs to the file system to complex operations like (re)starting services up to a shutdown of the running instance. It is even possible to write own commands which can use the complete set of the services servers possibilities. Batches are able to bundle often used commands and therefore can automate often used command sequences.

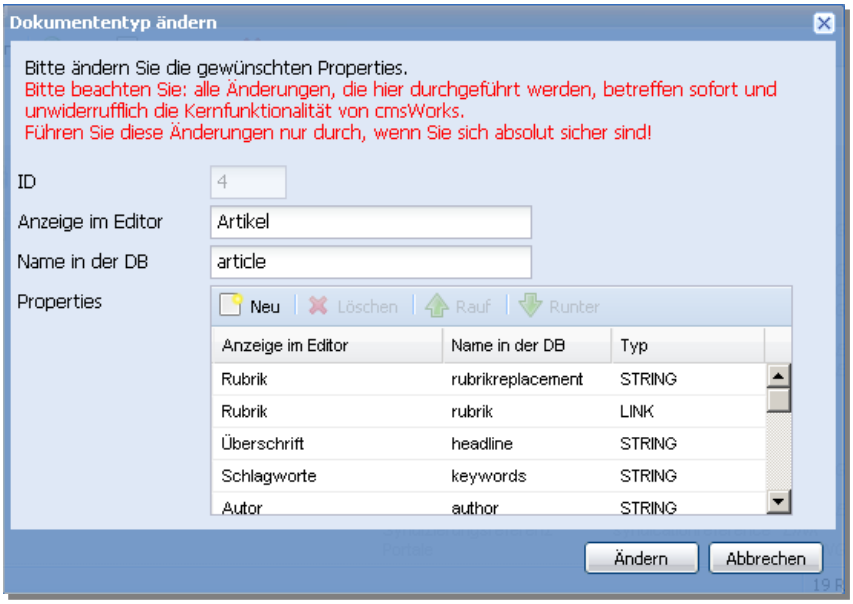


Figure 8 Changes to the document model can easily via the admin tool of the desktop

The cmsWorks maintenance and cmsWorks tasks (like changing the document type model, user administration, administration of groups, roles and privileges, changes to the navigation, advertisement, tracking etc.) can, of course, be configured and changed via the cmsWorks desktop. For this kind of administration no further database or programming knowledge is needed.

Scalability

cmsWorks may – if desired – generate all pages in a dynamic manner. Different mechanisms keep the system fast and stable.

Scaling the backend: Serving many portal users – all at the same time

The cmsWorks kernel delivers connectivity for as many generators as needed. These generators may deliver web sites, but may take over other tasks for dynamic content generation as well. In case the delivery power of the overall system is not sufficient, a new generator may be taken into the generator pool which then supports the other generators delivering content (horizontal caching). cmsWorks will eventually recognize/supply “sticky session” through a load balancer put in front of the system.

The cmsWorks kernel and every generator works with active caching. A once requested content part of a page (a “resource” like an article, a picture etc.) will be cached internally in memory and will therefore discharge the database systems. Regarding the generators this may be used in the following manner: One generator generates only a (category)part of the page, just calls the content and content parts of this part and therefore keeps the cache small-sized and up-to-date (vertical scaling). Other generators may be split in the same way.

Sites having a high loads we recommend to use cacheWorks, additionally, because it canalizes and caches pages and parts of pages of static and dynamic content.

Scaling in the frontend: Large online editorial departments

The interface for the editors and the generation of the pages (through generators) are implemented as different services and therefore on different servers, too, if desired. This enables a horizontal scaling of the cmsWorks desktop for the editors, as described for the generators above (horizontal scaling). This way 100 or even 1000 editors may work on the system concurrently.

A vertical scaling is possible, too. This makes sense in case that more editorial departments will work together on one system. In this case the cache for the cmsWorks desktop will be reduced to a part of the page (sub-site).

High availability and security

cmsWorks already is in use in companies critical environments and supports established security standards.

While in the planning phase of cmsWorks, high availability was a major issue. Hardware defects were taken in account, the pages will, even then, keep reachable in the web. All system parts can be kept in a high available manner.

Even the data management can be kept in central, redundant data bases (homogeneous persistence). This not only improves the performance of delivering pages, it also enables a reliable backup and recovery strategy of configurations and content.

License model

There is no such thing like a crippled cmsWorks – you always get the full power and flexibility. For different needs and budgets of small and large clients there is a licensing package that fits to them.

Even the very affordable cmsWorks basic package can cope with 1000 documents. This is enough for a small theme portal or a multilingual company page. The step-by-step upgrading up to a multi-server-installation is – at every time – possible. At any point in time you and your needs determine which functionality you need.

Licenses

All herein described licenses are single server licenses. Additional licenses will only be needed if the software (or parts of it) will be installed on additional hardware. Please feel free to get in contact for more details and prices.

cmsWorks 4.0 Basic
including topasWorks Runtime (RT)
up to 1000 documents, 1 Generator, no additional modules possible

cmsWorks 4.0 Standard
Including topasWorks RT, including cacheWorks RT, unlimited number of documents, unlimited generators connectable, additional modules can be purchased

cmsWorks 4.0 Enterprise
Including topasWorks full version, including cacheWorks RT, unlimited number of documents, unlimited generators connectable, all additional modules can be purchased

cmsWorks 4.0 Power Site
Including topasWorks full version, including cacheWorks full version, unlimited number of documents, unlimited generators connectable, many modules already included, additional modules can be purchased

cmsWorks 4.0 Generator Server
requires “cmsWorks Standard” or higher

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itechWorks creates excellent software and provides first class service since 1996. Benefit from our experience in planning, building and developing large portals like fussball.de and spox.com. We are used to work with agencies in complementing roles. Often we take full responsibility for project management.

Depending on our customers' needs we work with professional partners from areas like web design, e-commerce, mobile solutions and web communities, for a time now. You will get the best solution from e-business and e-government turnkey ready.

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